Appendix F – Location Standards

F.1	Airports
F.2	Floodplain
F.3	Wetlands/Waters of the United States
F.4	Seismic Impact Zone
F.5	Wild and Scenic Rivers
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F.7	Endangered Species
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APTIM

F.1 – Airports

Illinois

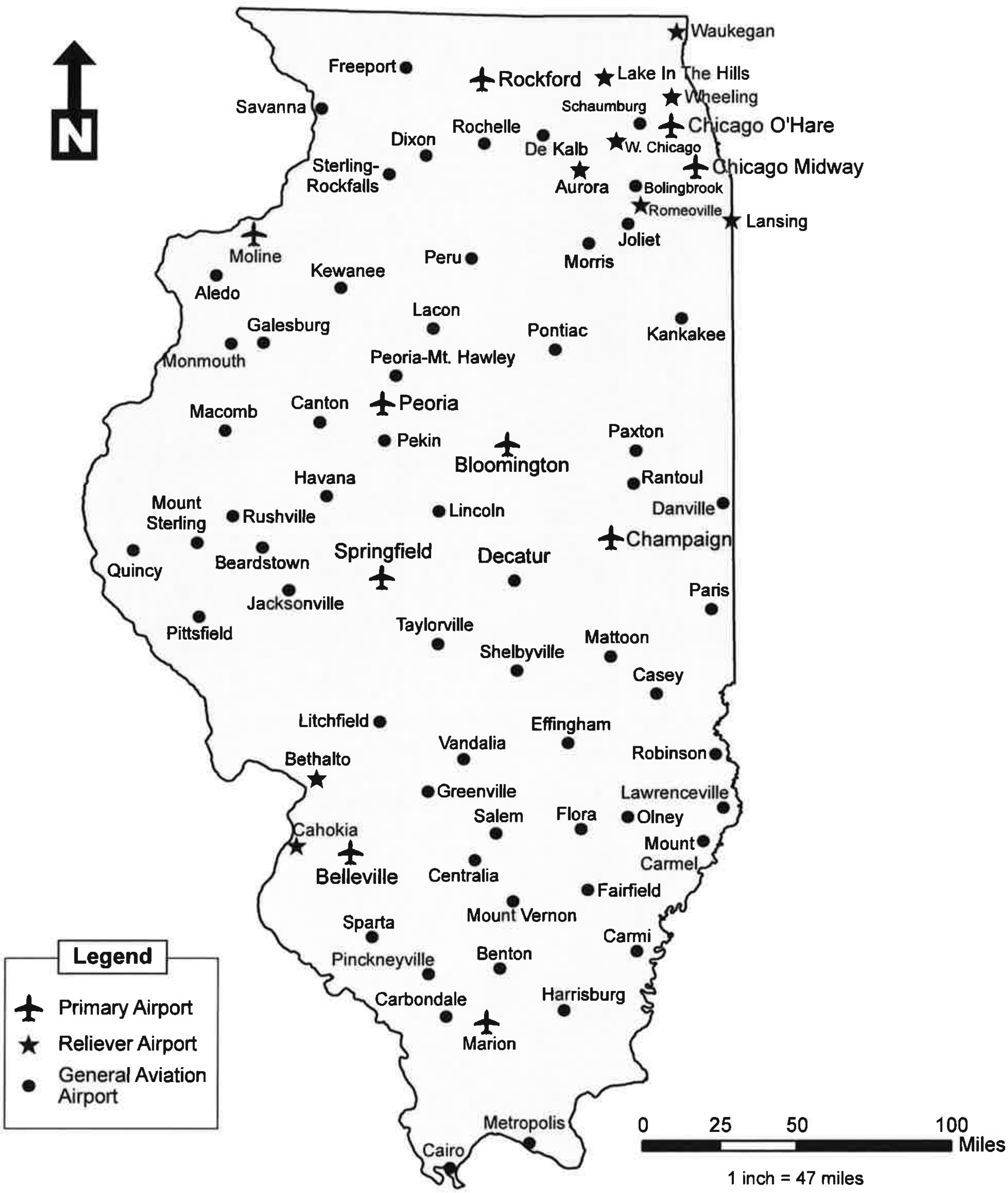
2012

Airport Inventory Report

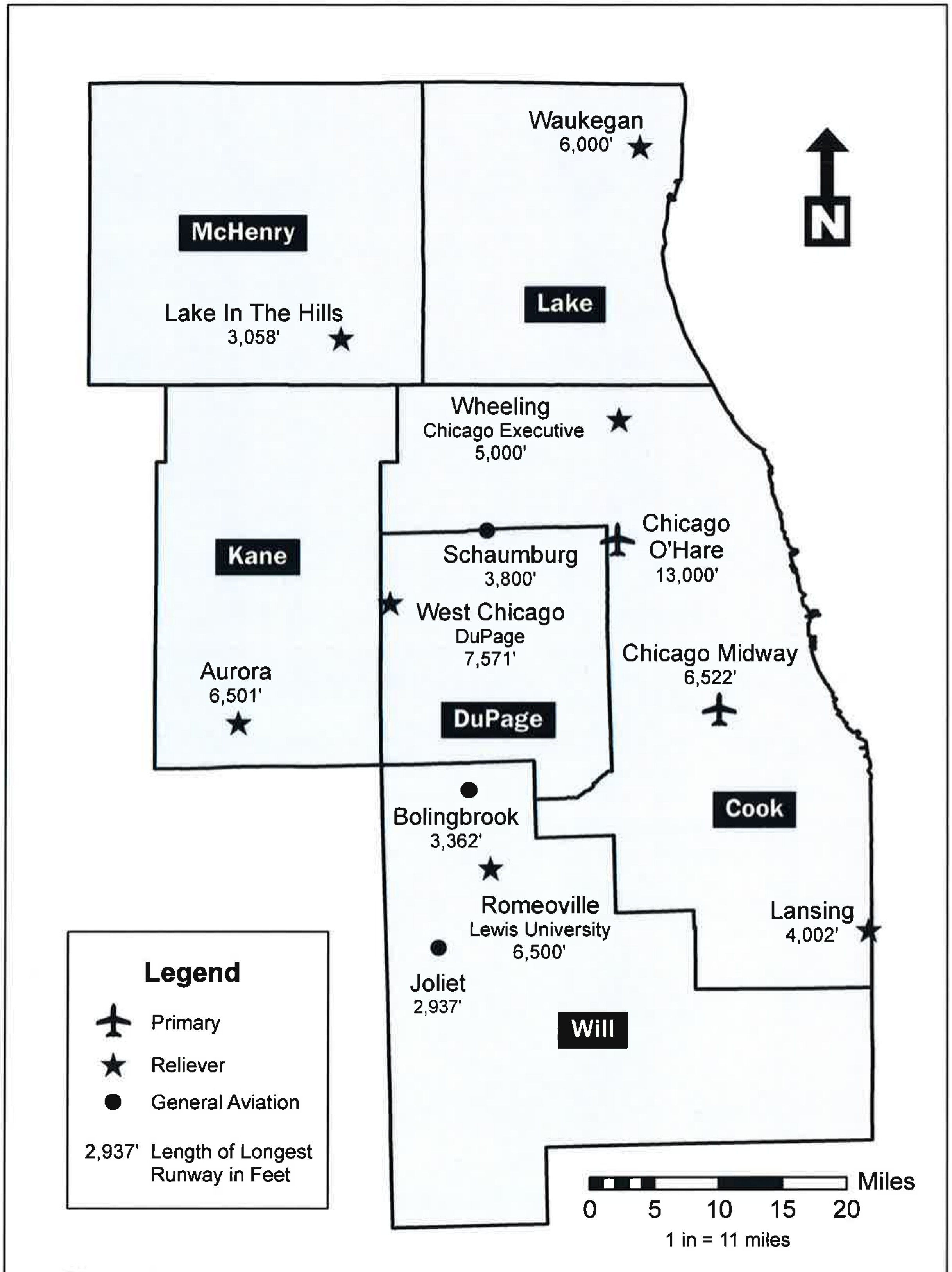
Illinois Department of Transportation

Illinois Airport Location Map

April 2012



Public Use Airports In Northeastern Illinois



May 2012

Lake County Public and Private Airports, Illinois:

Lake County Airports and Facilities. Listings include private and public airports and landing fields, as well as address, airport id, phone number for general operator or owner and contact information. Airports fall into public and private categories. Restricted and Military air fields are listed as private. To find airports in the other counties in this state click here.

Donald Alfred Gade Airport - IL11 Antioch, Illinois Facility Usage: Private	Donald A. Gade 20855 West Hwy 173 Antioch, IL 60022 (847) 395-6482
Midland Airport - 50IL Antioch, Illinois Facility Usage: Private	John Petschelt P.O. Box 411 Antioch, IL 60002 (847) 395-9294
Waukegan Rgnl Airport - UGN Chicago-Waukegan, Illinois Facility Usage: Public	Waukegan Port District P.O. Box 620 Waukegan, IL 60079 (847) 244-3133
Arrow Heliport - IL44 Fox Lake, Illinois Facility Usage: Private	Trinski Son 100 N Route 12 Foxlake, IL 60020 (312) 587-0022
Fox Lake Seaplane Base - IS03 Fox Lake, Illinois Facility Usage: Private	Cornelius Wildhaber 38288 N Lakeside Pl Antioch, IL 60002 (873) 955-114
Precision Chrome Heliport - 64IS Fox Lake, Illinois Facility Usage: Private	Precision Chrome Inc 105 Precision Rd Foxlake, IL 60020 (847) 587-115
Campbell Airport - C81 Grayslake, Illinois Facility Usage: Public	Kane Ill Properties 1925 N Clybourn Ave Suite 201 Chicago, IL 60614 (773) 248-0031
Nordic Heliport - IL90 Gurnee, Illinois Facility Usage: Private	Nordic Properties Ltd 3535 Washington St Gurnee, IL 60031 (847) 336-0900
City Of Highland Park Heliport - 9IL5 Highland Park, Illinois Facility Usage: Private	City Of Highland Park 1707 St Johns Ave Highlandpark, IL 60035
	Lake Forest Hospital 660 N Westmoreland Road

Lake Forest Hospital Heliport - 45IL Lake Forest, Illinois Facility Usage: Private	Lakeforest, IL 60045 (847) 234-5600
Honey Lake Heliport - IS90 Lake Zurick, Illinois Facility Usage: Private	Edward Forman 1230 Honey Lake Lakezurich, IL 60047 (312) 438-6219
Condell Medical Center Heliport - 02IS Libertyville, Illinois Facility Usage: Private	Condell Medical Center 801 S Milwaukee Ave Libertyville, IL 60048 (847) 362-2900
Vista Surgery Center Heliport - 8IS8 Lindenhurst, Illinois Facility Usage: Private	Waukegan Illinois Hospital Co Llc 7100 Commerce Way Suite 100 Brentwood, TN 37027 (615) 465-7000
Lefkowitz Heliport - 46LL Long Grove, Illinois Facility Usage: Private	Ed Lefkowitz 1666 Rfd Longgrove, IL 60047 (847) 419-1111
Air Estates Inc Airport - LL09 Mundelein, Illinois Facility Usage: Private	Air Estates Inc. 2207 Greenview Rd Northbrook, IL 60062 (708) 949-6626
Rotor Swing Heliport - 23LL Palatine, Illinois Facility Usage: Private	Peter Leo Didier 20965 N Hwy 53 Lakezurich, IL 60047 (847) 438-8141
Rockenbach Airport - LL97 Round Lake, Illinois Facility Usage: Private	Terry Rockenbach 355 W Belvidere Rd Roundlakepark, IL 60073
Vista Medical Center West Heliport - 7LL1 Waukegan, Illinois Facility Usage: Private	Waukegan Il Hospital Co Llc 7100 Commerce Way Suite 100 Brentwood, TN 37027 (615) 465-7000
Vista Medical Center-East Heliport - 7LL2 Waukegan, Illinois Facility Usage: Private	Waukegan Illinois Hospital Company 7100 Commerce Way, Suite 100 Brentwood, TN 37027 (615) 465-7000
Herbert C. Maas Airport - IL02 Zion, Illinois Facility Usage: Private	Rita Maas 42008 Delany Zion, IL 60099 (312) 623-2480
	Midwestern Rgnl Medical Center Inc 2520 Elisha Avenue

Midwestern Rgnl Medical Center Heliport - IL85 Zion, Illinois Facility Usage: Private	Zion, IL 60099 (847) 872-6300

Public Records in Lake County - Provides access to a variety of government websites in Lake County. This is a great place to find out about permits, licenses, aviation rules and regulations, taxes, and a lot of other public resources.

Kenosha County Public and Private Airports, Wisconsin:

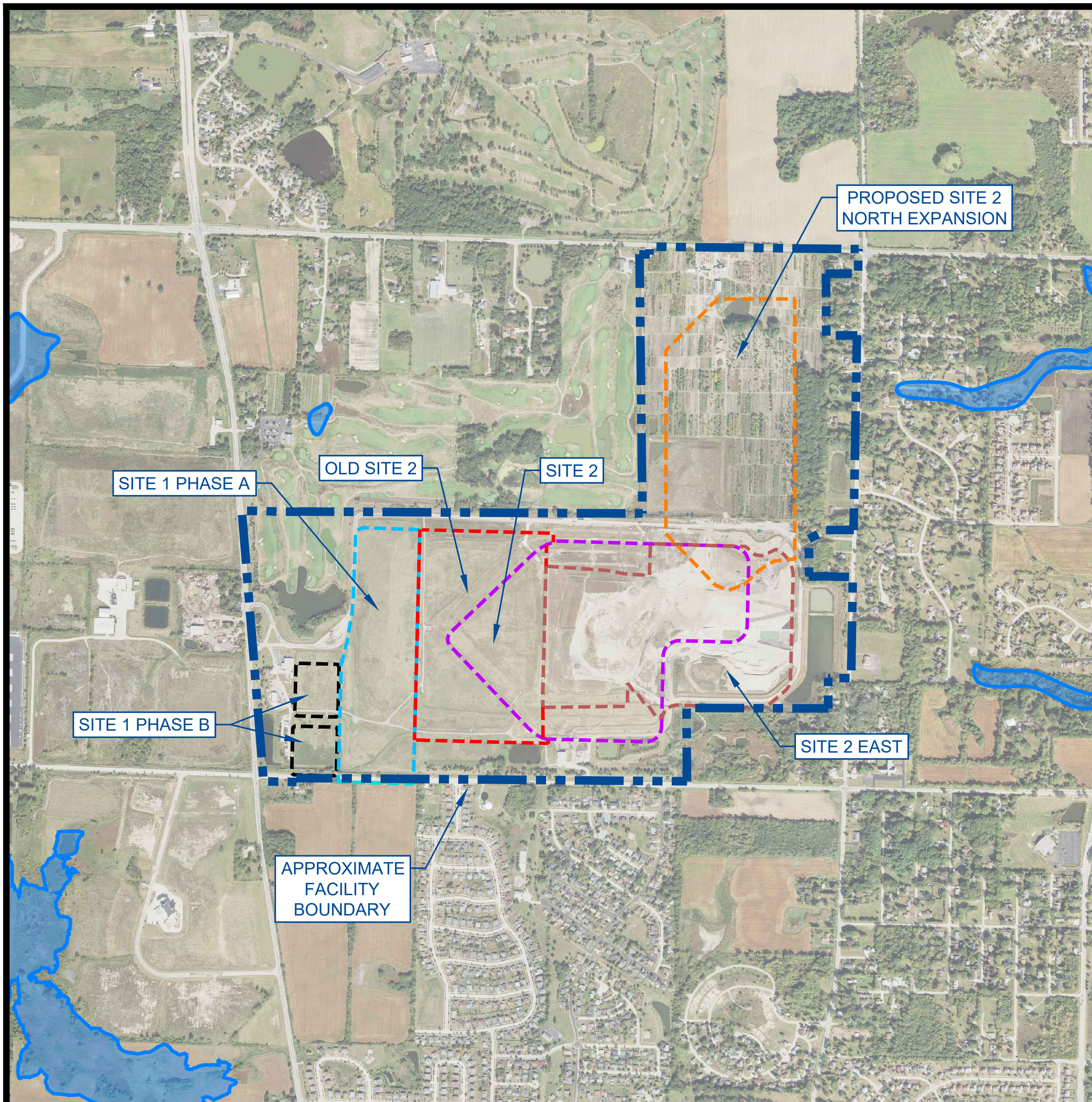
There are over 5000 public and private airports across the country. Below is a complete list of these airfields and landing area in Kenosha County, WI. With each airfield you will get the airport code, address, contact person, and a phone number to aid in your travel planning. Note: Military Airports are listed as a private airport as are some airports that are restricted to the public.

Bristol Airport - WN63 Bristol, Wisconsin Facility Usage: Private	Larry G. Fitzgerald 16223 93rd St Bristol, WI 53104 (262) 857-7500
Dutch Gap Airstrip Airport - 04WI Bristol, Wisconsin Facility Usage: Private	Gary Ziegler 17206 Winfield Rd Bristol, WI 53104 (414) 857-6801
Winfield Airport - WI58 Bristol, Wisconsin Facility Usage: Private	Softwing Flight, Llc 18120 Winfield Road Bristol, WI 53104 (847) 910-7150
Leach Farms Heliport - WN69 Burlington, Wisconsin Facility Usage: Private	Aaron L. Leach 847 312th Ave Burlington, WI 53105 (414) 539-2917
Camp Lake Airport - 49C Camp Lake, Wisconsin Facility Usage: Public	Audrey Edward Simpson 22550 W Washington St Antioch, IL 60002 (847) 395-4549
Vincent Airport - 64C Genoa City, Wisconsin Facility Usage: Public	Mrs Iris J. Vincent P.O. Box 160 Genoacity, WI 53128 (262) 279-6060
Flaglor Airport - WI86 Kansasville, Wisconsin Facility Usage: Private	Kenneth E. Flaglor 450 264th Ave Kansasville, WI 53139 (414) 878-4527
Aurora Medical Center Kenosha Heliport - WI01 Kenosha, Wisconsin Facility Usage: Private	Auror Health Care 10400 75 Th St Kenosha, WI 53142 (414) 942-5801
Kenosha County Heliport - 3WN3 Kenosha, Wisconsin Facility Usage: Private	Kenosha County 19600 75 Th Street, Box 520 Bristol, WI 53104 (262) 857-1895

Kenosha Hospital And Medical Center Heliport - WI82 Kenosha, Wisconsin Facility Usage: Private	Kenosha Hosp Medical Cntr 6308 8th Ave Kenosha, WI 53143 (414) 656-2181
Kenosha Rgnl Airport - ENW Kenosha, Wisconsin Facility Usage: Public	City Of Kenosha 625 52nd St Kenosha, WI 53140 (262) 653-4020
Chilcott Farms Airport - WI95 Paddock Lake, Wisconsin Facility Usage: Private	Bret Leslie Chilcott Airstrip Rd, 17001 60th St Bristol, WI 53104 (414) 857-9373
St Catherines Hospital Heliport - WN97 Pleasant Prairie, Wisconsin Facility Usage: Private	St Catherines 9555 - 76th Street Pleasantprairie, WI 53143 (262) 656-2011
Digger Dougs Airport - 4WN9 Salem, Wisconsin Facility Usage: Private	Doug Gust 27735 41st St Salem, WI 53168 (262) 620-1010
Westosha Emergency Center Heliport - WS57 Silver Lake, Wisconsin Facility Usage: Private	Kenosha Hospital Med Ctr 6308 8th Ave Kenosha, WI 53140 (414) 656-2286
Olsons Airport - 3WI1 Union Grove, Wisconsin Facility Usage: Private	
Westosha Airport - 5K6 Wilmot, Wisconsin Facility Usage: Public	Thelen Sand Gravel, Inc. 28955 West Rte 173 Antioch, IL 60002 (847) 395-3313

Public Records in Kenosha County - Provides access to a variety of government websites in Kenosha County. This is a great place to find out about permits, licenses, aviation rules and regulations, taxes, and a lot of other public resources.

F.2 – Floodplain



NOTES

1. AERIAL IMAGERY OBTAINED FROM USGS NAIP DIGITAL ORTHO PHOTO IMAGE DATABASE.
2. FLOODPLAIN LOCATIONS OBTAINED FROM THE FEMA NATIONAL FLOOD HAZARD LAYER FIRM DATABASE.

LEGEND

APPROXIMATE FACILITY BOUNDARY

100-YEAR FLOODPLAIN BOUNDARY

N

0 1500'

GRAPHIC SCALE

APTIM Environmental & Infrastructure, LLC

APTIM

ZION LANDFILL SITE 2 NORTH EXPANSION SITE LOCATION REPORT

FIGURE F.2 FLOODPLAIN LOCATION MAP

APPROVED BY:	DAM	PROJ. NO.:	631020105	DATE:	MAY 2022

T:\AutoCAD\Projects\AdvancedDisposal\Zion\01-LocalSiting\01-Submittal\Location\Floodplain Location.dwg, 8.5x11 Portrait, 3/30/2022 9:13:41 AM

F.3 – Wetlands/Waters of the United States

WETLAND DELINEATION REPORT
FOR
Zion Landfill Site 2 North
Zion, Lake County, Illinois

Prepared for:

Advanced Disposal
701 Green Bay Road
Zion, IL 60099

Prepared by:

Hampton, Lenzini and Renwick, Inc.

July 2019
Revised December 2019

Hampton, Lenzini and Renwick, Inc.
Civil Engineering • Structural Engineering •
Environmental Services • Land Surveying
www.hlrengineering.com

380 Shepard Drive	3085 Stevenson Drive	6825 Hobson Valley Drive	323 W. Third Street
	Suite 201	Suite 302	PO Box 160
Elgin, Illinois 60123	Springfield, Illinois 62703	Woodridge, Illinois 60517	Mt. Carmel, Illinois 62863
Tel. 847.697.6700	Tel. 217.546.3400	Tel. 847.697.6700	Tel. 618.262.8651
Fax 847.697.6753	Fax 217.546.8116	Fax 847.697.6753	Fax 618.263.3327

WETLAND DELINEATION REPORT

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Tables

Appendices

1. EXECUTIVE SUMMARY

This report summarizes a wetland delineation conducted for the Zion Landfill Site 2 North located southwest of Russell Road and Kenosha Road in Zion Township 46 North, Range 12 East, Section 6. On June 11, 2019, Hampton, Lenzini and Renwick, Inc. (HLR) investigated the project area for potential wetlands and other special management areas (Sites). Seven Sites were identified and investigated for the presence of wetlands and other Waters of the U.S. (WOUS). Our findings are summarized in Table 1.1 below and the approximate boundaries of each site are identified on **Figure 1: Location and Wetland Boundary Map** (see **Appendix A**. Figures).

The Lake County Stormwater Management Commission (SMC) issued a Preliminary Jurisdictional Determination on November 22, 2019. Sites 2, 3, 4 and 7 were determined to be WOUS. Sites 1, 5, and 6 were determined to be Isolated Waters of Lake County (IWLC). The PJD (attached) indicates that the U.S. Army Corps of Engineers (USACE) did not concur with the boundaries of Sites 2, 3, and 4. HLR subsequently met with the SMC at the site on November 26, 2019 and reevaluated the wetland boundaries. Changes in wetland boundaries were staked and surveyed. Information provided in this report reflect the corrected boundaries.

Jurisdictional wetlands require coordination and permitting through the USACE Chicago District, if impacts are proposed. Isolated wetlands and waters of Lake County require coordination and permitting as dictated by the Lake County Watershed Development Ordinance.

TABLE 1.1
SITE SUMMARY

Location	Wetland/ Waters Type	Jurisdictional Status
Site 1	Pond with wetland perimeter	Isolated
Site 2	Pond with wetland perimeter	WOUS
Site 3	Wet meadow and emergent wetland	WOUS
Site 4	Emergent wetland	WOUS
Site 5	Pond with wetland perimeter	Isolated
Site 6	Recently Constructed Stormwater Facility	Isolated
Site 7	Pond with wetland perimeter	WOUS

2. PROJECT DESCRIPTION

Advanced Disposal is proposing to expand the Zion Landfill. HLR investigated the 124.8-acre project area for potential wetlands, waters of the U.S. and other special management areas (Sites) on June 11, 2019 and November 26, 2019. The project area is located southwest of Russell Road and Kenosha Road in Zion, Township 46 North, Range 12 East, Section 6. This report summarizes the findings of the investigation conducted for the proposed project. All Sites within the project area were staked and surveyed by HLR.

3. WETLAND REGULATIONS

The USACE (Federal Register 1982) and the U.S. Environmental Protection Agency (Federal Register 1980) jointly define wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions". Identification of wetlands is based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology, originally set forth by the USACE in the *1987 Wetland Delineation Manual*. As of 2010, a series of regional supplements to the *1987 Wetland Delineation Manual* were released outlining updated technical guidance and procedures for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the

Clean Water Act or Section 10 of the Rivers and Harbors Act. The wetland delineation was conducted using methodology presented in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*. Additional field data was recorded, as needed, to satisfy wetland provisions of the Lake County Watershed Development Ordinance.

During the field investigation, HLR evaluated each potential wetland area for the presence of wetland indicators comprised of hydrophytic vegetation, hydric soils, and wetland hydrology. Information regarding Wetland Delineation Methodology is provided below.

Identification of wetlands within agricultural portions of the project area was accomplished using methodology outlined in the USDA Natural Resources Conservation Service "Wetland Mapping Conventions" document and the USDA National Food Security Act Manual. Consistent with the mapping conventions, aerial photographs from at least five years with normal precipitation were reviewed. The years reviewed were 1990, 1991, 1993, 1997, and 2001. Copies of the reviewed aerial photographs are provided in the attachments. One year of above-normal rainfall (i.e., 2000 a "wet" year) was reviewed to assist with identifying wetland signatures in years with normal precipitation. Under NRCS conventions, a farmed wetland shows wetland signatures in at least three out of five normal years, or in two of five normal years if an area also is mapped as wetland on the NWI map. Wetland signatures include hydrophytic vegetation (observed as a different color than crops on an aerial photograph), surface water, drowned-out crops or crop damage due to wetness, differences in vegetation within a field due to different planting dates, isolated areas that are not farmed with the rest of the field, and patches of greener crop vegetation during years of below normal precipitation. A field investigation was made to verify any farmed wetland areas by documenting the presence of hydric soils.

A jurisdictional wetland is a wetland that is connected or adjacent to a "Waters of the U.S." (WOUS). A WOUS is defined as interstate waters and wetlands as is further defined in the Federal Register 40 CFR 230.3(s). The final determination regarding jurisdictional status must be made by the USACE.

4. WETLAND DELINEATION METHODOLOGY

This wetland delineation was conducted according to the *2010 COE Regional Supplement*. Each potential wetland area was evaluated for the presence of wetland indicators comprised of hydrophytic vegetation, hydric soils, and wetland hydrology.

To evaluate the presence of hydrophytic vegetation, data is gathered using a graduated series of plots, one for each vegetation stratum. Plot shape and size is dictated by vegetation type as well as shape and size of the plant community being evaluated. Table 4.1 presents vegetation strata and standard plot/sample sizes used for sampling purposes as defined by the *2010 COE Regional Supplement*.

TABLE 4.1
VEGETATION STRATA AND PLOT SIZE FOR THE MIDWEST REGION

Stratum	Description	Plot and sample size standards
Trees	Woody plants three inches (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	30-foot (9.1 meter) radius
Sapling/Shrub	Woody plants less than 3 inches DBH and greater than 3.28 feet (1 m) tall.	15-foot (4.6 meter) radius
Herb	Herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 3.28 feet tall.	5-foot (1.5 meter) radius or 3.28 by 3.28 foot square (1 meter square) quadrat
Woody Vines	Woody vines greater than 3.28 feet in height.	30-foot (9.1 meter) radius

As the areas investigated varied in wetland type, the plot sizes for each stratum were adjusted accordingly, to accurately represent the area being assessed.

The indicator status and percent absolute cover for the plant species within plots for all vegetation strata is then recorded. The indicator status for plant species are rated based on estimated probability of occurring in wetlands. This rating system, which was published by the U.S. Fish and Wildlife Service in 1988 (updated April 2016) under the title *National List of Plant Species That Occur in Wetlands: North Central (Region 3)*, consists of obligate wetland plants (OBL), facultative-wet plants (FACW), facultative plants (FAC), facultative upland plants (FACU), and upland plants (UPL). Obligate plant species generally grow in water, facultative plant species can exist in saturated or dry soil conditions, and upland plants typically require dry soil conditions to exist.

The dominance test (Indicator 1), the prevalence index (Indicator 2), and morphological adaptations (Indicator 3) determine the presence or absence of hydrophytic vegetation within plots for all vegetation strata. To pass the dominance test, more than 50 percent of the dominant plant species across all strata must be rated OBL, FACW, or FAC. The "50/20 rule", as outlined by the *2010 COE Regional Supplement*, provides an objective procedure for the selection of dominant plant species within each stratum. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that by itself accounts for at least 20 percent of the total cover.

The prevalence index is a weighted average wetland indicator status of all plants, both dominant and non-dominant species, within a sampling plot. Each indicator status category is given a numeric value (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighted by its abundance (absolute percent cover). A prevalence index of 3.0 or less indicates the presence of hydrophytic vegetation.
Morphological adaptations are often present in plants within wetland areas to help them survive prolonged inundation and saturation in the root zone. Morphological adaptations can be used as an additional hydrophytic vegetation indicator, when observed in more than 50 percent of the individuals of a FACU species living in an area where indicators of hydric soil and wetland hydrology are present.

A description of the soil profile is used to evaluate the presence of hydric soil. Documentation of these primary and secondary indicators is used to determine wetland hydrology during the field investigation. Hydric soil indicators include the following as defined by the *2010 COE Regional Supplement; Hydric Soil Indicators, Chapter 3*.

- A1. Histisol
- A2. Histic Epipedon
- A3. Black Histic
- A4. Hydrogen Sulfide
- A5. Stratified Layers
- A6. Organic Bodies
- A7. 5 cm Mucky Mineral
- A8. 1 cm Muck
- A10. 2 cm Muck
- A11. Depleted Below Dark Surface
- A12. Thick Dark Surface
- S1. Sandy Mucky Mineral
- S3. 5 cm Mucky Peat or Peat
- S4. Sandy Gleyed Matrix
- S5. Sandy Redox
- S6. Stripped Matrix
- S7. Dark Surface
- S8. Polyvalue Below Surface
- S9. Thin Dark Surface
- F1. Loamy Mucky Material
- F2. Loamy Gleyed Matrix
- F3. Depleted Matrix
- F6. Redox Dark Surface
- F7. Depleted Dark Surface
- F8. Redox Depressions
- F12. Iron-Manganese Masses

Wetland hydrology indicators, outlined by the *2010 COE Regional Supplement; Hydric Soil Indicators, Chapter 4*, are separated into four groups and divided into a primary or secondary category based on their estimated reliability in this region. Primary indicators provide standalone evidence of a current or recent hydrological event. Secondary indicators provide evidence of recent inundation or saturation when supported by one or more other primary or secondary indicator, but should not be used alone. Documentation of wetland indicators is used to determine wetland hydrology during the field investigation. Table 4.2 presents the wetland hydrology indicators for this region.

TABLE 4.2
WETLAND HYDROLOGY INDICATORS FOR THE MIDWEST REGION

Indicator	Category	
	Primary	**Secondary**
Group A – Observation of Surface Water or Saturated Soils		
A1 – Surface water	X	
A2 – High water table	X	
A3 – Saturation	X	
Group B – Evidence of Recent Inundation		
B1 – Water marks	X	
B2 – Sediment deposits	X	
B3 – Drift deposits	X	
B4 – Algal mat or crust	X	
B5 – Iron deposits	X	
B7 – Inundation visible on aerial imagery	X	
B8 – Sparsely vegetated concave surface	X	
B9 – Water-stained leaves	X	
B13 – Aquatic fauna	X	
B14 – True aquatic plants	X	
B6 – Surface soil cracks		X
B10 – Drainage patterns		X
Group C – Evidence of Current or Recent Soil Saturation		
C1 – Hydrogen sulfide odor	X	
C3 – Oxidized rhizospheres along living roots	X	
C4 – Presence of reduced iron	X	
C6 – Recent iron reduction in tilled soils	X	
C7 – Thin muck surface	X	
C2 – Dry-season water table		X
C8 – Crayfish burrows		X
C9 – Saturation visible on aerial imagery		X
Group D – Evidence from Other Site Conditions or Data		
D9 – Gauge or well data	X	
D1 – Stunted or stressed plants		X
D2 – Geomorphic position		X
D5 – FAC-neutral test		X

A Floristic Quality Index (FQI) value is generated for each Site based on the methodology outlined in "Plants of the Chicago Region" (Swink and Wilhelm, 1994). This is an index that rates the quality of an area based on the composition of its plant community. A coefficient of conservatism (C value), ranging from 0 to 10 is assigned to native plants as listed in the "Plants of the Chicago Region". Low C values have been assigned to weeds or species that can exist in a wide range of conditions. An area of high natural quality would include conservative native plants that are adapted to a specialized community context and would have a mean C value of 5 or greater. From the mean C value, an FQI for the Site is obtained by multiplying the mean C value of all native plants encountered in a Site by the square root of the number (N) of native species. FQI values of 0 to 5.0 are considered severely degraded, 5.1 to 9.9 as degraded, 10 to 19.9 are considered to have some native character, and those with values greater than 20 are considered to have natural characteristics and considered to be high quality.

5. MAP REVIEW

Prior to performing a field investigation, several maps were reviewed to establish the probability and approximate location of potential wetlands and WOUS within the project area. Copies of the reviewed maps are attached as Figures 2 through 6, in Appendix A. These sources provide an indication if wetlands or other environmentally sensitive areas may occur within a project area. Some of these map sources are based on aerial photographs that have not been ortho-corrected and are only to be used as a guidance tool. A field investigation is required to establish actual wetland boundaries.

- The **United States Geologic Survey (USGS) Topographic Map**, Wadsworth/Zion Quadrangle, included as **Figure 2**, identifies an open water pond in the project area.

- The **United States Department of Agriculture (USDA) Soil Survey Map**, included as **Figure 3**, shows the following soil mapping units within the project area:
  - Pella silty clay loam, 0 to 2 percent slopes (153A)
  - Ashkum silty clay loam, 0 to 2 percent slopes (232A)
  - Beecher silt loam, 0 to 2% percent slopes (298A)
  - Beecher silt loam, 2 to 4 percent slopes (298B)
  - Peotone silty clay loam, 0 to 2 percent slopes (330A)
  - Ozaukee silt loam, 2 to 4 percent slopes (530B)
  - Ozaukee silt loam, 2 to 4 percent slopes, eroded (530B2)
  - Ozaukee silt loam, 4 to 6 percent slopes, eroded (530C2)
  - Markham silt loam, 2 to 4 percent slopes (531B)
  - Harpster silty clay loam, 0 to 2 percent slopes (67A)
  - Wauconda silt loam, 0 to 2 percent slopes (697A)
  - Grays silt loam, 0 to 2 percent slopes (698A)
  - Grays silt loam, 2 to 4 percent slopes (698B)
  - Grays and Markham silt loams, 2 to 4 percent slopes (979B)
  - Mundelein and Elliott Markham silt loams, 2 to 4 percent slopes (989B)

  Of these above listed soil mapping units, Pella, Ashkum, Peotone and Harpster are considered hydric soils.

- The **National Wetlands Inventory (NWI) Map**, included as **Figure 4**, indicates a Palustrine Intermittently Exposed Excavated (PUBGx) wetland within the project area.

- The **Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map**, included as **Figure 5**, indicates that no floodways or floodplains are located within the project area.

- The **Lake County Advanced Identified (ADID) Map**, included as **Figure 6**, indicates two wetlands are present within the project area.

6. FINDINGS

The majority of the approximate 124.8-acre subject property is currently used as a tree and shrub nursery. The southwest corner of the site is currently used by the Zion Landfill and contains a permitted soil stockpile and associated detention basin. Nursery facilities include a house, office building, and storage buildings in the northern portion of the site. A cell tower is located within the northwest corner of the site. The east side of the subject property contains residential properties with driveways along Kenosha Road. Surrounding properties include landfill to the south, golf course to the west and golf course/farm field to the north. A wooded area is within the southeastern portion of subject property between the nursery and the residential homes.

Seven Sites were identified within the project area. Table 6.1 below summarizes each Site and detailed descriptions of each Site are provided following the table. Data sheets summarizing the field investigation and representative photographs are attached.

TABLE 6.1
SUMMARY OF INVESTIGATED SITES

Location	Size (acres)	Designation	Dominant Vegetation	Floristic Values	Required Buffer (feet)	Regulatory Authority*
Site 1	0.96	Wetland/Pond	Reed canary grass, Eleocharis, & horsetail	FQI –6.52 Mean C value – 1.12	30	Lake County
Site 2	0.58	Wetland/Pond	Sandbar willow & narrow cattail	FQI – 11.83 Mean C value – 1.97	30	USACE
Site 3	0.48	Wetland	Silver maple, squirrel tail & Cinnamon willow herb	FQI – 10.96 Mean C value – 2.77	30	USACE
Site 4	0.08	Wetland	Sandbar willow, Eleocharis, Squirrel tail, & Riverbank grape	FQI – 6.67 Mean C value – 1.39	None	USACE
Site 5	0.45	Wetland/Pond	Sandbar willow, common water plantain, & red root	FQI – 5.54 Mean C value – 1.18	30	Lake County
Site 6	0.81	Detention Basin	Not Applicable	Not Applicable	None	Lake County
Site 7	0.04	Wetland	Giant ragweed & Ladies thumb	FQI – 3.80 Mean C value – 0.85	None	USACE

*Based on a preliminary jurisdictional determination issued by LCSMC on November 22, 2019.

Site 1

Site 1, approximately 0.96 acres in size, consists of a narrow wetland surrounding a manmade detention pond. Site 1 is located within the northern half of the project area (see **Figure 1**). Water from Site 1 is used for irrigation within the nursery; a pump was observed at Site 1 as shown in Photograph 3. Based on sample point documentation, dominant vegetation at Site 1 includes:

- Tree stratum – none
- Sapling/shrub stratum – none
  Herb stratum – Spike rush (*Eleocharis palustris*) and Horsetail (*Equisetum arvense*)
- Woody vine stratum – none

Another prevalent species observed within the wetland was reed canary grass (*Phalaris arundinacea*). The dominance test was greater than 50 percent and the prevalence index was less than or equal to 3.0; therefore, hydrophytic vegetation criteria were met.

The soil is mapped as Ozaukee silt loam, 4 to 6 percent slopes, eroded (530C2), which is not considered a hydric soil. This soil type was not confirmed in the field. USDA hydric soil indicator Redox Dark Surface (F6) and Depleted Dark Surface (F7) were present.

Site 1 receives hydrology from surface runoff from the surrounding upland areas and possibly groundwater. Wetland hydrology indicators of Saturation (A3), Algal Mat or Crust (B4), Inundation Visible on Aerial Imagery (B7), Geomorphic Position (D2), and FAC-Neutral Test (D5) were present. It appears that this wetland and associated open water pond are isolated. The USACE must make a final determination regarding jurisdictional status.

Vegetated portions of Site 1 meet wetland criteria. USACE Data Forms documenting our findings are provided in **Appendix C** and representative photographs are in **Appendix B**. A Floristic Quality Assessment was performed for Site 1 and is attached (**Appendix D**). The results of the assessment indicate that Site 1 has a Floristic Quality Index (FQI) of 6.52, indicating a degraded plant community.

The functions provided by Site 1 include wildlife habitat and foraging, floristic diversity, nutrient retention and removal, and aquatic habitat. Wildlife observed in the wetland included a barn swallow.

Based on the definition of a high-quality aquatic resource (HQAR) as noted in the Chicago Regional Permit Program, Site 1 would not be considered a HQAR. Based on our findings, Wetland 1 is not considered a high-quality aquatic resource as defined in the Lake County Watershed Development Ordinance.

According to Lake County stormwater regulations, a 30 foot buffer is required around Site 1. The existing buffer consists of a mix of wetland and upland vegetation and a dirt road is present. The dirt road is used for work trucks to navigate within the nursery.

SITE 2 AND SITE 3

Sites 2 and 3 are connected by a wetland swale that extends across a dirt/grass nursery road. Site 2 generally consists of open water surrounded by emergent vegetation and appears to have been present for a longer period of time than Site 3. Site 3 does not typically contain ponded water and is primarily vegetated by wet meadow vegetation. Due to these differences, Sites 2 and 3 are addressed separately below.

Site 2

Site 2 consists of an approximate 0.58 acre wetland within the northeastern portion of the project area (see **Figure 1**). Based on sample point documentation, dominant vegetation at Site 2 includes:

- Tree stratum – none
- Sapling/shrub stratum – Sandbar willow (*Salix interior*)
- Herb stratum – Narrow-leaved cattail (*Typha angustifolia*)
- Woody vine stratum – none

The dominance test was greater than 50 percent and the prevalence index was less than or equal to 3.0; therefore, hydrophytic vegetation criteria were met.

The soil is mapped as Ashkum silty clay loam which is not considered a hydric soil. This soil type was not confirmed in the field. USDA hydric soil indicator Redox Dark Surface (F6) was present.

Site 2 receives surface runoff from surrounding upland areas and possibly ground water. Wetland hydrology indicators of High Water Table (A2), Saturation (A3), Aquatic Fauna (B13), True Aquatic Plants (B14), Oxidized Rhizospheres on Living Roots (C3), and FAC-Neutral Test (D5) were present. It appears that this wetland is isolated. The USACE must make a final determination regarding jurisdictional status.

All three wetland criteria were present; therefore, Site 2 is considered a wetland. USACE Data Forms documenting our findings are provided in **Appendix C** and representative photographs are in **Appendix B**. A Floristic Quality Assessment was performed for Site 2 and is attached (**Appendix D**). The results of the assessment indicate that Site 2 has a Floristic Quality Index (FQI) of 11.83, indicating that the wetland has some native character.

The functions provided by Site 2 include wildlife habitat and foraging, sediment trapping, floristic diversity, nutrient retention and removal, aquatic habitat, and possibly groundwater discharge/recharge. Wildlife observed in the wetland included red-winged blackbirds, frogs, and deer.

Based on the definition of a HQAR as noted in the Chicago Regional Permit Program, Site 2 would not be considered a HQAR. Based on our findings, Wetland 2 is not considered a high-quality aquatic resource as defined in the Lake County Watershed Development Ordinance.

According to Lake County stormwater regulations, a 30 foot buffer is required around Site 2. The existing buffer consists of wetland vegetation, upland vegetation and some planted trees and shrubs for the nursery.

Site 3

Site 3 consists of an approximate 0.48 acre wetland within the northeastern portion of the project area (see **Figure 1**). Based on sample point documentation, dominant vegetation at Site 3 includes:

- Tree stratum – Silver maple (*Acer saccharinum*)
- Sapling/shrub stratum – none
- Herb stratum – Squirrel tail (*Hordeum jubatum*) and Cinnamon willow herb (*Epilobium coloratum*)
- Woody vine stratum – none

Another prevalent species observed within the wetland was broad-leaved cattail. The dominance test was greater than 50 percent and the prevalence index was less than or equal to 3.0; therefore, hydrophytic vegetation criteria were met.

The soil is mapped as Ashkum silty clay loam which is not considered a hydric soil. This soil type was not confirmed in the field. USDA hydric soil indicator Redox Dark Surface (F6) was present.

Site 3 receives surface runoff from surrounding upland areas. Wetland hydrology indicators of Saturation (A3) and FAC-Neutral Test (D5) were present. It appears that this wetland is isolated. The USACE must make a final determination regarding jurisdictional status.

All three wetland criteria were present; therefore, Site 3 is considered a wetland. USACE Data Forms documenting our findings are provided in **Appendix C** and representative photographs are in **Appendix B**. A Floristic Quality Assessment was performed for Site 3 and is attached (**Appendix D**). The results of the assessment indicate that Site 3 has a Floristic Quality Index (FQI) of 10.96 that the wetland has some native character.

The functions provided by Site 3 include wildlife habitat and foraging, sediment trapping, floristic diversity, nutrient retention and removal, and possibly groundwater recharge. Wildlife observed in the wetland included redwing black birds and dragonflies.

Based on the definition of a HQAR as noted in the Chicago Regional Permit Program, Site 3 would not be considered a HQAR. Based on our findings, Wetland 3 is not considered a high-quality aquatic resource as defined in the Lake County Watershed Development Ordinance.

According to Lake County stormwater regulations, a 30 foot buffer is required around Site 3. The existing buffer consists of planted trees and shrubs as part of the nursery and Russell road to the north.

Site 4

Site 4 consists of an approximate 0.08 acre wetland within the northeastern portion of the project area (see **Figure 1**). Based on sample point documentation, dominant vegetation at Site 4 includes:

- Tree stratum – Sandbar willow
- Sapling/shrub stratum – Sandbar willow
- Herb stratum – Spikerush (*Eleocharis palustris*) and Reed canary grass
- Woody vine stratum – Riverbank grape (*Vitis riparia*)

Other prevalent species observed within the wetland included red top (*Agrostis gigantea*) and squirrel tail (*Hordeum jubatum*). The dominance test was greater than 50 percent and the prevalence index was less than or equal to 3.0; therefore, hydrophytic vegetation criteria were met.

The soil is mapped as Ashkum silty clay loam, which is not considered a hydric soil. This soil type was not confirmed in the field. USDA hydric soil indicators Dark Surface (S7) were present.

Site 4 receives surface runoff from North Kenosha Road and an adjacent residential property. Wetland hydrology indicators of High Water-Table (A2), Saturation (A3), Geomorphic Position (D2), and FAC-Neutral Test (D5) were present. It appears that this wetland is isolated. The USACE must make a final determination regarding jurisdictional status.

All three wetland criteria were present; therefore, Site 4 is considered a wetland. USACE Data Forms documenting our findings are provided in **Appendix C** and representative photographs are in **Appendix B**. A Floristic Quality Assessment was performed for Site 4 and is attached (**Appendix D**). The results of the assessment indicate that Site 4 has a Floristic Quality Index (FQI) of 6.67, indicating a degraded plant community.

The functions provided by Site 4 include wildlife habitat and foraging, sediment trapping, floristic diversity, nutrient retention and removal, and potentially groundwater recharge. Wildlife observed in the wetland included a robin.

Based on the definition of a HQAR as noted in the Chicago Regional Permit Program, Site 4 would not be considered a HQAR. Based on our findings, Wetland 4 is not considered a high-quality aquatic resource as defined in the Lake County Watershed Development Ordinance.

According to Lake County stormwater regulations, buffer is not required around Site 4 because it is less than one-third acre in size. The existing buffer consists of mowed turf grass and road right-of-way.

Site 5

Site 5, approximately 0.45 acres in size, consists of a narrow wetland surrounding a manmade pond. Site 5 is located within the southwestern portion of the project area (see **Figure 1**). A water control structure was observed on the north side of the pond indicating that the pond may be used to irrigate the nursery. Based on sample point documentation, dominant vegetation at Site 5 includes:

- Tree stratum – none
- Sapling/shrub stratum – Sandbar willow
- Herb stratum – Spikerush (*Eleocharis palustris*) and Common water plantain (*Alisma subcordatum)*
- Woody vine stratum – none

The dominance test was greater than 50 percent and the prevalence index was less than or equal to 3.0; therefore, hydrophytic vegetation criteria were met.

The soil is mapped as Harpster silty clay loam which is not considered a hydric soil. This soil type was not confirmed in the field. USDA hydric soil indicator Depleted below Dark Surface (A11) and Depleted Matrix (F3) were present.

Site 5 receives surface runoff from adjacent upland areas and the permitted detention basin to the south. Wetland hydrology indicators Saturation (A3), Inundation Visible on Aerial Imagery (B7), Aquatic Fauna (B13), and FAC-Neutral Test (D5) were present. It appears that this wetland is isolated. The USACE must make a final determination regarding jurisdictional status.

All three wetland criteria were present within the vegetated portion of Site 5. USACE Data Forms documenting our findings are provided in **Appendix C** and representative photographs are in **Appendix B**. A Floristic Quality Assessment was performed for Site 5 and is attached (**Appendix D**). The results of the assessment indicate that Site 5 has a Floristic Quality Index (FQI) of 5.54, indicating a degraded plant community.

The functions provided by Site 5 include wildlife habitat and foraging, sediment trapping, nutrient retention and removal, aquatic habitat, and possibly groundwater discharge/ recharge. Wildlife observed in the wetland included a great blue heron and red-winged black bird.

Based on the definition of a HQAR as noted in the Chicago Regional Permit Program, Site 5 would not be considered a HQAR. Based on our findings, Wetland 5 is not considered a high-quality aquatic resource as defined in the Lake County Watershed Development Ordinance.

According to the USACE OR Lake County stormwater regulations, a 30 foot buffer is required around Site 5. The existing buffer consists of earthen berms with upland vegetation and trees/shrubs planted for the nursery.

Site 6

Site 6 consists of an approximate 0.81-acre, stormwater detention basin located in the southwestern portion of the project area (see **Figure 1)**. Some wetland vegetation including common reed (*Phragmites australis*), sandbar willow, eleocharis species, cattail, common water plantain and eastern cottonwood (*Populus deltoides*) saplings were observed along the shoreline. This detention basin was constructed in 2014 under Lake County Site Development Permit 206239. The basin manages stormwater that falls on a clean soil stockpile that is maintained by the landfill. According to current regulations, Site 6 requires no buffer as stated under the Isolated Waters of Lake County definition in Appendix A of the Lake County Watershed Development Ordinance.

Site 7

Site 7 consists of an approximate 0.04 acre wetland within depressional area located within the southeastern portion of the project area (see **Figure 1**). Based on sample point documentation, dominant vegetation at Site 7 includes:

- Tree stratum – none
- Sapling/shrub stratum – none
- Herb stratum – Giant ragweed (*Ambrosia trifida*) and Ladies thumb (*Persicaria maculosa*)
- Woody vine stratum – none

The dominance test was greater than 50 percent and the prevalence index was less than or equal to 3.0; therefore, hydrophytic vegetation criteria were met.

The soil is mapped as Ozaukee silt loam which is not considered a hydric soil. This soil type was not confirmed in the field. USDA hydric soil indicator Redox Dark Surface (F6) was present.

Site 7 receives surface runoff from adjacent upland areas. Wetland hydrology indicators of Sediment Deposits (B2), Sparsely Vegetated Concave Surface (B8), Water Stained Leaves (B9), and FAC-Neutral Test (D5) were present. It appears that this wetland is isolated. The USACE must make a final determination regarding jurisdictional status.

All three wetland criteria were present; therefore, Site 7 is considered a wetland. USACE Data Forms documenting our findings are provided in **Appendix C** and representative photographs are in **Appendix B**. A Floristic Quality Assessment was performed for Site 7 and is attached (**Appendix D**). The results of the assessment indicate that Site 7 has a Floristic Quality Index (FQI) of 3.80, indicating a severely degraded plant community.

The functions provided by Site 7 include stormwater storage, sediment trapping, and potentially groundwater recharge. No wildlife were observed in the wetland.

Based on the definition of a HQAR as noted in the Chicago Regional Permit Program, Site 7 would not be considered a HQAR. Based on our findings, Wetland 7 is not considered a high-quality aquatic resource as defined in the Lake County Watershed Development Ordinance.

According to Lake County stormwater regulations, buffer is not required around Site 7 because it is less than one-third acre in size. The existing buffer consists of upland, old field vegetation and road right-of-way.

Farmed Wetland Review

A farmed wetland determination was performed using protocol established by the U.S. Department of Agriculture. Aerial photographs from five years with normal precipitation (1990, 1991, 1993, 1997, and 2001) were reviewed. One aerial photograph from a wet year (2000) also was reviewed. The pond at Site 1 has been present since 1990. No other wetland signatures were observed. Copies of the reviewed aerial photographs are provided in **Appendix F**.

7. REGULATORY INFORMATION

The USACE regulates all Waters of the U.S (WOUS) and jurisdictional wetlands under the Clean Water Act. A jurisdictional wetland is a wetland that is connected or adjacent to a WOUS. A WOUS is defined as interstate waters and wetlands are further defined in the Federal Register 40 CFR 230.3(s). A final determination regarding jurisdictional status must be made by the USACE. For impacts to jurisdictional wetlands, a Section 404 permit would be required by the USACE. If this is the case, notification of the project should be sent to the following agencies, as they are part of the permitting process:

- U.S. Fish and Wildlife Service
- Illinois Environmental Protection Agency
- Illinois Department of Natural Resources
- Illinois Department of Natural Resources/Office of Water Resources
- Illinois Historic Preservation Office

A copy of this report and all attachments should accompany the Joint Application form submitted to the USACE. The application package should also include a set of plans. Copies of the plans should only accompany the submittal to the USACE. All other reviewing agencies will receive only the cover letter and the application form. An Archaeological survey may be required before a Section 404 permit will be issued for wetland impacts. Coordination with the Illinois Historic Preservation Office (IHPO) will be initiated with the permitting process.

As a condition of permit issuance, the Corps requires appropriate soil erosion and sediment control measures to be implemented and maintained until the project area is re-vegetated and stabilized. The USACE may require review and approval of the soil erosion and sediment control plan, by the Lake County Stormwater Management Commission (SMC) to receive a permit.

Isolated wetlands in Lake County are regulated by the Lake County Watershed Development Ordinance. The final determination of jurisdictional status is typically made by USACE; however, in Lake County the Stormwater Management Commission can make a preliminary jurisdictional determination. None of the wetlands within the project area are considered a high-quality aquatic resource (HAQR). It appears that all the wetlands within the project area are isolated. Buffer areas are required for all areas defined as "waters of the U.S." including isolated wetlands, lakes and ponds. A watershed development permit will likely be required for this project.

If this project will disturb over one acre, it will require a National Pollutant Discharge Elimination System (NPDES) permit from the Illinois Environmental Protection Agency.

An EcoCAT request has been submitted to the Illinois Department of Natural Resources (IDNR) to initiate review of any potential threatened and endangered species. The EcoCAT inquiry results (see **Appendix E**) indicate no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project area.

A USFWS Section 7 memorandum regarding federally listed species has been prepared by HLR (see **Appendix E**). This documentation indicates that no federally threatened or endangered species or their habitat are likely to occur within the project area.

LIMITATIONS AND EXCEPTIONS

The wetland delineation detailed in this report was performed in accordance with accepted methods and practices of the 2010 "*COE Midwest Region Manual*". The scope and depth of this study is consistent with HLR representations and have been agreed to by Advanced Disposal. This report has been prepared solely for the benefit of Advanced Disposal by HLR. No other entity other than Advanced Disposal may use the information contained in this document without written permission from HLR and Advanced Disposal.

This report must be read and interpreted as a whole. Specific individual sections of this report are dependent upon the balance of this report and must be interpreted as such. This report is time-sensitive in the fact that the field delineations are only acceptable for a maximum of three years in Lake County.

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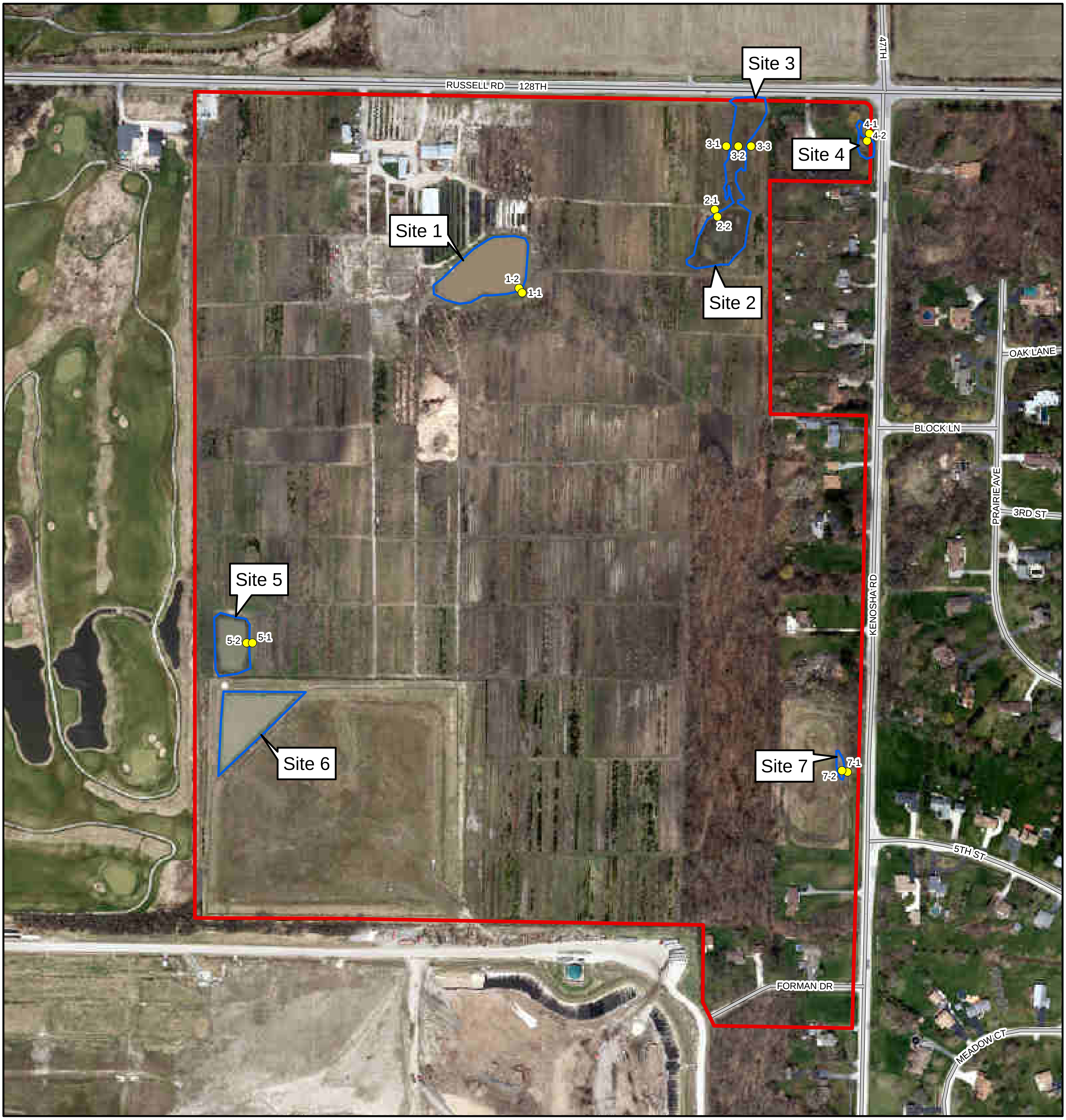
U.S. Geological Survey, 7.5 Minute Topographic Quadrangle, Wadsworth and Zion, IL 2018.

Appendix A

Figures



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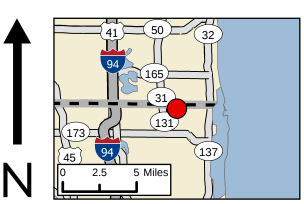

Lake Co GIS Division, Kenosha County Land Information Department, USGS, US Census, IDOT

Imagery: 2017 Lake County Imagery

Project Description

- Project Area
- Site Boundary
- Data Points

Road Type

- Interstates
- US and State Highways
- Minor Roads

Figure 1

Zion Landfill
Site 2 North

Project Location and Site Map
Scale: 1:5,000

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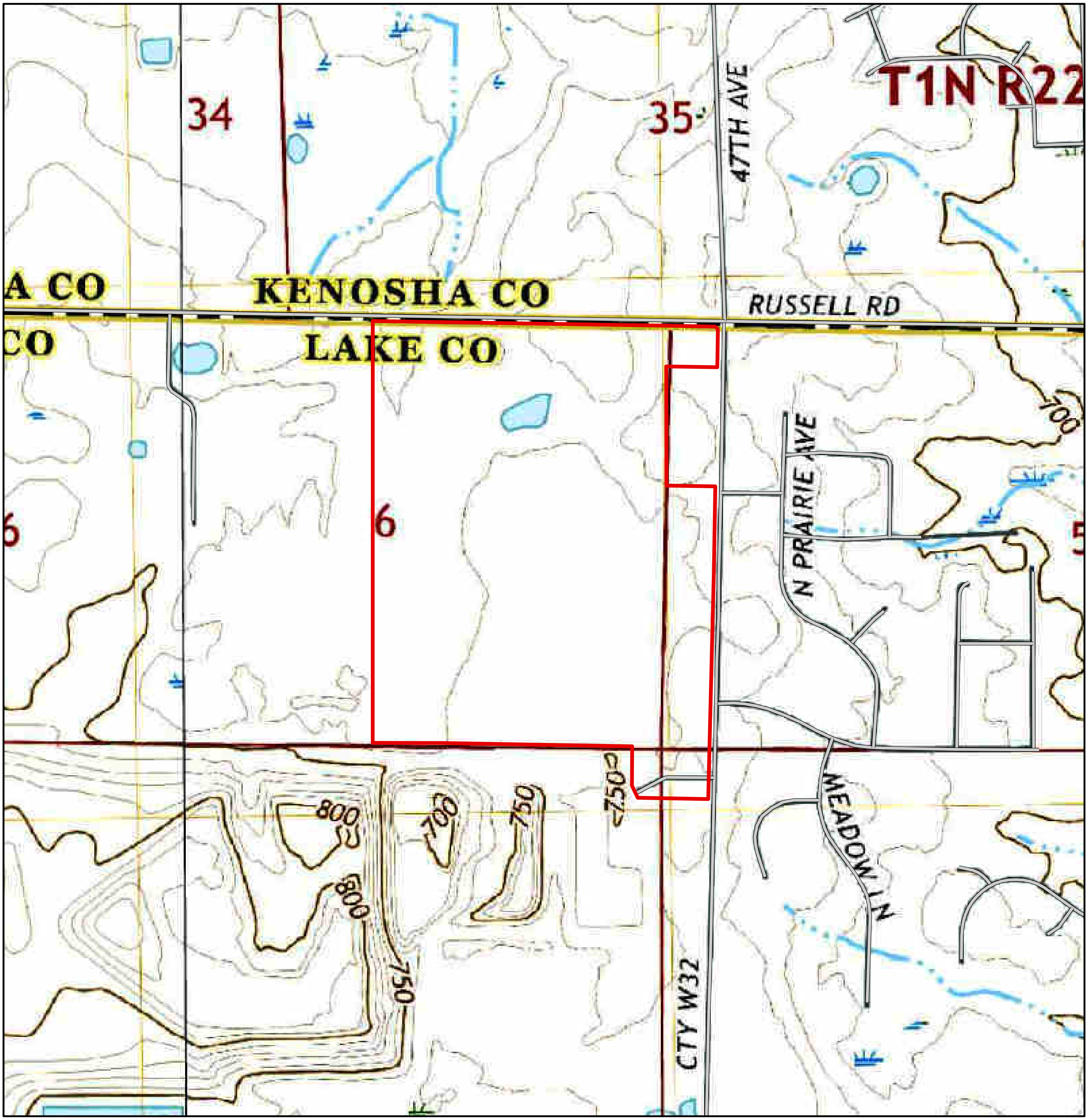

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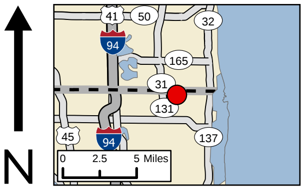

Illinois State Geological Survey, Lake County GIS, Kenosha County Land Information Department, USGS, US Census, IDOT

Topographic Map: USGS 2018 Topographic Map, 24K
USGS Quadrangle: Wadsworth, Zion

Project Area

Road Type

Interstates

US and State Highways

Minor Roads

Figure 2

Zion Landfill
Site 2 North

U.S. Geologic Survey Topographic Map
Scale: 1:10,000

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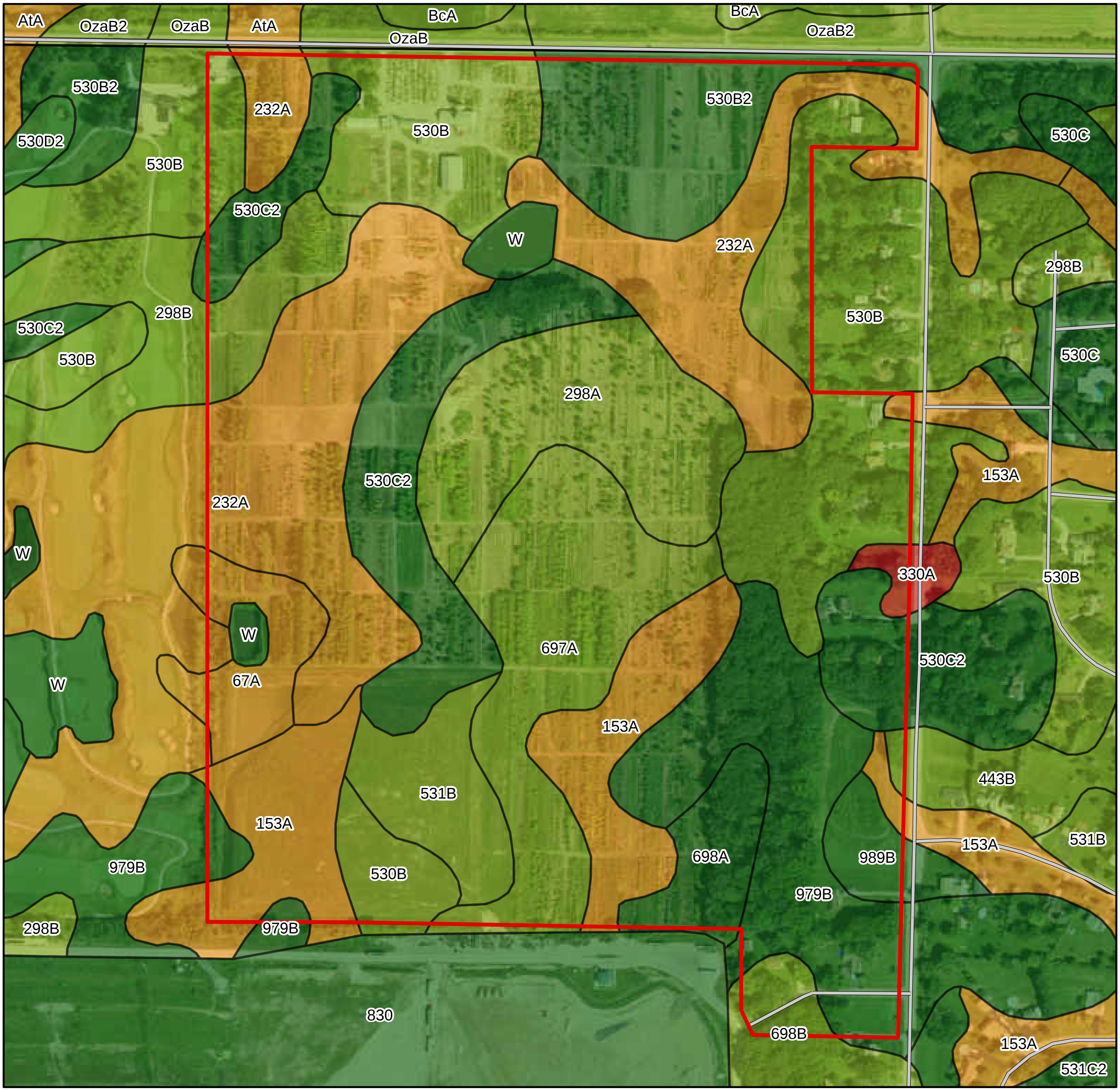

1 inch = 417 feet

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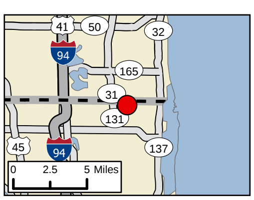

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USDA-FSA-APFO Aerial Photography Field Office, NRCS, Kenosha County Land Information Department, USGS, US Census, IDOT

Project Area

Soil Ratings Polygons

- Hydric (100%)
- Hydric (66 - 99%)
- Hydric (33 - 65%)
- Hydric (1 - 32%)
- Not Hydric (0%)

Map Unit Soil Descriptions

Map Unit Symbol	Map Unit Name
153A	Pella silty clay loam, 0 to 2 percent slopes
232A	Ashkum silty clay loam, 0 to 2 percent slopes
298A	Beecher silt loam, 0 to 2 percent slopes
298B	Beecher silt loam, 2 to 4 percent slopes
330A	Peotone silty clay loam, 0 to 2 percent slopes
443B	Barrington silt loam, 2 to 4 percent slopes
530B	Ozaukee silt loam, 2 to 4 percent slopes
530B2	Ozaukee silt loam, 2 to 4 percent slopes, eroded
530C	Ozaukee silt loam, 4 to 6 percent slopes
530C2	Ozaukee silt loam, 4 to 6 percent slopes, eroded
530D2	Ozaukee silt loam, 6 to 12 percent slopes, eroded
531B	Markham silt loam, 2 to 4 percent slopes
531C2	Markham silt loam, 4 to 6 percent slopes, eroded
67A	Harpster silty clay loam, 0 to 2 percent slopes
697A	Wauconda silt loam, 0 to 2 percent slopes
698A	Grays silt loam, 0 to 2 percent slopes
698B	Grays silt loam, 2 to 4 percent slopes
830	Landfills
979B	Grays and Markham silt loams, 2 to 4 percent slopes
989B	Mundelein and Elliott silt loams, 2 to 4 percent slopes
AtA	Ashkum silty clay loam, 0 to 2 percent slopes
BcA	Beecher silt loam, 1 to 3 percent slopes
OzaB	Ozaukee silt loam, 2 to 6 percent slopes
OzaB2	Ozaukee silt loam, 2 to 6 percent slopes, eroded
W	Water

Figure 3

Zion Landfill Site 2 North

U.S. Department of Agriculture Soil Survey Map

Scale: 1:5,000

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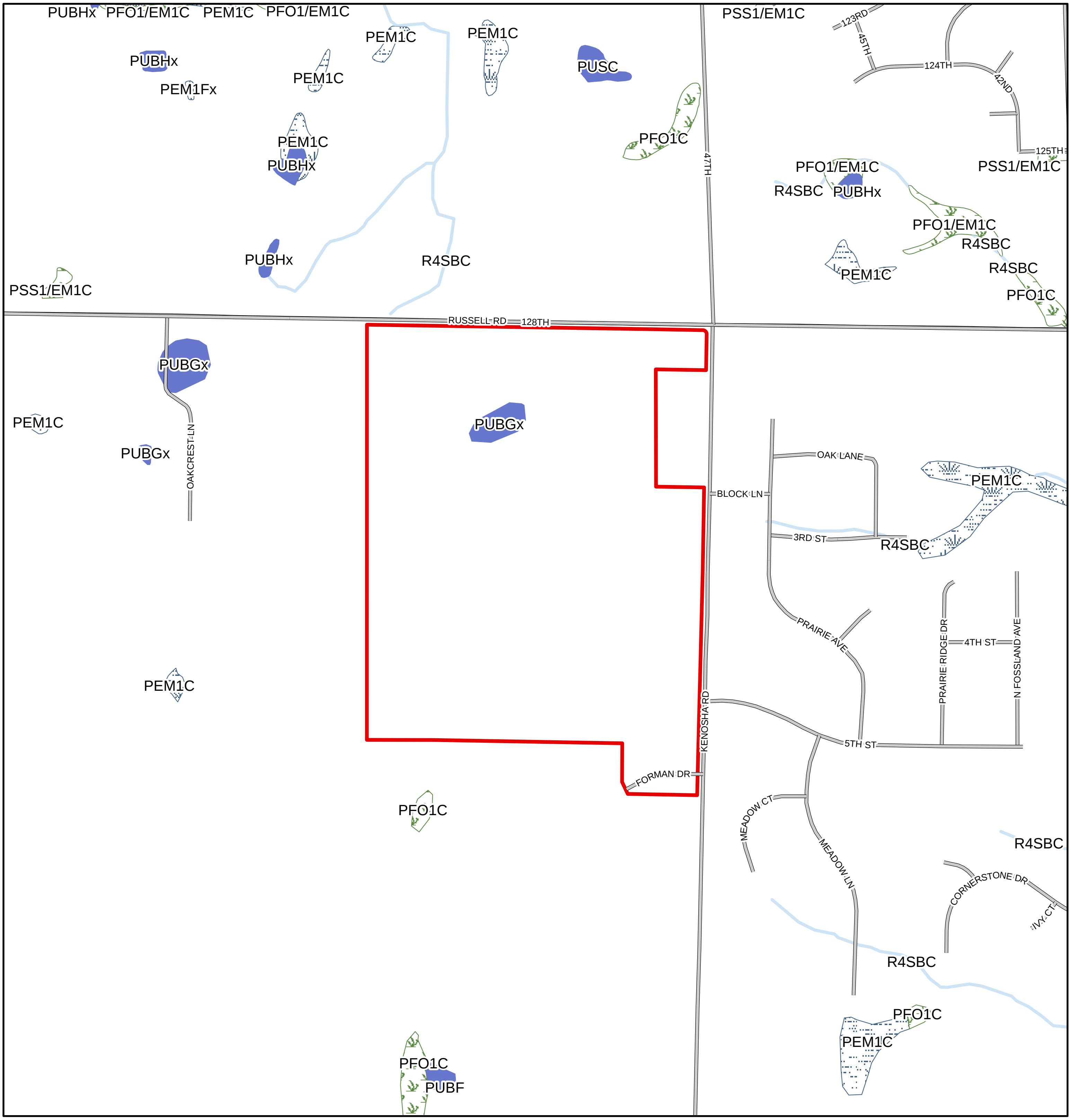

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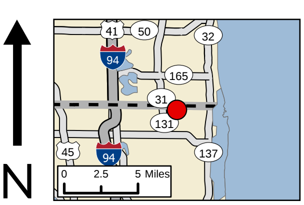

National Wetlands Inventory (USFWS), Kenosha County Land Information Department, USGS, US Census, IDOT

Project Area

PFO1C: Palustrine Forested Broad-Leaved Deciduous Seasonally Flooded

PUBGx: Palustrine Unconsolidated Bottom Intermittently Exposed Excavated

R4SBC: Riverine Intermittent Streambed Seasonally Flooded

Wetland Type

- Freshwater Emergent Wetland
- Freshwater Forested/ Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Figure 4

Zion Landfill Site 2 North

National Wetlands Inventory Map
Scale: 1:10,000

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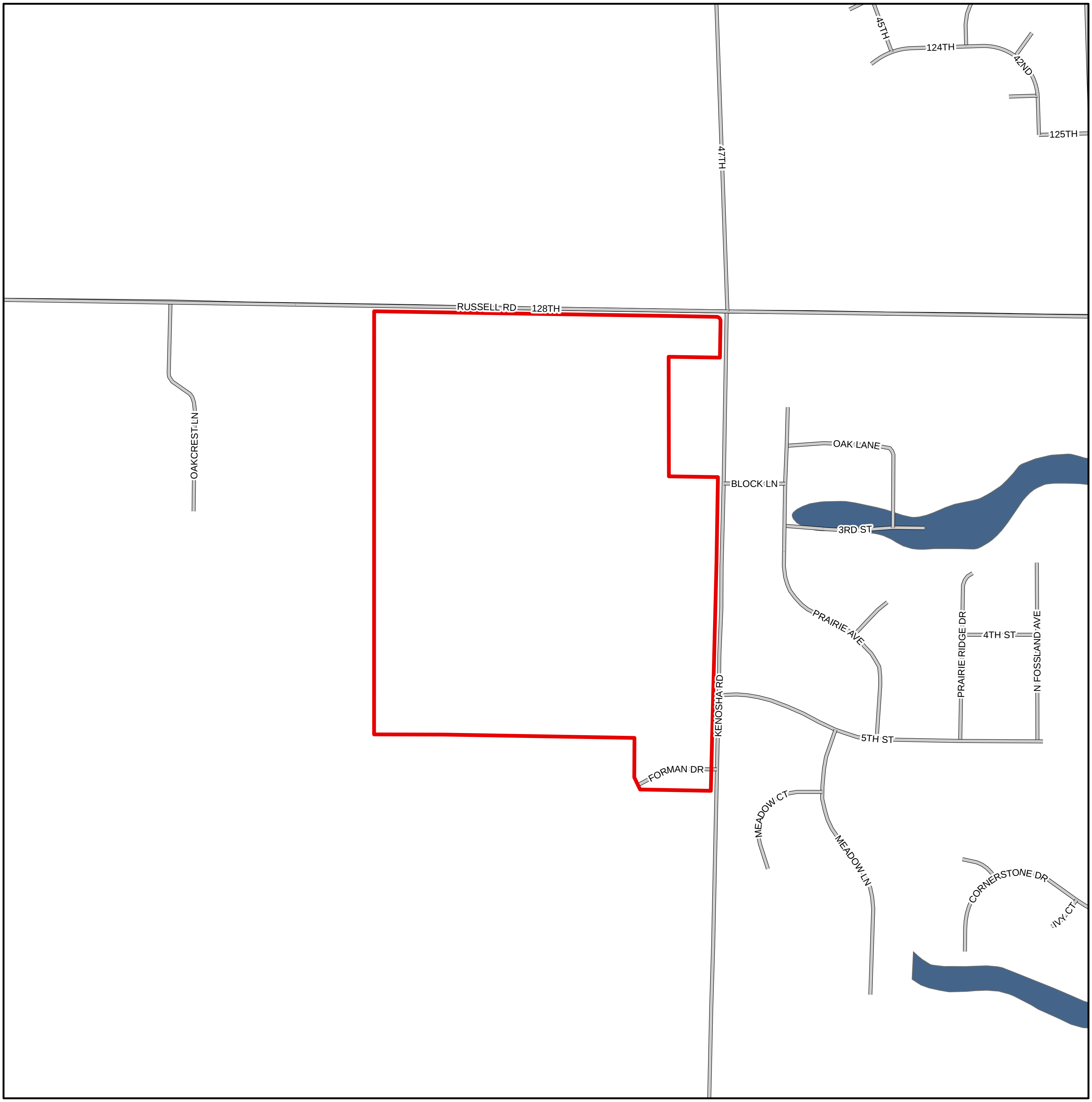

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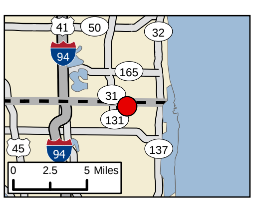

FEMA (National Flood Hazard Layer), Kenosha County Land Information Department, USGS, US Census, IDOT

Project Area

Flood Type

1% Annual Chance Flood Hazard

Floodway

Open Water

1% Annual Chance Flood Hazard, Depth Less than 1 Foot

0.2% Annual Chance Flood Hazard

Area of Reduced Risk, Protected by Levee

Figure 5

Zion Landfill
Site 2 North

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM)

Scale: 1:10,000

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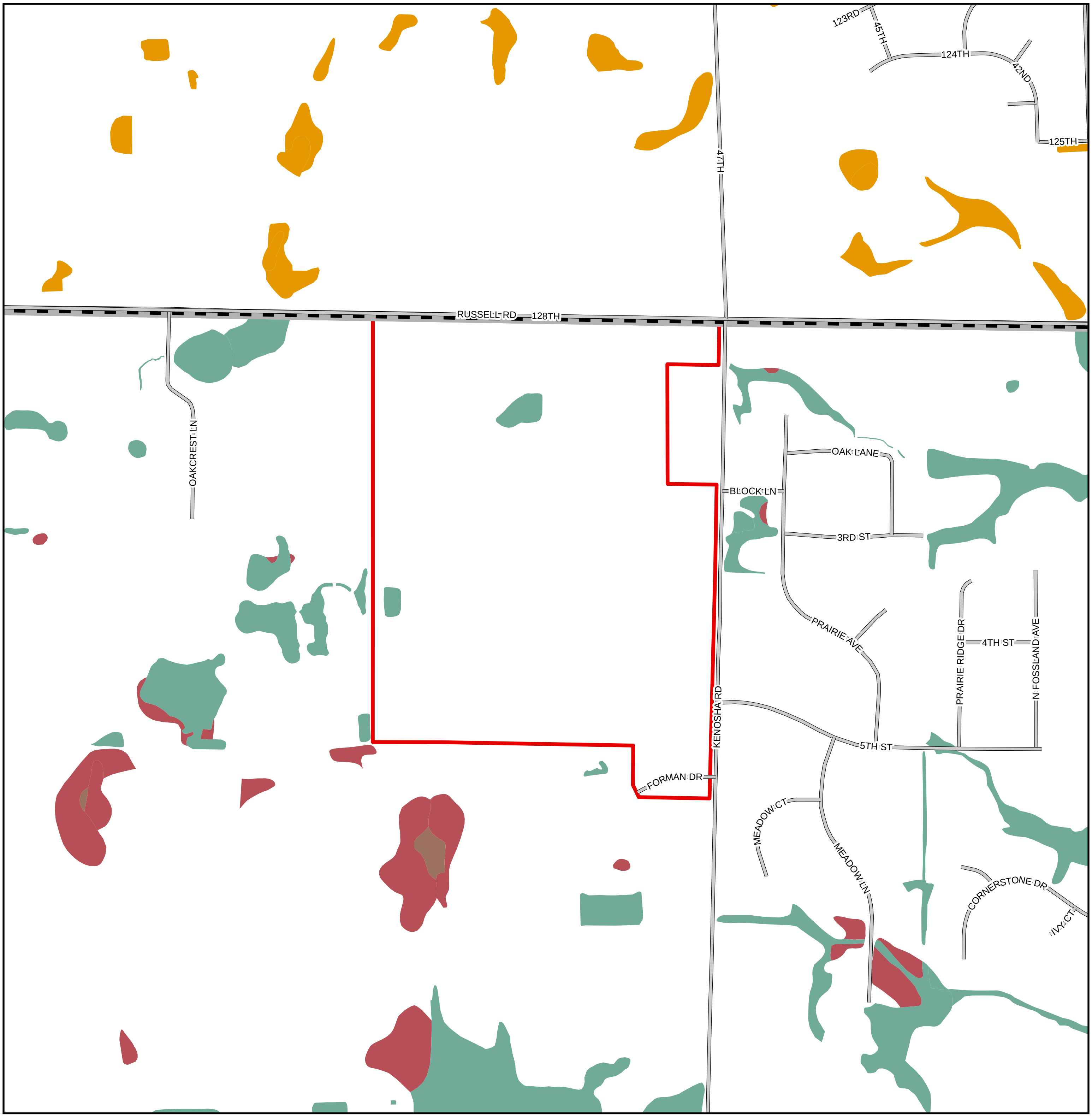

1 inch = 833 feet

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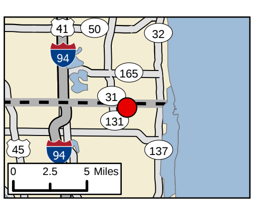

N

Lake Co GIS Division, SEWRPC, Illinois GIS/Mapping Division, Kenosha Co Land Information Department, WI DNR, EPA, USFWS, USACE, USDA, USGS, US Census, IDOT

Project Area

Lake County Wetland Inventory

Converted Wetland

Non-Wetland

Wetland

ADID Wetland Identification

ADID Wetlands

Wisconsin Wetland Inventory

Wetlands

Figure 6

Zion Landfill
Site 2 North

Lake County Advanced Identification (ADID) and Wisconsin Wetland Inventory Map

Scale: 1:10,000

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Appendix B

Photograph Log

Photo 1: Representative photograph of Site 1.

Photo 2: Representative photograph of Site 1.

Photo 3: Representative photograph of Site 1.

Photo 4: Representative photograph of Site 1.

Photo 5: Data point 1-1.

Photo 6: Data point 1-2.

Photo 7: Representative photograph of Site 2.

Photo 8: Representative photograph of Site 2.

Photo 9: Representative photograph of Site 2.

Photo 10: Representative photograph of Site 2.

Photo 11: Data point 2-1.

Photo 12: Data point 2-2.

Photo 13: Representative photograph of Site 3.

Photo 14: Representative photograph of Site 3.

Photo 15: Representative photograph of Site 3.

Photo 16: Representative photograph of Site 3.

Photo 17: Representative photograph of Site 3.

Photo 18: Data point 3-1.

Photo 19: Data point 3-2.

Photo 20: Data point 3-3.

Photo 21: Representative photograph of Site 4.

Photo 22: Representative photograph of Site 4.

Photo 23: Data point 4-1.

Photo 24: Data point 4-2.

Photo 25: Soil stockpile between landfill and nursery; has check dams.

Photo 26: Soil stockpile between landfill and nursery; water flows to a detention pond, Site 6.

Photo 27: Representative photograph of Site 6.

Photo 28: Representative photograph of Site 6.

Photo 29: Representative photograph of Site 5.

Photo 30: Representative photograph of Site 5.

Photo 31: Representative photograph of Site 5.

Photo 32: Representative photograph of Site 5.

Photo 33: Data point 5-1.

Photo 34: Data point 5-2.

Photo 35: Representative photographs Site 7.

Photo 36: Representative photographs Site 7.

Photo 37: Data Point 7-1.

Photo 38: Data Point 7-2.

Appendix C

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion / Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 1-1

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): pond Local relief (concave, convex, none) None

Slope (%): 2 Lat: 42.491666 Long: -87.866944 Datum:

Soil Map Unit Name: Ozaukee silt loam, 4 to 6 percent slopes, eroded (530C2) NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?**	**Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No X		
Wetland Hydrology Present?	Yes ___	No X		

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Equisetum arvense*	5	No	FAC
2. *Phalaris arundinacea*	5	No	FACW
3. *Poa pratensis*	90	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	95	x 3 =	285
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		295 (B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	95					Loamy/Clayey	ROCKS MIXED IN
	10YR 5/4	5						
6-18	10YR 2/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 1-2

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): pond Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.491666 Long: -87.866944 Datum: ____

Soil Map Unit Name: Ozaukee silt loam, 4 to 6 percent slopes, eroded (530C2) NWI classification: PUBGx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Eleocharis palustris*	50	Yes	OBL
2. *Equisetum arvense*	30	Yes	FAC
3. *Phalaris arundinacea*	20	No	FACW
4. *Poa pratensis*	2	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	102	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	50	x 1 = 50
FACW species	20	x 2 = 40
FAC species	32	x 3 = 96
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	102 (A)	186 (B)

Prevalence Index = B/A = 1.82

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Loamy/Clayey	
4-18	10YR 2/1	10	10YR 6/2	60	D	M	Loamy/Clayey	
			10YR 5/6	30	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
X Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
X Algal Mat or Crust (B4)
___ Iron Deposits (B5)
X Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 2-1

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.4922222 Long: -87.864722 Datum: ____

Soil Map Unit Name: Ashkum silt clay loam, 0 to 2 percent slopes (232A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?	X	
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Cornus rugosa*	5	Yes	UPL
2.			
3.			
4.			
5.			
	5	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	85	Yes	FAC
2. *Solidago canadensis*	10	No	FACU
3. *Cirsium arvense*	5	No	FACU
4. *Rumex crispus*	2	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	102	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	87	x 3 = 261
FACU species	15	x 4 = 60
UPL species	5	x 5 = 25
Column Totals:	107 (A)	346 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 2-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Loamy/Clayey	
4-18	10YR 2/1	70	10YR 5/6	30	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: ________
Depth (inches): ________

Hydric Soil Present? **Yes** X **No** ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 17
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 2-2

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.492222 Long: -87.86722 Datum:

Soil Map Unit Name: Ashkum silty clay loam, 0 to 2 percent slopes (232A) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix interior*	15	Yes	FACW
2.			
3.			
4.			
5.			
	15	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	50	Yes	OBL
2. *Carex vulpinoidea*	10	No	FACW
3. *Eleocharis palustris*	10	No	OBL
4. *Juncus dudleyi*	5	No	FACW
5. *Lythrum salicaria*	5	No	OBL
6. *Symphyotrichum lanceolatum*	2	No	FAC
7.			
8.			
9.			
10.			
	82	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	65	x 1 = 65
FACW species	30	x 2 = 60
FAC species	2	x 3 = 6
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	97 (A)	131 (B)

Prevalence Index = B/A = 1.35

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Some open water near pit.

SOIL

Sampling Point: 2-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	35	10YR 4/6	20	C	M	Loamy/Clayey	Prominent redox concentrations
			10YR 5/4	40	D	M		
			7.5YR 4/6	5	C	PL/M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
X Aquatic Fauna (B13)
X True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
X Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
X Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 3-1

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): none Local relief (concave, convex, none): none

Slope (%): 0 Lat: 42.492777 Long: -87.864166 Datum:

Soil Map Unit Name: Ashkum silty clay loam, 0 to 2 percent slopes (232A) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?	X	
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	65	Yes	FAC
2. *Trifolium pratense*	20	Yes	FACU
3. *Solidago canadensis*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	95 (A)		315 (B)

Prevalence Index = B/A = 3.32

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 3-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Loamy/Clayey	
4-18	10YR 2/1	70	10YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
	10YR 4/2	25						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** _X_ **No** ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No _X_	Depth (inches): ___
Water Table Present?	Yes ___	No _X_	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No _X_	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** _X_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 3-2

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): none Local relief (concave, convex, none): none

Slope (%): 0 Lat: 42.492777 Long: -87.864166 Datum: ____

Soil Map Unit Name: Ashkum siltly clay loam, 0 to 2 percent slopes (232A) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	20	Yes	FACW
2.			
3.			
4.			
5.			
	20	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Epilobium coloratum*	10	Yes	OBL
2. *Rumex crispus*	5	No	FAC
3. *Erigeron strigosus*	1	No	FACU
4. *Typha latifolia*	5	No	OBL
5. *Hordeum jubatum*	10	Yes	FAC
6. *Bidens frondosa*	3	No	FACW
7. *Symphyotrichum lanceolatum*	2	No	FAC
8.			
9.			
10.			
	36	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	23	x 2 =	46
FAC species	17	x 3 =	51
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	56 (A)		116 (B)

Prevalence Index = B/A = 2.07

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 3-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	95	10YR 5/6	2	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ? Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 17
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 3-3

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): non Local relief (concave, convex, none): none

Slope (%): 0 Lat: 42.492777 Long: -87.864166 Datum: ____

Soil Map Unit Name: Ashkum silty clay loam, 0 to 2 percent slopes (232A) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Trifolium pratense*	30	Yes	FACU
2. *Rumex crispus*	30	Yes	FAC
3. *Erigeron annuus*	5	No	FACU
4. *Carex vulpinoidea*	5	No	FACW
5. *Oenothera biennis*	5	No	FACU
6. *Symphyotrichum pilosum*	10	No	FACU
7.			
8.			
9.			
10.			
	85	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	30	x 3 =	90
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	85 (A)		300 (B)

Prevalence Index = B/A = 3.53

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 3-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	98					Loamy/Clayey	
	10YR 5/4	2						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 4-1

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): none Local relief (concave, convex, none): none

Slope (%): 0 Lat: 42.492777 Long: -87.862777 Datum:

Soil Map Unit Name: Ashkum silty clay loam, 0 to 2 percent slopes (232A) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	95	Yes	FAC
2. *Taraxacum officinale*	5	No	FACU
3. *Trifolium repens*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	105 (A)		325 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 4-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	85	10YR 4/2	10	D	M	Loamy/Clayey	
	10YR 3/6	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
? Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes X No ___ Depth (inches): 16
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 4-2

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.492777 Long: -87.862777 Datum: ____

Soil Map Unit Name: Ashkum silty clay loam, 0 to 2 percent (232A) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix interior*	30	Yes	FACW
2. *Acer rubrum*	5	No	FAC
3.			
4.			
5.			
	35	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix interior*	10	Yes	FACW
2.			
3.			
4.			
5.			
	10	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Eleocharis palustris*	30	Yes	OBL
2. *Hordeum jubatum*	15	No	FAC
3. *Phalaris arundinacea*	50	Yes	FACW
4. *Cirsium vulgare*	2	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	97	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1. *Vitis riparia*	5	Yes	FACW
2.			
	5	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	30	x 1 = 30
FACW species	95	x 2 = 190
FAC species	20	x 3 = 60
FACU species	2	x 4 = 8
UPL species	0	x 5 = 0
Column Totals:	147 (A)	288 (B)

Prevalence Index = B/A = 1.96

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 4-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	95					Sandy	stains fingers
	10YR 5/3	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** X **No** ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 5-1

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): berm Local relief (concave, convex, none): convex

Slope (%): 2 Lat: 42.488611 Long: -87.870000 Datum:

Soil Map Unit Name: Harpster siltly clay loam, 0 to 2 percent slopes (67A) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes ___	No X	

Remarks:
This spring has been unseasonably wet. Clay berm - constructed pond.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Crataegus mollis*	5	Yes	FAC
2.			
3.			
4.			
5.			
	5	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	85	Yes	FAC
2. *Salix interior*	10	No	FACW
3. *Convolvulus arvensis*	5	No	UPL
4. *Symphyotrichum pilosum*	2	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	102	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	90	x 3 =	270
FACU species	2	x 4 =	8
UPL species	5	x 5 =	25
Column Totals:	107 (A)		323 (B)

Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 5-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Loamy/Clayey	
4-18	10YR 5/2	80	10YR 5/6	15	C	M	Loamy/Clayey	Prominent redox concentrations
	10YR 2/1	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
X Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ______
Depth (inches): ______

Hydric Soil Present? **Yes** X **No** ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 5-2

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): pond Local relief (concave, convex, none): concave

Slope (%): 5 Lat: 42.488611 Long: -87.870000 Datum: ____

Soil Map Unit Name: Harpster siltly clay loam, 0 to 2 percent slopes (67A) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix interior*	50	Yes	FACW
2.			
3.			
4.			
5.			
	50	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Alisma subcordatum*	5	Yes	OBL
2. *Eleocharis palustris*	10	Yes	OBL
3. *Apocynum cannabinum*	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	17	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	50	x 2 =	100
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	67 (A)		121 (B)

Prevalence Index = B/A = 1.81

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
Open water present.

SOIL

Sampling Point: 5-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Loamy/Clayey	
3-18	10YR 5/2	70	10YR 5/6	15	C	M	Loamy/Clayey	Prominent redox concentrations
	10YR 2/1	15						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
X Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
X Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
X Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 7-1

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.487500 Long: -87.863055 Datum:

Soil Map Unit Name: Pella silty clay loam, 0 to 2 percent slopes (153A) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juglans nigra*	15	Yes	FACU
2.			
3.			
4.			
5.			
	15	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	90	Yes	FAC
2. *Daucus carota*	2	No	UPL
3. *Taraxacum officinale*	5	No	FACU
4. *Trifolium hybridum*	3	No	FACU
5. *Barbarea vulgaris*	3	No	FAC
6. *Ambrosia trifida*	2	No	FAC
7.			
8.			
9.			
10.			
	105	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	23	x 4 =	92
UPL species	2	x 5 =	10
Column Totals:	120 (A)		387 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 7-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Zion Landfill Expansion City/County: Zion/Lake Sampling Date: 6/11/19

Applicant/Owner: Advanced Disposal State: IL Sampling Point: 7-2

Investigator(s): P. Hickey, A. Burchacki Section, Township, Range: S6, T46N, R12E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.487500 Long: -87.863055 Datum: ____

Soil Map Unit Name: Ozaukee silt loam, 4 to 6 percent slopes, eroded (530C2) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
This spring has been unseasonably wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Ambrosia trifida*	10	Yes	FAC
2. *Persicaria maculosa*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	5	x 2 = 10
FAC species	10	x 3 = 30
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	15 (A)	40 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
Sparsely vegetated concave surface.

SOIL

Sampling Point: 7-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	95	10YR 3/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
10-18	10YR 2/1	70	10Y 6/1	20	D	M	Loamy/Clayey	
			10YR 5/6	10	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

_?_ Coast Prairie Redox (A16)
___ Iron-Manganese Masses (F12)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** _X_ **No** ___

Remarks:
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
_X_ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
_X_ Sparsely Vegetated Concave Surface (B8)
_X_ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ True Aquatic Plants (B14)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Gauge or Well Data (D9)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
_X_ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No _X_ Depth (inches): ___
Water Table Present? Yes ___ No _X_ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No _X_ Depth (inches): ___

Wetland Hydrology Present? **Yes** _X_ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix D

Floristic Quality Assessments

SITE:	Site 1-Zion Landfill
LOCALE:	Zion, IL
BY:	P. Hickey, A. Burchacki
NOTES:	6/11/2019

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.90	SPECIES RICHNESS (ALL)	34
MEAN C (ALL SPECIES)	1.12	SPECIES RICHNESS (NATIVE)	20
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.41
MEAN C (NATIVE SHRUBS)	0.00	WET INDICATOR (ALL)	-0.18
MEAN C (NATIVE HERBACEOUS)	1.93	WET INDICATOR (NATIVE)	-0.55
FQAI (NATIVE SPECIES)	8.50	% HYDROPHYTE (MIDWEST)	0.71
FQAI (ALL SPECIES)	6.52	% NATIVE PERENNIAL	0.41
ADJUSTED FQAI	14.57	% NATIVE ANNUAL	0.18
% C VALUE 0	0.65	% ANNUAL	0.26
% C VALUE 1-3	0.21	% PERENNIAL	0.74
% C VALUE 4-6	0.12		
% C VALUE 7-10	0.03		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ACENEG	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple	0	FAC	FAC	0	Tree	Perennial	Native
ACESAI	Acer saccharinum	Acer saccharinum	Silver Maple	1	FACW	FACW	-1	Tree	Perennial	Native
AMACRU	Amaranthus cruentus	AMARANTHUS CRUENTUS	Purple Amaranth	0	UPL	UPL	2	Forb	Annual	Adventive
AMBART	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
AMBTRI	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
ASCSYR	Asclepias syriaca	Asclepias syriaca	Common Milkweed	0	FACU	UPL	1	Forb	Perennial	Native
BIDFRO	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
CONARV	Convolvulus arvensis	CONVOLVULUS ARVENSIS	Field Bindweed	0	UPL	UPL	2	Forb	Perennial	Adventive
CYPESC	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
ELEERY	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii; Eleocharis xyridiformis; Eleocharis macrostachya	Common Spike-Rush	1	OBL	OBL	-2	Sedge	Perennial	Native
ELYHYS	Elymus hystrix	Hystrix patula	Eastern Bottle-Brush Grass	5	FACU	FACU	1	Grass	Perennial	Native
EQUARV	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	FAC	0	Fern	Perennial	Native
SOLGRA	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii; Euthamia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
GALAPA	Galium aparine	Galium spurium	Sticky-Willy	0	FACU	FACU	1	Forb	Annual	Native

MORALB	Morus alba	MORUS ALBA VAR. TATARICA	White Mulberry	0 FAC	FACU	0 Tree	Perennial	Adventive
PERMAC	Persicaria maculosa	POLYGONUM PERSICARIA	Lady's-Thumb	0 FACW	FAC	-1 Forb	Annual	Adventive
PHAARU	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0 FACW	FACW	-1 Grass	Perennial	Adventive
PLALAN	Plantago lanceolata	PLANTAGO LANCEOLATA	English Plantain	0 FACU	FACU	1 Forb	Perennial	Adventive
PLAMAJ	Plantago major	PLANTAGO MAJOR	Great Plantain	0 FAC	FACU	0 Forb	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0 FAC	FACU	0 Grass	Perennial	Adventive
POTILL	Potamogeton illinoensis	Potamogeton illinoensis	Illinois Pondweed	8 OBL	OBL	-2 Forb	Perennial	Native
POTREC	Potentilla recta	POTENTILLA RECTA	Sulfur Cinquefoil	0 UPL	UPL	2 Forb	Perennial	Adventive
RANSCE	Ranunculus sceleratus	Ranunculus sceleratus	Cursed Buttercup	4 OBL	OBL	-2 Forb	Annual	Native
RHACAT	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0 FAC	FAC	0 Shrub	Perennial	Adventive
RUMCRI	Rumex crispus	RUMEX CRISPUS	Curly Dock	0 FAC	FAC	0 Forb	Perennial	Adventive
SALAMY	Salix amygdaloides	Salix amygdaloides	Peach-Leaf Willow	4 FACW	FACW	-1 Tree	Perennial	Native
SCIVAC	Schoenoplectus tabernaemontani	Scirpus validus creber	Soft-Stem Club-Rush	3 OBL	OBL	-2 Sedge	Perennial	Native
ASTSIM	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3 FAC	FACW	0 Forb	Perennial	Native
THLARV	Thlaspi arvense	THLASPI ARVENSE	Field Pennycress	0 FACU	UPL	1 Forb	Annual	Adventive
TRIHYB	Trifolium hybridum	TRIFOLIUM HYBRIDUM	Alsike Clover	0 FACU	FACU	1 Forb	Perennial	Adventive
TYPANG	Typha angustifolia	TYPHA ANGUSTIFOLIA	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
ULMAME	Ulmus americana	Ulmus americana	American Elm	3 FACW	FACW	-1 Tree	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1 FACW	FAC	-1 Vine	Perennial	Native
XANSTR	Xanthium strumarium	Xanthium strumarium var. canadense; Xanthium strumarium var. glabratum	Rough Cocklebурр	0 FAC	FAC	0 Forb	Annual	Native

SITE: Site 2 -Zion Landfill
LOCALE: Zion, IL
BY: P. Hickey, A. Burchacki
NOTES: 6/11/2019

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.63	SPECIES RICHNESS (ALL)	36
MEAN C (ALL SPECIES)	1.97	SPECIES RICHNESS (NATIVE)	27
MEAN C (NATIVE TREES)	3.00	% NON-NATIVE	0.25
MEAN C (NATIVE SHRUBS)	1.00	WET INDICATOR (ALL)	-0.72
MEAN C (NATIVE HERBACEOUS)	2.73	WET INDICATOR (NATIVE)	-0.89
FQAI (NATIVE SPECIES)	13.66	% HYDROPHYTE (MIDWEST)	0.83
FQAI (ALL SPECIES)	11.83	% NATIVE PERENNIAL	0.69
ADJUSTED FQAI	22.77	% NATIVE ANNUAL	0.03
% C VALUE 0	0.33	% ANNUAL	0.03
% C VALUE 1-3	0.39	% PERENNIAL	0.94
% C VALUE 4-6	0.28		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ALISUB	Alisma subcordatum	Alisma subcordatum	American Water-Plantain	3	OBL	OBL	-2	Forb	Perennial	Native
BIDFRO	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
CXBLAN	Carex blanda	Carex blanda	Eastern Woodland Sedge	1	FAC	FAC	0	Sedge	Perennial	Native
CXCRIS	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
CXNORM	Carex normalis	Carex normalis	Greater Straw Sedge	5	FACW	FACW	-1	Sedge	Perennial	Native
CXSTIP	Carex stipata	Carex stipata	Stalk-Grain Sedge	4	OBL	OBL	-2	Sedge	Perennial	Native
CXVULP	Carex vulpinoidea	Carex vulpinoidea	Common Fox Sedge	2	FACW	OBL	-1	Sedge	Perennial	Native
CORDRU	Cornus drummondii	Cornus drummondii	Rough-Leaf Dogwood	1	FAC	FAC	0	Shrub	Perennial	Native
CYPESC	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
DACGLO	Dactylis glomerata	DACTYLIS GLOMERATA	Orchard Grass	0	FACU	FACU	1	Grass	Perennial	Adventive
ELEERY	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii; Eleocharis xyridiformis; Eleocharis macrostachya	Common Spike-Rush	1	OBL	OBL	-2	Sedge	Perennial	Native
ELYHYS	Elymus hystrix	Hystrix patula	Eastern Bottle-Brush Grass	5	FACU	FACU	1	Grass	Perennial	Native
ERIANN	Erigeron annuus	Erigeron annuus	Eastern Daisy Fleabane	0	FACU	FACU	1	Forb	Biennial	Native
SOLGRA	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii; Euthamia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native

FRAPEN	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima; Fraxinus lanceolata	Green Ash	4	FACW	FACW	-1	Tree	Perennial	Native
JUNDUD	Juncus dudleyi	Juncus dudleyi	Dudley's Rush	2	FACW	FACW	-1	Forb	Perennial	Native
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
PHAARU	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
PHRAME	Phragmites australis ssp. americanus	Phragmites americanus	Common Reed	3	FACW	FACW	-1	Grass	Perennial	Native
PLALAN	Plantago lanceolata	PLANTAGO LANCEOLATA	English Plantain	0	FACU	FACU	1	Forb	Perennial	Adventive
PLAMAJ	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FAC	FACU	0	Forb	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood	0	FAC	FAC	0	Tree	Perennial	Native
SAGLAT	Sagittaria latifolia	Sagittaria latifolia	Duck-Potato	3	OBL	OBL	-2	Forb	Perennial	Native
SALNIG	Salix nigra	Salix nigra	Black Willow	5	OBL	OBL	-2	Tree	Perennial	Native
SCIATV	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	OBL	-2	Sedge	Perennial	Native
SCIPEN	Scirpus pendulus	Scirpus pendulus	Rufous Bulrush	2	OBL	OBL	-2	Sedge	Perennial	Native
SOLCAN	Solidago canadensis	Solidago canadensis	Canadian Goldenrod	1	FACU	FACU	1	Forb	Perennial	Native
ASTSIM	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
ASTNOV	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	3	FACW	FACW	-1	Forb	Perennial	Native
TRIHYB	Trifolium hybridum	TRIFOLIUM HYBRIDUM	Alsike Clover	0	FACU	FACU	1	Forb	Perennial	Adventive
TYPANG	Typha angustifolia	TYPHA ANGUSTIFOLIA	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive
TYPLAT	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	5	OBL	OBL	-2	Forb	Perennial	Native
VERALA	Vernonia gigantea	Vernonia altissima; Vernonia altissima taeniotricha	Smooth Tall Ironweed	4	FAC	FAC	0	Forb	Perennial	Native
VIBDEN	Viburnum dentatum	VIBURNUM DENTATUM VAR. SCABRELLUM	Southern Arrow-Wood	0	FAC	FAC	0	Shrub	Perennial	Adventive
VITRIP	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FACW	FAC	-1	Vine	Perennial	Native

SITE:	Site 3 -Zion Landfill
LOCALE:	Zion, IL
BY:	P. Hickey, A. Burchacki
NOTES:	6/11/2019

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.77	SPECIES RICHNESS (ALL)	31
MEAN C (ALL SPECIES)	1.97	SPECIES RICHNESS (NATIVE)	22
MEAN C (NATIVE TREES)	0.50	% NON-NATIVE	0.29
MEAN C (NATIVE SHRUBS)	5.00	WET INDICATOR (ALL)	-0.81
MEAN C (NATIVE HERBACEOUS)	2.89	WET INDICATOR (NATIVE)	-0.95
FQAI (NATIVE SPECIES)	13.01	% HYDROPHYTE (MIDWEST)	0.84
FQAI (ALL SPECIES)	10.96	% NATIVE PERENNIAL	0.61
ADJUSTED FQAI	23.36	% NATIVE ANNUAL	0.06
% C VALUE 0	0.39	% ANNUAL	0.06
% C VALUE 1-3	0.32	% PERENNIAL	0.90
% C VALUE 4-6	0.29		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ACESAI	Acer saccharinum	Acer saccharinum	Silver Maple	1	FACW	FACW	-1	Tree	Perennial	Native
AGRALB	Agrostis gigantea	AGROSTIS ALBA	Black Bent	0	FACW	FACW	-1	Grass	Perennial	Adventive
ALISUB	Alisma subcordatum	Alisma subcordatum	American Water-Plantain	3	OBL	OBL	-2	Forb	Perennial	Native
ASCINC	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	3	OBL	OBL	-2	Forb	Perennial	Native
BIDFRO	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	FACW	-1	Forb	Annual	Native
CXSTIP	Carex stipata	Carex stipata	Stalk-Grain Sedge	4	OBL	OBL	-2	Sedge	Perennial	Native
CXVULP	Carex vulpinoidea	Carex vulpinoidea	Common Fox Sedge	2	FACW	OBL	-1	Sedge	Perennial	Native
CORALB	Cornus alba	Cornus stolonifera; Cornus baileyi; Cornus sericea	Red Osier	5	FACW	FACW	-1	Shrub	Perennial	Native
CYPESC	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
ELYHYS	Elymus hystrix	Hystrix patula	Eastern Bottle-Brush Grass	5	FACU	FACU	1	Grass	Perennial	Native
EPICOL	Epilobium coloratum	Epilobium coloratum	Purple-Leaf Willowherb	3	OBL	OBL	-2	Forb	Perennial	Native
ERIANN	Erigeron annuus	Erigeron annuus	Eastern Daisy Fleabane	0	FACU	FACU	1	Forb	Biennial	Native
SOLGRA	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii; Euthamia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
HELGRO	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	4	FACW	FACW	-1	Forb	Perennial	Native
JUNDUD	Juncus dudleyi	Juncus dudleyi	Dudley's Rush	2	FACW	FACW	-1	Forb	Perennial	Native
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
PHAARU	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive

PLALAN	Plantago lanceolata	PLANTAGO LANCEOLATA	English Plantain	0	FACU	FACU	1 Forb	Perennial	Adventive
PLAMAJ	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FAC	FACU	0 Forb	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0 Grass	Perennial	Adventive
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood	0	FAC	FAC	0 Tree	Perennial	Native
RANSCE	Ranunculus sceleratus	Ranunculus sceleratus	Cursed Buttercup	4	OBL	OBL	-2 Forb	Annual	Native
RUDLAC	Rudbeckia laciniata	Rudbeckia laciniata	Green-Head Coneflower	4	FACW	FACW	-1 Forb	Perennial	Native
RUMCRI	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0 Forb	Perennial	Adventive
SCIATV	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	OBL	-2 Sedge	Perennial	Native
SOLCAN	Solidago canadensis	Solidago canadensis	Canadian Goldenrod	1	FACU	FACU	1 Forb	Perennial	Native
ASTSIM	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0 Forb	Perennial	Native
ASTNOV	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	3	FACW	FACW	-1 Forb	Perennial	Native
TRIPRA	Trifolium pratense	TRIFOLIUM PRATENSE	Red Clover	0	FACU	FACU	1 Forb	Perennial	Adventive
TYPANG	Typha angustifolia	TYPHA ANGUSTIFOLIA	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2 Forb	Perennial	Adventive
TYPLAT	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	5	OBL	OBL	-2 Forb	Perennial	Native

SITE:	Site 4 - Zion Landfill
LOCALE:	Zion, IL
BY:	P. Hickey, A. Burchacki
NOTES:	6/11/2019

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.46	SPECIES RICHNESS (ALL)	23
MEAN C (ALL SPECIES)	1.39	SPECIES RICHNESS (NATIVE)	13
MEAN C (NATIVE TREES)	3.00	% NON-NATIVE	0.43
MEAN C (NATIVE SHRUBS)	2.00	WET INDICATOR (ALL)	-0.65
MEAN C (NATIVE HERBACEOUS)	2.56	WET INDICATOR (NATIVE)	-1.15
FQAI (NATIVE SPECIES)	8.88	% HYDROPHYTE (MIDWEST)	0.87
FQAI (ALL SPECIES)	6.67	% NATIVE PERENNIAL	0.52
ADJUSTED FQAI	18.51	% NATIVE ANNUAL	0.04
% C VALUE 0	0.48	% ANNUAL	0.04
% C VALUE 1-3	0.35	% PERENNIAL	0.87
% C VALUE 4-6	0.17		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ACERUB	Acer rubrum	Acer rubrum	Red Maple	5	FAC	FAC	0	Tree	Perennial	Native
ACESAI	Acer saccharinum	Acer saccharinum	Silver Maple	1	FACW	FACW	-1	Tree	Perennial	Native
BARVUL	Barbarea vulgaris	BARBAREA VULGARIS	Garden Yellow-Rocket	0	FAC	FAC	0	Forb	Biennial	Adventive
CXVULP	Carex vulpinoidea	Carex vulpinoidea	Common Fox Sedge	2	FACW	OBL	-1	Sedge	Perennial	Native
CIRARV	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle	0	FACU	FACU	1	Forb	Perennial	Adventive
CIRVUL	Cirsium vulgare	CIRSIUM VULGARE	Bull Thistle	0	FACU	FACU	1	Forb	Biennial	Adventive
CYPESC	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
ELEERY	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii; Eleocharis xyridiformis; Eleocharis macrostachya	Common Spike-Rush	1	OBL	OBL	-2	Sedge	Perennial	Native
EPICOL	Epilobium coloratum	Epilobium coloratum	Purple-Leaf Willowherb	3	OBL	OBL	-2	Forb	Perennial	Native
SOLGRA	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii; Euthamia nuttallii	Flat-Top Goldentop	4	FACW	FAC	-1	Forb	Perennial	Native
JUNEFF	Juncus effusus ssp. solutus	Juncus effusus	Lamp Rush	5	OBL	OBL	-2	Forb	Perennial	Native
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
PHAARU	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
PLALAN	Plantago lanceolata	PLANTAGO LANCEOLATA	English Plantain	0	FACU	FACU	1	Forb	Perennial	Adventive
PLAMAJ	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FAC	FACU	0	Forb	Perennial	Adventive

poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
RANSCE	Ranunculus sceleratus	Ranunculus sceleratus	Cursed Buttercup	4	OBL	OBL	-2	Forb	Annual	Native
RUMCRI	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0	Forb	Perennial	Adventive
SALINT	Salix interior	Salix interior	Sandbar Willow	2	FACW	FACW	-1	Shrub	Perennial	Native
SOLDUL	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	FAC	0	Vine	Perennial	Adventive
ASTSIM	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
URTDIO	Urtica dioica ssp. gracilis	Urtica procera; Urtica gracilis	Tall Nettle	1	FACW	FAC	-1	Forb	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FACW	FAC	-1	Vine	Perennial	Native

SITE:	Site 5 - Zion Landfill
LOCALE:	Zion, IL
BY:	P. Hickey, A. Burchacki
NOTES:	6/11/2019

CONSERVATISM-BASED METRICS			ADDITIONAL METRICS
MEAN C (NATIVE SPECIES)	1.86	SPECIES RICHNESS (ALL)	22
MEAN C (ALL SPECIES)	1.18	SPECIES RICHNESS (NATIVE)	14
MEAN C (NATIVE TREES)	0.00	% NON-NATIVE	0.36
MEAN C (NATIVE SHRUBS)	4.00	WET INDICATOR (ALL)	-0.27
MEAN C (NATIVE HERBACEOUS)	1.30	WET INDICATOR (NATIVE)	-0.50
FQAI (NATIVE SPECIES)	6.95	% HYDROPHYTE (MIDWEST)	0.77
FQAI (ALL SPECIES)	5.54	% NATIVE PERENNIAL	0.45
ADJUSTED FQAI	14.81	% NATIVE ANNUAL	0.14
% C VALUE 0	0.59	% ANNUAL	0.18
% C VALUE 1-3	0.27	% PERENNIAL	0.77
% C VALUE 4-6	0.14		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ALISUB	Alisma subcordatum	Alisma subcordatum	American Water-Plantain	3	OBL	OBL	-2	Forb	Perennial	Native
ALNGLU	Alnus glutinosa	ALNUS GLUTINOSA	European Alder	0	FACW	FACW	-1	Tree	Perennial	Adventive
AMACRU	Amaranthus cruentus	AMARANTHUS CRUENTUS	Purple Amaranth	0	UPL	UPL	2	Forb	Annual	Adventive
AMBART	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
AMBTRI	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
APOCAN	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	FAC	0	Forb	Perennial	Native
CORALB	Cornus alba	Cornus stolonifera; Cornus baileyi; Cornus sericea	Red Osier	5	FACW	FACW	-1	Shrub	Perennial	Native
CYPESC	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
ELEERY	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii; Eleocharis xyridiformis; Eleocharis macrostachya	Common Spike-Rush	1	OBL	OBL	-2	Sedge	Perennial	Native
EQUARV	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	FAC	0	Fern	Perennial	Native
ERIANN	Erigeron annuus	Erigeron annuus	Eastern Daisy Fleabane	0	FACU	FACU	1	Forb	Biennial	Native
PHAARU	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
PLALAN	Plantago lanceolata	PLANTAGO LANCEOLATA	English Plantain	0	FACU	FACU	1	Forb	Perennial	Adventive
PLAMAJ	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FAC	FACU	0	Forb	Perennial	Adventive

poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0 Grass	Perennial	Adventive
RANSCE	Ranunculus sceleratus	Ranunculus sceleratus	Cursed Buttercup	4	OBL	OBL	-2 Forb	Annual	Native
RHACAT	Rhamnus cathartica	RHAMNUS CATHARTICA	European Buckthorn	0	FAC	FAC	0 Shrub	Perennial	Adventive
ROSSET	Rosa setigera	Rosa setigera var. tomentosa	Climbing Rose	5	FACU	FACU	1 Shrub	Perennial	Native
RUMCRI	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0 Forb	Perennial	Adventive
SALINT	Salix interior	Salix interior	Sandbar Willow	2	FACW	FACW	-1 Shrub	Perennial	Native
ASTSIM	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0 Forb	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FACW	FAC	-1 Vine	Perennial	Native

SITE: Site 7 - Zion Landfill
LOCALE: Zion, IL
BY: P. Hickey, A. Burchacki
NOTES: 6/11/2019

CONSERVATISM-BASED METRICS			ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)		1.70	SPECIES RICHNESS (ALL)	20
MEAN C (ALL SPECIES)		0.85	SPECIES RICHNESS (NATIVE)	10
MEAN C (NATIVE TREES)	n/a		% NON-NATIVE	0.50
MEAN C (NATIVE SHRUBS)	n/a		WET INDICATOR (ALL)	0.05
MEAN C (NATIVE HERBACEOUS)		1.70	WET INDICATOR (NATIVE)	-0.40
FQAI (NATIVE SPECIES)		5.38	% HYDROPHYTE (MIDWEST)	0.60
FQAI (ALL SPECIES)		3.80	% NATIVE PERENNIAL	0.25
ADJUSTED FQAI		12.02	% NATIVE ANNUAL	0.25
% C VALUE 0		0.75	% ANNUAL	0.30
% C VALUE 1-3		0.10	% PERENNIAL	0.65
% C VALUE 4-6		0.15		
% C VALUE 7-10		0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
AMBART	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	FACU	1	Forb	Annual	Native
AMBTRI	Ambrosia trifida	Ambrosia trifida	Great Ragweed	0	FAC	FAC	0	Forb	Annual	Native
CXCRIS	Carex cristatella	Carex cristatella	Crested Sedge	4	FACW	FACW	-1	Sedge	Perennial	Native
CYPESC	Cyperus esculentus	Cyperus esculentus	Chufa	0	FACW	FACW	-1	Sedge	Perennial	Native
DAUCAR	Daucus carota	DAUCUS CAROTA	Queen Anne’s Lace	0	UPL	UPL	2	Forb	Biennial	Adventive
ECHCRU	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass	0	FACW	FAC	-1	Grass	Annual	Native
ELEERY	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii; Eleocharis xyridiformis; Eleocharis macrostachya	Common Spike-Rush	1	OBL	OBL	-2	Sedge	Perennial	Native
ELYHYS	Elymus hystrix	Hystrix patula	Eastern Bottle-Brush Grass	5	FACU	FACU	1	Grass	Perennial	Native
GALAPA	Galium aparine	Galium spurium	Sticky-Willy	0	FACU	FACU	1	Forb	Annual	Native
PERMAC	Persicaria maculosa	POLYGONUM PERSICARIA	Lady's-Thumb	0	FACW	FAC	-1	Forb	Annual	Adventive
PHAARU	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	FACW	-1	Grass	Perennial	Adventive
PLALAN	Plantago lanceolata	PLANTAGO LANCEOLATA	English Plantain	0	FACU	FACU	1	Forb	Perennial	Adventive
PLAMAJ	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FAC	FACU	0	Forb	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FAC	FACU	0	Grass	Perennial	Adventive
POTREC	Potentilla recta	POTENTILLA RECTA	Sulfur Cinquefoil	0	UPL	UPL	2	Forb	Perennial	Adventive
RANSCE	Ranunculus sceleratus	Ranunculus sceleratus	Cursed Buttercup	4	OBL	OBL	-2	Forb	Annual	Native

RUMCRI	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	FAC	0	Forb	Perennial	Adventive
SCHARU	Schedonorus arundinaceus	SCHEDONORUS ARUNDINACEUS	Tall False Rye Grass	0	FACU	FACU	1	Grass	Perennial	Adventive
ASTSIM	Symphyotrichum lanceolatum	Aster simplex	White Panicled American-Aster	3	FAC	FACW	0	Forb	Perennial	Native
TRIHYB	Trifolium hybridum	TRIFOLIUM HYBRIDUM	Alsike Clover	0	FACU	FACU	1	Forb	Perennial	Adventive

Appendix E

Agency Correspondence

EcoCAT
Ecological Compliance Assessment Tool

Applicant: Hampton, Lenzini & Renwick
Contact: Pat Hickey
Address: 380 Shepard Dr.
Elgin, IL 60123

IDNR Project Number: 2000324
Date: 07/08/2019
Alternate Number: 1505222

Project: Zion Landfill Site 2 North
Address: SW of Russell Road and Kenosha Road, Zion

Description: The Zion Landfill is considering expanding their landfill operation into this project area. HLR is performing a wetland delineation within the proposed project area.

Natural Resource Review Results

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Consultation is terminated. This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary. Termination does not imply IDNR's authorization or endorsement.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Lake

Township, Range, Section:
46N, 12E, 5
46N, 12E, 6
46N, 12E, 7
46N, 12E, 8

IL Department of Natural Resources Contact
Bradley Hayes
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
U.S. Army Corps of Engineers

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project’s implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

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EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

Hampton, Lenzini and Renwick, Inc.

Civil Engineers • Structural Engineers • Land Surveyors • Environmental Specialists
www.hlrengineering.com

MEMORANDUM

TO: **James Lewis - Advanced Disposal**

FROM: **Patrick Hickey**

DATE: **June 26, 2019**

RE: **Section 7 Endangered Species Consultation – Zion Landfill Site 2 North**

Advanced Disposal is proposing to expand the Zion Landfill to the Arthur Weiler Nursery, located at the southwest corner of Russell Road and Kenosha Road in Zion Township (46 North, Range 12 East, Section 6).

HLR, Inc. carefully reviewed the U.S. Fish and Wildlife technical assistance website on June 26, 2019, for federally listed threatened and endangered species. The list from the website is attached. According to the website, there are six species that may be present in Lake County including the Northern long-eared bat, piping plover, pitcher's thistle, Eastern prairie fringed orchid, karner blue butterfly and Eastern massasauga rattlesnake.

The threatened and endangered species review determined:

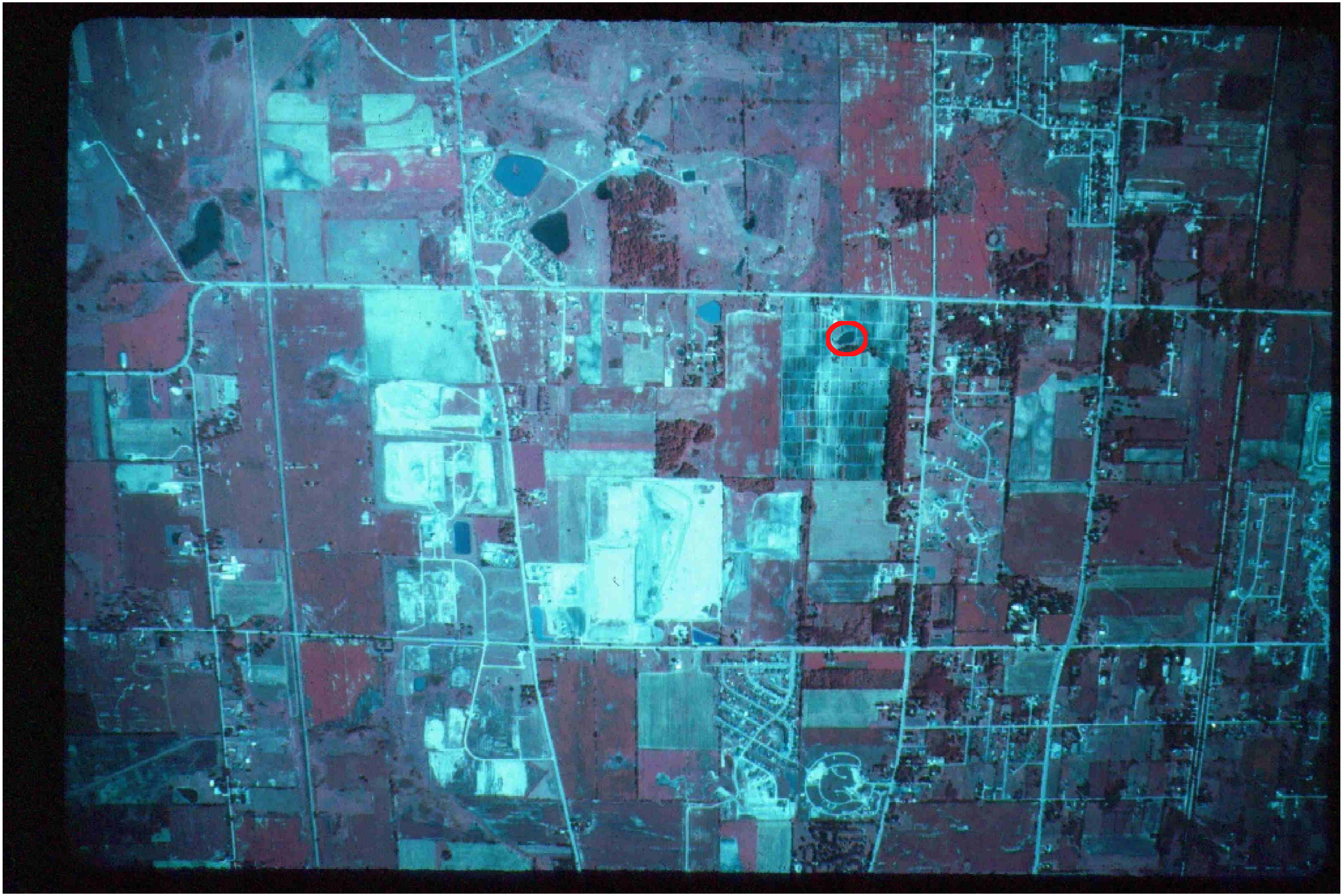
- The Northern long-eared bat's habitat consists of caves and mines in the winter season and upland forests during the summer season. This habitat was not present within the project limits. Therefore, it has been determined that no suitable habitat exists within the project limits.
- The piping plover's habitat consists of wide, open, sandy beaches with little vegetation. This habitat is not present within the project limits. Therefore, it has been determined that no suitable habitat exists.
- The rufa red knot's habitat consists of costal habitats including those of Illinois Beach State Park to the Chicago Lake front and major reservoirs such as Rend Lake. They are migratory and are found in Illinois during May 1 – September 30. These habitats are not present within the project limits and therefore, it has been determined that no suitable habitat exists within the project limits.
- Karner blue butterfly's habitat consists of oak savannas and pine barrens containing sandy soils, neither of which are located within the project limits. Wild lupines are the food source for the larvae and these were not noted within the project limits. Therefore, it has been determined that no suitable habitat exists.
- According to the U.S. Fish and Wildlife Service the rusty patched bumble bee's range does not extend into the project limits. A map of the range for the rusty patched bumble bee can be found here: https://www.fws.gov/midwest/endangered/insects/rpbb/rpbbmap.html. Therefore, it has been determined that no suitable habitat exists.
- The Eastern prairie fringed orchid habitat consists of higher quality wetlands, marshes, sedge meadows and mesic to wet prairies. The Floristic Quality Index for Site 2 had the highest FQI of all the sites, 11.83, showing some native character but would not be considered high quality. Therefore, it has been determined that no suitable habitat exists for the Eastern prairie fringed orchid.
- The pitcher's thistle is found on lakeshore dunes. This habitat is not present within the project limits. Therefore, it has been determined that no suitable habitat exists.
- None of these above species or associated habitats were identified during the wetland delineation conducted in June 2019.

As no suitable habitat exists, we conclude that species and critical habitat is not present and therefore no further coordination is required.

LAKE **Field Office to Contact:** Chicago Field Office 230 South Dearborn St., Suite 2938 Chicago, Illinois 60604 Phone: 312-216-4720 e:mail Chicago@fws.gov Cathy_Pollack@fws.gov	Northern long-eared bat ***Myotis septentrionalis***	Threatened Key to 4(d) Rule	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods.
	Piping plover ***Charadrius melodus***	Endangered	Wide, open, sandy beaches with very little grass or other vegetation
	Piping plover ***Charadrius melodus***	Critical Habitat	Wide, open, sandy beaches with very little grass or other vegetation
	Rufa Red knot ***Calidris canutus rufa***	Threatened	Only actions that occur along coastal areas or large wetland complexes during migratory window of May 1 - September 30
	Karner blue butterfly ***Lycaeides melissa samuelis***	Endangered	Pine barrens and oak savannas on sandy soils and containing wild lupines (***Lupinus perennis***), the only known food plant of the larvae
	Rusty patched bumble bee ***Bombus affinis*** **Note for project proponents**: this bee is not known to occur throughout the entire county. To determine if your project or ongoing action is within an area that is likely to have the rusty patched bumble bee, use our online tool at https://ecos.fws.gov/ipac/	Endangered	Grasslands with flowering plants from April through October, underground and abandoned rodent cavities or clumps of grasses above ground as nesting sites, and undisturbed soil for hibernating queens to overwinter.
	Eastern prairie fringed orchid ***Platanthera leucophaea*** Go here for specific guidance on how to determine whether this species is present on a site.	Threatened	Moderate to high quality wetlands, sedge meadow, marsh, and mesic to wet prairie
	Pitcher's thistle ***Cirsium pitcheri***	Threatened	Lakeshore dunes

Appendix F

Farmed Wetland Slides



1990

1991

1993

1997

2000

2001

WETS Station:		Waukegan 2 WNW IL9029	
	Average	<30%	>30%
April	3.70	2.63	4.82
May	3.41	2.29	4.37
June	3.62	2.24	4.27

CLIMATIC EVALUATION OF PRECIPITATION
3 MONTHS BEFORE AERIAL CROP
HISTORY SLIDES

DATE: ____
COUNTY: ____
LANDOWNER: ____
TRACT NO. ____
PREPARED BY: ____

Year	April Percip-itation	Type of Month	May Percip-itation	Type of Month	June Percip-itation	Type of Month	April Score 1X	May Score 2X	June Score 3X	Score for Year	Type of Year	Year	RECORD OF WETLAND SIGNATURES OBSERVED ON AERIAL CROP HISTORY SLIDES
1980	3.53	Normal	1.56	Dry	3.79	Normal	2	2	6	10	NORMAL	1980	
1981	2.94	Normal	3.15	Normal	5.26	Wet	2	4	9	15	WET	1981	
1982	3.58	Normal	2.94	Normal	1.45	Dry	2	4	3	9	DRY	1982	
1983**	5.15	Wet	3.19	Normal	2.41	Normal	3	4	6	13	NORMAL	1983**	
1984	4.62	Normal	5.54	Wet	4.30	Wet	2	6	9	17	WET	1984	
1985	2.24	Dry	3.54	Normal	1.62	Dry	1	4	3	8	DRY	1985	
1986	0.57	Dry	2.00	Dry	2.55	Normal	1	2	6	9	DRY	1986	
1987**	4.01	Normal	5.43	Wet	1.17	Dry	2	6	3	11	NORMAL	1987**	
1988	2.80	Normal	1.07	Dry	1.27	Dry	2	2	3	7	DRY	1988	
1989	0.98	Dry	2.72	Normal	1.98	Dry	1	4	3	8	DRY	1989	
1990* IR	3.17	Normal	7.31	Wet	4.07	Normal	2	6	6	14	NORMAL	1990* IR	
1991*	4.94	Wet	2.91	Normal	1.73	Dry	3	4	3	10	NORMAL	1991*	
1992	2.73	Normal	0.34	Dry	1.14	Dry	2	2	3	7	DRY	1992	
1993*	7.11	Wet	2.08	Dry	9.86	Wet	3	2	9	14	NORMAL	1993*	very wet June
1994	2.07	Dry	1.35	Dry	3.55	Normal	1	2	6	9	DRY	1994	
1995	4.01	Normal	4.10	Normal	0.98	Dry	2	4	3	9	DRY	1995	
1996W	2.65	Normal	7.27	Wet	5.72	Wet	2	6	9	17	WET	1996W	
1997*	0.63	Dry	4.55	Wet	2.13	Dry	1	6	3	10	NORMAL	1997*	
1998	4.49	Normal	3.83	Normal	5.61	Wet	2	4	9	15	WET	1998	
1999	7.10	Wet	2.63	Normal	5.24	Wet	3	4	9	16	WET	1999	
2000W	4.42	Normal	5.83	Wet	6.90	Wet	2	6	9	17	WET	2000W	
2001*	3.03	Normal	5.35	Wet	2.71	Normal	2	6	6	14	NORMAL	2001*	
2002	2.87	Normal	2.96	Normal			2	4		6	**********	2002	Data not available for June

SCORE			TYPE OF YEAR	
	Dry =	1	Dry =	6 to 9
	Normal =	2	Normal =	10 to 14
	Wet =	3	Wet =	14 to 18

* Preferred NORMAL slide years
** Alternate NORMAL slide years
W -- Preferred WET slide years
IR -- Infrared slides

COMMENTS: No data available after 2002

Appendix G

Preliminary Jurisdictional Determination

STORMWATER MANAGEMENT COMMISSION

November 22, 2019

Mr. David Otzelberger, General Manager
Advanced Disposal
701 Green Bay Road
Zion, Illinois 60099

Subject: **SMC #:** IWLC-19-273
USACE #: LRC-2019-953
Zion Landfill Site 2 North Expansion, Southwest of Russell Rd. and Kenosha Rd., Zion, Lake County, IL
PIN #s: 04-06-400-002, 04-05-300-012, 04-05-300-023, 04-05-300-022, 04-05-300-010, 04-05-300-009, 04-05-300-008, 04-05-300-001
Lat. 42.489568°, **Long.** -87.867124° (approx. center of property)

PRELIMINARY WETLAND JURISDICTIONAL DETERMINATION and partial BOUNDARY VERIFICATION

Dear Mr. Otzelberger:

This letter responds to your request for a preliminary wetland jurisdictional determination (PJD) for the subject project area, received by the Lake County Stormwater Management Commission (SMC) on October 21, 2019, and supplemental information received on November 14, 2019, from Hampton, Lenzini, and Renwick, Inc. (HLRI). SMC reviewed available reference materials and performed a site reconnaissance on November 21, 2019, in the company of Mr. Michael Machalek of the U.S. Army Corps of Engineers-Chicago District (USACE). Note that the wetlands/waters referenced in this letter are depicted on the enclosed *Figure 1: Zion Landfill Site 2 North,* prepared by HLRI.

- **Sites 2, 3, 4, and 7 appear to be a *Waters of the United States* (WOUS) as defined in the Clean Water Rule (33 CFR Part 328, 6/29/15), which is subject to regulation by the USACE under the federal Clean Water Act.** Specifically, these sites appear to meet Part 328.3(a)(8), being within 4,000 feet of a tributary to Lake Michigan (i.e., Kellogg Creek sub-watershed) and are assumed to meet one or more of the significant nexus functions listed in in Part 328.3(c)(5).

  The USACE reviewed and concurred with the "Site 7" boundary as shown in the exhibit by HLRI; however, the USACE did not concur with boundaries at Sites 2, 3, or 4 (see notes on the attached field report).

- Sites 1, 5 and 6 are water features constructed in dry land and are excluded from the definition of *Waters of the United States* (WOUS) under 33 CFR Part 328.3(b)(6). **Therefore, Sites 1, 5 and 6 are not regulated as WOUS.**

- **By default, Sites 1, 5 and 6 are considered an *Isolated Waters of Lake County* (IWLC).** However, these features may meet the IWLC exclusion criteria in Appendix A of the Lake County Watershed Development Ordinance (WDO). You may contact the Enforcement Officer (EO; see contact information on page 2) regarding potential IWLC exclusion determinations. Also, this determination does not include an IWLC boundary verification (BV) due to conditions outside the growing season. You may request a BV of the IWLC from the SMC Certified Wetland Specialist (see contact information on page 2).

This PJD has been approved by SMC's Chief Engineer and the findings are valid for a period of three (3) years from the date of this letter, unless new information warrants a revision before the expiration date. If you disagree with the findings of this PJD, you may request an approved jurisdictional determination (AJD) from the USACE. Please be informed that the USACE may require an AJD if your project proposes impacts to any aquatic resource (wetlands/waters) referenced in this letter. The USACE will use the AJD for permitting purposes or for Letters of No Objection (LONOs) requested from their office.

Permitting Considerations

- This letter satisfies the requirement for a written jurisdictional determination under WDO §1001 for the indicated wetlands/waters.

- The boundaries of all wetlands/waters on the site, including features constructed in dry land (e.g., stormwater management basins), will need to be clearly depicted and labeled on the development plans for permitting purposes.

- If the proposed development will require impacts to the regulated WOUS, a separate wetland permit from the USACE will be required. Please refer to the USACE-Chicago District's web site for the permit application submittal requirements: http://www.lrc.usace.army.mil/Missions/Regulatory/Illinois/AppChecklist.aspx. The USACE may require SMC's technical review/approval of the proposed soil erosion and sediment control plan (SE/SC) for the development as a condition of their permit. Site inspections for compliance with the approved SESC plans will also be required. We will advise you if our SE/SC review/approval is required.

- **If the proposed development will impact IWLCs, written approval from SMC will be required as a condition of the WDP.** Please contact Ms. Juli Crane with SMC at 847-377-7708 or jcrane@lakecountyil.gov for IWLC submittal requirements.

- **A Lake County Watershed Development Permit (WDP) from the SMC may be required for site development in accordance with the applicable provisions of the WDO.** Please contact Ms. Kelcey Traynoff at 847-377-7711 or ktraynoff@lakecountyil.gov regarding WDP submittal requirements.

We would like to be of assistance. If you have any questions, or would like to set up a meeting, please call our office at 847-377-7700. If you have any additional concerns that have not been addressed by the regulatory staff, you may contact Chief Engineer Kurt Woolford kwoolford@lakecountyil.gov or Executive Director Michael Warner mwarner@lakecountyil.gov.

Sincerely,
LAKE COUNTY STORMWATER MANAGEMENT COMMISSION

Kurt Woolford, P.E., CFM
Chief Engineer

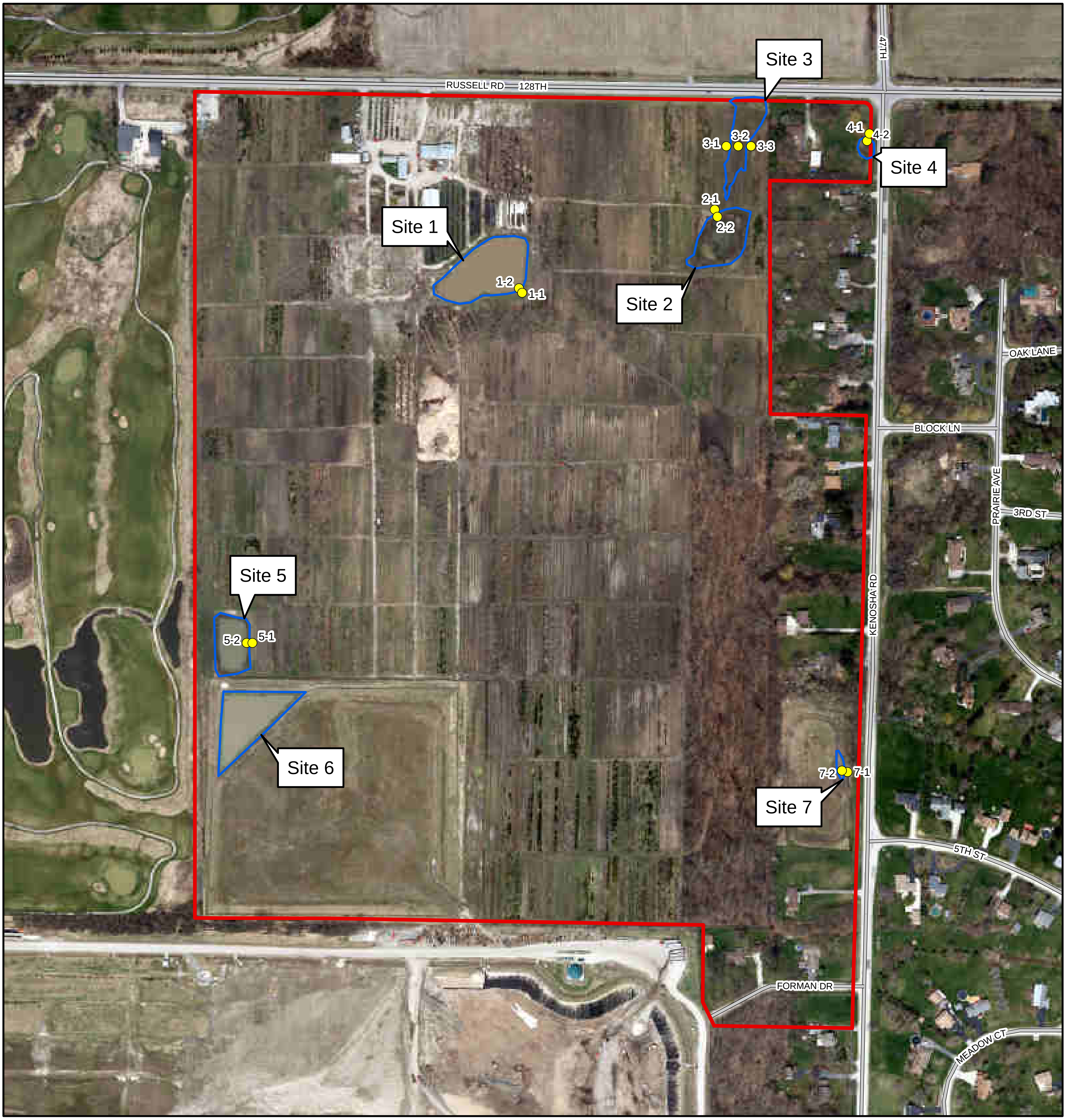
Juli E. Crane, PWS, CWS, CFM
Principal Wetland Specialist

JULI E. CRANE
000017

Enclosures: *Figure 1: Zion Landvill Site 2 North,* by HLRI
Field PJD Report dated 11/21/19

xc: Kathy Chernich/Mike Machalek/Kaitlyn Pascus, USACE

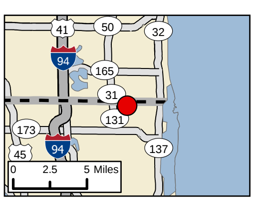
This document was digitally transmitted. Please print out a copy of the document and retain for your records. If you are unable to print the document, or desire a hard copy mailed be to you, please notify SMC at your earliest convenience.



1 inch = 417 feet

225 112.5 0 225 Feet

N



Lake Co GIS Division, Kenosha County Land Information Department, USGS, US Census, IDOT

Imagery: 2017 Lake County Imagery

Project Description

- Project Area
- Site Boundary
- Data Points

Road Type

- Interstates
- US and State Highways
- Minor Roads

Figure 1

Zion Landfill
Site 2 North

Project Location and Site Map
Scale: 1:5,000

Hampton, Lenzini and Renwick, Inc.

Civil & Structural Engineers • Land Surveyors • Environmental Specialists

ELGIN • WOODRIDGE • SPRINGFIELD • MT. CARMEL

www.hlrengineering.com

Preliminary Jurisdictional Determination Field Report

Site Name: *Zion Landfill Expansion* **Date:** *11/21/2019 10:15 AM*

SMC/PBD #: *IWLC-19-273* **USACOE #:** *LRC-2019-953*

Attendees:
USACOE Representative(s): *Mike Machalek*
List Other Corp Representative(s):
SMC/PBD Representative(s): *Juli Crane*
Other SMC/PBD Representative(s):
Other attendee(s):

PJD Requestor:
Name/Contact Info: *Daniel Otzelberger, General Manager (847-599-5910); Daniel.otzelberger@advanceddisposal.com*

Site Info:
Address/PIN#: *Southwest of Russell Road and Kenosha Road, Zion*
Lat/Long: *42.489568, -87.867124*
Description: *Mostly landscape nursery plots, with the southwest portion recently graded/developed*
References: *e.g., Wetland Delineation Report for Zion Landfill Site 2 North [HLRI July 2019]; Wetland Delineation Map (Figure1), FEMA Floodplain Map (2016), aerial photos [1939 through 2018], topographic map 1' contours (Lake County GIS 2007), Lake County Soil Survey (NRCS 2005). etc.*

Disposition of Waters of the US:
Site appears to contain Waters of the U.S.: *Yes, site DOES appear to contain Waters of the U.S.*
List wetland/water IDs from delineation map and basis: *Sites 2, 3, 4, and 7 (a)(8)*
WOUS Exclusions: *Sites 1, 5, and 6 are features that were excavated in dry land*
Corps representative concurs with staked/flagged WOUS boundaries*: No*
If Corp representative DOES NOT concur, please explain: *USACE concurs with flagging at Site 7. USACE does not concur with flagging at Sites 2, 3, or 4. Sites 2 and 3 connect and the southern end extends out by about 10 feet. Site 4 appears to extend northward (see photo). Consultant should coordinate with SMC to finalize the wetland boundaries for these sites.*

Disposition of Isolated Waters of Lake County:
Site appears to contain Isolated Waters of Lake County.: *Yes, site DOES appear to contain Isolated Waters of Lake County.*
List wetland/water IDs from delineation map: *By default, Sites 1, 5, and 6 are IWLCs.*
Potential IWLC Exclusions: *Sites 1, 5, and 6 may be eligible for IWLC exclusion as having been permitted, permitted by right, and/or created incidental to construction grading on development sites.*
SMC/PBD representative concurs with staked/flagged IWLC boundaries: *No*
If SMC/PBD representative DOES NOT concur, please explain: *BV for IWLC areas, if desired, will be performed upon receipt of a written request (application form) and payment of BV review fee to SMC.*

Comments: *A review of historic aerial photographs from 1939 to 2018 fail to show clear evidence that Sites 1, 5, and 6 were wetland/waters prior to creation of pond features.*

Attests:
USACOE Representative Attestment:
Signature of USACOE Representative:

SMC/PBD Representative Attestment:
Signature of SMC/PBD Representative:

Photo 1
View south at Site 4 showing wetness conditions following 0.3-inch rainfall; vegetation was dominated by redtop.

Southorn, Richard

From: Crane, Juli <JCrane@lakecountyil.gov>
Sent: Thursday, May 28, 2020 2:58 PM
To: Southorn, Richard
Cc: Traynoff, Kelcey
Subject: FW: Zion Landfill Exclusion request for EO

EXTERNAL SENDER

Richard,

This email thread documents that the Enforcement Officer granted the IWLC exclusion.
Juli

Juli E. Crane, PWS, CWS
Principal Wetland Specialist
think before you print Please consider our environment before printing this e-mail

---

From: Woolford, Kurt A. <KWoolford@lakecountyil.gov>
Sent: Tuesday, March 24, 2020 1:35 PM
To: Crane, Juli <JCrane@lakecountyil.gov>
Cc: Traynoff, Kelcey <KTraynoff@lakecountyil.gov>
Subject: Re: Zion Landfill Exclusion request for EO

I concur. Excluded from IWLC. thanks

From: Crane, Juli <JCrane@lakecountyil.gov>
Sent: Thursday, March 19, 2020 3:17 PM
To: Woolford, Kurt A. <KWoolford@lakecountyil.gov>
Cc: Traynoff, Kelcey <KTraynoff@lakecountyil.gov>
Subject: Zion Landfill Exclusion request for EO

WDP-19-308

Please see attached exclusion worksheet. The online map clips below show conditions in 2015 (prior to development) and again in 2018 (post development). The triangular pond is the feature being requested for exclusion and is clearly a constructed feature. Energov indicates a grading/site permit in 2015 (206239).

Kurt, are you okay with excluding the triangular pond from jurisdiction as IWLC based on this information?

2018 Aerial:

2015 aerial clip:

Juli

We would like to be of assistance. If you have any questions, or would like to set up a meeting, please call our office at (847) 377-7700 or e-mail Juli Crane at jcrane@lakecountyil.gov. If you have any additional concerns that have not been addressed by the regulatory staff, you may contact Chief Engineer Kurt Woolford kwoolford@lakecountyil.gov or Executive Director Michael Warner mwarner@lakecountyil.gov at (847) 377-7700.

Juli E. Crane, PWS, CWS
Principal Wetland Specialist
Lake County Stormwater Management Commission

500 W. Winchester Rd., Ste. 201
Libertyville, IL 60048
Phone: 847-377-7708
think before you print   Please consider our environment before printing this e-mail

F.4 – Seismic Impact Zone

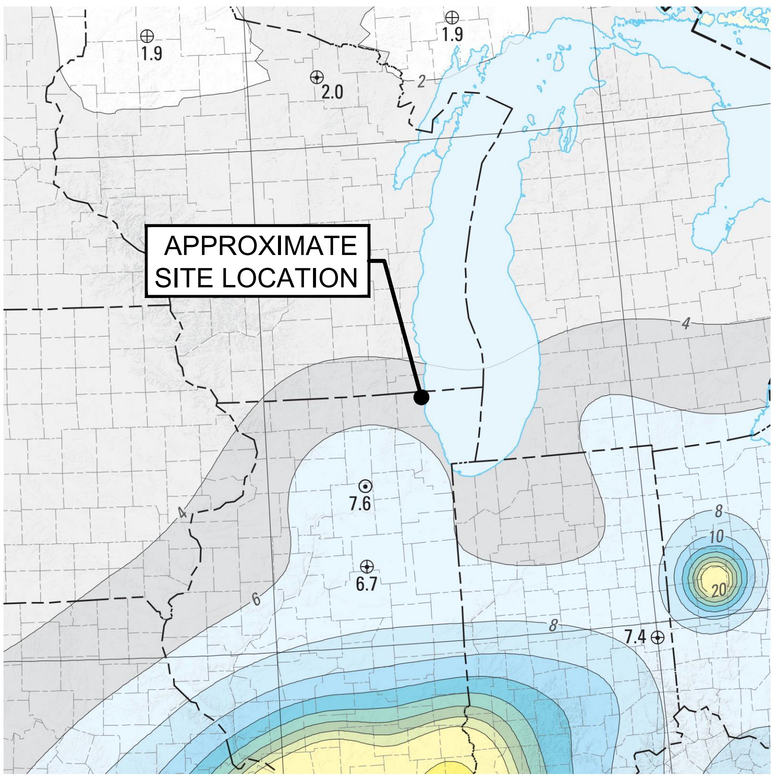
USGS
science for a changing world
Earthquake Hazards Program

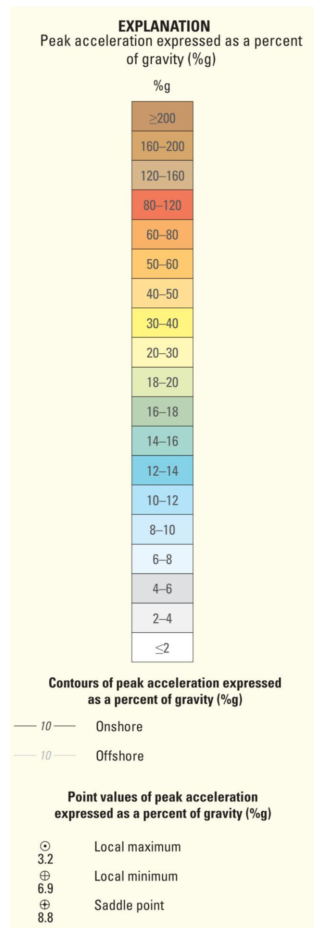
LOCATION 42.490 Lat. -87.867 Long.

The interpolated probabilistic ground motion values, in %g, at the requested point are:

P.E. %	Exp. Time (years)	Ground Motion (g)
2	50	0.0461

U.S. NATIONAL SEISMIC HAZARD MAPS: Peterson, M.D., et al, 2014





Peak Horizontal Acceleration with 2% Probability of Exceedance in 50 Years

NOTES

1. Information obtained from the United States Geological Survey website.

APTIM
APTIM Environmental & Infrastructure, LLC

ZION LANDFILL
SITE 2 NORTH EXPANSION

FIGURE F.4
MAP OF HORIZONTAL ACCELERATION

APPROVED BY: DAM	PROJ. NO.: 631020105	DATE: MAY 2022

F.5 – Wild and Scenic Rivers

RIVER MILEAGE CLASSIFICATIONS FOR COMPONENTS OF THE NATIONAL WILD AND SCENIC RIVERS SYSTEM [1]

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
1. Clearwater (Middle Fork), Idaho (P.L. 90-542—October 2, 1968)	Forest Service	54.0	–	131.0	185.0
2. Eleven Point, Missouri (P.L. 90-542—October 2, 1968)	Forest Service	–	44.4	–	44.4
3. Feather, California (P.L. 90-542—October 2, 1968)	Forest Service	32.9	9.7	35.0	77.6
4. Rio Grande, New Mexico (P.L. 90-542—October 2, 1968)	Forest Service Bureau of Land Management	3.9 51.0	–	0.4 0.4	4.3 51.4
Rio Grande, New Mexico (P.L. 103-242—May 4, 1994)	Bureau of Land Management	–	12.5	–	12.5
Rio Grande, Texas (P.L. 95-625—November 10, 1978)	National Park Service	95.2	96.0	–	191.2
	Rio Grande Total	*150.1*	*108.5*	*0.8*	*259.4*
5. Rogue, Oregon (P.L. 90-542—October 2, 1968)	Forest Service Bureau of Land Management	13.0 20.6	7.5 –	17.0 26.4	37.5 47.0
	Rogue River Total	*33.6*	*7.5*	*43.4*	*84.5*

[1] Mileages in this table are derived from legislative language and/or the most recent figures reported in river plans (or "Comprehensive River Management Plans"). They may differ from mileages obtained by digitizing maps or aerial photographs depicting the river's location on a fixed date. Rivers are dynamic, with frequent flow-related changes in wetted area and longer-term changes in course. Both these physical changes and variations in the technique used to digitize the river will result in variability between a river's reported and actual length at any give time.

River **Present Units in the National System**	**Administering Agency**	**Miles by Classification** *Wild*	 *Scenic*	 *Rec'l*	***Total Miles***
6. Salmon (Middle Fork), Idaho (P.L. 90-542—October 2, 1968)	Forest Service	103.0	1.0	–	104.0
7. St. Croix, Minnesota & Wisconsin (P.L. 90-542—October 2, 1968)	National Park Service	–	181.0	19.0	200.0
St. Croix (Lower) Minnesota & Wisconsin (P.L. 92-560—October 25, 1972)	National Park Service	–	12.0	15.0	27.0
St. Croix (Lower), Minnesota & Wisconsin (Secretarial Designation—June 17, 1976) (*Federal Register* Volume 41, Number 124)	States of Minnesota and Wisconsin	–	–	25.0	25.0
	St. Croix River Total	–	*193.0*	*59.0*	*252.0*
8. Wolf, Wisconsin (P.L. 90-542—October 2, 1968)	National Park Service	–	24.0	–	24.0
9. Allagash Wilderness Waterway, Maine (Secretarial Designation—July 19, 1970) (*Federal Register* Volume 35, Number 138)	State of Maine	92.5	–	–	92.5
10. Little Miami, Ohio (Secretarial Designation—August 20, 1973) (*Federal Register* Volume 39, Number 22)	State of Ohio	–	18.0	48.0	66.0
Little Miami, Ohio (Secretarial Designation—January 11, 1981) (*Federal Register* Volume 46, Number 7)	State of Ohio	–	–	28.0	28.0
	Little Miami River Total	–	*18.0*	*76.0*	*94.0*

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
11. Chattooga, Georgia, North and South Carolina (P.L. 93-279—May 10, 1974)	Forest Service	41.6	2.5	14.6	58.7
12. Little Beaver, Ohio (Secretarial Designation—October 23, 1975) (*Federal Register* Volume 41, Number 40)	State of Ohio	–	33.0	–	33.0
13. Snake, Idaho & Oregon (P.L. 94-199—December 31, 1975)	Forest Service	31.5	36.0	–	67.5
14. Rapid, Idaho (P.L. 94-199—December 31, 1975)	Forest Service	26.8	–	–	26.8
15. New, North Carolina (Secretarial Designation—April 13, 1976) (*Federal Register* Volume 41, Number 76)	State of North Carolina	–	26.5	–	26.5
16. Flathead, Montana (P.L. 94-486—October 12, 1976)	Forest Service	97.9	–	17.8	115.7
	Forest Service and National Park Service	–	40.7	62.6	103.3
	Flathead River Total	*97.9*	*40.7*	*80.4*	*219.0*

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	*Scenic*	*Rec'l*	***Total Miles***
17. Missouri, Montana (P.L. 94-486—October 12, 1976)	Bureau of Land Management	64.0	26.0	59.0	149.0
Missouri, Nebraska & South Dakota (P.L. 95-625—November 10, 1978)	National Park Service	–	–	59.0	59.0
Missouri, Nebraska & South Dakota (P.L. 102-50—May 24, 1991)	National Park Service	–	–	39.0	39.0
	Missouri River Total	*64.0*	*26.0*	*157.0*	*247.0*
18. Obed, Tennessee (P.L. 94-486—October 12, 1976)	National Park Service	43.3	2.0	–	45.3
19. American (North Fork), California (P.L. 95-625—November 10, 1978)	Forest Service Bureau of Land Management	26.3 12.0	– –	– –	26.3 12.0
	American River (North Fork) Total	*38.3*	–	–	*38.3*
20. Delaware (Upper), New York & Pennsylvania (P.L. 95-625—November 10, 1978)	National Park Service	–	23.1	50.3	73.4
Delaware (Middle), New Jersey & Pennsylvania (P.L. 95-625—November 10, 1978)	National Park Service	–	35.0	5.0	40.0
Delaware (Lower), New Jersey & Pennsylvania (P.L. 106-418—November 1, 2000)	National Park Service and Local Government	–	25.4	41.9	67.3
	Delaware River Total	–	*83.5*	*97.2*	*180.7*

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
21. Pere Marquette, Michigan (P.L. 95-625—November 10, 1978)	Forest Service	–	66.4	–	66.4
22. Saint Joe, Idaho (P.L. 95-625—November 10, 1978)	Forest Service	26.6	–	39.7	66.3
23. Skagit, Washington (P.L. 95-625—November 10, 1978)	Forest Service	–	100.0	58.5	158.5
24. Salmon, Idaho (P.L. 96-312—July 23, 1980)	Forest Service	79.0	–	46.0	125.0
25. Alagnak, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	67.0	–	–	67.0
26. Alatna, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	83.0	–	–	83.0
27. Andreafsky, Alaska (P.L. 96-487—December 2, 1980)	Fish and Wildlife Service	262.0	–	–	262.0
28. Aniakchak, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	63.0	–	–	63.0
29. Beaver Creek, Alaska (P.L. 96-487—December 2, 1980)	Fish and Wildlife Service Bureau of Land Management	16.0 111.0	– –	– –	16.0 111.0
	Beaver Creek Total	*127.0*	–	–	*127.0*
30. Birch Creek, Alaska (P.L. 96-487—December 2, 1980)	Bureau of Land Management	126.0	–	–	126.0

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
31. Charley, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	208.0	–	–	208.0
32. Chilikadrotna, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	11.0	–	–	11.0
33. Delta, Alaska (P.L. 96-487—December 2, 1980)	Bureau of Land Management	20.0	24.0	18.0	62.0
34. Fortymile, Alaska (P.L. 96-487—December 2, 1980)	Bureau of Land Management	179.0	203.0	10.0	392.0
35. Gulkana, Alaska (P.L. 96-487—December 2, 1980)	Bureau of Land Management	181.0	–	–	181.0
36. Ivishak, Alaska (P.L. 96-487—December 2, 1980)	Fish and Wildlife Service	80.0	–	–	80.0
37. John, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	52.0	–	–	52.0
38. Kobuk, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	110.0	–	–	110.0
39. Koyukuk (North Fork), Alaska (P.L. 96-487—December 2, 1980)	National Park Service	102.0	–	–	102.0
40. Mulchatna, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	24.0	–	–	24.0
41. Noatak, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	330.0	–	–	330.0

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	*Scenic*	*Rec'l*	***Total Miles***
42. Nowitna, Alaska (P.L. 96-487—December 2, 1980)	Fish and Wildlife Service	225.0	–	–	225.0
43. Salmon, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	70.0	–	–	70.0
44. Selawik, Alaska (P.L. 96-487—December 2, 1980)	Fish and Wildlife Service	160.0	–	–	160.0
45. Sheenjek, Alaska (P.L. 96-487—December 2, 1980)	Fish and Wildlife Service	160.0	–	–	160.0
46. Tinayguk, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	44.0	–	–	44.0
47. Tlikakila, Alaska (P.L. 96-487—December 2, 1980)	National Park Service	51.0	–	–	51.0
48. Unalakleet, Alaska (P.L. 96-487—December 2, 1980)	Bureau of Land Management	80.0	–	–	80.0
49. Wind, Alaska (P.L. 96-487—December 2, 1980)	Fish and Wildlife Service	140.0	–	–	140.0
50. American (Lower), California (Secretarial Designation—January 19, 1981) (*Federal Register* Volume 46, Number 15)	State of California	–	–	23.0	23.0

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
51. Eel, California (Secretarial Designation—January 19, 1981) (*Federal Register* Volume 46, Number 15)	State of California Forest Service Bureau of Land Management Round Valley Indian Reservation	36.0 35.0 21.0 5.0	22.5 – 4.5 1.0	250.5 – 6.5 16.0	309.0 35.0 32.0 22.0
	Eel River Total	*97.0*	*28.0*	*273.0*	*398.0*
52. Klamath, California (Secretarial Designation—January 19, 1981) (*Federal Register* Volume 46, Number 15)	State of California Forest Service Bureau of Land Management Hoopa Valley Indian Reservation National Park Service	– 11.7 – – –	3.0 20.5 – – –	12.2 190.1 1.5 46.0 1.0	15.2 222.3 1.5 46.0 1.0
Klamath, Oregon (Secretarial Designation—September 22, 1994) (*Federal Register* Volume 59, Number 201)	State of Oregon and Bureau of Land Management	–	11.0	–	11.0
	Klamath River Total	*11.7*	*34.5*	*250.8*	*297.0*
53. Smith, California (Secretarial Designation—January 19, 1981) (*Federal Register* Volume 46, Number 15)	State of California	–	0.5	28.5	29.0
Smith, California (P.L. 101-612—November 16, 1990)	Forest Service	78.0	30.5	187.9	296.4
	Smith River Total	*78.0*	*31.0*	*216.4*	*325.4*

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
54. Trinity, California (Secretarial Designation—January 19, 1981) (*Federal Register* Volume 46, Number 15)	State of California Forest Service Bureau of Land Management Hoopa Valley Indian Reservation	2.0 42.0 – –	11.0 22.0 – 6.0	24.0 71.0 17.0 8.0	37.0 135.0 17.0 14.0
	Trinity River Total	*44.0*	*39.0*	*120.0*	*203.0*
55. Verde, Arizona (P.L. 98-406—August 28, 1984)	Forest Service	22.2	18.3	–	40.5
56. Tuolumne, California (P.L. 98-425—September 28, 1984)	Forest Service National Park Service Bureau of Land Management	7.0 37.0 3.0	6.0 17.0 –	13.0 – –	26.0 54.0 3.0
	Tuolumne River Total	*47.0*	*23.0*	*13.0*	*83.0*
57. Au Sable, Michigan (P.L. 98-444—October 4, 1984)	Forest Service	–	23.0	–	23.0
58. Illinois, Oregon (P.L. 98-494—October 19, 1984)	Forest Service	28.7	17.9	3.8	50.4
59. Owyhee, Oregon (P.L. 98-494—October 19, 1984)	Bureau of Land Management	120.0	–	–	120.0
60. Loxahatchee, Florida (Secretarial Designation—May 17, 1985) (*Federal Register* Volume 50, Number 100)	State of Florida	1.3	5.8	0.5	7.6
61. Horsepasture, North Carolina (P.L. 99-530—October 26, 1986)	Forest Service	–	3.6	0.6	4.2

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
62. Black Creek, Mississippi (P.L. 99-590—October 30, 1986)	Forest Service	–	21.0	–	21.0
63. Cache la Poudre, Colorado (P.L. 99-590—October 30, 1986)	Forest Service National Park Service	18.0 12.0	– –	46.0 –	64.0 12.0
	Cache la Poudre River Total	*30.0*	–	*46.0*	*76.0*
64. Saline Bayou, Louisiana (P.L. 99-590—October 30, 1986)	Forest Service	–	19.0	–	19.0
65. Klickitat, Washington (P.L. 99-663—November 17, 1986)	Forest Service	–	–	10.8	10.8
66. White Salmon, Washington (P.L. 99-663—November 17, 1986)	Forest Service	–	7.7	–	7.7
White Salmon, Washington (P.L. 109-44—August 2, 2005)	Forest Service	6.7	13.3	–	20.0
	White Salmon River Total	*6.7*	*21.0*	–	*27.7*
67. Merced, California (P.L. 100-149—November 2, 1987)	Forest Service National Park Service Bureau of Land Management	15.0 53.0 3.0	2.0 14.0 –	12.5 14.0 1.0	29.5 81.0 4.0
Merced, California (P.L. 102-432—October 23, 1992)	Bureau of Land Management	–	–	8.0	8.0
	Merced River Total	*71.0*	*16.0*	*35.5*	*122.5*

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
68. Kings, California (P.L. 100-150—November 3, 1987)	Forest Service National Park Service	16.5 49.0	– –	9.0 6.5	25.5 55.5
	Kings River Total	*65.5*	–	*15.5*	*81.0*
69. Kern, California (P.L. 100-174—November 24, 1987)	Forest Service National Park Service	96.1 27.0	7.0 –	20.9 –	124.0 27.0
	Kern River Total	*123.1*	*7.0*	*20.9*	*151.0*
70. Bluestone, West Virginia (P.L. 100-534—October 26, 1988)	National Park Service	–	10.0	–	10.0
71. Big Marsh Creek, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	–	15.0	15.0
72. Chetco, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	25.5	8.0	11.0	44.5
73. Clackamas, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	20.0	27.0	47.0
74. Crescent Creek, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	–	10.0	10.0
75. Crooked, Oregon (P.L. 100-557—October 28, 1988)	Bureau of Land Management	–	–	17.8	17.8
76. Crooked (North Fork), Oregon (P.L. 100-557—October 28, 1988)	Forest Service Bureau of Land Management	– 12.2	7.6 0.6	8.9 4.4	16.5 17.2
	Crooked River (North Fork) Total	*12.2*	*8.2*	*13.3*	*33.7*

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
77. Deschutes, Oregon (P.L. 100-557—October 28, 1988)	Forest Service Bureau of Land Management	– –	11.0 20.0	43.4 100.0	54.4 120.0
	Deschutes River Total	–	*31.0*	*143.4*	*174.4*
78. Donner und Blitzen, Oregon (P.L. 100-557—October 28, 1988)	Bureau of Land Management	72.7	–	–	72.7
Donner und Blitzen, Oregon (P.L. 106-399—October 30, 2000)	Bureau of Land Management	14.8	–	–	14.8
	Donner und Blitzen River Total	*87.5*	–	–	*87.5*
79. Eagle Creek, Oregon (Wallowa-Whitman National Forest) (P.L. 100-557—October 28, 1988)	Forest Service	4.5	6.0	18.4	28.9
80. Elk, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	2.0	–	17.0	19.0
Elk, Oregon (P.L. 111-11—March 30, 2009)	Forest Service	7.7	1.5	–	9.2
	Elk River Total	*9.7*	*1.5*	*17.0*	*28.2*
81. Grande Ronde, Oregon (P.L. 100-557—October 28, 1988)	Forest Service Bureau of Land Management	17.4 9.0	– –	1.5 15.9	18.9 24.9
	Grande Ronde River Total	*26.4*	–	*17.4*	*43.8*
82. Imnaha, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	15.0	4.0	58.0	77.0

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
83. John Day, Oregon (P.L. 100-557—October 28, 1988)	Bureau of Land Management	–	–	147.5	147.5
84. John Day (North Fork), Oregon (P.L. 100-557—October 28, 1988)	Forest Service	27.8	10.5	15.8	54.1
85. John Day (South Fork), Oregon (P.L. 100-557—October 28, 1988)	Bureau of Land Management	–	–	47.0	47.0
86. Joseph Creek, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	8.6	–	–	8.6
87. Little Deschutes, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	–	12.0	12.0
88. Lostine, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	5.0	–	11.0	16.0
89. Malheur, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	6.7	7.0	–	13.7
90. Malheur (North Fork), Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	25.5	–	25.5
91. McKenzie, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	–	12.7	12.7
92. Metolius, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	17.1	11.5	28.6
93. Minam, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	41.9	–	–	41.9

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
94. North Powder, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	6.4	–	6.4
95. North Umpqua, Oregon (P.L. 100-557—October 28, 1988)	Forest Service Bureau of Land Management	– –	– –	25.4 8.4	25.4 8.4
	North Umpqua River Total	–	–	*33.8*	*33.8*
96. Owyhee (North Fork), Oregon (P.L. 100-557—October 28, 1988)	Bureau of Land Management	9.6	–	–	9.6
97. Powder, Oregon (P.L. 100-557—October 28, 1988)	Bureau of Land Management	–	11.7	–	11.7
98. Quartzville Creek, Oregon (P.L. 100-557—October 28, 1988)	Bureau of Land Management	–	–	12.0	12.0
99. Roaring, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	13.5	–	0.2	13.7
100. Rogue (Upper), Oregon (P.L. 100-557—October 28, 1988)	Forest Service	6.1	34.2	–	40.3
101. Salmon, Oregon (P.L. 100-557—October 28, 1988)	Forest Service Bureau of Land Management	15.0 –	– 4.8	10.5 3.2	25.5 8.0
	Salmon River Total	*15.0*	*4.8*	*13.7*	*33.5*
102. Sandy, Oregon (P.L. 100-557—October 28, 1988)	Forest Service Bureau of Land Management	4.5 –	– 3.8	7.9 8.7	12.4 12.5
	Sandy River Total	*4.5*	*3.8*	*16.6*	*24.9*

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
103. Smith (North Fork), Oregon (P.L. 100-557—October 28, 1988)	Forest Service	8.5	4.5	–	13.0
104. Sprague (North Fork), Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	15.0	–	15.0
105. Squaw Creek, Oregon (*aka* Whychus Creek) (P.L. 100-557—October 28, 1988)	Forest Service	6.6	8.8	–	15.4
106. Sycan, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	–	50.4	8.6	59.0
107. Wenaha, Oregon (P.L. 100-557—October 28, 1988)	Forest Service	18.7	2.7	0.2	21.6
108. West Little Owyhee, Oregon (P.L. 100-557—October 28, 1988)	Bureau of Land Management	57.6	–	–	57.6
109. Sipsey Fork West Fork, Alabama (*aka* Sipsey Fork of the Black Warrior River) (P.L. 100-547—October 28, 1988)	Forest Service	36.4	25.0	–	61.4
110. White, Oregon (P.L. 100-557—October 28, 1988)	Forest Service Bureau of Land Management	– –	6.5 17.8	15.6 6.9	22.1 24.7
	White River Total	–	*24.3*	*22.5*	*46.8*
111. Wildcat, New Hampshire (P.L. 100-554—October 28, 1988)	Forest Service	–	13.7	0.8	14.5
112. Willamette (North Fork Middle Fork), Oregon (P.L. 100-557—October 28, 1988)	Forest Service	8.8	6.5	27.0	42.3

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
113. Rio Chama, New Mexico (P.L. 100-633—November 7, 1988)	Forest Service Bureau of Land Management	10.4 11.2	3.0 –	– –	13.4 11.2
	Rio Chama Total	*21.6*	*3.0*	–	*24.6*
114. Vermilion (Middle Fork), Illinois (Secretarial Designation—May 11, 1989)	State of Illinois	–	17.1	–	17.1
115. Jemez (East Fork), New Mexico (P.L. 101-306—June 6, 1990)	Forest Service	4.0	5.0	2.0	11.0
116. Pecos, New Mexico (P.L. 101-306—June 6, 1990)	Forest Service	13.5	–	7.0	20.5
117. Yellowstone (Clarks Fork), Wyoming (P.L. 101-628—November 28, 1990)	Forest Service	20.5	–	–	20.5
118. Niobrara, Nebraska (P.L. 102-50—May 24, 1991)	National Park Service Fish and Wildlife Service	–	68.0 8.0	28.0 –	96.0 8.0
	Niobrara River Total	–	*76.0*	*28.0*	*104.0*
119. Bear Creek, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	–	6.5	–	6.5
120. Black, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	–	14.0	–	14.0
121. Carp, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	12.4	9.3	6.1	27.8
122. Indian, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	–	12.0	39.0	51.0

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
123. Manistee, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	–	–	26.0	26.0
124. Ontonagon, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	43.0	35.0	92.0	170.0
125. Paint, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	–	–	52.0	52.0
126. Pine, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	–	25.0	–	25.0
127. Presque Isle, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	–	24.0	48.0	72.0
128. Sturgeon, Michigan (Hiawatha National Forest) (P.L. 102-249—March 3, 1992)	Forest Service	–	21.7	22.2	43.9
129. Sturgeon, Michigan (Ottawa National Forest) (P.L. 102-249—March 3, 1992)	Forest Service	20.0	8.0	–	28.0
130. Tahquamenon (East Branch), Michigan (P.L. 102-249—March 3, 1992)	Forest Service	3.2	–	10.0	13.2
131. Whitefish, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	–	31.5	2.1	33.6
132. Yellow Dog, Michigan (P.L. 102-249—March 3, 1992)	Forest Service	4.0	–	–	4.0
133. Allegheny, Pennsylvania (P.L. 102-271—April 20, 1992)	Forest Service	–	–	86.6	86.6

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
134. Big Piney Creek, Arkansas (P.L. 102-275—April 22, 1992)	Forest Service	–	45.2	–	45.2
135. Buffalo, Arkansas (P.L. 102-275—April 22, 1992)	Forest Service	9.4	6.4	–	15.8
136. Cossatot, Arkansas (P.L. 102-275—April 22, 1992)	Forest Service Army Corps of Engineers	– –	11.3 4.6	4.2 –	15.5 4.6
Cossatot, Arkansas (Secretarial Designation—January 14, 1994) (*Federal Register* Volume 59, Number 22)	State of Arkansas	–	10.7	–	10.7
	Cossatot River Total	–	*26.6*	*4.2*	*30.8*
137. Hurricane Creek, Arkansas (P.L. 102-275—April 22, 1992)	Forest Service	2.4	13.1	–	15.5
138. Little Missouri, Arkansas (P.L. 102-275—April 22, 1992)	Forest Service	4.4	11.3	–	15.7
139. Mulberry, Arkansas (P.L. 102-275—April 22, 1992)	Forest Service	–	19.4	36.6	56.0
140. North Sylamore Creek, Arkansas (P.L. 102-275—April 22, 1992)	Forest Service	–	14.5	–	14.5
141. Richland Creek, Arkansas (P.L. 102-275—April 22, 1992)	Forest Service	5.3	11.2	–	16.5
142. Big Sur, California (P.L. 102-301—June 19, 1992)	Forest Service	19.5	–	–	19.5

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
143. Sespe Creek, California (P.L. 102-301—June 19, 1992)	Forest Service	27.5	4.0	–	31.5
144. Sisquoc, California (P.L. 102-301—June 19, 1992)	Forest Service	33.0	–	–	33.0
145. Great Egg Harbor, New Jersey (P.L. 102-536—October 27, 1992)	National Park Service	–	30.6	98.4	129.0
146. Westfield, Massachusetts (Secretarial Designation—November 2, 1993) (*Federal Register* Volume 58, Number 219)	State of Massachusetts	–	18.9	24.4	43.3
Westfield, Massachusetts (Secretarial Designation—September 28, 2004) (*Federal Register* Volume 69, Number 209)	State of Massachusetts	2.6	24.0	8.2	34.8
	Westfield River Total	*2.6*	*42.9*	*32.6*	*78.1*
147. Maurice, New Jersey (P.L. 103-162—December 1, 1993)	National Park Service	–	28.9	6.5	35.4
148. Red, Kentucky (P.L. 103-170—December 2, 1993)	Forest Service	9.1	–	10.3	19.4
149. Big and Little Darby Creeks, Ohio (Secretarial Designation—March 10, 1994) (*Federal Register* Volume 59, Number 66)	State of Ohio	–	85.9	–	85.9
150. Farmington (West Branch), Connecticut (P.L. 103-313—August 26, 1994)	National Park Service and State of Connecticut and Local Government	–	–	14.0	14.0

River **Present Units in the National System**	**Administering** **Agency**	**Miles by Classification** *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
151. Wallowa, Oregon (Secretarial Designation—July 23, 1996) (*Federal Register* Volume 61, Number 157)	State of Oregon and Bureau of Land Management	–	–	10.0	10.0
152. Elkhorn Creek, Oregon (P.L. 104-208—September 30, 1996)	Forest Service Bureau of Land Management	5.8 –	– 0.6	– –	5.8 0.6
	Elkhorn Creek Total	*5.8*	*0.6*	–	*6.4*
153. Clarion, Pennsylvania (P.L. 104-314—October 19, 1996)	Forest Service	–	17.1	34.6	51.7
154. Lamprey, New Hampshire (P.L. 104-333—November 12, 1996)	National Park Service and Local Government	–	–	11.5	11.5
Lamprey, New Hampshire (P.L. 106-192—May 2, 2000)	National Park Service and Local Government	–	–	12.0	12.0
	Lamprey River Total	–	–	*23.5*	*23.5*
155. Lumber, North Carolina (Secretarial Designation—September 25, 1998) (*Federal Register* Volume 63, Number 193)	State of North Carolina	–	60.0	21.0	81.0
156. Sudbury, Assabet, Concord, Massachusetts (P.L. 106-20—April 9, 1999)	National Park Service and State of Massachusetts and Local Government	–	14.9	14.1	29.0
157. Wilson Creek, North Carolina (P.L. 106-261—August 18, 2000)	Forest Service	4.6	2.9	15.8	23.3

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
158. Wekiva, Florida (P.L. 106-299—October 13, 2000)	National Park Service and State of Florida	31.4	2.1	8.1	41.6
159. White Clay Creek, Delaware & Pennsylvania (P.L. 106-357—October 24, 2000)	National Park Service and Local Government	–	24.0	166.0	190.0
White Clay Creek, Delaware & Pennsylvania (P.L. 113-291—December 19, 2014)	National Park Service and Local Government	–	7.4	1.6	9.0
	White Clay Creek Total	–	*31.4*	*167.6*	*199.0*
160. Wildhorse and Kiger Creeks, Oregon (P.L. 106-399—October 30, 2000)	Bureau of Land Management	13.9	–	–	13.9
161. Rio de la Mina, Puerto Rico (P.L. 107-365—December 19, 2002)	Forest Service	–	1.2	0.9	2.1
162. Rio Icacos, Puerto Rico (P.L. 107-365—December 19, 2002)	Forest Service	–	2.3	–	2.3
163. Rio Mameyes, Puerto Rico (P.L. 107-365—December 19, 2002)	Forest Service	2.1	1.4	1.0	4.5
164. Black Butte, California (P.L. 109-362—October 17, 2006)	Forest Service	17.5	3.5	–	21.0
165. Musconetcong, New Jersey (P.L. 109-452—December 22, 2006)	National Park Service	–	3.5	20.7	24.2
166. Eightmile, Connecticut (P.L. 110-229—May 8, 2008)	National Park Service and Local Government	–	25.3	–	25.3

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
167. Amargosa, California (P.L. 111-11—March 30, 2009)	Bureau of Land Management	7.9	12.1	6.3	26.3
168. Battle Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	23.4	–	–	23.4
169. Bautista Creek, California (P.L. 111-11—March 30, 2009)	Forest Service	–	–	9.8	9.8
170. Big Jacks Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	35.0	–	–	35.0
171. Bruneau, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	38.7	–	0.6	39.3
172. Bruneau (West Fork), Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	0.4	–	–	0.4
173. Clackamas (South Fork), Oregon (P.L. 111-11—March 30, 2009)	Forest Service	4.2	–	–	4.2
174. Collawash, Oregon (P.L. 111-11—March 30, 2009)	Forest Service	–	11.0	6.8	17.8
175. Cottonwood Creek, California (P.L. 111-11—March 30, 2009)	Forest Service Bureau of Land Management	17.4 –	– –	– 4.1	17.4 4.1
	Cottonwood Creek Total	*17.4*	–	*4.1*	*21.5*
176. Cottonwood Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	2.6	–	–	2.6

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	*Scenic*	*Rec'l*	***Total Miles***
177. Deep Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	13.1	–	–	13.1
178. Dickshooter Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	9.3	–	–	9.3
179. Duncan Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	0.9	–	–	0.9
180. Eagle Creek, Oregon (Mt. Hood National Forest) (P.L. 111-11—March 30, 2009)	Forest Service	8.3	–	–	8.3
181. Fifteenmile Creek, Oregon (P.L. 111-11—March 30, 2009)	Forest Service	10.5	0.6	–	11.1
182. Fish Creek, Oregon (P.L. 111-11—March 30, 2009)	Forest Service	–	–	13.5	13.5
183. Fossil Creek, Arizona (P.L. 111-11—March 30, 2009)	Forest Service	9.3		7.5	16.8
184. Fuller Mill Creek, California (P.L. 111-11—March 30, 2009)	Forest Service	–	2.6	0.9	3.5
185. Hood (East Fork), Oregon (P.L. 111-11—March 30, 2009)	Forest Service	–	–	13.5	13.5
186. Hood (Middle Fork), Oregon (P.L. 111-11—March 30, 2009)	Forest Service	–	3.7	–	3.7
187. Jarbidge, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	28.8	–	–	28.8

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	***Total Miles***
188. Little Jacks Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	12.4	–	–	12.4
189. Owens River Headwaters, California (P.L. 111-11—March 30, 2009)	Forest Service	6.3	6.6	6.2	19.1
190. Owyhee, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	67.3	–	–	67.3
191. Owyhee (North Fork), Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	15.1	–	5.7	20.8
192. Owyhee (South Fork), Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	30.2	–	1.2	31.4
193. Palm Canyon Creek, California (P.L. 111-11—March 30, 2009)	Forest Service	8.1	–	–	8.1
194. Piru Creek, California (P.L. 111-11—March 30, 2009)	Forest Service	4.3	–	3.0	7.3
195. Red Canyon, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	4.6	–	–	4.6
196. Roaring (South Fork), Oregon (P.L. 111-11—March 30, 2009)	Forest Service	4.6	–	–	4.6
197. San Jacinto (North Fork), California (P.L. 111-11—March 30, 2009)	Forest Service	7.2	2.3	0.7	10.2
198. Sheep Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	25.6	–	–	25.6

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
199. Snake River Headwaters, Wyoming (P.L. 111-11—March 30, 2009)	Forest Service National Park Service	184.2 52.7	97.4 44.1	33.8 –	315.4 96.8
	Snake River Headwaters Total	*236.9*	*141.5*	*33.8*	*412.2*
200. Taunton, Massachusetts (P.L. 111-11—March 30, 2009)	National Park Service	–	26.0	14.0	40.0
201. Virgin, Utah (P.L. 111-11—March 30, 2009)	National Park Service Bureau of Land Management	123.6 21.8	11.3 –	12.6 –	147.5 21.8
	Virgin River Total	*145.4*	*11.3*	*12.6*	*169.3*
202. Wickahoney Creek, Idaho (P.L. 111-11—March 30, 2009)	Bureau of Land Management	1.5	–	–	1.5
203. Zigzag, Oregon (P.L. 111-11—March 30, 2009)	Forest Service	4.3	–	–	4.3
204. Illabot Creek, Washington (P.L. 113-291—December 19, 2014)	Forest Service	4.3	–	10.0	14.3
205. Missisquoi & Trout, Vermont (P.L. 113-291—December 19, 2014)	National Park Service and Local Government	–	–	46.1	46.1
206. Pratt, Washington (P.L. 113-291—December 19, 2014)	Forest Service	9.5	–	–	9.5
207. River Styx (Cave Creek), Oregon (P.L. 113-291—December 19, 2014)	National Park Service	–	0.4	–	0.4

River Present Units in the National System	Administering Agency	Miles by Classification *Wild*	 *Scenic*	 *Rec'l*	 ***Total Miles***
208. Snoqualmie (Middle Fork), Washington (P.L. 113-291—December 19, 2014)	Forest Service	6.4	21.0	–	27.4
209. East Rosebud Creek, Montana (P.L. 115-229—August 2, 2018)	Forest Service	13.0	–	7.0	20.0
TOTALS		**6,219.9**	**2,751.8**	**3,781.8**	**12,753.5**

F.6 – Historic and Natural Areas

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Public Service Archaeology & Architecture Program
Department of Anthropology
1707 South Orchard Street
Urbana, Illinois 61801

phone (217) 333-1636
fax (217) 244-3490

03 February 2021

Mr. Jeffery Kruchten, Chief Archaeologist
Ms. CJ Wallace, Cultural Resources Coordinator
State Historic Preservation Office
Illinois Department of Natural Resources
Attn: Review & Compliance
1 Old State Capitol Plaza
Springfield, Illinois 62702

Dear Mr. Kruchten and Ms. Wallace:

Back in September of 2019 our client Zion Landfill, Inc. submitted a report we prepared entitled *Archaeological Reconnaissance of the 125-acre Zion Landfill 2019 Expansion Development in Lake County, Illinois*. In the original report we recommended a Phase II archaeological investigation of 11L961 and additional investigation of three structures found within the site. To my knowledge, no review letter was issued but we discussed this project over the phone and by e-mail. One result of that discussion was the approval to proceed with a Phase II archaeological investigation. During the Phase II investigation we were able to gain access to the interior of the structures on the site and found evidence they should be recommended as *Not Eligible* for listing on the NRHP. Over the course of a year we have discussed how these results should be presented but no conclusion was reached. To help bring this investigation to completion we have revised the original report (attached) now entitled *Updated Archaeological Reconnaissance of the 125-acre Zion Landfill 2019 Expansion Development in Lake County, Illinois* where we revise our recommendations for further work as being restricted to the archaeology present in the project and not the architecture. In addition we have attached the results of the Phase II investigation where we make a recommendation that 11L961 is *Not Eligible* for listing on the NRHP. Hopefully these additions to your files will assist in completing your cultural resource review of the proposed project.

Thank you for your time and effort to review these findings. Please feel free to contact me directly if you have any questions about our investigations. I can be reached at (847) 287-9045.

Sincerely,

Kevin McGowan

Kevin McGowan

a: Updated Archaeological Short Survey Report (2), Research Report 200 (2), and digital report files on CDs.
c. Mr. Kenny Bergschultz, Weaver Consultants Group.

SITE 2 NORTH EXPANSION AREA
ARCHAEOLOGIC EVALUATION

UPDATED ARCHAEOLOGICAL RECONNAISSANCE OF THE 125-ACRE ZION LANDFILL 2019 EXPANSION DEVELOPMENT IN LAKE COUNTY, ILLINOIS

Project No. 19-084

for submission to & funded by:

Mr. Tim Curry
Midwest Region Landfill Manager
Zion Landfill, Inc.
119 West Gundlach
Columbia, Illinois 60296

by:

Dr. Kevin McGowan and Ms. Marcy Prchal

03 February 2021

PUBLIC SERVICE
ARCHAEOLOGY&
ARCHITECTURE
PROGRAM

Department of Anthropology
1707 South Orchard Street
University of Illinois
at Urbana-Champaign,
Urbana, Illinois 61801

ARCHAEOLOGICAL SURVEY SHORT REPORT
Illinois Historic Preservation Agency
Old State Capitol Building
Springfield, Illinois 62701 (217/785-4997)

REVIEWER________________________
Date: ___________________________
_____Accepted ________Rejected
IHPA USE ONLY (Form ASSR0886)

SHPO Log:

Locational Information and Survey Conditions

County: Lake

Quadrangle: Zion 7.5”

Project Type/Title: Landfill Expansion/ 2019 Zion

Funding and/or Permitting Federal/State Agencies: IEPA
(i.e., CoE, HUD, IEPA, FmHA, etc.)

Sec: 06, 07 **T.:** 46 N **R.:** 12 E **Natural Division (No.):** 3a

U.T.M.: E. 428460 to E. 429110 and N. 4704025 to N. 4704925, UTM Zone 16 North WGS84.

Project Description: The project is a proposed landfill expansion.

Topography: The project area is located in a generally flat, glacially formed upland.

Soils: See Continuation Section.

Drainage: Kellogg Ravine to Lake Michigan.

Land Use/Ground Cover (Include % Visibility): The project area is primarily (80 percent) a plant nursery with variable (average 20 percent) surface visibility, and secondarily a landfill spoil pile (10 percent), and residential house lots with manicured lawns, trees, and grasses with less than 5 percent surface visibility.

Survey Limitations: Utility lines around residences and portion of project already covered by meters of fill.

Archaeological and Historical Information

Historic Plats/Atlases/Sources: See Selected Sources.

Previously Reported Sites: None.

Previous Surveys: The project area is not reported as previously surveyed.

Regional Archaeologists Contacted: None.

Investigation Techniques: The project area was investigated by a combination of 5-meter interval pedestrian reconnaissance and 15 meter interval screened shovel tests, with portions completed with judgmental surface and shovel tests due to previous ground disturbance associated with nursery activities.

Time Expended: 42.0 field hours.

Sites/Find Spots Located: 11L961.

Cultural Material: Structures.

(Curated at) N/A.

Collection Techniques: None.

Areas Surveyed (Acres & Square Meters): 125.0 Acres (505,875 Square Meters).

(OVER)

Results of Investigation and Recommendations: *(Check One)*

___ Phase I Archaeological Reconnaissance Has Located No Archaeological Material; Project Clearance Is Recommended.

___ Phase I Archaeological Reconnaissance Has Located Archaeological Materials; Site(s) Does (Do) Not Meet Requirements For National Register Eligibility; Project Clearance Is Recommended.

XXX Phase I Archaeological Reconnaissance Has Located Archaeological Materials; Site(s) May Meet Requirements For National Register Eligibility; Phase II Testing Is Recommended.

___ Phase II Archaeological Investigation Has Indicated That Site(s) Does (Do) Not Meet Requirements For National Register Eligibility; Project Clearance Is Recommended.

___ Phase II Archaeological Investigation Has Indicated That Site(s) Meet Requirements For National Register Eligibility; Formal Report Is Pending And A Determination of Eligibility Is Recommended.

Comments: See Continuation Section.

Archaeological Contractor Information:

Archaeological Contractor: Public Service Archaeology & Architecture Program

Address/Phone: Department of Anthropology (217) 333-1636
1707 South Orchard Street
University of Illinois at Urbana-Champaign
Urbana, Illinois 61801

Surveyor(s): K. McGowan, M. Prchal, P. Green, C. Jones **Survey Date(s):** 8/28-29, 9/4-5, 2019

Report Completed By: Kevin McGowan and Marcy Prchal **Date:** February 03, 2021

Submitted By (Signature and Title): Kevin McGowan **Director**

Attachment Check List: (#1 Through #4 Are **MANDATORY**)

xxx 1) Relevant Portion of USGS 7.5' Topographic Quadrangle Map(s) Showing Project Location And Any Recorded Sites;

xxx 2) Project Map(s) Depicting Survey Limits And, When Applicable, Approximate Site Limits, And Concentrations of Cultural Materials;

xxx 3) Site Form(s): One Copy of Each Form;

xxx 4) All Relevant Project Correspondence;

xxx 5) Additional Information Sheets As Necessary

Address Of Owner/Agent/Agency To Whom SHPO Comment Should Be Mailed:

Zion Landfill, Inc.
119 West Gundlach
Columbia, IL 62296

Contact Person: Mr. Tim Curry, Midwest Regional Landfill Manager **Phone Number:** (618) 806-7392

Reviewers Comments:

____

____

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____

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Soils

Soils mapped as occurring within the project area include: Harpster silty clay loam, 0 to 2 percent slopes; Pella silty clay loam, 0 to 2 percent slope; Ashkum silty clay loam, 0 to 2 percent slopes; Beecher silt loam, 0 to 2 percent slope; Beecher silt loam, 2 to 4 percent slope; Peotone silty clay loam, 0 to 2 percent slope; Barrington silt loam, 2 to 4 percent slopes; Ozaukee silt loam, 2 to 4 percent slopes; Ozaukee silt loam, 2 to 4 percent slopes, eroded; Ozaukee silt loam, 4 to 6 percent slopes, eroded; Markham silt loam, 2 to 4 percent slopes; Markham silt loam, 4 to 6 percent slopes, eroded; Wauconda silt loam, 0 to 2 percent slopes; Grays silt loam, 0 to 2 percent slopes; Grays silt loam, 2 to 4 percent slopes; Grays and Markham silt loams, 2 to 4 percent slopes: and Mundelein and Elliott silt loams, 2 to 4 percent slopes (Natural Resources Conservation Service 2019a).

Comments

The Public Service Archaeology & Architecture Program of the University of Illinois at Urbana-Champaign was contacted by Zion Landfill, Inc. to conduct a Phase I archaeological reconnaissance of a proposed 50.6-hectare (125-acre) landfill expansion on the southeast corner of Russell Road and Kenosha Road near Zion, Illinois (Figure 1). The objective of the survey was to utilize standard archaeological survey techniques to inventory cultural resources at the proposed project location. Project investigations included standard background research (including Illinois Historic Architectural Resources Geographic Information System, Illinois State Historic Preservation Office's Review and Compliance Determinations of Eligibility List, Illinois Historic Preservation Office's National Register Positive Preliminary Opinion List, and National Park Service 2019a, 2019b), a field survey, and preparation of this report.

A review of the Illinois Inventory of Archaeological Sites maintained by the Illinois State Museum and hosted by the Illinois Department of Natural Resources found that the project area is not reported as previously surveyed and that there are no recorded archaeological sites. An examination of the Illinois Public Domain Land Tract Sales database indicates the portion project area in Section 7 was originally purchased by Henry Mitchel on 22 July 1843 (Illinois State Archives 2019a) and the portion project area in Section 6 was originally purchased by John Stewart on 01 May 1845 (Bureau of Land Management 2019). The 1840 United States General Land Office survey plat (Figure 2) for Township 46 North, Range 12 East indicates that the project area included both timber and prairie with a nearby enclosure (Illinois State Archives 2019b). Historic atlas, plat, and topographic maps (Figures 2 and 3) depict one structure each along Russell and Kenosha roads by 1861 and additional structures in different locations are depicted along Kenosha Road by 1901 (George A. Ogle and Company 1907; Hale and Truesdell 1861; United States Geological Survey 1939, 1960; Waukegan Sun 1901). The historic records suggest that the project area was initially rural land before development with a commercial nursery and residential homes in the latter twentieth century.

Field investigation of the 50.6-hectare (125-acre) project area was undertaken on August 28th and 29th and September 4th and 5th, 2019. The project area is located on the southeast corner of Russell Road and Kenosha Road near Zion, Illinois. There is a residential section along Kenosha Road that is excluded from the survey. The project area is bordered to the north by Russell Road, to the west by a golf course, to the south by an existing landfill and residential homes, and to the east by Kenosha Road (Figure 4). Within the project area were three large ponds and a large spoil pile (approximately 10 percent of the project area) with several meters of fill. These areas were not systematically surveyed. The majority of the project area, approximately 80 percent, was part of a commercial nursery growing and selling trees and

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shrubs. The nursery included: a complex of buildings along Russell Road with gravel covered areas with balled trees and shrubs ready for sale; a gridded area planted with trees and shrubs; and patches of old growth woods. The remaining project area (approximately 10 percent) encompassed a series of residential homes and yards along Kenosha Road. Ground surface visibility was highly variable across the nursery depending upon the amount of weeds growing between the trees and shrubs. The tree and shrub planting areas featured numerous 0.25 to 0.75 meter deep pits where vegetation had been extracted from the ground to prepare them for sale. Limited shovel testing in this area indicated extensive ground disturbance to a minimum of 0.5 meters below surface, and as a result the survey focused on 5 meter interval pedestrian reconnaissance. Shovel testing at 15 meter intervals was conducted in the old growth wooded areas and in the residential lots, which had limited to no surface visibility. The investigation documented one archaeological site and eighteen structures within the survey limits. Each is presented below.

Site 11L961 is located immediately south of Russell Road and 400 meters west of Kenosha Road in the uplands on the border between Illinois and Wisconsin (Figure 1). The site extends 80 meters north to south by 140 meters east to west within an area currently used as a commercial nursey featuring gravel parking areas, gravel drives, gravel covered areas with balled trees and shrubs ready for sale, seven structures, and a lawn and nursery planting area along its western edge (Figure 5). Overall surface visibility was limited to under 25 percent. The site area was examined by a 15-meter grid of screened shovel tests in the lawn and nursery planting areas and by a 5 meter interval pedestrian reconnaissance elsewhere. Soils at this location consist Ozaukee silt loam, 2 to 4 percent slopes (National Resources Conservation Services 2019a). Native vegetation for Ozaukee series soils is mixed hardwood forest with a typical soil profile of 13 centimeters of dark grayish brown (10YR 4/2) silt loam Ap over a 12 centimeter thick brown (10YR 5/3) silt loam E horizon that overlies a dark yellowish brown (10YR 4/4) silty clay loam Bt1 horizon (Natural Resources Conservation Service 2019b). Based on the U. S. General Land Office survey plat, the site area (Figure 2) was in timber near the prairie to timber border without improvements in 1840 (Illinois State Archives 2019b). The original purchase of the East 1/2 of Section 6 of Township 46 North, Range 12 East is recorded as occurring on 01 May 1845 to John Stewart (Bureau of Land Management 2019). Historic maps (Figure 2) depict a structure near this location in 1861 with Stewart family ownership indicating a potential Pioneer homestead. A residential structure remains depicted (Figures 2 and 3) in the general area on the subsequent maps (George A. Ogle and Company 1907; Hale and Truesdell 1861; United States Geological Survey 1939, 1960; Waukegan Sun 1901). The overall indications are that there was a continuous residential occupation up to the time of the conversion of the property into a nursery. Collectively, 11L961 is interpreted as a middle nineteenth to twenty-first century residential farmstead.

There are seven structures within the limits of 11L961 (Figure 5). The structures have a street address of 12247 West Russell Road and include a brick Italianate residence, detached garage, fabric greenhouse, “office” building, pole barn, concrete silo, and machine shed/workshop. Structure 1 (Figure 6) is a front gabled Vernacular Italianate style two-story residence constructed in circa 1858 (Lake County Assessor 2019). Details of the residence include decorative brick work at the roofline, arched window and door openings, a gabled timber front entry porch, enclosed side porch, and large two story brick addition. Structure 2 is a greenhouse that is located behind the residence (Figure 7). This structure is a plastic

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covered and timber framed temporary structure, dating to circa 2019. Structure 3 is a garage located next to the greenhouse (Figure 8). This structure is a two-bay detached garage, a gable roofed building with vinyl siding and two rolling overhead doors, dating to circa 2000. Structure 4 is a single story building that serves as an office for the current landscaping company that owns the property (Figure 9). The office is an aluminum-sided former Ranch residence, dating to circa 1950 (Lake County Assessor 2019). Structure 5 is a wood frame machine shed/workshop (Figure 10). The machine shed/workshop building has a gabled timber roof and dates to circa 1950. Structure 6 is a barn (Figure 11). It is a large timber Dairy and Hay barn, constructed in two stages and displaying two levels of gabled roofs, dating to circa 1938. Structure 7 is located adjacent to the barn. It is a concrete silo (Figure 12) and likely represents a middle twentieth century construction. All buildings are currently in use by Arthur Weiler Nursery.

There are an additional 11 structures or complexes located within the project area that occur outside the limits of 11L961 (Figure 4). Structure 8 (Figure 13) is also associated with the Arthur Weiler Nursey and is a steel pole building dating to circa 1980.

Structure 9 is a late twentieth century cellular tower facility (Figure 14).

Structure Complex 10 is located at 11971 West Russel Road (Figure 15) and includes a wood-sided Ranch style residence, pyramidal roofed garage, steel pole building, and small utility shed. The residence has a construction date of circa 1950 (Lake County Assessor 2019), and the outbuildings were likely constructed at the same time.

Structure Complex 11 is located at 43296 North Kenosha Road (Figure 16) and includes a Split-level residence and detached garage, both constructed in circa 1977 (Lake County Assessor 2019). The residence has vertical wood siding and a side extension to the south, and the garage is a front gabled structure with vertical siding and one rolling overhead door.

Structure Complex 12 is located at 43264 North Kenosha Road (Figure 17) and includes a Bungalow style residence and detached two-bay garage, constructed in circa 1977 (Lake County Assessor 2019). The residence has aluminum siding, a low wide roof, and a wide brick chimney. The garage has a pyramidal roof and two rolling overhead doors.

Structure Complex 13 is located at 43228 North Kenosha Road (Figure 18) and includes a residence and detached garage. The residence is a Cape Cod style 1.5 story house with a side addition. It was constructed in circa 1883 (Lake County Assessor 2019) and is currently clad in painted wood shingles. The garage is a detached multi-bay building constructed in circa 1949.

Structure Complex 14 is located at 43172 North Kenosha Road (Figure 19) and includes a wood-clad Ranch home and detached garage, constructed in circa 1981 (Lake County Assessor 2019), as well as a large gabled machine shed/storage building. The residence has a low gabled roof and wide front entry porch.

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Structure Complex 15 is located at 43152 North Kenosha Road (Figure 20) and includes an Upright and Wing residence constructed in circa 1878 (Lake County Assessor 2019) and a small garage, and utility shed. The residence is a simple building with an enclosed porch wing and multiple rear additions. It is currently clad with wood and asbestos siding. The garage and shed are simple agricultural and residential storage buildings.

Structure 16 is located at 43020 North Kenosha Road (Figure 21) and includes a brick Ranch home constructed in circa 1962 (Lake County Assessor 2019). The house has a low pitched roof and attached garage.

Structure Complex 17 is located at 42978 North Kenosha Road (Figure 22) and includes a brick Ranch residence and large detached garage. The L-shaped residence was constructed in circa 1965 (Lake County Assessor 2019) and has an attached single bay garage with a rolling overhead door that faces Foreman Drive. The detached garage is a large gable roofed building with aluminum siding and a single rolling overhead door.

Structure Complex 18 is located at 12020 West Foreman Drive (Figure 23) and includes a brick Ranch residence, detached garage, storage building, and machine shed/barn. The small pyramidal roofed Ranch home was constructed in circa 1979 (Lake County Assessor 2019), and the outbuildings date from circa 1980 to circa 2000. The one-car detached garage is constructed from the same materials as the residence and has the same brick cladding.

The National Register of Historic Places (NRHP) has four criteria by which historic structures and archaeological sites must be evaluated in order to determine their eligibility for listing therein. Properties may be eligible for the National Register if they: A) are associated with events that have made a significant contribution to the broad pattern of history, B) are associated with the lives of persons significant to our past, C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, and D) have yielded, or are likely to yield, information important in prehistory or history. The 50.6-hectare (125-acre) project area has 1 site and 18 structures or structure complexes to evaluate against the NRHP criteria.

Site 11L961 is interpreted as the a middle nineteenth to twenty-first century residential farmstead. The property has the potential for having a Pioneer homestead but the only nineteenth century artifact was the house. Large portions of the site have been altered to accommodate the changes in the farmstead and the conversion into a commercial nursery. The purchase of the property by John Stewart in 1845 and the maintenance of the Stewart family name with the property through at least 1861 indicates the potential that this site represents a pioneer settlement, with the potential to examine the characteristics of a successful farmstead in this portion of Illinois. Phase II testing is recommended for the site to evaluate the depositional integrity of the site area to have discrete middle nineteenth century deposits that can be tied to the initial site occupation. The Phase II investigation should also examine the available middle to late

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nineteenth records to evaluate the potential for the remaining deposits to address significant research questions. Additionally, the site includes seven structures. These structures date from the middle nineteenth through early twenty-first centuries. The residence, a two story gabled brick Italianate house, is an example of a middle nineteenth century Vernacular farmhouse. The exterior (Figures 24 and 25) and interior (Figures 26, 26, and 28) both retain some original characteristics, but modifications and additions to the house, especially at the rear, have diminished the historical integrity of the residence. This residence is recommended as *Not Eligible* for listing on the NRHP. The associated timber barn and machine shed/workshop both date to the early to middle twentieth century and represent the modernization of an existing farmstead (Figures 29 and 30). Neither of these buildings retain enough unique original architectural components or integrity resulting in a recommendation of *Not Eligible* for listing on the NRHP. The detached garage, greenhouse, and Ranch home/office are all common later additions found on Midwestern farmsteads and they are recommended as Not Eligible for listing on the NRHP. Collectively all buildings within the boundary of 11L961 are recommended as *Not Eligible* for inclusion on the NRHP due to their lack of architectural integrity, significant features and associations, or recent age.

Structure 8, a 1980's steel structure barn is less than 50 years in age and is recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure 9, a late twentieth century cellular facility is less than 50 years in age and is recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure Complex 10 located at 11971 West Russell Road includes a Ranch residence, garage, pole building, and shed. These are common mid-century residential and outbuilding complex that is not considered to be historically or architecturally significant, and therefore the structures are recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure Complex 11 located at 43296 North Kenosha Road include a residence and garage that are less than 50 years in age and are recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure Complex 12 located at 43264 North Kenosha Road include a residence and garage that are less than 50 years in age and are recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure Complex 13 located at 43228 North Kenosha Road include a residence and detached garage. These are both common residential buildings dating from the late nineteenth through late twentieth centuries that are not considered to be historically or architecturally significant, and therefore the structures are recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

CONTINUATION PAGE

Comments

Structure Complex 14 located at 43172 North Kenosha Road include a residence, garage, and gabled machine shed/storage building that are less than 50 years in age and are recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure Complex 15 located at 43152 North Kenosha Road includes an Upright and Wing residence that is a common middle to late nineteenth century residential building. The building has undergone years of additions and modifications, and the garage and shed are simple outbuildings. The buildings are not considered to be historically or architecturally significant, and therefore the structures are recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure 16 is a residence at 43020 North Kenosha Road of a common mid-twentieth century Ranch home style. The building is not considered to be historically or architecturally significant, and is therefore recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure Complex 17 located 42978 North Kenosha Road includes a residence and garage. The residence is a common mid-twentieth century Ranch home. The building is not considered to be historically or architecturally significant, and is therefore recommended as *Not Eligible* for listing on the NRHP. The detached garage is less than 50 years in age and is recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

Structure Complex 18 located at 12020 West Foreman Drive include a residence and garage that are less than 50 years in age and are recommended as *Not Eligible* for listing on the NRHP with a recommended finding of *No Historic Property*.

The investigations undertaken at the proposed landfill expansion project area were designed to identify cultural resources and to determine, if possible, resource eligibility for listing on the National Register of Historic Places (NRHP), the criteria for which are described in 36CFR60. The investigations of the 50.6-hectare (125-acre) project area documented 1 site and 18 structures or structure complexes. The one site, 11L961, was found to be the likely location of a Pioneer farmstead that may meet the criteria for listing on the National Register of Historic Places for the potential to contribute to the understanding of the past. The site is recommended for archaeological Phase II testing. All of the structures located within 11L961 and on the balance of the property outside of 11L961 have a recommended finding of *No Historic Properties*. Based on this finding, it is recommended that the project, except for the location of 11L691, be cleared for cultural resource concerns.

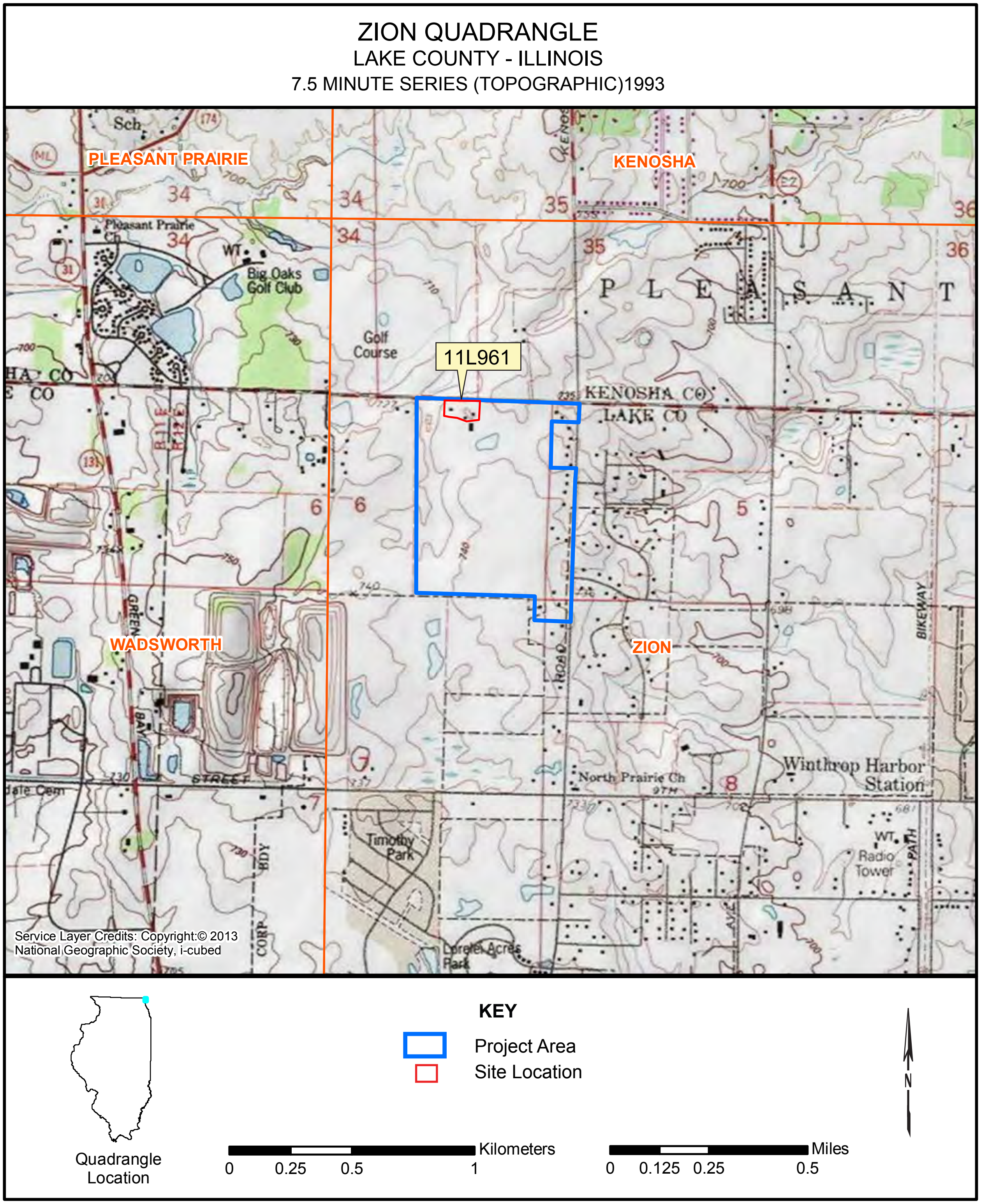

Figure 1. Location of project area.

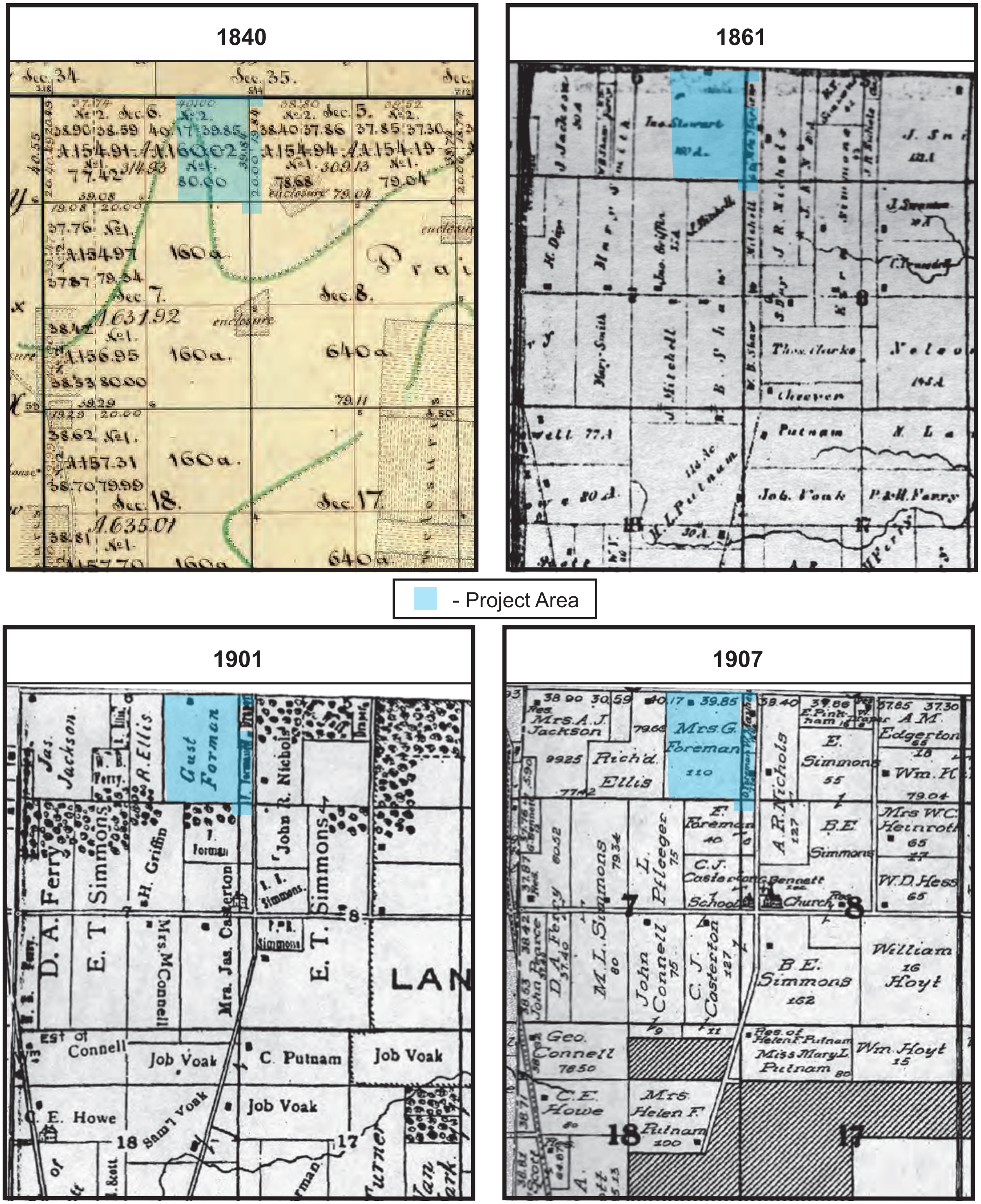

Figure 2. Portions of the 1840 United States General Land Office survey plat, 1861, 1901 and 1907 maps of Lake County, Illinois.

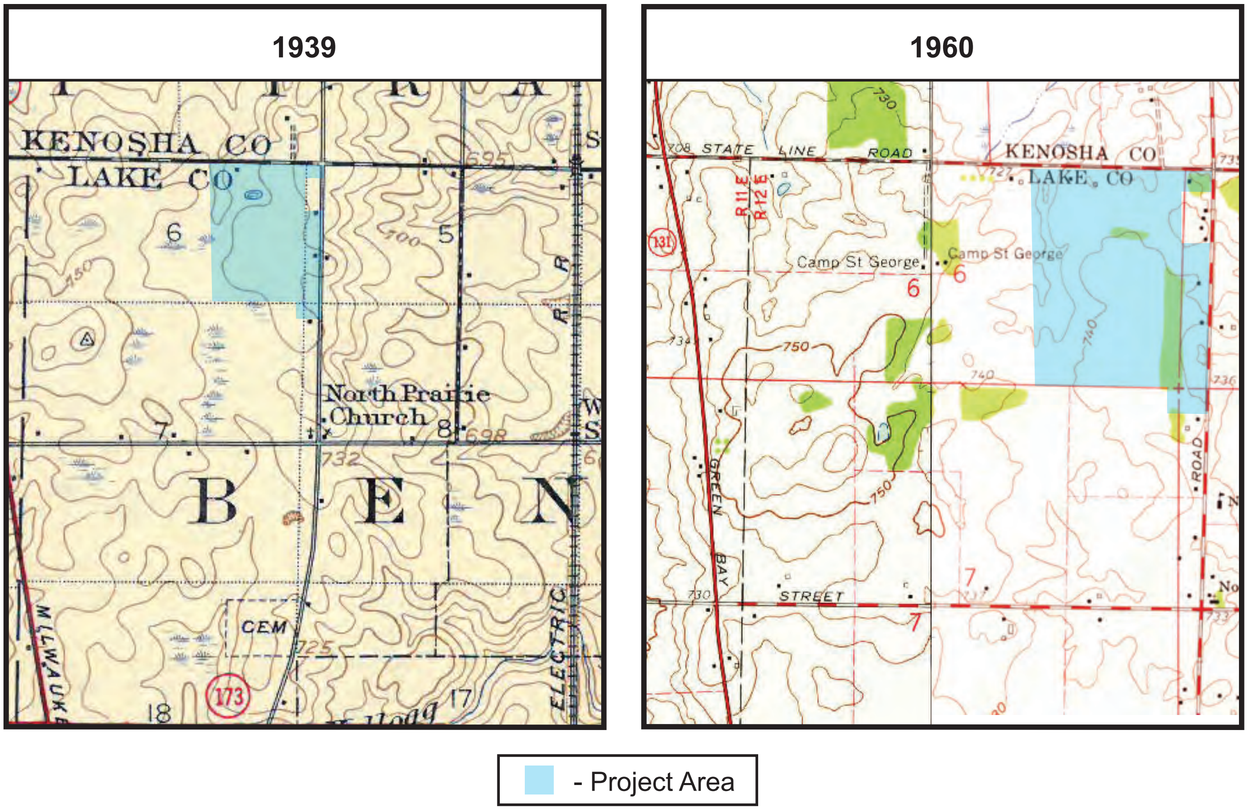

Figure 3. Portions of the 1939 Waukegan 15' quadrangle, and the 1960 Wadsworth and 1960 Zion 7.5' quadrangles.

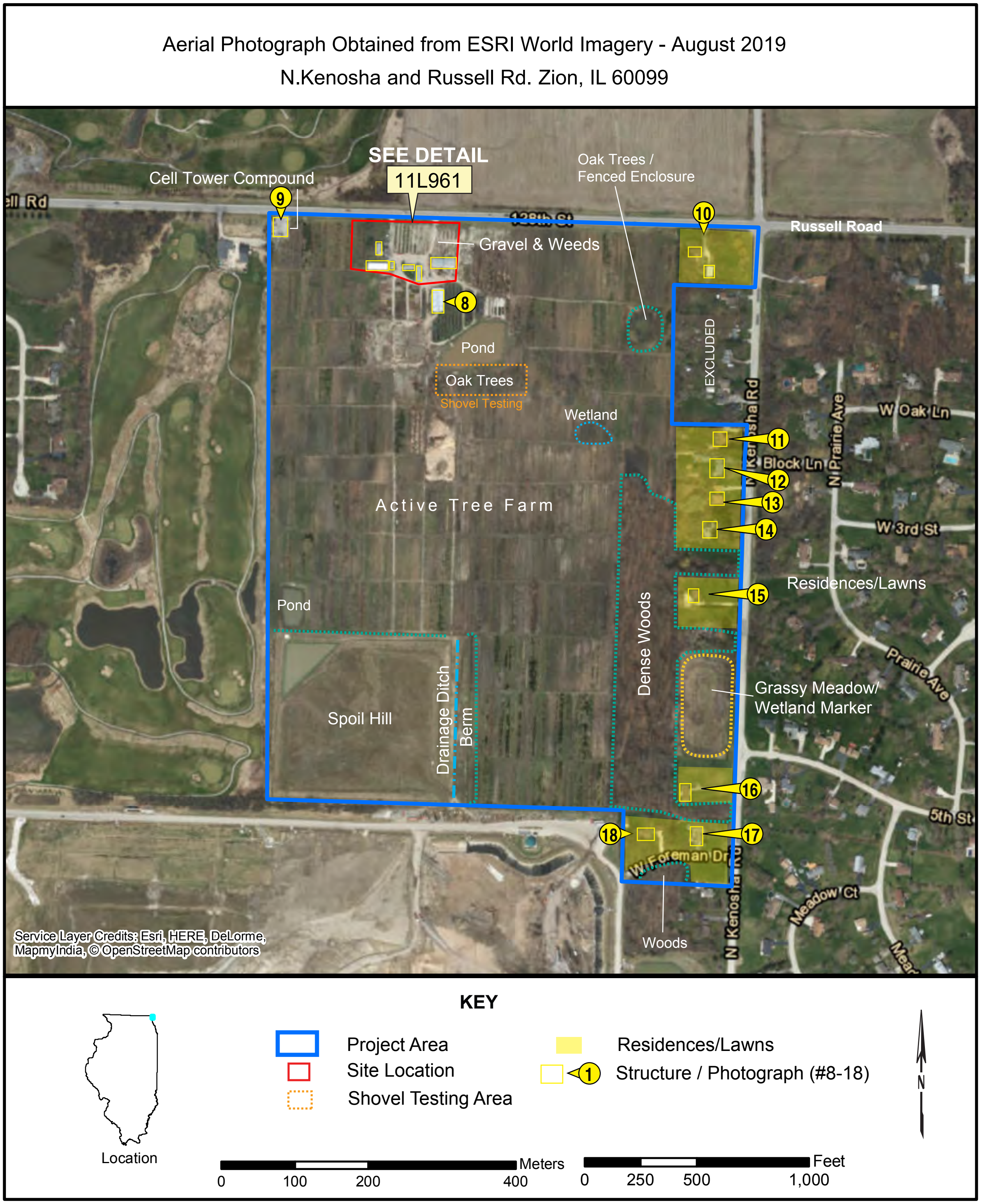

Figure 4. Aerial photo and sketch map of project area.

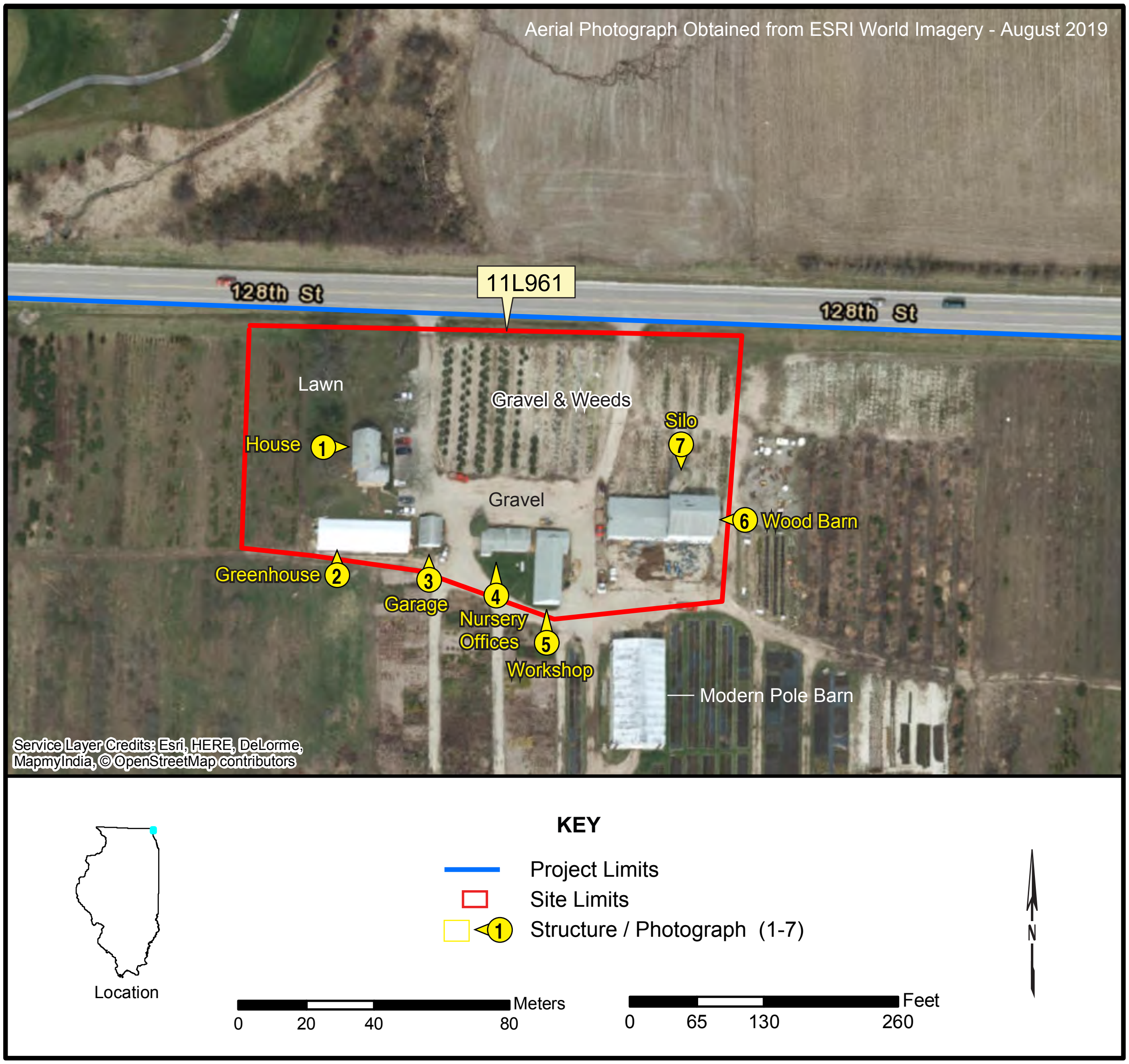

Figure 5. Aerial photo and sketch map 11L961.

Figure 6. Structure 1 – 11L961, Residence.

Figure 7. Structure 2 – 11L961, Greenhouse.

Figure 8. Structure 3 – 11L961, Garage.

Figure 9. Structure 4 – 11L961, Nursery Offices.

Figure 10. Structure 5 – 11L961, Workshop.

Figure 11. Structure 6 – 11L961, Barn.

Figure 12. Structure 7 – 11L961, Silo.

Figure 13. Structure 8 – metal Pole Barn.

Figure 14. Structure 9 – Cell Tower.

Figure 15. Structure Complex 10 – 11971 W. Russell Road.

Figure 16. Structure Complex 11 – 43296 N. Kenosha Road.

Figure 17. Structure Complex 12 – 43264 N. Kenosha Road.

Figure 18. Structure Complex 13 – 43228 N. Kenosha Road.

Figure 19. Structure Complex 14 – 43172 N. Kenosha Road.

Figure 20. Structure Complex 15 – 43152 N. Kenosha Road.

Figure 21. Structure 16 – 43020 N. Kenosha Road.

Figure 22. Structure Complex 17 – 42978 N Kenosha Road.

Figure 23. Structure Complex 18 – 12020 Foreman Drive.

Figure 24. Southwest corner of residence.

Figure 25. South face of residence.

Figure 26. Residence. first floor southwest corner room.

Figure 27. Residence, first floor east and west rooms.

Figure 28. Residence, second floor southwest room.

Figure 29. Barn interior, support beams.

Figure 30. Barn interior, livestock floor.

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Illinois Historic Preservation Agency's National Register Positive Preliminary Opinion List

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1939 Waukegan 15' Quadrangle Map. United States Geological Survey, Washington D.C..

1960 Wadsworth 7.5' Quadrangle Map. United States Geological Survey, Washington D.C..

1960 Zion 7.5' Quadrangle Map. United States Geological Survey, Washington D.C..

1993 Zion 7.5' Quadrangle Map. United States Geological Survey, Washington D.C..

Waukegan Sun

1901 *Official Map of Lake County, Illinois.* Waukegan Sun, Waukegan, Illinois.

ILLINOIS ARCHAEOLOGICAL SITE RECORDING FORM

Illinois Archaeological Site Recording Form

County Lake **Site Name** **Revisit** N

Field Number 19-084: AOS 101 **State Site Number** 961

7.5 min Quadrangle Zion **Recorded** 2019.09.13

LEGAL DESCRIPTION (to quarter quarter quarter section - up to four QQQs in a section per line)

Align	1/4s	Sec:	Twp:	Rng:
SE	NENWSE	6	46 N	12 E
		0	0	0
		0	0	0
		0	0	0

U.T.M. Coordinates for site center: (to be provided by ISM)

U.T.M Zone: 16 **East U.T.M.** 428,638 **North U.T.M** 4,704,884

Ownership Private

ENVIRONMENT

Topography Other Upland **Elevation (meters AMSL)** 210

Nearest Water Supply Intermitent stream **Drainage Basin** Des Plaines

Soil Associations Morley-Blount-Beecher

Description

The site is located immediately south of Russell Road and 400 meters west of Kenosha Road in the uplands. The site extends 80 meters north to south by 140 meters east to west.

SURVEY

Project Name 19-084 **Site Area (square meters)** 10,736

Ground Cover Rock Grass Weeds **Surface Visibility (%)** 25

Survey Methods Pedestrian Shovel Test

Site Type Commercial Habitation Y **Standing Structure**

SITE CONDITION

Extent of Damage Moderate **Main Cause of Damage** Development

MATERIAL OBSERVED

Number of Prehistoric Artifacts (count or estimate) 0 **Number of Historic Artifacts (count or estimate)** 5

N **Prehistoric Diagnostic Artifacts** Y **Historic Diagnostic Artifacts**

N **Prehistoric Surface Features** Y **Historic Surface Features**

Description

Site defined on the basis of five standing structures (residence, two barns, silo, and workshop) that are all over 50 years in age.

TEMPORAL AFFILIATION (select all that apply)

	Prehistoric Unknown		**Late Archaic**		**Mississppian**		**Colonial (1673-1780)**
	Paleoindian		**Woodland**		**Upper Mississippian**		**Pioneer (1781-1840)**
	Archaic		**Early Woodland**		**Protohistoric**	Y	**Frontier (1841-1870)**
	Early Archaic		**Middle Woodland**		**Historic Native American**	Y	**Early Industrial (1871-1900)**
	Middle Archaic		**Late Woodland**		**Historic (generic)**	Y	**Urban Industrial (1901-1945)**
						Y	**Post-War (1946-present)**

Description

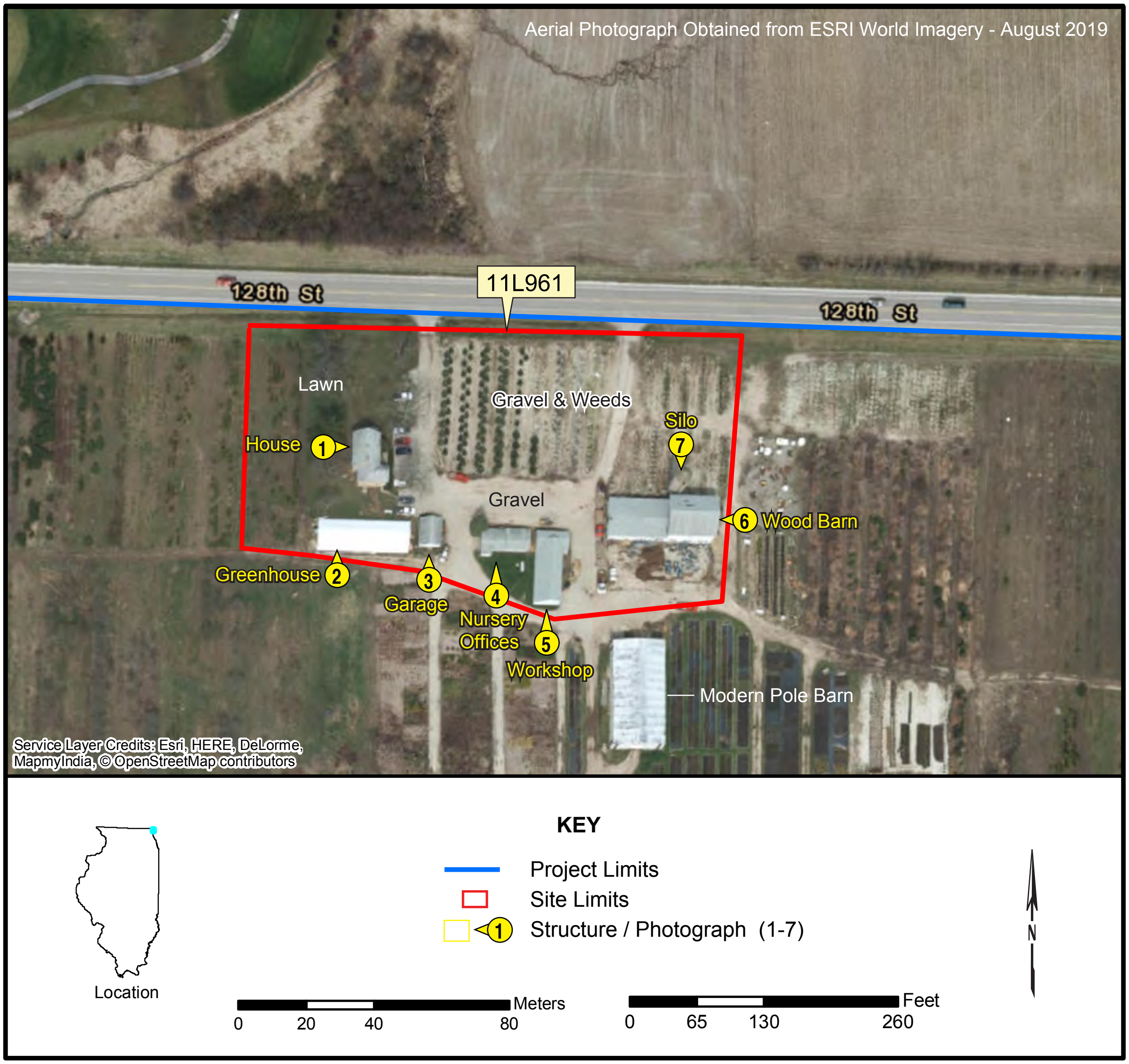
Historic maps place a residential structure near this location by 1861 (Hale and Truesdell 1861).

Surveyor P. Green **Institution** PSA **Survey Date** 08.29.2019 **Curation Facility** N/A

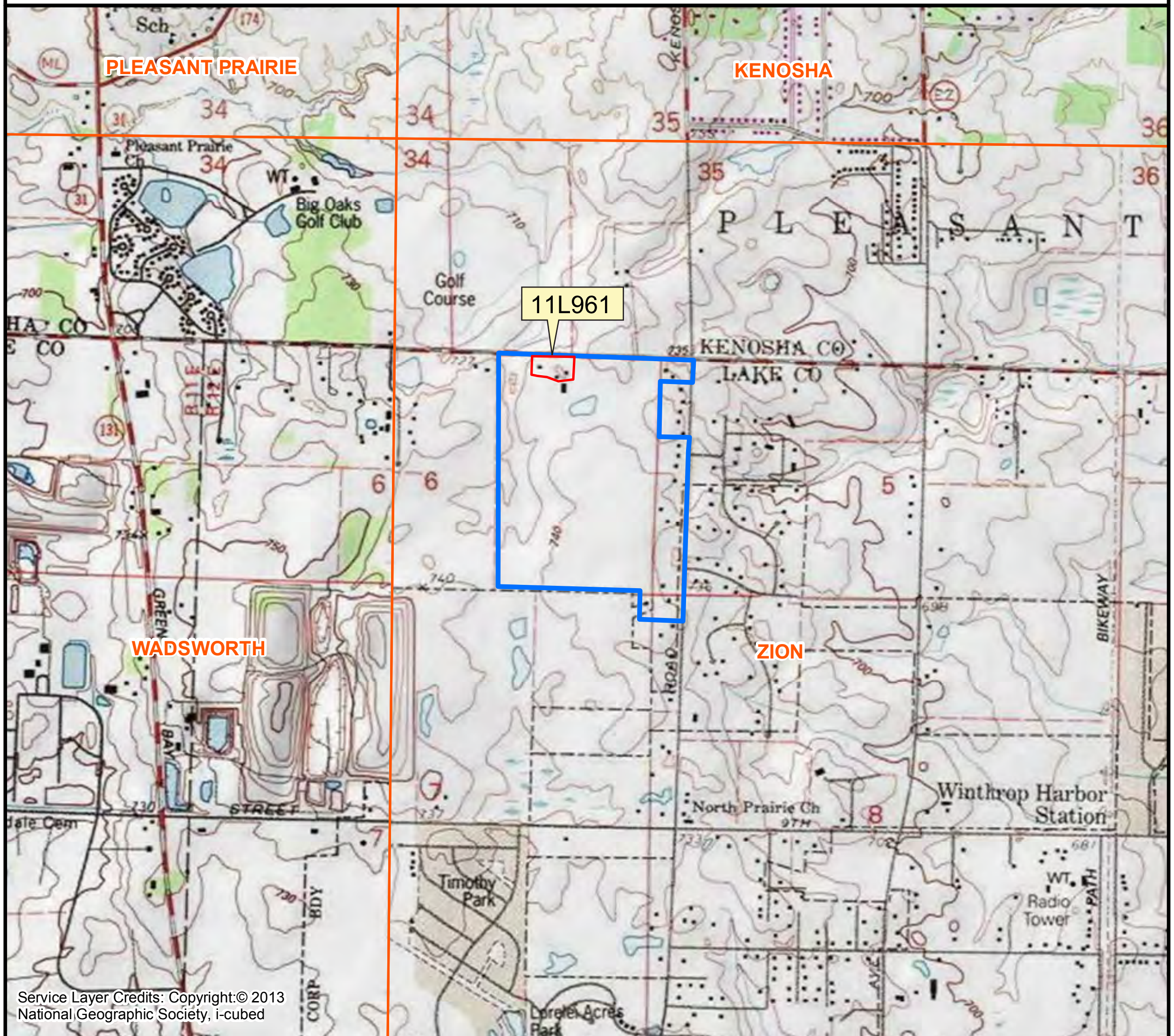
Site Report By Kevin McGowan **Institution** PSA **Date** 09.16.2019

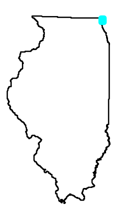
IHPA Log No. **IHPA 1st Sur Doc No.**

Compliance Status **NRHP Listing** N


Aerial Photograph Obtained from ESRI World Imagery - August 2019
128th St
11L961
128th St
Lawn
Gravel & Weeds
Silo
7
House
1
Gravel
6
Wood Barn
Greenhouse
2
3
Garage
4
Nursery
Offices
5
Workshop
Modern Pole Barn
Service Layer Credits: Esri, HERE, DeLorme,
MapmyIndia, © OpenStreetMap contributors
KEY
Project Limits
Site Limits
Structure / Photograph (1-7)
Location
Meters
0
20
40
80
Feet
0
65
130
260
N

ZION QUADRANGLE
LAKE COUNTY - ILLINOIS
7.5 MINUTE SERIES (TOPOGRAPHIC)1993





Quadrangle Location

KEY

Project Area
Site Location

Kilometers: 0, 0.25, 0.5, 1

Miles: 0, 0.125, 0.25, 0.5

N

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION

SITE 11L961 IN SITE 2 NORTH EXPANSION AREA

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION OF 11L961 IN LAKE COUNTY, ILLINOIS

by Gregory R. Walz, Christopher Flynn, Luke Pickrahn and Kevin P. McGowan

RESEARCH REPORT NO. 200

PUBLIC SERVICE ARCHAEOLOGY & ARCHITECTURE PROGRAM
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION OF 11L961 IN LAKE COUNTY, ILLINOIS

For Submission To & Funded By:

Mr. Tim Curry,
Midwest Region Landfill Manager
Zion Landfill, Inc.
119 West Gundlach
Columbia, Illinois 60296

By:

Gregory R. Walz, Christopher Flynn, and Luke Pickrahn
Public Service Archaeology & Architecture Program
Department of Anthropology
1707 South Orchard Street
University of Illinois at Urbana-Champaign
Urbana, Illinois 61801
(Project No. 19-226)

Dr. Kevin P. McGowan, Principal Investigator

03 February 2021

PUBLIC SERVICE ARCHAEOLOGY & ARCHITECTURE PROGRAM

RESEARCH REPORT # 200

ABSTRACT

The Public Service Archaeology & Architecture Program of the University of Illinois at Urbana–Champaign conducted a Phase II National Register of Historic Places (NRHP) evaluation of 11L961 prior to a planned sanitary landfill expansion in northern Lake County, Illinois. This project was conducted as a portion of the permitting process. Site 11L961 is located immediately south of Russell Road and 400 meters west of Kenosha Road in the uplands on the border between Illinois and Wisconsin. The Phase II evaluation of the site was conducted in November 2019. The investigations included detailed archival research, topographic mapping, machine excavation of selected site areas, and the analysis of recovered materials. The field investigation recovered 696 artifacts from 17 shovel tests, 8 machine excavation units and 3 subsurface features. This report provides the research findings from 11L961 and recommends it be determined *Not Eligible* for listing on the NRHP and the proposed project is recommended for cultural resource clearance.

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ACKNOWLEDGMENTS

The work presented in this report represents the accomplishments of the Public Service Archaeology & Architecture Program in 2019 and 2020 in determining the eligibility of 11L961 for the National Register of Historic Places. This report provides an opportunity to acknowledge all the individuals who have contributed to the investigations. Our participation in this project must be credited to Mr. Tim Curry, Midwest Regional Landfill Manager for Zion Landfill, Inc. who sponsored the investigations and Mr. Kenny Bergschultz who provided logistical assistance. Dr. Brenda Farnell, Department of Anthropology Head, and the Office of Sponsored Programs Administration of the University of Illinois helped facilitate the research contract. The excavation equipment and operator were provided by Zion Landfill, Inc.. Field supervision was undertaken by Dr. Kevin McGowan, Mr. Gregory Walz, and Mr. Patrick Green. Credit also goes to the individuals who worked in the field and laboratory. Foremost in this group are Lauren Cowie, Christopher Flynn, Caylynn Jones, and Kevin Cupka Head. Luke Pickrahn conducted the laboratory analyses, Chris Flynn the archival and documentary research, and Susan Brannock-Gaul provided her special talents in the preparation of figures and illustrations. The combined efforts of these individuals helped to make this a successful project. The interpretations presented herein are the responsibility of the authors.

GRW
May 2020

CHAPTER 1. INTRODUCTION

In late 2019 and 2020, the Public Service Archaeology & Architecture Program of the University of Illinois at Urbana–Champaign undertook a National Register of Historic Places (NRHP) evaluation of 11L961, a historic archaeological site located in northern Lake County, Illinois (Figure 1). The site had been defined and recommended as potentially eligible for listing on the NRHP based on the results of a Phase I investigation conducted in advance of a proposed landfill expansion (McGowan and Prchal 2019).

Previous Investigations

Site 11L961 was identified and reported in September 2019 during a Phase I reconnaissance survey conducted for a proposed 50.6-hectare sanitary landfill expansion project (McGowan and Prchal 2019). It was reported as being located immediately south of Russell Road and 400 meters west of Kenosha Road in the uplands on the border between Illinois and Wisconsin. The site was documented as extending 80 meters north to south by 140 meters east to west within an area used as a commercial nursey. Conditions at the site featured gravel parking areas, gravel drives, gravel covered areas with balled trees and shrubs ready for sale, seven structures, and a lawn and nursery planting area with less than 25 percent surface visibility. The site area was examined by a 15-meter grid of screened shovel tests in the lawn and nursery planting areas and by a 5 meter interval pedestrian reconnaissance elsewhere. Soils at this location were reported primarily as Ozaukee silt loam, 2 to 4 percent slopes (National Resources Conservation Services 2019a). Native vegetation for Ozaukee series soils is mixed hardwood forest with a typical soil profile of 13 centimeters of dark grayish brown (10YR 4/2) silt loam Ap over a 12 centimeter thick brown (10YR 5/3) silt loam E horizon that overlies a dark yellowish brown (10YR 4/4) silty clay loam Bt1 horizon (Natural Resources Conservation Service 2019b). The site was defined on the basis of historic documents and the presence of seven standing structures including a brick Italianate residence, detached garage, fabric greenhouse, “office” building, pole barn, concrete silo, and machine shed/workshop. Site 11L961 was interpreted as a middle nineteenth to twenty-first century residential farmstead. The property was identified as having the potential for a Pioneer homestead but the only nineteenth century artifact identified was the brick Italianate residence. Large portions of the site were noted to have been altered to accommodate the changes in the farmstead and the conversion into a commercial nursery. The Phase I archival research found the property was purchased by John Stewart in 1845 and that the Stewart family name was maintained with the property through at least 1861 indicating the potential that this site represents a pioneer settlement. Phase II testing was recommended for the site to evaluate the depositional integrity of the site area to have discrete middle nineteenth century deposits that can be tied to the initial site occupation.

Site Setting

Site 11L961 is located in portions of the northeast quarter of the northwest quarter of the southeast quarter and the northwest quarter of the northeast quarter of the southeast quarter of Section 36, Township 46 North, Range 12 East, in Benton Township in Lake County. The site occurs immediately south of Russell Road and 400 meters west of Kenosha Road in the uplands on the border between Illinois and Wisconsin (Figure 2). As it was originally defined during Phase I survey, the site is located within a commercial nursery. The environmental context is provided below.

Figure 1. Location of the project area in Illinois.

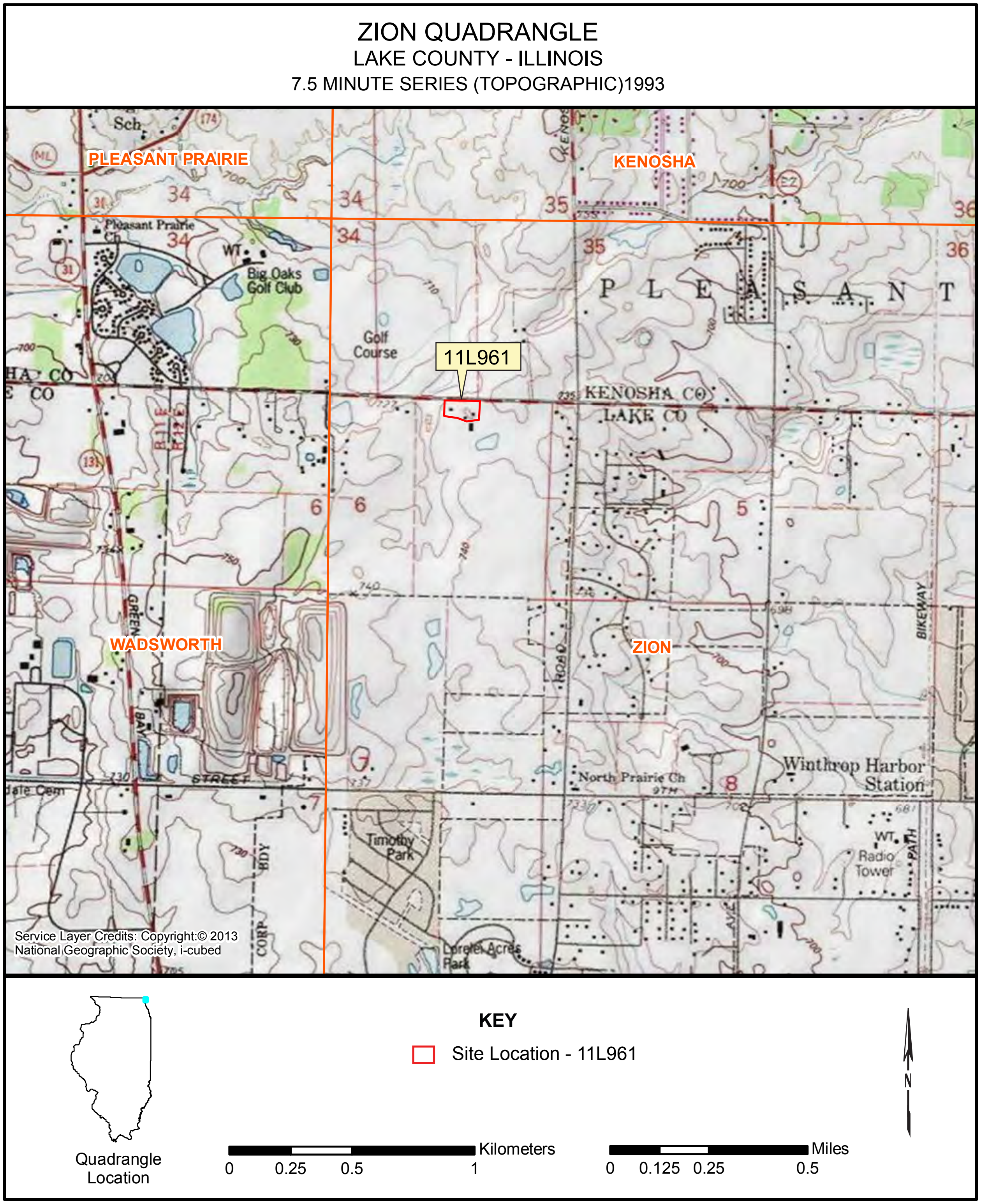

Figure 2. Location of 11L961.

Physiography, Geology, and Soils

The project area is located within the Great Lakes Section of the Interior Lowland Province a glacially formed landscape characterized by a variety of glacial, glaciofluvial and alluvial topography formed within a variety of depositional environments during the latter portion of the Wisconsinan glaciation of the western Great Lakes region (Feneman 1938; Leighton, Ekblaw and Hornberg 1948). The glacially formed landscape mantles the underlying Paleozoic formations which are locally represented by Niagaran Series Silurian deposits, primarily in the form of dolomites of the Racine Formation (Wilman and Atherton 1975). Structurally, the project area is located near the Wisconsin Arch which trends southeastward from south-central Wisconsin. The Wisconsin Arch forms a portion of the northern margin of the Illinois Basin, one of several large basins in the Midwest, which formed as result of the deformation of the underlying Precambrian continental cratonic basement rock which was subsequently infilled with Paleozoic sediments. The Sandwich Fault Zone, the largest fault zone in northern Illinois, is located southwest of the project area and runs for approximately 135 kilometers from Ogle to Will County. This fault zone has resulted in the raising of strata along its southwestern side and has exposed upper Cambrian and Silurian formations at or near the surface. The oldest surficially exposed rock in Illinois, a Cambrian-age dolomitic sandstone, is exposed adjacent to the sandwich Fault in Ogle and Lee counties (Nelson 1995).

Schwegman (1984) categorizes much of Lake County, including the project area, as lying within the Morainal Section of the Northeastern Morainal Division. The Northeastern Morainal Division represents the youngest surface within Illinois and consists of a series of Pleistocene end moraines separated by extensive areas of ground moraine and outwash plains. The glacial deposits were left by the Lake Michigan Lobe of terminal Pleistocene glaciation between 20,000-15,000 years B.P. The region also includes extensive glacial lake bed deposits and beach ridge deposits formed beneath glacial Lake Chicago, and includes areas of sand dunes and other shoreline features. Drainages are immature and poorly developed and numerous small to medium-sized inland lakes, ponds and marshy areas are present in depressions and low-lying areas.

The Northeastern Morainal Division have soils that are derived primarily from glacial outwash and drift rather than from loess (Hansel and Johnson 1996; Schwegman 1984; Wiggers 1997). Lithostratigraphically, the project area lies within a large expanse of northeastern Illinois underlain by the glacially deposited and modified sediments and landforms comprising the Wedron Group which were deposited during the Woodfordian Substage of the Wisconsinan Stage of Pleistocene glaciation between approximately 25,000-11,500 years B.P. The Wedron Group lithostratigraphic units are composed of unsorted glacial till and diamicton deposits which were deposited in ice-contact and ice-margin settings as ground and end moraines. Four distinct till members are recognized as comprising the Wedron Group: the Tiskilwa Formation; Lemont Formation; Wadsworth Formation; and Kewaunee Formation. The Wadsworth Formation consists of a fine texture, gray, calcareous till which includes lenses and strata of sorted fine sediments including silts, sands and clay. The till is predominantly pebbly silty clay and contains less than 10 to 15 percent sand. In the region of the Valparaiso Moraine, the Wadsworth Formation is composed of till and sediments that were redeposited by the advancing ice front and is up to 50 meters thick within the moraines that ring the lower portion of Lake Michigan. The various lithostratigraphic units making up the Wedron Group are juxtaposed with a number of horizontal and vertical facies and intertounging contacts (Hansel and Johnson 1996).

The project location in northern Lake County, approximately four kilometers east of the Des Plaines River and just about five and a half kilometers west of the Lake Michigan coast, is characterized by somewhat rolling terrain with low to moderate relief. The lower portions of the landscape are somewhat poorly drained and occupied by marshes and small lakes and ponds. The surfical deposits are attributed to the Wadsworth Formation and consist of subglacial and ice-marginal till (diamicton) deposits which have been reworked by alluvial and slope processes. The till deposits are part of the Valparaiso Moranic System. Irregular areas of bedded sands, silts, and clay may be intermixed with the diamicton and laminated deposits of over 10-meters in thickness may be present as well. The Wadsworth Formation is bounded to the east and southeast by silts and clays deposited as part of the Equality Formation of glaciolacustrine deposits in drainageways and low-lying portions of the landscape where meltwaters were impounded behind moraines, and in areas inundated by proglacial lakes (Barnhardt 2009; Barnhardt, Stumpf, Thomas, Brown and Hansel 2015).

Lake County is within the Northern Illinois and Indiana Heavy Till Plain Major Land Resource Area (Calsyn 2005). This is a region sharing aspects of physiography, geology, climate, water resources, soils, biological resources and land use patterns (Natural Resources Conservation Service 2020). The project area falls within the Morley-Blount-Beecher soil association which includes mainly forest soils with some transitional prairie-forest soils types which developed in silty clay loam glacial tills and in till mantled with up to 40 or more centimeters of loess (Fehrenbacher, Alexander, Jansen, Darmody, Pope, Flock, Voss, Scott, Andrews, and Bushue 1984).

Soils mapped as occurring at the 11L961 site location are Ozaukee silt loam, 2 to 4 percent slopes and Ozaukee silt loam, 4 to 6 percent slopes, eroded (Natural Resources Conservation Service 2019a). Ozaukee soils are moderately well drained soils that are moderately deep to a densic contact with the underlying parent glacial till sediments. Densic sediments are relatively unaltered sediments including glacial till within which the density or structure is such that plant roots cannot enter unless in existing cracks or fissures. Densic contact refers to a setting where the densic material has no cracks in its upper surface or where cracks are more than 10 centimeters apart (Natural Resource Conservation Service 1999: 92). Ozaukee soils formed in till on end and ground moraines and in some areas Ozaukee soils developed in loess deposited atop the glacial till. Ozaukee soils developed beneath deciduous forest vegetation. A typical Ozaukee soil profile in an unplowed forested setting exhibits an A horizon consisting of dark grayish brown (10YR 4/2) silt loam with moderate fine granular structure; friable texture; many very fine and fine roots; few faint, dark grayish brown (10YR 3/2) organic stains on ped facies and on surfaces along pores, and an abrupt smooth boundary. The A horizon extends to a depth of approximately 13 centimeters below surface. The underlying E horizon is a brown (10YR 5/3) silt loam with weak medium subangular blocky structure parting to weak thin platy; friable texture; many very fine and fine roots; few distinct very dark grayish brown (10YR 3/2) organic stains along pore surfaces; few distinct dark grayish brown (10YR 4/2) organic stains on ped facies; few distinct very pale brown (10YR 7/3) dry silt coats on ped facies, and an abrupt smooth boundary. The E horizon is 0-13 centimeters in thickness. The Bt1 horizon, ranging up to 18 centimeters thick, is a dark yellowish brown (10YR 4/4) silty clay loam with moderate fine and medium subangular blocky structure; friable texture; common very fine and fine roots; few distinct brown (10YR4/3) clay films on ped facies; very few distinct very dark grayish brown (10YR 3/2) organic stains on surfaces along pores; few distinct very pale brown (10YR 7/3) dry silt coats on ped facies, and a clear smooth boundary. A 2Bts horizon approximately 12 centimeters thick and consisting of a dark yellowish brown (10YR 4/4) silty clay with weak fine prismatic structure parting to moderately fine and medium subangular blocky; firm texture; common very fine and fine roots; common distinct brown (10YR 4/3) clay films on ped facies; few distinct very dark grayish brown (10YR 3/2) organo-clay films on surfaces along pores; few distinct very pale brown (10YR 7/3) dry silt coats on ped facies; one percent gravel, and a clear smooth boundary (Natural Resources Conservation Service 2019b).

Natural Setting

As noted above, the project area is located within an area dominated by Late Pleistocene glacially-formed topography consisting primarily of moraine and outwash deposits and such characteristic features as kames, eskers, drumlins and kettle holes. Soils are primarily derived from glacial till in the uplands and from glacial lake deposits, sand, and peat in low-lying areas. Soil textures range from silty clay loams to sand and gravels. Owing in part to the diversity of glacial landforms and soil textures diverse vegetational communities are represented and often juxtaposed with each other depending on topographic and soil characteristics. Prior to Euro-American settlement, the uplands were forested in a mix of burr and white oaks on drier locales, with mixed forests of sugar maple, basswood, white oak and ash in more mesic settings. Pockets of poorly drained upland soils supported swamp white oak and other water-tolerant trees and shrubs, and pockets of tamarack were found in some depressional areas. In alluvial soils, such as found along the Des Plaines River floodplain, forest communities including silver maple, green ash and elm were common. Oak savannah and scrub oak communities were also found on drier upland ridges interfingering with areas of extensive tallgrass prairie. Mesic and wet prairie habitats were also common, with sand prairie communities found to the east on the sandy glacial lake plain. Also found within the Northeastern Morainal Division were fens, sedge meadow, marsh and bog habitats, the latter found only within this portion of the state (Schwegman 1984:14-16).

Climate

The climate of northeastern Illinois has witnessed warming and cooling cycles throughout the late Pleistocene and Holocene epochs (Wendland 1978). Over 15,000 years ago the region was covered by the Pleistocene glaciation, while by 8,000 years ago a warmer and drier climate, the Hypsithermal Interval, ºLittle Ice Age, was present, followed by a period of generally cooler conditions between A.D. 1300-1850 (Fagan 2000). With the amelioration of the cooler conditions of the Little Ice Age, the past 150 years or so have seen a general warming trend (Wendland 1978:281). Currently, Lake County is characterized by a continental climate, with relatively cold winters and warm summers. During the winter, the average daily temperature is -4.5º C and daily average low temperatures is -8.9º C. During the summer months, the average daily temperature is 20.6º C and average daily high temperature is 26.2º C. Precipitation averages 872.7 mm during the growing season. About 60 percent of the total precipitation falls between May and October with thunderstorms occurring on average 38 days per year mostly between April and September. Seasonal snowfall averages 941 mm and there is at least 2.5 centimeters of snow on the ground for 27 day a year. In summer, the percentage of available sunlight is about 67 percent, and in winter 46 percent. Prevailing winds blow from the south, with the November to April period having the highest average wind speed (Calsyn 2005).

Vegetation

Most of Illinois, including Lake County, is part of the Prairie Peninsula section of the Northern Division of the Oak-Hickory Forest Region of eastern North America (Braun 1950; Transeau 1935). Prairie grasses became established across broad reaches of the uplands during the Hypsithermal Interval, a period of maximum warmth between 5,600-2,500 B.C. (Deevey and Flint 1957), when temperatures averaged several degrees centigrade higher than today. The Hypsithermal Interval may have been triggered by an increase in mean westerly circulation in the middle latitudes as the post-Pleistocene climate continued to develop (Geis and Boggess 1968:90-91). Wright (1968) suggests that grasses began to dominate the Illinois landscape about 8,000 B.P. The Prairie Peninsula probably became established as western grasslands expanded eastward during the postglacial period of warm and dry climatic conditions (King 1981). Following the maximum expansion of prairie grass vegetation within the Prairie Peninsula, a climatic reversal to cooler and moister conditions led to a re-advance of forest vegetation, with the vegetation patterns documented by the early nineteenth century General Land Office land surveyors becoming established by about 4,000 B.P. (Wright 1968:78).

Pollen data collected from Volo Bog in Lake County, Illinois and Chatsworth Bog, located in Livingston County, Illinois, documents changes in local vegetation patterns over time (King 1981). The Chatsworth Bog is located within the eastern portion of the Prairie Peninsula while the Volo Bog is situated at the northern boundary between deciduous forest and prairie habitats. The Chatsworth Bog sequence indicates that between 14,700-13,800 B.P. the area was dominated by spruce (*Picea* spp.), suggesting the presence of spruce-woodland and tundra or, alternatively, a forest-tundra transition. Between 13,800-11,600 B.P., the pollen assemblage indicates a decreasing percentage of spruce and larger quantities of eastern hophornbeam, (*Ostrya* spp.), hornbeam (*Carpinus* spp.), birch (*Betula* spp.) and oak (*Quercus* spp.) suggesting the expansion of the woodlands. Between 11,600-8,300 years B.P. the assemblage is characterized by a decrease in ash (*Fraxinus* spp.) pollen and increasing and then decreasing amounts of alder (*Alnus* spp.), and increasing amounts of oak (*Quercus* spp.) and elm (*Ulmus* spp.), suggesting the development of an oak-dominated forest habitat and the end of the transition from boreal forest to a more modern deciduous forest community. Together, the pollen data documents a shift from a cool to a warm temperate climate and its resulting effects on the vegetative communities near Chatsworth Bog. After 8,300 B.P., the pollen record at Chatsworth Bog is composed of increasing quantities of non-arboreal (non-tree) pollen indicating that the former forest habitats that occupied the uplands are being replaced by prairie vegetation. The Volo Bog record indicates that the vegetation in the lowest and oldest zone, dating between 11,070-10,900 B.P. was dominated by spruce (*Picea* spp.) with lesser amounts of fir (*Abies* spp.), and tamarack (*Larix larcinia*). The next zone, dating between 10,900-10,600 B.P., documents a drop in the presence of spruce pollen and increases in that of pine (*Pinus* spp.), birch (*Betula* spp.), elm (*Ulmus*) and oaks (*Quercus* spp.) and fir (*Abies*) reaches its highest representation. Beginning about 10,600 B.P. and continuing to around 7,900 years ago, pine pollen decreases, while that of birch, ash (*Fraxinus* spp.) and especially oak increases as do other deciduous taxa such as hickory (*Carya* spp.), maple (*Acer* spp.), and basswood (*Tilia*). Between 7,900 B.P. and 900 B.P., the Volo record is dominated by oak pollen, with the other deciduous taxa present earlier in the sequence greatly reduced or absent, indicating that the region was dominated by oak or oak-hickory forest. The dominance of oak in the assemblage correlates with the onset of warmer, drier conditions taking hold during the middle Holocene. The oak dominance of the assemblage for over 7,800 years draws to a close around 900 years ago when birch (*Betula*) pollen is once again well-represented. The presence of birch may reflect an amelioration to cooler and possibly more mesic conditions around that time. Overall, the Volo Bog record reflects a steady increase in temperature and in a decrease in available moisture between 11,000-7,900 B.P. followed by a long interval (7,800 years) of stable warmer conditions followed by cooler more mesic conditions around 900 years ago (Holloway and Bryant 1985; King 1981).

Once prairie habitats became established around 8,000 years ago, the eastern portion of the Prairie Peninsula, including the Grand Prairie Section of northeastern Illinois, was dominated by a number of different prairie communities, including dry prairie, mesic prairie, wet prairie, and sand prairie, along with oak openings or savanna habitats. In addition, sedge meadows, marshes, bogs and fens, prairie pothole, and forest communities were also present in depressions and poorly drained areas of the landscape (Schwegman 1984). Forested areas were generally associated with either stream drainages or moraines within the otherwise prairie-dominated uplands of Northeast Illinois. Morainal forests were dominated by oak and hickory species (Braun 1950; Schwegman 1984). Mesic floodplain forests contained maples, elm, ash, basswood, hackberry and oak (Braun 1950). Prairie groves, containing oaks and some hickories, were present throughout Illinois but were most common in the Grand Prairie Division and in the northeast and northwest corners of the state (McClain 1996-1997:11). Prairie groves vary in size, often between one hundred and several thousand acres, and are associated with streams, sloughs, potholes, or glacial topography such as moraines. Such features may have reduced the intensity of or prevented prairie fires and thereby allowed predominantly wooded areas to become established. The role of the Native American use of fire as a game management technique and in clearing areas for cultivation and its decline in the wake of Native population loss due to disease during the contact period should not be underestimated in the transformation of forest and prairie habitat distribution within the region (e.g. Dorney and Dorney 1989; Little 1974; Pyne 1995).

Fauna

The extensive modification of the natural landscape since the middle of the nineteenth century has altered species distribution and composition throughout Illinois, including Lake County. Many species were decimated in the middle and late nineteenth century as a result of overhunting and landscape alteration. However, documentary and archaeological data indicate that a number of mammalian species would have been available to the nineteenth-century Euro-American settlers of Lake County including opossum (*Didelphis virginiana*), eastern cottontail (*Sylvilagus floridanus*), woodchuck (*Marmota monax*), gray squirrel (*Sciurus carolinensis*), fox squirrel (*Sciurus niger*), red squirrel (*Tamiasciurus hudsonicus*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata*), mink (*Mustela vison*), badger (*Taxidea taxus*), river otter (*Lontra canadensis*), bobcat (*Lynx rufus)*, cougar (*Puma concolor*), elk (*Cervus elaphus*), white-tailed deer (*Odocoileus virginianus*), and bison (*Bison bison*) (Jones and Birney 1988). Avian resources included migratory ducks and geese (*Aix* sp. and *Anas* sp., for example) and geese (*Anser* sp., *Branta* sp., and *Chen* sp., for example), which may have used the nearby wetlands during migrations (Bellrose 1976), as well as more permanent residents such as turkey (*Meleagris gallopavo*). The prairie groves and floodplain forests would have provided excellent habitat for passenger pigeons (*Ectopistes migratoriu*) (Schorger 1955). It has been suggested that the enormous flocks and roosts of the passenger pigeon historically noted in the region may be largely a result of the cessation of Native American forest management practices as few archaeological sites exhibit more than the occasional occurrence of pigeon bones (Neumann 1985). A variety of warm water fish species such as: largemouth bass (*Micropterus* salmoides); smallmouth bass (*Micropterus* dolomieu); northern pike (*Esox lucius*); freshwater drum (*Aplodinotus grunniens*); bowfin (*Amia calva*); various sunfishes (Centrarchidae); catfishes (Ictaluridae); members of the sucker family (Catostomidae) and a variety of large and small members of the minnow family (Cyprinidae) would have been available within the Des Plaines River and its smaller tributaries and in inland lakes and ponds (Smith 1979). Other aquatic resources including freshwater mussels (Unionidae) crayfish and a variety of reptiles and amphibians would have been also been available within the major rivers and from the smaller tributary streams, marshes and wetland habitats.

Overview

The Phase II NRHP field evaluation of 11L961 was conducted in November 2019. Initially, the site was relocated, and several transects of shovel tests were excavated across the site area in the yard adjacent to the brick residence. The site was mapped with a total station and a series of eight machine trenches were laid out and excavated within the site area. The excavation of approximately 261 square meters of site area resulted in the identification of three subsurface cultural features associated with the residential structure and the recovery of a modest artifact assemblage. The material culture recovered indicated a largely middle nineteenth to early twenty-first century Euro-American occupation.

The remainder of this report provides information on the methods used to evaluate 11L961 for the NRHP and presents the results of the archaeological investigations, both from the field and laboratory. The report also has appendices containing a materials inventory for the site (Appendix A), and the original and updated 11L961 site forms (Appendix B). Dr. Kevin McGowan served as the Principal Investigator and was assisted in field direction by Mr. Patrick Green and Mr. Gregory Walz. Kevin Cupka Head and Luke Pickrahn conducted the laboratory analysis of the recovered artifacts. All materials collected and records associated with this project are temporally curated with the Department of Anthropology, University of Illinois at Urbana-Champaign. Ultimately, these materials will be curated at the Illinois State Museum.

CHAPTER 2.
RESEARCH METHODS

A number of research methods were employed to evaluate the cultural resources present at 11L961. Field, laboratory, and library research were all undertaken as part of the Phase II investigation. The project focused on the evaluation of the site's potential for listing on the NRHP. Detailed descriptions of the methods employed are given below.

Archival Methods

Both primary and secondary archival sources were consulted to construct an historical context for 11L961. These sources include commercially produced county histories and maps and primary sources such as census and deed records. These materials were located online at the libraries of the University of Illinois at Urbana–Champaign and at the Lake County Recorder's Office.

Field Methods

A stratified approach to field investigations, consisting of three different forms of data collection, was used at 11L961. Topographic and spatial data were collected using a total station survey instrument and data recorder. These instruments, along with mapping software, were used to construct a topographic relief map and site plan that includes the placement of excavation units and relevant cultural remains. The mapping was conducted from an arbitrary and temporary field datum that was tied to landscape landmarks. The second form of field data collected documented a series of shovel tests. A grid of shovel tests excavated at 5-meter intervals was excavated within the yard area adjacent to the residential structure to identify potential areas of artifact concentration and to assess the nature of the surficial deposits at the site. The final form of field data examined subsurface conditions present at the site. Excavation locations were selected to avoid observable surface disturbances and standing structures, and to focus on locations with subsurface shovel test materials, and landscape areas with the highest probability of intact subsurface cultural remains. This was accomplished by machine stripping of the Ap horizon sediments, examining the Ap horizon to subsoil interface for evidence of cultural activity. Shovel skimming and hand troweling were employed to aid in the definition of subsurface cultural features. Documentation of the machine trench excavations included the recording of the length, width and orientation of each trench, calculation of the square meters of each excavation trench and the scale drawing of at least one vertical wall profile showing all soil horizons, disturbances, or cultural features identified. All features had plan drawings made and the feature was photographed prior to the beginning of its excavation. Each feature was then bisected and one-half of each was hand excavated as a unit using a combination of shovel skimming and troweling. The resulting feature profile was then drawn and photographed. The remaining portion then was excavated according to any internal zonation that was documented in the profile. Photographs of the trenches and final wall profiles were also taken to document the soils in each machine trench. Soil colors were described using the Munsell soil color chart (Munsell Color 2009). Upon completion of the excavations, the machine-excavated trenches were backfilled and the ground surface re-contoured to its original shape. All of these methods are standard for NRHP archaeological evaluations in Illinois.

Laboratory Methods

All recovered materials were transported to laboratory facilities at the University of Illinois at Urbana-Champaign where they were washed, labeled, inventoried, analyzed, and prepared for curation. Inventory forms document artifact types, counts, and weights for each provenience, although weight was not calculated for historic artifacts. All recovered materials were classified initially as historic or prehistoric artifacts. More detailed secondary analyses were performed on both historic and prehistoric materials.

Prehistoric Artifacts

In general, lithic artifacts are divided into three broad categories: tools, manufacturing debris, and miscellaneous lithic material. Tools include those made from both chipping techniques (e.g., projectile points and scrapers) and grinding and pecking techniques (e.g., celts and axes). Tools can be of formal manufacture, such as the examples listed above, or of incidental manufacture (e.g., hammerstones and pitted stones). Manufacturing debris usually are composed of the waste materials (e.g., spent cores, flakes, and block shatter) generated from the production of chipped-stone tools. Miscellaneous lithic material can include fire-cracked rock, unmodified and tested chert chunks and nodules, and ocher. Fire-cracked rock is unintentionally produced debris that results from alternating processes of heating and cooling (Taggart 1981; Zurel 1981, 1982). Unmodified or minimally modified flakes, chunks, and nodules of chert represent raw material collected and reserved for tool production.

Debitage (flaking debris) categories comprise a majority of all the chipped-stone remains. These categories include block shatter, broken flakes, and whole flakes. The whole-flake classification was used for items characterized by the presence of a bulb of percussion on the ventral surface and a striking platform. Whole flakes were further divided into primary, secondary, and tertiary flake types based on the amount of visible cortex present: 50 percent or more, less than 50 percent but greater than 0 percent, and 0 percent, respectively. Secondary characteristics also were assessed. Primary flakes tend to have a pronounced bulb of percussion, secondary flakes have a less pronounced bulb, and tertiary flakes are generally smaller than the other two flake types and often have a reduced or no bulb of percussion. Broken flakes are debris items that lack a platform or bulb of percussion or are too small to place accurately within the whole flake category. Block shatter is irregularly shaped and lacks flake and core characteristics. Bifacial thinning flakes have a distinct lip on their bulb of percussion, an angled striking platform, and negative flake scars on their dorsal surface. Related to debitage are cores, the parent material from which flakes are removed.

Formally flaked stone tools initially are divided into unifacial and bifacial categories. Unifaces show evidence for retouch on only one surface. Bifaces demonstrate retouch on both their dorsal and ventral surfaces. When possible, each tool is assigned to a more detailed morphological-functional use category. Unifaces are most commonly classified as scrapers, with the particular type determined by the placement of the edge modification. Bifaces can be placed into a number of distinct categories. Among these are such items as projectile points, drills, knives, scrapers, and thick and thin bifaces. The most recognizable of the chipped-stone tools are projectile points. Projectile points are symmetrically thinned bifaces that show evidence of hafting. These items are examined in detail and compared with projectile point types known from the Midwest. They are particularly important for the placement of sites within a cultural and temporal context (see Bell 1958, 1960; C. Chapman 1975, 1980; Goldstein and Osborn 1988; Justice 1987; Morrow 1984; Perino 1968, 1971). When possible, chert types and sources have been determined for chipped-stone tools.

The other tool types are largely descriptive in nature. Perforators are typically small, narrow, often bifacial tools. Knives are larger, thin bifaces with a low edge angle to facilitate cutting while scrapers have a higher edge angle to facilitate scraping. Thick and thin bifaces are not finished tools but represent stages in tool manufacture. A thick biface is one that has been modified, is not a finished implement, and is in need of further modification. Typically, the thick biface can be modified into a number of different tool types (Bradley 1975). Thin bifaces are the result of further modification of thick bifaces. They also are not finished implements, but their morphology indicates that they can be further modified into only a single tool category (Bradley 1975). Thin and thick bifaces are differentiated based on flake-scar morphology.

In analyzing the chipped-stone tools and lithic debris, a core-reduction model was followed (Collins 1975; see also Bradley 1975; Hayden 1980). Collins (1975) defines five stages of chipped-stone manufacture and use for the core-reduction model. These stages consist of acquisition of raw materials, core preparation-initial reduction, primary trimming, secondary trimming, and use-maintenance-modification. Each of these categories, called activity sets (except for raw material acquisition), is associated with waste by-products and objects that are further used or modified. Core preparation-initial reduction is a stage in which the core is shaped and flakes are detached. Suitable flakes may be retained and further used with the core being discarded, or both can be retained for additional modification. End products of this stage are primary flakes, block shatter, discarded cores, and thick bifaces. The next stage, primary trimming, is used to shape the object. Flakes can be retouched into usable tools, or thick bifaces can be flaked into thin bifaces. These activities result in the production of secondary flakes, retouched flakes, thin bifaces, and items broken during manufacture. Following primary trimming is the secondary trimming of thin bifaces. This stage produces tertiary flakes, finished tools, and items broken during processing. Finally, the tools are used, maintained, and perhaps modified. Bifacial thinning flakes are the most important waste by-product of tool maintenance activities, although they also could be produced while thinning thick bifaces.

Following this model, certain interpretations have been made in the analysis of lithics. Cores, primary flakes, and block shatter are evidence of initial-stage reduction activities. Secondary flakes, tertiary flakes, and thick and thin bifaces evidence later-stage reduction activities. Bifacial thinning flakes are indicative of tool-maintenance activities. Since broken flakes can be produced by a number of prehistoric and modern processes, they are not considered when characterizing the chipped-stone tool production.

Less common, or perhaps less well recognized, is the use of a bipolar technique. In this technique, small cobbles are generally not well-suited for use in the direct hammer or core reduction technique described above, although a bipolar technique can be used to manipulate these items. When using a bipolar technique, the cobble is placed on an anvil and struck. This action yields bipolar debris and, eventually, a spent core. The flakes can either be discarded, used as is, or further modified into tools. The bipolar technique also produces pitting in anvil stones due to the striking force used.

The other class of lithic artifacts, ground-stone tools, consists of pecked and ground items generally made of metamorphic or igneous rock. Included in this category are items that are intentionally formed, such as celts and axes, and unintentionally formed, such as hammerstones, grinding stones, and pitted stones. Intentionally formed artifacts consist of items that were modified for a specific use. Unintentionally formed items have areas of pitting, battering, or smoothing that were caused by use. Definitions of the individual artifact categories are based on those used by other researchers in the Midwest (e.g., Brose 1970; McElrath 1986; McGimsey and Conner 1985).

When present, ceramics is the other major prehistoric material artifact category. Additional data also are gathered from prehistoric ceramics. Data collected for each rim or body sherd include temper type, temper density and size, surface treatment, cord twist, decoration, thickness, and vessel portion. For rim sherds, additional collected data include vessel form, rim shape, and lip shape and treatment, following standard definitions for these attributes (Rice 1987; Shepard 1965).

Historic Artifacts

The major descriptive categories for historic artifacts are household ceramics, glass, metal, bone, and structural elements. These descriptive categories are then broken down into more specific categories that are described below.

Ceramics. The initial division of household ceramics is into refined and unrefined categories. Refined ceramics are finely made vessels, mainly tablewares such as plates, cups, saucers, bowls, and serving vessels. Refined ceramics include creamware, pearlware, whiteware, ironstone, and porcelain items. Creamware, also called Queen's ware, exhibits a cream-colored paste and a clear lead glaze. The glaze has a yellow or green cast that is particularly noticeable as it gathers in the molded areas of the vessel. Pearlware has a soft paste and an overall bluish cast to the glaze that is not necessarily limited to puddling in crevices. Whiteware tends to have soft paste while ironstone is nearly vitrified. Whiteware tends to be whiter in color and thicker than pearlware. Transitional pearlwares to whitewares have intermediary characteristics. Porcelain artifacts are vitrified, have fine paste, are translucent, and are white in color. Common decorative treatments of these refined ceramics include handpainted, transfer printed, decal, and molded or embossed designs. Unrefined ceramics include redwares with red paste and clear lead glaze, yellowwares with yellow paste and clear glaze, and stonewares with coarse, vitrified paste. These represent mainly food storage and preparation vessels such as crocks, mixing bowls, jugs, and butter churns. The unrefined ceramics are often undecorated or have only simple design elements.

Ceramics are further subdivided into type categories on the basis of decorative treatment or, in the case of stoneware, the slip applied to interior and exterior surfaces. These ware and type categories have proven to be important temporal indicators. Chronological ranges associated with each ware and decorative treatment are based on Price (1981:24-48), Mansberger (1988:228-230), and South (1977:210-212) with some refinements. Table 1 provides date ranges for ceramics based on the above sources.

Glass. Glass artifacts such as bottles, tablewares, and furnishings (lamps) also provide temporal and functional information for historical archaeological sites. Bottles are especially important since techniques employed in their manufacture are datable (Lorrain 1968; McKearin and Wilson 1978). The turn of the twentieth century marks a change in glass manufacturing methods; bottles that are entirely machine made originate at that time. Bottle glass can be divided into two categories. These are bottles that are entirely machine made and those made with other techniques including hand blowing. Mansberger (1988:231-234) presents a detailed table describing the manufacturing attributes of glass and associated date ranges. Table 2 summarizes the major attributes of glass manufacturing attributes and chronology.

Metal. Metal artifacts represent a wide variety of activities at historic sites. Nails, screws, and machinery parts are commonly recovered. Less common are furniture and building hardware and tools. Buttons and buckles from clothing are also common. Nails are useful temporal indicators at historic sites. Wire-drawn nails became prevalent in the United States around 1900, and their presence on a site indicates a post-1900 occupation, just as the presence of machine-cut nails indicates a nineteenth-century occupation (Edwards and Wells 1993:58, 60).

Table 1. Date Ranges of Refined Ceramic Types.

		Date Ranges	
Type	*South (1977:212)*	*Price (1981:42)*	*Mansberger (1988:228–229)*
Creamware	circa 1750–1820		1762–1820
Pearlware			
Shell edge (blue/green)	circa 1780–1830	circa 1810–1830	1780–1830
Embossed edge[1]	circa 1800–1820	circa 1810–1830	1800–1830
Blue handpainted	circa 1780–1820	circa 1810–1830	1780–1830
Polychrome handpainted	circa 1795–1815	circa 1810–1825	1780–1830
Annular[2]	circa 1790–1890	circa 1810–1830	1790–1830
Transfer-print[3]	circa 1795–1840	circa 1810–1830	1790–1830
Whiteware			
Undecorated		circa 1845–1870+	1830–1900
Shell edge		circa 1830–1860	1830–1860
Embossed edge		circa 1830–	1840–1900
Blue handpainted		circa 1830–	1830–1850
Polychrome handpainted		circa 1825–1860	1830–1860
Annular[2]		circa 1830–1870+	1830–1860
Transfer print[4]		circa 1825–1870+	1830–1860
Sponge		circa 1835–1865	1840–1870
Lusterware			1830–1860
Handpainted and Transfer Printed			1840–1860
Ironstone			
Undecorated		circa 1845–1870+	1840–1900
Embossed			1840–1910
Brown Tea handpainted			1860–1900
Transfer print			1880–1920
Decal			1890–1940

[1] including feather and scale patterns
[2] including mocha and worm designs
[3] including Willow pattern
[4] including flow designs

Table 2. Glass Manufacturing Attributes.

Attribute	*Date Range*	*Attribute*	*Date Range*
Manufacturing technique		Improved tool	
Free-blown	to mid-1830s	Cork	Early1870s–circa 1915
Dip mold	to 1860	Baltimore loop seal	1885–circa 1915
Two-piece mold	1818–early 1870s	Hutchinson	1885–circa 1915
Pressed	1820s to present	Lightning	1875–circa 1915
Blown three mold	circa 1810–1830s	Crown	1905–circa 1920
Three-piece, dip bottom mold	early1830s–circa 1905	Machine made	
Three-piece, plate bottom mold	1858– circa 1915	Cork	1903–circa 1915
Turn mold	1880– circa 1905	Crown	1903 to present
Machine-made	1903 to present	Lightning	1903 to present
Finishes		Pry-off	1929 to present
Fire polished	to mid-1850s	Goldy cap	1897– circa. 1920
Applied string	to mid-1840s	Lug	1906 to present
Folded	to early 1870s	Screw threads	1903 to present
Flanged	to early 1870s	Glass composition	
Applied tool		Flint or lead (clear)	1770 to present
Cork	late 1820s–early 1870s	Soda-lime (moderately clear)	1860 to present
Wax seal	1855–1880	With manganese oxide (amethyst)	1880–circa 1918
Internal threads	1860–early 1870s	With selenium (yellow)	1915 to present
Blob	early1870s– circa 1880	Embossing and labeling	
Hutchinson	1879–early 1890s	English block style lettering	to present
Lightning	1875–early 1890s	Screen-painted labeling	mid-1930s to
Crown	1892–1910	Embossed "Federal Law Prohibits"	1933–1964
Ground rim with screw threads	1858–circa 1915	Figured flasks	1840–early 1870s

Source: Deiss (1981:92–96).

Bone. Bone items can represent either the remains of subsistence activities or utilitarian objects such as combs and buttons. The methods of analysis vary, depending in which of these categories the artifacts fall.

Structural. Structural elements include such items as brick, concrete blocks, foundation stones, ceramic tile, and mortar. They suggest the former presence of structures and can provide details on construction techniques and materials.

It is apparent from this description that each category contains a wide variety of artifact types and functions. In this form, however, it is difficult to make meaningful interpretations regarding site function from the artifact assemblage. To do so, the classificatory system developed by South (1977) has been employed. Modifications have been made to reflect artifact assemblages typical of nineteenth-century sites in the Midwest. In this classification system, historic artifacts are organized into Artifact groups.

South (1977) has defined nine such groups: Kitchen, Architecture, Activities, Arms, Personal, Clothing, Furniture, Tobacco Pipe, and Bone. Materials then are divided into Artifact classes within these groups and further subdivided into Material, Ware, and Type categories such as those described above.

The *Kitchen* group includes artifacts typically associated with food preparation and consumption. Within this group South (1977) has defined eight Artifact classes: Ceramics, Wine Bottle, Case Bottle, Pharmaceutical Bottles, Tumbler, Glassware, Tableware, and Kitchenware. To these classes are added the Liquor Bottle and Canning Jar classes. In contrast, Mansberger (1988) places liquor bottles in the Personal group. The Bone group also has been added to the Kitchen group.

The *Architecture* group includes artifacts associated with the construction and subsequent demolition of buildings rather than activities performed in and around structures. South (1977) defines five artifact classes for this group, Window Glass, Nails, Spikes, Construction Hardware, and Door Lock Parts, to which has been added Construction Materials. Construction Materials include such items as bricks, foundation stones, concrete blocks, roofing slate, and composition shingles (or rolled roofing) used in the building of structures.

The *Activities* group contains a wide range of artifact classes relating to a variety of activities taking place at farmsteads that are not included in other artifact groups. South (1977) defines 12 such classes: Construction Tools, Farm Tools, Toys, Fishing Gear, Stub-Stemmed Pipes, Colono-Indian Pottery, Storage Items, Ethnobotanical, Stable and Barn, Miscellaneous Hardware, Other, and Military Objects.

The *Arms* group includes artifacts that are either integral parts of firearms or used in their manufacture. South (1977) defines three artifact classes for this group: Musket Ball, Shot, and Sprue; Gunflints and Gunspalls; and Gun Parts and Bullet Molds.

The *Personal* group includes those artifacts likely belonging to individuals that were, as the term suggests, for personal use. South (1977) identifies three artifact classes for this group: Coins, Keys, and Personal Items. We have added the Pipe class to this group.

The *Clothing* group includes artifacts related to the manufacture and use of clothing. South (1977) defines eight artifact classes for this group: Buckles, Thimbles, Buttons, Scissors, Straight Pins, Hook and Eye Fasteners, Bale Seals, and Glass Beads.

The *Furniture* group includes artifacts used in the manufacture of furniture. South (1977) defines only one artifact class, Furniture Hardware, for this group. Lamp glass has been added to this group.

Curation

All artifacts and materials identified and collected were washed, analyzed and prepared for curation by the Public Service Archaeology & Architecture Program. Upon review and acceptance of the final report, the artifacts will be curated by the Illinois State Museum in Springfield along with the project field and laboratory documentation and analysis forms.

CHAPTER 3.
CULTURAL CONTEXT

The objective of the archival investigation was to develop a historic context against which the field findings from 11L961 could be evaluated. Specifically, the potential significance of this site needs to be examined against events taking place during the early to middle nineteenth century in the United States, in northern Illinois, particularly Lake County, and locally in Zion, as well as the people and events occurring at this site. Prehistoric cultural materials were present at 11L961. However, due to the small number of prehistoric items recovered, they were not the focus of the NRHP evaluation and therefore the prehistoric context for the area has been omitted

Illinois in the Nineteenth Century

In 1801 Illinois was part of the Indiana Territory, and in 1809 the Illinois Territory was established as a separate entity. During the early nineteenth century population was increasing within the territory as a continual influx of settlers, mostly from the south, moved north of the Ohio River and west of the Wabash River. The push for Illinois statehood increased following the success of Ohio and Indiana, which became states despite having populations several thousand below the original Congressional requirement of 60,000. Additionally, the Northwest Ordinance stated that the northern border for both Indiana and Illinois should be across the southern tip of Lake Michigan. In 1816, Indiana succeeded in pushing their state border ten miles to the north, giving them 45 miles of Lake Michigan frontage. Through creative enumeration and convincing the United States Congress to push the northern boundary of Illinois even further north past the southern edge of Lake Michigan, Illinois gained about 8,000 square miles and 63 miles of Lake Michigan frontage and achieved statehood in 1818. As a result of these political maneuvers, Chicago, the Illinois and Michigan Canal, Rockford, DeKalb and Galena were all included within Illinois, thus having a far-reaching impact on development and makeup of the state's population (Davis 1998:161–163).

One consequence of the increased Euro-American settlement of the region was the displacement of most of the remaining Native Americans. Around 15,000 Native Americans resided in Illinois at the time of statehood, mostly living in the northern part of the state (Davis 1998:159). While military excursions against Native American groups were sometimes successful in the early nineteenth century, complete removal of native populations from Illinois did not occur until after the Black Hawk War of 1832 (Bauxar 1978).

Euro-American settlement of Illinois increased rapidly in the nineteenth century, with woodlands and river bottoms the first to be settled. With the exception of the Galena area in northwestern Illinois, most of the population lived along the Wabash and Ohio rivers in southern Illinois and the Mississippi River in western Illinois. The waterways continued to be the primary avenue of movement for both people and goods during the early part of the nineteenth century. The prairie was settled circa 1840, when a self-scouring plow was introduced. The Erie Canal was opened in 1825, allowing easier access to Illinois for settlers from the east. This is reflected in the increase in population from 55,211 to 157,445 between 1820 and 1830 in Illinois (Hansen 1974). It was also during this decade that substantial settlement of northern Illinois began. The period leading to the Civil War saw further population increases, enabled by the construction of canals, railroads, roads, and harbors (Hansen 1974). Plow and other farm implement improvements led to increased opportunities for newly arrived settlers to farm the prairies.

Following the Civil War, industrial development increased in northeastern Illinois. Steel rails were made in Chicago beginning in 1865 and a Bessemer steel furnace began operation in Joliet in 1873 (Hansen 1974). It was also at this time that meatpacking became important in Chicago, and its port became a major point of departure for the shipping of Midwestern raw materials to the East Coast. By the 1870s, much of the desirable land was settled, and more marginal lands began to be occupied. Railroad networks enabled the increase in rural population as they provided easier access to markets, both new and old. Higher prices were realized for farm produce, providing farmers with increased capital. This capital was often invested in new farm implements but was also used to purchase additional acreage. Thus, by the turn of the twentieth century, successful farmers were increasingly displacing smaller, less successful farmers. The process of rural population increase was slowly reversed, with farm consolidation and depopulation of rural areas intensifying during periods of economic downturn, such as the decrease in agricultural prices after World War I and the subsequent Great Depression.

Heavy industry became established in northeastern Illinois in the early twentieth century, with iron, steel, glass, electrical machinery, and railroad cars produced for national and international markets. The urban population in the Great Lakes region grew during the twentieth century, especially in industrial cities. Industrial facilities were converted for the manufacturing of war materials during World War II, resulting in a strong manufacturing base after the war. In agriculture, the trend continued toward fewer but larger farms. With the application of research in a variety of sciences and humanities to agribusiness, a successful family farmer became part of the modern commercial agribusiness industry, blurring the differences between urban and rural life (Butz 1980). While agriculture is still a major economic activity in the area today, manufacturing, service industries, and transportation are also major contributors (Hansen 1974). The automobile and highway construction became the focus of transportation at this time, much as the railroad was in the nineteenth century. The highway system and the increased use of automobiles facilitated a shift in urban population from the industrialized cities to suburban areas that was especially pronounced after the mid-twentieth century.

Lake County

Lake County, situated in the northeast corner of Illinois, is bordered on the south by Cook County, Illinois, on the west by McHenry County, Illinois, on the north by Kenosha County, Wisconsin, and on the east by Lake Michigan. Prominent topographic and physiographic features of Lake County include the drainages of the Fox and Des Plaines Rivers, scores of lakes, and alternating wetlands and rolling uplands vegetated in prairie and timber (Ancestry.com 2020a). During the eighteenth century, French explorers found Maskouten and Kickapoo living in the region of present-day Waukegan (Halsey 1912), while other Native American groups, including the Illiniwek, Miami, Pottawattamie, and Winnebago, were either resident within the region or occupied it periodically (Temple 1958). Waukegan developed at the location of a former eighteenth century French trading post commonly known as Little Fort, located along the west shore of Lake Michigan (Ancestry.com 2020a). The "Illinois Territory" passed from French to British control in 1765, and from British to American control in 1779, when it was incorporated into the Northwest Territory (Balesi 1992). Following the admission of the State of Illinois to the Union in 1818, present-day Lake County was included within several larger counties until 1831. Between 1831 and 1836 it was included within Cook County, and between 1836 and 1839 it was part of McHenry County. In 1839, a survey line established approximately three miles east of the village of McHenry was delineated as the western boundary of the newly established Lake County. Burlington, centrally located near Libertyville, was selected as the county seat (Ancestry.com 2020a; Halsey 1912).

Settlement of Lake County had begun early in the 1830s, when captain Daniel Wright, a Vermont native, moved north from Chicago and settled near the Native American village of Half Day near present-day Vernon. Hiram Kennicott, a lawyer from New York, settled in the area in 1834 and opened a general store and built a gristmill and sawmill along the Des Plaines River. Emigration into the area increased considerably, following the course of the river valley. By 1835 plans were drawn up for a roadway to traverse the region from Chicago to the Wisconsin State line. The proposed route followed an old military road, crossing the Des Plaines River to the south near Wheeling and again to the north in Warren. This highway became the principal stage route northward from Chicago in June 1836 and was known as the Milwaukee Road. Despite treaties with the Potawatomi that prohibited settlement by Euro-Americans in the area before August 1836, about one hundred families had already established homesteads in Lake County by that time (Ancestry.com 2020a; Halsey 1912).

The first post office and school in Lake County were established in Vernon in 1836. A second post office was opened in 1837 and called Libertyville. A log schoolhouse also served as the first courtroom for the Circuit Court in April 1840 (Ancestry.com 2020a). Settlement was concentrated to the north as well, on the River Road near the Gurnee Ford where a post office had been established in 1836. Leonard Gage and George Gage, the latter County Surveyor from 1843 to 1851, settled to the west near Gage's Lake. Settlement of the western portion of Lake County and the Fox River region was slowed somewhat by reports of Native Americans in considerable number camped near Diamond Lake and engaged in hunting and fishing. Justus Bangs and a nephew came to Wauconda in 1836 and built a log cabin on the shores of Bangs' Lake, and Thomas H. Payne settled in the western portion of Fremont Township, establishing a nursery business (Ancestry.com 2020a; Halsey 1912).

With the establishment of Lake County in 1839, the land was surveyed, and a Land Office opened in June 1840. Sales were brisk for several years, and nearly all the available land was sold by 1847. Government land purchases continued until the last parcel was sold in 1855. The Federal census taken in June 1840 indicated 2,634 county residents, while a county recount three months later indicated that the population had increased by almost 300 over the census figure. One of the effects of this rapid population boom was an initiative to move the county seat from Libertyville (Burlington), to Little Fort (Waukegan). This move was spurred by the idea that a shipping point on Lake Michigan would promote the export of farm products and the import of goods from Chicago. Following a hotly contested vote taken less than two years after first being established at Libertyville, the county seat was moved to Little Fort which, in 1841, consisted of a store, sawmill, and four or five log houses (Ancestry.com 2020a; Halsey 1912).

Despite liberal inducements to build, prospective investors were hesitant to embrace the new county seat. By 1844, the population of Little Fort had barely reached 50, despite the establishment of the Little Fort post office, and the construction of a pier on Lake Michigan in 1841. By 1845, however, steamboats were making regular stops, discharging and receiving a great variety of raw materials such as lumber, furs and hides, and agricultural products. Agricultural products of the region included pork, beef, wool, wheat, and oats. Orchard fruits such as peaches and apples were readily cultivated by the settlers, leading to a glut in the early 1850s that was relieved only by a severe winter and many pests that destroyed a good portion of the trees (Johnson 1939). Imports and exports increased rapidly at the port and continued to thrive even after the coming of the railroad in 1855. By the late 1840s, the name “Waukegan”, a variant of a Native American term, began to be used to refer to Little Fort. In 1847, the United States Congress appropriated $4,000 for a lighthouse at Little Fort in 1847, and a temporary beacon light was constructed at "Waukegan, Little Fort" in 1854. In addition, the first issue of the "Waukegan Weekly Gazette" was published in October 1850 (Ancestry.com 2020a; Halsey 1912).

The coming of the railroad through Lake County in the 1850s increased travel and commerce. In 1854, the Illinois and Wisconsin Railroad line traversed the southwestern portion of the county, and in 1855 the Chicago and Milwaukee Railroad Company connected Waukegan to those cities to the south and north. Waukegan continued to grow, and the other towns and villages in the county also prospered. Federal census data show population increases to 18,257 in 1860, 21,014 in 1870, and 24,235 in 1890, a 75 percent increase in 30 years. Access to the interior of Lake County was facilitated by the construction first of plank roads, such as the one between Waukegan and the McHenry County line, and later in the 1880s by the construction of gravel roads (Ancestry.com 2020a). The region's scenic lakes, prairies, and woodlands, combined with increasingly easy access via various modes of transport from Chicago, made it a destination for the well-to-do from Chicago's upper social and economic echelon who built large estates and vacation homes throughout the area.

Benton Township and Zion City

Benton Township lies in the northeast corner of Lake County and constitutes fractional Township 46 North, Range 12 East. It is bordered on the south by Waukegan Township, on the west by Newport Township, on the north by Kenosha County, Wisconsin, and on the east by Lake Michigan. In addition to the irregular eastern border formed by the shores of Lake Michigan, the north half of the northern tier of sections, one through six, lie within the State of Wisconsin. Benton Township was first settled in 1835 by Nelson Landon and his wife. Among the earliest settlers were Jeremiah Stowell, Hanson Minsky, H. M. Paddock, Philo Paddock, Jeremiah Porter, John R. Nichols, Chester Butterfield, Samuel P. Ransom, Reverend Salmon Stebbins, Edward Putnam and Oren Jerome. Lake County adopted township organization in November 1849 and the county was promptly divided. The first Benton Township meetings were held in April 1850. Elected officials included H. L. Putnam, Supervisor; A. Q. Leach, Clerk; Calvin Truesdell, Assessor; and C. Burrington, Collector. Between 1850 and about 1900 Benton Township remained sparsely populated and wholly rural until the growth of Zion City and Winthrop Harbor around the turn of the twentieth century. In 1892 the Illinois National Guard developed a portion of the Benton Township lakefront as a rifle range named Camp Logan. During World War I and World War II it served as a rifle range for the Great Lakes Naval Training Station. In 1948 Illinois Beach State Park was established along Lake Michigan (Ancestry.com 2020a).

Zion City was founded as a utopian community in 1900 by John Alexander Dowie. Born in Scotland in 1847, Dowie settled in Chicago, near the site of the World’s Columbian Exposition, in 1893. In 1896, he established the Christian Catholic Apostolic Church and announced that he planned to build a utopian city on a tract of land at the extreme northeastern edge of Illinois. Zion City was to be communitarian and theocratic, a place of Christian cooperation, racial harmony, and strict fundamentalist morals. When Zion City was incorporated in 1902, 5,000 inhabitants joined the utopian community. Many of the original settlers, primarily of Dutch, German and Irish origins, were attracted to the community because of Dowie’s reputation as a faith healer, and among the many proscriptions handed down by Dowie was a ban on medical doctors. Early commercial and industrial businesses bolstered Zion City’s economy, with the Zion Department Store and the Zion Lace Industries factory together employing about 3,000 workers. But by 1905, Zion’s local economy was in shambles and its industrial base collapsed. Commonwealth Edison, which constructed two nuclear power plants in Zion in 1973 and 1974, closed both plants by 1998 after a history of safety and maintenance problems. Despite the lack of industry and low levels of employment, the population of Zion increased steadily throughout the twentieth century. Zion City grew from 17,268 residents in 1970 to 22,866 in 2000, 30 percent of whom were of African American descent (Chicago Historical Society 2020).

CHAPTER 4.
RESULTS OF INVESTIGATIONS

The Phase II NRHP evaluation of 11L961 included both archival and documentary research and field investigations, as well as the analysis of the artifact assemblage generated by the fieldwork. Field investigations were conducted at 11L961 between 19-21 November 2019. The site occurs immediately south of Russell Road and 400 meters west of Kenosha Road in the uplands on the border between Illinois and Wisconsin. As it was originally defined during Phase I survey, the site is located within a commercial nursery featuring gravel parking areas, gravel drives, gravel covered plant sales areas, seven structures, portions of the nursery planting area, and a grass lawn. The site extends 80 meters north to south by 140 meters east to west covering 1.12 hectares (2.77 acres). Investigations included detailed archival research, topographic mapping, excavation of 15 shovel test, machine excavation of eight trenches covering 261 square meters, and hand excavation of three features. A total of 1 prehistoric and 695 historic artifacts were recovered from the surface, general fill of machine trenches and in the features. The results of the archival research, field investigations, and artifact analysis from 11L961 are presented below.

Site Description

Site 11L961 is located in northern Lake County in the northeast quarter of the northwest quarter of the southeast quarter and the northwest quarter of the northeast quarter of the southeast quarter of Section 36, Township 46 North, Range 12 East, in Benton Township. The site is situated on an upland ridge immediately south of Russell Road and 400 meters west of Kenosha Road. The site is generally gravel covered with lawn and planting areas. Soils at this location were reported primarily as Ozaukee silt loam, 2 to 4 percent slopes (National Resources Conservation Services 2019a). Native vegetation for Ozaukee series soils is mixed hardwood forest with a typical soil profile of 13 centimeters of dark grayish brown (10YR 4/2) silt loam Ap over a 12 centimeter thick brown (10YR 5/3) silt loam E horizon that overlies a dark yellowish brown (10YR 4/4) silty clay loam Bt1 horizon (Natural Resources Conservation Service 2019b). At the time of investigation, the project area was covered in grass and gravel and featured less than 20 percent surface visibility.

Results of Archival Investigations

The focus of this investigation examines the initial ownership of the property on which 11L961 is located and tracing that ownership during the nineteenth and twentieth centuries.

Chain of Title Ownership Records

Site 11L961 is located in the northeast quarter of the northwest quarter of the southeast quarter and the northwest quarter of the northeast quarter of the southeast quarter of Section 36, Township 46 North, Range 12 East, in Benton Township. The East Fractional Half of Section 6, comprising 160.02 acres of government land, was purchased by John Stewart at the Chicago Land Office on 18 July 1843 (Illinois State Archives 2019a). The Patent Deed, dated 01 May 1845, stated that John Stewart was a resident of Lake County, Illinois. This was the only purchase of government land made by John Stewart in Lake County, Illinois or north of the state line in Kenosha County, Wisconsin (Bureau of Land Management

2019 - Doc. #12821; Lake County Recorder {LCR} Grantor-Grantee Index {GGI} Book 91, Page 397). On 4 December 1886, Catherine Stewart, widow of John Stewart, Town of Benton, Quit Claimed the East Fractional Half of Section 6, 160 acres more or less, to her daughter Agnes Foreman as provided in the Last Will and Testament of John Stewart (LCR-GGI Book 83, Page 253). On 30 December 1886, Nancy Stewart of Bourbon County, Kansas, widowed daughter-in-law of John Stewart and legal guardian of Stewart's minor grandchildren as named in his Last Will and Testament, Quit Claimed her and her wards' interests in the East Fractional Half of Section 6 to Agnes Foreman (LCR-GGI Book 83, Page 261). On 21 November 1889, Matilda Riley, of Pleasant Prairie, Kenosha County, Quit Claimed her interest in the East Fractional Half of Section 6 to her sister Agnes Foreman for the sum of $1,500, as specified under John Stewart's Last Will and Testament (LCR-GGI 83:487). On the same day, 21 November 1889, Agnes Foreman and Gustof Foreman sold by Warranty Deed the West 50 rods of the East Fractional Half of Section 6, comprising 50 acres, to Richard and Mary Ellis (LCR-GGI Book 90, Page 311). From about this point on in the deed record, the name Foreman began to be spelled Forman, without the letter E.

Over the next few decades, the 110-acre farm, known as the Forman Farm, was mortgaged several times (LCR-GGI 86M:71; 92M:531; 213M:346; 215M:582). On 17 July 1914, Agnes Forman, a widow, her son-in-law Charles D. Ferry, and daughter Katherine A. Ferry, conveyed by Trust Deed 110 acres in the East Fractional Half of Section 6 to Theodore H. Durst, Trustee, of the City of Waukegan. The Trust Deed was written as a mortgage with a payment schedule at a seven percent interest rate (LCR-GGI Book 217M, Page 541, Doc. #154348). Ten years later, on 8 March 1924, Theodore Durst, Trustee, Quit Claimed the 110 acres back to Agnes Forman, Charles D. Ferry and Katharine A. Ferry (GGI 323M:148). On 6 July, filed 7 November 1926, Charles D. Ferry, a widower, Quit Claimed all interest in the 110-acre Forman Farm to Agnes Forman (LCR-GGI Book 273, Page 571, Doc. #112867). On 3 November 1926, Agnes Forman, a widow, of Waukegan, Illinois, conveyed by Warranty Deed ownership of 110 acres and all buildings and improvements in the East Fractional Half of Section 6, also known as the Forman Farm, to Samuel Freedman, of Chicago (LCR-GGI Book 289, Page 583, Doc. #289395). On the same day, 03 November 1926, Samuel Freedman conveyed an Undivided Half Interest in the Forman Farm to Nathan Jacobs of Chicago, and an Undivided Quarter Interest to Samuel Grodson of Chicago (LCR-GGI Book 289, Pages 614-615), and put the 110-acre farm into a Trust administered by Chicago Title and Trust Company as Trustee (LCR-GGI Book 400M, Page 334). On 15 December 1932, Benjamin H. Miller, Master in Chancery of Lake County, sold at auction the 110-acre Forman Farm to the highest bidder – Agnes Forman. The Master's Foreclosure Deed, filed 15 December 1932, stated that the auction sale was conducted "in pursuance of a decree made on 4 June 1931, then pending in Chancery Court, wherein Agnes Forman was Complainant and Samuel Freedman et al. were Defendants (General Number 25327)", the Master in Chancery advertised the premises for sale at auction to the highest bidder on 6 July 1931 at the east end main front door of the Lake County Courthouse, City of Waukegan…Complainant Agnes Forman did offer and bid $24,063.54 as best bid, and the Master in Chancery sold it to her" (LCR-GGI 386:591, Doc.#387317). On 30 October 1932 Agnes Forman, of Waukegan, conveyed by Trust Deed the East Fractional Half of Section 6, except the west 50 rods thereof, "heretofore known as Forman Farm containing 110 acres and all buildings and improvements" to A. K. Bowes, Trustee (LCR-GGI Book 511M, Page 375; Doc. #387223). A. K. Bowes, a resident of Waukegan, Illinois, represented the Land Bank Commission, a federal program based in St. Louis established by the Farm Credit Act of 1932 to provide financial assistance to family farms threatened with foreclosure during the Depression (National Archives 2020).

On 1 October 1935, Agnes Forman, Paul F. Ferry, her grandson, and Evelyn Ferry, his wife, mortgaged the Forman Farm to the Land Bank Commissioner. The Emergency Farm Mortgage, payable in full by October 1958, was signed only by Agnes Forman, indicating that she was the sole owner of the farm. On 21 February 1939, Agnes Forman sold by Warranty Deed the East Fractional Half of Section 6, Except the West 50 rods, roughly 110 acres, to Marian Lossman, of Waukegan, Illinois (LCR-GGI Book 441, Page 16, Doc. #459366). On the same day Marian Lossman sold all interests in the same property to Paul F. and Evelyn B. Ferry of Benton Township (LCR-GGI Book 445, Page 297, Doc. #459367). On 27 January 1940, Paul F. and Evelyn B. Ferry, of Benton Township, sold the property to Charles D. Ferry of Waukegan (LCR-GGI Book 458, Page 297). On 1 March 1943, Charles D. Ferry, of Benton Township, sold the East Fractional Half of Section 6 Except the West 50 rods, roughly 110 acres to Mathew and Mary Mauser, of Benton Township (LCR-GGI Book 496, Page 523, Doc. #525831). On 2 April 1969, Mary Mauser sold the East Fractional Half of Section 6 Except the West 50 rods, roughly 110 acres to Arthur and Enez Weiler. The Warranty Deed referenced Articles of Agreement concerning the Weilers' use of the land (LCR Doc. #1416374). On 25 March 2015, Carole Weiler, Successor Trustee of the Enez Weiler Trust, sold by Trust Deed Parcel ID. No. 040-640-0002, consisting of the East Fractional Half of Section 6 Except the West 50 rods, roughly 110 acres, to Zion Landfill (LCR-Doc. #7182712). The ownership of the land where 11L961 is located is summarized in Table 3.

Census Records

John Stewart purchased the Fractional East Half (the SE ¼) of Section 06, Township 46 North, Range 12 East, on which 11L961 is situated, in July 1843. At the time of the purchase, the Chicago Land Office recorded John Stewart as a resident of Lake County. The 1850 federal population census of Benton Township, Lake County, enumerated John Stewart as a 49-year-old farmer from Scotland who owned real estate valued at $2,000 (United States Census Bureau 1850a). Living in the Stewart household in 1850 were Jennette, age 18, John, age 16, James, age 13, Joseph, age 10, all born in Scotland, and Elizabeth Stewart, age 6, born in Illinois. From this information it appears that the Stewart family emigrated from Scotland no earlier than 1840 and no later than 1844. It also appears, although the census does not say, that John Stewart was a widower or otherwise a single parent of five children. The 1860 federal population census of Benton Township recorded John Stewart as a 59-year-old farmer from Scotland who owned real estate valued at $3,200 (United States Census Bureau 1860a). The Stewart household included Catherine, born in Germany, age 35; Isabella, age six; Matilda J. and Rebecca, age four; and Agnes M. Stewart, age three years (Ancestry.com 2020). The 1870 federal census recorded 69-year-old John Stewart in Benton Township with his wife Catherine, 47, and their children Isabella, 17, Matilda, 15, Rebecca, 14, and 13-year-old Agnes (United States Census Bureau 1870a). Catherine's birthplace was recorded in 1870 as Baden, Germany. The 1880 census of Benton Township recorded John Stewart, 79, and Catherine Stewart, 57, living on their own in household number seven. The next household recorded, number eight, was occupied by Gustaves Foreman, a 27-year-old farmer from Sweden, and his wife Agnes Foreman, age 25, who, according to the 1880 census, was born in Illinois the daughter of Scottish immigrants. The Foremans had a daughter, Katharine A., age three, and an eight-month old son. Household number nine was headed by William Mayhew, and household number 11 was occupied by F. Foreman, a Swedish immigrant age 25, his wife Clara, 25, born in Illinois, and their two-month-old daughter ((United States Census Bureau 1880a)). With reference to the 1901 and 1907 township plat maps, the Mayhew and Forman households were likely located on the western edge of Section 5, on the west side of Kenosha Road, and thus contiguous with the 110 acres in Section 6 owned by Mrs. G. Foreman. Frank Foreman owned the next tract south along the west side of Kenosha Road in Sections 7 and the west edge of Section 8 lying west of Kenosha Road (George A. Ogle and Company 1907; Stearns 1901). The federal census records raise questions about John Stewart, Catherine Stewart, and Agnes

Table 3. Ownership of 11L961

Date	Grantor	Grantee	Description	Record
18 July 1843; 1 May 1845	United States	John Stewart	East Fractional Half of S.06, T.46N, R.12E	GLO BML Cert. No. 12821. Federal Patent
July 1882	John Stewart	Catharine Stewart	East Fractional Half of S.06, T.46N, R.12E	Last Will & Testament Lake Co. Circuit Court
4 December 1886	Catherine Stewart	Agnes Foreman	East Fractional Half of S.6, T.46N, R.12E	GGI Book 83, Page 253 Quit Claim Deed
30 December 1886	Nancy Stewart, Guardian	Agnes Foreman	All interests in the East Fractional Half of S.06, T.46N, R.12E	GGI Book 83, Page 261 Quit Claim Deed
12 November 1889	Agnes and Gustof Forman	Richard and Mary Ellis	West 50 rods of the E Fractional Half of S.06 – 50a.	GGI Book 90:311 Warranty Deed
21 November 1889	Matilda Riley	Agnes Forman	Pt. interest in E Fractional Half S.06	GGI Book 83:487 Quit Claim Deed
17 July 1914	Agnes Forman, Charles and Katherine Ferry	Theodore H. Durst, Trustee	East Fractional Half of S.06 except the W 50 rods – 110a.	GGI Book 217M:541 Trust Deed/Mortgage
8 March 1924	Theodore H. Durst	Agnes Forman, Charles and Katherine Ferry	East Fractional Half of S.06 except the W 50 rods	GGI Book 323M:148 Quit Claim Deed
6 July 1926, filed 7 November 1926	Charles D. Ferry, Widower	Agnes Forman	East Fractional Half of S.06 except the W 50 rods	GGI Book 273:571 Quit Claim Deed
3 November 1926	Agnes Forman	Samuel Freedman, First Trust, Chicago	East Fractional Half of S.06 except the W 50 rods aka the Forman Farm	GGI Book 289:583 Doc. #289395 Warranty Deed
3 November 1926	Samuel Freedman	Nathan Jacobs	Undivided ½ Interest E Fr. ½ S.06, 110 a. aka Forman Farm	GGI Book 289:614 Warranty Deed
3 November 1926	Samuel Freedman	Samuel Grodson	Undivided ¼ Interest E Fr. ½ S.6, 110 a. aka Forman Farm	GGI Book 289:615 Warranty Deed
3 November 1926	Samuel Freedman	Chicago Title and Trust Co.	East Fractional Half of S.06, 110 a. aka Forman Farm	GGI Book 400M:334 Trust Deed
6 July 1931 filed 15 December 1932	Benjamin Miller, Lake Co. Master in Chancery Public Auction	Agnes Forman	East Fractional Half of S.06, 110 a. aka Forman Farm	GGI Book 386: 591 Master's Foreclosure Deed
30 October 1932	Agnes Forman	A.K. Bowes, Trustee, Land Bank Commission	E Fractional Half of S.06 Except the W 50 rods	GGI Book 511M, Page 375. Deed in Trust
1 October 1935	Agnes Forman, Paul F. and Evelyn Ferry	Land Bank Commissioner, St. Louis MO	E Fractional Half of S.06 Except the W 50 rods, 110 acres	GGI Book 535M, Page 399 Emergency Farm Mortgage
21 February 1939	Agnes Forman	Marian Lossman	E Fractional Half of S.06 Except the W 50 rods, 110 acres	GGI Book 441:16 Warranty Deed Doc. #459366
21 February 1939	Marian Lossman	Paul F. and Evelyn B. Ferry	E Fractional Half of S.06 Except the W 50 rods, 110 acres	GGI Book 445:297 Warranty Deed Doc. #459367
27 January 1940	Paul F. and Evelyn B. Ferry	Charles D. Ferry	E Fractional Half of S.06 Except the W 50 rods, 110 acres	GGI Book 458:215 Warranty Deed Doc. #473211
1 March 1943	Charles D. Ferry	Mathew and Mary Mauser	E Fractional Half of S.06 Except the W 50 rods, 110 acres	GGI Book 496:523 Warranty Deed Doc. #525831
2 April 1969	Mary Mauser	Arthur and Enez Weiler	E Fractional Half of S.06 Except the W 50 rods, 110 acres	Doc. #1416374 Warranty Deed Articles of Agreement
25 March 2015	Carole Weiler, Trustee	Zion Landfill	Parcel ID. No. 040-640-0002	Instr. #7182712 Trust Deed

Stewart Foreman. First, it appears that by the 1850 census the mother of the oldest five children, presumably of Scottish origin, was absent from the household but no indication that John Stewart was a widower was recorded. Second, the 1860 and 1870 censuses recorded Catherine Stewart, presumably John Stewart's second wife, as a native of Germany and the state of Baden, Germany respectively, but the 1880 census recorded her place of birth as Canada. Third, the 1880 census recorded that both of Agnes Foreman's parents were natives of Scotland, although it seems clear from the 1860 and 1870 censuses that Agnes was the fourth-born child of John Stewart and his second wife, German-born Catherine Stewart.

The 1890 federal census records for Lake County, Illinois, as well as those of many other counties across the country, were destroyed by fire, leaving a gap of twenty years between 1880 and 1900 in the federal census data. In 1900, Catharine Stewart, the widow of John Stewart, was found living in Chicago, Cook County, Illinois with the family of her daughter, Rebecca, and son-in-law, Hugh Devine (United States Census Bureau 1900a, b, c). The 1900 census also recorded Agnes Forman, a widow at age 44, living in a Newport Township household headed by her son-in-law Charles Ferry, 27, and his 22-year-old wife, Katharine A., Agnes's daughter. Historic plat maps from 1861 onward showed the Ferry family owning 240 acres in Section 12, Newport Township, and Section 07 in Benton Township, just southwest of the Stewart/Forman farm in Section 06, Benton Township. Charles and Katharine A. Ferry had two children in 1900: Leland D., born in 1896, and Paul F., born in 1898. It is not known who was living in the State Line Road residence in 1900, although the large Frank Forman family and the family of Charles Ferry's brother, Dexter, were recorded in the immediate vicinity. No Stewarts were enumerated in Benton Township in 1900 (Ancestry.com 2020a). The 1910 federal census enumerated Charles and Katharine Ferry on State Line Road in Benton Township with their children Leland, 13, Paul, 11, C. Kingsley, 5, Marian, 3, and Janet, one year. The household included Katherine's widowed mother, 55-year-old Agnes Forman (United States Census Bureau 1910). In the 1920 federal census, Charlie Ferry, a 47-year-old widower, was recorded in Benton Township with children Leland, Paul, Kingsley, Miriam, Janet, and William, and his 64-year-old mother-in-law, Agnes Forman (United States Census Bureau 1920).

In 1930, during the period that the Forman Farm was owned by Richard Freedman and his associates and held in trust by Chicago Trust and Loan, Agnes Forman was recorded as head-of-household in a rented house in the City of Waukegan which included four of her grandchildren: Kingsley, Marian, Janet, and William Ferry. The fifth grandchild, Paul, was recorded living on Green Bay Road in Benton Township with his wife Evelyn Ferry (United States Census Bureau 1930). In 1940, Paul and Evelyn Ferry, both age 41, were recorded on State Line Road in Benton Township. Paul owned his residence and worked as an operator at a feed mill. Agnes Forman was not enumerated in Lake County in the 1940 census (United States Census Bureau 1940).

Additional archival records, including family genealogy, probate records, and miscellaneous land deed and census data, provide a fuller context to the documentary evidence provided above. A biography of John Stewart posted on Ancestry.com details the collected facts about his life. John Stewart was born in Perth, Scotland on 15 October 1801. His brother Charles was born in 1806. John married Janet Ogsten (aka Ogden) in Perth and the couple reportedly had 16 children together. Of these children, the following were recorded living in Benton Township by the 1850 U. S. census enumerator: Jennette, John M., James, and Joseph, all born in Scotland, and Elizabeth, the youngest, born in Illinois in 1844. John's brother Charles was enumerated with his wife Isabella, and daughters Elizabeth, Margaret, and Charles, in the 1850 census in Pleasant Prairie, Kenosha County, Wisconsin, just over the state line from Benton Township, Lake County, Illinois. John's wife, Janet (Ogsten) Stewart, died on 1 June 1850, less than three months prior to the 1850 census enumeration. In 1852, John Stewart married Katharine Stertzel in

Lake County, Illinois. Katharine was born in Baden-Wurttemberg, Germany circa 1823, making her more than twenty years younger than her husband. Katharine and John Stewart had four daughters: Isabel (aka Isabella) Bernice, born June 1853; Matilda Jane, born October 1854; Rebecca, born circa 1855; and Agnes Emma, born 25 July 1856 (Ancestry.com 2020b). John and Katharine and their four daughters were recorded living in the Stewart residence on State Line Road in Benton Township, Lake County in the 1860 and 1870 federal census counts. The five children recorded living in the John Stewart household in 1850 were not found in Lake County, Illinois in 1860, 1870, or 1880. Daughter Jennette married a man named Fulton and was living in Whiteside County, Illinois in 1860, while John M. Stewart, 25, James Stewart, 23, Joseph Stewart, 21, and Elizabeth Stewart, age 16, were recorded living in the same Bourbon County, Kansas household headed by John M. Stewart (United States Census Bureau 1860b).

The 1860 Kansas Agriculture census recorded all three male Stewarts farming the same rented 160 acres in Mill Creek Township, Bourbon County. In 1870, John M. Stewart, 36, was recorded in Bourbon County, Kansas with his wife Nancy and children John K. and Miriam. In 1880, John M. Stewart's widow, Nancy, was recorded in Bourbon County with John K., Miriam, Clara, Janet, and Grace (United States Census Bureau 1860b, c; 1870b; 1880b). John M. Stewart, son of John and Janet Stewart of Perth, Scotland and Benton, Lake County, Illinois, died in 1877 in Devon, Bourbon County, Kansas, leaving his wife, Nancy, and five children under the age of ten (Ancestry.com 2020c). The cause of his death is unknown. In 1890, his widow, Nancy M. Stewart, filed a Civil War Pension claim stating that her late husband had served as a Hospital Steward with the 1st Nebraska Cavalry (Ancestry.com 2020d). A Union Soldiers Compiled Service Records Index indicates that John M. Stewart enlisted in the 1st Nebraska Cavalry on 15 June 1861 (Ancestry.com 2020e). Bourbon County, Kansas was home to Fort Scott, garrisoned by the U. S. Army in 1842 and vacated by the military in 1853. The community of Fort Scott, established in 1857, experienced the violent pre-Civil War hostilities along the Missouri-Kansas border known as Bleeding Kansas. During the Civil War, Fort Scott served as a U. S. Army district headquarters, quartermaster supply depot, and recruitment and training center. It is not known when or why the older Stewart siblings left Lake County, Illinois and settled in Bourbon County, Kansas prior to 1860. In common practice, one or all three of John Stewart's sons would have likely continued working the family farm in Benton Township, but the death of their mother, the re-marriage of their father, and the birth of four female half-siblings in quick succession may have marked a turning point in relations within the Stewart family. If the elder son John M. Stewart migrated to Kansas in the later 1850s to start a new life, his younger siblings may simply have followed him there.

John Stewart, the patriarch, died in Benton Township on 21 July 1882, at the age of eighty. The Last Will & Testament of John Stewart, signed on 20 July, the day before his death, and the subsequent Probate records filed at the Lake County Circuit Court, reveal more about the disposition of his farm in Benton Township, and offer details concerning his heirs and extended family members (Ancestry.com 2020f). The first provision of Stewart's Will states: "Unto my wife, Catharine Stewart, I bequeath the East Fractional Half of Section 6, Town of Benton, and upon her death bequeath the same unto my daughter Agnes Foreman, her heirs and assignees subject to the payment of the following legacies to wit".. The document goes on to name his daughters Matilda Riley, Isabel Dowse, Jennette Fulton, as well as James and Joseph Stewart and Elizabeth (Stewart) Frank, still residents of Kansas. Also named as heirs and legatees were Stewart's five grandchildren, "children of John Stewart, deceased, who reside in Bourbon County, Kansas under the guardianship of Nancy Stewart", who were identified as John K., Miriam S., Clara S., Sarah J., and Esther J. Stewart. The will mentioned that in April 1881, the deceased, John Stewart, had leased his land for five years to Gust Foreman, Agnes's husband, who had apparently been farming the land (Ancestry.com 2020f). John Stewart appointed his "trusted friend", James Dowse, Executor of his Last Will and Testament. Stewart's daughter Isabel had married James Dowse's son, Byron Cole Dowse, in 1873, and lived on one of several land parcels owned by the Dowse family just north of the Wisconsin state line in Pleasant Prairie Township, Kenosha County. In accordance with provisions of the will, Catherine and Agnes Stewart, and Matilda Riley and Isabella B. Dowse, acting as Assignees to the remaining legatees, acquired all shares or partial claims to the Benton Township farmstead of John Stewart. Having fulfilled his duties as Executor of the Stewart estate, James Dowse filed the final disposition with the Lake County Circuit Court on 1 May 1885. In 1886 Catharine Stewart and Matilda Riley both Quit Claimed their interests in the homestead to Agnes Foreman, and, in 1889, Nancy Stewart, guardian of John Stewart's grandchildren, Quit Claimed their interests to Agnes Foreman as well. No record was found of Isabel or Isabella Dowse conveying her share to her sister Agnes, but it may be that such a document could have been filed in Kenosha County, her place of residence.

Agnes (Stewart) Foreman aka Forman was born in Benton Township, Lake County, Illinois on 25 July 1856. She was the youngest of four daughters of John and Catharine Stewart. By 1878, Agnes married a neighbor, Gustav Adolf Pharmansson, a Swedish immigrant who was later known as Gustof Foreman. Agnes and Gustof had a daughter, Katharine Amanda, in 1878, a son Oscar in 1880, and a daughter Elise in 1884. Both Oscar and Elise died in 1890, and Gustof Foreman died in 1898. In 1900, Agnes was recorded living with her daughter Katharine and son-in-law Charles Ferry just over the township line in Newport Township, but by the 1910 census they were living in the State Line Road residence in Benton Township known as the Forman Farm. Her daughter Katharine Amanda died in 1918 and in 1920 she was living at the Forman Farm with her son-in-law Charles Ferry and her five grandchildren. By 1930, Agnes Forman was living in a rented home in Waukegan with four of her five grandchildren while the fifth, Paul, lived with his wife Evelyn at the Forman Farm. Agnes sold the Forman Farm to Marian Lossman in 1939 and it was purchased on the same day by Paul and Evelyn Ferry. Agnes died in Libertyville, Lake County in 1941 (Ancestry.com 2020a, 2020b).

Map Records

Historic plat and atlas maps for Lake County (Figures 3 and 4) were examined as part of the archival research on the 11L961 location. The 1840 United States General Land Office survey plat for Township 46 North, Range 12 East (Illinois State Archives 2019b) indicates at the time of Euro-American settlement a mix of forest or savanna vegetation and prairie vegetation with the project location near a forest-prairie ecotone (Figure 3). The 1861 Lake County plat map identified Jno. Stewart as the owner of 160 acres in the Fractional East Half of Section 6, Township 46 North, Range 12 East, constituting the Southeast ¼ of Section 6. The area north of the mid-section line lies in the State of Wisconsin and thus in Township 1 North, Range 22 East of that state. The 1861 Lake County plat indicated the presence of a residential structure (Figure 3) just south of the state line in the Northwest ¼ of the Northeast ¼ of the Southeast ¼ of Section 06, in the vicinity of the extant residential structure at 11L961 (Hale and Truesdale 1861). The name Stewart did not appear in subsequent Benton Township plat maps. The 1901 Benton Township plat map (Figure 3) identified Gust Forman as the owner of 110 acres in the eastern two-thirds of the Southeast ¼ of Section 06, and the presence of a residential structure is indicated in the approximate location of the residence at 11L961. The owner of the west one-third of the Southeast ¼ of Section 06 was identified on the 1901 plat as R. Ellis (Stearns 1901). The 1907 Benton Township plat map (Figure 3) identified the owner of 110 acres in the approximate eastern two-thirds of the Southeast ¼ of Section 06 as Mrs. G. Foreman, and a residential structure was indicated in the same location just south of the Wisconsin State Line. The 1907 map also showed that O. Foreman owned 7 adjacent acres with a residence in the West ½ of the West ½ of the Southwest ¼ of Section 05, and that F. Foreman owned 50 acres just to the south in Section 07 and the west edge of Section 08 lying west of Kenosha Road (George A. Ogle and Company 1907). The 1939 Waukegan 15' quadrangle, the 1960 Wadsworth and Zion 7.5' quadrangles (Figure 4) also indicate the presence of a residential structure in the same approximate location as the extant structure at 11L961 (United States Geological Survey 1939, 1960a, 1960b). Historic

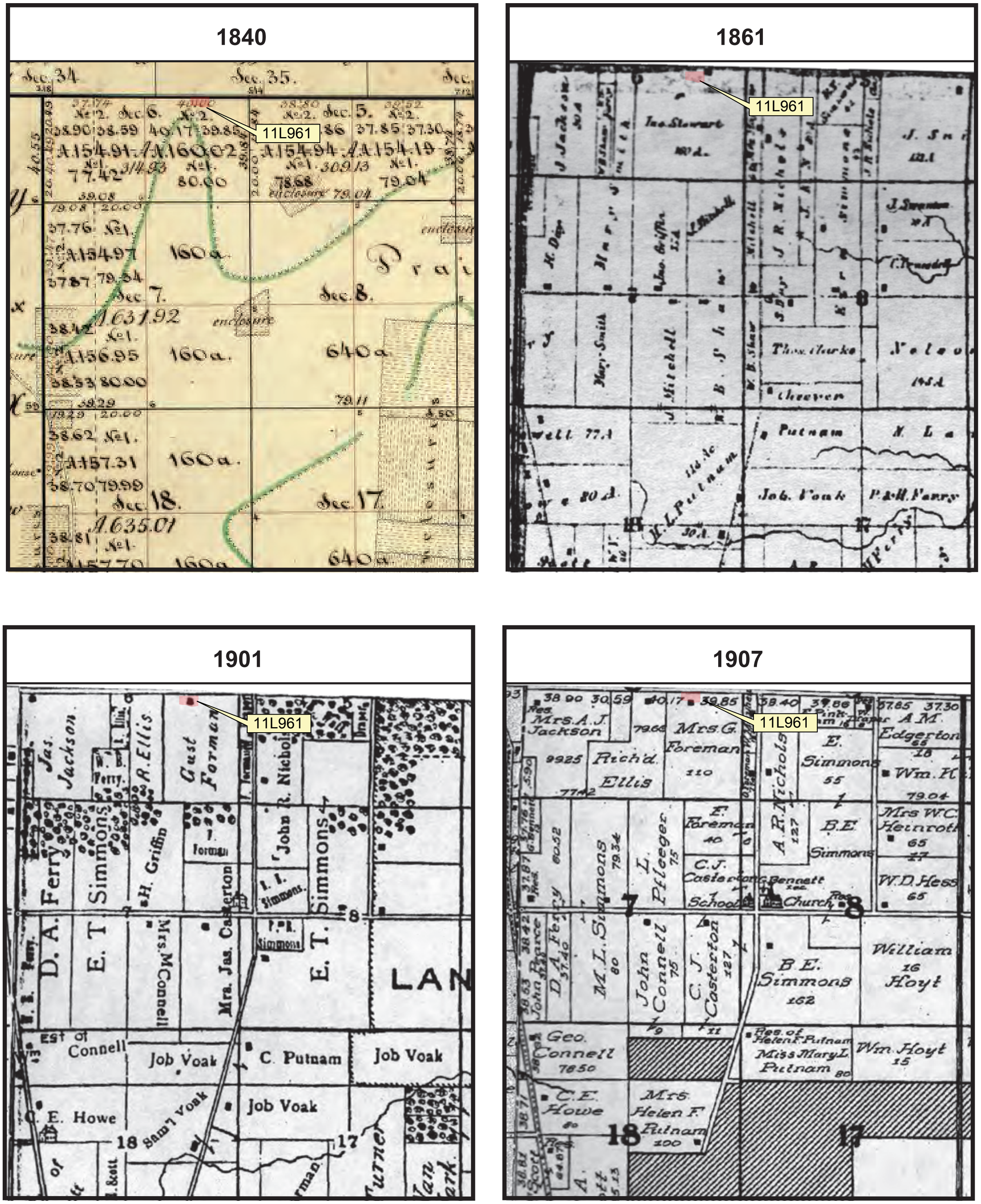

Figure 3. Portions of the 1840 United States General Land Office survey plat, 1861, 1901 and 1907 maps of Lake County, Illinois.

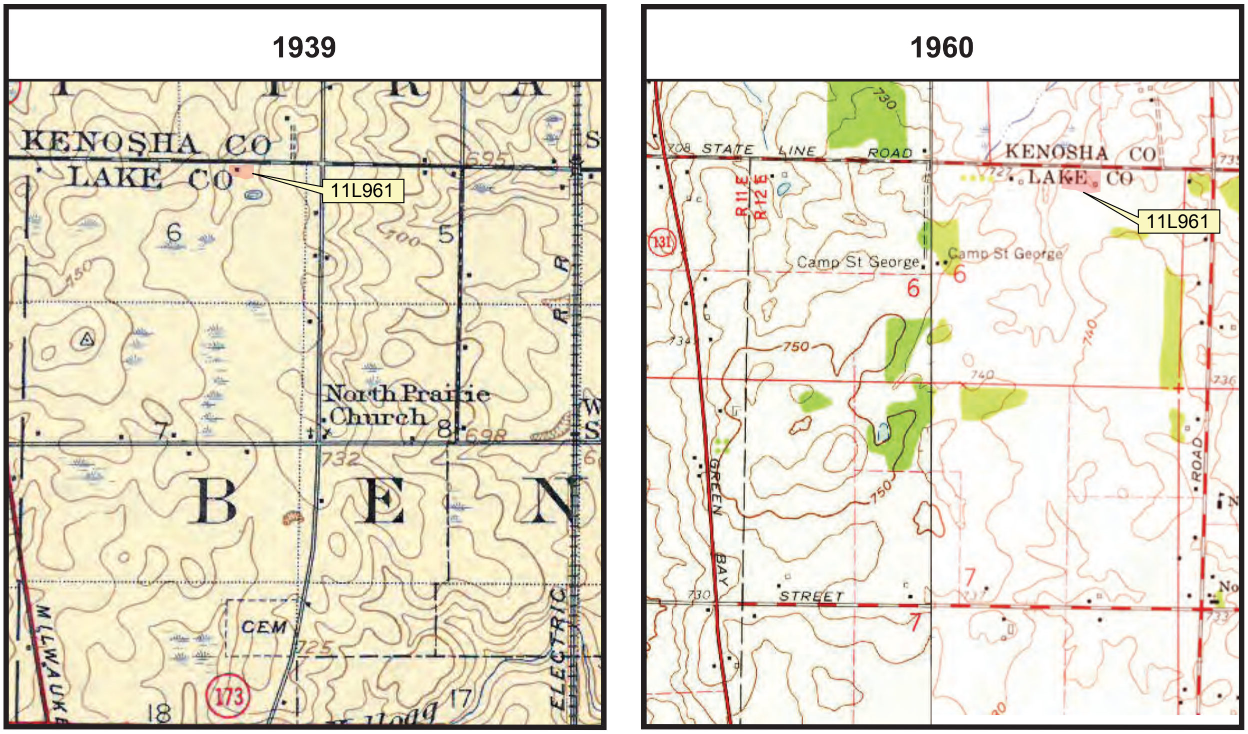

Figure 4. Portions of the 1939 Waukegan 15’ quadrangle, and the 1960 Wadsworth and 1960 Zion 7.5’ quadrangles.

maps document the presence of a residential structure in the approximate location of the residential structure occupying 11L961 from at least 1861 through 2018.

Archival Summary

Site 11L961 was most likely occupied by John and Janet Stewart and five of their children by the middle 1840s. The five children appear to have migrated to Kansas sometime in the 1850s. By 1860, John Stewart occupied the site with his second wife, Catharine, and their four daughters. John and Catharine remained on the farm site until John's death in 1882, at which time their daughter Agnes, and son-in-law Gustof Foreman, occupied the site. In 1889, Agnes and Gustof Foreman sold the west 50 acres and continued to farm the 110-acre Forman farm until Gustof's death in 1898. Over the next few decades the 110-acre Forman Farm was mortgaged several times. In 1926, Agnes Forman sold the 110 acres and all buildings and improvements known as the Forman Farm to Samuel Freedman. Freedman divided interests in the property to two associates and put the entire 110-acre farm into a Trust administered by Chicago Title and Trust Company as Trustee. At some point thereafter, the property went into foreclosure proceedings and in 1932, the Master in Chancery of Lake County sold the Forman Farm at public auction to the highest bidder – Agnes Forman. It is not known who occupied the residence at 11L961 circa 1930. Agnes was recorded in Waukegan in 1930 and Paul and Evelyn Ferry were recorded very near to State Line Road on Green Bay Road, Benton Township. The land likely continued to be farmed by Paul and Charles Ferry, Agnes Forman's grandson and son-in-law. Agnes sold the property in 1939 to Marian Lossman of Waukegan who sold it to Paul and Evelyn Ferry on the same day. Early in 1940, Paul and Evelyn Ferry sold the farm to Charles Ferry, who sold it in 1943 to Mathew and Mary Mauser, residents of Benton Township at the time of the sale. It is not known if they occupied the Stewart-Forman residence at 11L961 before they sold it to Arthur and Enez Weiler in 1969. The Weilers may have been using the land, and the residence, while they developed and operated Arthur Weiler, Inc., a tree nursery established on the property in 1957. In 2015, Carole Weiler, Trustee of the Enez Weiler Trust, sold the house and 110-acre farm/nursery to the current owner, Zion Landfill, Inc..

Results of Archaeological Investigations

The Phase II field investigations were undertaken between 18-20 November 2019, and included compilation of a site plan and topographic map, excavation of 17 shovel tests, machine excavation of 8 trenches, and the documentation and excavation of 3 subsurface cultural features exposed within the machine trenches (Figure 5).

Topographic Mapping

Prior to excavations, the reported location of 11L961 was mapped to document existing conditions including the location of existing structures and surface features like gravel drives, plant sales areas, and a well near Russell Road. As mapped onto an existing aerial photograph (Figure 5), the west end of the site sits atop a ridge summit with the remaining site area featuring a flatter ridge top. The structures are set back from Russell Road with a residential structure at the west end with a greenhouse and garage and with outbuildings including a barn, silo, workshop, and office along the southern site limit (Figures 6 – 12). The western third of the site was largely a grass yard with landscaping trees and shrubs, while the northeast 2/3^{rds} featured a plant sales area consisting of drip lines and balled trees and shrubs surrounded by gravel and weeds, and the southeastern 1/3rd was structures surrounded by gravel parking areas and drives. These surface conditions influenced subsequent forms of data collection as shovel tests and most excavation units were limited to the yard area.

Figure 5. Aerial photo and site plan of 11L961.

Figure 6. Residential structure at 11L961.

Figure 7. Greenhouse structure at 11L961.

Figure 8. Garage structure at 11L961.

Figure 9. Office structure at 11L961.

Figure 10. Workshop structure at 11L961.

Figure 11. Barn structure at 11L961.

Figure 12. Silo structure at 11L961.

Systematic Shovel Testing

Prior to initiation of machine excavations, the lawn area surrounding the Italianate residence was shovel tested at roughly 5-meter intervals since surface visibility was below 25 percent. The gravel-covered areas to the east of the residence were not systematically shovel tested owing to the level of disturbance noted during the Phase I investigations resulting from the use of these areas for repeated plantings of nursery trees for sale. In total, 17 shovel tests were excavated to the north and west of the residence (Figure 5). Historic materials were recovered from the shovel test fill from nine shovel tests (No's 1, 2, 3, 4, 6, 7, 8, 9 and 10). A total of 42 artifacts were recovered from shovel tests including: 2 whiteware sherds; 1 porcelain sherd; 1 yellowware sherd; 1 stoneware sherd; 2 glass container shards; 18 faunal bone fragments; 1 brick fragment; 10 architectural glass fragments; 2 coal/cinder fragments; 1 machine cut nail; 2 wire nails; and 1 screw.

Machine Trench Excavations

In total, eight machine trenches were excavated with a backhoe fitted with a toothless bucket to determine if intact features or other subsurface cultural deposits were present at 11L961 (Figure 5). The locations of the eight machine trenches were chosen to sample locations adjacent to the residence and the large barn where subsurface features and/or artifact concentrations were considered likely to be present within the larger site area. The historical use as a nursery with machine planting and removal to a depth of one meter below surface and building construction limited the overall area with archaeological potential. In aggregate, 261 square meters of area was excavated within the eight trenches, representing a sample of approximately 2.33 percent of the 11,200 square meter site area.

Machine Trench 1 is located on the north side of the large barn approximately 75 meters south of West Russell Road and 133 meters east of the residence in the eastern portion of the site. The machine trench extended 10.8 meters north to south by 1.85 meters east to west (Figure 5). Machine Trench 1 encompassed approximately 19.98 square meters of excavated area. It was excavated to an average depth of 37 centimeters below the surface. Four distinct soil horizons were observed within the Machine Trench 1 profile (Figure 13). The uppermost horizon, extending from the surface to approximately 10 centimeters below surface is a very dark grayish brown (10YR 3/2) sandy loam with weak fine granular structure; friable texture; and abundant gravel. The underlying horizon, a dark brown (7.5YR 3/3) sandy loam, extends between 10-20 centimeters below surface and exhibits a weak fine granular structure; friable texture; few distinct fine strong brown (7.5YR 5/6) iron oxide masses; and contains abundant gravel and pebbles. The underlying stratum, extending between 20-30 centimeters below surface is a black (10YR 2/1) sandy loam with weak fine granular parting to massive structure; friable texture; few distinct fine to medium strong brown (7.5YR 4/6) iron oxide masses, and a common amount of gravel and pebbles. Some mixing of the underlying sediment was observed within this stratum. The lowest most horizon, extending between 30-37 centimeters below surface is a light brownish gray (10YR 6/2) silty clay loam with weak medium prismatic parting to weak fine subangular blocky structure; friable texture; many prominent fine to medium strong brown (7.5YR 5/6) iron oxide masses and few distinct very dark gray (10YR 3/1) masses of reduced iron. The observed profile does not resemble that of a typical Ozaukee soil but instead appears to represent the presence of fill and mixed sediments extending from the surface to about 30 centimeters below surface. Between 30 centimeters below surface and the base of excavation, the sediments do represent the intact 2Bt2 subsoils horizon present in the Ozaukee profile. The location of Machine Trench 1 near the large timber frame barn, adjacent gravel drive, and use of the area for nursery trees would account for the extensive modification to the typical soils profile. One artifact, a wire nail, was recovered from the excavated fill sediments. No evidence for subsurface cultural features was identified in Machine Trench 1.

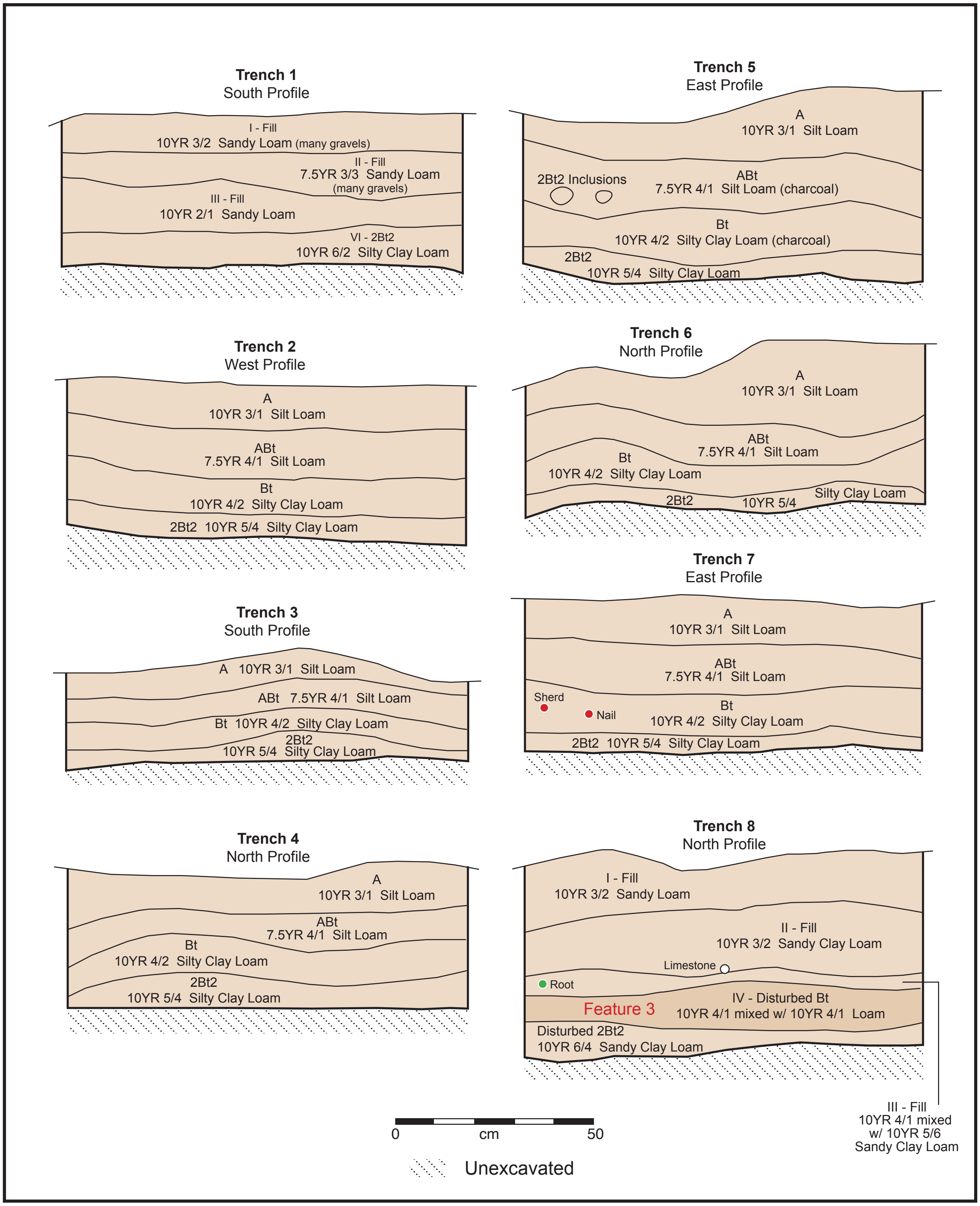

Figure 13. Machine Trenches 1 to 8 soil profiles.

Machine Trench 2 is located approximately 32 meters south of Russell Road and 32 meters north of the residence within its front yard area. The machine trench extended 1.62 meters north to south by 9.85 meters east to west (Figure 5). Machine Trench 2 encompassed approximately 15.96 square meters of excavated area. It was excavated to an average depth of 40 centimeters below the surface. Four distinct soil horizons were observed within the Machine Trench 2 profile (Figure 13). The uppermost horizon extends from the surface to a depth of approximately 11 centimeters below surface and is a very dark gray (10YR 3/1) silt loam with moderate fine granular and weak fine subangular blocky structure; friable texture; common very fine to medium roots; and few gravels. This stratum represents the A horizon. The underlying stratum, approximately 12 centimeters thick, is a dark gray (10YR 4/1) silt loam with moderate fine subangular blocky structure; friable texture; few distinct strong brown (7.5YR 5/6) masses of iron oxide; few distinct dark grayish brown (10YR 4/2) clay films on ped facies, very few gravels; vey few fine to medium roots. This stratum represents an ABt horizon. The underlying stratum, extending to a depth of about 31 centimeters below surface is a dark grayish brown (10YR4/2) silty clay loam with weak medium subangular blocky structure; friable texture; common distinct fine strong brown (7.5YR 5/6) masses of iron oxide; few distinct fine dark bluish gray (Gley 2 4/10B) masses of reduced iron; few distinct dark grayish brown (10YR 4/2) clay films on ped facies; few fine to medium roots. This stratum represents the Bt soil horizon. The lowest most horizon, extending to the base of excavation at approximately 40 centimeters below surface, is a yellowish brown (10YR 5/4) silty clay loam with weak medium subangular blocky structure; friable texture; many prominent fine to medium strong brown (7.5YR 5/6) masses of iron oxide; few prominent dark bluish gray (Gley 2 4/10B) masses of reduced iron, and common distinct light yellowish brown (10YR 6/4) clay films on ped facies. The stratum represents the 2Bt2 soil horizon. The observed profile does not resemble that of a typical Ozaukee soil given the absence of an E horizon indicating some past disturbance. No artifacts were recovered from the excavated fill sediments. No evidence for subsurface cultural features was identified in Machine Trench 2.

Machine Trench 3 is located about 7.5 meters south of the south wall of Machine Trench 2 in the front yard of the residential structure. The machine trench extended 2.1 meters north to south by 9.72 meters east to west (Figure 5). Machine Trench 3 encompassed approximately 20.41 square meters of excavated area. It was excavated to an average depth of 26 centimeters below the surface. Four distinct soil horizons were observed within the Machine Trench 3 profile (Figure 6). The identified strata are physically identical to those identified in Machine Trench 2; however, their thickness and extent do differ. The A horizon within Machine Trench 3 is approximately 6 centimeters thick; the ABt horizon 6-8 centimeters thick; the Bt horizon is 5-6 centimeters thick. The underlying 2Bt2 horizon is encountered at approximately 20 centimeters below surface. Three artifacts consisting of two whiteware sherds and one ironstone sherd were recovered from the excavated fill sediments. No evidence for subsurface cultural features was identified in Machine Trench 3.

Machine Trench 4 is located about 4.3 meters south of the south wall of Machine Trench 3 in the front yard of the residential structure. The machine trench extended 2.2 meters north to south by 4.85 meters east to west (Figure 5). Machine Trench 4 encompassed approximately 10.67 square meters of excavated area. It was excavated to an average depth of 38 centimeters below the surface. Four distinct soil horizons were observed within the Machine Trench 4 profile (Figure 13). The identified strata are physically identical to those identified in Machine Trench 2; however, their thickness and extent do differ. The A horizon within Machine Trench 4 is between 9-12 centimeters thick; the ABt horizon is about 8 centimeters thick; and the Bt horizon is about 9 centimeters thick. The underlying 2Bt2 horizon is encountered at between 25-30 centimeters below surface. Five artifacts consisting of three whiteware sherds, one piece of container glass, and one ceramic shirt button were recovered from the excavated fill sediments. No evidence for subsurface cultural features was identified in Machine Trench 4.

Machine Trench 5 is located approximately 4.3 meters west of the of the residence in the side yard. The machine trench extended 16.5 meters north to south by 3.0 meters east to west (Figure 5). Machine Trench 5 encompassed approximately 49.5 square meters of excavated area. It was excavated to an average depth of 37 centimeters below the surface. Four distinct soil horizons were observed within the Machine Trench 5 profile (Figure 13). The identified strata are physically identical to those identified and described above in Machine Trench 2; however, their thickness and extent do differ. The A horizon within Machine Trench 5 is between 6-20 centimeters thick; the ABt horizon is about 15 centimeters thick; and the Bt horizon is about 10-15 centimeters thick. The underlying 2Bt2 horizon is encountered at between 31-40 centimeters below surface. Within Machine Trench 5 the ABt horizon exhibited a higher frequency of gravel and redoxomorphic features than was typical in Machine Trenches 2, 3 and 4, and the Bt horizon also contained noticeable quantities of wood charcoal fragments as well as inclusions of the silty clay loam material comprising the underlying 2Bt2 horizon, all indications of disturbance. Twenty-two artifacts consisting of two whiteware sherds, nine ironstone sherds, two porcelain sherds, one stoneware sherd, three architectural glass shards, one drainage tile fragment, two pieces of metal, and two coal/slag fragments were recovered from the excavated fill sediments. No evidence for subsurface cultural features was identified in Machine Trench 5.

Machine Trench 6 is located approximately one meter west of the west end of Machine Trench 4 to the northeast of the residence in the front and side-yard area. The machine trench extended 2.45 meters north to south by 10.65 meters east to west (Figure 5). Machine Trench 6 encompassed approximately 26.1 square meters of excavated area. It was excavated to an average depth of 32 centimeters below the surface. Four distinct soil horizons were observed within the Machine Trench 6 profile (Figure 13). The identified strata are physically identical to those identified and described above in Machine Trench 2; however, their thickness and extent do differ. The A horizon within Machine Trench 6 ranges between 6-24 centimeters thick, with the horizon thinning downslope toward the west. The underlying ABt horizon is about 9-10 centimeters thick; and the Bt horizon between 4-10 centimeters thick. The 2Bt2 horizon was encountered between 25-25 centimeters below surface. Fifteen artifacts consisting of two whiteware sherds, one glass tableware shard, two wire nails, one metal spike, seven architectural glass shards, and two coal/slag fragments were recovered from the excavated fill sediments. Two features (Features 1 and 2) were defined within Machine Trench 6. Each of these features are described below.

Machine Trench 7 is located about 4.3 meters south of the west end of Machine Trench 6 and west of Machine Trench 5 in the side-yard of the residence. The machine trench extended 25.6 meters north to south by 2.95 meters east to west (Figure 5). Machine Trench 7 encompassed approximately 75.52 square meters of excavated area. It was excavated to an average depth of 28 centimeters below the surface. Four distinct soil horizons were observed within the Machine Trench 7 profile (Figure 13). The identified strata are physically identical to those identified and described above in Machine Trench 2; however, their thickness and extent do differ. The A horizon within Machine Trench 7 ranges between 10-13 centimeters thick, the underlying ABt horizon is about 8-12 centimeters thick; and the Bt horizon between 10-12 centimeters thick. The 2Bt2 horizon was encountered between 30-32 centimeters below surface. Seventeen artifacts consisting of five whiteware sherds, five ironstone sherds, three porcelain sherds, one glass container shard, two architectural glass shards, and one coal/slag fragment were recovered from the excavated fill sediments. No evidence for subsurface cultural features was identified in Machine Trench 7.

Machine Trench 8 is located on the south side of the residence between the back wall of the structure and a well/cistern location covered by a concrete cap. The trench is located west of a 20th century above-ground propane tank and north of a large greenhouse structure and the well/cistern. The machine trench extended 3.75 meters north to south by 11.35 meters east to west (Figure 5). Machine Trench 8 encompassed approximately 42.56 square meters of excavated area. It was excavated to an average depth of 35 centimeters below the surface. Five distinct strata were identified within the Machine Trench 8 profile (Figure 13). The uppermost stratum, extending from the surface to approximately 15 centimeters below surface, is a very dark grayish brown (10YR 3/2) sandy loam with weak fine granular structure; friable texture; common fine to very fine roots. The underlying stratum, extending between 15-27 centimeters below surface, is a very dark grayish brown (10YR 3/2) sandy clay loam with weak fine subangular blocky structure; friable texture, and common fine to very fine roots. This horizon is underlain by a stratum composed of mixed sediments of dark gray (10YR 4/1) and yellowish brown (10YR 5/6) sandy clay loam extending between 27-32 centimeters below surface. The dark gray sandy clay loam sediments are characterized by strong fine subangular blocky structure; firm texture. The yellowish brown sandy clay loam sediments are characterized by massive structure; firm texture; common prominent fine to medium strong brown (7.5YR 4/6) masses of iron oxide; common gravels, very few fine roots; common fine to medium charcoal stains and charcoal fragments; and few Historic period artifacts. Together these initial three strata comprise a zone composed of fill and mixed sediments and do not reflect the typical Ozaukee soil profile. Beneath this fill zone is a stratum extending between 32-40 centimeters below surface composed of dark gray (10YR 4/1) loam with massive structure; friable texture; few pebbles; few fine to medium charcoal stains and fragments. This equates to cultural fill defined as Feature 3 within this excavation unit. The lowest most stratum, extending between 32 centimeters below surface and the base of excavation is a light yellowish brown (10YR 6/4) sandy clay loam with moderate fine subangular blocky structure; firm texture; common distinct medium strong brown (7.5YR 5/6) masses of iron oxide; common distinct pale brown (10YR 6/3) clay films on ped facies; few pebbles; and few fine to medium inclusions of the dark gray (10YR 4/1) loam from the overlying horizon. This stratum represents a disturbed 2Bt2 horizon. A total of 117 artifacts were collected from the general fill of Machine Trench 8. The artifacts include 26 whiteware sherds, 12 ironstone sherds, 2 porcelain sherds, 8 stoneware sherds, 11 glass container shards, 1 glass tableware shard, 12 bone fragments, 13 nail fragments, 13 metal fragments, 14 architectural glass shards, 2 ceramic buttons, 1 glass marble, 1 conduit pipe, and 1 dairy thermometer were recovered from the excavated fill sediments. One feature (Feature 3) was defined within Machine Trench 8. It is described below.

Feature Excavations

Three subsurface features were identified during the machine trench excavations at 11L961. Features 1 and 2 were located in Machine Trench 6 in the front yard area of the residence, and Feature 3 was located within Machine Trench 8 located in the back yard area of the residence (Figure 5). Each of the identified features was hand excavated and are described below.

Feature 1 was identified in the eastern portion of Machine Trench 6 at circa 25 centimeters below surface near the interface between the Bt and 2Bt2 soil horizons (Figure 5). The feature was identified as a circular stain of very dark gray (10YR 3/1) silt loam approximately 57 centimeters in diameter (Figure 14). In profile, Feature 1 appears as a shallow basin with insloping sides that extends to a maximum of 25 centimeters below its plane of definition. No interior zonation was defined within the feature and the second half of the feature was hand excavated as a single unit. A set of automobile jumper cables were noted at the top of the defined feature, but they were not collected. The excavated fill from Feature 1 resulted in the recovery of six artifacts including one yellowware sherd, three pieces of architectural glass, one piece of mortar, and one metal screw. The feature is interpreted as a small trash pit.

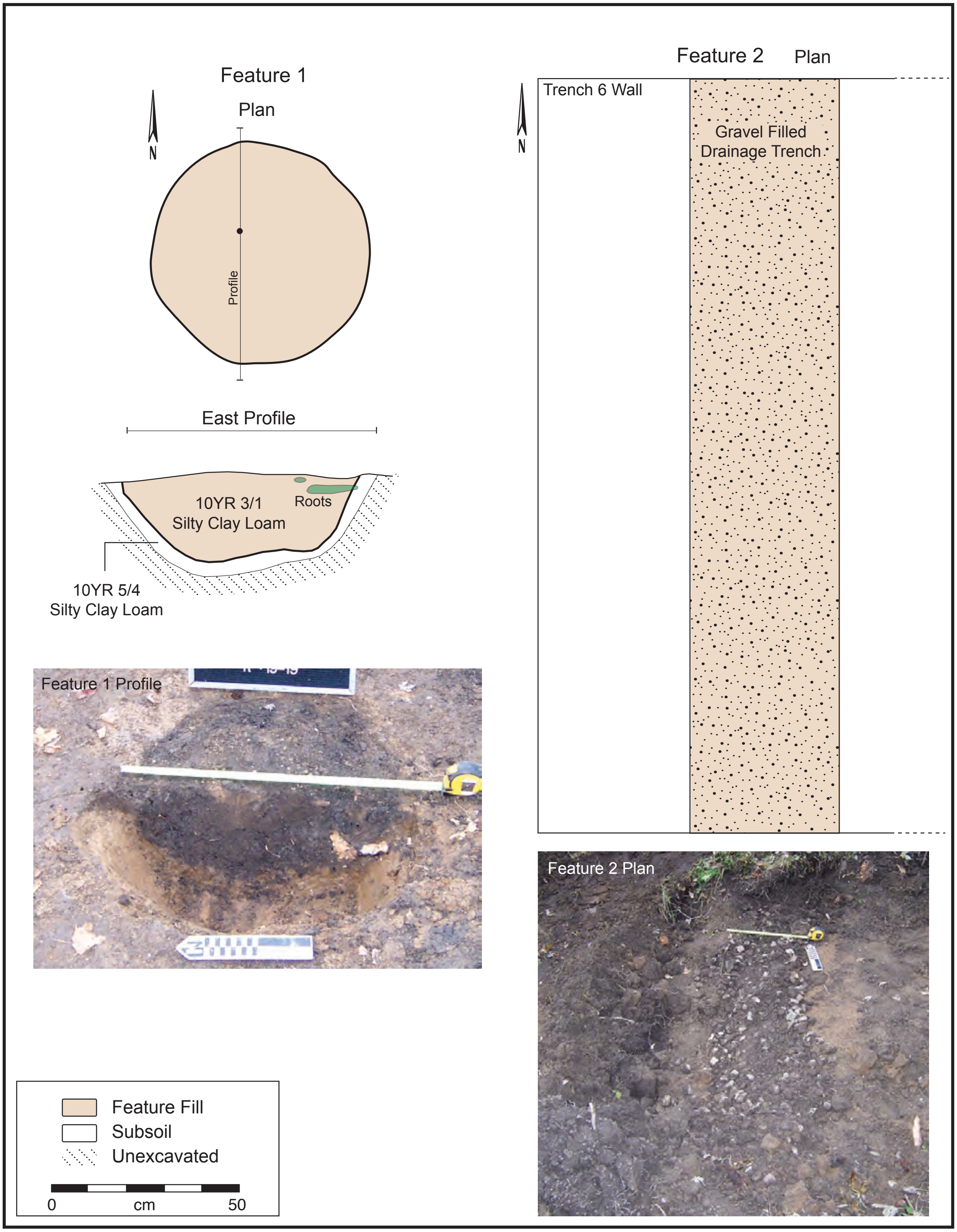

Figure 14. Feature 1 plan and profile, and Feature 2 plan.

Feature 2 was identified in the west end of Machine Trench 6 as a linear band of gravel about 35-40 centimeters wide running north to south across the trench (Figure 14). The feature likely extends for some distance north and south of the excavation unit. This feature, located at the western edge of the yard and eastern extent of an extensive area of planted nursery trees, is interpreted as a modern drainage feature and was not further excavated. No artifacts were noted or collected in association with this feature.

Feature 3 was identified as a large expanse of household midden located within Machine Trench 8 on the south side of the residence (Figure 5). Feature 3 appears as a large area of soil staining and charcoal flecking extending 5.0 meters north to south by 5.25 meters east to west in the central and eastern portion of the excavation trench and was defined approximately 33 centimeters below surface (Figure 15). The feature fill is dark gray (10YR 4/1) loam with massive structure; friable texture; common fine to medium charcoal stains and fragments; few pebbles and artifacts; and few inclusions of light yellowish brown (10YR 6/4) sandy clay loam representing the underlying subsoil. The eastern extent of the feature becomes indistinct as the deposit thins out. The feature was bisected into a northern and southern half, with only the north half being excavated. The feature fill ranged between 6-12 centimeters thick and the feature is interpreted as a midden deposit formed at the rear of the residence adjacent to the original rear door of the structure. A total of 469 artifacts were recovered from a portion of the feature sampled. Artifacts recovered from the Feature 3 fill include 115 whiteware sherds, 7 ironstone sherds, 3 porcelain sherds, 17 stoneware sherds, 9 container glass shards, 3 tableware glass shards, 181 bone fragments, 9 architectural glass shards, 93 cut nails, 5 wire nails, 15 pieces of metal straps, 3 brick fragments, 6 smoking pipe fragments, 1 ceramic button, 1 sewing needle, 1 biface fragment. As noted above, the feature is interpreted as a historic era refuse disposal location.

Excavation Discussion

Overall, the soil profiles exposed during the Phase II investigations at 11L961 are indicative of substantial surficial disturbance and modification to the soils within the site area. The profiles of both Machine Trench 1, located near the large barn in the eastern portion of the site and Machine Trench 8 located near the rear of the residence document the most disturbance with multiple zones of fill and mix/disturbed sediments overlying the Bt or 2Bt2 subsoil horizons. These two trenches were located nearest to extant structures and much of the observed disturbance may be related to construction-related activities. In the case of Machine Trench 8, its location adjacent to the rear of the residence which has a large basement as well as the location of the nearby well/cistern could account for the approximately 32 centimeters of mixed and disturbed sediments-including a sheet midden deposit identified as Feature 3, overlying disturbed Bt and 2Bt2 horizons. Machine Trenches 2 through 7 did not document extensive prior disturbance to the profiles; however, the ABt horizons within all of these trenches appear to be organically enriched and darker and contain a higher fraction of gravel than the ABt horizon in the published Ozaukee soil profile description. Additionally, Feature 2 in Machine Trench 6 documented a subsurface drainage feature that likely relates to the use of the property as a nursery based on the uniform gravel used to fill in the excavation/ drainage trench. The proximity to the residence and to the nursery tree plantings to the west of the yard may have resulted in the observed differences between the published soil description and the observed profiles.

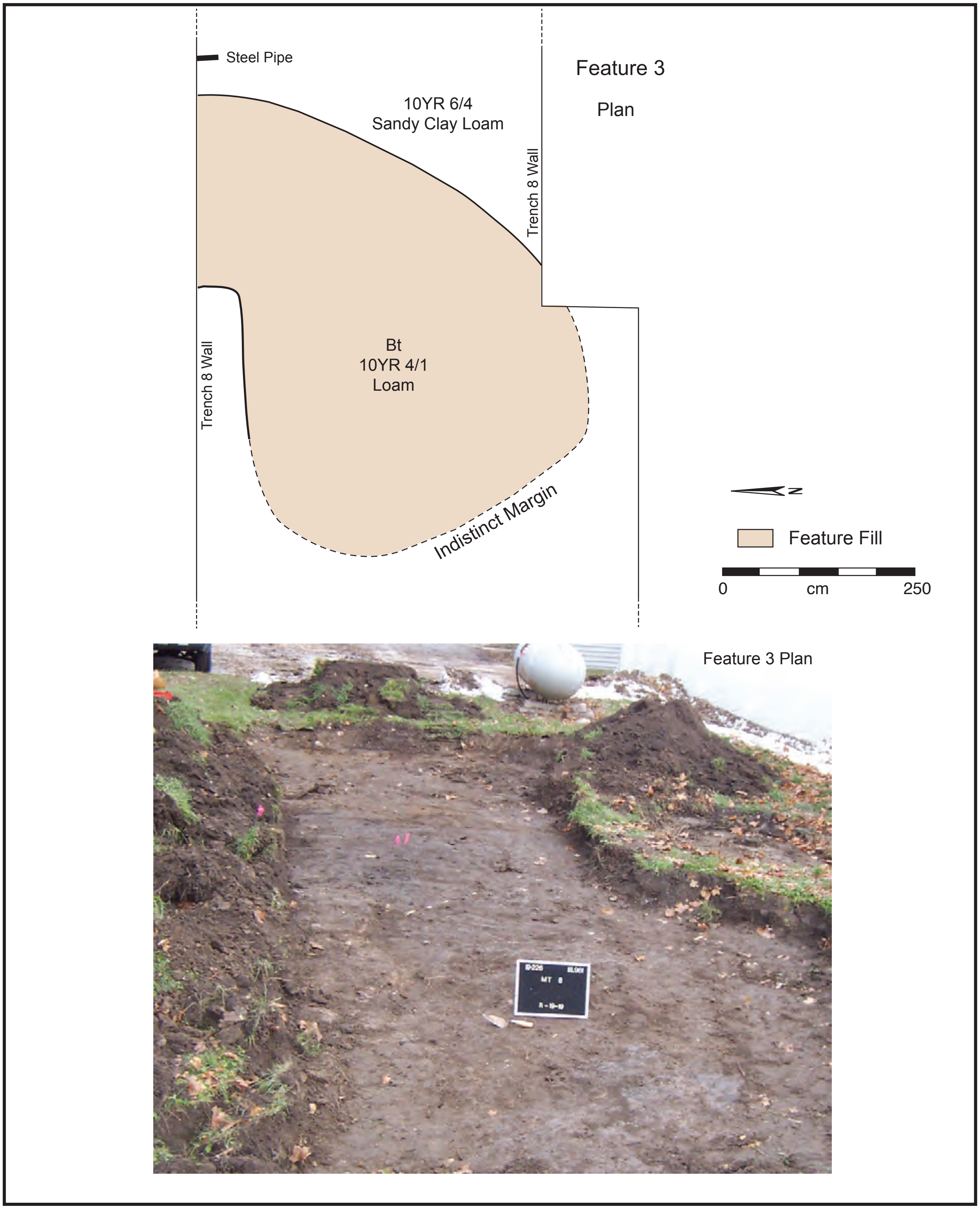

Figure 15. Feature 3 plan.

Results of Laboratory Investigations

A total of 697 artifacts were recovered from 11L961. The assemblage included 1 artifact classified as prehistoric in origin and 696 historic era artifacts (Table 4). The lone prehistoric artifact was recovered from Feature 3, an historic era midden, and was classified as biface fragment lacking specific cultural or temporal attributes. The remainder of the analysis focused on the historic materials. Historic artifacts were recovered from the shovel tests, from seven of eight machine trenches, and from two of three features during the Phase II NRHP evaluation of 11L961 (Table 4). The vast majority of historic artifacts (84.1 percent) collected from 11L961 were from the backyard of the residential structure in Machine Trench 8 (n=117) and Feature 3 in Machine Trench 8 (n=469). The remaining artifacts came from shovel tests (n=42), Machine Trenches 1 – 7 (n=63), and Feature 1 (n=6). Artifacts were classified as falling within the defined Activities, Architecture, Clothing, Kitchen, and Personal groups. A detailed artifact inventory of material recovered during the Phase II NRHP evaluation is presented by provenience in Appendix A.

Kitchen Group.

Artifacts from the Kitchen group include refined and unrefined ceramics, container glass, tableware glass, and bone refuse. A total of 471 artifacts were recovered for this analysis group, which represents 67.7 percent of the historic component assemblage. Artifacts from this group were recovered from the Shovel Tests 4, 8, 10, and 11, Machine Trenches 3, 4, 5, 6, 7, and 8, and Feature 3.

Refined Ceramics. A total of 202 items categorized as refined ceramics were recovered from 11L961. Refined ceramics account for 42.9 percent of the Kitchen Group. The largest percentage of refined ceramics came primarily from Feature 3. The refined ceramics were identified pearlware (1) whiteware (n=155), ironstone (n=35), and porcelain (n=11). The pearlware sherd (n=1) is represented by an undecorated vessel base. The whiteware sherds include 118 undecorated sherds (14 rims, 94 bodies, 10 bases), and 37 decorated sherds. The decorated whitewares include 26 blue transfer print sherds (4 rims, 20 bodies, 2 bases), 1 flow blue rim sherd, 7 hand-painted sherds (2 rims, 4 bodies, 1 bases), and 3 black transfer print (3 bodies). The ironstone sub-assemblage (n=35) consists of 22 undecorated sherds (7 rims, 12 bodies, 3 bases) and 11 decorated ironstone sherds. The decorated ironstones include 7 blue transfer print decorated sherds (3 rims, 2 bodies, 2 bases), 1 gray slip band sherd (body), 1 black transfer (base), 1 slip banded (body), and 3 impressed rims. Porcelain (n=11) is represented by 8 undecorated sherds (2 rims, 3 bodies, and 3 base sherds), and 3 decorated rim sherds-one having red transfer print and two having embossed decoration.

Unrefined Ceramics. The 29 unrefined ceramic items included stoneware (n=27) and yellowware (n=2) and represents 6.2 percent of the Kitchen Group sub-assemblage. The yellowwares are represented by two undecorated body sherds. The stonewares include: 1 body sherd with unglazed interior and exterior; 1 body sherd with clear-glazed interior and exterior; 2 body sherds with Bristol interior and Bristol exterior glazing; 6 body sherds with Albany interior and Albany exterior glazing; 3 body sherds with Salt interior and Salt exterior glaze, and 14 sherds (13 body, 1 rim) with Salt-glazed exterior and Albany-glazed interior.

Glass. The 29 glass artifacts make up 6.2 percent of the Kitchen Group sub-assemblage and include both container (n=24) and tableware (n=5) shards. Several types of container glass were recovered, most likely representing beverage, cosmetics, and medicine bottle fragments. Noted in the sub-assemblage was one bottom hinge mold shard (1809-1870's, one mold base shard (1850-1910), one 1920's machine thread jar.

Table 4. Artifacts recovered at 11L961.

Artifact Category	**Artifact Type**	**Shovel Tests**	**MT 1**	**MT 3**	**MT 4**	**MT 5**	**MT 6**	**MT 7**	**MT 8**	**Feature 1**	**Feature 3**	**Total**
Kitchen	Refined ceramic	3	-	3	3	13	2	13	40	-	125	202
	Unrefined ceramic	2	-	-	-	1	-	-	8	1	17	29
	Container glass	2	-	-	1	-	-	1	11	-	9	24
	Tableware	-	-	-	-	-	1	-	1	-	3	5
	Bone	18	-	-	-	-	-	-	12	-	181	211
Architecture	Flat glass	10	-	-	-	3	7	2	14	3	9	48
	Brick	1	-	-	-	-	-	-	-	-	3	4
	Mortar/ concrete	-	-	-	-	-	-	-	-	1	-	1
	Nail/screw/ bolt	4	1	-	-	-	3	-	13	1	98	120
	Clay drainage tile	-	-	-	-	1	-	-	-	-	-	1
	Metal conduit pipe	-	-	-	-	-	-	-	1	-	-	1
	Flat metal frags.	-	-	-	-	-	-	-	13	-	15	28
Activities	Metal thermometer	-	-	-	-	-	-	-	1	-	-	1
	Glass marble	-	-	-	-	-	-	-	1	-	-	1
	Metal chamber pot frags.	-	-	-	-	2	-	-	-	-	-	2
	Coal/slag	2	-	-	-	2	2	1	-	-	-	7
Clothing	Sewing needle	-	-	-		-	-	-	-	-	1	1
	Buttons	-	-	-	1	-	-	-	2	-	1	4
Personal	Bone pipe stem	-	-	-	-	-	-	-	-	-	1	1
	Ceramic Pipe fragments	-	-	-	-	-	-	-	-	-	5	5
Prehistoric	Projectile point fragment	-	-	-	-	-	-	-	-	-	1	1
Total		42	1	3	5	22	15	17	117	6	469	697

Bones. The 211 items assigned to the Bone Group are grouped with the Kitchen Group here. The bone items are discarded materials of animals processed for the table and represent 44.8 percent of the Kitchen Group sub-assemblage. Most of the faunal remains were fragmentary mammal bones and included one cow limb bone, one cow vertebra, and one cow tooth. Three of the recovered faunal items exhibit evidence of butchering in the form of saw-cut surfaces.

Architecture Group

Architecture Group artifacts were the second most numerous group recovered from 11L961. The 203 items represent 29.2 percent of the total historic artifact sub-assemblage. Artifacts from this group were recovered from the Shovel Tests 1, 2, 3, 6, 7, 9, 10, and 11, and Machine Trenches 1, 5, 6, 7, 8, and Features 1 and 3. The artifacts collected consist of flat window glass shards (n=48), brick fragments (n=4), mortar fragments (n=1), machine-cut square nails (n=99), wire drawn nails (n=9), round nails (n=7), screws (n=2), spike (n=1), terra cotta drainage pipe (n=1), metal strap fragments (n=28), and a metal conduit pipe (n=1). The nails included some examples with forged heads (1790-1820) and some square cut (1820-1900) along with more modern wire nails.

Activities Group

Artifacts from the Activities Group include items used in both agricultural production and domestic activity. The 11 artifacts recovered from 11L961 represent 1.6 percent of the total historic sub-assemblage. Artifacts from this group were recovered from Shovel Tests 2 and 6, and Machine Trenches 5, 6, 7, and 8. The artifacts include one metal dairy thermometer fragment, one glass marble, two fragments of a metal chamber pot, and seven fragments of coal or coal slag. The items suggest activities related to farming, heating, waste disposal, and recreation.

Clothing Group

Artifacts from the Clothing Group are specific to clothing remains or in their manufacture or repair. The five artifacts recovered from 11L961 represent 0.7 percent of the total historic sub-assemblage. Artifacts from this group were recovered from Machine Trenches 4, 8, and Feature 3. The artifacts include four ceramic buttons and one metal sewing needle.

Personal Group

Artifacts from the Personal Group are artifacts likely belonging to individuals that were for personal use. The six artifacts recovered from 11L961 represent 0.9 percent of the total historic sub-assemblage. Artifacts from this group were only recovered from Feature 3. The artifacts include five ceramic pipe bowl/stem fragments and one bone pipe stem fragment.

Artifact Assemblage Summary

The artifact assemblage recovered from the Phase II evaluation of 11L961 included 696 historic artifacts and 1 artifact interpreted as prehistoric in origin. The majority of artifacts were from Feature 3 and Machine Trench 8, both located to the south of the existing residential structure in a location that would be considered its backyard. Historic artifacts were recovered from the Kitchen, Architecture, Activities, Clothing, and Personal groups. Diagnostic attributes from the historic sub-assemblage were largely nineteenth century to early twentieth century and largely residential in nature. The overall trends in the assemblage from 11L961 are consistent with a relatively discrete domestic occupation that occurs in the early to middle nineteenth century and continues on into the twentieth century.

Results Summary and Discussion

The Phase II investigations at 11L961 included archival research, mapping, shovel test, machine and feature excavations, and artifact analysis. The archival research regarding the occupancy of the site indicates that it was likely a long term family farm that was passed down through at least four generations. The records indicate the farmstead was begun by John and Janet Stewart and five of their children by the early 1840s, followed by John's daughter Agnes, from his second wife, and son-in-law Gustof Foreman, which in turn was followed by Katharine (John's granddaughter) and Charles Ferry, minimally to Paul (John's great grandson) and Evelyn Ferry who sold the property to Mathew and Mary Mauser in 1943, before the property became the Arthur Weiler Nursery in 1957. The records show numerous transactions with the property always returning to the family even through the Great Depression following a foreclosure.

The field resulted in the recovery of a modest Historic period artifact assemblage and documented three subsurface features within approximately 261 square meters of excavated area. Of the three identified subsurface features, only Feature 3, a midden deposit located at the rear of the residence appears to be directly related to the nineteenth century occupation of the site. The excavation focused on those areas with the highest potential to have intact subsurface deposits, as the conversion of the property to a commercial plant nursery has resulted in the mechanical digging and re-digging of areas to support the commercial venture which is more invasive than traditional farming. As a result the sample of approximately 2.33 percent of the 11,200 square meter site area provides a more robust understanding of the site's research potential. It is clear some preservation exists, but the locations to recover information specific to the site initial occupation are highly diminished. The one nineteenth century feature (Feature 3 - midden) shows a broad range of temporal materials in a very shallow deposit.

The artifact assemblage is composed primarily of materials (586 items or 84 percent of all materials) recovered behind the existing, but abandoned, residential home. It was therefore not surprising to find that that 86 percent of the Kitchen group, 82 percent of the Architecture group, 80 percent of the Clothing group, and 100 percent of the Personal group artifacts were recovered here. Only the Activities group (9 percent) appeared infrequently behind the home. The most numerous items found behind the home were broken dishes, bone animal food remains, and construction nails. These items are consistent with residential household refuse disposal. Within the Kitchen group refined ceramic sub-assemblage, the whitewares comprise 76.7 percent of the refined ceramics, with ironstones making up just over 17.3 percent, with porcelains making up 5.4 percent, and pearlwares making up just 0.5 percent. The predominance of whiteware in the refined ceramic assemblage and the relatively low representation of ironstone and pearlware would suggest that the refined ceramic assemblage fits well with the middle nineteenth century date for the construction and occupancy of the residence. Similarly, the predominance of square machine-cut nails and nails with stamped circular heads, which together represent over 88 percent of the recovered nails, and the relative infrequency of more modern wire drawn nails suggests a similar temporal range within the nineteenth century. Occasional items of twentieth century manufacture occur, but they are a minor component of the assemblage. So while the archaeological investigations did locate material evidence for the nineteenth and twentieth centuries, the nature of the mixed midden deposits limits the potential to address the initial site occupation. As a result, the archival information is far more informative regarding the nature of the occupancy of the site.

CHAPTER 5.
DISCUSSION AND RECOMMENDATIONS

The Phase II NRHP field evaluations of 11L961 were conducted in November of 2019. The investigations at the site included the excavation of 17 shovel tests in the front, side and rear yard areas, production of a site plan and topographic map, the machine excavation of eight trenches to sample the deposits within the site area, and the delineation and excavation of three subsurface cultural features. In this chapter, the results of the archaeological investigations are interpreted regarding the potential for 11L961 to provide additional research information on nineteenth century Euro-American settlement in northern Lake County and northeast Illinois.

Site Evaluation Criteria

The primary goal of the project was to provide an evaluation of 11L961 to determine its eligibility for listing on the NRHP. The eligibility criteria for archaeological sites are described in 36 CFR 60. All cultural resources, to be eligible, must possess integrity of location, design, setting, materials, feeling, workmanship, or association. Typically, archaeological sites are evaluated under Criterion D, which indicates that, to be eligible, a site must have yielded, or may be likely to yield, information important to prehistory or history. Historic period sites can also be evaluated under Criteria A and B, which indicate that a site could be eligible based on its association with a significant event, pattern, or person, or Criterion C, for their design or construction value as representative of a particular technology or culture. Sites can be evaluated under these criteria at the local, regional, or national level of significance. Eligible sites, because of their significance, are managed so as to protect their integrity and preserve their information content for the future (United States Department of the Interior, National Park Service 1991).

The results of NRHP assessment projects most often produce one of two possible evaluations for particular sites: not eligible or eligible for listing on the NRHP. Sites can often be determined as not eligible for listing in the NRHP due to a lack of integrity of archaeological deposits or because the deposits that are present do not enable the investigation of significant research issues. A determination of not eligible indicates that no further work need be done at the site. In contrast, sites found to be eligible for listing in the NRHP most often retain intact and significant archaeological deposits at the site, are associated with significant events, patterns, or persons, or retain intact architectural elements that are significant in their design or construction value as a representative of a particular technology or culture. Upon completion of an NRHP assessment, an evaluation of eligible for the NRHP indicates that the site should be mitigated to recover significant data or be managed so as to protect their integrity and preserve their information content for the future.

In making NRHP determinations, sites are evaluated against two sets of loosely defined criteria. The first set of criteria is used to evaluate the preservation, or integrity, of the site. Integrity is an indication of the degree of preservation of archaeological deposits or structural remains. While in many cases it is true that sites containing intact deposits would be eligible for the NRHP, it is also true that, in some instances, sites lacking those qualities also may be eligible. In many cases agricultural impacts, such as plowing and subsequent erosion, or other uses of the landscape, destroy intact cultural deposits (and hence impair site integrity), thereby rendering the site ineligible for listing in the NRHP. Butler (1987) discusses the second criterion by which a site needs to be evaluated. The second criterion is that the information, or potential information, from a site can be used to address significant research questions. Specific evaluation criteria used for this project are presented below, followed by a summary of the findings.

Criterion A. Criterion A indicates that properties can be eligible based on association with events that made a significant contribution to broad patterns of American history (United States Department of the Interior, National Park Service 1990:12). Under this criterion mere association is not enough to qualify for listing. Instead, the specific association must be considered important as well. It is not enough to demonstrate that a site was occupied at a particular time and that the site represents general trends from that era. It needs to be shown how the site specifically fits the trends. Key to the site assessment under this criterion is the association of site occupants and site function with initial patterns of settlement or with important changes in farming and whether overall site integrity exhibits the association of the particular site with these patterns.

Criterion B. Criterion B states that properties can be eligible based on association with the lives of persons significant in our past (United States Department of the Interior, National Park Service 1990:14). It is conceivable that historically significant individuals could have inhabited the site under consideration here. The archival research presented provides the basis for evaluating the site considered here under Criterion B.

Criterion C. Criterion C denotes that properties may be eligible if they embody distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components lack individual distinction (United States Department of the Interior, National Park Service 1990:17). In general, this applies to the structures located at the site.

Criterion D. Finally, Criterion D, most commonly applied to archaeological sites, states that a property may be eligible if it has yielded, or is likely to yield, information important to prehistory or history. To be considered under this criterion, a site must be evaluated within an appropriate historic context. In this instance, we have provided an historic context for Lake County. Part of this evaluation process is the formulation of significant research issues, in this instance centering the initial settlement of the landscape. Key to evaluation under Criterion D is whether the particular site has yielded or is likely to yield information that can be used to address these research issues.

NRHP Evaluation of 11L961

In consideration of Criterion A, 11L961 does represent a broad pattern of history given the site's association with a pioneer family that purchased, developed, and maintained a farmstead in northern Lake County between the 1840s and the early twentieth century. Historically the site also reflects modern trends of replacing or removing farmsteads in favor of commercial interests, in this case the evolution from a rural residence and farm enterprise to a commercial nursery business. Thus during the occupation of 11L961 the site evolved from a pioneer settlement on a developing frontier into a market based farmstead tied to State and National economic trends. The site has a long occupational history, but no evidence was collected to indicate it has a unique or rare set of historical circumstances. There is also no evidence to suggest that the Stewart/Foreman/Ferry family brought new ideas or techniques to the area that changed how farming was done. Collectively, 11L961 does not appear to have made a significant contribution to the patterns of history and it is therefore recommended as *Not Eligible* under Criterion A.

In consideration of Criterion B, 11L961 appears to be primarily associated with the Stewart family lineage during the nineteenth century and twentieth centuries. The individual family members are not known to have been historically significant at either the National, State, or local levels and 11L961 is therefore recommended as *Not Eligible* under Criterion B.

In consideration of Criterion C, the general evidence from 11L961 is archaeological in nature. There are seven extant structures within the limits of 11L961with a street address of 12247 West Russell Road and include a brick Italianate residence, a detached garage, a greenhouse, an "office" building, pole barn, concrete silo, and machine shed/workshop. Structure 1 is a front gabled Vernacular Italianate style two-story residence constructed in circa 1858 (Lake County Assessor 2019). Architectural details of the residence include decorative brick work at the roofline, arched window and door openings, a gabled timber front entry porch, enclosed side porch, and large two-story brick addition. These structures have previously been recommended as *Not Eligible* for listing on the NRHP (McGowan and Prchal 2019), but no official determination has been made. Given this previous recommendation, the architecture is not known to have been historically significant at either the National, State, or local levels and 11L961 is therefore recommended as *Not Eligible* under Criterion C.

In consideration of Criterion D, the investigations of 11L961 did demonstrate the site has integrity of archaeological deposits creating the potential to be able to address research questions. The history of the property indicated there was a potential to address research questions related to the initial settlement of the land and the early development of Lake County and the Zion area. To address these research questions it was necessary to locate materials and features related to the middle to late nineteenth century site occupation. While the analysis of the artifacts and features did recover evidence related to that occupation, these items occurred within contexts which also included artifacts dating into the twentieth century. It is our recommended finding that 11L961 does not have significant data contained within its deposits due to a lack of temporally discrete patterning and therefore the site will not substantively alter existing knowledge regarding rural farmstead lifeways in northern Illinois. Furthermore, the long period of occupation and conversion of the property into a commercial nursery indicates that additional, temporally discrete artifact deposits are unlikely to be present at the site. Therefore it is recommended that 11L961 is *Not Eligible* under Criterion D for listing in the NRHP and no additional archaeological investigations are recommended.

Summary of Recommendations

The Public Service Archaeology & Architecture Program examined 11L961 for the National Register of Historic Places eligibility with field investigations in November 2019. The NRHP evaluation of the site and previous investigations have demonstrated that it does not meet the minimum standards established for NRHP eligibility under Criterion A, B, C, or D. The site deposits are not interpreted to have the potential to address significant research questions related to the initial settlement and development of rural farmsteads in Lake County, and northeastern Illinois and the processes by which the rural agricultural economy became enmeshed within the larger Statewide and National economy. Accordingly, this site is recommended as *Not Eligible* for listing on the NRHP as the archaeological investigations have demonstrated that it does not meet the minimum standards established for NRHP eligibility. Accordingly, this site is recommended as *Not Eligible* for listing on the NRHP under Criterion A, B, C, or D. No additional archaeological investigations are recommended.

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APPENDIX A:
11L961 ARTIFACT INVENTORY

Project No. 19-226 - Lake County, IL, Phase II 11L961 Archaeological Inventory

Bag No.	Provenience	Artifact Category	Artifact Description	Count
1	Shovel Test 1, 0-10cm	Architectural	Wire nail	1
1	Shovel Test 2, 10-20cm	Activites	Coal	1
1	Shovel Test 2, 10-20cm	Architectural	Nail	1
1	Shovel Test 2, 10-20cm	Architectural	Glass, flat, clear	1
1	Shovel Test 3, 0-10cm	Architectural	Glass, flat, clear	1
1	Shovel Test 4, 20-30cm	Kitchen	Yellowware, undecorated	1
1	Shovel Test 6, 20-30cm	Architectural	Glass, flat, clear	1
1	Shovel Test 6, 20-30cm	Activites	Coal Slag	1
1	Shovel Test 7, 0-10cm	Architectural	Brick fragment	1
1	Shovel Test 7, 0-10cm	Architectural	Wire nail	1
1	Shovel Test 8, 0-10cm	Kitchen	Glass container shards	1
1	Shovel Test 9, 0-10cm	Architectural	Glass, flat, clear	1
1	Shovel Test 10, 0-10cm	Kitchen	Stoneware, Salt glaze interior/Salt exterior	1
1	Shovel Test 10, 0-10cm	Kitchen	Glass, bottle, clear	1
1	Shovel Test 10, 0-10cm	Architectural	Glass, flat, aqua tint	2
1	Shovel Test 11, 20-30cm	Kitchen	Whiteware, undecorated	1
1	Shovel Test 11, 20-30cm	Kitchen	Whiteware, decorated	1
1	Shovel Test 11, 20-30cm	Kitchen	Porcelain, undecorated	1
1	Shovel Test 11, 20-30cm	Kitchen	Bone fragments	18
1	Shovel Test 11, 20-30cm	Architectural	Screw w/bolt	1
1	Shovel Test 11, 20-30cm	Architectural	glass, flat, clear	4

2	Machine Trench 1, backfill	Architectural	Nail	1
3	Machine Trench 3, unit fill	Kitchen	Whiteware, decorated	1
3	Machine Trench 3, unit fill	Kitchen	Whiteware, undecorated	1
3	Machine Trench 3, unit fill	Kitchen	Ironstone, undecorated	1
4	Machine Trench 4, Unit fill	Kitchen	Whiteware, undecorated	3
4	Machine Trench 4, Unit fill	Kitchen	Glass, bottle, clear	1
4	Machine Trench 4, Unit fill	Clothing	Shirt Button	1
10	Machine Trench 5, Unit Fill	Kitchen	Pearlware, undecorated	1
10	Machine Trench 5, Unit Fill	Kitchen	Ironstone, decorated	3
10	Machine Trench 5, Unit Fill	Kitchen	Ironstone, undecorated	7
10	Machine Trench 5, Unit Fill	Kitchen	Porcelain, decorated	1
10	Machine Trench 5, Unit Fill	Kitchen	Porcelain, undecorated	1
10	Machine Trench 5, Unit Fill	Kitchen	Stoneware, Salt Exterior w/Albany Interior	1
10	Machine Trench 5, Unit Fill	Architectural	Glass, flat, clear	3
10	Machine Trench 5, Unit Fill	Architectural	drainage tile, terra cotta	1
10	Machine Trench 5, Unit Fill	Activities	metal container	2
10	Machine Trench 5, Unit Fill	Activities	coal	2
5	Machine Trench 6, Backfill	Kitchen	Whiteware, undecorated	2
5	Machine Trench 6, Backfill	Kitchen	Glass, tableware	1
5	Machine Trench 6, Backfill	Architectural	Nails	3
5	Machine Trench 6, Backfill	Architectural	Glass, flat, clear	7
5	Machine Trench 6, Backfill	Activities	Coal	2
7	Machine Trench 6, Feature 1, E 1/2, 0-10cm	Architectural	Glass, flat, clear	2
8	Machine Trench 6, Feature 1, E 1/2, 0-10cm	Kitchen	Yellowware, undecorated	1
8	Machine Trench 6, Feature 1, E 1/2, 0-10cm	Architectural	Mortar	1
9	Machine Trench 6, Feature 1 W 1/2, 0-10cm	Architectural	Screw	1
9	Machine Trench 6, Feature 1 W 1/2, 0-10cm	Architectural	Glass, flat, clear	1

6	Machine Trench 7, Backfill Pile	Kitchen	Whiteware, decorated	2
6	Machine Trench 7, Backfill Pile	Kitchen	Whiteware, undecorated	3
6	Machine Trench 7, Backfill Pile	Kitchen	Ironstone, undecorated	3
6	Machine Trench 7, Backfill Pile	Kitchen	Ironstone, decorated	2
6	Machine Trench 7, Backfill Pile	Kitchen	Porcelain, decorated	1
6	Machine Trench 7, Backfill Pile	Kitchen	Porcelain, undecorated	2
6	Machine Trench 7, Backfill Pile	Kitchen	Glass, jar, milk glass	1
6	Machine Trench 7, Backfill Pile	Architectural	Glass, flat, clear	2
6	Machine Trench 7, Backfill Pile	Activities	Slag	1
11	Machine Trench 8, Back fill	Kitchen	Whiteware, undecorated	19
11	Machine Trench 8, Back fill	Kitchen	Whiteware, decorated	1
11	Machine Trench 8, Back fill	Kitchen	Whiteware, decorated	5
11	Machine Trench 8, Back fill	Kitchen	Whiteware, decorated	1
11	Machine Trench 8, Back fill	Kitchen	Ironstone, undecorated	10
11	Machine Trench 8, Back fill	Kitchen	Ironstone, slip band annular	1
11	Machine Trench 8, Back fill	Kitchen	Ironstone, impressed	1
11	Machine Trench 8, Back fill	Kitchen	Porcelain, undecorated	1
11	Machine Trench 8, Back fill	Kitchen	Porcelain, decorated	1
11	Machine Trench 8, Back fill	Kitchen	Stoneware, Salt glaze ext/Albany interior	3
11	Machine Trench 8, Back fill	Kitchen	Stoneware, Albany interior and Albany exterior	2
11	Machine Trench 8, Back fill	Kitchen	Stoneware, Bristol interior and Bristol exterior	2
11	Machine Trench 8, Back fill	Kitchen	Stoneware, unglazed-plain	1
11	Machine Trench 8, Back fill	Kitchen	Glass, bottle, clear	3
11	Machine Trench 8, Back fill	Kitchen	Glass, bottle, amber	1
11	Machine Trench 8, Back fill	Kitchen	Glass, bottle, aqua	1
11	Machine Trench 8, Back fill	Kitchen	Glass, jar, milk glass	4
11	Machine Trench 8, Back fill	Kitchen	Glass, container, jar	1
11	Machine Trench 8, Back fill	Kitchen	Glass bottle	1
11	Machine Trench 8, Back fill	Kitchen	Glass, tableware	1
11	Machine Trench 8, Back fill	Kitchen	Bone	12
11	Machine Trench 8, Back fill	Architectural	Conduit pipe	1

11	Machine Trench 8, Back fill	Architectural	Nails	13
11	Machine Trench 8, Back fill	Architectural	Metal Fragments	13
11	Machine Trench 8, Back fill	Architectural	Glass, flat, clear	14
11	Machine Trench 8, Back fill	Clothes	Shirt buttons	2
11	Machine Trench 8, Back fill	Personal	Marble, glass	1
11	Machine Trench 8, Back fill	Other	Metal Thermometer Fragment	1
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Whiteware, undecorated	16
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Whiteware, decorated	1
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Whiteware, decorated	2
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Whiteware, decorated	1
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Whiteware, decorated	1
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Whiteware, decorated	1
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Whiteware, decorated	1
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Stoneware, Albany interior/Albany exterior	2
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Glass, curved, aqua	2
12	Machine Trench 8, Feature 3, E 1/4	Kitchen	Bone	24
12	Machine Trench 8, Feature 3, E 1/4	Architectural	Glass, flat, clear	3
12	Machine Trench 8, Feature 3, E 1/4	Architectural	Nails, square cut	18
12	Machine Trench 8, Feature 3, E 1/4	Architectural	Nail, wire	1
12	Machine Trench 8, Feature 3, E 1/4	Architectural	Strap hinge w/square nail	1
12	Machine Trench 8, Feature 3, E 1/4	Architectural	Flat strap fragment	1
12	Machine Trench 8, Feature 3, E 1/4	Personal	Pipe stem fragments	3
12	Machine Trench 8, Feature 3, E 1/4	Clothing	Prosser button	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Whiteware, undecorated	73
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Whiteware, decorated	14
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Whiteware, decorated	2
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Whiteware, decorated	3
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Ironstone, undecorated	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Ironstone, decorated	2
13	Machine Trench 8,Feature 3, north 1/2, fill	Kitchen	Ironstone, decorated	4
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Porcelain, undecorated	3

13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Stoneware, Salt exterior/Albany interior	2
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Stoneware, clear glaze	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Stoneware, Salt interior/Salt exterior	2
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Stoneware, Salt interior/Albany interior	8
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Stoneware, Albany exterior/Albany interior	2
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Glass, container	4
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Glass, bottle, amber	2
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Glass, bottle, aqua	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Glass, Tableware, clear	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Glass, Tableware, opaline	2
13	Machine Trench 8, Feature 3, north 1/2, fill	Kitchen	Bone	157
13	Machine Trench 8, Feature 3, north 1/2, fill	Architectural	Glass, flat, clear	6
13	Machine Trench 8, Feature 3, north 1/2, fill	Architectural	Brick fragments	3
13	Machine Trench 8, Feature 3, north 1/2, fill	Architectural	Metal Flat Strap fragments	14
13	Machine Trench 8, Feature 3, north 1/2, fill	Architectural	Cut nails, circular stamped on head	4
13	Machine Trench 8, Feature 3, north 1/2, fill	Architectural	Square cut nails	59
13	Machine Trench 8, Feature 3, north 1/2, fill	Architectural	Wire nails	4
13	Machine Trench 8, Feature 3, north 1/2, fill	Architectural	Sqaure cut nail fragments	11
13	Machine Trench 8, Feature 3, north 1/2, fill	Personal	Pipestem fragment, bone	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Personal	Pipestem and bowl fragment, ceramic	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Personal	Pipebowl fragment, ceramic	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Clothing	Sewing needle	1
13	Machine Trench 8, Feature 3, north 1/2, fill	Prehistoric	Biface, fragment	1

APPENDIX B:
11L961 ILLINOIS ARCHAEOLOGICAL SITE RECORDING FORMS

Illinois Archaeological Site Recording Form

County Lake **Site Name** **Revisit** Y

Field No. 19-226: 11L961 **7.5' Quadrangle** Zion **County Site No.** 961

Ownership Private **Meridian** 3 **Township** 46 N **Range** 12 E **Section** 6 **Recorded** 2021.01.15

WGS84 Latitude 42.493034 **Longitude** -87.868412 **Site Area (sq. m)** 10,736

Known Alternate Names

ENVIRONMENT

Topography Other Upland **Drainage Basin** Des Plaines

Nearest Water Supply Intermittent stream **Elevation (meters AMSL)** 210

Soil Association Morley-Markham-Beecher-Ashkum (s2277)

Description The site is located immediately south of Russell Road and 400 meters west of Kenosha Road in the uplands. The site extends 70 meters north to south by 140 meters east to west.

SURVEY

Project Name 19-226 **Project Type** Phase II CRM

Ground Cover Rock Grass **Surface Visibility %** 25

Survey Methods Shovel Test Machinery

Site Type Commercial Habitation **Standing Structure** Y

SITE CONDITION

Extent of Damage Moderate **Main Cause of Damage** Development

MATERIALS OBSERVED

Survey Sampling Strategy Total Collection

Number of Prehistoric Artifacts (count or estimate) 1 **Number of Historic Artifacts (count or estimate)** 696

N **Prehistoric Diagnostic Artifacts** Y **Historic Diagnostic Artifacts**

N **Prehistoric Surface Features** Y **Historic Surface Features**

N **Prehistoric Buried Features** **Ave. Depth (cm)** 0 Y **Historic Buried Features** **Ave. Depth (cm)** 15

Description Assemblage included nineteenth and early twentieth century historic materials, five standing structures, and one biface fragment.

TEMPORAL AFFILIATION

Y	**Prehistoric Unknown**		**Woodland**		**Protohistoric**	Y	**Frontier Antebellum (1841-April 11, 1861)**
	Paleoindian		**Early Woodland**		**Historic Native American**	Y	**Civil War (April 12, 1861-April 9, 1865)**
	Archaic		**Middle Woodland**		**Historic (generic)**	Y	**Frontier Post-Civil War (April 10, 1865-1870)**
	Early Archaic		**Late Woodland**		**Colonial (1673-1780)**	Y	**Early Industrial (1871-1900)**
	Middle Archaic		**Mississippian**		**Pioneer (1781-1840)**	Y	**Urban Industrial (1901-1945)**
	Late Archaic		**Upper Mississippian**		**Frontier (generic; 1841-1870)**	Y	**Post-War (1946-present)**

Description Historic documents indicate an early 1840's residential farmstead that was converted into a commercial nursery by 1969 and is still in use.

Surveyor K. McGowan **Institution** PSA **Survey Date** 2019.11.20 **Curation Facility** ISM

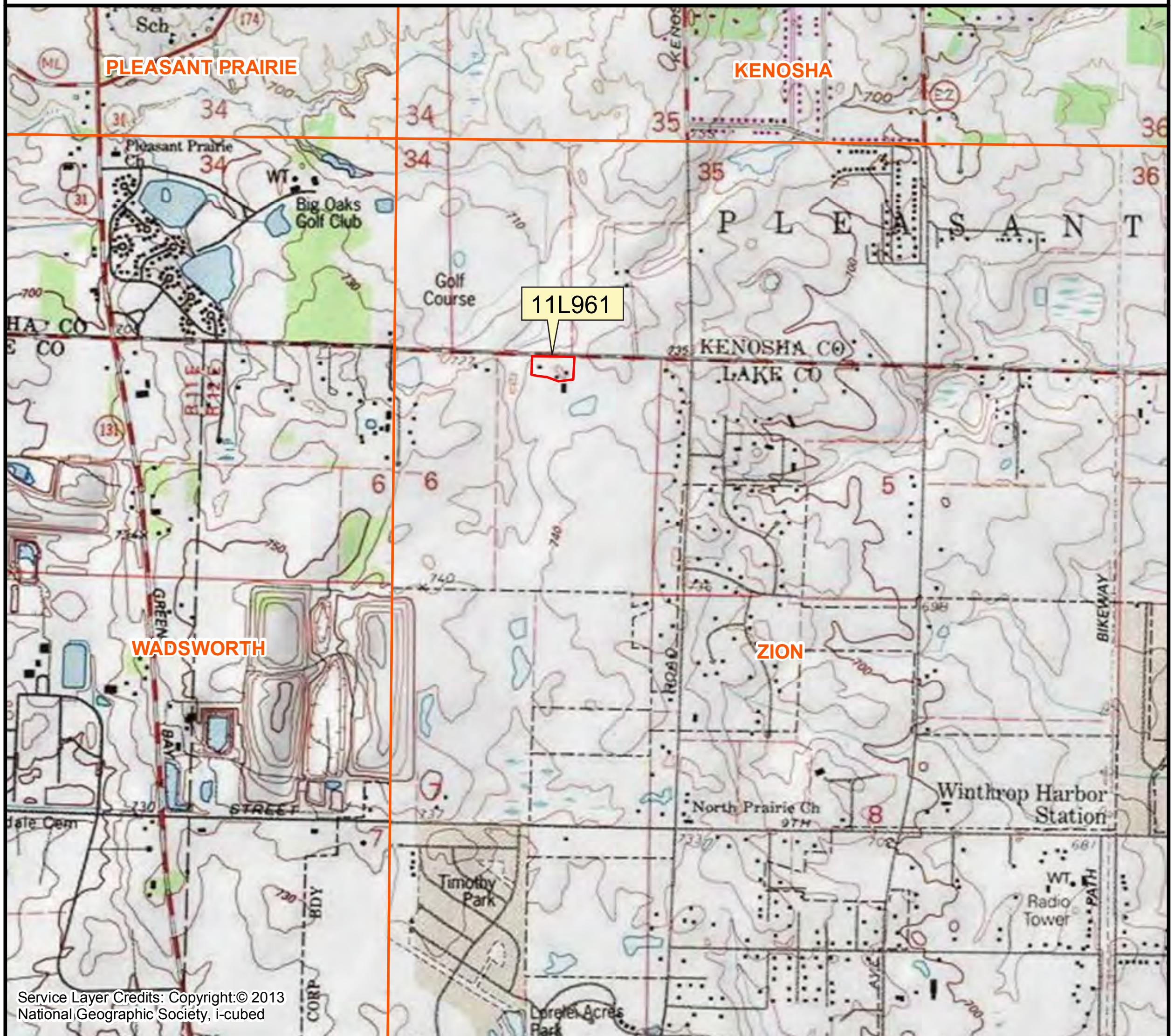
Form By K. McGowan **Institution** PSA **Report Date** 2021.01.14 **NRHP Listing** N

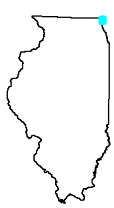
SHPO Log No. **SHPO 1st Survey Doc No.**

Compliance Status **HSRPA** N


Wisconsin
Illinois
Russell Road
225
225.5
226
222
223
224
Ditch
Well
Lawn
Driveway
Plant Sales Area
Gravel & Weeds
Residence
Silo
Gravel
Gas Tank
Well
Barn
Lawn
Greenhouse
Garage
Nursery Office
Workshop
Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors
12247 West Russell Road, Zion, Illinois
Location
KEY
11L961 Site Limits
Machine Trench (8)
Feature (3)
Positive Shovel Test (9)
Negative Shovel Test (8)
N
Meters
0 15 30 60
Feet
0 40 80 160

ZION QUADRANGLE
LAKE COUNTY - ILLINOIS
7.5 MINUTE SERIES (TOPOGRAPHIC)1993





Quadrangle Location

KEY

Site Location - 11L961

0 0.25 0.5 1 Kilometers

0 0.125 0.25 0.5 Miles

N

Illinois Archaeological Site Recording Form

County Lake **Site Name** **Revisit** N
Field Number 19-084: AOS 101 **State Site Number** 961
7.5 min Quadrangle Zion **Recorded** 2019.09.13

LEGAL DESCRIPTION (to quarter quarter quarter section - up to four QQQs in a section per line)

Align	1/4s	Sec:	Twp:	Rng:
SE	NENWSE	6	46 N	12 E
		0	0	0
		0	0	0
		0	0	0

U.T.M. Coordinates for site center: (to be provided by ISM)
U.T.M Zone: 16 **East U.T.M.** 428,638 **North U.T.M** 4,704,884
Ownership Private

ENVIRONMENT
Topography Other Upland **Elevation (meters AMSL)** 210
Nearest Water Supply Intermitent stream **Drainage Basin** Des Plaines
Soil Associations Morley-Blount-Beecher
Description
The site is located immediately south of Russell Road and 400 meters west of Kenosha Road in the uplands. The site extends 80 meters north to south by 140 meters east to west.

SURVEY
Project Name 19-084 **Site Area (square meters)** 10,736
Ground Cover Rock Grass Weeds **Surface Visibility (%)** 25
Survey Methods Pedestrian Shovel Test
Site Type Commercial Habitation [Y] **Standing Structure**

SITE CONDITION
Extent of Damage Moderate **Main Cause of Damage** Development

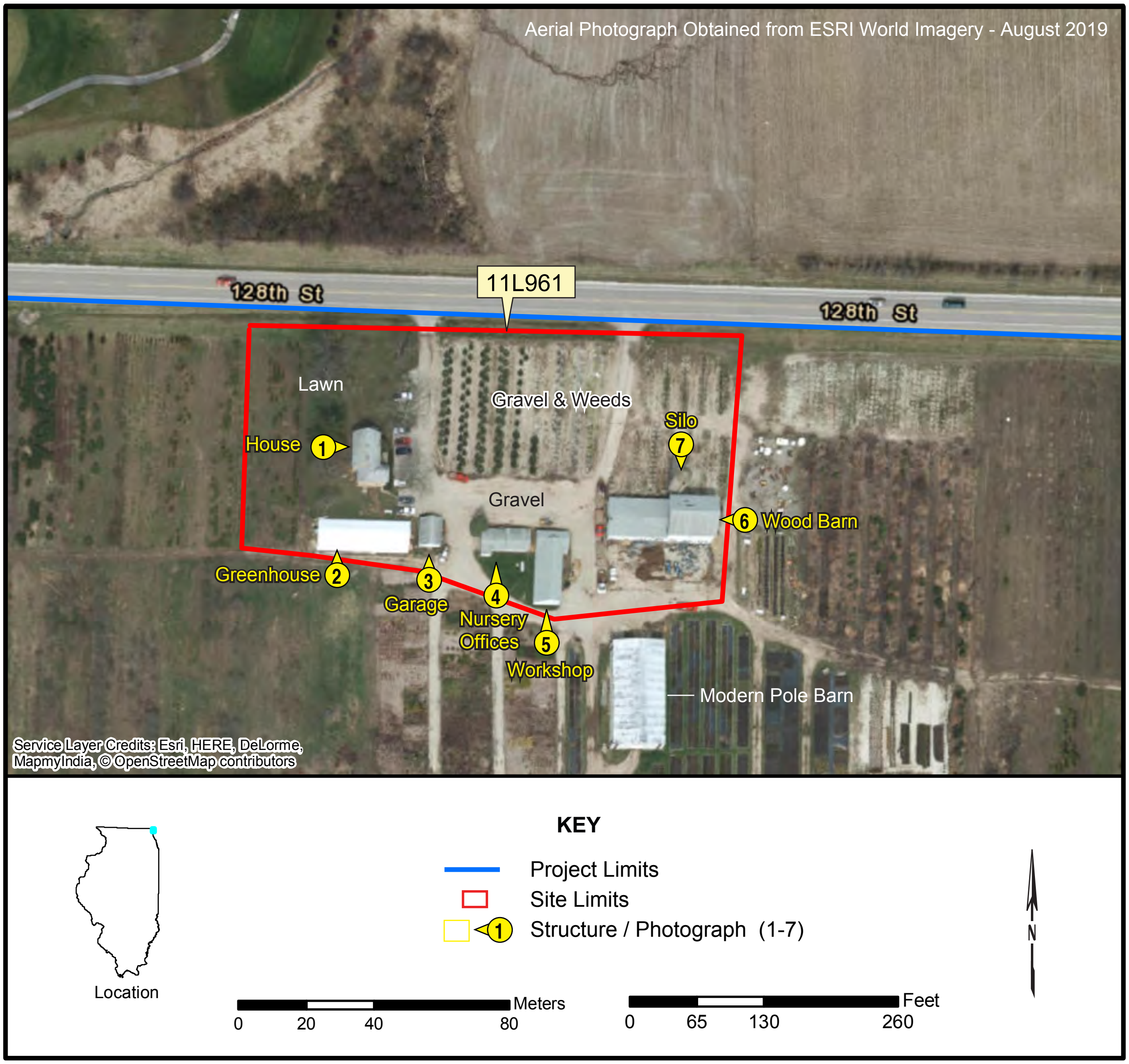
MATERIAL OBSERVED
Number of Prehistoric Artifacts (count or estimate) 0 **Number of Historic Artifacts (count or estimate)** 5
[N] **Prehistoric Diagnostic Artifacts** [Y] **Historic Diagnostic Artifacts**
[N] **Prehistoric Surface Features** [Y] **Historic Surface Features**
Description
Site defined on the basis of five standing structures (residence, two barns, silo, and workshop) that are all over 50 years in age.

TEMPORAL AFFILIATION (select all that apply)

[ ]	**Prehistoric Unknown**	[ ]	**Late Archaic**	[ ]	**Mississppian**	[ ]	**Colonial (1673-1780)**
[ ]	**Paleoindian**	[ ]	**Woodland**	[ ]	**Upper Mississippian**	[ ]	**Pioneer (1781-1840)**
[ ]	**Archaic**	[ ]	**Early Woodland**	[ ]	**Protohistoric**	Y	**Frontier (1841-1870)**
[ ]	**Early Archaic**	[ ]	**Middle Woodland**	[ ]	**Historic Native American**	Y	**Early Industrial (1871-1900)**
[ ]	**Middle Archaic**	[ ]	**Late Woodland**	[ ]	**Historic (generic)**	Y	**Urban Industrial (1901-1945)**
						Y	**Post-War (1946-present)**

Description Historic maps place a residential structure near this location by 1861 (Hale and Truesdell 1861).

Surveyor P. Green **Institution** PSA **Survey Date** 08.29.2019 **Curation Facility** N/A
Site Report By Kevin McGowan **Institution** PSA **Date** 09.16.2019
IHPA Log No. **IHPA 1st Sur Doc No.**
Compliance Status **NRHP Listing** N

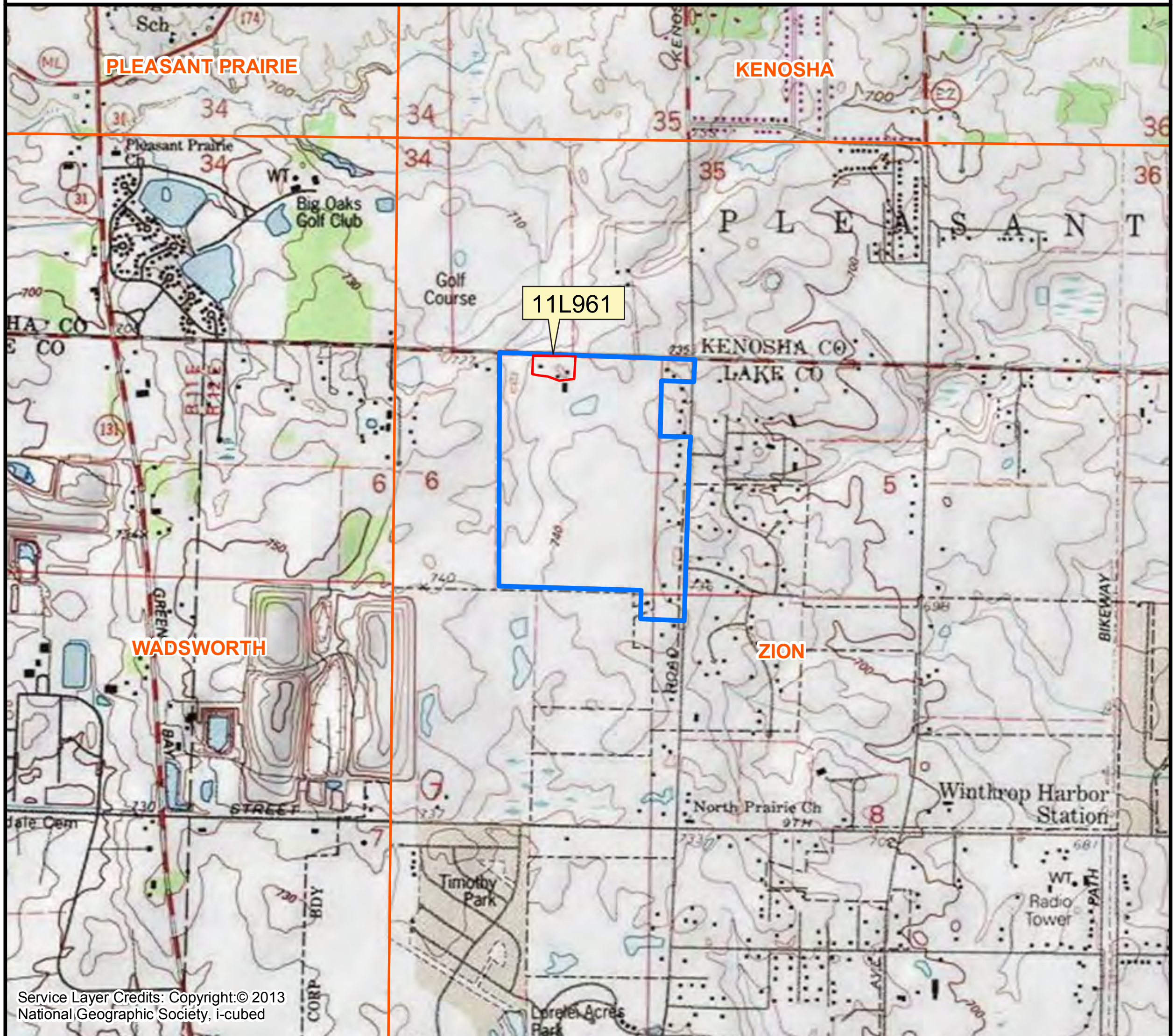


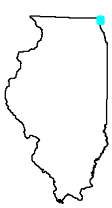
Aerial Photograph Obtained from ESRI World Imagery - August 2019
128th St
11L961
128th St
Lawn
Gravel & Weeds
Silo
7
House
1
Gravel
6
Wood Barn
Greenhouse
2
3
Garage
4
Nursery
Offices
5
Workshop
Modern Pole Barn
Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors
KEY
Project Limits
Site Limits
1
Structure / Photograph (1-7)
Location
Meters
0
20
40
80
Feet
0
65
130
260
N

ZION QUADRANGLE

LAKE COUNTY - ILLINOIS

7.5 MINUTE SERIES (TOPOGRAPHIC)1993





Quadrangle Location

KEY

Project Area

Site Location

0 0.25 0.5 1 Kilometers

0 0.125 0.25 0.5 Miles

N

PREVIOUSLY COMPLETED ARCHAEOLOGIC EVALUATIONS FOR EXISTING FACILITY

CH2M HILL TELEPHONE CONVERSATION RECORD

CALL TO: Anne Haaker, Deputy State Historic Preservation Officer, Illinois Historic Preservation Agency

PHONE NO.: (217) 782-4836 **DATE:** 08/21/96

CALL FROM: Cathy Barnett **TIME:** 8:45 AM

MESSAGE TAKEN BY: Cathy Barnett **PROJECT NO.:**

SUBJECT: BFI Zion Site 3 Area Expansion Permit Application

I called Anne Haaker regarding their review of the Zion site with respect to historic, architectural, and archaeological resources. I said that we had submitted a Phase I survey and that the Historic Preservation Agency had determined that their were no significant historic, architectural, or archaeological resources in the area but that their letter was dated December 1994, outside of the year period requested by the regulators.

Anne asked if the site had changed in the interim. I said no, that the delay was just due to time required for permitting. She said that she considered the existing letter sufficient and would not require additional review of the site since the site plans had not changed. Her office is backed up and she would be unable to provide an additional review at this time. She said to have the regulatory agency contact her if they had any questions regarding this.

c: Jim Lewis/BFI
Phil Stecker/CH2M HILL

Illinois Historic Preservation Agency

Old State Capitol • Springfield, Illinois 62701 • (217) 782-4836

217/785-4997

LAKE COUNTY
Zion
Landfill Expansion

PLEASE REFER TO:
IHPA LOG #941020006J-L
Public Service Archaeology Program (PSAP)
Acres: 110.0 Sites: 1
Isolated Finds: 1

December 8, 1994

Mr. James T. Ambrose
Browning-Ferris Industries
1827 Walden Office Square, Suite 100
Schaumburg, Illinois 60173

Dear Sir:

Thank you for submitting the results of the archaeological reconnaissance. The Illi Historic Preservation Agency is required by the Illinois State Agency Historic Resou Preservation Act (20 ILCS 3420, 1992) to review all state funded, permitted or licen undertakings for their effect on cultural resources.

Our staff has reviewed the archaeological Phase I reconnaissance report performed for the project referenced above.

The Phase I survey and assessment of the archaeological resources appear to be adequa Accordingly, we have determined, based upon this report, that no significant historic architectural, and archaeological resources are located in the surveyed area.

Please retain this letter in your files as evidence of compliance with the Illinois State Agency Historic Resources Preservation Act.

Sincerely,

Anne E. Haaker

Anne E. Haaker
Deputy State Historic
Preservation Officer

AEH:JKJ

cc: Dr. Paul P. Kreisa, PSAP

EXHIBIT

Shaw® Shaw Environmental, Inc.

A World of **Solutions**

June 7, 2007

COPY

Mr. Randy Heidorn, Deputy Director
Illinois Nature Preserves Commission
One Natural Resources Way
Springfield, IL 62702-1271

Subject: Compliance with the Illinois Natural Areas Preservation Act

Dear Mr. Heidorn:

I am requesting written documentation that a proposed expansion of the Veolia E.S. Zion Landfill will be in compliance with the Illinois Natural Areas Preservation Act. The facility is located in Lake County.

The facility is generally located in Section 7 of Township 46 North, Range 12 East of the Third Principal Meridian. The approximate facility location is shown on the enclosed figure.

If you require any additional information, please contact me at (630) 762-1400.

Thank you for your assistance.

Sincerely,

Shaw Environmental, Inc

Todd Sudmeier

Todd Sudmeier
Engineer

Attachments

T:\Projects\2006\122150 - Zion Landfill Expansion\Location\Correspondance\npc.doc

'llinois Historic
Preservation Agency

1 Old State Capitol Plaza • Springfield, Illinois 62701-1512 • www.illinois-history.gov

e County PLEASE REFER TO: IHPA LOG #021082307
n
t side of North Kenosha Road and north of 9th Street, Section: 7 & 8 Township: 46N Range: 12E
idfill Development/Veolia E.S. Zion Landfill, Inc.

otember 20, 2007

. Richard Southorn
aw Environmental, Inc.
oject Manager
07 East Main Street, Suite E
. Charles, Illinois 60174-2343

ar Sir:

re(s): 26.29 Site(s): 0
chaeological Contractor: AA/Kullen

ank you for submitting the results of the archaeological reconnaissance. Our comments are required Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing gulations, 36 CFR 800: "Protection of Historic Properties".

aff has reviewed the archaeological Phase I reconnaissance report performed for the project ced above. The Phase I survey and assessment of the archaeological resources appear to be ate. Accordingly, we have determined, based upon this report, that no significant historic, tectural, and archaeological resources are located in the project area.

lease submit a copy of this letter with your application to the state or federal agency from which you tain any permit, license, grant, or other assistance. Please retain this letter in your files as idence of compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

incerely,

Anne E. Haaker

nne E. Haaker
Deputy State Historic
Preservation Officer

AEH

c: Douglas Kullen, Allied Archeology

REPORT OF ARCHEOLOGICAL SURVEY
2007 PHASE I INVESTIGATION

Prepared for:
Veolia E. S. Zion Landfill, Inc.

Allied Archeology
239 S. Calumet Avenue
Aurora, Illinois 60506

ARCHAEOLOGICAL SURVEY SHORT REPORT
Illinois Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, Illinois 62701 (217/785-4997)

REVIEWER ______________________
Date: ______________________
__________ Accepted ________ Rejected
IHPA USE ONLY (Form ASSR0886)

IHPA Log # ____________________

Locational Information and Survey Conditions

County: Lake

Quadrangle: Zion, 7.5' series Project Type/Title: Future Development, Veolia Environmental Services, Lake County, Illinois.

Funding and/or Permitting Federal/State Agencies: U. S. E. P. A.; I. E. P. A.

Sections: 7 and 8 T.: 46N R.: 12E Natural Division (No.): __________

U.T.M.: Zone 16; 4703351-4703713mN, 428573-429077mE

Project Description: Future development on 26.29 acres of fallow farm field, existing wholesale nursery, and existing residential lots.

Topography: Upland plain.

(Soils) Pella & Peotone silty clay loams; Markham, Montmorenci, Wauconda, Grays & Corwin silt loams.

Drainage: East and south to Kellogg Ravine; Lake Michigan drainage system.

Land Use/Ground Cover (Include % Visibility): About 11.2 acres of fallow farm fields (0% ground surface visibility); about 5 acres of residential lots, about 0.5 acres of wet areas with marsh grass, and about 9.6 acres of existing wholesale nursery.

Survey Limitations: Soils within the existing nursery were severely disturbed by grading, filling, mulching, rutting, intensive planting, outbuilding construction, and numerous driveways, parking lots, and equipment marshalling areas. Parts of residential lots were disturbed by construction, driveways, and septic fields. Wet areas contained saturated and/or marsh soils. These areas were not shovel tested.

Archaeological and Historical Information

Historic Plats/Atlases/Sources: IHPA project records and site files; old county plats.

Previously Reported Sites: None in project area. Eight isolated prehistoric artifacts and small prehistoric sites and four historic farmsteads reported within a one mile radius.

Previous Surveys: None in project area proper. Six previous surveys by Public Service Archaeology Program and the Chicago District U. S. Army Corps of Engineers within a one mile radius covered 519 acres to the west, north, and east (Adams 1995; McDowell 1994; McGowan 1996, 2002a, 2002b; Ryder 1988).

Regional Archaeologists Contacted: self (Kullen)

Investigation Techniques: Standard screened shovel testing at 15 meter grid intervals.

Time Expended: 11 man-days.

Sites/Find Spots Located: None.

Cultural Material: None (Curated At): N/A

Collection Techniques: N/A

Area Surveyed (Acres & Square Meters): About 26.29 acres (106,392m² or10.6 hectares)

(OVER)

Results of Investigation and Recommendations: (Check One)

XX Phase I Archaeological Reconnaissance Has Located No Archaeological Material; Project Clearance Is Recommended.

_ Phase I Archaeological Reconnaissance Has Located Archaeological Materials; Sites Do Not Meet Requirements For National Register Eligibility; Project Clearance Is Recommended.

_ Phase I Archaeological Reconnaissance Has Located Archaeological Materials; Site(s) May Meet Requirements For National Register Eligibility; Phase II Testing Is Recommended.

_ Phase II Archaeological Investigation Has Indicated That Site(s) Does (Do) Not Meet Requirements For National Register Eligibility; Project Clearance Is Recommended.

_ Phase II Archaeological Investigation Has Indicated That Site(s) Meet Requirements For National Register Eligibility; Formal Report Is Pending And A Determination Of Eligibility Is Recommended.

Comments: Standard structures within the nursery all appear to be modern. Most structures in the nursery are less than 10 years old. Residential structures date no earlier than c.1950 and are typical suburban tract houses of the post-World War II period. Some have been substantially modified. All structures are described in the appended discussion.

Archaeological Contractor Information:

Archaeological Contractor: Allied Archeology

Address/Phone: 239 S. Calumet Avenue, Aurora, Illinois 60506 (630) 896-9375

Surveyors: Douglas Kullen, Matt Greby, Nicole Bauer, and Karen Righeimer

Survey Dates: September 7, 8, and 11, 2006, and April 30, May 1, and June 18, 2007

Report Completed By: Douglas Kullen Date: June 22, 2007

Submitted By (Signature and Title): Doyle Kullen Principal Investigator

Attachment Check List: (#1 Through #4 Are ***MANDATORY***)

xx 1) Relevant Portion of USGS 7.5′ Topographic Quadrangle Map(s) Showing Project Location and Any Recorded Sites.

xx 2) Project Map(s) Depicting Survey Limits and, When Applicable, Approximate Site Limits, and Concentrations of Cultural Materials;

____ 3) Site Form(s); Two Copies of Each Form;

____ 4) All Relevant Project Correspondence;

xx 5) Additional Information Sheets As Necessary.

Address of Owner/Agent/Agency to Whom SHPO Comment Should Be Mailed:

Veolia ES Solid Waste, Inc.

W144 S6350 College Court, P. O. Box 456

Muskego, WI 53150

Contact Person: Mr. Randy Frank Phone Number: 262-971-1391

Reviewer's Comments:

DISCUSSION

Standing Structures in the Survey Area

Numerous standing structures were present in the nursery and residential portions of the survey area. In the nursery, none of these structures appeared to be more than 20 years old, and most looked to be less than ten years old. None of the residential structures appeared to have been built earlier than circa 1950. The listings which follow are keyed to locations marked in Figure 3. Photographs of structures appear in Figures 9 through 51.

1. Pavilion (Figures 9 and 10). This is a post-and-beam frame construct that rests on a concrete pad. It has a sheet metal roof. The structure was designed to be portable, as sections are held together with bolts. A nursery workman indicated that it was built around 2004.

2. Modified barn (Figures 11, 12, and 13). This frame structure has an asphalt shingled roof and rests on a concrete slab. It was used as a garden shop.

3. Gothic shed (Figure 14). This small frame outbuilding has a cedar shingled roof, but no foundation.

4. Cupola barn (Figures 15 and 16). This frame building rests on a concrete foundation. The roof is asphalt shingled. A nursery worker said it was approximately 11 years old.

5. Morton building (Figures 17 and 18). This building is used as an office. It is sheathed in steel siding and roofing, and rests on a concrete slab. A nursery worker said it was approximately four years old.

6. Permanent greenhouse (Figure 19). This is the only greenhouse at the nursery built on a concrete foundation. It has opaque plastic walls and roof.

7. Portable greenhouses (Figures 20). The photograph depicts an example of these structures. There are almost two dozen such greenhouses present in the nursery. All are less than ten years old. They are designed to be dismantled and rebuilt as needed.

8. One-storey frame residence with attached two-car garage at 42666 N. Kenosha Road (Figures 21 and 22). This house is built on concrete foundation walls and is covered in vinyl siding. It appears to have been built circa 1980.

9. One-storey brick residence at 42774 N. Kenosha Road (Figures 23 and 24). This house was built in 1950, according to a resident.

10. Frame 2½ car garage with screened-in, enclosed porch addition at 42774 N. Kenosha Road (Figures 25 and 26). The garage appears to date to circa 1960.

11. Frame shed at 42774 N. Kenosha Road (Figures 27 and 28). The shed dates to circa 1960.

12. Frame workshop at 42774 N. Kenosha Road (Figures 29 and 30). It dates to circa 1960.

13. Split-level frame residence at 42820 N. Kenosha Road (Figures 31 and 32). This house was built in 1977 according to the owner.

14. Frame two-car garage at 42820 N. Kenosha Road (Figures 33 and 34). The garage is sheathed in aluminum siding and was built circa 1977.

15. Frame shed at 42820 N. Kenosha Road (Figures 35 and 36). This shed was built circa 1977.

16. Prefabricated steel shed at 42820 N. Kenosha Road (Figures 35 and 36). It dates to around 1985.

17. Frame ranch house at 42834 N. Kenosha Road (Figures 37 and 38). This house was built on a cinder block foundation and is covered in Masonite siding. It was built circa 1955. There is a lean-to porch addition in the rear.

18. Frame 2½ car garage built on a slab foundation and sheathed in Masonite siding at 42834 N. Kenosha Road (Figures 39 and 40). This garage appears to have been built around 1970.

19. Prefabricated steel shed resting on wooden pallets at 42834 N. Kenosha Road (Figure 41). This shed appears to have been built around 1970.

20. Frame kennel at 42834 N. Kenosha Road (Figures 42 and 43). Built on concrete foundation walls and sheathed in Masonite siding. Kennel stalls built of cinder block. It was built circa 1965.

21. Small pole barn shed at 42834 N. Kenosha Road (Figures 44 and 45). This barn has plywood and steel siding, no floor. It was built circa 1960.

22. One-storey frame ranch house at 42872 N. Kenosha Road (Figures 46 and 47). This house is built on concrete foundation walls. Enclosed breezeway connects house to two-car frame garage built on concrete slab. House, breezeway, and garage all sheathed in aluminum siding. House built c.1950, garage built c.1970, and breezeway built c.1980.

23. Frame gambrel-roofed shed at 42834 N. Kenosha Road (Figures 48 and 49). Built on piers with Masonite siding. This shed dates to c.1960.

24. Frame two-storey gambrel-roofed barn/garage at 42834 N. Kenosha Road (Figures 50 and 51). Built on concrete slab foundation and sheathed in vinyl siding. This structure dates to c.1960.

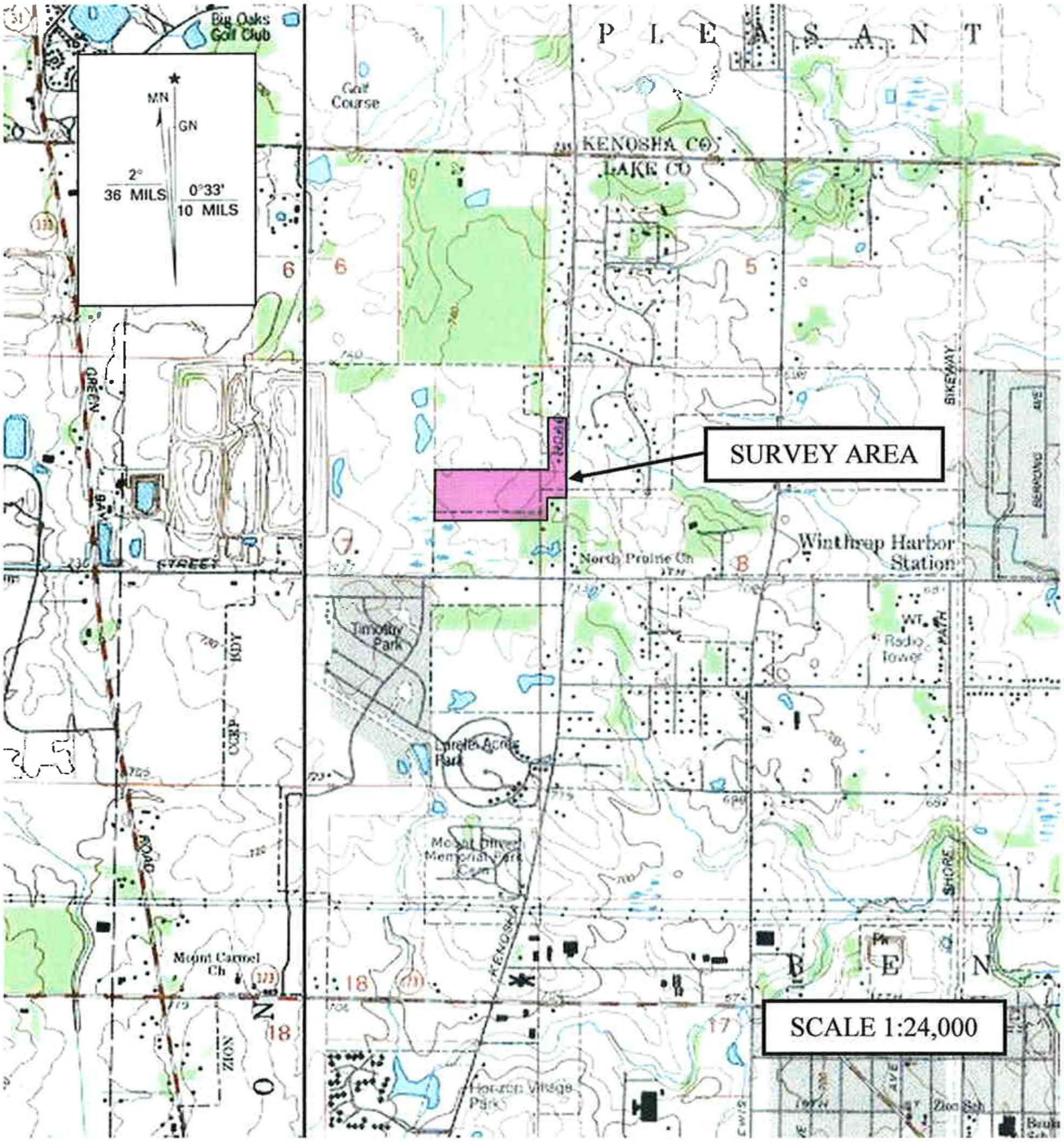


FIGURE 1

Future Development, Veolia ES Zion Landfill
Secs. 7 & 8-T46N-R12E, Lake County, Illinois
USGS 7.5' Series Zion Quadrangle
Allied Archeology Job No. AA-06-11
No Significant Cultural Resources Encountered

QUADRANGLE LOCATION

ZION, ILL.—WIS.

NE/4 WAUKEGAN 15' QUADRANGLE

42087-D7-TF-024

1993

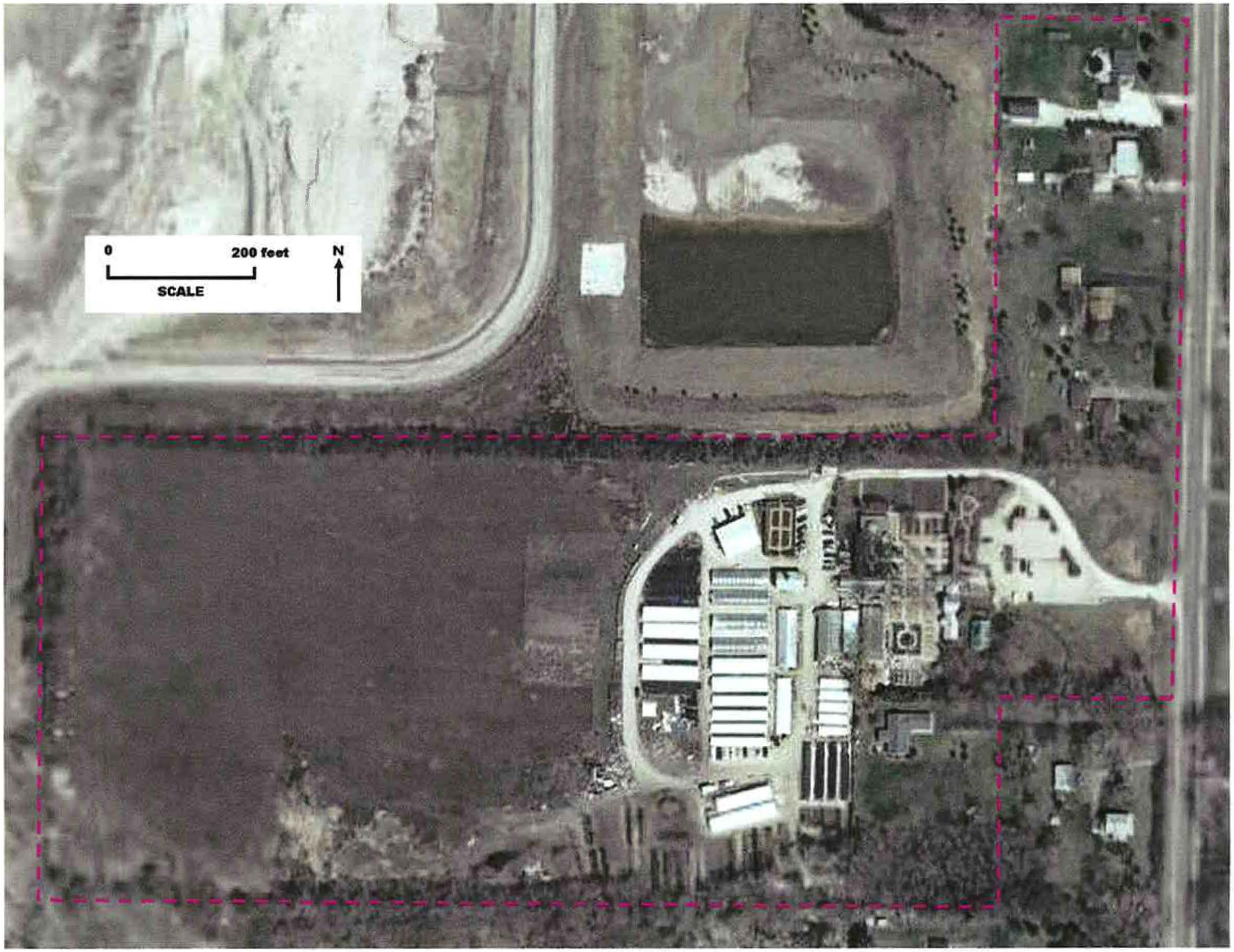


FIGURE 2
Air Photomap of the Survey Area (outlined).

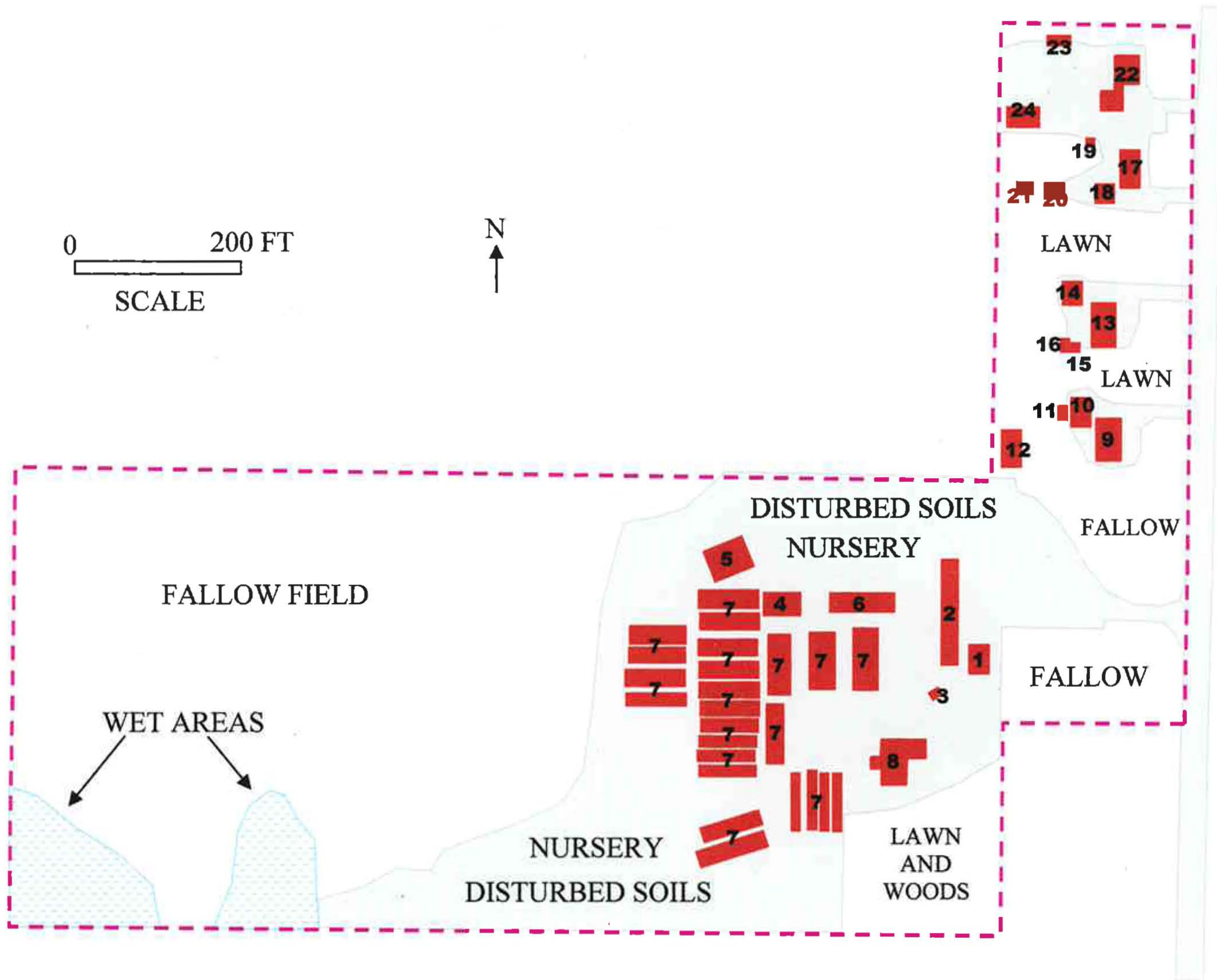


FIGURE 3

Field conditions and structure locations in the survey area. Numbers are keyed to the structures described in the Discussion section of this report.

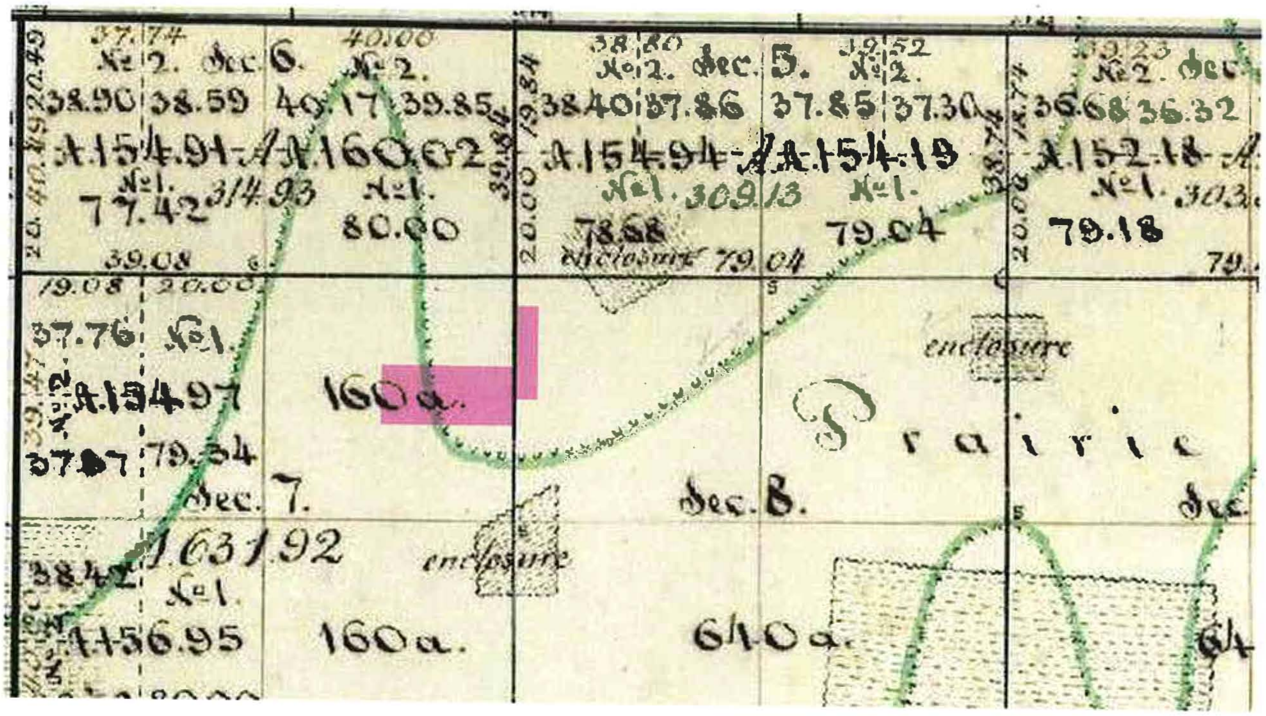


FIGURE 4

Location of survey area on the General Land Office map (USGLO 1840).

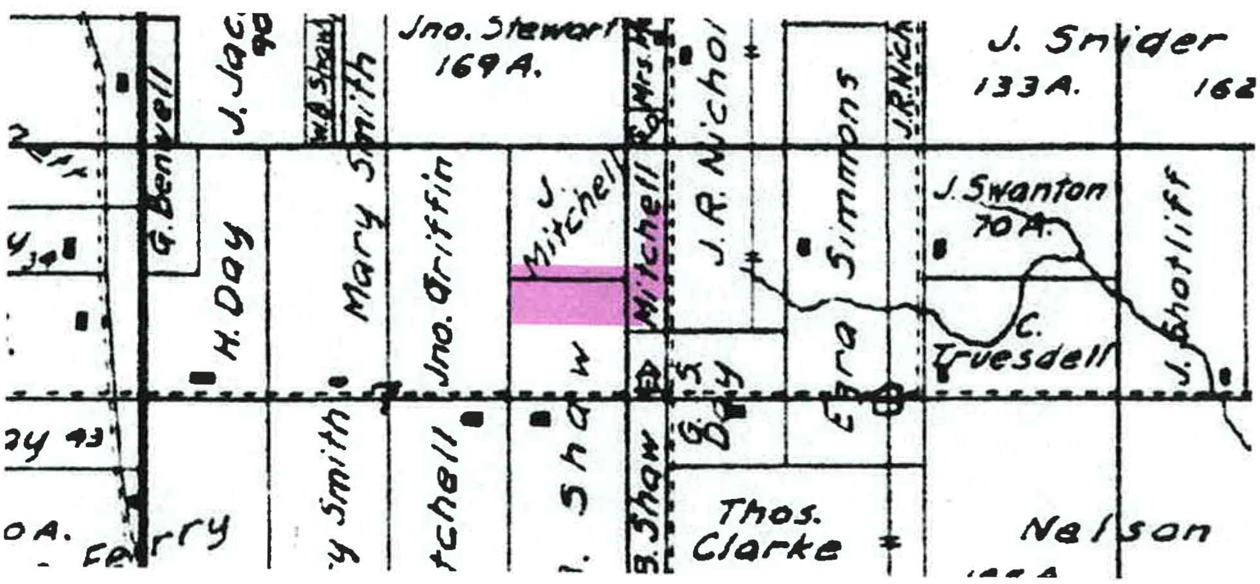


FIGURE 5

Location of survey area on the 1861 Lake County plat (Hale and Truesdell 1861).

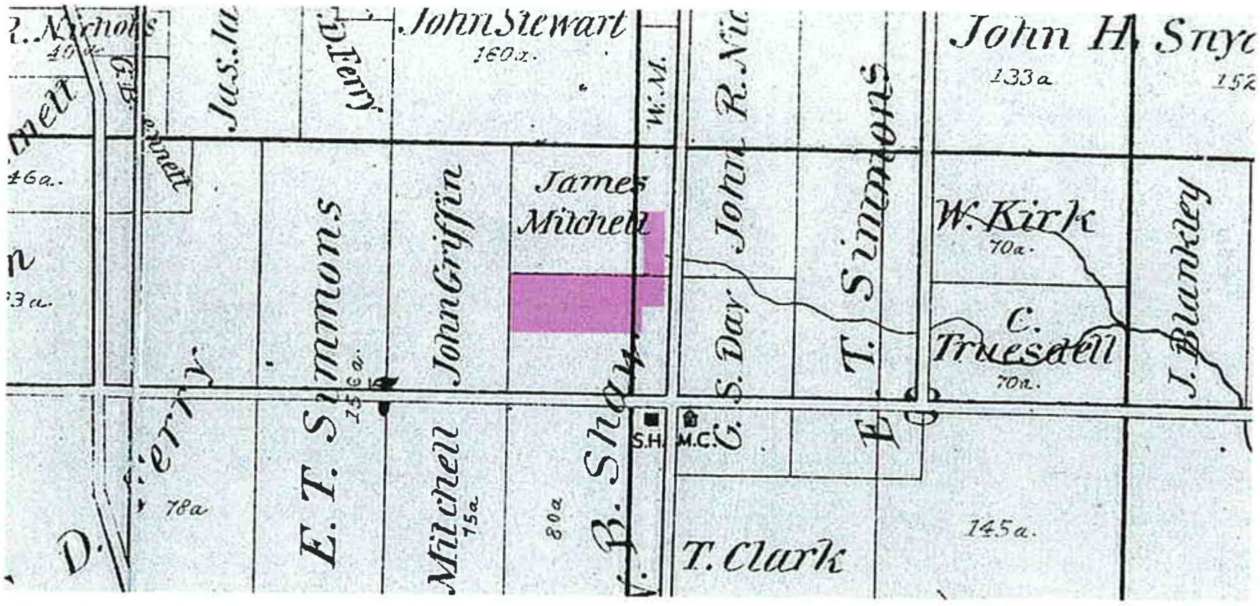


FIGURE 6

Location of survey area on the 1873 Lake County plat (Frost and McLennon 1873).

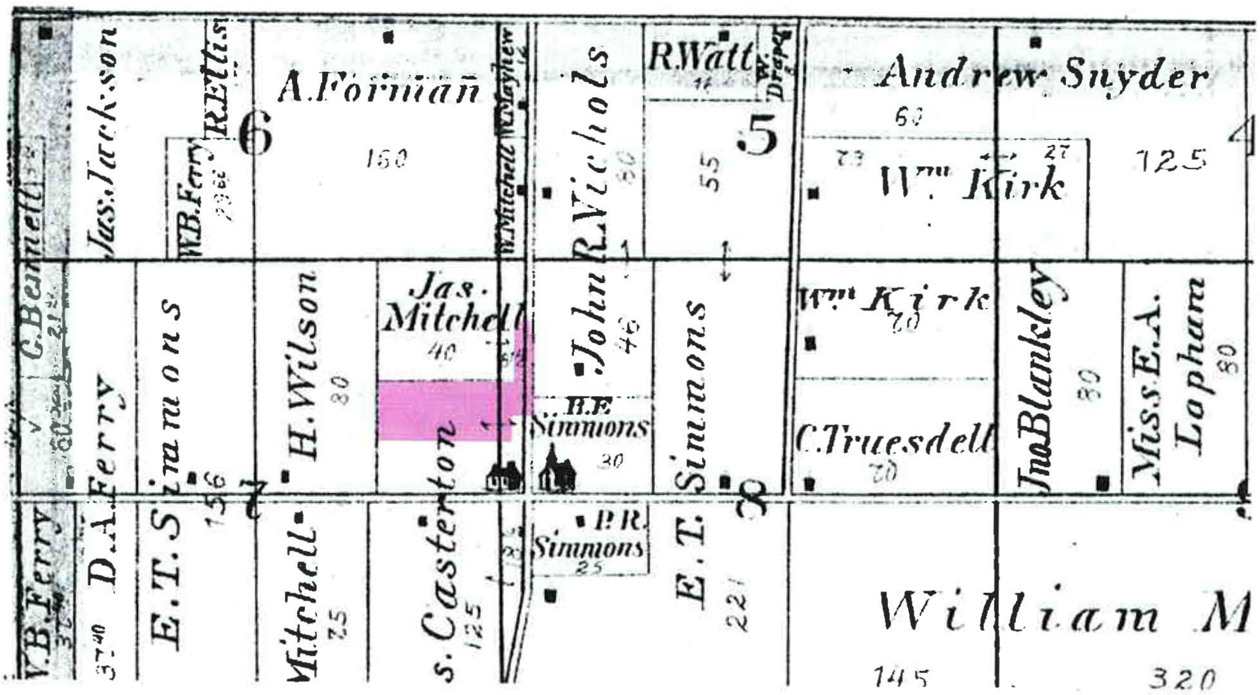


FIGURE 7

Location of survey area on the 1885 Lake County plat (Page 1885).

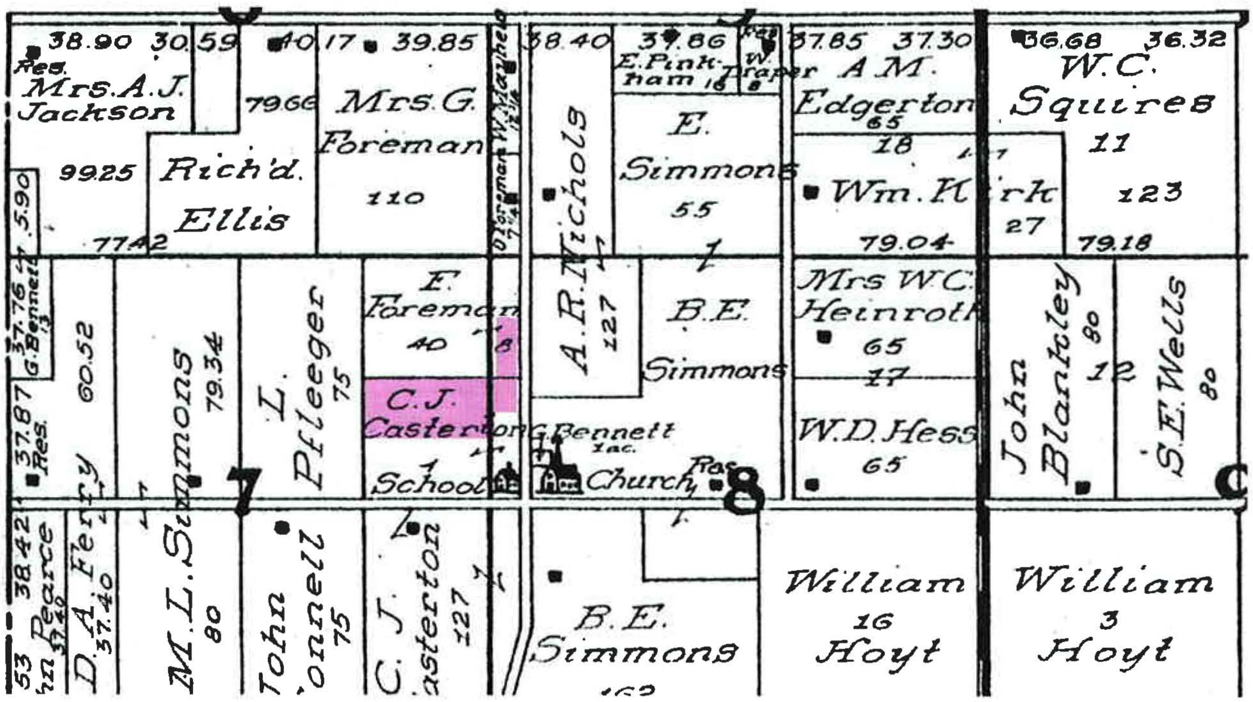


FIGURE 8

Location of survey area on the 1907 Lake County plat (Ogle and Company 1907).

FIGURE 9
View of pavilion (Structure #1) looking southwest.

FIGURE 10
View of pavilion (Structure #1) looking north.

FIGURE 11
View of modified barn (Structure #2) looking northeast

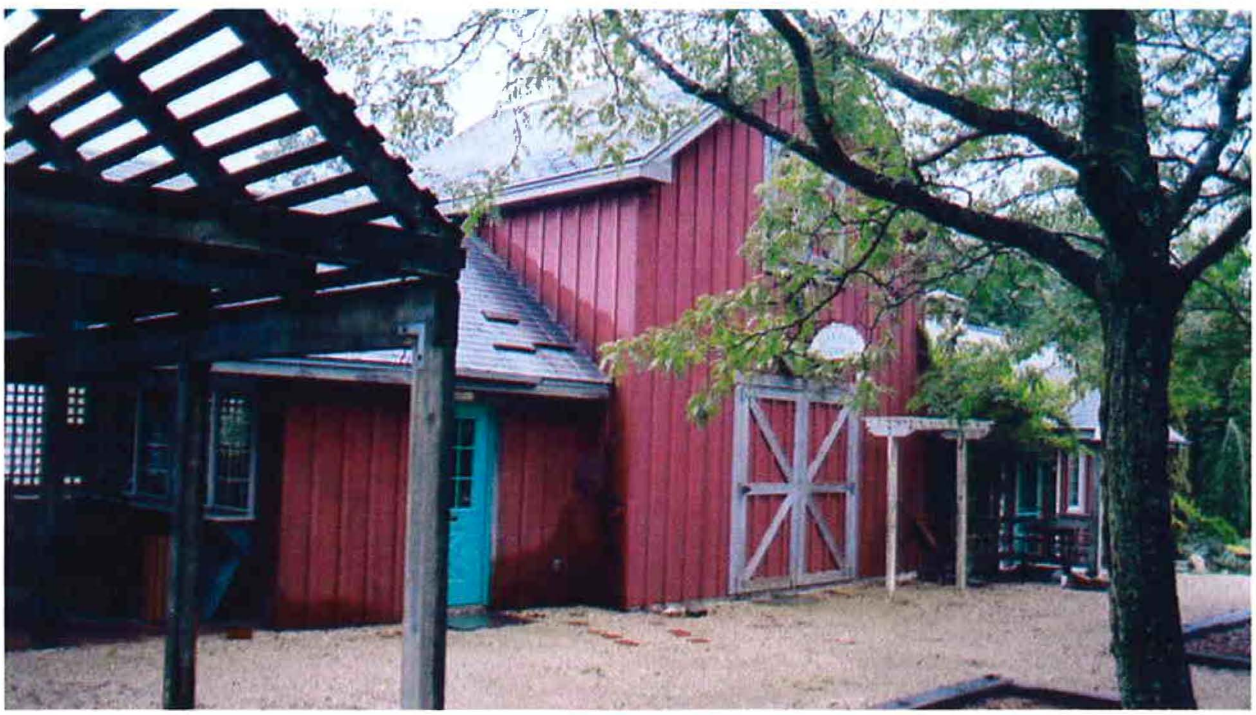


FIGURE 12
View of modified barn (Structure #2) looking southeast.

FIGURE 13
View of modified barn (Structure #2) looking southwest.

FIGURE 14
View of Gothic shed (Structure #3) looking southeast.

FIGURE 15
View of cupola barn (Structure #4) looking northwest.

FIGURE 16
View of cupola barn (Structure #4) looking southeast.

FIGURE 17
View of Morton building (Structure #5) looking east.

FIGURE 18
View of Morton building (Structure #5) looking south.

FIGURE 19
View of greenhouse with concrete foundation (Structure #6), looking northeast.

FIGURE 20
View of portable greenhouse (Structure #7, typical).

FIGURE 21
View of the front of the frame residence (Structure #8) at 42666 N. Kenosha Road, looking northwest.

FIGURE 22
View of the rear of the frame residence (Structure #8) at 42666 N. Kenosha Road, looking northwest.

FIGURE 23
View of the front of the brick residence (Structure #9) at 42774 N. Kenosha Road, looking southwest.

FIGURE 24
View of the rear of the brick residence (Structure #9) at 42774 N. Kenosha Road, looking southwest.

FIGURE 25

View of the front of the garage with add-on enclosed porch (Structure #10) at 42774 N. Kenosha Road, looking southwest.

FIGURE 26

View of the rear of the garage and add-on enclosed porch (Structure #10) at 42774 N. Kenosha Road, looking northeast.

FIGURE 27
View of the front of the frame shed (Structure #11) at 42774 N. Kenosha Road, looking northwest.

FIGURE 28
View of the rear of the frame shed (Structure #11) at 42774 N. Kenosha Road, looking southeast.

FIGURE 29
View of the front of the workshop (Structure #12) at 42774 N. Kenosha Road, looking southwest.

FIGURE 30
View of the front and side of the workshop (Structure #12) at 42774 N. Kenosha Road, looking northwest.

FIGURE 31

View of the front of the frame residence (Structure #13) at 42820 N. Kenosha Road, looking southwest.

FIGURE 32

View of the rear of the frame residence (Structure #13) at 42820 N. Kenosha Road, looking northeast.

FIGURE 33

View of the front of the frame garage (Structure #14) at 42820 N. Kenosha Road, looking southwest.

FIGURE 34

View of the rear of the frame garage (Structure #14) at 42820 N. Kenosha Road, looking northeast.

FIGURE 35

View of the front of the frame shed (Structure #15) and steel shed (Structure #16) at 42820 N. Kenosha Road, looking southeast.

FIGURE 36

View of the rear of the frame shed (Structure #15) and steel shed (Structure #16) at 42820 N. Kenosha Road, looking northwest.

FIGURE 37
View of the front of the frame residence (Structure #17) at 42834 N. Kenosha Road, looking northwest.

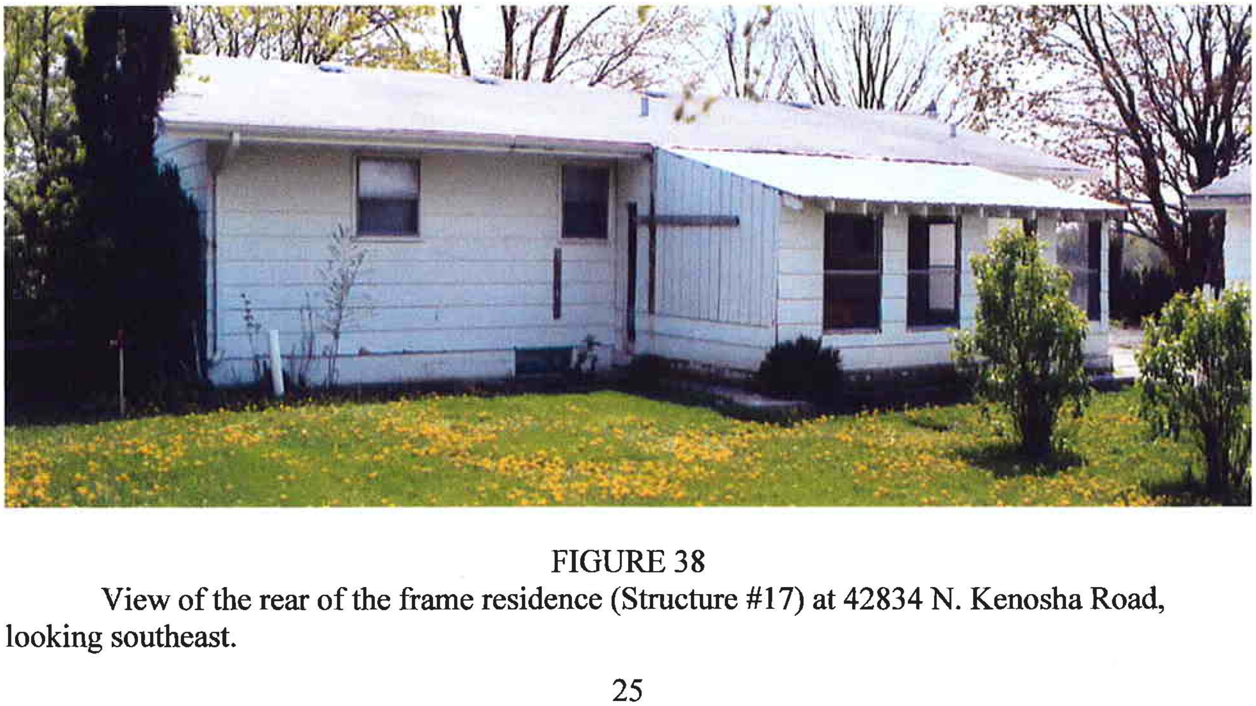


FIGURE 38
View of the rear of the frame residence (Structure #17) at 42834 N. Kenosha Road, looking southeast.

FIGURE 39
View of the front of the frame garage (Structure #18) at 42834 N. Kenosha Road, looking northwest.

FIGURE 40
View of the rear of the frame garage (Structure #18) at 42834 N. Kenosha Road, looking southeast.

FIGURE 41
View of the steel shed (Structure #19) at 42834 N. Kenosha Road, looking northwest.

FIGURE 42
View of the front of the kennel (Structure #20) at 42834 N. Kenosha Road, looking northeast.

FIGURE 43
View of the rear of the kennel (Structure #20) at 42834 N. Kenosha Road, looking southwest.

FIGURE 44
View of the front of the pole barn shed (Structure #21) at 42834 N. Kenosha Road, looking northwest.

FIGURE 45
View of the rear of the pole barn shed (Structure #21) at 42834 N. Kenosha Road, looking southeast.

FIGURE 46
View of the front of the residence and attached garage (Structure #22) with enclosed breezeway at 42872 N. Kenosha Road, looking northwest.

FIGURE 47
View of the rear of the residence and attached garage with enclosed breezeway (Structure #22) at 42872 N. Kenosha Road, looking northwest.

FIGURE 48
View of the front of the gambrel-roofed shed (Structure #23) at 42872 N. Kenosha Road, looking southwest.

FIGURE 49

View of the rear of the gambrel-roofed shed (Structure #23) at 42872 N. Kenosha Road, looking northeast.

FIGURE 50

View of the front of the gambrel-roofed barn/garage (Structure #24) at 42872 N. Kenosha Road, looking northwest.

FIGURE 51

View of the side and rear of the gambrel-roofed barn/garage (Structure #24) at 42872 N. Kenosha Road, looking southeast.

REFERENCES

Adams, Brian

1995 Archaeological Reconnaissance for the Proposed Country Wood Hills Subdivision in Lake County, Illinois (Illinois Historic Preservation Agency Document Number 7068). *PSAP Project No.* 95-72. Public Service Archaeology Program, Department of Anthropology, University of Illinois, Urbana, Illinois.

Frost and McLennan

1873 *Map of Lake County, Illinois* [wall map]. Frost & McLennan, Publishers, Chicago.

Hale, George, and J. M. Truesdell

1861 *Map of Lake County, Illinois* [wall map]. L. Gast Brothers and Company, Lithographers. St. Louis, Missouri.

McDowell, Jacqueline M.

1994 Archaeological Investigations for Proposed Expansion to a BFI Waste Management Landfill in Lake County, Illinois (IHPA Doc. No. 6073). *PSAP Project No.* 94-23. Public Service Archaeology Program, Department of Anthropology, University of Illinois, Urbana, Illinois.

McGowan, Kevin P.

1996 Archaeological Reconnaissance of 130 Acres for a Zion Park District Acquisition in Lake County, Illinois (IHPA Doc. No. 9813). *PSAP Project No.* 96-67. Public Service Archaeology Program, Department of Anthropology, University of Illinois, Urbana, Illinois.

2002a Archaeological Reconnaissance of the Prairie Ridge Estates Development in Lake County, Illinois (IHPA Doc. No. 12527). *PSAP Project No.* 02-050. Public Service Archaeology Program, Department of Anthropology, University of Illinois, Urbana, Illinois.

2002b Archaeological Reconnaissance of a Proposed 120-Acre Development in Winthrop Harbor in Lake County, Illinois (IHPA Doc. No. 12901). *PSAP Project No.* 02-079. Public Service Archaeology Program, Department of Anthropology, University of Illinois, Urbana, Illinois.

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1907 *Standard Atlas of Lake County, Illinois.* George A. Ogle and Company, Chicago.

Page, H. R.

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Paschke, John E., and John D. Alexander

1970 Soil Survey of Lake County, Illinois. *Illinois Agricultural Experiment Station Soil Report* 88.

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United States General Land Office
1840 Township No. 46 North of the Base line in Range No. 12 East of the 3rd principal Meridian. Surveyors Office, St. Louis.

Willman, H. B.
1971 Summary of the Geology of the Chicago Area. *Illinois State Geological Survey Circular* 460.

Illinois Historic
Preservation Agency

Old State Capitol • Springfield, Illinois 62701 • (217) 782-4836

LAKE COUNTY
Zion Solid Waste Management Facility
Proposed landfill expansion

IHPA LOG #921130005C-L

December 7, 1992

Mr. Philip Stecker, P.E.
Project Manager
CH2M HILL
310 West Wisconsin Avenue, Suite 700
PO Box 2090
Milwaukee, Wisconsin 53201-2090

Dear Mr. Stecker:

Thank you for requesting information on historic properties within the above referenced project area. Our files do not identify any previously recorded historic or archaeological sites within the area. Consequently, this project is exempt from review pursuant to the Illinois State Agency Historic Resources Preservation Act (Il. Rev. Stat. 1991, ch. 127, pars. 133c21 et seq.).

However, we would recommend a Phase I archaeological reconnaissance survey of any areas which have not been disturbed by previous landfill operations. This general area has numerous previously recorded archaeological sites and there may be unrecorded sites within the proposed expansion area.

If you have any questions, please contact Paula Cross, Senior Staff Archaeologist, Illinois Historic Preservation Agency, Old State Capitol, Springfield, Illinois 62701 at 217/785-4998.

Sincerely,

William L. Wheeler

William L. Wheeler
State Historic Preservation Officer

WLW:pgc

ARCHAEOLOGICAL INVESTIGATIONS FOR PROPOSED EXPANSION TO A BFI WASTE MANAGEMENT LANDFILL IN LAKE COUNTY, ILLINOIS

Illinois Historic Preservation Agency
Archaeological Survey Short Report

PSAP Project No. 94-23

for submission to:

Mr. James Ambroso
BFI Zion Landfill
701 Green Bay Road
Zion, Illinois 60099

by:

Jacqueline M. McDowell
Staff Archaeologist

PUBLIC SERVICE ARCHAEOLOGY PROGRAM
Department of Anthropology
109 Davenport Hall
607 South Mathews Avenue
University of Illinois at Urbana-Champaign
Urbana, Illinois 61801

20 June 1994

ARCHAEOLOGICAL SURVEY SHORT REPORT
Illinois Historic Preservation Agency
Old State Capitol Building
Springfield, Illinois 62701 (217/785-4997)

REVIEWER ____________
Date ____________
Accepted ______ Rejected

IHPA Log # 921130005C-L

Locational Information and Survey Conditions

County: Lake

Quadrangle: Zion 7/5' series **Project Type/Title:** Zion Solid Waste Management Facility Proposed Landfill Expansion

Funding and/or Permitting Federal/State Agencies: IHPA
(i.e., CoE, HUD, IEPA, FmHA, etc.)

Sec: 7 **T.:** 46N **R.:** 12E **Natural Division (No.):** 3a

U.T.M.: N. 4703100 - N. 4703900 / E. 428160 - E. 428920

Project Description: BFI Waste Management plans to expand its landfill facility near Winthrop Harbor in Lake County. The maximum dimensions of the project area are 800-x-740 m (Figure 1).

Topography: The project area is located in glacial uplands near existing wetlands and former ponds. An unnamed branch of Kellogg Ravine is near the project area.

Soils: See Continuation Sheet

Drainage: Unnamed Branch-Kellogg Ravine-Lake Michigan

Land Use/Ground Cover (Include % Visibility): At the time of survey, approximately 30% of the project area was a disked corn field with 6" plants and 90-100% visibility. Roughly 5% of the area was previously a corn field that is now covered with grass and weeds with 30% visibility. (See Continuation Sheet)

Survey Limitations: None

Archaeological and Historical Information

Historic Plats/Atlases/Sources: See Selected Sources.

Previously Reported Sites: 11-L-172 is within 1.5 km of the project area.

Previous Surveys: See Selected Sources.

Regional Archaeologists Contacted: None: PSAP commonly works in this area.

Investigation Techniques: Pedestrian reconnaissance was conducted at 5-m intervals in areas with more than 25% visibility. A posthole test was excavated on a rise in the area covered by weeds.

Time Expended: 14 field hours

Sites/Find Spots Located: 11-L-384; 11-L-11-IF

Cultural Material: lithic debris (See Comments)

(Curated at) UIUC

Collection Techniques: Total collection of prehistoric materials.

Areas Surveyed (Acres & Square Meters): 110 acres (445,170 sq. m.))

(OVER)

CONTINUATION SHEET

SOILS

A number of soils are present in the project area. These are as follows: Wauconda silt loam, 0-2% slopes; Grays silt loam, 0-2% slopes; Grays silt loam, 2-4% slopes; Montmorenci silt loam, 2-4% slopes; Montmorenci silt loam, 4-7% slopes, eroded; Beecher silt loam, 2-4% slopes, Morley silt loam, 2-4% slopes; Grays and Markham silt loams, 2-4% slopes; Peotone silty clay loam; and Pella silty clay loam (Paschke and Alexander 1970).

LAND USE/GROUND COVER

Four percent of the project area is existing wetlands and was not surveyed. Additionally, one percent of the project area contained a house and outbuildings surrounded by residential lawn and gravel drive. This area was not surveyed. Sixty percent of the project area was existing borrow that had been completely disturbed. This area was documented but not surveyed (Figure 2).

COMMENTS

visibility ranged from 30-100 percent in the surveyed areas. The wetlands and residential lot were not surveyed. The existing borrow area was documented but not surveyed. Pedestrian survey was conducted at 5-m intervals in the surveyed areas. Additionally, one posthole test was excavated on a small rise in the weedy portion of the project area. It showed a plow zone to wetland soil transition. One prehistoric site (11-L-384) and one isolated find (11-L-11-IF) were identified in the project area.

Site 11-L-384 is located in the northeast part of the project area in an agricultural field currently planted in corn (Figures 1 and 2). It is a small lithic scatter on a slight rise, measuring approximately 40-x-15-m in size. Recovered material was limited to one core, one primary flake, two secondary flakes, three bifacial thinning flakes, two broken flakes, and five pieces of block shatter. A posthole test placed in the site area showed a plow zone to subsoil transition. Given the limited number of artifacts and the lack of intact soil deposits, the site does not appear to meet the eligibility requirements for listing on the National Register of Historic Places. No further work is recommended.

Isolated Find 11-L-11-IF is also located in the northeast part of the project area in an agricultural field currently planted in corn (Figures 1 and 2). The find consists of a single broken flake found near a slight rise in the field. Despite intensive survey around the find with excellent surface visibility, no additional materials were located. Given this, the isolated find does not appear to meet the eligibility requirements for listing on the National Register of Historic Places, and no additional work is recommended.

One residential structure with outbuildings is located in the project area. A color slide of the house has been provided with this report to the Illinois Historic Preservation Agency. The structure does not appear to be eligible for listing on the National Register of Historic Places.

Additionally, the historic records research for this project did not reveal any early structures in the project area.

The Phase I investigation of this area revealed that no potentially significant cultural resources will be impacted by the proposed project. Project clearance is recommended.

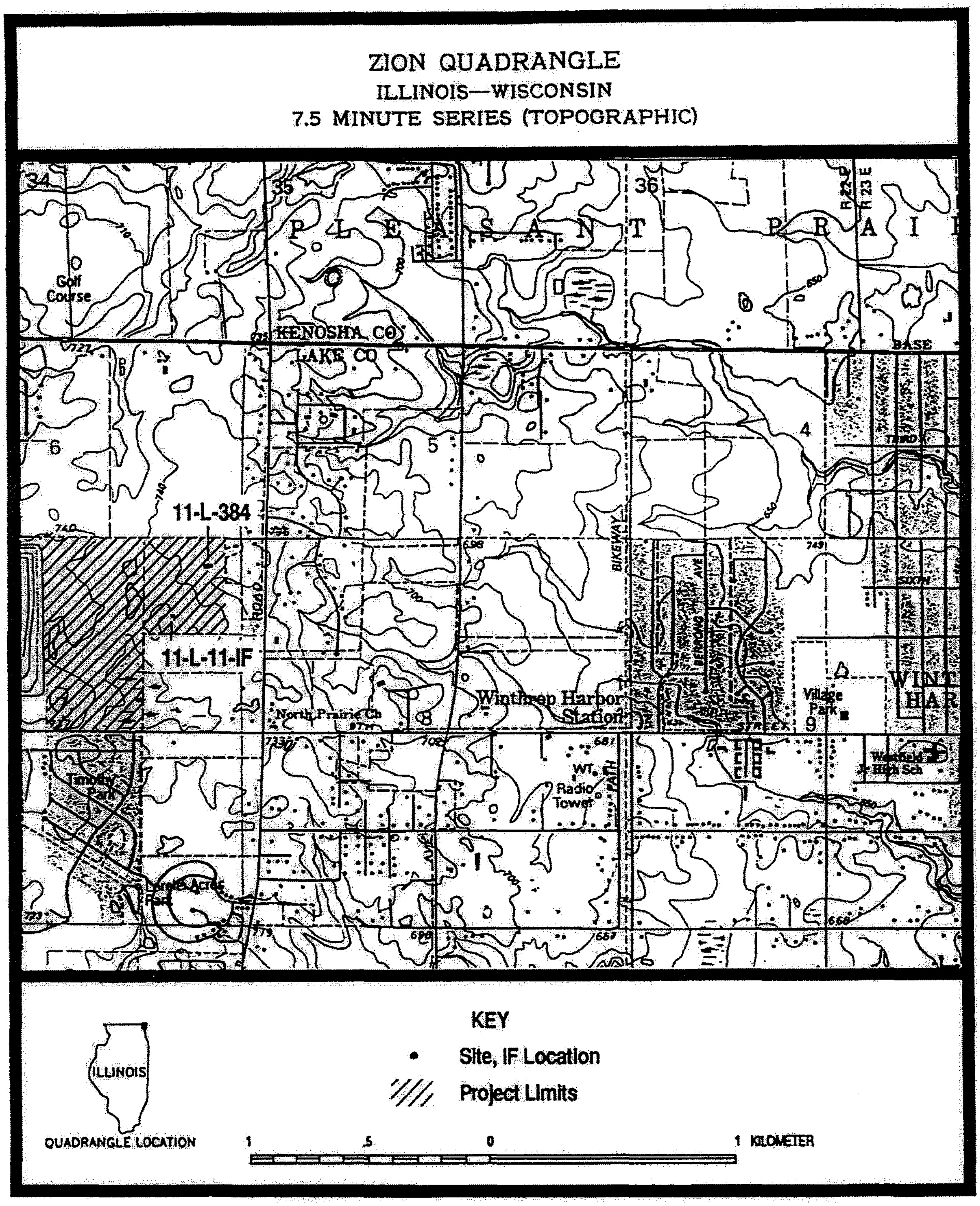

Figure 1. Location of Project Area and Sites.

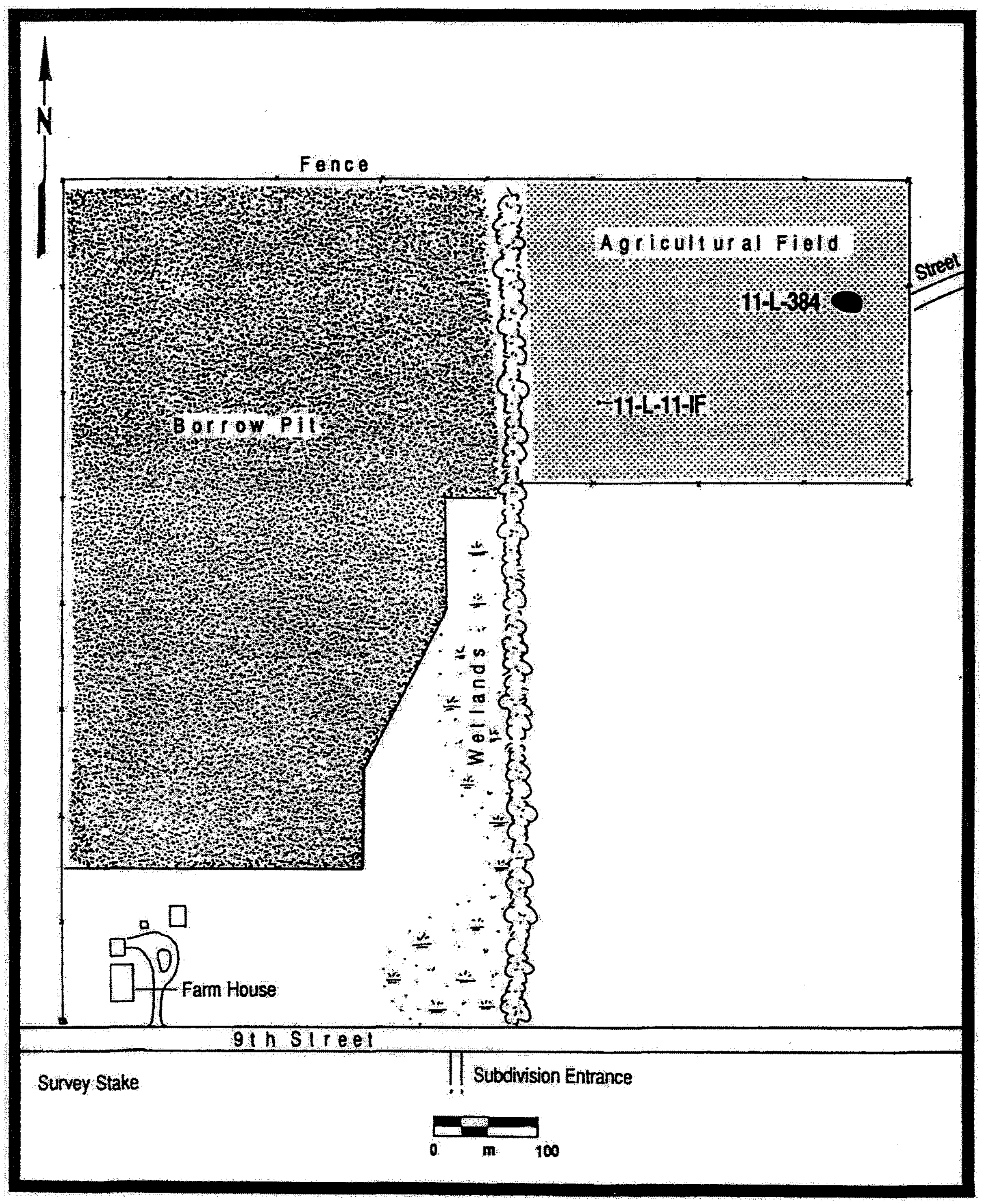

Figure 2. Sketch Map of Project Area.

SELECTED SOURCES

Adams, Brian
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Bateman, Newton, Paul Selby, and Charles A. Partridge
1902 *Historical Encyclopedia of Illinois*. Munsell Publishing Company, Chicago.

Berkson, Alice, Claire Branch, Marjorie Cigoy, Richard Edging, Susan Novak, Cynthia Boyes, Allen Samet, and Bruce White
1980 *An Archaeological Reconnaissance of the Proposed FAP 420/432 Corridor in McHenry, Lake, and Cook Counties, Illinois*. Ms. on file, Illinois Archaeological Survey, Urbana, Illinois.

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1912 *A History of Lake County, Illinois*. Roy S. Bates, Chicago.

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Illinois Historical Survey, Urbana, Illinois

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1990 Excavations at Primavilla, A PaleoIndian and Archaic Site in Lake County, Illinois. *The Wisconsin Archeologist* 71:172-191.

McDowell, Jacqueline M.
1994 *Archaeological Reconnaissance of the Proposed Wind Dance Development in Lake Villa, Illinois*. Public Service Archaeology Program. Archaeological Survey Short Report submitted to the Illinois Historic Preservation Agency, Springfield, 29 April 1994.

McGowan, Kevin P.

1994a *Archaeological Reconnaissance of the Proposed Pine View Estates Unit II in Lake Villa, Illinois*. Public Service Archaeology Program. Archaeological Survey Short Report submitted to the Illinois Historic Preservation Agency, Springfield, 24 March 1994.

1994b *Archaeological Reconnaissance of the Proposed IMA Development in Vernon Hills, Illinois*. Public Service Archaeology Program. Archaeological Survey Short Report submitted to the Illinois Historic Preservation Agency, Springfield, 23 March 1994.

Paschke, John E., and John D. Alexander

1970 *Soil Survey of Lake County, Illinois*. United States Department of Agriculture, Soil Conservation Service. Government Printing Office, Washington, D.C.

William Le Baron and Company

1877 *The Past and Present of Lake County, Illinois*. William Le Baron and Company, Chicago.

ILLINOIS ARCHAEOLOGICAL SURVEY SITE FORMS

ILLINOIS ARCHAEOLOGICAL SURVEY

Recorded | Survey No. 11-L-384

County Lake
Twp. Benton
Quadrangle Zion 7.5' series
Legal Description (1/4's) SW1/4, NE1/4, NE1/4, NE1/4
(align NE corner)

Reg. Inst. No. 94-23: AOS 1
Culture Unknown Prehistoric
Type of site Lithic Scatter

Sec. 7 Twp. 46N Range 12E

Site owner
Site address
Previous owners
Present tenant
Directed to site by
Mapped by K. McGowan
Extent of site (area and depth) Approximately 40 m e-w by 15 m n-s; depth unknown
Previous excavation none
Pitting none

U.T.M. Center Point - N. 4703780, E. 428850

ENVIRONMENT

Topography and Location The site is located on a glacial upland rise at 225.5 m asl near existing wetlands and former small ponds. The site is 200 m west of Kenosha Road and 920 m south of the Lake County border.

Water supply Unnamed former pond is 340 m west. Branch of Kellogg Ravine is 760 m west.
Drainage Kellogg Ravine-Lake Michigan
Nearby sites 11-L-172 is within 1.5 km
Modern occupation (building, plowing, etc.) Agricultural field
Type of soil Wauconda silt loam, 0-2% slopes (Paschke and Alexander 1970)
Ground cover Plowed agricultural field with 6" corn plants

MATERIAL FROM SITE

1 core
1 primary flake
2 secondary flakes
3 bifacial thinning flakes
2 broken flakes
5 block shatter

Surface coll. K. McGowan et al. | Date 6-10-94 | Institution UIUC
Tested by | Date | Institution
Excavated by | Date | Institution

Nature and extent of survey - Field conditions

Pedestrian reconnaissance was conducted at 5-m intervals in the project area. Surface visibility was approxiamately 80-100%. A total collection of prehistoric material was made.

Curation UIUC

MATERIAL REPORTED AS BELONGING TO SITE

Owner of Material
Certainty of Origin
Site reported by Jacqueline McDowell | Date 6-14-94 | Visited
Survey report by Jacqueline McDowell | Date 6-15-94

Publications: Archaeological Survey Short Report currently in preparation for the Illinois Historic Preservation Agency

Photos: Project and site area was documented with color slides

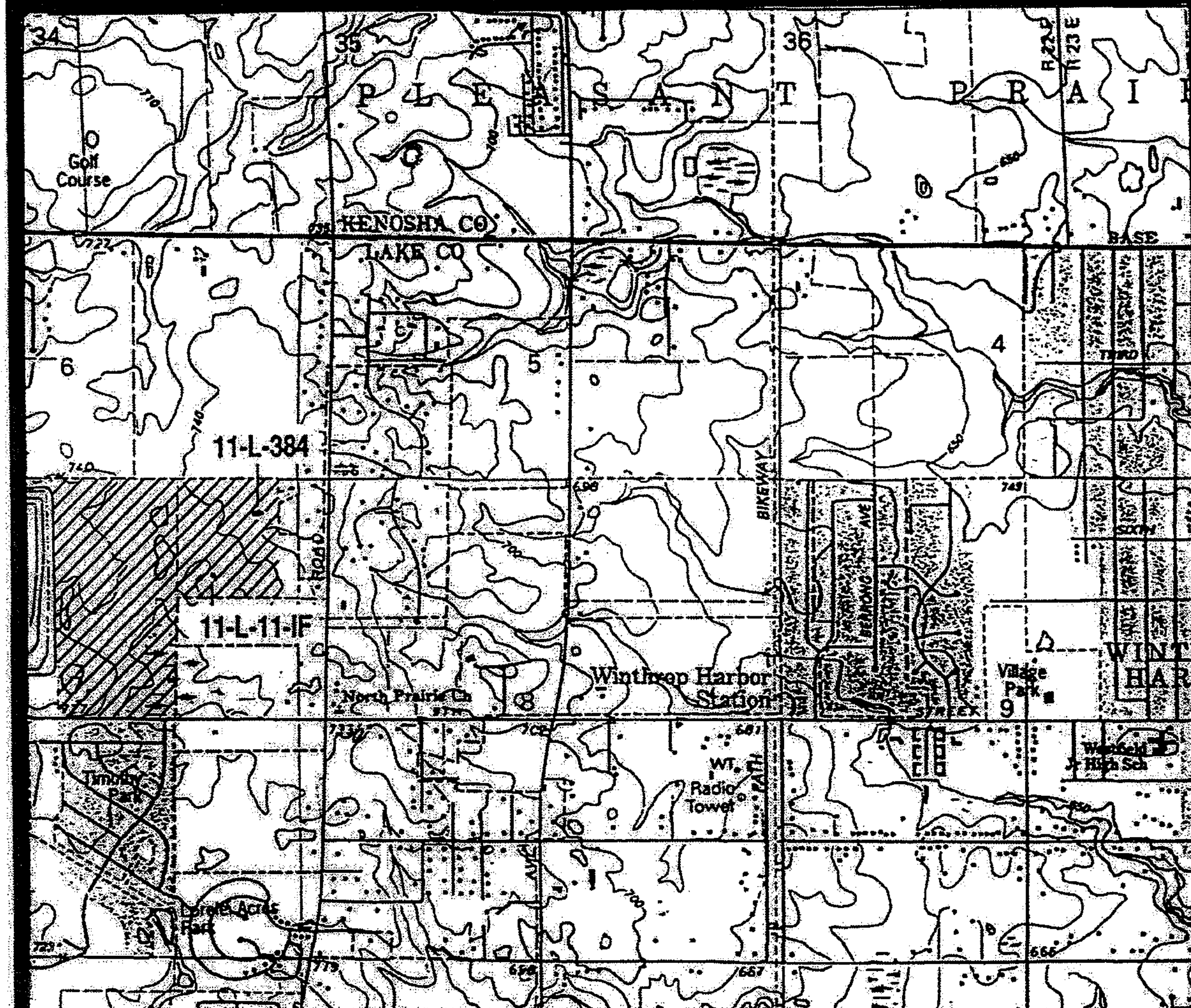
Study status: No further work is recommended.

Remarks:

This prehistoric site was located by the Public Service Archaeology Program during a Phase I survey for BFI Industries for proposed expansion to the BFI Industries land fill near Winthrop Harbor, Illinois. No diagnostic material was recovered from the site that would provide specific temporal or cultural placement. One posthole was excavated in the project area that indicated a plow zone to subsoil transition. No further work is recommended.

Sketch map and artifact drawings.

ZION QUADRANGLE
ILLINOIS—WISCONSIN
7.5 MINUTE SERIES (TOPOGRAPHIC)



KEY

- Site, IF Location
- Project Limits

QUADRANGLE LOCATION

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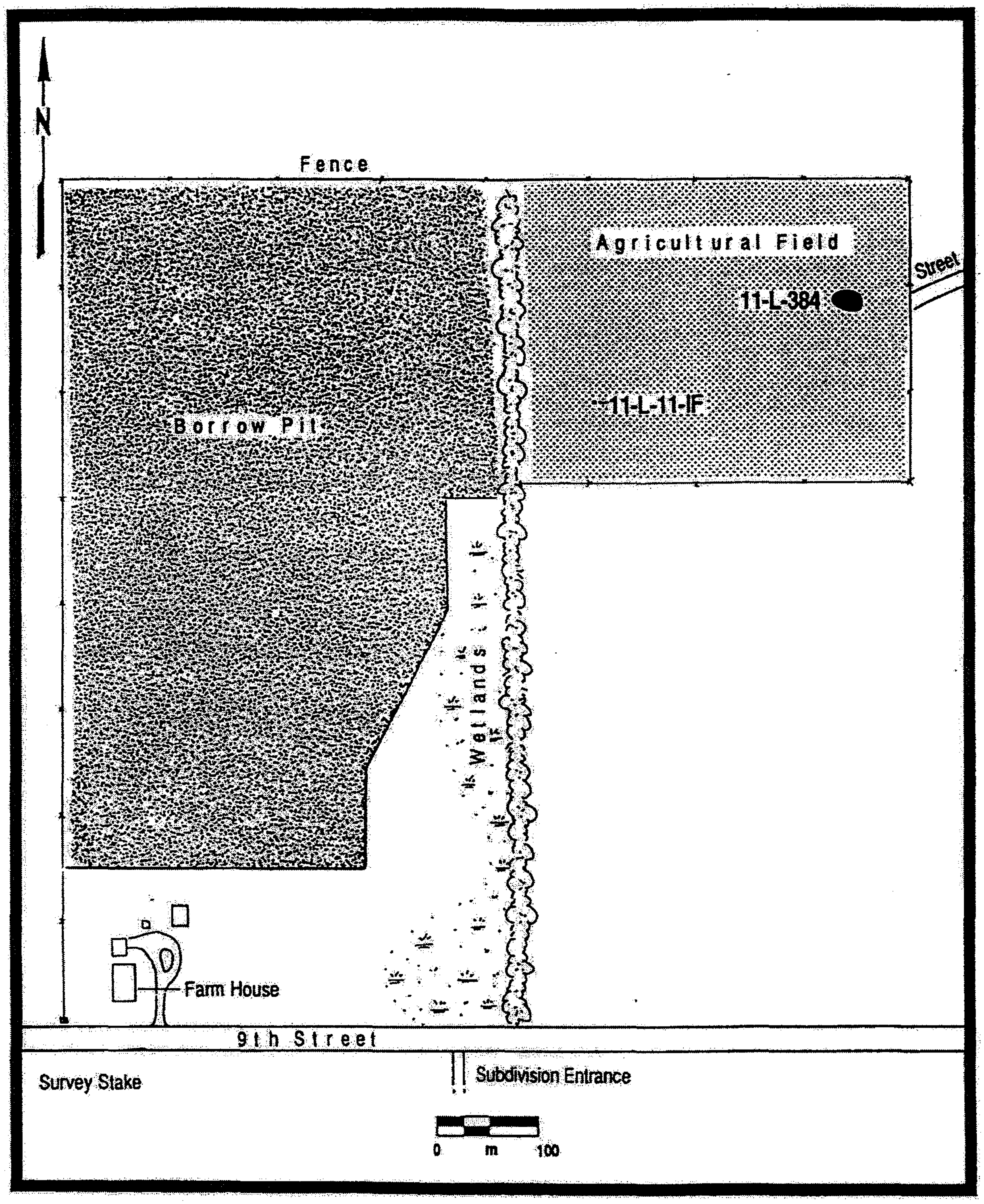

N
Fence
Agricultural Field
Street
11-L-384
11-L-11-IF
Borrow Pit
Wetlands
Farm House
9th Street
Survey Stake
Subdivision Entrance
0 m 100

ILLINOIS ARCHAEOLOGICAL SURVEY

Recorded

Survey No. 11-L-11-IF

County Lake

Twp. Benton

Quadrangle Zion 7.5' series

Legal Description (1/4's) SE1/4, SW1/4, NE1/4, NE1/4
(align NE corner)

Reg. Inst. No. 94-23; AOS 2

Culture Unknown Prehistoric

Type of site Isolated Find

Sec. 7 Twp. 46N Range 12E

Site owner

Site address

Previous owners

Present tenant

Directed to site by

Mapped by K. McGowan

Extent of site (area and depth) isolated find; depth unknown

Previous excavation none

Pitting none

U.T.M. Center Point - N. 4703580, E. 428690

ENVIRONMENT

Topography and Location The find is located on a glacial upland rise at 225.5 m asl near existing wetlands and former small ponds. The site is 380 m west of Kenosha Road and 1.1 km south of the Lake County border.

Water supply Unnamed former pond is 140 m west. Branch of Kellogg Ravine is 530 m west.

Drainage Kellogg Ravine-Lake Michigan

Nearby sites 11-L-172 is within 1.5 km

Modern occupation (building, plowing, etc.) Agricultural field

Type of soil Wauconda silt loam, 0-2% slopes (Paschke and Alexander 1970)

Ground cover Plowed agricultural field with 6" corn plants

MATERIAL FROM SITE 1 broken flake

Surface coll. K. McGowan et al. Date 6-10-94 Institution UIUC

Tested by Date Institution

Excavated by Date Institution

Nature and extent of survey - Field conditions

Pedestrian reconnaissance was conducted at 5-m intervals in the project area. Surface visibility was approxiamately 80-100%. A total collection of prehistoric material was made.

Curation UIUC

MATERIAL REPORTED AS BELONGING TO SITE

Owner of Material

Certainty of Origin

Site reported by Jacqueline McDowell Date 6-14-94 Visited

Survey report by Jacqueline McDowell Date 6-15-94

Publications: Archaeological Survey Short Report currently in preparation for the Illinois Historic Preservation Agency

Photos: Project area was documented with color slides

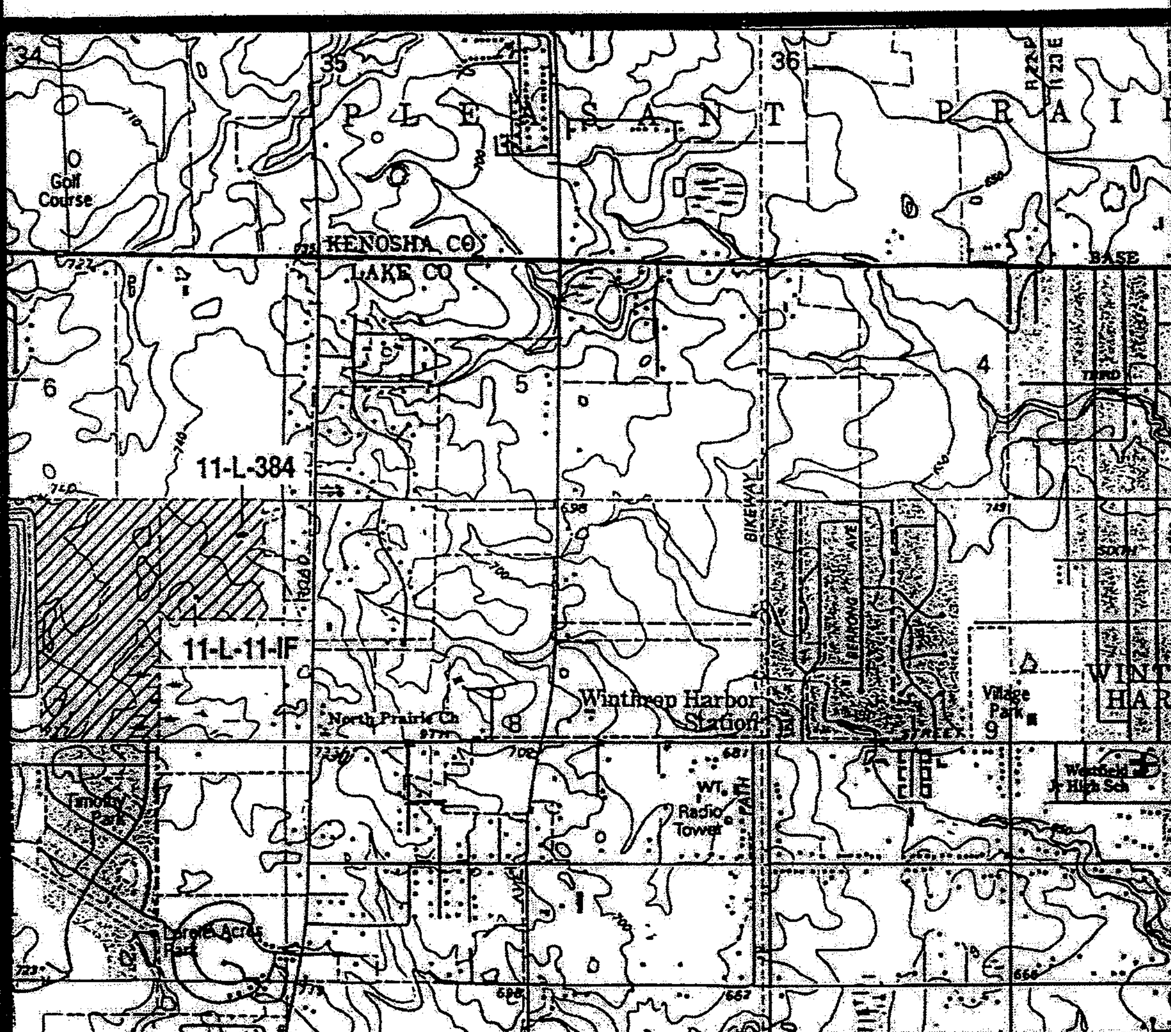
Study status: No further work is recommended.

Remarks:

This isolated find was located by the Public Service Archaeology Program during a Phase I survey for BFI Industries for proposed expansion to the BFI Industries land fill near Winthrop Harbor, Illinois. No diagnostic material was recovered from the site that would provide specific temporal or cultural placement. Given that only one broken flake was recovered despite intensive survey with excellent visibility, no further work is recommended.

Sketch map and artifact drawings.

ZION QUADRANGLE
ILLINOIS—WISCONSIN
7.5 MINUTE SERIES (TOPOGRAPHIC)



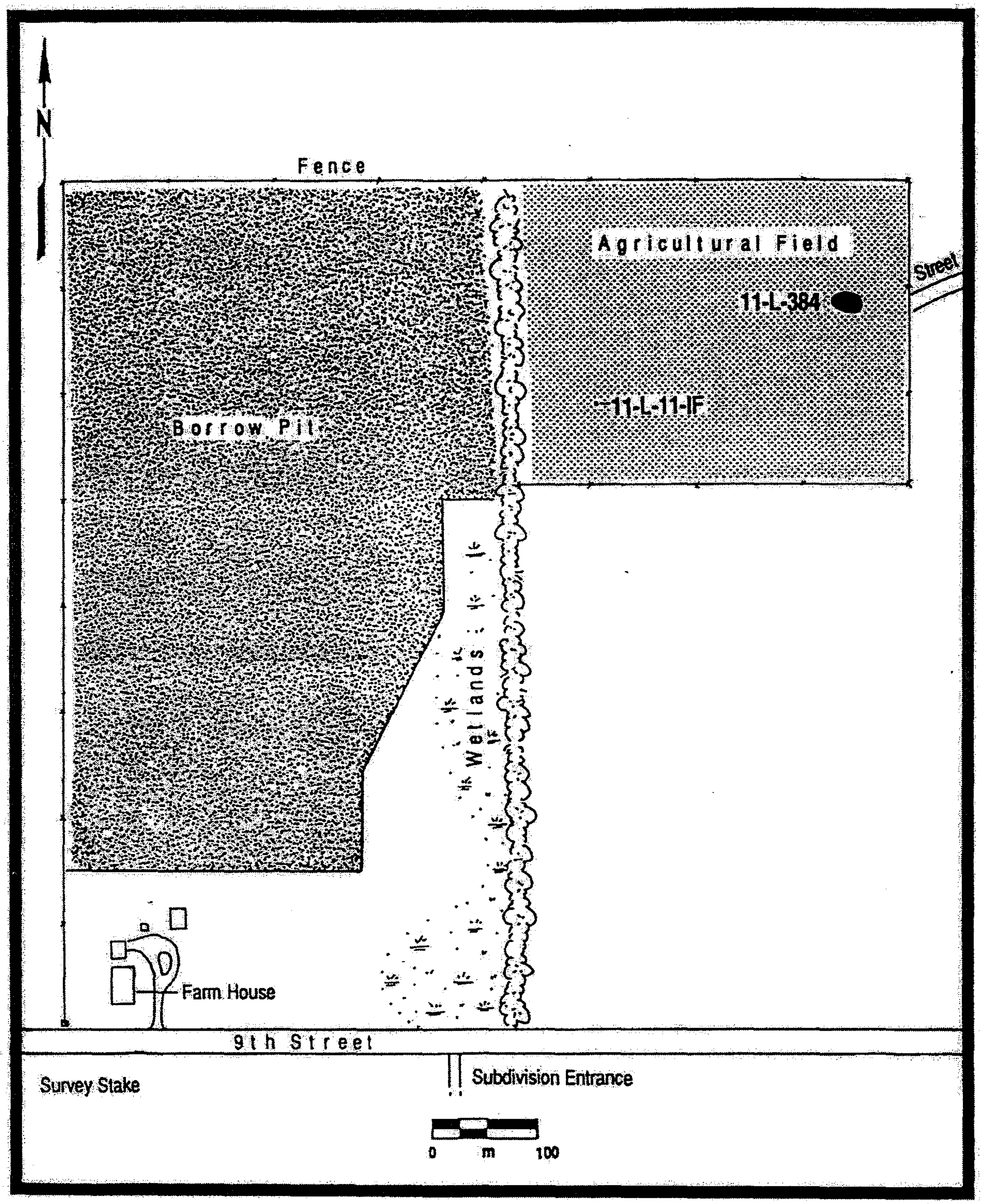
KEY

• Site, IF Location

//// Project Limits

QUADRANGLE LOCATION

1 .5 0 1 KILOMETER



N
Fence
Agricultural Field
Street
11-L-384
11-L-11-IF
Borrow Pit
Wetlands
Farm House
9th Street
Survey Stake
Subdivision Entrance
0
m
100

PROJECT CORRESPONDENCE

PUBLIC SERVICE ARCHAEOLOGY PROGRAM

University of Illinois at Urbana-Champaign
Department of Anthropology
109 Davenport Hall
607 South Mathews Avenue
Urbana, Illinois 61801

Dr. Kevin P. McGowan, Coordinator
Phone 217-333-1636
FAX 217-244-1911

from: Paul Kreisa, U of I

4 pages
(including cover sheet)

to: Mr. James Ambroso
BFI Industries
(815) 874-8341

May-12-1994

- As I mentioned to you, we could potentially do this project as early as next week. The budget has been prepared for a 50-acre survey.

Jim Ambroso
BFI Zion Landfill
701 Green Bay Rd
Zion, IL.
60099

Chicagoland Office: P.O. Box 7085 • Grayslake, Illinois 60030 • 708-548-7961

PROPOSAL FOR PHASE I ARCHAEOLOGICAL SURVEY OF 110 ACRES

NEAR ZION, LAKE COUNTY, ILLINOIS

For Submission To:

Mr. James Ambroso
BFI Industries

By:

Department of Anthropology
109 Davenport Hall
Public Service Archaeology Program
University of Illinois at Urbana-Champaign
Urbana, Illinois 61801

Project Period: 5/12/94 - 6/12/94
Amount Proposed: $2900

PROPOSAL FOR PHASE I ARCHAEOLOGICAL SURVEY OF 110 ACRES NEAR ZION, LAKE COUNTY, ILLINOIS

This is a proposal and cost estimate for a Phase I archaeological survey of 110 acres that are located in near Zion in Lake County, Illinois. The project is being conducted in advance of the BFI Landfill Expansion for BFI Industries. The Phase I investigation techniques proposed herein are in accordance with guidelines established by the Illinois Historic Preservation Agency (IHPA) regarding archaeological surveys in Illinois. This particular project will be conducted using personnel from the Department of Anthropology, University of Illinois at Urbana-Champaign, with Dr. Thomas Riley serving as Principal Investigator. Project direction and report preparation will be done by Dr. Kevin McGowan.

RESEARCH METHODOLOGY

The archaeological reconnaissance survey of the 110 acres will be carried out in three phases:

1. A literature and records search of the history, prehistory and environment will be conducted at the Illinois Archaeological Survey, the Illinois Historical Survey and the University of Illinois Library in Urbana, Illinois. It is estimated that this phase of the project will be conducted in a single day by one researcher.

2. A surface reconnaissance of the 110 acres will be conducted to identify archaeological sites within the project area. The exact nature of the survey will depend on ground surface conditions within the project area. In accordance with IHPA guidelines, a pedestrian reconnaissance at five-meter intervals will be conducted in recently plowed locations with greater than 25 percent surface visibility, while for any locations with less than 25 percent surface visibility, a shovel probe or posthole survey set in a 15-meter grid will be employed.

3. An Illinois Historic Preservation Agency ASSR report (Archaeological Survey Short Report) will be prepared that outlines the findings of both the records and field research. This report will include a project description and an assessment of the archaeological resources, if any, located within the project area. It also will include completed Illinois Archaeological Survey site forms, if needed, and recommendations concerning the need for additional investigations.

PERSONNEL AND SCHEDULING

Prior to fieldwork, one day will be spent researching records at the University of Illinois library, the Illinois Historical Survey and the Illinois Archaeological Survey. Efforts will be directed to evaluating soils and other environmental characteristics and to identifying potential locations of former historic structures within the 110 acre project area. This will be performed by a single individual in one day.

The Phase I survey for the project will be conducted by a crew of eight individuals after the acceptance of this proposal, dependent upon weather conditions and landowner permission. It is anticipated that the survey of all 110 acres can be completed in a single day. Based on conversations with Mr. James Ambroso of BSI Industries, it is anticipated that roughly 50% of the survey area has already been disturbed. Following fieldwork, artifacts will be processed and site numbers will be requested, if necessary. This part of the project should not take more than one week to complete.

An ASSR report will be completed for the project area within two weeks of completion of the fieldwork. Attached is a budget proposal for the 110-acre project area. All archaeological materials found and documentation of this project will be curated by the Laboratory of Anthropology, Department of Anthropology, University of Illinois at Urbana-Champaign.

BUDGET PROPOSAL
(Project 94-23)

DIRECT COSTS			
Personnel			
Project Director (24 hrs @ $18.51)		$	444
Archaeological Technicians (40 hrs @ $10.50)		$	420
Hourly Workers (100 hrs @ $9.00)		$	900
	Total Salaries	$	1,764
Fringe Benefits:	7.66% of $1,764	$	135
	Total Salaries & Fringes	$	1,899
Other Direct Costs			
Expendable Supplies (Photocopies, Postage, etc.)		$	85
Transportation (300 miles @ $0.355 van rate)		$	107
TOTAL DIRECT COSTS		$	2,091
INDIRECT COSTS			
38.7% (Other Sponsored Research Rate)		$	809
TOTAL COSTS		**$**	**2,900**

MALLARD LAKE LANDFILL

E & E HAULING, INC.

26 W 580 SCHICK ROAD • HANOVER PARK, IL 60103-6721 • PHONE: (708) 894-9000 • FAX: (708) 894-9089

TO: Paul Kreisa

815-874-9000

FAX #: 217-244-1911

FROM: Jim Ambroso

397-7773

DATE: 6/2/94 TIME: ______

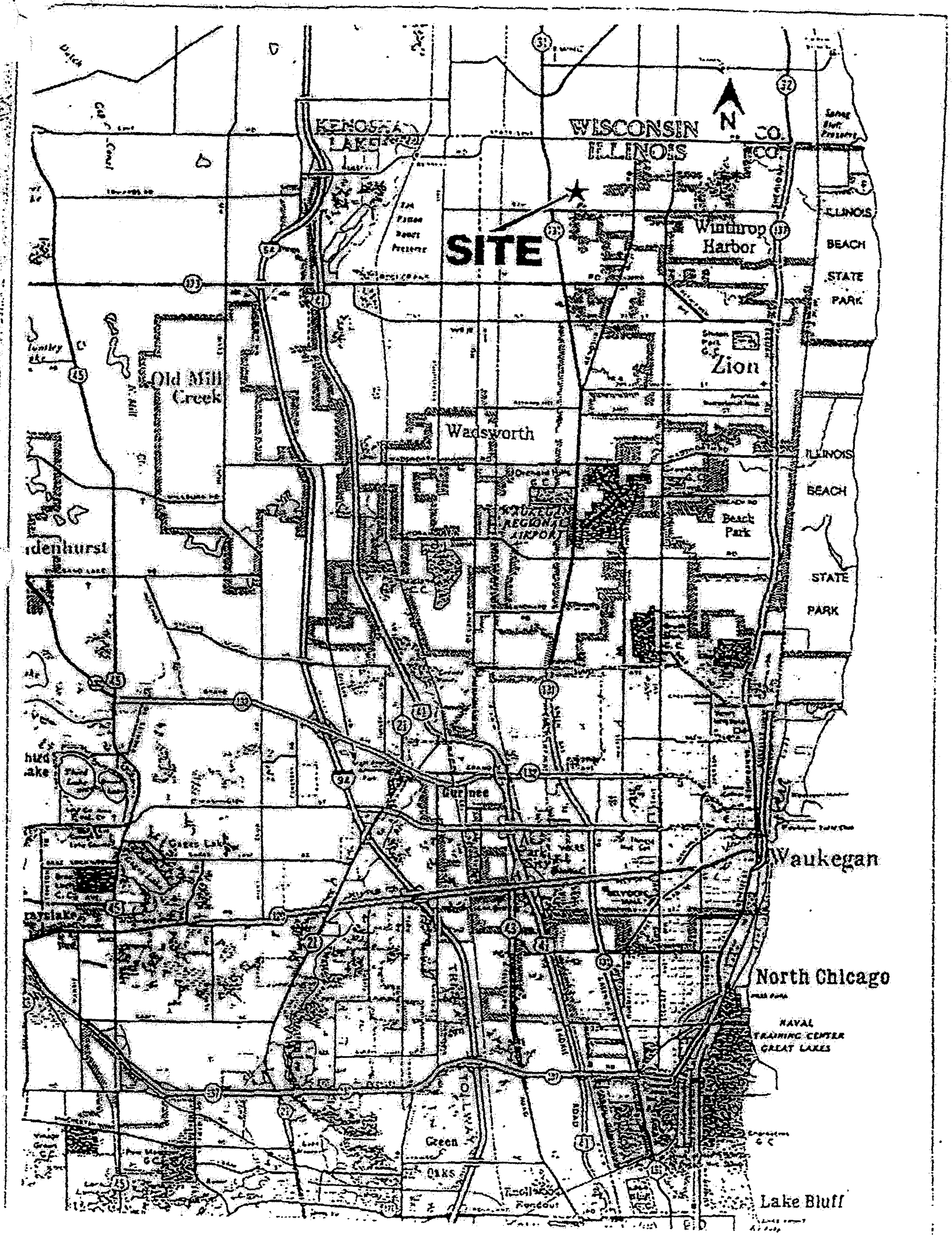
708-

PAGE ONE OF 4

** IF ALL PAGES ARE NOT RECEIVED, CONTACT:

Jim @ 708-894-9000

COMMENTS: Information requested to do Phase I, archaeological study at the proposed Zion landfill site for BFI. If you need additional maps, drawings, let me know. Thanks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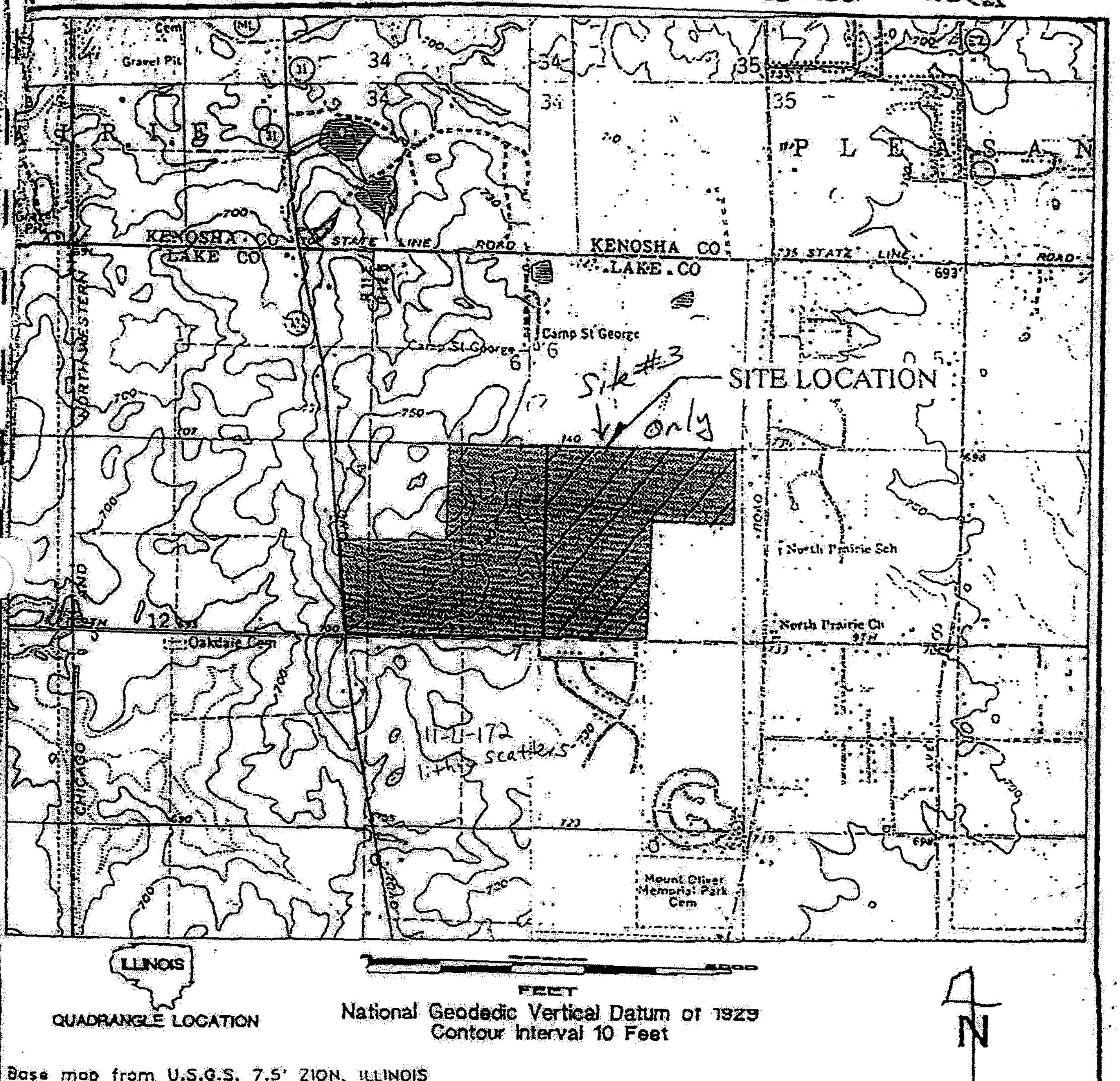
Old Mill
Creek
Wadsworth
ILLINOIS
BEACH
Beach
Park
STATE
PARK
denhurst
Gurnee
Waukegan
North Chicago
NAVAL
TRAINING CENTER
GREAT LAKES
TOLLWAY
Green
Oaks
Lake Bluff

SITE LOCATION BFI [3] Industries 1

Figure

PAGE.003

Zion & Wadsworth Quads



National Geodedic Vertical Datum of 1929
Contour Interval 10 Feet

Base map from U.S.G.S. 7.5' ZION, ILLINOIS topographic quadrangle map, photorevised 1980

SIMON HYDRO-SEARCH

Brookfield Lakes Corporate Center XII
175 N. Corporate Drive, Suite 100
Brookfield, Wisconsin 53045

BFI #2
ZION, ILLINOIS

SITE LOCATION and TOPOGRAPHY

Illinois Historic Preservation Agency

Old State Capitol • Springfield, Illinois 62701 • (217) 782-4836

LAKE COUNTY IHPA LOG #921130005C-L
Zion Solid Waste Management Facility
Proposed landfill expansion

December 7, 1992

Mr. Philip Stecker, P.E.
Project Manager
CH2M HILL
310 West Wisconsin Avenue, Suite 700
PO Box 2090
Milwaukee, Wisconsin 53201-2090

Dear Mr. Stecker:

Thank you for requesting information on historic properties within the above referenced project area. Our files do not identify any previously recorded historic or archaeological sites within the area. Consequently, this project is exempt from review pursuant to the Illinois State Agency Historic Resources Preservation Act (Il. Rev. Stat. 1991, ch. 127, pars. 133c21 et seq.).

However, we would recommend a Phase I archaeological reconnaissance survey of any areas which have not been disturbed by previous landfill operations. This general area has numerous previously recorded archaeological sites and there may be unrecorded sites within the proposed expansion area.

If you have any questions, please contact Paula Cross, Senior Staff Archaeologist, Illinois Historic Preservation Agency, Old State Capitol, Springfield, Illinois 62701 at 217/785-4998.

Sincerely,

William L. Wheeler

William L. Wheeler
State Historic Preservation Officer

WLW:pgc

NATURAL LANDMARKS

National Natural Landmarks by county

Lake County, IL

National Natural Landmarks in this county include:

- **Illinois Beach Nature Preserve (site.htm?Site=ILBE-IL)**
- **Volo Bog Nature Preserve (site.htm?Site=VOBO-IL)**
- **Wauconda Bog Nature Preserve (site.htm?Site=WABO-IL)**

← **Back to listing of NNL sites in IL. (state.htm?State=IL)**

← **Back to listing of all states and territories. (nation.htm)**

Wauconda Bog Nature Preserve (site.htm?Site=WABO-IL)*, a National Natural Landmark in Lake County, IL.*

Please remember, National Natural Landmarks (NNLs) are not national parks. NNL status does not indicate public ownership, and many sites are not open for visitation.

Government Shutdown

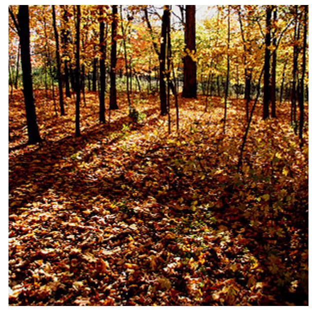
During the federal government shutdown, this website will not be updated and may not reflect current conditions. Some national parks may remain accessible to visitors; however, access may change without notice. Some parks are closed completely. Some visitor services may be available when provided by concessioners or other entities. For most parks, there will be no National Park Service-provided visitor services, such as restrooms, trash collection, facilities, or road maintenance. For more information, see **www.doi.gov/shutdown (https://www.doi.gov/shutdown)** and the park website.

National Park Service(/)

National Natural Landmarks by state

Illinois

There are 18 National Natural Landmark sites located within the state of Illinois. Natural features represented include large river and small stream valley ecosystems, diverse glacial landforms, and remnants of forest and prairie communities that once dominated the Illinois landscape. The sites in Illinois received NNL designation between 1965 and 1987. The sites range in size from 53 acres to over 6,500 acres and are owned by a variety of landowners including the U.S. Forest Service, Illinois Department of Natural Resources, the University of Illinois, County Forest Preserve Districts, The Nature Conservancy and private individuals.



Funks Grove (site.htm?Site=FUGR-IL), a National Natural Landmark in Illinois.

Below is a **map of sites in Illinois**.

National Natural Landmark sites are located in the following counties: **Alexander (county.htm?County=692)**, **Carroll (county.htm?County=698)**, **Cook (county.htm?County=706)**, **Jackson (county.htm?County=729)**, **Johnson (county.htm?County=734)**, **Lake (county.htm?County=739)**, **McLean (county.htm?County=747)**, **Monroe (county.htm?County=757)**, **Piatt (county.htm?County=764)**, **Pope (county.htm?County=766)**, **Pulaski (county.htm?County=767)**, **Union (county.htm?County=781)**, and **Wabash (county.htm?County=783)**.

← **Back to listing of all states and territories. (nation.htm)**

To learn more about National Natural Landmarks in Illinois, select a site from the list or the map below:

Allerton Natural Area | Go!

Please remember, National Natural Landmarks (NNLs) are not national parks. NNL status does not indicate public ownership, and many sites are not open for visitation.

EXPERIENCE MORE

ORGANIZATIONS

National Natural Landmarks Program (/orgs/1211/index.htm)

(//www.nps.gov) National Park Service
U.S. Department of the Interior

Government Shutdown

During the federal government shutdown, this website will not be updated and may not reflect current conditions. Some national parks may remain accessible to visitors; however, access may change without notice. Some parks are closed completely. Some visitor services may be available when provided by concessioners or other entities. For most parks, there will be no National Park Service-provided visitor services, such as restrooms, trash collection, facilities, or road maintenance. For more information, see **www.doi.gov/shutdown (https://www.doi.gov/shutdown)** and the park website.

National Park Service(/)

National Natural Landmarks by state

Wisconsin

Flambeau River Hemlock-Hardwood Forest (site.htm?Site=FLRI-WI), a National Natural Landmark in Wisconsin.

There are 18 National Natural Landmark sites located within the state of Wisconsin. Natural features represented include boreal, swamp and hardwood forests, bogs, and dune and swale communities. The southwest part of the state is known as the driftless area, having escaped the last glaciation. Baraboo Range, an exhumed mountain range in southeast Wisconsin boasts high plant community and bird species diversity. The sites in Wisconsin received NNL designation over two decades from 1967 to 1987. Sites range in size from 15 acres to over 51,200 acres and are owned by a variety of landowners including U.S. Forest Service, U.S. Fish and Wildlife Service, Wisconsin Department of Natural Resources, University of Wisconsin, tribal, The Nature Conservancy and private corporations and individuals.

Below is a **map of sites in Wisconsin**.

National Natural Landmark sites are located in the following counties: **Ashland (county.htm?County=2994)**, **Bayfield (county.htm?County=2996)**, **Buffalo (county.htm?County=2998)**, **Dane (county.htm?County=3005)**, **Door (county.htm?County=3007)**, **Fond du Lac (county.htm?County=3012)**, **Forest (county.htm?County=3013)**, **Grant (county.htm?County=3014)**, **Green (county.htm?County=3015)**, **Iowa (county.htm?County=3017)**, **Kenosha (county.htm?County=3022)**, **Manitowoc (county.htm?County=3028)**, **Marquette (county.htm?County=3031)**, **Oneida (county.htm?County=3036)**, **Ozaukee (county.htm?County=3038)**, **Sauk (county.htm?County=3049)**, **Sawyer (county.htm?County=3050)**, and **Vernon (county.htm?County=3055)**.

← **Back to listing of all states and territories. (nation.htm)**

To learn more about National Natural Landmarks in Wisconsin, select a site from the list or the map below:

Abraham's Woods Go!

Please remember, National Natural Landmarks (NNLs) are not national parks. NNL status does not indicate public ownership, and many sites are not open for visitation.

EXPERIENCE MORE

ORGANIZATIONS

National Natural Landmarks Program (/orgs/1211/index.htm)

(//www.nps.gov)
National Park Service
U.S. Department of the Interior

F.7 – Endangered Species

Ecological Compliance Assessment Tool

Applicant:	Aptim Environmental and Infrastructure, Inc.	*IDNR Project Number:*	1905267
Contact:	Richard Southorn, PE, PG	*Date:*	11/20/2018
Address:	1607 E Main St, Suite E St Charles, IL 60174		
Project:	Zion Landfill		
Address:	701 N Green Bay Rd, Zion		

Description: Evaluation of potential expansion area

Natural Resource Review Results

This project was submitted for information only. It is not a consultation under Part 1075.

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Lake

Township, Range, Section:
46N, 11E, 12
46N, 12E, 5
46N, 12E, 6
46N, 12E, 7
46N, 12E, 8

IL Department of Natural Resources Contact
Impact Assessment Section
217-785-5500
Division of Ecosystems & Environment

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project’s implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

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EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 1905267

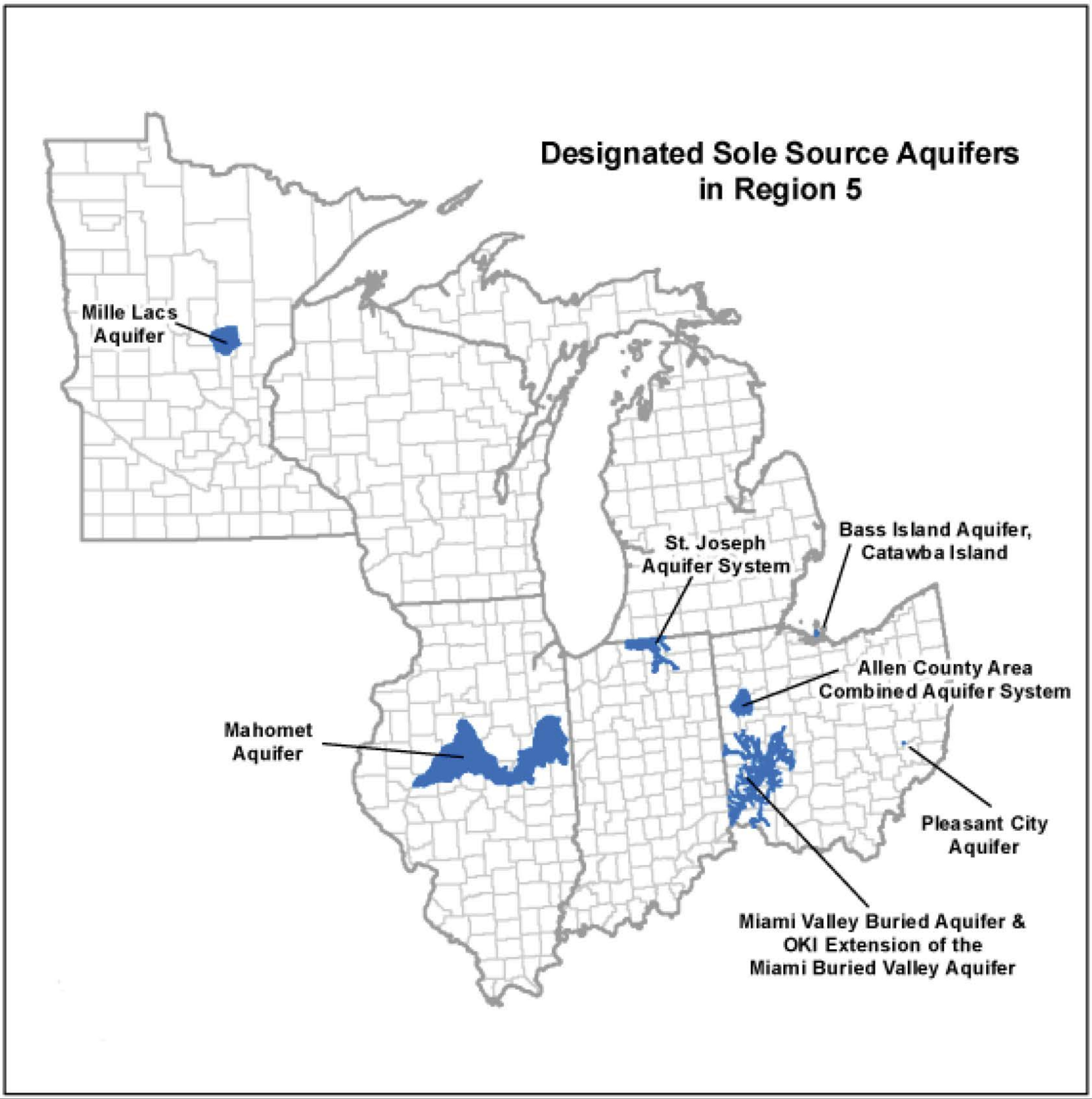
APPLICANT	DATE
Aptim Environmental and Infrastructure, Inc. Richard Southorn 1607 E Main St, Suite E Saint Charles, IL 60174	11/20/2018

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	$ 25.00	$ 1.00	$ 26.00

TOTAL PAID $ 26.00

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

F.8 – Sole-Source Aquifer/Regulated Recharge Area


Designated Sole Source Aquifers
in Region 5
Mille Lacs
Aquifer
St. Joseph
Aquifer System
Bass Island Aquifer,
Catawba Island
Allen County Area
Combined Aquifer System
Mahomet
Aquifer
Pleasant City
Aquifer
Miami Valley Buried Aquifer &
OKI Extension of the
Miami Buried Valley Aquifer