18-107a **Executive Summary** **December 3, 2018**

Petitioner: Crown Community Development, 1751 A West Diehl Rd, Naperville, IL 60563
Contact Person: Daniel J. Olsem, 630-851-5490
Unit of Government Responsible for Permits: Village of Sugar Grove
Acreage: 113.67
Property Address/PIN#: 4S341 Merrill Road, Sugar Grove
Existing Land Use: Agriculture
Surrounding Land Use: Agriculture
Proposed Land Use: Residential/Commercial

Natural Resource Concerns

Land Cover in the Early 1800's: This site is located in an area previously identified as prairie. (See page 2 for more information.)

Kane County Green Infrastructure Plan: This site is located in an area indicated as Park Preserves and Conservation Area (with buffer), Environmental Resource Area (with buffer). (See page 3.)

Wetlands: The National Wetland Inventory map and the ADID wetland map do not identify wetland areas on this site. In the event that any indications of wetlands are identified on this site during the proposed land use change, a wetland delineation specialist who is recognized by the U.S. Army Corps of Engineers should determine the exact boundaries and value of any wetlands. (See page 4 & 5 for more wetland information.)

Floodplain: There are no floodplain areas identified on this site. (See page 6.)

Streams: There are no streams on this site. (See page 7.)

Regulations: Please note that additional permits are required for any development impacting wetlands, streams or floodplain areas. Please see page 8 for regulation information.

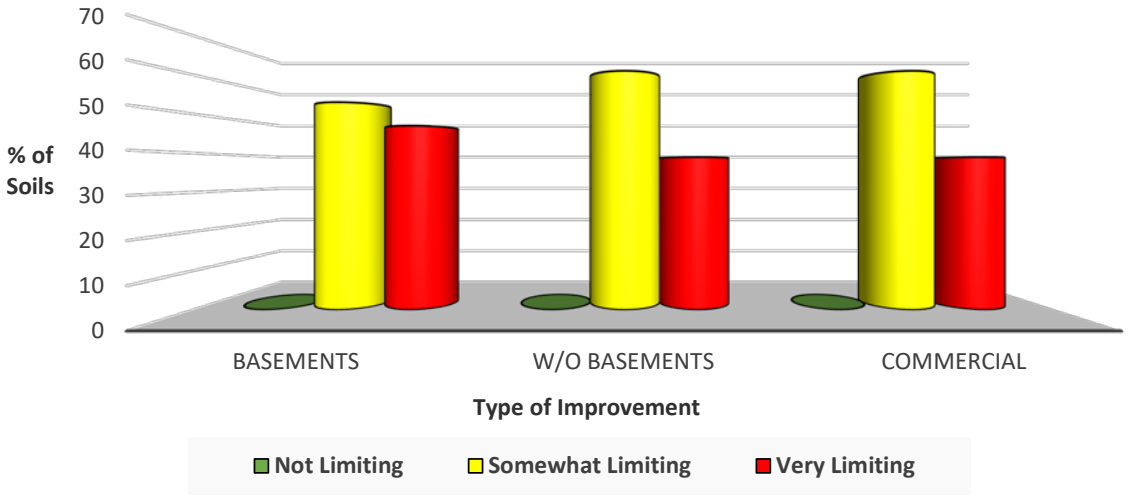
Aquifer Sensitivity: This site is classified as having a moderately high to moderately low potential for aquifer contamination. (See page 9.)

Topography and Drainage: Please refer to page 10 for information regarding site topography and drainage.

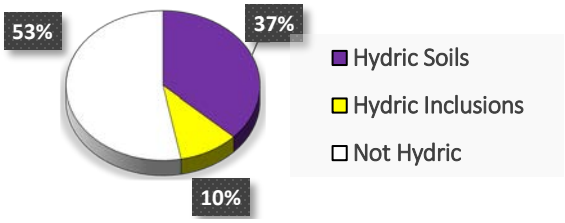
Stormwater: See page 12 for information regarding stormwater management.

Soil Erosion: Any development on this site should include a soil erosion and sediment control plan. (See page 12.)

Building Limitations: Soils at this site may contain limitations for dwellings with basements, dwellings without basements, and small commercial buildings. See page 14 and attached Soils Tables located on the final pages this report. All information is from the Soil Survey of Kane County, Illinois.



Hydric Soils: There are hydric soils and soils with hydric inclusions identified on this site. (See page 15.)



LESA-Prime Farmland: Sites with a score of 26-33 or greater on the Land Evaluation (LE) portion of the LESA score are considered to have high value farmland soils. This site has a score of **30** placing it within the definition of high value soils/prime farmland. (See Page 16 for more information.)

LAND USE OPINION

Land Use Opinion: The most current natural resource data indicates the following concerns for this site: **Soil Limitations, LESA – Prime Farmland, Soil Erosion and Sediment Control, and Stormwater Management.** Based on the information in this report, it is the opinion of the Kane-DuPage Soil and Water Conservation District Board that this site **may not be suited** for land use change **unless** the previously mentioned concerns are addressed.

SITE INSPECTION

A site inspection was conducted by Resource Assistant, Jennifer Shroder on November 29, 2018. The following photos were taken during this inspection and reflect the site conditions at that time.

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PURPOSE AND INTENT

This report presents natural resource information to officials of the local governing body and other decision makers. Decisions concerning variations, amendments or relief of local zoning ordinance may reference this report. Also, decisions concerning the future of a proposed subdivision of vacant or agricultural lands, and the subsequent development of these lands because of these decisions may reference this report. This report is a requirement under the Soil and Water Conservation District Act contained in ILCS 70, 405/1 ET seq.

This report intends to present the most current natural resource information available in an understandable format. It contains a description of the present conditions and resources available and their potential impact on each other. This information comes from standardized data, on-site investigations and other information furnished by the petitioner.

Please read the entire report to coordinate and interrelate all natural resource factors considered. This report, when used properly, will provide the basis for good land use change decisions and proper development while protecting the natural resource base of the county.

The conclusion of this report in no way indicates the impossibility of a certain land use. However, it should alert the reader to possible problems that may occur if the capabilities of the land are ignored. Please direct technical questions about data supplied in this report to:

Kane-DuPage
Soil and Water Conservation District
2315 Dean Street, Suite 100
St. Charles, IL 60175
Phone: (630) 584-7960

LAND COVER IN THE EARLY 1800'S

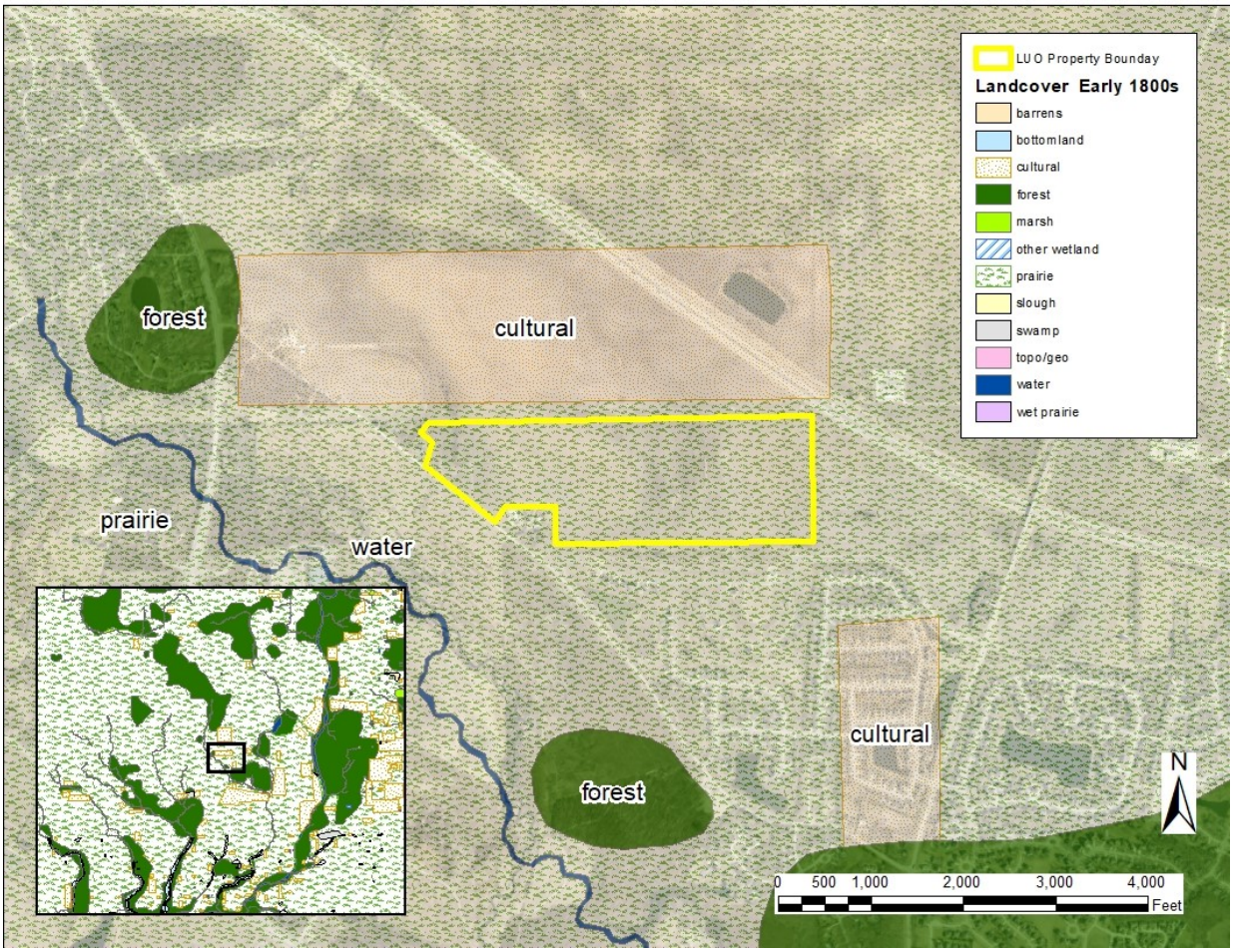

Figure 1: Land Cover in the Early 1800's

Illinois Department of Natural Resources, Illinois Natural History Survey, Land Cover of Illinois in the Early 1800s., Vector Digital Data, Version 6.0, August, 2003.

These surveys represent one of the earliest detailed maps for Illinois. The surveys began in 1804 and were largely completed by 1843. They predate our county land ownership maps and atlases. These plat maps and field notebooks contain a wealth of information about what the landscape was like before the flood of settlers came into the state.

The vast majority of the landscape of Illinois in the early 1800's consisted of two different natural resource areas. These two areas were prairie and forest. Prairie and woodland ecosystems are extremely valuable resources for many reasons. These areas:

- provide wildlife habitat and support biodiversity
- provide areas for recreational opportunities
- improve soil health and reduce soil loss
- improve air and water quality

Other designations include, cultural (or agricultural area), marsh, wet prairie, wetland, barrens and water. Please note that these designations are based on surveys taken in the early 1800's, and may not represent exact site conditions.

This site is located in an area surveyed as prairie on the land cover in the early 1800's map. The District recommends preserving as much as of the natural character of the site as possible during this land use change. It is also recommended that native plants be utilized for landscaping whenever possible. Removal of invasive species is also encouraged.

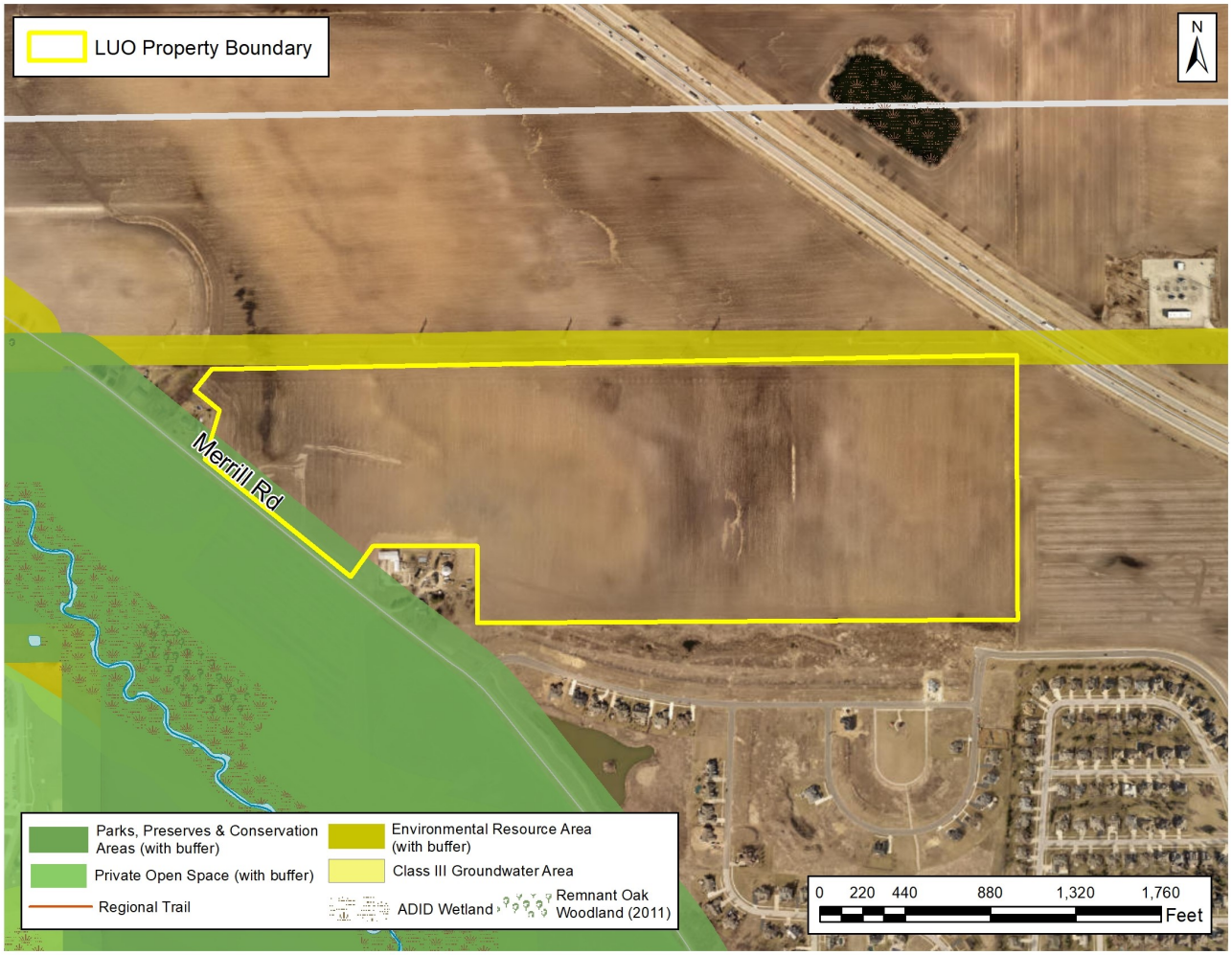

Figure 2: Kane County Green Infrastructure Plan

County of Kane. "Kane County 2040 Green Infrastructure Plan". Adopted December 10, 2013.

From the Kane County Green Infrastructure Plan, "Green infrastructure is an interconnected system of natural areas and open spaces including woodlands, wetlands, trails and parks, which are protected and managed for the ecological values and functions they provide to people and wildlife. The Kane County 2040 Green Infrastructure Plan includes analysis of existing natural resources in the County and recommendations for green infrastructure priorities and approaches. The ultimate goal of the Kane County 2040 Green infrastructure Plan is to lay the groundwork for green infrastructure planning and projects at the regional, community, neighborhood and site levels."

The benefits of green infrastructure include:

- Preservation of habitat and biodiversity
- Water and soil conservation
- Flood storage and protection
- Improved public health
- Encourage local food production
- Economic benefits
- Mitigation and adaptation for climate change

This site includes the following priority areas as designated on the Kane County 2040 Green Infrastructure Plan: Park Preserves and Conservation Area (with buffer), Environmental Resource Area (with buffer).

NWI WETLANDS

Figure 3: National Wetland Inventory Map

United States Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory Photo Year 1983-1984, Digitized 1985-1986.

Wetlands are some of the most productive and diverse ecological systems on earth. The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency define wetlands as follows, "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. Wetlands generally include swamps, marshes, bogs and similar areas." Some other common wetlands located in this part of Illinois are fens and wet meadows.

Wetlands function in many ways to benefit mankind. Some of their many functions and benefits include:

- Controlling flooding by offering a slow release of excess water downstream or through the soil.
- Cleansing water by filtering out sediment and pollutants.
- Functioning as rechargers of our valuable groundwater.
- Providing essential breeding, rearing, and feeding grounds for many species of wildlife.

A review of the National Wetland Inventory Map indicates that wetlands do not appear to exist on this site. In the event that any indications of wetlands are identified on this site during the proposed land use change, a wetland delineation specialist who is recognized by the U.S. Army Corps of Engineers should determine the exact boundaries and value of these wetlands. Please see page 8 for wetland regulation information.

ADID WETLANDS

Figure 4: ADID Wetlands

Kane County's Wetlands and Streams Advanced Identification (ADID) Study completed in 2004.

Released in August of 2004, the Kane County Advanced Identification of Aquatic Resources (or ADID) study is a cooperative effort between federal, state, and local agencies to inventory, evaluate, and map high quality wetland and stream resources in the county. ADID studies are part of a U.S. Environmental Protection Agency program to provide improved awareness of the locations, functions, and values of wetlands and other waters of the United States. The primary purpose is to identify wetlands and streams unsuitable for dredging and filling because they are of particularly high quality. This information can be used by federal, state, and local governments to aid in zoning, permitting, and land acquisition decisions. In addition, the information can provide data to agencies, landowners, and private citizens interested in restoration, acquisition, or protection of aquatic sites and resources. For more detailed information regarding wetlands in Kane County, please refer to the full Kane County ADID study at : http://dewprojects.countyofkane.org/adid/index.htm

A review of the Kane County ADID map revealed that no ADID wetlands were not identified on this site.

FLOODPLAIN

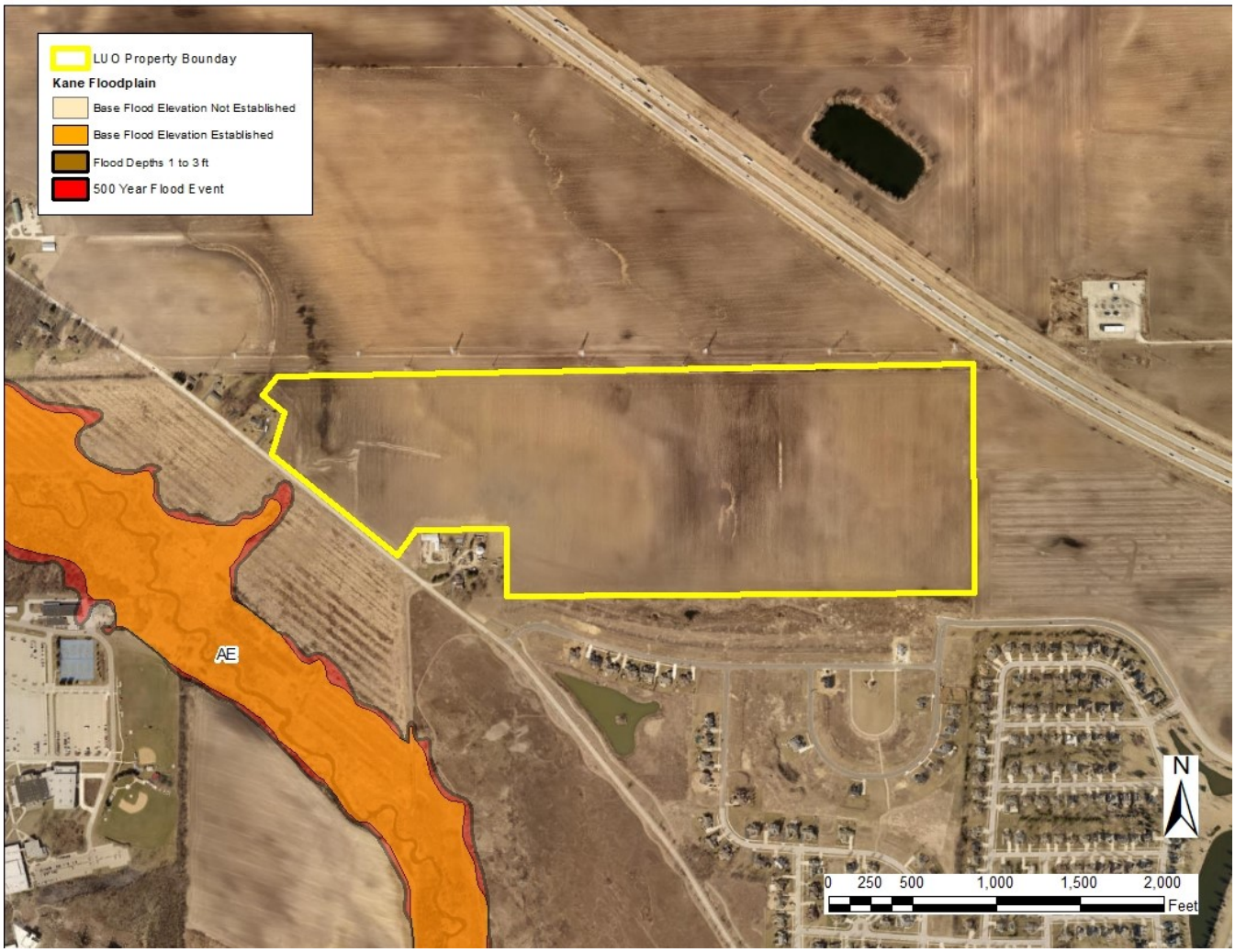

Figure 5: Floodplain Map

Federal Emergency Management Agency, National Flood Insurance Program, Q3 Flood Data, Disc 6, 2011.

From FEMA's Floodplain Natural Resources and Functions Chapter 8, "Undeveloped floodplain land provides many natural resources and functions of considerable economic, social and environmental value. Nevertheless, these and other benefits are often overlooked when local land-use decisions are made. Floodplains often contain wetlands and other important ecological areas as part of a total functioning system that impacts directly on the quality of the local environment."

There are so many benefits of the floodplain that not all can be listed here, but the following is a general list of benefits and functions:

- natural flood storage and erosion control
- water quality maintenance
- groundwater recharge
- nutrient filtration
- biological productivity/wildlife habitat
- recreational opportunities/aesthetic value

According to the Flood Insurance Rate Map, no part of this site is within the boundaries of a 100-year floodplain. This development should not impede the beneficial functions of the floodplain. Please see 8 for information regarding floodplain regulations.

Rivers and Streams are necessary components of successfully functioning ecosystems. It is important to protect the beneficial functions and integrity of our local streams and rivers. Development near stream systems has the potential to increase flooding, especially in urban areas where there is a lot of impervious surface and a greater amount of stormwater runoff. Pollution is also an issue for stream systems in urban and rural areas. It is rare for any surface waters to be impacted by only one source of pollution. With few exceptions, every land-use activity is a potential source of nonpoint source water pollution (IEPA– Nonpoint Source Pollution).

The Illinois Environmental Protection Agency provides the following in regards to nonpoint source pollution, "Nonpoint source pollution (NPS) occurs when runoff from rain and snowmelt carries pollutants into waterways such as rivers, streams, lakes, wetlands, and even groundwater. Examples of or sources of NPS pollution in Illinois include runoff from farm fields, livestock facilities, construction sites, lawns and gardens, city streets and parking lots, surface coal mines, and forestry. The major sources of NPS pollution in Illinois are agriculture, urban runoff, and habitat modification."

Local watershed management planning is an important effort that involves citizens of a watershed in the protection of their local water resources. Water quality is a reflection of its watershed.

Common Watershed Goals:

- Protect and restore natural resources
- Improve water quality
- Reduce flood damage
- Enhance and restore stream health
- Guide new development to benefit watershed goals
- Preserve and develop green infrastructure
- Enhance education and stewardship

There are many subwatershed plans that have already been developed in Kane County. Please follow the link to the Kane County 2040 Green Infrastructure Plan. See page 108 for a list of local watershed plans.

http://countyofkane.org/FDER/Pages/development/planning.aspx

Nutrient management is of vital importance to the health of our rivers and streams. Nutrient load in our local streams and rivers has contributed to the Gulf of Mexico hypoxia, or a "dead zone" located where the Mississippi River meets the Gulf of Mexico. This dead zone has little to no biological activity. Yearly averages indicate the dead zone to be greater than 5,000 square miles in size. Illinois was required and has introduced a plan to reduce nutrient loss from point source pollution sources, such as wastewater treatment plants and industrial wastewater, as well as nonpoint pollution sources. Read Illinois's Plan for reducing nutrient loss here:

http://www.epa.illinois.gov/topics/water-quality/watershed-management/excess-nutrients/nutrient-loss-reduction-strategy/index

REGULATORY INFORMATION

The laws of the United States and the State of Illinois assign certain agencies specific and different regulatory roles to protect the waters within the State's boundaries. These roles, when considered together, include protection of navigation channels and harbors, protection against floodway encroachment, maintenance and enhancement of water quality, protection of fish and wildlife habitat As well as recreational resources. Unregulated use of waters within the State of Illinois could permanently destroy or alter the character of these valuable resources and adversely impact the public. Therefore, please contact the proper regulatory authorities when planning any work associated with Illinois waters so that proper consideration and approval can be obtained.

REGULATORY AGENCIES:

Wetland/U.S. Waters: U.S. Army Corps of Engineers, Chicago District, 111 North Canal Street, Chicago, IL 60606-7206. Phone: (312) 353-6400.

http://www.lrc.usace.army.mil/

Wetland/Isolated: Kane County Water Resources Division, 719 Batavia Avenue, Geneva, IL 60134. (630)232-3400.

http://www.countyofkane.org/FDER/Pages/environmentalResources/water.aspx

Floodplains: Illinois Department of Natural Resources\Office of Water Resources, 2050 W. Stearns Road, Bartlett, IL 60103. (847)608-3100.

https://www.dnr.illinois.gov/WaterResources/Pages/Permit%20Programs.aspx

Who Must Apply:

Wetland and/or Floodplain Permit: Anyone proposing to dredge, fill, riprap, or otherwise alter the banks or beds of, or construct, operate, or maintain any dock, pier, wharf, sluice, dam, piling, wall, fence, utility, floodplain or floodway subject to State or Federal regulatory jurisdiction should apply for agency approvals.

Construction Permit: Anyone disturbing an acre or more of land during proposed construction activities should apply for the NPDES General Construction Permit ILR10. Building and stormwater permits should also be obtained locally from municipal government and/or Kane County.

NPDES General Construction Permit ILR10: Illinois Environmental Protection Agency, Division of Water Pollution Control, 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794. (217)782-0610.

http://www.epa.illinois.gov/topics/forms/water-permits/storm-water/construction/index

Coordination: We recommend early coordination with the regulatory agencies BEFORE finalizing work plans. This allows the agencies to recommend measures to mitigate/compensate for adverse impacts. Also, the agency can make possible environmental enhancement provisions early in the project planning stage. This could reduce time required to process necessary approvals. Please be advised that failure to coordinate with regulatory agencies could result in project shut down, fines and/or imprisonment.

AQUIFER SENSITIVITY

Figure 6: Aquifer Sensitivity Map

Dey, W.S., A.M. Davis, and B.B. Curry 2007, Aquifer Sensitivity to Contamination, Kane County, Illinois: Illinois State Geological Survey, Illinois County Geologic Map, ICGM Kane-AS

The map aquifer sensitivity to contamination (Dey et al 2007) is a representation of the potential vulnerability of aquifers in an area to contamination from sources of contaminants at or near the surface. The U.S. Environmental Protection Agency (1993) defines aquifer sensitivity/contamination potential as "a measure of the ease with which a contaminant applied on or near the land surface can migrate to an aquifer."

Aquifers function as a storage area for groundwater recharge, which makes them a reliable source of fresh water. Groundwater accounts for a considerable percentage of the drinking water in Kane County. The chart below shows the aquifer sensitivity classifications. This site is classified as having a moderate high to moderately low potential for contamination.

A = High Potential, B = Moderately High Potential, C=Moderate Potential, D = Moderately Low Potential, E = Low Potential

A1	Aquifers are greater than 50ft thick and within 5ft of the surface	**C1**	Aquifers are greater than 50ft thick and between 20 and 50ft below the surface
A2	Aquifers are greater than 50ft thick and between 5 and 20ft below the surface	**C2**	Aquifers are between 20 and 50ft thick and between 20 and 50ft below the surface
A3	Aquifers are between 20 and 50ft thick and within 5ft of the surface	**C3**	Sand and gravel aquifers are between 5 and 20ft thick, or high-permeability bedrock aquifers are between 15 and 20ft thick, both between 20 and 50ft below the surface
A4	Aquifers are between 20 and 50ft thick and between 5 and 20ft below the surface	**D1**	Aquifers are greater than 50ft thick and between 20 and 50ft below the surface
B1	Sand and gravel aquifers are between 5 and 20ft thick, or high-permeability bedrock aquifers are between 15 and 20ft thick, both within 5ft of the surface	**D2**	Aquifers are between 20 and 50ft thick and between 50 and 100ft below the surface
B2	Sand and gravel aquifers are between 5 and 20ft thick, or high-permeability bedrock aquifers are between 15 and 20ft thick, both between 5 and 20ft below the surface	**D3**	Sand and gravel aquifers are between 5 and 20ft thick, or high-permeability bedrock aquifers are between 15 and 20ft thick, both between 50 and 100ft below the surface
E1	Sand and gravel or high-permeability bedrock aquifers are not present within 100 ft of the land surface		

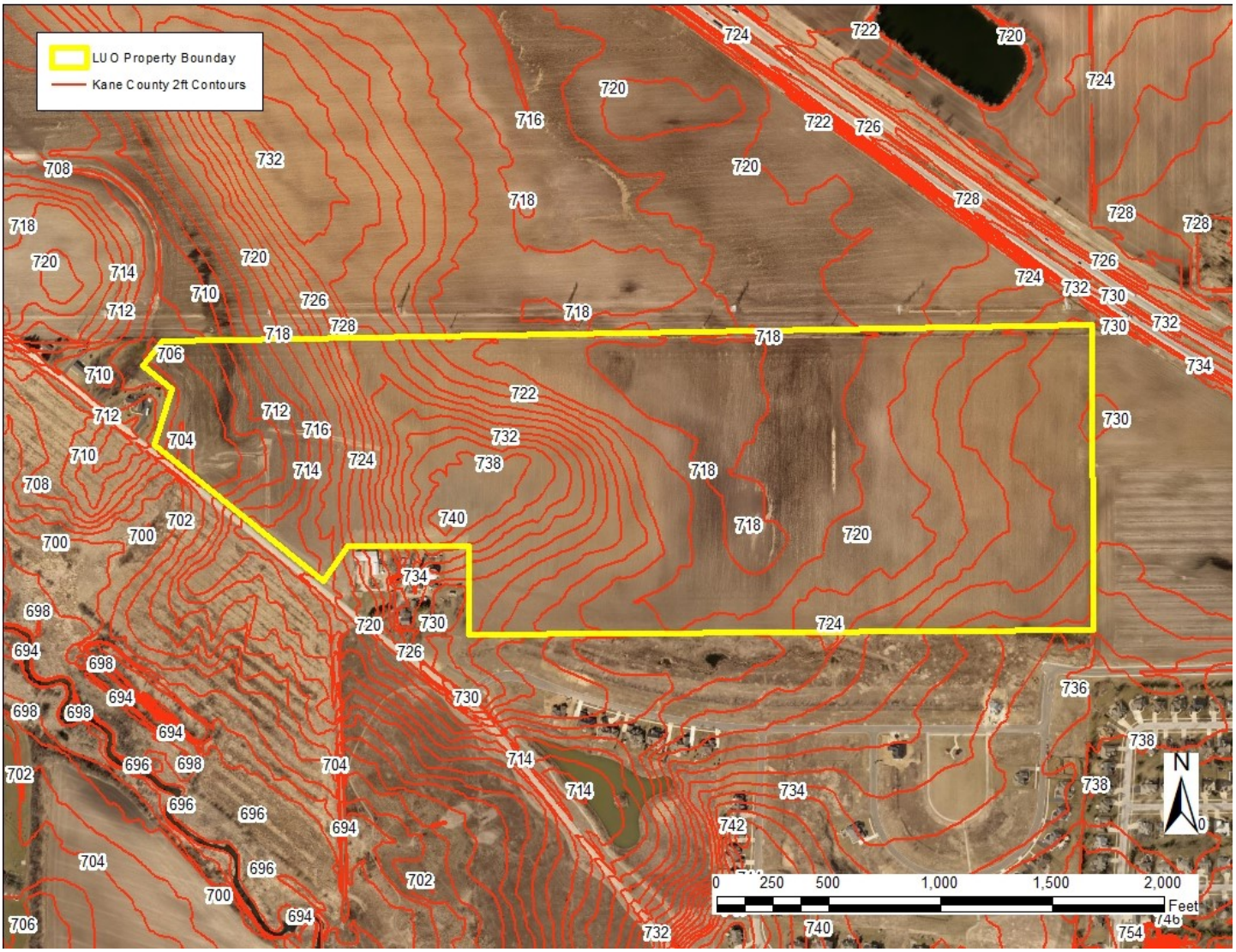

Figure 7: Municipalities 2 Ft Contours

USGS Topographic maps and other topographic surveys give information on elevations, which are important to determine slopes, natural drainage directions, and watershed information. Elevations determine the area of impact of flooding. Slope information determines steepness and erosion potential of the site. Slope has the greatest impact in determining the erosion potential of a site during construction activities. Drainage directions determine where water leaves the property in question, possibly impacting surrounding natural resources.

It is important to consider drainage during any proposed construction onsite. Any areas where water leaves the site should be monitored for potential pollutants which could contaminate downstream waters.

The high point of this property is located in the center of the site at an elevation of approximately 740 feet above mean sea level. The property generally drains in all directions via overland. The lowest elevation on the property is approximately 702 feet above sea level.

TOPOGRAPHY AND DRAINAGE

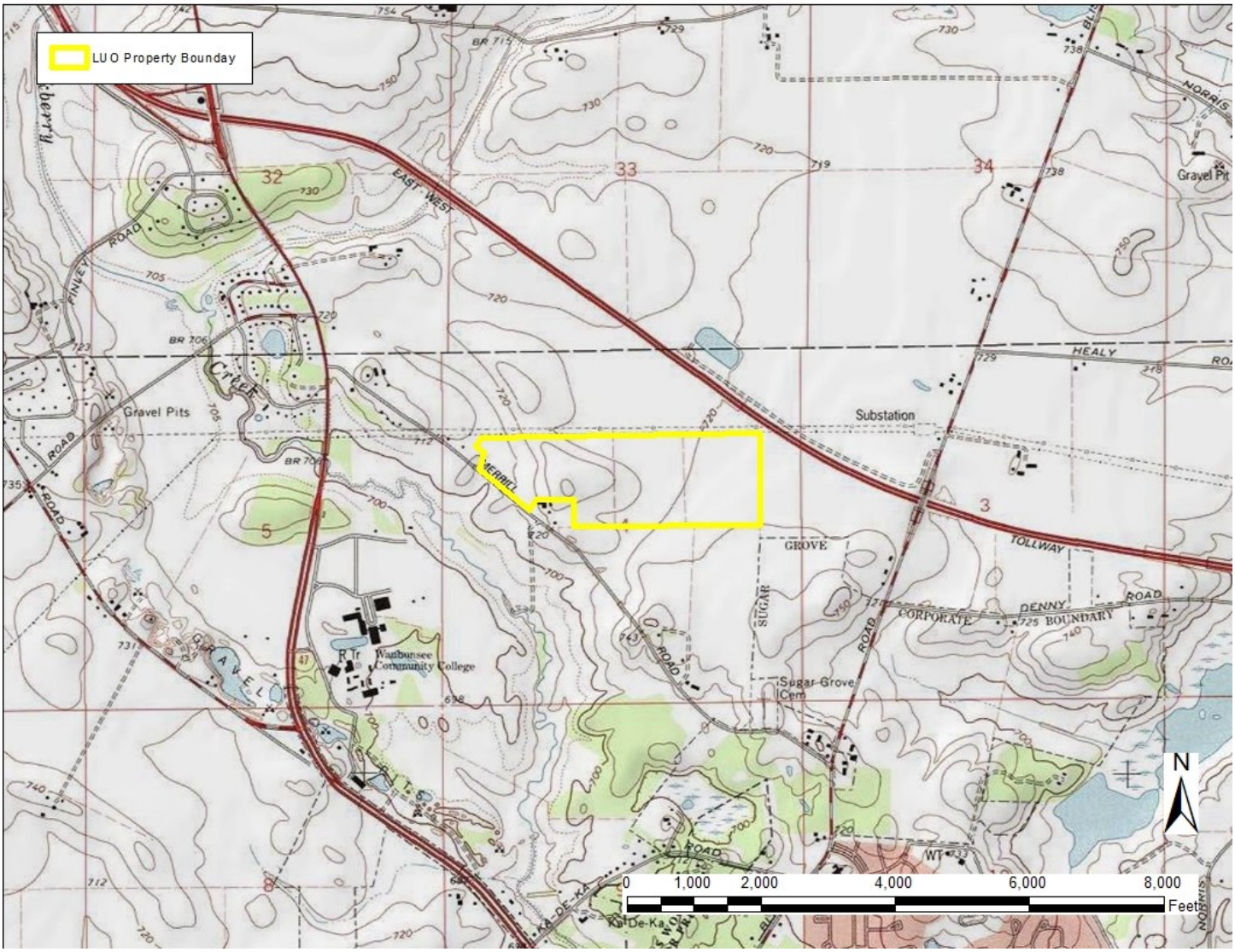

Figure 8: USGS Topographic Map

STORMWATER

Any proposed removal of vegetation, compaction of soil, and addition of impervious surfaces (rooftops, roadways, etc.) will greatly increase the amount of stormwater runoff generated on this site. The District recommends the use of onsite stormwater management strategies whenever possible. IEPA now recommends that stormwater pollution prevention plans include post-construction stormwater management which retains the greatest amount of post-development stormwater runoff practicable, given the site and project constraints. From the ILR10 permit for construction sites 1 acre or more, "Such practices include but are not limited to: stormwater detention structures (including wet ponds); stormwater retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices)."

Site assessment with soil testing should help to determine what stormwater management practices are best for your site. Insufficient stormwater management has the potential to cause or aggravate flooding conditions on surrounding properties, or elsewhere in the watershed. Please refer to the Kane County Stormwater Ordinance for stormwater requirements and minimum standards.

http://www.countyofkane.org/FDER/Pages/environmentalResources/waterResources/

SOIL EROSION

Development on this site should include the use of a soil erosion and sedimen-tation control plan. Due to the soil type and slope of the site, the District believes that the potential for soil erosion during and after any proposed construction could be **large**. Furthermore, the erosion and resulting sedimentation may become a primary nonpoint source of water pollution. Eroded soil during the construction phase can create unsafe conditions on roadways, degrade water quality, and destroy aquatic ecosystems lower in the watershed. Soil erosion also increases the risk of flooding due to choking culverts, ditches, and storm sewers, and by reducing the capacity of natural and man-made detention facilities.

Erosion and sedimentation control measures include: 1) staging the construction to minimize the amount of disturbed areas present at the same time, 2) maintaining or planting vegetative groundcover, and 3) keeping runoff velocities low.

Soil erosion and sedimentation control plans, including maintenance responsibilities, should be clearly communicated to all contractors working on the site. Special care must be taken to protect any wetlands, streams and other sensitive areas.

Please refer to the Illinois Urban Manual for erosion and sediment control information and technical guidance when creating erosion and sediment control plans. The practice standards and standard drawings from the Illinois Urban Manual represent the minimum standard in Illinois.

SOILS INFORMATION

IMPORTANCE OF SOILS INFORMATION

Soils information is taken from the Soil Survey of Kane County, Illinois, United States Department of Agriculture, Natural Resource Conservation Service. This information is important to all parties involved in determining the suitability of the proposed land use change.

SOIL MAP UNITS

The soil survey map of this area (Figure 1) indicates soil map units. Each soil map unit has limitations for a variety of land uses such as septic systems, and buildings site development, including dwellings with and without basements. All of the soils contain **very limiting** conditions for building site development. **See Soils Interpretations section and attached Soil Tables.**

The Soil Survey Geographic (SSURGO) data base was produced by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies for the Soil Survey of Kane County, Illinois. The soils were mapped at a scale of 1:12,000. The enlargement of these maps to scales greater than that at which they were originally mapped can cause misunderstanding of the detail of the mapping. If enlarged, maps do not show the small areas of contrasting soil that could have been shown at a larger scale. The depicted soil boundaries and interpretations derived from them do not eliminate the need of onsite sampling, testing, and detailed study of specific sites for intensive uses. Thus, this map and its interpretations are intended for planning purposes only.

LIST OF SOIL MAP UNITS

SOIL MAP UNIT	PERCENT OF PARCEL	ACRES
59A—Lisbon	2%	2.32
62A—Herbert	2%	2.03
152A—Drummer	33%	37.53
171A—Catlin	17%	18.90
198A—Elburn	6%	6.87
206A—Thorp	4%	4.23
348B—Wingate	16%	18.34
348C2—Wingate	8%	9.61
527C2—Kidami	1%	1.49
656B—Octagon	3%	3.10
656C2—Octagon	8%	9.25
Table 1: Soil Map Units	**Total**	**113.67**

All percentages and acreages are approximate.

We suggest that a geotechnical engineer conduct an on site investigation. This should determine, specifically, what soils type is present at a particular location, along with its associated limitations or potential for a particular use. It will also assist in determining which types of engineering procedures are necessary to account for the limitations of the soil on the site.

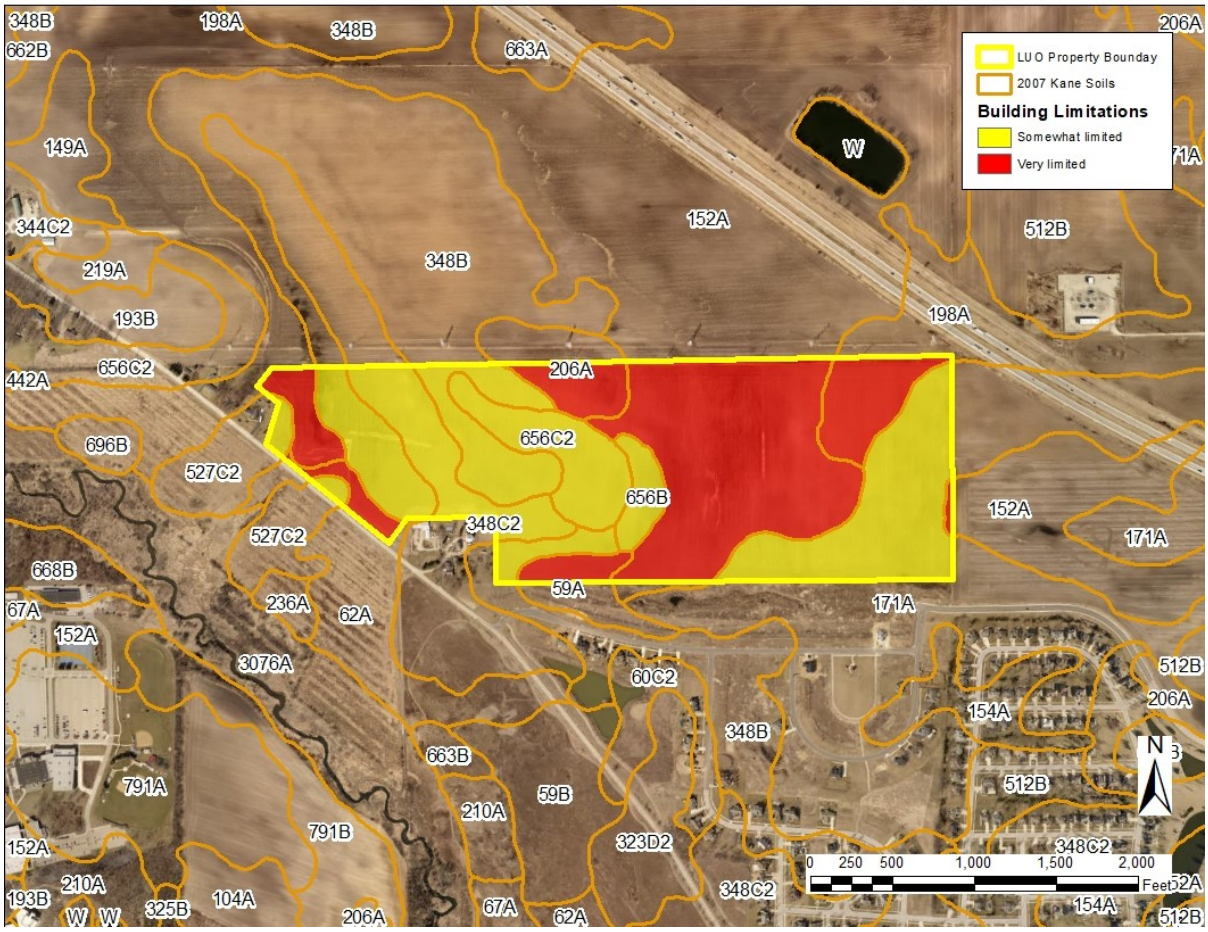

Figure 9: Soil Survey Map

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Kane County SSURGO soil layer certified in 2007. Areas shaded red represent VERY LIMITING limitations for building site development, areas shaded yellow represent SOMEWHAT LIMITING limitations for building site development, and areas shaded green represent NOT LIMITING limitations for building site development.

The soil limitation ratings are used mainly for engineering designs of dwellings with or without basements, local streets and roads, small commercial buildings, septic tank absorption fields, and etc. The ratings of not limiting, somewhat limiting, and very limiting are based on national averages and are defined and used as follows:

Not Limiting (Slight) - This limitation rating indicates that the soil properties are generally favorable for the specified use and that any limitations are minor and easily overcome.

Somewhat Limiting (Moderate) - This rating indicates that the soil properties and site features are unfavorable for the specified use, but that the limitations can be overcome or minimized with special planning and design.

Very Limiting (Severe) - This indicates that one or more soil properties or site features are very unfavorable and difficult. A major increase in construction effort, special designs, or intensive maintenance is required. These costly measures may not be feasible for some soils that are rated as severe.

There are limitations for building site development on this site. A comprehensive soil assessment should be completed prior to any earth disturbing activities on this site.

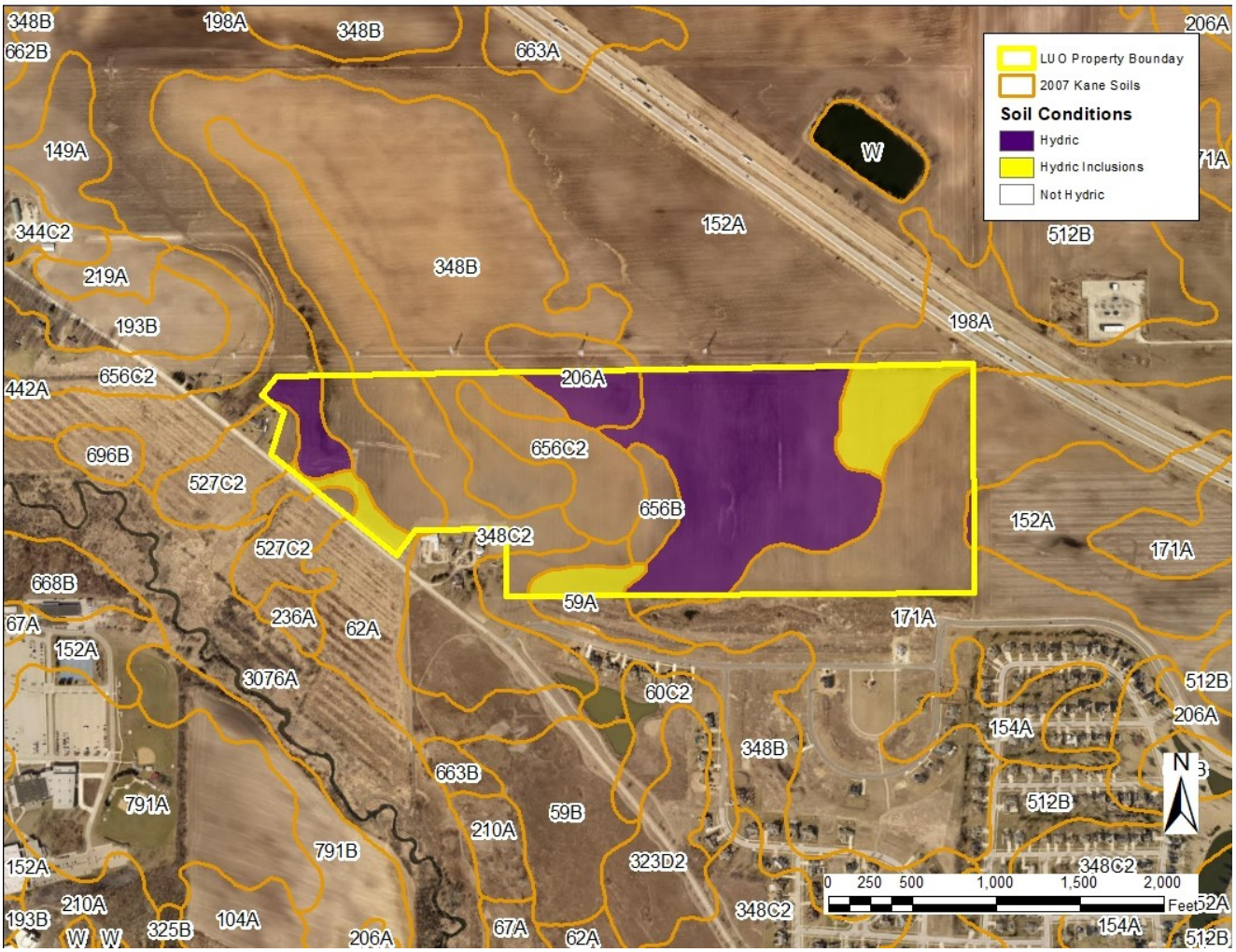

Figure 10: Hydric Soils

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Kane County SSURGO soil layer certified in 2007. Hydric soils are shaded purple and soils with hydric inclusions are shaded yellow.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Hydric inclusions are small areas, or inclusions, of nonhydric soils in the higher positions of the landform or map units dominantly made of nonhydric soils with inclusions of hydric soils in the low positions on the landform.

Hydric soils provide limitations for building site development due to their potential for ponding and poor drainage capacity. This often results in the need for improved drainage onsite prior to any proposed development. Any change to the natural drainage onsite has the potential to create flooding issues on and adjacent to the site. Hydric soils are often organic (peat or muck) and not suitable construction material. Hydric soils also may indicate wetlands onsite.

There are hydric soils and hydric inclusions on this site. A comprehensive soil assessment should be completed prior to any earth disturbing activities on this site.

LESA– PRIME FARMLAND

NOTE: The Kane County LESA System was revised and updated in 2004. Scores are reflected through a 33 point system used for the soils or Land Evaluation (LE) portion of the LESA Score.

Through the use of Kane County's Land Evaluation and Site Assessment System (LESA), a numerical value was determined for this site. The LESA System is designed to determine the quality of land for agricultural uses and to assess sites or land areas for their long term agricultural economic viability. In agricultural land evaluation, soils of a given area are rated ranging from the best to the worst suited for a stated agricultural use, i.e., cropland, forest land, or rangeland. A relative value is determined for each soil. The best soils are assigned a value of 33 and all others are assigned lower values. Therefore, the closer the relative value is to 33, the more valuable and more productive the site's soils are for agricultural purposes.

The land evaluation represents thirty-three percent of the total LESA score. It is based on data from the National Cooperative Soil Survey. The site assessment portion of a LESA represents sixty-seven percent of the LESA score. It is based on factors such as zoning and land use compatibility

The land evaluation for this site is 30, which represents the upper percent level of agricultural productivity.

Our opinion is based on information from the following sources:

Illinois Department of Natural Resources, Illinois Natural History Survey, Land Cover of Illinois in the Early 1800s., Vector Digital Data, Version 6.0, August, 2003.

County of Kane. "Kane County 2040 Green Infrastructure Plan". Adopted December 10, 2013.

United States Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory, Photo Year 1983-1984, Digitized 1985-1986.

Kane County's Wetlands and Streams Advanced Identification (ADID) Study completed in 2004.

Federal Emergency Management Agency, National Flood Insurance Program, Q3 Flood Data, Disc 6, 2011.

U.S. Geological Survey, Illinois Digital Orthophoto Quadrangles, 2006 photos, Published: Champaign, Illinois State Geological Survey, 2006.

Nonpoint Source Pollution– What's it All About?. Illinois Environmental Protection Agency. http://www.epa.illinois.gov/topics/water-quality/watershed-management/nonpoint-sources/what-is-nonpoint-source-pollution/index. 2015 Illinois EPA .

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Kane County, IL SSURGO soil layer certified in 2007, and DuPage County, IL SSURGO soil layer certified in 2007 and accompanying interpretations.

Dey, W.S., A.M. Davis, and B.B. Curry, 2007, Aquifer Sensitivity to Contamination, Kane County, Illinois: Illinois State Geological Survey, Illinois County Geologic Map, ICGM Kane-AS.

An on-site investigation conducted by the SWCD Resource Assistant, Jennifer Shroder on November 29, 2018.

We respectfully submit this information in compliance with the Illinois Soil and Water Conservation Districts Act (ILCS 70, 405/1 et seq). The District Board reviews proposed developments. Jennifer Shroder, Resource Assistant, prepared this report.

cc: Crown Community Development
1751 A West Diehl Road
Naperville, IL 60563

Map Unit Description

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

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

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Map unit: 206A - Thorp silt loam, 0 to 2 percent slopes

Component: Thorp (95%)

The Thorp component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is on outwash plains. The parent material consists of Loess and in the underlying outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria.

Map unit: 348B - Wingate silt loam, cool mesic, 2 to 5 percent slopes

Component: Wingate (97%)

The Wingate component makes up 97 percent of the map unit. Slopes are 2 to 5 percent. This component is on ground moraines on till plains. The parent material consists of loess over loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 26 inches during February, March, April. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Map unit: 527C2 - Kidami loam, 4 to 6 percent slopes, eroded

Component: Kidami (90%)

The Kidami component makes up 90 percent of the map unit. Slopes are 4 to 6 percent. This component is on end moraines, ground moraines. The parent material consists of till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, April. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 15 percent.

Map unit: 656B - Octagon silt loam, 2 to 4 percent slopes

Component: Octagon (92%)

The Octagon component makes up 92 percent of the map unit. Slopes are 2 to 4 percent. This component is on ground moraines. The parent material consists of Thin mantle of loess or other silty material and in the underlying till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, April. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 23 percent.

Map unit: 656C2 - Octagon silt loam, 4 to 6 percent slopes, eroded

Component: Octagon (92%)

The Octagon component makes up 92 percent of the map unit. Slopes are 4 to 6 percent. This component is on ground moraines. The parent material consists of Thin mantle of loess or other silty material and in the underlying till. Depth to a root restrictive layer, densic material, is 24 to 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during February, March, April. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 23 percent.

Dwellings With Basements

Rating Options

Attribute Name: Dwellings With Basements

Dwellings are single-family houses of three stories or less. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet.

The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification of the soil. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Map symbol	Map unit name	Rating	Component name and % composition Rating reasons
59B	Lisbon silt loam, 2 to 4 percent slopes	Very limited	Lisbon 92% Depth to saturated zone Shrink-swell Elpaso 8% Ponding Depth to saturated zone Shrink-swell
62A	Herbert silt loam, 0 to 2 percent slopes	Very limited	Herbert 92% Depth to saturated zone
152A	Drummer silty clay loam, 0 to 2 percent slopes	Very limited	Drummer, drained 94% Ponding Depth to saturated zone Shrink-swell Harpster, drained 3% Ponding Depth to saturated zone Shrink-swell Peotone, drained 3% Ponding Depth to saturated zone Shrink-swell
171A	Catlin silt loam, 0 to 2 percent slopes	Somewhat limited	Catlin 90% Depth to saturated zone Shrink-swell
198A	Elburn silt loam, 0 to 2 percent slopes	Very limited	Elburn 93% Depth to saturated zone Shrink-swell Drummer, drained 5% Ponding Depth to saturated zone Shrink-swell Thorp, drained 2% Ponding Depth to saturated zone Shrink-swell
206A	Thorp silt loam, 0 to 2 percent slopes	Very limited	Thorp 95% Ponding Depth to saturated zone Shrink-swell
348B	Wingate silt loam, cool mesic, 2 to 5 percent slopes	Very limited	Wingate 97% Depth to saturated zone Shrink-swell Elpaso, drained 3% Ponding Depth to saturated zone Shrink-swell
527C2	Kidami loam, 4 to 6 percent slopes, eroded	Somewhat limited	Kidami 90% Depth to saturated zone
656B	Octagon silt loam, 2 to 4 percent slopes	Somewhat limited	Octagon 92% Depth to saturated zone
656C2	Octagon silt loam, 4 to 6 percent slopes, eroded	Somewhat limited	Octagon 92% Depth to saturated zone

Dwellings Without Basements

Rating Options

Attribute Name: Dwellings Without Basements

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper.

The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification of the soil. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Map symbol	Map unit name	Rating	Component name and % composition Rating reasons
59B	Lisbon silt loam, 2 to 4 percent slopes	Somewhat limited	Lisbon 92% Depth to saturated zone Shrink-swell
62A	Herbert silt loam, 0 to 2 percent slopes	Very limited	Herbert 92% Depth to saturated zone Shrink-swell
152A	Drummer silty clay loam, 0 to 2 percent slopes	Very limited	Drummer, drained 94% Ponding Depth to saturated zone Shrink-swell Harpster, drained 3% Ponding Depth to saturated zone Shrink-swell Peotone, drained 3% Ponding Depth to saturated zone Shrink-swell
171A	Catlin silt loam, 0 to 2 percent slopes	Somewhat limited	Catlin 90% Shrink-swell
198A	Elburn silt loam, 0 to 2 percent slopes	Somewhat limited	Elburn 93% Depth to saturated zone Shrink-swell
206A	Thorp silt loam, 0 to 2 percent slopes	Very limited	Thorp 95% Ponding Depth to saturated zone Shrink-swell
348B	Wingate silt loam, cool mesic, 2 to 5 percent slopes	Somewhat limited	Wingate 97% Depth to saturated zone Shrink-swell
527C2	Kidami loam, 4 to 6 percent slopes, eroded	Somewhat limited	Kidami 90% Shrink-swell
656B	Octagon silt loam, 2 to 4 percent slopes	Somewhat limited	Octagon 92% Shrink-swell
656C2	Octagon silt loam, 4 to 6 percent slopes, eroded	Somewhat limited	Octagon 92% Shrink-swell

Small Commercial Buildings

Rating Options

Attribute Name: Small Commercial Buildings

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification of the soil). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Map symbol	Map unit name	Rating	Component name and % composition Rating reasons
59B	Lisbon silt loam, 2 to 4 percent slopes	Somewhat limited	Lisbon 92% Depth to saturated zone Shrink-swell
62A	Herbert silt loam, 0 to 2 percent slopes	Very limited	Herbert 92% Depth to saturated zone Shrink-swell
152A	Drummer silty clay loam, 0 to 2 percent slopes	Very limited	Drummer, drained 94% Ponding Depth to saturated zone Shrink-swell Harpster, drained 3% Ponding Depth to saturated zone Shrink-swell Peotone, drained 3% Ponding Depth to saturated zone Shrink-swell
171A	Catlin silt loam, 0 to 2 percent slopes	Somewhat limited	Catlin 90% Shrink-swell
198A	Elburn silt loam, 0 to 2 percent slopes	Somewhat limited	Elburn 93% Depth to saturated zone Shrink-swell
206A	Thorp silt loam, 0 to 2 percent slopes	Very limited	Thorp 95% Ponding Depth to saturated zone Shrink-swell
348B	Wingate silt loam, cool mesic, 2 to 5 percent slopes	Somewhat limited	Wingate 97% Depth to saturated zone Shrink-swell Slope
527C2	Kidami loam, 4 to 6 percent slopes, eroded	Somewhat limited	Kidami 90% Slope Shrink-swell
656B	Octagon silt loam, 2 to 4 percent slopes	Somewhat limited	Octagon 92% Shrink-swell
656C2	Octagon silt loam, 4 to 6 percent slopes, eroded	Somewhat limited	Octagon 92% Slope Shrink-swell

CONTACTS

Federal Agencies

U. S. Army Corps of Engineers
Regulatory Branch
231 S LaSalle Street, Suite 1500
Chicago, Illinois 60604
(312)846-5330

http://www.usace.army.mil

U.S.D.A. Natural Resources Conservation Service
2315 Dean Street Suite 100
St. Charles, Illinois 60175
(630)584-7960 ext. 3

http://www.il.nrcs.usda.gov/

U.S. Fish & Wildlife Service
Chicago Illinois Field Office
230 South Dearborn Suite 2938
Chicago, IL 60604
(847)298-3250

http://www.fws.gov/

U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604
(312)353-2000 or (800)621-8431

http://www.epa.gov/region5/
r5hotline@epa.gov

State Agencies

Illinois Department of Natural Resources
1 Natural Resources Way
Springfield, Illinois 62702-1271
(217)782-6302

http://dnr.state.il.us/

Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
(217)782-3397

http://www.epa.state.il.us/

Illinois Department of Transportation
2300 South Dirksen Parkway
Schaumburg, Illinois 62764-0001

(217)782-7820/(800)452-4368

http://www.idot.illinois.gov/

Illinois Natural History Survey
1816 South Oak Street MC652
Champaign, Illinois 61820
(217)333-6880

http://www.inhs.uiuc.edu/

County Offices

Kane County
Government Center
719 South Batavia Ave.
Geneva, IL 60134
(630)232-3400

http://www.countyofkane.org/

Development Department
(630)232-3492

Department of Environmental Management
(630)208-5118

Forest Preserve District
1996 South Kirk Road, Suite 320
Geneva, IL 60134
(630)232-5980
forestpreserve.countyofkane.org

Health Department
1240 North Highland Avenue
Aurora, IL 60506
(630)208-3801