1. The replacement of trees is based on the condition rating and species group (listed below) as identified by a certified arborist. The species group is comprised of the trees found in the "Species Ratings and Appraisal Factors for Illinois," prepared by the Illinois Arborist Association. If a species identified on a property is not found within the following listing, it is the responsibility of the City and a certified arborist to assign the tree to an appropriate species group. The amount of inches of tree caliper to be replaced is a percentage, based on group and condition rating, of the total amount of inches of DBH being removed. Only trees with condition ratings of 1, 2 or 3 are required to be replaced. When possible, replacement trees shall be chosen from Groups A and B.

2. Condition rating.

Rating	Description	General Criteria
1	Excellent	The tree is typical of the species, has less than 10% deadwood in the crown that is attributable to normal cause, has no other observed problems, and requires no remedial action.
2	Good to Fair	The tree is typical of the species and/or has less than 20% dead wood in the crown, only one or two minor problems that are easily corrected with normal care.
3	Fair	The tree is not typical of the species and/or has less than 30% deadwood in the crown, one or two minor problems that are not eminently lethal to the tree, and no significant decay or structural problems, but the tree must have remedial care above normal care in order to minimize the impact of future stress and to ensure continued health.
4	Fair to Poor	The tree is typical of the species and/or has significant problems such as 30% to 50% deadwood in the crown, serious decay or structural defect, insects, disease or other problems that can be eminently lethal to the tree or create a hazardous tree if not corrected in a short period of time or if the tree is subjected to additional stress.
5	Poor	The tree is not typical of the species and/or has over 50% deadwood in the crown, major decay or structural problems, is hazardous or is severely involved with insects, disease, or other problems, that even if aggressively corrected, would not result in the long-term survival of the tree.
6	Dead	Less than 10% of the tree shows signs of life.

3. Tree list.

Tree List

Common Name	Botanical Name	Cultivar	Tree Type	Species Group	
Arborvitae, Eastern (also Eastern White-cedar)	Thuja occidentalis	"Emerald," "Nigra," "Pyramidalis" "Wintergreen"	Evergreen	A	**Yes**
Baldcypress	Taxodium distichum		Shade Tree	A	**No**
Beech, American	Fagus grandifolia		Shade Tree	B	**No**
Beech, European	Fagus sylvatica	All cultivars	Shade Tree	B	**No**

Birch, River	Betula nigra		Ornamental/Small Tree	B	**Yes Multi Ster**
Buckeye, Ohio	Aesculus glabra		Shade Tree	B	**No**
Cedar, Eastern Red	Juniperus virginiana	"Canaertii," "Taylor"	Evergreen	B	**No**
Cherry, Black	Prunus serotina	"White Sparkle"	Shade Tree	C	**No**
Chokeberry, Amur	Prunus maackii	"Amber Beauty"	Shade Tree	B	**No**
Coffeetree, Kentucky (male only)	Gymnocladus dioica		Shade Tree	A	**No**
Coffeetree, Kentucky, female only	Gymnocladus dioicus	"Prairie Titan"	Shade Tree	B	**No**
Crabapple, Flowering	Malus spp.		Ornamental/Small Tree	A	**No**
Crabapple, Flowering	Malus spp.		Ornamental/Small Tree	B	**No**
Dogwood, Pagoda	Cornus alternifolia		Ornamental/Small Tree	B	**No**
Douglas fir	Pseudotsuga menziesii		Evergreen	A	**No**
Elm, Chinese	Ulmus parvifolia	"Dynasty," "Frosty"	Shade Tree	B	**No**
Elm, hybrid	Ulmus hybrids	"Accolade," "Homestead," "Jacan," "Pioneer," "Regal," "Sapporo Autumn Gold"	Shade Tree	B	**No**
Filbert, Turkish	Corylus colurna		Shade Tree	A	**No**
Ginkgo, male only	Ginkgo biloba	"Autumn Gold," "Fairmount," "Fastigiata," "Lakeview," "Princeton Sentry"	Shade Tree	B	**Yes a few**
Hackberry, Common	Celtis occidentalis		Shade Tree	A	**No**
Hawthorn, Cockspur	Crataegus crus-galli var. inermis		Ornamental/Small Tree	A	**No**
Hawthorn, Washington	Crataegus phaenopyrum		Ornamental/Small Tree	B	**No**
Hickory, Shagbark	Carya Ovata		Shade Tree	B	**No**
Honeylocust, Thornless	Gleditsia triacanthos f. inermis	"Green Glory," "Imperial," "Majestic," "Shademaster,"	Shade Tree	A	**Yes**

3/14/2016 City of Crystal Lake, IL Development and Design Standards

Gleditsia	**Honey Locust**	"Skyline"			**Yes**
Hornbeam, American	Carpinus caroliniana		Ornamental/Small Tree	B	**No**
Horsechestnut, Common	Aesculus hippocasta-	"Baumannii"	Shade Tree	B	**No**
Lilac, Japanese Tree	Syringa reticulate	"Ivory Silk"	Ornamental/Small Tree	B	**Yes**
Lilac, Peking	Syringa pekinensis		Ornamental/Small Tree	B	**No**
Linden, American (Basswood)	Tilia americana	"Fastigiata," "Redmond"	Shade Tree	B	**No**
Linden, Littleleaf	Tilia cordata	"Greenspire," "June Bride"	Shade Tree	B	**No**
Linden, Redmond	Tilia euchlora	"Redmond"	Shade Tree	A	**Yes**
Magnolia, Saucer	Magnolia x soulangi-		Ornamental/Small Tree	B	**No**
Magnolia, Star	Magnolia stellata	"Centennial," "Rosea," "Royal Star," Waterlily"	Ornamental/Small Tree	B	**No**
Maple, Amur	Acer tataricum subsp. Ginnala	"Compactum," "Durand Dwarf," "Flame," "Red Fruit"	Ornamental/Small Tree	B	**No**
Maple, Black	Acer nigrum	"Greencolumn"	Shade Tree	A	**No**
Maple, Hedge	Acer campestre	"Marimo," "Queen Elizabeth"	Ornamental/Small Tree	B	**No**
Maple, Norway	Acer plantanoides	"Crimson King," "Columnare," "Deborah," "Drummondil," "Emerald Lustre," "Erectum," "Green Lace," "Royal Red," "Schwedleri"	Shade Tree	B	**Yes**
Maple, Red	Acer rubrum	"Armstrong," "Autumn Flame," "Columnare," "Red Sunset," "October Glory"	Shade Tree	B	**No**
Maple, Sugar	Acer saccharum	"Green Mountain," "Legacy," "Sweet Shadow," "Wright Brothers"	Shade Tree	A	**No**
Oak, Bur	Quercus macrocarpa		Shade Tree	A	**No**
Oak, Chestnut	Quercus prinus		Shade Tree	B	**No**
Oak, Chinquapin	Quercus muehlenbergii		Shade Tree	A	**No**
Oak, English	Quercus robur	"Autopurpurea," "Concordia," "Filicifolia," "Michround," "Pendula," "Pyramich," "Skyrocket," "Variegata"	Shade Tree	B	**No**
Oak, Hill's	Quercus ellipsoidalis		Shade Tree	B	**No**
Oak, Pin	Quercus palustris	"Crownright," "Green Pillar,"	Shade Tree	B	**No**
Oak, Red	Quercus rubra		Shade Tree	B	**No**
Oak, Swamp White	Quercus bicolor		Shade Tree	A	**No**
Oak, White	Quercus alba		Shade Tree	A	**No**
			Tree		
Pear, Flowering	Pyrus calleryana	"Chanticleer," "Red Spire," "Whitehouse"	Shade Tree	A	**No**

http://ecode360.com/29067261?highlight=tree%20preservation,preserve%20trees,preservation,preservative,preserving,trees%20tree,preserved,preserve,tree... 32/89

Pine, Eastern White	Pinus strobus	"Contorta," "Fastigiata," "Pendula"	Evergreen	B	No
Planetree, London	Platanus x acerifolia	"Bloodgood," "Columbia," "Liberty," "Metzam," "Yarwood"	Shade Tree	B	No
Redbud, Eastern	Cercis canadensis	"Flame," "Wither's Pink Charm"	Ornamental/Small Tree	B	No
Serviceberry, Allegheny	Amalanchier Laevis		Ornamental/Small Tree	B	No
Serviceberry, Apple	Amalanchier x grandiflora	"Autumn Brilliance," "Ballerina," "Princess Diana," "Robin Hill," "Strata"	Ornamental/Small Tree	B Not in tree form	No
Serviceberry, Downy	Amalanchier arborea		Ornamental/Small Tree	B	No
Serviceberry, Saskatoon	Amalanchier alnifolia		Ornamental/Small Tree	B	No
Spruce, Colorado Blue	Picea pungens		Evergreen	B	Yes
Spruce, Norway	Picea abies		Evergreen	B	Yes
Tulip Tree	Liriodendron tulipifera	"Aureomarginatum"	Shade Tree	B	No

4. 

Key Concept:

Replacement ratios. Except as hereinafter provided, within 12 months after removal of each tree by a property owner pursuant to a tree removal permit, the owner or successor owner shall replace the removed tree pursuant to the following table. The minimum size of tree that warrants replacement for Groups A and B must have a DBH of two inches or greater, and six inches or greater for Groups C and D.

Species Group	Percentage of DBH to Replace
A	50
B	30
C	10
D	5

5. Guaranty of replacement. At the time of replacement of the trees, the owners shall provide to the City a copy of a written guaranty, in the form of a Letter of Credit, from the vendor of the tree to the owner that the tree will be replaced if the tree dies or becomes diseased within one year after installation of the tree.

EXHIBIT C

GENERAL LOCATION OF A AND B SPECIES OF TREES OUTSIDE OF THE NURSERY

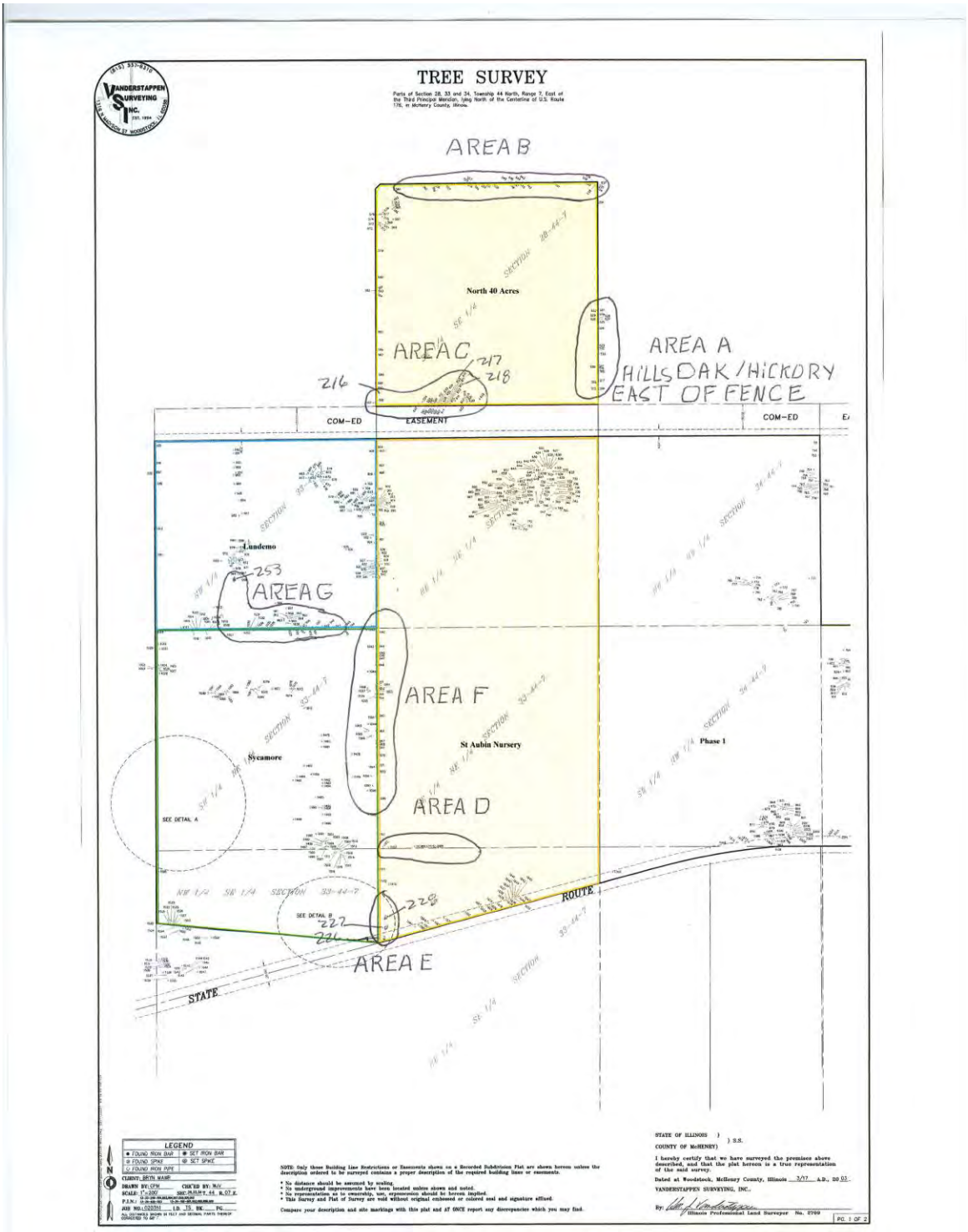
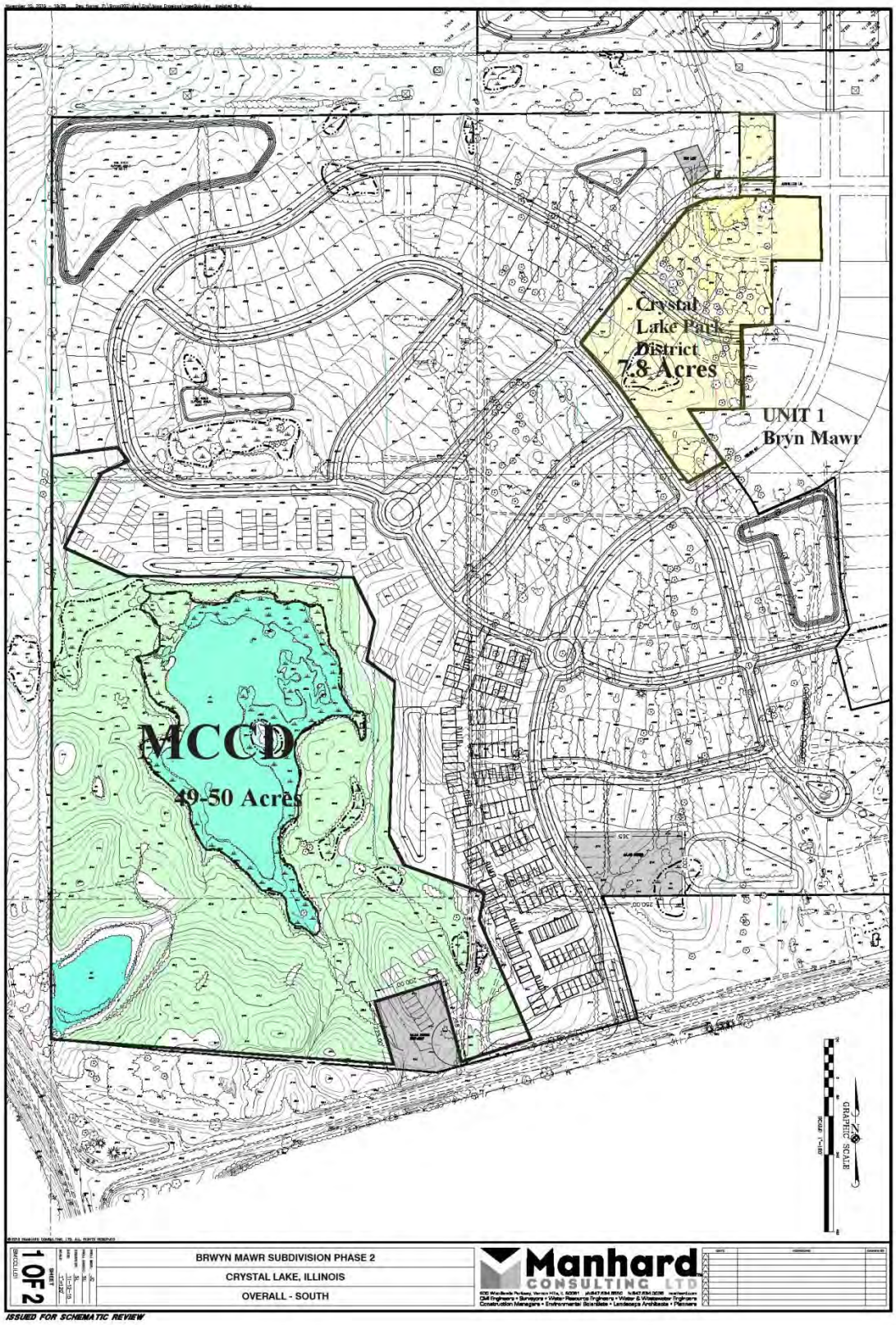

TREE SURVEY
AREA B
North 40 Acres
AREA C
217
218
216
AREA A
HILLS OAK / HICKORY
EAST OF FENCE
COM-ED
EASEMENT
COM-ED
Lundemo
253
AREA G
AREA F
St Aubin Nursery
Phase 1
Sycamore
AREA D
SEE DETAIL A
SEE DETAIL B
227
228
221
ROUTE
AREA E
STATE
LEGEND
FOUND IRON BAR
SET IRON BAR
FOUND SPIKE
SET SPIKE
FOUND IRON PIPE
NOTE: Only those Building Line Restrictions or Easements shown on a Recorded Subdivision Plat are shown hereon unless the description ordered to be surveyed contains a proper description of the required building lines or easements.
* No distance should be assumed by scaling.
* No underground improvements have been located unless shown and noted.
* No representations as to ownership, use, or possession should be hereon implied.
* This Survey and Plat of Survey are void without original embossed or colored seal and signature affixed.
Compare your description and site markings with this plat and AT ONCE report any discrepancies which you may find.
STATE OF ILLINOIS)
COUNTY OF McHENRY) S.S.
I hereby certify that we have surveyed the premises above described, and that the plat hereon is a true representation of the said survey.
Dated at Woodstock, McHenry County, Illinois 3/17 A.D., 20 03
VANDERSTAPPEN SURVEYING, INC.
Illinois Professional Land Surveyor No. 2700
PG. 1 OF 2

EXHIBIT D

LOCATION OF LAND DONATIONS AND TREES TO BE SAVED


Crystal Lake Park District
7.8 Acres
UNIT 1
Bryn Mawr
MCCD
49-50 Acres
GRAPHIC SCALE
1" = 100'
BRWYN MAWR SUBDIVISION PHASE 2
CRYSTAL LAKE, ILLINOIS
OVERALL - SOUTH
1 OF 2
Manhard CONSULTING LTD
ISSUED FOR SCHEMATIC REVIEW

OUTLOT A
2096106 SF

OUTLOT E

OUTLOT F

OUTLOT H

OUTLOT I

OUTLOT J

N

GRAPHIC SCALE

150 0 75 300 600

SCALE: 1"=150'

PHASING LEGEND

- PHASE 1
- PHASE 2A
- PHASE 2A
- PHASE 3
- PHASE 4

RECEIVED
MAR 04 2016
BY:

Manhard CONSULTING

2603 Woodlands Parkway, Vernon Hills, IL 60061 | p:847.634.4300 | f:847.634.4320
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DATE	REVISION

KENSINGTON SUBDIVISION

CRYSTAL LAKE, ILLINOIS

PHASING EXHIBIT

PROJ. MGR: JK
PROJ. ASSOC: SL
DRAWN BY: SL
DATE: 03-04-16
SCALE: 1"=150'

SHEET 1 OF 2

BMCCL

PRELIMINARY PLAN

March 3, 2016 - 20:09 Dwg Name: P:\Shared\03\Civil\Eng\Preliminary\PHASING EXHIBIT.dwg Updated By: ekw

PROPOSED DETENTION BASIN 1 HWL 914 B/POND 909 1.5 AC-FT

PROPOSED DETENTION BASIN 2 HWL 915 B/POND 910 6 AC-FT

PROPOSED DETENTION BASIN 3 HWL 916 B/POND 912 1.75 AC-FT

PROPOSED DETENTION BASIN 4 HWL 921 B/POND 918 1 AC-FT

OUTLOT J

OUTLOT K

JACOB MARTIN DRIVE

AVONDALE STREET

HELEN STREET

DORCHESTER LANE

ST. AUBIN LANE

N

GRAPHIC SCALE

60 0 30 120 240

SCALE: 1"=60'

PHASING LEGEND

PHASE 5

PHASE 6

Manhard CONSULTING

800 Woodlands Parkway, Vernon Hills, IL 60061 ph:847.634.4550 fx:847.634.0089 manhard.com
Civil Engineers • Water Resource Engineers • Surveyors • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | CHECKED | APPROVED | DATE

KENSINGTON SUBDIVISION

CRYSTAL LAKE, ILLINOIS

PHASING EXHIBIT

PROJ. MGR.: JC
PROJ. ASSOC.: SL
DRAWN BY: SL
DATE: 03-06-18
SCALE: 1"=60'

SHEET 2 OF 2

BMCCL

PRELIMINARY PLAN

March 3, 2018 – 10:09 Dwg Name: P:\Mancrd\BMCCL\Dwg\Kensington\PHASING EXHIBIT.dwg Updated By: kaiu

LAW OFFICES
KENNETH A. RAWSON

308 WEST ERIE
SUITE 700
CHICAGO, ILLINOIS 60654
(312) 787-2758
FAX (312) 787-2534

Saturday, March 26, 2016

City of Crystal Lake
Attention: Katherine Cowlin, Planner
100 Woodstock Street
Crystal Lake, Illinois 60014
City of Crystal

Re: Kensington required
Off Site Municipal Improvements.

Dear Ms Cowlin:

This will confirm, acknowledge and agree that the development has programmed into its cash flow projections the improvements and final engineering required by the improvements in the Public Works memo improvements which are set forth below. .

Furthermore, we hereby affirm that the cost of the improvements are not being passed or to be assumed by the future home owners in the development.

This will entail final engineering in conjunction with final plat approval of each phase which is affected by the improvements required in the Public Works memo from Victor Ramirez the specifics of which are set forth below:

1.) Relocate the Lift Station #30 forcemain about 100 feet to the south side of Route 176 so that it does not flow to the maxed out Lift #15. Estimated cost = $30,000.
This would allow 350 PE or 100 single family homes.
2.) Upgrade the pumps at Lift station #30 to 11 HP. Estimated cost = $60,500.
This would increase the capacity 410 PE or about 117 single family homes.
3.) The proposed development comprises of 323 single family and 204 townhomes. The PE for 323 single family is 1130.5. The PE for 204 townhomes is 612 PE. Total = 1742.5 PE.
1742.5 PE – 760 PE (with the 2 upgrades noted above) = 982.5 PE requiring the next level of improvements.
4.) In order to have capacity for that 982.5 PE the following improvements are required:

1. Lift #30 would require a complete upgrade to a triplex system.
Estimated cost =$798,000.

Very truly yours,

Kenneth A. Rawson, Manager \ `
Windsor Trent, developer of Kensington.

.

WETLAND ASSESSMENT REPORT

PREPARED FOR:

Windsor Trent LLC
C/O Mr. Kenneth Rawson
540 Frontage Road, Suite 3175
Northfield, Illinois 60093-1281

SUBJECT SITE:

Kensington Development
Formerly known as Bryn Mawr
Crystal Lake, McHenry County Illinois.
(Lat 42.250203 Long 88.418293)

February 8, 2016

MIDWEST ECOLOGICAL

PO BOX 321 | GILBERTS, ILLINOIS 60136 | 847-278-4610

TABLE OF CONTENTS

WETLAND DELINEATION REPORT
EXECUTIVE SUMMARY

In response to the request of Windsor Trent LLC, Midwest Ecological, Inc. (MEI) has performed and completed a Wetland Delineation for the 233 acre parcel located in Crystal Lake Illinois. The 233 acre parcel is located within Section 28 & 33, Township 44 North, Range 7 East of the Third Principal Meridian within Door Township, McHenry County, Illinois. Utilizing the methods and criteria established by the U.S. Army Corps of Engineers (COE) in their Corps of Engineers Wetlands Delineation Manual (1987), Midwest Regional Supplement (2008), United States Department of Agriculture/Natural Resource Conservation Service, in their Wetland Mapping Conventions – NRCS, Illinois (1998) a wetland investigation of the property was performed. Based on the on-site investigation using the information obtained from the field samples Midwest Ecological, Inc. (MEI) identified eight (8) non-farmed wetland areas and two (2) farmed wetland areas on the subject site totaling approximately **32.12 acres or 1,399,147.20 square** feet in size.

Please Note: A majority of the field work was completed outside the growing season. An updated boundary and FQI will be completed during the growing season of 2016 prior to final engineering.

It should be noted that under the current guidelines, any disturbance of a wetland area requires a permit through the US Army Corps of Engineers and/or McHenry County Building and Zoning. However, mitigation may or may not be required, depending on the overall impact (> 0.10) to the wetland, Waters of the United States or Isolated Wetland of McHenry County. This jurisdiction of the identified wetland is at the discretion of the ACOE.

PURPOSE OF VISIT

The purpose of the site visit is to determine if any Wetlands (various types), Open water pockets, Creeks or Rivers exist on-site and to determine their approximate size, location, quality and jurisdiction. Wetlands encountered were delineated using standard methods sanctioned by the United States Army Corps of Engineers in their Corps of Engineers Wetlands Delineation Manual (1987), Regional Supplement (2008) and Wetland Mapping Conventions – NRCS, Illinois (1998).

DEFINITION OF A WETLAND

The U.S. Army Corps of Engineers (ACOE) and the U.S. Environmental Protections Agency (EPA) define wetlands as:

> "areas that are inundated or saturated by surface or groundwater 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…" (33 CFR 328.3[b], 1977).

Although not defined by regulation, "normal circumstances" are interpreted by both the ACOE and the Natural Resources Conservation Service to be "the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed" (7 CFR 12.31[b][2][*i*]).

METHODOLOGY

Prior to visiting the site, Midwest Ecological, Inc. (MEI) performed a review of the aforementioned National Wetland Inventory map, McHenry County Soil Survey map and aerial photograph in order to determine existing site conditions. Site visits were then conducted by an Environmental Wetland Specialist from MEI on November 30 & December 11, 2015. The USACE Wetland Delineation Manual, dated January 1987, identifies the mandatory technical criteria for wetland identification. The three essential characteristics of a wetland are: 1) hydrophytic vegetation; 2) hydric soils; and 3) wetland hydrology. These characteristics are described below:

Hydrophytic Vegetation: The hydrophytic vegetation criterion is based on a separation of plants into five basic groups:

1) Obligate wetland plants (OBL) almost always occur (estimated probability >99%) in wetlands under natural conditions;
2) Facultative wetland plants (FACW) usually occur in wetlands (estimated probability 67-99%), but occasionally are found in non-wetlands;
3) Facultative plants (FAC) are equally likely to occur in wetland or non-wetlands (estimated probability 34-66%);
4) Facultative upland plants (FACU) usually occur in non-wetlands (estimated probability 67-99%), but occasionally are found in wetlands (estimated probability 1-33%); and
5) Obligate upland plants (UPL) almost always occur (estimated probability >99%) in non-wetlands under natural conditions.

Within each data point, vegetation is sampled in plots of varying size based on the type of vegetation being sampled. The following plot sizes are recommended by the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Midwest Region:

Trees	- 30-ft radius
Saplings/Shrubs	- 15-ft radius
Herbaceous Plants	- 1 m2 plot
Woody vines	- 30-ft radius

If greater than 50% of the plants present in each stratum or layer of the plant community are FAC (with the exception of FAC-), FACW, or OBL the subject area is considered a wetland in terms of vegetation (Dominance Test). If the vegetation does not meet the requirements of the Dominance Test, the Prevalence Index (PI) should be utilized.

The PI evaluates the coverage, on a weighted basis of coverage over all strata, of the vegetation within the plot. The PI ranges between 1.0 and 5.0, with a 3.0 or less indicating hydrophytic vegetation is present. If the PI is greater than 3.0, the dominance test is failed, but there are still

hydric soil and wetland hydrology presence, the observation of morphological adaptations by vegetation can be used to indicate that the hydrophytic vegetation criteria is met.

Morphological adaptations are changes in the structure of vegetation in response to conditions outside the normal character of the plant. These adaptations include adventitious roots, multi-stemmed trunks, shallow root systems developed at or near the surface, and buttressing in tree species. To meet this indicator, more than 50% of the individuals of FACU species must exhibit the morphological adaptations. Care must be given that the adaptations observed are due wetter conditions that the species is used to as opposed to other factors such as shallow roots present because of erosion of the surface.

Hydric Soils: Hydric soils are defined in the manual as "soils that are saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions in the upper part." Hydric soil indicators are distinctive characteristics that persist in the soil during both wet and dry periods, and are used to identify hydric soils in the field. Field indicators include color, mottling, gleying, and sulfidic odor. A specific set of indicators has been developed by the USDA Natural Resource Conservation Service (Field Indicators of Hydric Soils in the United States) which provides a detailed description of how to identify the indicators in during a site visit. A soil meets the definition of a hydric soil if it exhibits at least one of these indicators.

Wetland Hydrology: Indicators of hydric soil and hydrophytic vegetation typically reflect the middle and long-term conditions of a site, but not the short term conditions. The wetland hydrology criterion is often the most difficult to determine because of climatological variation. Typically, the presence of water for a week or more during the growing season creates anaerobic conditions indicative of wetland hydrology. Anaerobic conditions lead to the prevalence of wetland plants. The 2010 USACE Regional Supplement for the Midwest Region provides specific indicators in four different groups for wetland hydrology: Observation of Surface Water or Saturated Soils, Evidence of Recent Inundation, Evidence of Current or Recent Soil Saturation, and Evidence from Other Site Conditions or Data. If a site exhibits 1 primary indicator or 2 secondary indicators, then it meets the hydrology criteria for a wetland.

Typical Farmed Wetland Signatures:

- Hydrophytic vegetation (observed as a different color than planted crops within the area),
- Farming areas that have not been planted due to wet conditions,
- Crop damage/stressed crops due to wetness identified from site visits or aerial photograph,
- Wet signatures or bright greener vegetation (crop) during years of below normal precipitation

MEI used historical data from weather stations within the study area and the long-term precipitation averages obtained from the Army Corps of Engineers and NRCS Wetlands Determination Tables. Aerial imagery was reviewed from at least five years of normal precipitation and compared to the "WET" indicator year of 1999. The aerial imagery (based on

WET Table) was analyzed for wetland signatures. A wetland signature is shown on an aerial from saturation, inundation or crop damage in a normal year.

Typical soil core samples detect the presence of hydric soils, defined as "soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part." Soil characteristics such as color, mottling, texture, and odor were used as indicators in determining hydric soil presence. The presence of wetland hydrology often only requires the presence of water for a week or more or long enough to produce anaerobic conditions during the growing season. For our purposes, it is determined by evaluating indicators such as drainage patterns, water marks, and presence/absence of inundated soils. In most cases, the presence of all three parameters must be present in order for an area to be determined a wetland.

REFERENCE MATERIALS

The following materials were reviewed and utilized to assist in the field reconnaissance and completion of this report. See Appendix A for the Reference Materials (Exhibits 1 through 7).

Location

The site is located at the St. Aubin Nursery site off of RT. 176, Crystal Lake, McHenry County Illinois. Geographically, the site can be located in Section 28 & 33, Township 44 North, and Range 7 East of the Third Principal Meridian within Door Township (Lat 42.250203 Long 88.418293).

National & McHenry County Advanced Identification Wetland Inventory Maps

The National & McHenry County Advanced Identification Wetland Maps were reviewed to determine the location of wetland areas on the subject site. It should be noted that these maps are only large scale guides, actual wetland locations and types may vary. Ultimate qualification occurs during field reconnaissance.

Per our review of the NWI map, the study area does contain thirteen mapped wetland areas.

PEMC: Palustrine, Emergent, Seasonally Flooded
PEMF: Palustrine, Emergent, Semipermanent
PFO1C: Palustrine, Forested, Hypersaline, Seasonal
PABF: Palustrine, Aquatic Bed, Semipermanent
POWF: Palustrine, Open Water, Semipermanent
POWHh: Palustrine, Open Water, Permanent, Diked/Impounded

Per our review of the McHenry County Advanced Identification Map, The study area does contain eleven non-ADID mapped wetland areas, one farmed and one High Habitat (K1008) wetland areas.

McHenry County Soil Survey Map

The Soil Survey of McHenry County, Illinois was investigated to determine the location of hydric soils on the subject site. Mapped hydric soils can indicate wetland areas. The following soils were found to be present on the subject site during our investigation.

103A – Houghton Muck, 0-2% slope (**poorly drained, hydric**)
146A – Elliot Silt Loam, 0-2% slopes (somewhat poorly drained)
149A – Brenton Silt Loam, 0-2% slopes (somewhat poorly drained)
153A – Pella Silty Clay Loam, 0-2% slope (**poorly drained, hydric**)
219A – Millbrook Silt Loam, 0-2% slopes (somewhat poorly drained)
223C2 – Varna Silt Loam, 4-6% slopes, (moderately well drained)
232A - Ashkum Silty Clay Loam, 0-2% slope (**poorly drained, hydric**)
298B – Beecher Silt Loam, 0-2% slopes (somewhat poorly drained)
327B – Fox Silt Loam, 2-4% slopes (well drained)
329A – Will Loam 0-2% slope (**poorly drained, hydric**)
330A – Peotone Silty Clay Loam, 0-2% slope (**poorly drained, hydric**)
343A – Kane Silt Loam, 0-2% slopes (somewhat poorly drained)
344A – Harvard Silt Loam, 0-2% slopes (well drained)
344B - Harvard Silt Loam, 2-5% slopes (well drained)
530B – Ozaukee Silt Loam, 2-5% slopes, (moderately well drained)
530C2 - Ozaukee Silt Loam, 4-6% slopes, (moderately well drained)
530C3 - Ozaukee Silty Clay Loam, 4-6% slopes, eroded (moderately well drained)
570B - Martinsville Silt Loam, 2-4% slopes, (well drained)
570C2 - Martinsville Silt Loam, 4-6% slopes, eroded (well drained)
1067 – Harpster Silt Loam, 0-2% slope (**poorly drained, hydric**)
1103A- Houghton Muck, 0-2% slope (**very poorly drained, hydric**)
1153A - Pella Silty Clay Loam, 0-2% slope (**very poorly drained, hydric**)

United States Geological Survey Map

The United States Geological Survey Map & Hydrological Atlas (HA-256 & 361) as illustrated on the Woodstock & Huntley Quad U.S.G.S. Map and Hydrological Atlas. These maps were reviewed to determine the historical local drainage patterns. Upon review of this drainage pattern, it appears majority of the site runoff flows to the west and into the S. Branch of the Kishwaukee River.

Flood Insurance Rate Map

The Flood Insurance Rate Maps (F.I.R.M.), for McHenry County, Illinois, Community Panel No. 17111C0200 J & 310 J effective date November 16, 2006 were reviewed to determine the location of regulatory floodplains and floodways within the subject site. Mapped floodplains can be indicative of wetland hydrology.

Based on the F.I.R.M. Maps, the study area does not contain a Zone X flood plain. Please note that a Zone A flood plain area can be found West of the site. A branch of the Kishwaukee River is found west of RT 47.

WETLAND FIELD DELINEATION

An on-site wetland delineation of the property was conducted on November 30 & December 11, 2015. Wetland boundaries were determined using the ACOE guidelines and the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) guidelines, as stated previously. The routine method of wetland delineation was used, incorporating information on vegetation, hydrology and soils. The full width of the property was traversed and when a suspected wetland was encountered, the plant species present were determined by making several random passes through the area. If wetland plant species were found to be comprised of 50% or more of plant cover (i.e., wetland vegetation was dominant), the suspected wetland was further examined for the necessary field indicators of hydric soil and hydrology. The wetland boundaries were then defined and all observed plant species were recorded.

The plant taxonomic nomenclature and the Natural Area Index (NAI) used in this report follow's the Swink and Wilhelm Manual (1994). A more detailed survey would be necessary for a more complete plant list and while more species might be obtained from additional surveys, this would not change the areas delineated as wetlands.

Study Area: The two hundred and thirty three (233) acre study area and consists of historical nursery, residential area and farm. The farm is currently in production and consists of rolling terrain. Agricultural product such as Corn (*Zea mays*) and Soy bean (*Glycine max*) has been planted throughout the site. Eight non-farmed wetlands and two farmed wetlands areas are noted within the study area.

Wetland A: Wetland A is a open water pond that is located at the SW corner of the site. The pond appears to be historically excavated due to its defined shoreline. The pond receives surface flows from the upstream watershed and the adjacent parking lot and roadway to the South. Wetland A is characterized by data point 1A & 2A and is approximately **1.31 acres or 57,063.60 square foot.** MEI did not identify an outfall or release structure out of the flagged wetland. It appears that water can overtop the bank during heavy or consecutive rain event. The dominant vegetation found was determined to be Common Cattails (*Typha latifolia*), Reed Canary Grass (*Phalaris arundinacea*), Boxelder (*Acer negundo*), Sandbar Willow (*Salix interior*) & Eastern Cottonwood (*Populus deltoides*).

During our investigation positive wetland hydrology is met with the primary indicators of Surface Water (A1) & Inundation visible on aerial imagery (B7). Primary soil indicators of thick dark surface (A12) & Depleted Dark Surface (F7) was noted within the flagged boundary.

Said vegetation, soils and hydrology information noted above can be found in the data sheets section of this report. Please note data sheets 1A-4A reference Wetland A.

Study Information

Site: Windsor Trent

Locale: Wetland A

By: Robert Vanni

Conservatism-Based Metrics

Mean C (native species)	1.85
Mean C (all species)	1.30
Mean C (native trees)	2.33
Mean C (native shrubs)	1.25
Mean C (native herbaceous)	1.88
FQAI (native species)	9.41
FQAI (all species)	7.89
Adjusted FQAI	15.48
% C value 0	0.43
% C Value 1-3	0.41
% C value 4-6	0.16
% C value 7-10	0.00

Additional Metrics

Species Richness (all)	37.00
Species Richness (native)	26.00
% Non-native	0.30
Wet Indicator (all)	-0.16
Wet Indicator (native)	-0.50
% hydrophyte (Midwest)	0.68
% native perennial	0.54
% native annual	0.16
% annual	0.19
% perennial	0.76

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET Indicator	WET indicator (numeric)	Habit	Duration	Nativity
acenep	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
amabli	Amaranthus blitoides	Mat Amaranth	0	FACU	1	Forb	Annual	Adventive
arcmin	Arctium minus	Lesser Burrdock	0	FACU	1	Forb	Biennial	Adventive
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
consep	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
cornac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
cypesc	Cyperus esculentus	Chufa	0	FACW	-1	Sedge	Perennial	Native
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
diplac	Dipsacus laciniatus	Cut-Leaf Teasel	0	UPL	2	Forb	Biennial	Adventive
echcru	Echinochloa crus-galli	Large Barnyard Grass	0	FACW	-1	Grass	Annual	Native
eleery	Eleocharis palustris	Common Spike-Rush	2	OBL	-2	Sedge	Perennial	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Annual	Native
impcap	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	-1	Forb	Annual	Native
jundud	Juncus dudleyi	Dudley's Rush	4	FACW	-1	Forb	Perennial	Native
junter	Juncus torreyi	Torrey's Rush	4	FACW	-1	Forb	Perennial	Native
lemmin	Lemna minor	Common Duckweed	5	OBL	-2	Forb	Annual	Native
moralb	Morus alba	White Mulberry	0	FAC	0	Tree	Perennial	Adventive
parqui	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	1	Vine	Perennial	Native
polpen	Persicaria pensylvanica	Pinkweed	0	FACU	1	Forb	Annual	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
popdel	Populus deltoides	Eastern Cottonwood	2	FAC	0	Tree	Perennial	Native
quemac	Quercus macrocarpa	Burr Oak	5	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
robpse	Robinia pseudoacacia	Black Locust	0	FACU	1	Tree	Perennial	Adventive
rosmul	Rosa multiflora	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Black Raspberry	2	UPL	2	Shrub	Perennial	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Black Elder	1	FACW	-1	Shrub	Perennial	Native
sciatv	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	-2	Sedge	Perennial	Native
solalt	Solidago altissima	Tall Goldenrod	1	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Perennial	Native
taroff	Taraxicum officinale	Common Dandelion	0	FACU	1	Forb	Perennial	Adventive
typlat	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	-2	Forb	Perennial	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Perennial	Native

Wetland A Jurisdictional Determination Opinion: Wetland A appears to be an isolated waters of McHenry County due to a lack of a surface connection to a Waters of the United States. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

Wetland B: Wetland B is large open water/emergent wetland that receives surface and subsurface flows from the upstream watershed and the surrounding properties. Wetland B is characterized by data point **1B, 3B, 4B, 7B & 8B** and is approximately **14.40 acres or 627,264.00 square foot.** The wetland area is bordered by an old growth oak savannah and historical farming area. The dominant vegetation found was determined to be Narrow-leaved Cattails (*Typha angustifolia*), Reed Canary Grass (*Phalaris arundinacea*), Common Cattails (*Typha latifolia*), Boxelder (*Acer negundo*), Sandbar Willows (*Salix interior*), Burr Oak (*Quercus macrocarpa*) & Common Buckthorn (*Rhamnus cathartica*).

During our investigation positive wetland hydrology is met with the primary indicators of Surface Water (A1), Saturation (A3) & Inundation visible on aerial imagery (B7). Mapped soil is identified as Houghton Muck (103A) which is a poorly drained hydric soil. Primary soil indicators of thick dark surface (A12), loamy mucky material (F1) & Depleted Dark Surface (F7) was noted within the flagged boundary.

Said vegetation soils and hydrology information noted above can be found in the datasheets section of this report. Please note data sheets 1B-8B reference wetland B.

Study Information

Site:	Windsor Trent
Locale:	Wetland B
By:	Robert Vanni

Conservatism-Based Metrics		Additional Metrics	
Mean C (native species)	2.79	Species Richness (all)	56.00
Mean C (all species)	2.02	Species Richness (native)	41.00
Mean C (native trees)	3.36	% Non-native	0.27
Mean C (native shrubs)	2.20	Wet Indicator (all)	-0.24
Mean C (native herbaceous)	2.83	Wet Indicator (native)	-0.62
FQAI (native species)	17.84	% hydrophyte (Midwest)	0.71
FQAI (all species)	15.10	% native perennial	0.63
Adjusted FQAI	23.84	% native annual	0.11
% C value 0	0.36	% annual	0.11
% C Value 1-3	0.30	% perennial	0.82
% C value 4-6	0.32		
% C value 7-10	0.02		

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET indicator	WET indicator (numeric)	Habit	Duration	Nativity
aceneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
acesai	Acer saccharinum	Silver Maple	0	FACW	-1	Tree	Perennial	Native
allpet	Alliaria petiolata	Garlic-Mustard	0	FAC	0	Forb	Biennial	Adventive
amahbi	Amaranthus hibtoides	Mat Amaranth	0	FACU	1	Forb	Annual	Adventive
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Perennial	Native
arcmin	Arctium minus	Lesser Burrdock	0	FACU	1	Forb	Biennial	Adventive
asceme	Asclepias incarnata	Swamp Milkweed	4	OBL	-5	Forb	Perennial	Native
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
consep	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
caxane	Carex annectens	Yellow-Fruit Sedge	5	FACW	-1	Sedge	Perennial	Native
caxstri	Carex stricta	Uptight Sedge	5	OBL	-5	Sedge	Perennial	Native
caroyt	Carya ovata	Shag-Bark Hickory	5	FACU	1	Tree	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
coralb	Cornus alba	Red Osier	6	FACW	-1	Shrub	Perennial	Native
corrac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
cypesc	Cyperus esculentus	Chufa	0	FACW	-1	Sedge	Perennial	Native
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
diplac	Dipsacus laciniatus	Cut-Leaf Teasel	0	UPL	2	Forb	Biennial	Adventive
echcru	Echinochloa crus-galli	Large Barnyard Grass	0	FACW	-1	Grass	Annual	Native
eleerv	Eleocharis palustris	Common Spike-Rush	2	OBL	-5	Sedge	Perennial	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
eristr	Erigeron strigosus	Prairie Fleabane	5	FACU	1	Forb	Annual	Native
frapen	Fraxinus pennsylvanica	Green Ash	1	FACW	-1	Tree	Perennial	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Annual	Native
horjub	Hordeum jubatum	Fox-Tail Barley	0	FAC	0	Grass	Perennial	Adventive
impcap	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	-1	Forb	Annual	Native
irivir	Iris virginica var. shrevei	Virginia Blueflag	5	OBL	-5	Forb	Perennial	Native
jugnig	Juglans nigra	Black Walnut	5	FACU	1	Tree	Perennial	Native
jundud	Juncus dudleyi	Dudley's Rush	4	FACW	-1	Forb	Perennial	Native
junto	Juncus torreyi	Torrey's Rush	4	FACW	-1	Forb	Perennial	Native
moralb	Morus alba	White Mulberry	0	FAC	0	Tree	Perennial	Adventive
parqui	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	1	Vine	Perennial	Native
polpen	Persicaria pensylvanica	Pinkweed	0	FACU	1	Forb	Annual	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
phraus	Phragmites australis ssp. americanus	Common Reed	1	FACW	-1	Grass	Perennial	Native
popdel	Populus deltoides	Eastern Cottonwood	2	FAC	0	Tree	Perennial	Native
quebic	Quercus bicolor	Swamp White Oak	6	FACW	-1	Tree	Perennial	Native
quemac	Quercus macrocarpa	Burr Oak	5	FAC	0	Tree	Perennial	Native
quepal	Quercus palustris	Pin Oak	8	FACW	-1	Tree	Perennial	Native
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
rosmul	Rosa multiflora	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubida	Rubus idaeus ssp. idaeus	Common Red Raspberry	0	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Black Raspberry	2	UPL	2	Shrub	Perennial	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Perennial	Adventive
salfra	Salix fragilis	Crack Willow	0	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native
salnig	Salix nigra	Black Willow	4	OBL	-5	Tree	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Black Elder	1	FACW	-1	Shrub	Perennial	Native
sciflu	Schoenoplectus fluviatilis	River Club-Rush	4	OBL	-5	Sedge	Perennial	Native
sciatv	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	-5	Sedge	Perennial	Native
silter	Silphium terebinthinaceum	Prairie Dock	5	FAC	0	Forb	Perennial	Native
spapec	Spartina pectinata	Freshwater Cord Grass	4	FACW	-1	Grass	Perennial	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Perennial	Adventive
trihyb	Trifolium hybridum	Alsike Clover	0	FACU	1	Forb	Perennial	Adventive
verhas	Verbena hastata	Simpler's-Joy	4	FACW	-1	Forb	Perennial	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Perennial	Native

Wetland B Jurisdictional Determination Opinion: Wetland B does not have a surface connection however it appears to be connected to an off-site wetland via farmers draintile. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

Wetland C: Wetland C is a scrub/shrub wetland that receives surface and subsurface flows from the upstream watershed and surrounding farming areas. Wetland C is characterized by data point

1C & 3C and is approximately **1.33 acres or 57,934.80 square foot.** The wetland area appears to be a contained depression. A surface outlet conveying hydrology was not identified. The dominant vegetation found was determined to be Reed Canary Grass (*Phalaris arundinacea*), Boxelder (*Acer negundo*), Common Buckthorn (*Rhamnus cathartica*) & Sandbar Willow (*Salix interior*).

During our investigation positive wetland hydrology is met with the primary indicators of Saturation (A3). Mapped soil is identified as Harpster silt loam, undrained (1067 A) which is a poorly drained hydric soil. Primary soil indicators of thick dark surface (A12) was noted within the flagged boundary.

Said vegetation, soils and hydrology information noted above can be found in the data sheets section of this report. Please note data sheets 1C-4C reference Wetland C.

Study Information

Site: Windsor Trent

Locale: Wetland C

By: Robert Vanni

Conservatism-Based Metrics		Additional Metrics	
Mean C (native species)	2.00	Species Richness (all)	40.00
Mean C (all species)	1.25	Species Richness (native)	24.00
Mean C (native trees)	0.00	% Non-native	0.40
Mean C (native shrubs)	1.25	Wet Indicator (all)	-0.08
Mean C (native herbaceous)	2.28	Wet Indicator (native)	-0.52
FQAI (native species)	9.80	% hydrophyte (Midwest)	0.65
FQAI (all species)	7.91	% native perennial	0.48
Adjusted FQAI	15.49	% native annual	0.13
% C value 0	0.50	% annual	0.15
% C Value 1-3	0.30	% perennial	0.75
% C value 4-6	0.18		
% C value 7-10	0.00		

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET Indicator	WET indicator (numeric)	Habit	Duration	Nativity
aceneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
alipet	Alliaria petiolata	Garlic-Mustard	0	FAC	0	Forb	Biennial	Adventive
amabli	Amaranthus blitoides	Mat Amaranth	0	FACU	1	Forb	Annual	Adventive
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Perennial	Native
arcmin	Arctium minus	Lesser Burdock	0	FACU	1	Forb	Biennial	Adventive
ascinc	Asclepias incarnata	Swamp Milkweed	4	OBL	-2	Forb	Perennial	Native
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
consep	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
carann	Carex annectens	Yellow-Fruit Sedge	5	FACW	-1	Sedge	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
cornac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
cypesc	Cyperus esculentus	Chufa	0	FACW	-1	Sedge	Perennial	Native
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
diplac	Dipsacus laciniatus	Cut-Leaf Teasel	0	UPL	2	Forb	Biennial	Adventive
echcru	Echinochloa crus-galli	Large Barnyard Grass	0	FACW	-1	Grass	Annual	Native
eleery	Eleocharis palustris	Common Spike-Rush	2	OBL	-2	Sedge	Perennial	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Annual	Native
horjub	Hordeum jubatum	Fox-Tail Barley	0	FAC	0	Grass	Perennial	Adventive
impcap	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	-1	Forb	Annual	Native
jundud	Juncus dudleyi	Dudley's Rush	4	FACW	-1	Forb	Perennial	Native
MORALB	Morus alba	White Mulberry	0	FAC	0	Tree	Perennial	Adventive

parqui	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	1	Vine	Perennial	Native
polpen	Persicaria pensylvanica	Pinkweed	0	FACU	1	Forb	Annual	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
rosmul	Rosa multiflora	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubida	Rubus idaeus ssp. idaeus	Common Red Raspberry	0	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Black Raspberry	2	UPL	2	Shrub	Perennial	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Perennial	Adventive
salfra	Salix fragilis	Crack Willow	0	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Black Elder	1	FACW	-1	Shrub	Perennial	Native
sciatv	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	-2	Sedge	Perennial	Native
silter	Silphium terebinthinaceum	Prairie Dock	5	FAC	0	Forb	Perennial	Native
spapec	Spartina pectinata	Freshwater Cord Grass	4	FACW	-1	Grass	Perennial	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Perennial	Adventive
trihyb	Trifolium hybridum	Alsike Clover	0	FACU	1	Forb	Perennial	Adventive
verhas	Verbena hastata	Simpler's-Joy	4	FACW	-1	Forb	Perennial	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Perennial	Native

Wetland C Jurisdictional Determination Opinion: Wetland C appears to be an isolated waters of McHenry County due to a lack of a surface connection to a Waters of the United States. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

Wetland D: Wetland D is a reed canary grass and sandbar willow dominated wetland that receives surface and subsurface flows from the upstream watershed and farming areas. Wetland D is characterized by data point 1D and is approximately **0.30 acres or 13,285.80 square foot.** It appears that the wetland is a contained depression. A surface outlet conveying hydrology was not identified. The dominant vegetation found was determined to be Reed Canary Grass (*Phalaris arundinacea*) & Sandbar Willow (*Salix interior*).

During our investigation positive wetland hydrology is met with the primary indicators of Saturation (A3). Mapped soil is identified as Harpster silt loam, undrained (1067 A) which is a poorly drained hydric soil. Primary soil indicators of thick dark surface (A12) was noted within the flagged boundary.

Said vegetation, soils and hydrology information noted above can be found in the data sheets section of this report. Please note data sheets 1D-3D reference Wetland D.

Study Information

Site:	Windsor Trent
Locale:	Wetland D
By:	Robert Vanni

Conservatism-Based Metrics		Additional Metrics	
Mean C (native species)	1.37	Species Richness (all)	31.00
Mean C (all species)	0.84	Species Richness (native)	15.00
Mean C (native trees)	0.00	% Non-native	0.52
Mean C (native shrubs)	1.25	Wet Indicator (all)	0.06

Mean C (native herbaceous)	1.55	Wet Indicator (native)	-0.26
FQAI (native species)	5.30	% hydrophyte (Midwest)	0.52
FQAI (all species)	4.67	% native perennial	0.32
Adjusted FQAI	9.52	% native annual	0.16
% C value 0	0.48	% annual	0.19
% C Value 1-3	0.29	% perennial	0.52
% C value 4-6	0.03		
% C value 7-10	0.00		

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET Indicator	WET indicator (numeric)	Habit	Duration	Nativity
acaneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
allpet	Alliaria petiolata	Garlic-Mustard	0	FAC	0	Forb	Biennial	Adventive
amablt	Amaranthus blitoides	Mat Amaranth	0	FACU	1	Forb	Annual	Adventive
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Perennial	Native
arcmin	Arctium minus	Lesser Burrdock	0	FACU	1	Forb	Biennial	Adventive
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
consep	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
cornac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
cypese	Cyperus esculentus	Chufa	0	FACW	-1	Sedge	Perennial	Native
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
diplac	Dipsacus laciniatus	Cut-Leaf Teasel	0	UPL	2	Forb	Biennial	Adventive
echcru	Echinochloa crus-galli	Large Barnyard Grass	0	FACW	-1	Grass	Annual	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Annual	Native
horjub	Hordeum jubatum	Fox-Tail Barley	0	FAC	0	Grass	Perennial	Adventive
impcap	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	-1	Forb	Annual	Native
jundud	Juncus dudleyi	Dudley's Rush	4	FACW	-1	Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	1	Vine	Perennial	Native
polpen	Persicaria pensylvanica	Pinkweed	0	FACU	1	Forb	Annual	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
rosmul	Rosa multiflora	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Black Raspberry	2	UPL	2	Shrub	Perennial	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Black Elder	1	FACW	-1	Shrub	Perennial	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Perennial	Adventive
trihyb	Trifolium hybridum	Alsike Clover	0	FACU	1	Forb	Perennial	Adventive
verhas	Verbena hastata	Simpler's-Joy	4	FACW	-1	Forb	Perennial	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Perennial	Native

Wetland D Jurisdictional Determination Opinion: Wetland D appears to be a jurisdictional wetland area due to a connection to an unnamed tributary of the Kishwaukee River. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

Wetland E: Wetland E is an Eastern cottonwood dominated wood wetland that receives surface and subsurface flows from the upstream watershed and farming areas. Wetland E is characterized by data point 1E and is approximately **0.30 acres or 13,068.00 square foot.** It appears that the wetland is a contained depression. A surface outlet conveying hydrology to the west was noted. It appears that Wetland E connects to a farmed wetland area. The dominant vegetation found was determined to be Eastern Cottonwood (*Populus deltoides*), Reed Canary Grass (*Phalaris arundinacea*) & Rambler Rose (*Rosa multiflora*).

During our investigation positive wetland hydrology is met with the primary indicators of Saturation (A3). Mapped soil is identified as Harpster silt loam, undrained (1067 A) which is a poorly drained hydric soil. Primary soil indicators of thick dark surface (A12) was noted within the flagged boundary.

Said vegetation, soils and hydrology information noted above can be found in the data sheets section of this report. Please note data sheets 1E-3E reference Wetland E.

Study Information

Site: Windsor Trent

Locale: Wetland E

By: Robert Vanni

Conservatism-Based Metrics		Additional Metrics	
Mean C (native species)	1.45	Species Richness (all)	32.00
Mean C (all species)	0.91	Species Richness (native)	19.00
Mean C (native trees)	2.33	% Non native	0.41
Mean C (native shrubs)	1.25	Wet Indicator (all)	0.09
Mean C (native herbaceous)	1.18	Wet Indicator (native)	-0.20
FQAI (native species)	6.32	% hydrophyte (Midwest)	0.63
FQAI (all species)	5.13	% native perennial	0.44
Adjusted FQAI	11.17	% native annual	0.16
% C value 0	0.53	% annual	0.19
% C Value 1-3	0.41	% perennial	0.69
% C value 4-6	0.03		
% C value 7-10	0.00		

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET indicator	WET indicator (numeric)	Habit	Duration	Nativity
acneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
allpet	Alliaria petiolata	Garlic-Mustard	0	FAC	0	Forb	Biennial	Adventive
amabli	Amaranthus blitoides	Mat Amaranth	0	FACU	1	Forb	Annual	Adventive
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Perennial	Native
arcmin	Arctium minus	Lesser Burdock	0	FACU	1	Forb	Biennial	Adventive
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
consep	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
cornac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
cypesc	Cyperus esculentus	Chufa	0	FACW	-1	Sedge	Perennial	Native
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
diplac	Dipsacus laciniatus	Cut-Leaf Teasel	0	UPL	2	Forb	Biennial	Adventive
echcru	Echinochloa crus-galli	Large Barnyard Grass	0	FACW	-1	Grass	Annual	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Annual	Native
horjub	Hordeum jubatum	Fox-Tail Barley	0	FAC	0	Grass	Perennial	Adventive
impcap	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	-1	Forb	Annual	Native
jundud	Juncus dudleyi	Dudley's Rush	4	FACW	-1	Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	1	Vine	Perennial	Native

polpen	Persicaria pensylvanica	Pinkweed	0	FACU	1	Forb	Annual	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
rosmul	Rosa multiflora	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Black Raspberry	2	UPL	2	Shrub	Perennial	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Black Elder	1	FACW	-1	Shrub	Perennial	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Perennial	Adventive
trahyb	Trifolium hybridum	Alsike Clover	0	FACU	1	Forb	Perennial	Adventive
verbas	Verbena hastata	Simpler's-Joy	4	FACW	-1	Forb	Perennial	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Perennial	Native

Wetland E Jurisdictional Determination Opinion: Wetland E appears to be a jurisdictional wetland area due to a connection to an unnamed tributary of the Kishwaukee River. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

Wetland F: Wetland F is a partial wooded/emergent wetland that receives surface and subsurface flows from the upstream watershed, nursery and residential community to the East. Wetland F is characterized by data point 1F & 3F and is approximately **5.48 acres or 238,835.44 square foot.** It appears that the wetland is a contained depression. A surface outlet conveying hydrology out of the flagged boundaries was not noted. It appears that Wetland F has grown in size the last several years. Historically the flagged wetland was two separate wetlands. It appears that this wetland is holding water and not draining down. We assume that a historical drain tile that conveys water out of the flagged wetland is damaged. A draintile investigation should be conducted. The dominant vegetation found was determined to be Eastern Cottonwood (*Populus deltoides*), Reed Canary Grass (*Phalaris arundinacea*) & Common Cattails (*Typha latifolia*).

During our investigation positive wetland hydrology is met with the primary indicators of Surface water (A1), saturation (A3) and inundation visible on aerial imagery (B7). Mapped soil is identified as Pella silty clay loam (153A) which is a poorly drained hydric soil & Millbrook silt loam (219A) which is a somewhat poorly drained hydric soil. Primary soil indicators of thick dark surface (A12) was noted within the flagged boundary.

Said vegetation, soils and hydrology information noted above can be found in the data sheets section of this report. Please note data sheets 1F-5F reference Wetland F.

Study Information

Site: Windsor Trent

Locale: Wetland F

By: Robert Vanni

Conservatism-Based Metrics		Additional Metrics	
Mean C (native species)	1.61	Species Richness (all)	33.00
Mean C (all species)	1.12	Species Richness	23.00

		(native)	
Mean C (native trees)	1.00	% Non-native	0.30
Mean C (native shrubs)	1.25	Wet Indicator (all)	-0.03
Mean C (native herbaceous)	1.73	Wet Indicator (native)	-0.30
FQAI (native species)	7.72	% hydrophyte (Midwest)	0.67
FQAI (all species)	6.44	% native perennial	0.55
Adjusted FQAI	13.43	% native annual	0.15
% C value 0	0.45	% annual	0.18
% C Value 1-3	0.42	% perennial	0.76
% C value 4-6	0.12		
% C value 7-10	0.00		

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET indicator	WET indicator (numeric)	Habit	Duration	Nativity
aceneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
amabli	Amaranthus blitoides	Mat Amaranth	0	FACU	1	Forb	Annual	Adventive
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Perennial	Native
arcmin	Arctium minus	Lesser Burdock	0	FACU	1	Forb	Biennial	Adventive
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
consep	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
cornac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
cypese	Cyperus esculentus	Chufa	0	FACW	1	Sedge	Perennial	Native
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
diplac	Dipsacus laciniatus	Cut-Leaf Teasel	0	UPL	2	Forb	Biennial	Adventive
echcru	Echinochloa crus-galli	Large Barnyard Grass	0	FACW	-1	Grass	Annual	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Annual	Native
horjub	Hordeum jubatum	Fox-Tail Barley	0	FAC	0	Grass	Perennial	Adventive
impcap	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	-1	Forb	Annual	Native
jundud	Juncus dudleyi	Dudley's Rush	4	FACW	-1	Forb	Perennial	Native
juntor	Juncus torreyi	Torrey's Rush	4	FACW	-1	Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	1	Vine	Perennial	Native
polpen	Persicaria pensylvanica	Pinkweed	0	FACU	1	Forb	Annual	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
popdel	Populus deltoides	Eastern Cottonwood	2	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
rosmul	Rosa multiflora	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Black Raspberry	2	UPL	2	Shrub	Perennial	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Black Elder	1	FACW	-1	Shrub	Perennial	Native
sciatv	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	-2	Sedge	Perennial	Native
solalt	Solidago altissima	Tall Goldenrod	1	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Perennial	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Perennial	Adventive
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Perennial	Native

Wetland F Jurisdictional Determination Opinion: Wetland F appears to be an isolated waters of McHenry County due to a lack of a surface connection to a Waters of the United States. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

Wetland G: Wetland G is an emergent that receives surface and subsurface flows from the upstream watershed and farming area. Wetland G is characterized by data point 1G, 2G & 4G and is approximately **5.2 acres or 226,512.00 square foot.** The flagged wetland area is partially found within the property limits and partially within the COMED R.O.W. It appears that the wetland is a contained depression. A surface outlet conveying hydrology out of the flagged

boundaries was not noted, however ruts from agricultural equipment appear to convey water to a farmed wetland to the Southwest. The dominant vegetation found was determined to be Sandbar Willow (*Salix interior*), Reed Canary Grass (*Phalaris arundinacea*) & Common Cattails (*Typha latifolia*).

During our investigation positive wetland hydrology is met with the primary indicators of Surface water (A1), saturation (A3) and inundation visible on aerial imagery (B7). Mapped soil is identified as Pella silty clay loam, undrained (1153A) which is a very poorly drained hydric soil & Pella silty clay loam (153A) which is a poorly drained hydric soil. Primary soil indicators of thick dark surface (A12) was noted within the flagged boundary.

Said vegetation, soils and hydrology information noted above can be found in the data sheets section of this report. Please note data sheets 1G-5G reference Wetland G.

Study Information

Site:	Windsor Trent
Locale:	Wetland G
By:	Robert Vanni

Conservatism-Based Metrics

Mean C (native species)	1.76
Mean C (all species)	1.29
Mean C (native trees)	1.00
Mean C (native shrubs)	1.25
Mean C (native herbaceous)	1.94
FQAI (native species)	8.80
FQAI (all species)	7.55
Adjusted FQAI	15.09
% C value 0	0.41
% C Value 1-3	0.41
% C value 4-6	0.18
% C value 7-10	0.00

Additional Metrics

Species Richness (all)	34.00
Species Richness (native)	25.00
% Non-native	0.26
Wet Indicator (all)	-0.21
Wet Indicator (native)	-0.44
% hydrophyte (Midwest)	0.71
% native perennial	0.62
% native annual	0.12
% annual	0.15
% perennial	0.82

Species Acronym	Species Name (NWPI/Mohlenbrock)	Common Name	C Value	Midwest WET Indicator	WET indicator (numeric)	Habit	Duration	Nativity
acneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
amabli	Amaranthus blitoides	Mat Amaranth	0	FACU	1	Forb	Annual	Adventive
apocan	Apocynum cannabinum	Indian-Hemp	2	FAC	0	Forb	Perennial	Native
aremin	Arctium minus	Lesser Burrdock	0	FACU	1	Forb	Biennial	Adventive
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
conscp	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
cxanne	Carex annectens	Yellow-Fruit Sedge	5	FACW	-1	Sedge	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
cornac	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
cypesc	Cyperus esculentus	Chufa	0	FACW	-1	Sedge	Perennial	Native
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
echcru	Echinochloa crus-galli	Large Barnyard Grass	0	FACW	-1	Grass	Annual	Native
equarv	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
galapa	Galium aparine	Sticky-Willy	1	FACU	1	Forb	Annual	Native
horjub	Hordeum jubatum	Fox-Tail Barley	0	FAC	0	Grass	Perennial	Adventive

jundud	Juncus dudleyi	Dudley's Rush	4	FACW	-1	Forb	Perennial	Native
junfor	Juncus torreyi	Torrey's Rush	4	FACW	-1	Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Virginia-Creeper	2	FACU	1	Vine	Perennial	Native
polpen	Persicaria pensylvanica	Pinkweed	0	FACU	1	Forb	Annual	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
popdel	Populus deltoides	Eastern Cottonwood	2	FAC	0	Tree	Perennial	Native
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
rosmul	Rosa multiflora	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Black Raspberry	2	UPL	2	Shrub	Perennial	Native
rumcri	Rumex crispus	Curly Dock	0	FAC	0	Forb	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Black Elder	1	FACW	-1	Shrub	Perennial	Native
sciflu	Schoenoplectus fluviatilis	River Club-Rush	4	OBL	-5	Sedge	Perennial	Native
sciatv	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	-5	Sedge	Perennial	Native
solalt	Solidago altissima	Tall Goldenrod	1	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Perennial	Native
taroff	Taraxacum officinale	Common Dandelion	0	FACU	1	Forb	Perennial	Adventive
typlat	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	-5	Forb	Perennial	Native
vitrip	Vitis riparia	River-Bank Grape	2	FACW	-1	Vine	Perennial	Native

Wetland G Jurisdictional Determination Opinion: Wetland G appears to be a jurisdictional wetland area due to a connection to an unnamed tributary of the Kishwaukee River. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

Wetland H: Wetland H is a wet prairie wetland that receives surface and subsurface flows from the upstream watershed and the surrounding property. Wetland H is characterized by data point 1H and is approximately **1.20 acres or 50,529.60 square foot.** The flagged wetland area was a historical farmed wetland. The dominant vegetation found was determined to be Sandbar Willow (*Salix interior*), Reed Canary Grass (*Phalaris arundinacea*) & Common Cattails (*Typha latifolia*).

During our investigation positive wetland hydrology is met with the primary indicators of Saturation (A3) & Surface Soil Cracks (B6). Mapped soil is identified as Pella silty clay loam (153A) which is a poorly drained hydric soil & Millbrook silt loam (219A) which is a somewhat poorly drained hydric soil.

Said vegetation soils and hydrology information noted above can be found in the datasheets section of this report. Please note data sheets 1H-3H reference wetland H.

Study Information

Site:	Windsor Trent
Locale:	Wetland H
By:	Robert Vanni

Conservatism-Based Metrics		Additional Metrics	
Mean C (native species)	1.13	Species Richness (all)	12.00
Mean C (all species)	0.75	Species Richness (native)	5.00

Mean C (native trees)	0.00	% Non-native	0.58
Mean C (native shrubs)	1.00	Wet Indicator (all)	-0.50
Mean C (native herbaceous)	2.00	Wet Indicator (native)	-0.88
FQAI (native species)	2.52	% hydrophyte (Midwest)	0.42
FQAI (all species)	2.60	% native perennial	0.25
Adjusted FQAI	7.26	% native annual	0.17
% C value 0	0.33	% annual	0.17
% C Value 1-3	0.25	% perennial	0.33
% C value 4-6	0.00		
% C value 7-10	0.00		

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET Indicator	WET Indicator (numeric)	Habit	Duration	Nativity
acaneg	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
arcmin	Arctium minus	Lesser Burrdock	0	FACU	1	Forb	Biennial	Adventive
bidfro	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
consep	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
echcru	Echinochloa crus-galli	Large Barnyard Grass	0	FACW	-1	Grass	Annual	Native
jundud	Juncus dudleyi	Dudley's Rush	4	FACW	-1	Forb	Perennial	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native
typlat	Typha latifolia	Broad-Leaf Cat-Tail	1	OBL	-5	Forb	Perennial	Native

Wetland H Jurisdictional Determination Opinion: Wetland H appears to be an isolated waters of McHenry County due to a lack of a surface connection to a Waters of the United States. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

Wetland I: Wetland I is a depressional wetland that receives surface upstream watershed and the surrounding property. The flagged wetland is characterized by data point 1I and is approximately **0.24 acres or 10,454.40 square foot.** Wetland I can be located east of the gravel driveway. It appears that the wetland is a contained depression. A surface outlet conveying hydrology out of the flagged boundaries was not noted. It appears that the wetland area was historically part of the larger wetland B. The dominant vegetation found was determined to be Crack Willow (*Salix frangilis*) & Reed Canary Grass (*Phalaris arundinacea*).

During our investigation positive wetland hydrology is met with the primary indicators of Saturation (A3). Mapped soil is identified as Ashkum silty clay loam (232A) which is a poorly drained hydric soil which is a poorly drained hydric soil.

Said vegetation soils and hydrology information noted above can be found in the datasheets section of this report. Please note data sheets 1I & 2I reference wetland I.

Study Information

Site:	Windsor Trent
Locale:	Wetland I
By:	Robert Vanni

Conservatism-Based Metrics		Additional Metrics	
Mean C (native species)	0.75	Species Richness (all)	9.00
Mean C (all species)	0.33	Species Richness (native)	3.00
Mean C (native trees)	0.00	% Non-native	0.67
Mean C (native shrubs)	1.00	Wet Indicator (all)	0.11
Mean C (native herbaceous)	1.00	Wet Indicator (native)	-0.50
FQAI (native species)	1.30	% hydrophyte (Midwest)	0.44
FQAI (all species)	1.00	% native perennial	0.33
Adjusted FQAI	4.33	% native annual	0.00
% C value 0	0.56	% annual	0.00
% C Value 1-3	0.22	% perennial	0.67
% C value 4-6	0.00		
% C value 7-10	0.00		

Species Acronym	Species Name (NWPL/Mohlenbrock)	Common Name	C Value	Midwest WET Indicator	WET indicator (numeric)	Habit	Duration	Nativity
acenegu	Acer negundo	Ash-Leaf Maple	0	FAC	0	Tree	Perennial	Native
arcmin	Arctium minus	Lesser Burrdock	0	FACU	1	Forb	Biennial	Adventive
conscp	Calystegia sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
cirarv	Cirsium arvense	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
cypstr	Cyperus strigosus	Straw-Color Flat Sedge	1	FACW	-1	Sedge	Perennial	Native
phaaru	Phalaris arundinacea	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
rhacat	Rhamnus cathartica	European Buckthorn	0	FAC	0	Shrub	Perennial	Adventive
salfra	Salix fragilis	Crack Willow	0	UPL	2	Tree	Perennial	Adventive
salint	Salix interior	Sandbar Willow	1	FACW	-1	Shrub	Perennial	Native

Wetland I Jurisdictional Determination Opinion: Wetland I appears to be an isolated waters of McHenry County due to a lack of a surface connection to a Waters of the United States. A jurisdictional request to the Army Corps of Engineers should be submitted to identify the governing agency.

FARMED WETLAND DETERMINATION PROCEDURES

The NRCS determines farmed wetland boundaries through use of existing data, including:

Table 1. Summary of Existing Data Sources

Exhibit	Title of Data Source	Wetland(s) and/or Hydric Soils Indicated	Comments
1	U.S. Geological Survey (USGS) topographic map and National Wetland Inventory Map	Yes	Per the USGS & NWI Maps several wetland areas are noted within the farmed and non-farmed portions of the property.
2	NRCS Swampbuster wetland inventory	Yes	A certified FW determination is enclosed
3	McHenry County Soils Survey	Yes	Hydric Soils: Houghton Muck (103A) Pella Silty Clay Loam (153A) Ashkum Silty Clay Loam (232A) Will Loam (329A) Peotone Silty Clay Loam (330A) Harpster Silt Loam (1067A) Houghton Muck (1103A) Pella Silty Clay Loam (1153A)
4	Precipitation Records for Woodstock, IL	No	No Applicable
5	A certified farmed wetland determination	Two (2) certified farmed wetlands	A certified farmed determination completed by Dave Brandt of the McHenry County

		were identified	SWCD is concluded within this report.

CERTIFIED FARMED DETERMINATION

A certified farmed determination was completed by David Brandt of the Natural Resource Conservation Service located in Woodstock, Illinois. Three (3) farmed wetland areas were identified within the study area and are included in the overall wetland acreage. Please note that a farmed wetland located in the NE corner of the site has not been farmed in over five years and is no longer considered a farmed wetland. This wetland has been given a designation of Wetland H. Two (2) farmed wetlands are noted within the study area. Please review the certified determination under Appendix B.

CONCLUSIONS

The site was evaluated using U.S. Army Corps of Engineers and USDA guidelines for identifying wetlands. After evaluation of all data obtained, Midwest Ecological, Inc. (MEI) identified eight (8) non-farmed wetland areas and two (2) farmed wetland areas on the subject site totaling **32.12 acres or 1,399,147.20 square** feet in size.

FEDERAL REGULATIONS

If the project requires a discharge into the Waters of the US then the applicant will need to submit for a RP 1. Regional Permit 1 (RP1) of the Chicago District Regional Permit Program authorizes residential, commercial and institutional developments that necessitate jurisdictional wetland or waters of the U.S. impacts (cumulative wetland impacts < 1.0 acres). Several special conditions exist under RP1. To assist with planning, a description of several special conditions is listed below:

RP1 authorizes the construction of residential, commercial and institutional developments and associated infrastructure, such as roads, utilities, detention areas, and recreation areas. Authorization under RP1 is subject to the following requirements which shall be addressed in writing and submitted with the notification:

a. The impact to waters of the U.S. shall not exceed 1.0 acre. For projects that impact over 0.10 acres of waters of the U.S., the permittee is required to provide compensatory mitigation.
b. Projects that impact no more than 0.5 acres of waters of the U.S., and do not impact high-quality aquatic resources, will be processed under Category I.
c. Projects that impact over 0.5 acres up to 1.0 acre of waters of the U.S., or impacts high-quality aquatic resources, will be processed under Category II.

The permittee shall establish and/or enhance an upland buffer of native plants (or other appropriate vegetation approved by the District) adjacent to all created, restored, enhanced or preserved waters of the U.S., including wetlands. Created buffers should be established on 6:1 (horizontal: vertical) or gentler slopes. The following buffer widths are required:

1) For any waters of the U.S. determined to be a high-quality aquatic resource, the buffer shall be a minimum of 100 feet.
2) For any waters of the U.S. that do not qualify as wetland (e.g. lakes, rivers, ponds, etc.), the buffer shall be a minimum of 50 feet from the Ordinary High Water Mark (OHWM).
3) For any jurisdictional wetland from 0.25 acres up to 0.50 acres in size, the buffer shall be a minimum of 30 feet.
4) For any jurisdictional wetland over 0.50 acres in size, the buffer shall be a minimum of 50 feet.

The District may allow buffer widths below the above-required minimums on a case by case basis. However, it is the responsibility of the applicant to provide supporting documentation as to why the buffer requirement could not be met. Stormwater retention/detention facilities and nature trails may be located within the outer 50% of the buffer. The District may allow Best Management Practices, small boat launches and piers/docks to be located in buffers.

MCHENRY COUNTY REGULATIONS

If the wetland is not regulated by the Corps, it will be regulated as an Isolated Waters of McHenry County (IWMC). The project will be reviewed by the McHenry County Stormwater Committee (MCSC). IWMC are defined in Article II of the Watershed Development Ordinance (WDO) as "all waters such as lakes, ponds, streams (including intermittent streams), farmed wetlands, and wetlands that are not under U.S. Army Corps of Engineers jurisdiction". IWMC exclude permitted excavations created for such purposes as: stormwater conveyance, detention/retention areas constructed as part of a storm water management system, recreation, mining, stock watering, irrigation, settling basins or wastewater treatment systems and roadside ditches.

The WDO requires a Watershed Development Permit for any development that impacts a water of the U.S. or an isolated Waters of McHenry County including wetland buffer areas. WDO permit categories have been established based on the amount of wetland impact necessitated by the proposed development. Permit categories are as follows:

(A) Category-I: Wetland impacts with a cumulative impact area of one tenth (0.10) acre or less and do not impact HQAR, HFVW, and/or HQHS;
(B) Category-II: Wetland impacts with a cumulative impact area between one tenth (0.10) and two (2) acres in size and do not impact HQAR, HFVW, and/or HQHS;
(C) Category-III: Wetland impacts with a cumulative impact area of two (2) acres or greater in size, or that impact HQAR, HQHS, and/or HFVW;
(D) Category-IV: Wetland impacts for the restoration, creation and enhancement of wetlands provided that there are net gains in aquatic resource function, including streambank and shoreline stabilization projects that utilize appropriate bioengineered practices.

Areas of IWLC impact greater than (0.10) acre will require wetland mitigation under the Ordinance. Permits processed under Category-I, II or III will require wetland mitigation at a minimum 1.5:1 replacement ration for impacts to non-high quality resources. Impacts to IWLC

classified as high functional value wetland will require wetland at a minimum 3:1 replacement Impacts ratio. Impacts to IWLC classified as high quality habitat sites or high functional value wetland will require wetland mitigation at a minimum 5:1 replacement ratio. The WDO also requires the following buffer setbacks:

- For all water bodies with a total surface area of one-tenth (0.10) acre but less than one (1) acre, a minimum buffer width of thirty (30) feet shall be established.
- For all water bodies with a total surface area greater than one (1) acre but less than two and one-half (2.5) acres, a minimum buffer width of forty (40) feet shall be established.
- For all water bodies with a total surface area of two and one-half (2.5) acres, a minimum buffer width of fifty (50) feet shall be established.
- Non-linear water bodies that have been designated as HFVW, HQAR, or HQHS by the McHenry County ADID procedure shall have a minimum buffer width of one hundred (100) feet.

Should you have any questions, please do not hesitate to contact our office.
Sincerely,

Midwest Ecological, Inc. (MEI)

Robert L. Vanni
McHenry County Wetland Specialist

APPENDIX A

Exhibits

Source: Google Aerial Photograph

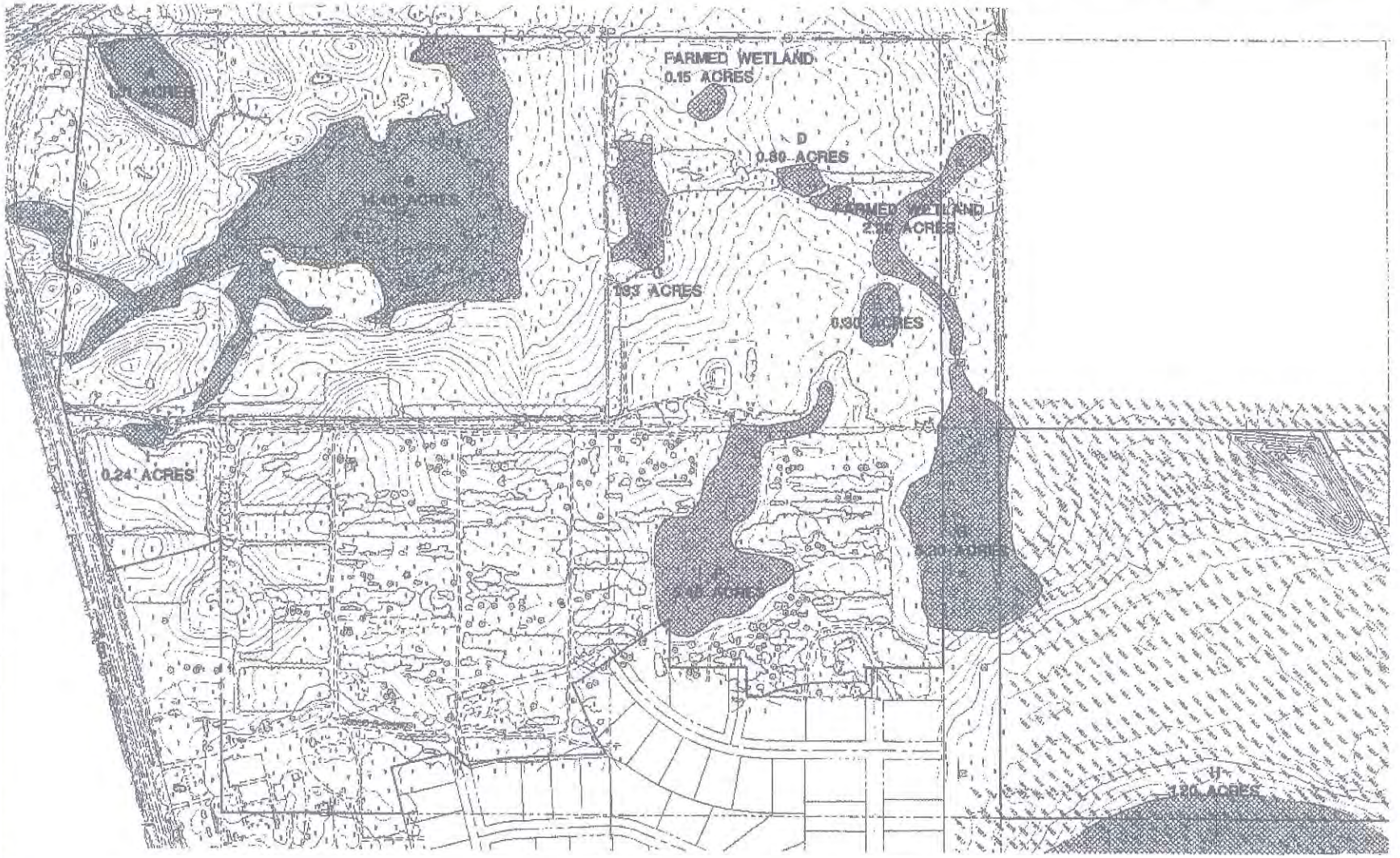
MIDWEST ECOLOGICAL

Preliminary Wetland Location Map

Client: Kenneth A. Rawson, Windsor Trent, LLC.
540 Frontage Road, Ste 3175
Northfield, Illinois 60093-1281

N
W E
S

TOTAL WETLAND AREA = 31.11 ACRES



Manhard CONSULTING

BRYN MAWAR RESIDENTIAL DEVELOPMENT
CRYSTAL LAKE, ILLINOIS
WETLAND AREA EXHIBIT

SHEET 1 OF 1