

MEMORANDUM

- (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 wetlands 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; and
- (5) Obligate upland plants (UPL) almost always occur (estimated probability >99%) in non-wetlands under natural conditions.

Three procedures completed in the following order are used to determine if hydrophytic vegetation is present:

- 1) Dominance Test: Using the 50/20 Rule, if greater than 50% of the plants present are FAC, FACW, or OBL, the subject area meets the hydrophytic vegetation criterion.
- 2) Prevalence Index: Each plant species in a sampling plot is assigned a numeric value (OBL=1; FACW=2; FAC=3; FACU=4; UPL=5). Based on the sampling data, the absolute cover is calculated for each species in each stratum and using the specified formula, if the Prevalence Index is 3 or less, hydrophytic vegetation is present.
- 3) Morphological Adaptations: Various species may develop physical characteristics after growing in wetland areas such as multi-stemmed trunks, shallow roots and buttressed stems. Hydrophytic vegetation is present if an adaptation is observed in more than 50% of FACU species growing in an area that contains hydric soil and wetland hydrology.

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." Field indicators of hydric soil are found in the NTCHS Field Indicators of Hydric Soils in the United States (USDA Natural Resources Conservation Service 2006b or current version).

Wetland Hydrology: The wetland hydrology criterion is often the most difficult to determine. Typically, the presence of water for a portion of the growing season creates anaerobic conditions. Anaerobic conditions lead to the prevalence of wetland plants. Morphological adaptations of plants, driftlines and watermarks are examples of wetland hydrology field indicators.



CHRISTOPHER B. BURKE ENGINEERING, LTD.

9575 W Higgins Road, Suite 600 Rosemont, Illinois 60018-4920 Tel (847) 823-0500 Fax (847) 823-0520

MEMORANDUM

REFERENCE MATERIALS

The following reference materials were reviewed and used to assist in the field reconnaissance. They are included as Exhibits 2-5.

NATIONAL WETLAND INVENTORY

The National Wetland Inventory map (NWI), Streamwood and West Chicago Quadrangles (1981), indicates no wetlands are mapped on the subject property (Exhibit 2). The NWI serves only as a large-scale guide and actual wetland locations and types often vary from that mapped.

SOIL SURVEY

The Soil Survey of Cook County, Illinois (2001) was reviewed to determine the location of hydric soils within the study area (Exhibit 3). Mapped hydric soil can be indicative of wetland conditions.

The following soils are mapped within the study area:

152	-	Drummer silty clay loam - hydric
294B	-	Symerton silt loam
531B	-	Markham silt loam
533	-	Urban land
534	-	Urban land – Orthents complex, clayey

USGS TOPOGRAPHIC SURVEY

The USGS Topographic Survey map, Streamwood and West Chicago Quadrangles (1993), was reviewed to determine watersheds and local drainage patterns (Exhibit 4). The survey indicates the study area is tributary to the West Branch DuPage River.

FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map for Cook County and Incorporated Areas, Illinois, Map Number 17031C0168 J, effective August 19, 2008, was reviewed to determine the location of regulatory floodplain on the site (Exhibit 5). The presence of floodplain can be indicative of wetland hydrology. The FIRM indicates there is no regulatory 100-year floodplain mapped within the study area.



CHRISTOPHER B. BURKE ENGINEERING, LTD.

9575 W Higgins Road, Suite 600 Rosemont, Illinois 60018-4920 Tel (847) 823-0500 Fax (847) 823-0520

**WETLAND ASSESSMENT REPORT
VILLAGE OF BARTLETT
STREAMWOOD PARCEL FLOOD STORAGE STUDY AREA
STREAMWOOD, COOK COUNTY, ILLINOIS
CBBEL Project No. 08-558**

WETLAND DELINEATION

On April 20, 2009, Christopher B. Burke Engineering, Ltd. (CBBEL) completed a field investigation of the Streamwood Parcel Flood Storage study area to determine the on-site wetland and drainageway boundaries. This assessment report was prepared to document our findings. The study area is located south of North Avenue and east of Prospect Avenue in Streamwood, Cook County, Illinois (Exhibit 1). Geographically, the site is located in Section 35, Township 41 North, Range 9, East of the Third Principal Meridian (-88.172919, 41.993655°).

One drainageway and one wetland area were identified in accordance with the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (September 2008). The wetland and drainageway boundaries were field located with a hand-held, sub-meter accuracy GPS unit and are shown on an aerial photograph (Exhibit 6). Information collected on site is listed in the attached data forms.

METHODOLOGY

The Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (September 2008), identifies the mandatory technical criteria for wetland identification. The three essential characteristics of a jurisdictional wetland are hydrophytic vegetation, hydric soils and wetland hydrology as 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 wetlands 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; and
- (5) Obligate upland plants (UPL) almost always occur (estimated probability >99%) in non-wetlands under natural conditions.

Three procedures completed in the following order are used to determine if hydrophytic vegetation is present:

- 1) Dominance Test: Using the 50/20 Rule, if greater than 50% of the plants present are FAC, FACW, or OBL, the subject area meets the hydrophytic vegetation criterion.
- 2) Prevalence Index: Each plant species in a sampling plot is assigned a numeric value (OBL=1; FACW=2; FAC=3; FACU=4; UPL=5). Based on the sampling data, the absolute cover is calculated for each species in each stratum and using the specified formula, if the Prevalence Index is 3 or less, hydrophytic vegetation is present.
- 3) Morphological Adaptations: Various species may develop physical characteristics after growing in wetland areas such as multi-stemmed trunks, shallow roots and buttressed stems. Hydrophytic vegetation is present if an adaptation is observed in more than 50% of FACU species growing in an area that contains hydric soil and wetland hydrology.

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." Field indicators of hydric soil are found in the NTCHS Field Indicators of Hydric Soils in the United States (USDA Natural Resources Conservation Service 2006b or current version).

Wetland Hydrology: The wetland hydrology criterion is often the most difficult to determine. Typically, the presence of water for a portion of the growing season creates anaerobic conditions. Anaerobic conditions lead to the prevalence of wetland plants. Morphological adaptations of plants, driftlines and watermarks are examples of wetland hydrology field indicators.

RESULTS AND DISCUSSION

STUDY AREA

The study area is surrounded on three sides by North Avenue, Prospect Avenue, and railroad tracks and consisted of a large vacant lot containing a large wetland complex and a drainageway. In our opinion, the onsite wetland and drainageway should be considered isolated. The drainageway was created by the installation of culverts on the north and south ends and was subsequently re-graded in 1978. It is a man-made conveyance and therefore, in our opinion, should not be considered jurisdictional. The identified wetland area flows south through a culvert beneath the tracks, then into an agricultural drain tile and eventually into the municipal storm sewer system. In our opinion, once the flow enters the municipal storm sewer system, any traceable connection to waters of the U.S. is lost.

IDENTIFIED WETLAND AND DRAINAGEWAY

The following is a brief description of the identified wetland and drainageway with a list of the dominant plant species observed and their corresponding wetland indicator categories. A coefficient of conservatism (C-value) is also included for each plant

species. C-values were established by Swink and Wilhelm (1999) to quantify a wetland's native attributes for comparative purposes.

Each plant species is rated on a scale of 0 to 10, 0-representing non-native or noxious species commonly found in a variety of habitats, and 10 representing plants found only under specific ecological conditions. The C-values of plants found in wetland areas can give some insight as to the overall quality or value of the wetland. Wetlands containing an abundance of plants with a low C-value suggest that these wetlands have been disturbed in the past. Wetlands containing an abundance of plants with a high C-value suggest that specific ecological conditions necessary for their survival are intact thus disturbance is probably minimal and the wetland maintains at least some of its original integrity.

The drainageway was delineated at the ordinary high water mark along the banks of the graded/excavated area. The term "ordinary high water mark" (OHWM) refers to the line established by the fluctuations of water. These fluctuations can be indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris.

Wetland 1

Wetland 1 is characterized at data points 1A-5A and covers most of the study area (Exhibit 6). The vegetation within the wetland was dominated by reed canary grass (*Phalaris arundinacea*), box elder (*Acer negundo*), common fox sedge (*Carex stipata*), cattail (*Typha sp.*), and sandbar willow (*Salix interior*). Positive wetland hydrology was indicated by inundation, saturated soils at the surface, and the FAC-Neutral Test. Soils within the area are mapped as Drummer silty clay loam, a poorly drained hydric soil. Field testing resulted in a hydric soil indicator of F6 – Redox dark surface, meeting the hydric soil criterion.

The following lists identified plants with the calculated native mean C-value and FQI:

FLORISTIC QUALITY DATA		Native		18		81.8%		Adventive		4		18.2%	
18	NATIVE SPECIES	Tree	2	9.1%	Tree	0	0.0%						
22	Total Species	Shrub	4	18.2%	Shrub	1	4.5%						
2.4	NATIVE MEAN C	W-Vine	1	4.5%	W-Vine	0	0.0%						
2.0	W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%						
10.1	NATIVE FQI	P-Forb	5	22.7%	P-Forb	2	9.1%						
9.2	W/Adventives	B-Forb	0	0.0%	B-Forb	0	0.0%						
-3.1	NATIVE MEAN W	A-Forb	1	4.5%	A-Forb	0	0.0%						
-2.6	W/Adventives	P-Grass	2	9.1%	P-Grass	1	4.5%						
	AVG: Fac. Wetland	A-Grass	0	0.0%	A-Grass	0	0.0%						
		P-Sedge	3	13.6%	P-Sedge	0	0.0%						
		A-Sedge	0	0.0%	A-Sedge	0	0.0%						
		Cryptogam	0	0.0%									

C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
0	<i>Acer negundo</i>	-2	FACW-	Nt Tree	BOX ELDER
2	<i>Apocynum sibiricum</i>	-1	FAC+	Nt P-Forb	PRAIRIE INDIAN HEMP
4	<i>Carex pellita</i>	-5	OBL	Nt P-Sedge	BROAD-LEAVED WOOLLY SEDGE
3	<i>Carex stipata</i>	-5	OBL	Nt P-Sedge	COMMON FOX SEDGE
1	<i>Cornus racemosa</i>	-2	FACW-	Nt Shrub	GRAY DOGWOOD
6	<i>Cornus stolonifera</i>	-3	FACW	Nt Shrub	RED-OSIER DOGWOOD
5	<i>Lemna minor</i>	-5	OBL	Nt A-Forb	SMALL DUCKWEED
0	<i>LYSIMACHIA NUMMULARIA</i>	-4	FACW+	Ad P-Forb	MONEYWORT
0	<i>PHALARIS ARUNDINACEA</i>	-4	FACW+	Ad P-Grass	REED CANARY GRASS
1	<i>Phragmites australis</i>	-4	FACW+	Nt P-Grass	COMMON REED
2	<i>Populus deltoides</i>	-1	FAC+	Nt Tree	EASTERN COTTONWOOD

0 RHAMNUS CATHARTICA	3 FACU	Ad Shrub	COMMON BUCKTHORN
1 Salix interior	-5 OBL	Nt Shrub	SANDBAR WILLOW
1 Sambucus canadensis	-2 FACW-	Nt Shrub	ELDERBERRY
4 Scirpus fluviatilis	-5 OBL	Nt P-Sedge	RIVER BULRUSH
1 Solidago altissima	3 FACU	Nt P-Forb	TALL GOLDENROD
4 Solidago gigantea	-3 FACW	Nt P-Forb	LATE GOLDENROD
4 Spartina pectinata	-4 FACW+	Nt P-Grass	PRAIRIE CORD GRASS
0 TARAXACUM OFFICINALE	3 FACU	Ad P-Forb	COMMON DANDELION
1 Typha angustifolia	-5 OBL	Nt P-Forb	NARROW-LEAVED CATTAIL
1 Typha latifolia	-5 OBL	Nt P-Forb	BROAD-LEAVED CATTAIL
2 Vitis riparia	-2 FACW-	Nt W-Vine	RIVERBANK GRAPE

Drainageway 1

Drainageway 1, characterized at data point 6A, is located adjacent to Prospect Avenue and consists of an unvegetated linear ditch. The ditch contained approximately one foot of water flowing south and had a silty bottom and severely eroded banks. Dominant vegetation on the upland banks of the ditch consisted of common buckthorn (*Rhamnus cathartica*), tartarian honeysuckle (*Lonicera tartarica*), black raspberry (*Rubus occidentalis*), and multiflora rose (*Rosa multiflora*).

REFERENCE MATERIALS

The following reference materials were reviewed and used to assist in the wetland field reconnaissance. They are included as Exhibits 1-5.

LOCATION

The study area is located south of North Avenue and east of Prospect Avenue in Streamwood, Cook County, Illinois (Exhibit 1). Geographically, the site is located in Section 35, Township 41 North, Range 9, East of the Third Principal Meridian (-88.172919, 41.993655°). The approximate study area boundaries were taken from an aerial photograph provided by our Water Resources Department.

NATIONAL WETLAND INVENTORY

The National Wetland Inventory (NWI), West Chicago Quadrangle (1981), indicates that wetland is mapped within the site (Exhibit 2). The NWI serves only as a large-scale guide and actual wetland locations and types often vary from that mapped. The following wetland type is mapped on-site:

PEMC - Palustrine, Emergent, Seasonally Flooded

SOIL SURVEY

The Soil Survey of Cook County, Illinois (1999), was reviewed to determine the location of hydric soils on the property (Exhibit 3). Mapped hydric soil can be indicative of wetland conditions. The following soils are mapped on-site:

152 - Drummer silty clay loam - Hydric
 223B - Varna silt loam
 442A - Mundelein silt loam

UNITED STATES GEOLOGICAL SURVEY

The United States Geological Survey (USGS), West Chicago Quadrangle (1993), was reviewed to determine historic local drainage patterns (Exhibit 4). The USGS indicates that surface runoff from the study area drains into the on-site wetland and drainageway which drain off-site to the drain tile located southeast of the property and eventually into a municipal storm sewer system.

FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map (FIRM) for Cook County, Illinois and Incorporated Areas, Map Number 17031C0306 J, revised August 19, 2008 was reviewed to determine the location of regulatory floodplain within the site (Exhibit 5). Mapped floodplain can be indicative of wetland hydrology. The FIRM indicates the property does not contain regulatory floodplain.

MEC
N:\BARTLETT\080558\Wetlands\L1.091609_del_rev.doc