D-2

Wetland Data Form Compilation

TECHNICAL MEMORANDUM

To: Golder Associates, Inc.

From: Wetland and Coastal Resources, Inc.

Date: January 24, 2006

Subject: Results of Wetland Data Points

Since discovery of a high grade nickel and copper deposit northwest of Marquette, Michigan, Kennecott (KEC) initiated environmental evaluations to determine the potential for developing an operating mine. As part of these evaluations, Golder Associates, Inc. (Golder), prime consultant to KEC, requested Wetland and Coastal Resources, Inc. (WCR) to conduct wetland delineations within the project study area. The delineations were completed during spring and summer of 2004.

During 2004 field assessments, WCR delineated wetland boundaries adjacent to the Salmon Trout River, south of Triple A Road (Wetland Complex 6 as identified in WCR's Wetland Delineation Report, 2005). In the fall of 2005, WCR was requested to re-inspect the wetland boundaries adjacent to the Salmon Trout River for the purpose of collecting additional wetland boundary survey information and completing Michigan Department of Environmental Quality (MDEQ) data forms that document hydrology, soils, and vegetation. This report presents the findings of WCR's wetland data form compilation efforts along the boundaries of Wetland Complex 6.

METHODS

The field assessment was conducted over a period of seven days from November 8 through November 14, 2005. Sixty-two collection locations were located at approximate 400 ft intervals along the entire western boundary and the northern two-thirds of the eastern boundary of Wetland Complex 6.

A 400 ft nylon cord was used to locate data collection locations along the wetland boundaries of Wetland Complex 6. Measurement of 400 ft intervals was initiated along both the western and eastern boundaries of Wetland Complex 6 at the point where AAA Road crosses the Salmon Trout River. Data collection locations 1 through 25 were established along the western boundary of Wetland Complex 6 (Attachment A, Figures 1.1 and 1.2). Data collection locations 26 through 62 were established along the eastern and northeastern boundary of Wetland Complex 6.

At each collection location, upland and wetland subplots were established on either side of the wetland boundary line. The subplots were circular with ten foot radii. The center of each subplot was located approximately ten feet from the wetland boundary line. The center of each wetland subplot was marked with a lath stake on which the appropriate data collection point number was written (e.g., DP 1). A hand-held GPS unit was used to record the Universal Tranverse Mercator (UTM), North American Datum 1983, coordinates of each lath stake.

Where possible, a soil pit was excavated at the center of a subplot. When the center of a given subplot fell upon a standing or fallen tree, a stump, a root mass or other surface that could not be penetrated, the soil pit was offset to a representative location where excavation was possible. Soil pits were excavated to a depth of 20 inches unless prevented by the presence of a hard pan, rocks, or a high water table. Soil data collected from each pit included horizon depths, color, and approximate United States Department of Agriculture (USDA) texture. The litter layer (O_i) was excluded from all profile descriptions. Each profile was evaluated according to the hydric soil indicators utilized by the MDEQ (Michigan Department of Environmental Quality 2001) and the Natural Resources Conservation Service (USDA, NRCS 2003).

Dominant plant species in the upland and wetland subplots were determined according to the "50-20" rule (Environmental Laboratory 1987). Plant species that could not be identified to species and those for which wetland indicator values are lacking (e. g., bryophytes) were not utilized to determine if a given subplot was dominated by wetland vegetation. All data

collected from a pair of subplots at each data collection location were used to complete the MDEQ wetland data form.

RESULTS

Copies of the completed MDEQ wetland data forms are included as Attachment B-1. Results of this investigation are presented below based on both the MDEQ and NRCS indicators of hydric soils. MDEQ staff currently utilizes the NRCS indicators along with, or in place of, those found in the MDEQ manual. It is the opinion of WCR that the NRCS method more accurately depicts wetland areas. In four of the upland subplots (data collection locations 22, 25, 29, and 36) and in two of the wetland subplots (data collection locations 29 and 35), the soil profile was disturbed by logging operations, fire, or sedimentation to a degree that it could not be determined with certainty if the soil was hydric or non-hydric. In one of the upland subplots (data collection location 58), laboratory analysis would have been needed to determine with certainty if the soil was hydric or non-hydric. In data collection locations 53 through 62, snow covered the ground surface and some dominant plant species may not have been visible. Since this recent data collection was conducted outside the growing season, plant species that might typically have been present may not have been observed.

Upland Subplots

Twenty-five of the 62 upland subplots were dominated by non-hydrophytic vegetation at the time of inspection, and 37 upland subplots were dominated by hydrophytic vegetation. Thirty-three of the 37 subplots that were dominated by hydrophytic vegetation had soils that would be considered hydric using MDEQ indicators. Soils in the four remaining upland subplots dominated by hydrophytic plants could not be classified with certainty as hydric or non-hydric due to site disturbances described in the preceding paragraph. Other than the presence of hydric soil, no primary indicators of wetland hydrology were observed in any of the upland subplots. Using the MDEQ hydric soil indicators, dominant vegetation, and signs of hydrology, 25 upland subplots verified the delineated boundary, 33 showed wetland conditions, and four were indeterminate.

Using hydric soil indicators employed by the NRCS, dominant vegetation, and signs of hydrology, one upland subplot (that at data location 6) showed wetland conditions. Data at sixty of the upland subplots verified the delineation and one plot was indeterminate, requiring laboratory analysis of the soils.

Wetland Subplots

Of the 62 wetland subplots, all but three (those of data collection points 17, 40, and 42) were dominated by hydrophytic vegetation. Of the 59 wetland subplots dominated by hydrophytic vegetation, all were characterized by soils that would be considered hydric under the criteria utilized by the MDEQ and/or one or more other primary hydrologic indicators, or two or more secondary hydrologic indicators. Using the MDEQ hydric soil indicators, the wetland subplots at data collection points 17, 40, and 42 showed upland conditions and the remainder verified the delineated boundary.

Using the indicators employed by the NRCS, the soil in 20 of the 59 wetland subplots dominated by hydrophytic vegetation would be considered hydric. Thirty-two of the 59 wetland subplots dominated by hydrophytic vegetation were characterized by one or more other primary hydrologic indicators, or two or more secondary hydrologic indicators. Four of the wetland subplots dominated by hydrophytic vegetation lacked soils that would be considered hydric using the indicators employed by the NRCS. Using the NRCS hydric soil indicators, dominant vegetation, and hydrologic indicators, wetland subplots 8, 9, 17, 36, 40, 42, and 55 showed upland conditions and the remainder verified the delineated boundary.

Appendix C includes summaries of the vegetation, soils, and hydrologic indicators observed in the upland and wetland subplots of Data Collection Points 1 - 62.

CONCLUSIONS

It is WCR's opinion that the NCRC hydric soil indicators more accurately reflect hydric soil conditions and are more accurate for identifying wetland areas. All of the soils encountered in the upland subplots would be considered "sandy" (having a USDA subsurface texture of

loamy fine sand or coarser). Most upland subplots had a few inches of hemic and/or sapric organic matter at their surface in addition to the fibric litter layer. The MDEQ wetland identification manual would consider most of these soils to be hydric because they are characterized by "high organic matter in the surface horizon". This hydric soil indicator fails to take into account the fact that in northern latitudes, many upland soils accumulate organic matter at their surface due to low nutrient conditions, a short growing season, cold temperatures, and low rates of evapotranspiration. Even in somewhat excessively drained soils, hemic and sapric material can accumulate at the surface (Brockheim and Jordan 2004).

It is our opinion that the delineation of the boundaries of Wetland Complex 6 is accurate and sufficient to support project permitting. Changes to the original delineation, if any, are small and unlikely to be of consequence.

LIST OF REFERENCES

Brockheim, J. G., and J. K. Jordan. 2004. Soils of the Sylvania Wilderness-Recreation Area, western Upper Peninsula, Michigan. Gen. Tech. Rep. NC-237. St. Paul, MN: U. S. Department of Agriculture, Forest Service, North Central Research Station. 18 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U. S. Army Engineer Waterways Experiment Station, Vicksburg, MS (online edition accessed December 8, 2005).

Michigan Department of Environmental Quality. 2001. MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan. 68 pp. + appendices.

USDA, NRCS. 2003. Field Indicators of Hydric Soils in the United States, Version 5.01. G. W. Hurt, P. M. Whited, and R. F. Pringle (eds.). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils, Fort Worth, TX.

Wetland and Coastal Resources, Inc. 2005. Wetland Delineation and Functional Assessment. Prepared for Golder Associates, Inc. and Warner Norcross and Judd. Unpublished.

APPENDICES

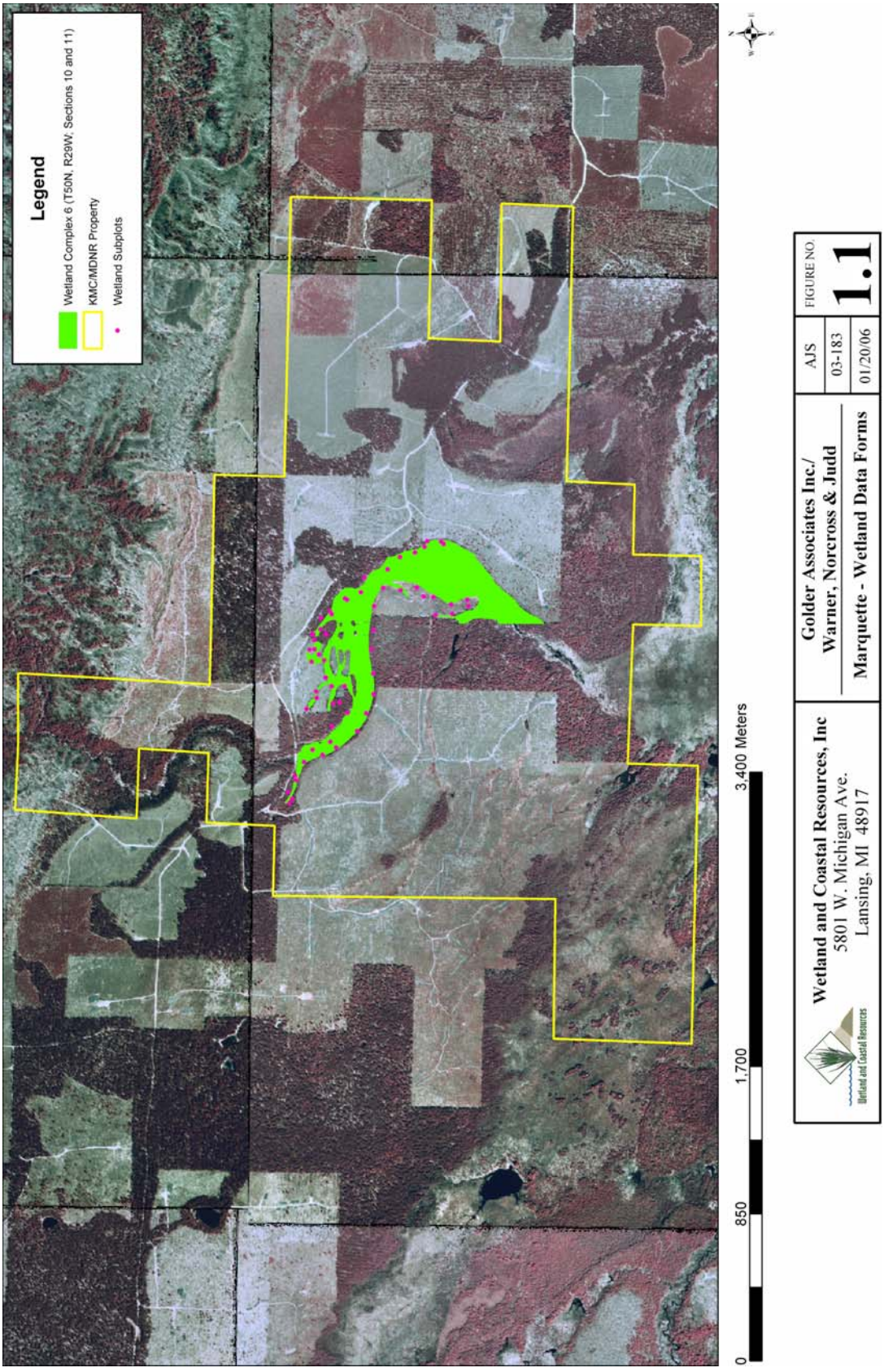
APPENDIX A

FIGURES

ATTACHMENT A-1

Figure 1.1

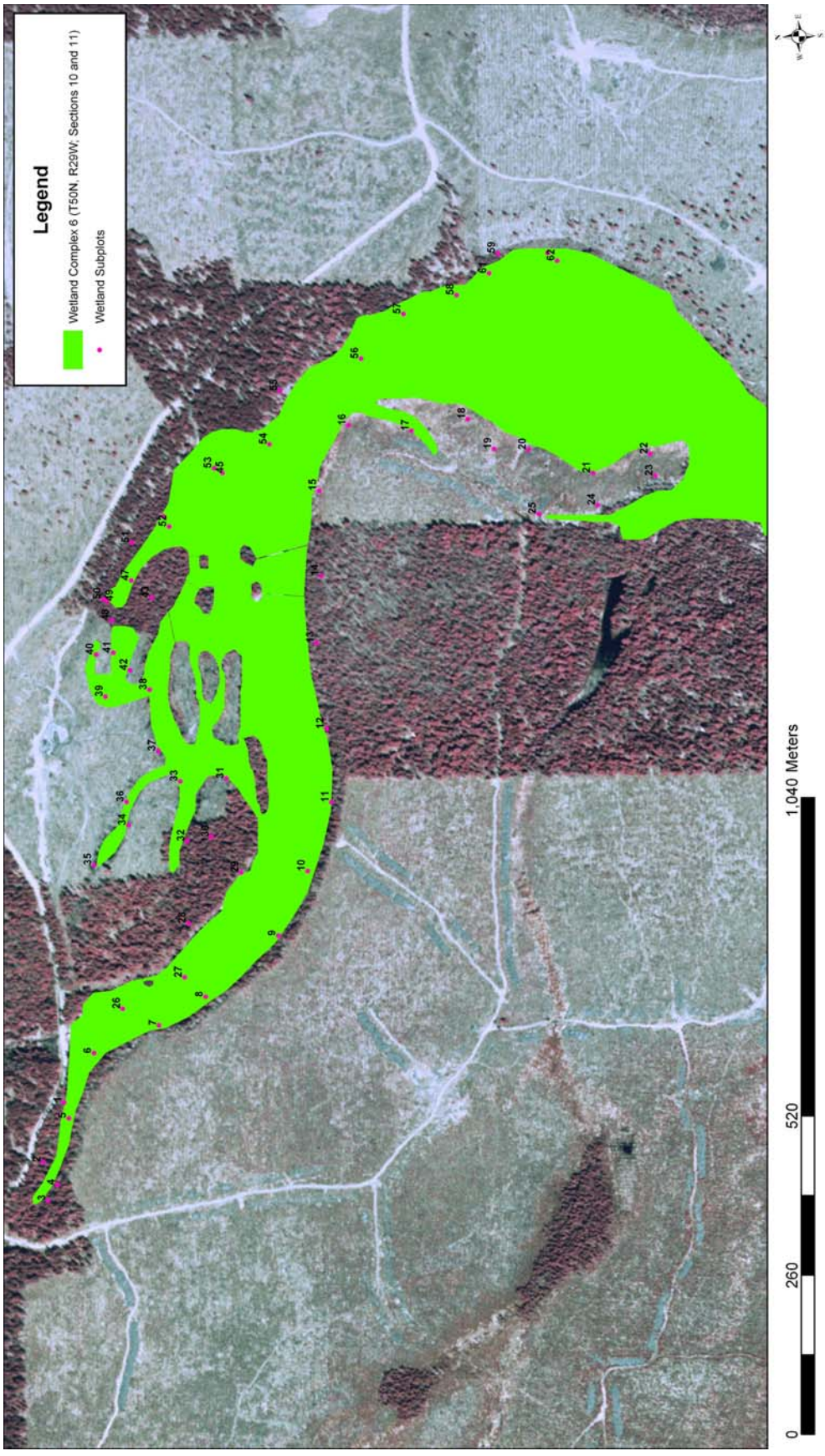
Wetland Complex 6 and Project Study Area


Legend
Wetland Complex 6 (T50N, R29W; Sections 10 and 11)
KMC/MDNR Property
Wetland Subplots
0
850
1,700
3,400 Meters
Wetland and Coastal Resources, Inc
5801 W. Michigan Ave.
Lansing, MI 48917
Golder Associates Inc./
Warner, Norcross & Judd
Marquette - Wetland Data Forms
AJS
03-183
01/20/06
FIGURE NO.
1.1

ATTACHMENT A-2

Figure 1.2

Wetland Data Point Locations



Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917	Golder Associates Inc./ Warner, Norcross & Judd Marquette - Wetland Data Forms	AJS 03-183 01/20/06	FIGURE NO. 1.2

APPENDIX B

DATA FORMS

ATTACHMENT B-1

SCANNED MDEQ WETLAND DATA FORMS

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended

Applicant: KEX

For DEQ Use: File: ___-___-___-___

County: Marquette T 50 N R 29 W S 11 Date: 11/06/2005

Form Completed By: John Fudy Wetland Area: DP1

INSTRUCTIONS: UTM 16 0430579 5177877

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/3 1/1

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		O	Fac
Alnus rugosa		S	Obl
Dryopteris intermedia		H	Fac
Carex sp.		H	various

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 3/5 1/3

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		O	Fac
Abies balsamea		S	FacW
Dryopteris intermedia		H	Fac
~~Aquilegia canadensis~~			
Lycopodium obscurum		H	FacU
Pteridium aquilinum		H	FacU

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

DP1

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 8 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- X (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____ (√) Organic soils (Histosols)
- X (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
histic epipedon

Morphological Plant Adaptations Observed(√):
- ____ Adventitious roots
- ____ Shallow root system
- ____ Floating leaves
- ____ Inflated leaves, stems, or root
- ____ Polymorphic leaves
- ____ Oxygen pathway to roots
- ____ Floating stem
- X Hypertrophied lenticels
- X Multiple trunks or stooling
- ____ Buttressed tree trunks
- ____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-9	10YR 2/1		sapric	
9-19+	10YR 4/2	10YR 2/1	sand	mottles are stratified layers of sapric material

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
3-0	10YR 2/1		sapric	Oa ; Oi also present
0-1.5	7.5YR 4/3		sand	
1.5-14+	7.5YR 4/4		sand	

not NRCS hydric

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- X (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

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DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-__-_____-__

County: Marquette T 50N R 24W S 11 Date: 11/06/2005

Form Completed By: John Fody Wetland Area: DP2

INSTRUCTIONS: UTM 16 0430483 5177914

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/5 3/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	FacW
Abies balsamea		O	FacW
Alnus rugosa		S	Obl
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 4/5 3/4

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Prunus serotina		O	FacU
Abies balsamea		S	FacW
Cornus canadensis		H	Fac
Coptis trifolia		H	FacW

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ___ (√) Visible observation of inundation (Depth ___ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ___ (√) Watermarks
- ___ (√) Drift lines
- ___ (√) Sediment deposits
- X (√) Drainage patterns within wetlands

Other: ___

Secondary Indicators:
- ___ (√) Oxidized rhizospheres in upper 12"
- ___ (√) Water stained leaves
- ___ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ___ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- X (√) Organic soils (Histosols)
- ___ (√) Histic epipedon
- ___ (√) Sulfidic material (H_2S odor)
- ___ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ___ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ___ (√) Matrix chroma of 2 or less in mottled soils
  - ___ (√) Matrix chroma of 1 or less in unmottled soils
  - ___ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ___ (√) Confirm soil profile matches local hydric soil list
- ___ (√) Iron and manganese concretions
- ___ (√) Reducing soil conditions (ferrous iron test)
- ___ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ___ (√) High organic matter in the surface horizon
- ___ (√) Streaking of subsurface horizons by organic matter
- ___ (√) Organic pans: at depth of ___ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Histosol

Morphological Plant Adaptations Observed(√):
___ Adventitious roots; ___ Shallow root system; ___ Floating leaves
X Inflated leaves, stems, or root; ___ Polymorphic leaves; ___ Oxygen pathway to roots; ___ Floating stem
___ Hypertrophied lenticels; X Multiple trunks or stooling; ___ Buttressed tree trunks; ___ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-16+	10YR 2/1		Saprist	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 2/1		saprist	Oa; Oi also present
3-12+	10YR 5/3		sand	

not NRCS hydric

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ___ (√) Emergent Marsh; ___ (√) Deciduous Swamp; ___ (√) Fen; ___ (√) Shrub Swamp
- ___ (√) Wet Meadow; X (√) Coniferous Swamp; ___ (√) Bog/Muskeg; ___ (√) Floodplain Forest
- ___ (√) Wet Prairie; ___ (√) Deciduous Forest; ___ (√) Great Lakes Marsh; ___ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ___

Comments: ___

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___

County: Marquette T 50N R 29W S 11 Date: 11/06/2005

Form Completed By: John Fody Wetland Area: DP3

INSTRUCTIONS: UTM 16 T 0430420 5177908

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

Y (Y/N) Is the site significantly disturbed? If yes, describe: Appears to be depositional area of soil eroding from AAA road

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/6 2/3

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Betula papyrifera		O	Fac Upl
Acer rubrum		O	Fac
Acer rubrum		S	Fac
Alnus rugosa		S	Obl
Dryopteris intermedia		H	Fac
Carex sp.			various

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary
(use additional sheets if necessary) 5/5 2/2

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Acer rubrum		O	Fac
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac
Osmunda cinnamomea		H	FacW

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- ____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- X (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Apparent natural horizons not hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem X Hypertrophied lenticels X Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	5YR 2.5/1		sapric	
3-6	7.5YR 2.5/2		sand	
6-9	10 YR 2/1		sapric	Appears to be plaggic/tilled surface horizon
9-26+	10 YR 5/3		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10YR 2/1		sapric	Oa; Oi also present
4-15	10 YR 4/2		sand	
15-20+	5YR 2.5/2		sand	appears to be Bh

not NRCS hydric

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	X (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	____ (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-___-____-__

County: Marquette T 50N R 29W S 11 Date: 11/06/2005

Form Completed By: Jaba Fady Wetland Area: DP 4

INSTRUCTIONS: UTM 16 T 0430445 5177892

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). wetland flag C 147

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/3 1/1

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 2/3 0/1

Genus/Species	Common Name	Stratum*	Indicator Status
[illegible]		O	
Prunus serotina		O	Fac(U)
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- X (√) Visible observation of inundation (Depth 2 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- X (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:

- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils

- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

Not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	5YR 2.5/1		hemic	
2-5	7.5 YR 2.5/1		sapric	
5-8	10 YR 4/3		sand	
8-13	10 YR 2/1		sapric	
13-16+	7.5YR 3/3		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				Not NRCS hydric
0-4	2.5 YR 2.5/2		hemic	Oe
4-6	10YR 3/1		sand	
6-13	7.5 YR 4/3		sand	
13-16	7.5 YR 2.5/2		sand	appears to be BH

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

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DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50 N R 29 W S 11 Date: 11/06/2005

Form Completed By: John Fody Wetland Area: DP5

INSTRUCTIONS: UTM 16 T 0430555 5177870

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). e wetland flag C220

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/7 2/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea glauca		O	FacU
Abies balsamea		O	FacW
Acer rubrum		O	Fac
Betula papyrifera		O	FacU+
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac
Osmunda cinnamomea		H	FacW

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary
(use additional sheets if necessary) 4/6 2/4

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Picea glauca		O	FacU
Abies balsamea		S	FacW
Prunus serotina		S	FacU
Dryopteris intermedia		H	Fac
Huperzia lucidula		H	[Fac+]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 5 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- ____ (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- X (√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Black Histic

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 2.5/1		hemic	Oe
3-10	10YR 2/1		sapric	
10-13	10YR 4/2		sand	
13-17+	10YR 7/1		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10YR 2.5/2		hemic	Not NRCS hydric
4-6	10YR 2/1		sapric	
6-19	10YR 3/2		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50N R 29W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP 6

INSTRUCTIONS: UTM

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C290

SITE REVIEW: UTM 16 T 0430658 5177826

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/7 2/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	FacW
Acer rubrum		O	Fac
Picea glauca		O	FacU
Prunus virginiana		S	Fac
Alnus rugosa		S	Obl
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac
Carex sp.		H	various

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 3/5 1/3

Genus/Species	Common Name	Stratum*	Indicator Status
Prunus serotina		O	FacU
Abies balsamea		O	FacW
Betula papyrifera		O	FacU+
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 10 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- X (√) Organic soils (Histosols)
- ____ (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____ (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____

_____

_____

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2.5	10 R 2.5/1		hemic	
2.5-5	10 YR 3/2		sand	
5-28+	10 YR 2/1		sapric	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes Stratified layers
0-1 / 1-1.5	10 R 2.5/1 / 10 YR 2/1		hemic / sapric	
1.5-3.5 / 3.5-7.5	7.5 YR 4/2 / 10 YR 2/1		sand / sapric	
7.5-21 / 21-24	10 YR 4/2 / 10 YR 2/1		sand / sapric	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEY

For DEQ Use: File: _____

County: Marquette T 50N R 29W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP 7

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C324

SITE REVIEW: UTM 16 T 0430700 5177719

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/5 3/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea glauca		O	FACU
Abies balsamea		O	FACW
Alnus rugosa		S	OBL
Abies balsamea		S	FACW
Dryopteris intermedia		H	FAC

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 3/5 2/4

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FACW
Alnus rugosa		S	OBL
Prunus serotina		S	FACU
Dryopteris intermedia		H	FAC
Pteridium aquilinum		H	FACU

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:

- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils

- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

Not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	5YR 2.5/1		hemic	
2-3	5YR 4/2		sand	
3-6	10YR 2/1		sapric	
6-8	5YR 3/2		sand	
8-10	10YR 2/1		sapric	
10-12+	5YR 3/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				Not NRCS hydric
0-5	10 YR 2/1		sapric	Oa
5-9	5 YR 4/3		sand	
9-22+	5 YR 3/3		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

5801 West Michigan Avenue, Lansing, Michigan 48917 • Phone: 517.327.0970 • Fax: 517.327.2853

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50N R 29W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP8

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: UTM 16 T 0430744 5177642 @ wetland flag C350

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 2/2 1/1

Genus/Species	Common Name	Stratum*	Indicator Status
Alnus rugosa		S	Obl
Dryopteris intermedia		H	Fac
Carex sp.		H	various

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 4/5 2/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Picea glauca		O	FACU
Acer rubrum		S	Fac
Alnus rugosa		S	Obl
Dryopteris intermedia		H	Fac

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- ____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem X Hypertrophied lenticels X Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-6	10YR 2/1		sapric	
6-31+	7.5YR 3/3		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes Not NRCS hydric
0-1	10R 2.5/1		remic	Oe
1-5	10YR 2/1		sapric	Oa
5-15	2.5YR 4/3		sand	includes discontinuous lenses of BH
15-20+	5YR 3/2		sand	5YR 3/3

WETLAND DETERMINATION

X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
X (√) Wetland hydrology and/or hydric soil present
Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- ____ (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- X (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50N R 29W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP9

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C440

SITE REVIEW: UTM 16 T 043084 5177521

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4|7 2|4

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Picea glauca		O	Fac U
Prunus serotina		S	Fac U
Prunus virginiana		S	Fac -
Abies balsamea		S	FacW
Dryopteris intermedia		H	Fac
Athyrium filix-femina		H	Fac
Carex sp.		H	Various

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2|4 0|2
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea glauca		O	Fac U
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- _____ (√) Visible observation of inundation (Depth ____ in.)
- _____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- _____ (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- X (√) Organic soils (Histosols)
- _____ (√) Histic epipedon
- _____ (√) Sulfidic material (H_2S odor)
- _____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____ (√) Matrix chroma of 2 or less in mottled soils
  - _____ (√) Matrix chroma of 1 or less in unmottled soils
  - _____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- _____ (√) Confirm soil profile matches local hydric soil list
- _____ (√) Iron and manganese concretions
- _____ (√) Reducing soil conditions (ferrous iron test)
- _____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- _____ (√) High organic matter in the surface horizon
- _____ (√) Streaking of subsurface horizons by organic matter
- _____ (√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Histosol

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-5	10 YR 2/1		sapric	
5-21+	2.5 YR 2.5/1		sapric	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes Not NRCS hydric
0-1	10R 2.5/1		hemic	
1-7	10 R 2.5/1		sapric	
7-12	2.5 YR 5/3		sand	
12-16	7.5YR 3/2 ; 2.5YR 2.5/3		sand	← sand, sandy loam, loamy sand ←
16-20+	7.5 YR 3/3 5YR 3/2		sand	sand

Heterogeneous mix of sand, BS, and fines material

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh	_____ (√) Deciduous Swamp	_____ (√) Fen	_____ (√) Shrub Swamp
_____ (√) Wet Meadow	X (√) Coniferous Swamp	_____ (√) Bog/Muskeg	_____ (√) Floodplain Forest
_____ (√) Wet Prairie	_____ (√) Deciduous Forest	_____ (√) Great Lakes Marsh	_____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-__

County: Marquette T 50 N R 29 W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP 10

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C485

SITE REVIEW: UTM 16T 0430944 5177470

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/6 2/2

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Prunus virginiana		S	Fac-
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac
Cirsium palustre		H	[FACW+]
Athyrium filix-femina		H	Fac
Poaceae		H	Various

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/4 1/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Corylus cornuta		S	[UPL]
Dryopteris intermedia		H	Fac
Pteridium aquilinum		H	FacU

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- X (√) Organic soils (Histosols)
- ____ (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____ (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Histosol

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-16+	10 R 2.5/1		sapric	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10 YR 2/1		sapric	Oa
3-17	2.5 YR 5/3		sand	
17-20+	5 YR 3/3		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50N R 29W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP 11

INSTRUCTIONS: UTM 16 T 0431055 5177428

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C536

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 7/8 4/5

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Picea glauca		O	FacU
Abies balsamea		S	FacW
Alnus rugosa		S	Obl
Acer rubrum		S	Fac
Cirsium palustre		H	[FacW+]
Poaceae		H	Various
Dryopteris intermedia		H	Fac
Athyrium filix-femina		H	Fac

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 3/5 2/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Betula papyrifera		O	FacU+
Abies balsamea		O	FacW
Abies balsamea		S	FacW
Acer spicatum		S	FacU
Dryopteris intermedia		H	Fac

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

Not NRCS hydric

Morphological Plant Adaptations Observed(√):
- ____Adventitious roots
- ____Shallow root system
- ____Floating leaves
- ____Inflated leaves, stems, or root
- ____Polymorphic leaves
- ____Oxygen pathway to roots
- ____Floating stem
- X Hypertrophied lenticels
- X Multiple trunks or stooling
- ____Buttressed tree trunks
- ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10 R 2.5/1		hemic	
3-5	5 YR 3/2		sand	
5-11	2.5 YR 2.5/1		hemic	
11-13+	7.5 YR 4/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2.5	10 R 2.5/1		hemic	Not NRCS hydric
2.5-18+	2.5 YR 5/2		sand	includes charcoal at interface with upper horizon + charcoal streaking

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-__

County: Marquette T 50 N R 29 W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP 12

INSTRUCTIONS: UTM T 0431174 5177432

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004) ED wetland flag 570

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/5 2/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Corylus cornuta		S	[UpL]
Abies rugosa		S	Obl
Dryopteris intermedia		H	Fac
Poaceae		H	various
Sphagnum squarrosum		H	not listed
Athyrium filix-femina		H	Fac

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 5/8 3/6
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea glauca		O	Fac U
Abies balsamea		O	Fac W
Corylus cornuta		S	[UpL]
Dryopteris intermedia		H	Fac
Coptis trifolia		H	Fac W
Epigaea repens		H	[UpL]
Cornus canadensis		H	Fac

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- X (√) Visible observation of inundation (Depth 1 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:

- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils

- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

Stratified layers

Morphological Plant Adaptations Observed(√):

- ____ Adventitious roots
- ____ Shallow root system
- ____ Floating leaves
- ____ Inflated leaves, stems, or root
- ____ Polymorphic leaves
- ____ Oxygen pathway to roots
- ____ Floating stem
- X Hypertrophied lenticels
- X Multiple trunks or stooling
- ____ Buttressed tree trunks
- ____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	5YR 2.5/2		hemic	
4-10	5YR 5/2		sand	includes thin bands of sapric mater
10-12 12-15	5YR 4/3 7.5YR 3/3		sand sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3 3-9	10R 2.5/1 10YR 2/1		hemic sapric	Not NRCS hydric
9-15	5YR 4/3		sand	
15-24+	5YR 3/3		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- ____ (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- X (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

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DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50 N R 29 W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP 13

UTM 16 T 0431315 5177444

INSTRUCTIONS:
Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C617

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?
If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 6/6 3/3

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Acer rubrum		O	Fac
Alnus rugosa		S	Obl
Acer rubrum		S	Fac
Dryopteris intermedia		H	Fac
Osmunda cinnamomea		H	FacW
Sphagnum ? fibriatum		H	not listed

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 5/7 1/3

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		O	Fac
Abies balsamea		O	FacW
Picea glauca		O	FacU
Acer rubrum		S	Fac
Huperzia lucidula		H	[Fac+]
Dryopteris intermedia		H	Fac
Pteridium aquilinum		H	FacU

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 7 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem X Hypertrophied lenticels X Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10 R 2.5/1		hemic	
2-5	10 YR 2/1		sapric	
5-12+	10 YR 2/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10 R 2.5/1		hemic	Not NRCS hydric
2-4	7.5 YR 3/1		sand	Oe
4-9	7.5 YR 5/3 5 YR 2.5/2		sand sand	BH
9-21+	7.5 YR 4/3		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50 N R 29 W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP 14

INSTRUCTIONS: UTM 16 T 0431424 5177433

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C 633

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/5 3/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea glauca		O	Fac U
Picea mariana		O	Fac W
Alnus rugosa		S	Obl
Dryopteris intermedia		H	Fac
Osmunda cinnamomea		H	Fac W
Mnium sp		H	not listed

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 5/6 2/3

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		O	Fac
Abies balsamea		O	Fac W
Prunus serotina		O	Fac U
Abies balsamea		S	Fac W
Dryopteris intermedia		H	Fac
Huperzia lucidula		H	[Fac +]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- X (√) Organic soils (Histosols)
- ____ (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____ (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Histosol

Morphological Plant Adaptations Observed(√):
- ____ Inflated leaves, stems, or root
- X Hypertrophied lenticels
- ____ Adventitious roots
- ____ Polymorphic leaves
- X Multiple trunks or stooling
- ____ Shallow root system
- ____ Oxygen pathway to roots
- ____ Buttressed tree trunks
- ____ Floating leaves
- ____ Floating stem
- ____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0 – 16+	2.5 YR 2.5/1		sapric	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0–3	10 R 2.5/1		hemic	Not NRCS hydric
3–5	10 YR 2/1		sapric	Oa
5–8	7.5 YR 4/2		sand	Oa
8–10	10 YR 2/1		sapric	
10 – 18+	7.5 YR 4/2		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50 N R 29 W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP 15

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). wetland flags illegible in this area

UTM 16 T 0431563 5177432

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/5 2/3

Genus/Species	Common Name	Stratum*	Indicator Status
Alnus rugosa		S	Obl
Prunus serotina		S	Fac U
Acer rubrum		S	Fac
Picea mariana		S	Fac W
Poaceae		H	Various
Dryopteris intermedia		H	Fac

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/4 1/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		S	Fac
Abies balsamea		S	Fac W
Pteridium aquilinum		H	Fac U
Epigaea repens		H	[UPL]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- X (√) Organic soils (Histosols)
- ____ (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____ (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Histosol

Morphological Plant Adaptations Observed(√):
____ Adventitious roots; ____ Shallow root system; ____ Floating leaves; ____ Inflated leaves, stems, or root; ____ Polymorphic leaves; ____ Oxygen pathway to roots; ____ Floating stem; X Hypertrophied lenticels; X Multiple trunks or stooling; ____ Buttressed tree trunks; ____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10R 2.5/1		hemic	
3-18+	7.5 YR 2.5/1		sapric	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10 YR 2/1		sand	Not NRCS hydric
3-13	2.5 YR 5/2		sand	
13-15	5 YR 2.5/2		sand	BH + Bs

WETLAND DETERMINATION 15-17+ 2.5 YR 3/6 sand Bs

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	X (√) Shrub Swamp
____ (√) Wet Meadow	____ (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX — *For DEQ Use:* File: __-___-_____-__

County: Marquette T 50 R 29W S 11 Date: 11/08/2005

Form Completed By: John Fody Wetland Area: DP16

INSTRUCTIONS: UTM 16 T 0431668 5177381

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland Egg C678

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/5 3/5

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		S	Fac W
Picea mariana		S	Fac W
Ledum groenlandicum		H	OBL
Pteridium aquilinum		H	Fac U
Epigaea repens		H	[UpL]
Sphagnum sp.		H	not listed

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 5/7 4/6

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		O	Fac U
Picea mariana		S	Fac W
Abies balsamea		S	Fac W
Larix laricina		S	Fac W
Vaccinium myrtilloides		H	Fac W-
Epigaea repens		H	[UpL]
Cornus canadensis		H	Fac

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 9 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
sandy mucky mineral

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	2.5YR 2.5/1		hemic	
2-3	10YR 2/1			chief charcoal
3-5 5-12+	10YR 2/1 10YR 4/2		sand sand	mucky modified

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				Not NRCS hydric
0-1	10YR 2/1		sapric	includes some sand grains
1-8	5YR 5/3		sand	
8-10 10-12+	5YR 3/4 5YR 4/6		sand sand	Bh Bs

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	____ (√) Coniferous Swamp	X (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-___

County: Marquette T 50 N R 29 W S 11 Date: 11/09/2005

Form Completed By: John Fady Wetland Area: DP17

INSTRUCTIONS: UTM 16 T 0431656 5177279

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag 710?

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3|6 3|6

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		O	Fac U
Picea mariana		S	Fac W
Larix laricina		S	Fac W
Pteridium aquilinum		H	Fac U
Ledum groenlandicum		H	Obl
Epigaea repens		H	[UPL]
Sphagnum sp.		H	unlisted

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2|6 2|6
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		O	Fac U
Abies balsamea		S	Fac W
Prunus serotina		S	Fac U
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-
Vaccinium angustifolium		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 11 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:

- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- ____ (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

- ____ (√) Organic soils (Histosols)
- ____ (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

Not NRCS hydric

Morphological Plant Adaptations Observed(√):

- ____ Adventitious roots
- ____ Shallow root system
- ____ Floating leaves
- ____ Inflated leaves, stems, or root
- ____ Polymorphic leaves
- ____ Oxygen pathway to roots
- ____ Floating stem
- ____ Hypertrophied lenticels
- ____ Multiple trunks or stooling
- ____ Buttressed tree trunks
- ____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10 R 2.5/1		hemic	
4-15	10YR 5/2		sand	
15-17+	7.5YR 2.5/2		sand	might be Bh

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (If different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10 YR 2/1		saprist	not NRCS hydric
3-15	7.5YR 5/3		sand	
15-17+	7.5YR 2.5/3		sand	apparently BSH

WETLAND DETERMINATION

- ____ (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- N (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)
- N (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- ____ (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50 N R 29 W S 11 Date: 11/09/2005

Form Completed By: John Fody Wetland Area: DP 18

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C758

SITE REVIEW: UTM 16 T 0431672 5177187

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/3 3/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Larix laricina		S	Fac W
Ledum groenlandicum		H	OBL
Sphagnum spp.		H	not listed

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 4/6 4/6

Genus/Species	Common Name	Stratum*	Indicator Status
Larix laricina		O	Fac W
Picea mariana		S	Fac W
Ledum groenlandicum		H	OBL
Vaccinium myrtilloides		H	Fac W-
Deschampsia flexuosa		H	[UPL]
Epigaea repens		H	[UPL]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 2 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- X (√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____(√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
histic epipedon

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	7.5YR 3/3		hemic	low in horizon i's
2-5	10YR 2/1		sapric	7.5YR 2.5/2 sand. Could
5-9 / 9-15+	10YR 2/2 / 10YR 5/3		hemic / sand	not measure depth due to inundation

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				Not NRCS hydric
0-1	10YR 2/1		sand	mucky modified
1-13	7.5YR 4/6		sand	includes intermixed organic matter
13-15 / 15-18+	5YR 3/4 / 7.5YR 3/3		sand / sand	and paler spots

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	____ (√) Coniferous Swamp	X (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___

County: Marquette T 50N R 29W S 11 Date: 11/09/2005

Form Completed By: John Fody Wetland Area: DP19

INSTRUCTIONS: UTM 16T 0431622 5177146

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C824

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: ___

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: ___

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/3 3/3

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		S	Fac W
Picea mariana		S	Fac W
Ledum groenlandicum		H	OBL
Sphagnum sp.		H	not listed

Aquatic Life Observed ___

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 4/6 3/5

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		O	Fac U
Picea mariana		S	Fac W
Abies balsamea		S	Fac W
Vaccinium myrtilloides		H	Fac W-
Epigaea repens		H	[UPL]
Cornus canadensis		H	Fac

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- X (√) Visible observation of inundation (Depth 1 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:

- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√):

- ____Adventitious roots
- ____Shallow root system
- ____Floating leaves
- ____Inflated leaves, stems, or root
- ____Polymorphic leaves
- ____Oxygen pathway to roots
- ____Floating stem
- ____Hypertrophied lenticels
- ____Multiple trunks or stooling
- ____Buttressed tree trunks
- ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10YR 3/3		hemic	Sand (7.5YR2.5/3) in lower profile. Inundation prevented measurement of depth
2-6	10YR 2/1		sapric	
6-9+	10YR 5/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	10R 2.5/1		hemic	not NRCS hydric Oe
1-3 3-14	2.5YR 2.5/1 5YR 4/2		sapric sand	Oa
14-16 16-18+	5YR 3/3 5YR 3/4		sand sand	Bh Bs

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

- _____ (√) Emergent Marsh
- _____ (√) Wet Meadow
- _____ (√) Wet Prairie
- _____ (√) Deciduous Swamp
- _____ (√) Coniferous Swamp
- _____ (√) Deciduous Forest
- _____ (√) Fen
- X (√) Bog/Muskeg
- _____ (√) Great Lakes Marsh
- _____ (√) Shrub Swamp
- _____ (√) Floodplain Forest
- _____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50 N R 29 W S 11 Date: 11/09/2005

Form Completed By: John Fody Wetland Area: DP 20

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @wetland flag C860

SITE REVIEW: UTM 16T 0431619 5177090

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/4 4/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	FacW
Abies balsamea		S	FacW
Larix laricina		S	FacW
Ledum groenlandicum		H	OBL
Sphagnum sp.		H	not listed
Carex sp.		H	varials

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 3/6 3/6

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		O	FacU
Picea mariana		S	FacW
Abies balsamea		S	FacW
Prunus serotina		S	FacU
Vaccinium myrtilloides		H	FacW-
Vaccinium angustifolium			FacU

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- 7 (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10 YR 2/1		Saprc	charcoal also present
4-16+	7.5 YR 5/2		sand	
	7.5 YR 4/2		sand	inundation prevented measurement

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10 YR 2/1		saprc	not NRCS hydric
4-19	5 YR 6/3		sand	
19-21+	5 YR 3/4		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	____ (√) Coniferous Swamp	X (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___

County: Marquette T 50N R 29W S 11 Date: 11/09/2005

Form Completed By: John Fody Wetland Area: DPZ1

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C884

SITE REVIEW: UTM 16 T 0431578 5176987

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/6 5/6

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Abies balsamea		S	Fac W
Larix laricina		S	Fac W
Ledum groenlandicum		H	Obl
Sphagnum spp.		H	unlisted
? Calamagrostis canadensis		H	Obl
Polytrichum ? strictum		H	unlisted
Epigaea repens		H	[Upl]

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 4/7 3/6

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		O	Fac U
Picea mariana		S	Fac W
Pinus strobus		S	Fac U
Acer rubrum		S	Fac
Abies balsamea		S	Fac W
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- Y (√) Visible observation of inundation (Depth 2 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ___Adventitious roots ___Shallow root system ___Floating leaves ___Inflated leaves, stems, or root ___Polymorphic leaves ___Oxygen pathway to roots ___Floating stem ___Hypertrophied lenticels ___Multiple trunks or stooling ___Buttressed tree trunks ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey: 10R 2.5/1

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	[illegible]		hemic	
1-6	10YR 2/1		sapric	
6-14 / 14-16+	7.5YR 4/1 / 7.5YR 2.5/2		sand / sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1.5	2.5YR 2.5/1		hemic	not NRCS hydric
1.5-2	10YR 2/1		charcoal	
2-20 / 20-23+	5YR 5/2 / 5YR 3/3		sand / sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- _____ (√) Emergent Marsh
- _____ (√) Wet Meadow
- _____ (√) Wet Prairie
- _____ (√) Deciduous Swamp
- _____ (√) Coniferous Swamp
- _____ (√) Deciduous Forest
- _____ (√) Fen
- X (√) Bog/Muskeg
- _____ (√) Great Lakes Marsh
- _____ (√) Shrub Swamp
- _____ (√) Floodplain Forest
- _____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-___-_____-__

County: Marquette T 53 N R 29 W S 11 Date: 4 / 09 / 2005

Form Completed By: John Fody Wetland Area: DR 22

INSTRUCTIONS: UTM 16 T 0431606 5176893 @ wetland flag C907

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/5 4/5

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		S	Fac W
Larix laricina		S	Fac W
Vaccinium myrtilloides		H	Fac W-
Ledum groenlandicum		H	Obl
Pteridium aquilinum		H	Fac U

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 3/5 2/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Prunus serotina		O	Fac U
Abies balsamea		S	Fac W
Acer rubrum		S	Fac
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 5 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10 R 2.5/1		hemic	
2-5	5YR 2.5/1		sapric	
5-10	7.5 YR 4/1		sand	
10-19+	7.5 YR 2.5/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				not NRCS hydric
0-4	10 YR 2/1			mostly charcoal
4-19	5YR 6/2		sand	
19-21+	7.5 YR 3/4		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	____ (√) Coniferous Swamp	X (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___

County: Marquette T 50N R 29W S 11 Date: 11/09/2005

Form Completed By: John Fody Wetland Area: DP 23

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: UTM 16T 0431570 5176886 @ wetland flag C94

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 6|7 6|7

Genus/Species	Common Name	Stratum*	Indicator Status
Alnus rugosa		S	Obl
Picea mariana		S	Fac W
Carex lacustris		H	Obl
Ledum groenlandicum		H	Obl
Vaccinium myrtilloides		H	Fac W-
Epigaea repens		H	[upL]
Sphagnum sp.		H	unlisted
Chamaedaphne calyculata		H	Obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 1/4 1/4

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		O	Fac U
Pinus banksiana		S	Fac U
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 1 in.)
- X (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- X (√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem X Hypertrophied lenticels X Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10 R 2.5/1		hemic	
2-7	10 YR 2/1		sapric	
7-20	10 YR 5/2		sand	some organic streaking near upper boundary
20-23+	10 YR 4/3		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				not NRCS hydric
0-2	10 YR 2/1		sapric	many sand grains
2-9	7.5 YR 6/2		sand	
9-10	5 YR 2.5/2		sand	
10-20+	5 YR 4/3		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-_

County: Marquette T 50N R 29W S 11 Date: 11/10/2005

Form Completed By: John Fody Wetland Area: DP 24

INSTRUCTIONS: UTM 16 T 0431525 5176981

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag C964

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/6 5/6

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Ledum groenlandicum		H	Obl
Sphagnum sp.		H	unlisted
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-
?Calamagrostis canadensis		H	Obl
Alnus rugosa		S	Obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 2/4 2/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-
Deschampsia flexuosa		H	[upl]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- ____ (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√):
____Adventitious roots ____Shallow root system ____Floating leaves
____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem
X Hypertrophied lenticels X Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	5YR 2.5/2		hemic	
2-5	5YR 2.5/1		sapric	
5-10	10YR 4/2		sand	
10-11	5YR 2.5/2		sand	
11-25+	7.5YR 3/3		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	2.5YR 2.5/1		hemic	not NRCS hydric
2-4	10YR 2/1		sand	much charcoal
4-10	5YR 5/2		sand	
10-13	5YR 3/4		sand	
13-16+	7.5YR 3/4		sand	

WETLAND DETERMINATION
- ____ (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- ____ (√) Wetland hydrology and/or hydric soil present
- ____ (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- ____ (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

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DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-__-____-__

County: Marquette T 50°N R 24°W S 11 Date: 11/10/2005

Form Completed By: John Fody Wetland Area: DP25

INSTRUCTIONS: UTM 16 T 0431514 5177077 @ wetland flag C1004

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

Y (Y/N) Is the site significantly disturbed? If yes, describe: Area was used in part as a landing for logging operations

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 2|3 2|3

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		O	Fac U
Rubus strigosus		S	Fac W-
Calamagrostis canadensis		S	Obl
Sphagnum sp		H	unlisted

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 2|2 2|2

Genus/Species	Common Name	Stratum*	Indicator Status
Rubus strigosus		S	Fac W-
Dryopteris carthusiana		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

at NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	7.5YR 2.5/1		hemic	
1-3	10YR 5/3		sand	
3-8+	5YR 3/3		sand	RSH; could not excavate deeper due to cementation

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
upland soils are significantly disturbed by logging operations				

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/10/2005

Form Completed By: John Fody Wetland Area: DP 26

INSTRUCTIONS: @ wetland flag Z36 UTM 16 T 0430729 5177777

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/7 3/6

Genus/Species	Common Name	Stratum*	Indicator Status
Picea glauca		O	FacU
Abies balsamea		O	FacW
Abies balsamea		S	FacW
Prunus serotina		S	FacU
Sphagnum sp.		H	unlisted
Dryopteris intermedia		H	Fac
Pteridium aquilinum		H	FacU
Carex sp.		H	Various
Poaceae		H	Various
Alnus rugosa		S	Obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 4/5 4/5

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Picea mariana		S	FacW
Acer rubrum		S	Fac
Pteridium aquilinum		H	FacU
Vaccinium myrtilloides		H	FacW-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- ____ (√) FAC-Neutral test
- ____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
sandy redox

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem X Hypertrophied lenticels X Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-5	7.5YR 2.5/1		sapric	
5-18+	10YR 3/2	5YR 3/3	loamy sand	quite rocky; redox ± 3%

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-0.5	7.5YR 2.5/1		hemic	not NRCS hydric
0.5-1	7.5YR 2.5/1		sapric	
1-6	5YR 4/2		sand	
6-12	5YR 3/4		sand	
12-16+	7.5YR 4/4		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX — For DEQ Use: File: ____-____-____-____

County: Marquette T 50°N R 24°W S 11 — Date: 11/10/2005

Form Completed By: John Fody — Wetland Area: DP 27

INSTRUCTIONS: @ wetland Figg Z80 UTM 16 T 0430777 5177675

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 6/7 5/6

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	Fac W
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Abies balsamea		S	Fac W
Prunus serotina		S	Fac U
Dryopteris intermedia		H	Fac
Sphagnum sp.		H	not listed
Cornus trifolia		H	Fac W

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 4/6 1/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea glauca		O	Fac U
Abies balsamea		O	Fac W
Prunus serotina		S	Fac U
Acer rubrum		S	Fac
Cornus canadensis		H	Fac
Dryopteris intermedia		H	Fac

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 7 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 2.5/1		hemic	
3-6	7.5YR 2.5/1		sapric	
6-13 13-17+	7.5YR 4/3 5YR 4/3		fine sand sandy loam	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4 4-6	10YR 2/1 7.5YR 4/2		sapric sand	not NRCS hydric
6-12 12-14	7.5YR 3/3 5YR 2.5/2		burn sand	BH
14-16+	7.5YR 4/3		sand	Bs? very cemented

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-__

County: Marquette T 50°N R 24°W S 11 Date: 11/10/2005

Form Completed By: John Fody Wetland Area: DP28

INSTRUCTIONS: @ wetland flag Z131 UTM 16 T 0430865 5177666

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/7 4/6

Genus/Species	Common Name	Stratum*	Indicator Status
Prunus serotina		S	Fac U
Acer rubrum		S	Fac
Abies balsamea		S	Fac W
Pteridium aquilinum		H	Fac U.
Calamagrostis canadensis		H	Obl
Vaccinium myrtilloides		H	Fac W-
Picea mariana		H	Fac W

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 2/5 1/4

Genus/Species	Common Name	Stratum*	Indicator Status
Prunus serotina		S	Fac U
Acer rubrum		S	Fac
Calamagrostis canadensis		H	Obl
Pteridium aquilinum		H	Fac U
Deschampsia flexuosa		H	Fupl?

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10YR 2/1		sapric	
2-11	10YR 4/2		sand	
11-12	10YR 3/2		sand	
12-15+	7.5YR 3/4		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				not NRCS hydric
0-2	5YR 2.5/1		hemic	Oe
2-13	5YR 5/3		sand	
13-16	5YR 3/3		sand	B_H
16-18+	5YR 4/6		sand	Bs

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
X (√) Wet Meadow	____ (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/11/2005

Form Completed By: John Fody Wetland Area: D29

INSTRUCTIONS: @ wetland flag Z157 UTM 16 T 0430945 5177578

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/7 4/7

Genus/Species	Common Name	Stratum*	Indicator Status
Prunus serotina		S	Fac U
Pinus banksiana		S	Fac U
Scirpus cyperinus		S	Obl
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-
Calamagrostis canadensis		H	Obl
Picea mariana		H	Fac W

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/4 2/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Rubus strigosus		H	Fac W-
Pteridium aquilinum		H	Fac U
Calamagrostis canadensis		S	Obl
Prunus serotina		S	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 2 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- ? (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____(√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	5YR 4/3		sand	Appears to be material eroded from adjacent landing
3-4 4-7	5YR 2.5/1 7.5YR 3/1		mucky modified sand sand	
7-15+	10YR 5/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-6 6-8	7.5YR 5/2 5YR 2.5/1		sand mucky modified sand	NRCS hydric Appears to be alluvial material
8-12	5YR 4/3		sand	
12-16+	5YR 3/3		sand	

includes layers of organic-rich sand

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
X (√) Wet Meadow	____ (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: Wetland in vicinity of DP is hummocky; DP 29 includes upland hummock

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/11/2005

Form Completed By: John Fody Wetland Area: DP 30

INSTRUCTIONS: @ wetland flag Z 193 UTM16 T 0431005 5177624

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 2/3 2/3

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus strobus		O	Fac U
Picea mariana		S	Fac W
Picea mariana		O	Fac W
Sphagnum spp.		G	unlisted

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 3/4 2/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Acer rubrum		S	Fac
Pteridium aquilinum		G	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 2 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ___Adventitious roots ___Shallow root system ___Floating leaves ___Inflated leaves, stems, or root ___Polymorphic leaves ___Oxygen pathway to roots ___Floating stem ___Hypertrophied lenticels ___Multiple trunks or stooling ___Buttressed tree trunks ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2.5	5YR 2.5/1		hemic	
2.5-5.5	7.5YR 2.5/1		sapric	
5.5-8+	10YR 6/2		sand	soil pit flooded rapidly; could not excavate to expected depth

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 2.5/2		hemic	not NRCS hydric
3-6	10YR 3/3		hemic	
6-9	N 2.5/ 7.5YR 5/2		mostly charcoal sand	
9-16+	5YR 3/3		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh	_____ (√) Deciduous Swamp	_____ (√) Fen	_____ (√) Shrub Swamp
_____ (√) Wet Meadow	X (√) Coniferous Swamp	_____ (√) Bog/Muskeg	_____ (√) Floodplain Forest
_____ (√) Wet Prairie	_____ (√) Deciduous Forest	_____ (√) Great Lakes Marsh	_____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-___-____-_____-_

County: Marquette T 50°N R 29°W S 11 Date: 11/11/2005

Form Completed By: John Fody Wetland Area: DP 31

INSTRUCTIONS: @ wetland flag Z 265 UTM 16 T 0431099 5177597

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/7 4/7

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Picea mariana		S	Fac W
Scirpus cyperinus		O	Obl
Pteridium aquilinum		H	Fac U
Polygala reynS		H	[upl]
Vaccinium myrtilloides		H	Fac W-
Picea mariana		H	Fac W

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/4 1/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		S	Fac
Picea mariana		S	Fac W
Pteridium aquilinum		H	Fac U
Deschampsia flexuosa		H	[upl]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 3 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-6	10R 2.5/1		Sapric	
6-10	10 YR 5/2		Sand	
10-18	10 YR 4/2		sand	
18-24+	7.5 YR 4/4		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-13	5 YR 5/2		sand	not NRCS hydric
13-16+	5 YR 3/2		sand	BsH

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

cut-over

- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: DP located in area of hummocky micro-topography

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-__-__-____-__

County: Marquette T 50°N R 29°W S 11 Date: 11/11/2005

Form Completed By: John Fody Wetland Area: DP 32

INSTRUCTIONS: @ wetland flag Z 324 UTM 16 T 0430999 5177664

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/5 4/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	FacW
Acer rubrum		S	Fac
Abies balsamea		S	FacW
Sphagnum spp		H	unlisted
Lethum groenlandicum		H	Obl
Carex ? trisperma		H	Obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 4/5 3/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	FacW
Abies balsamea		O	FacW
Abies balsamea		U	FacW
Amelanchier sp		S	Various
Pteridium aquilinum		H	Fac U
Cornus canadensis		H	FaC

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____ (√) Organic soils (Histosols)
- X (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
histic epipedon

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10 R 2.5/1		hemic	both horizons
4-7	10 YR 2/2			
7-10	7.5 YR 2/1		sapric	too wetland to separate bottom
?	10 YR 3/2		sand	C horizon

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	5 YR 2.5/1		sapric	not NRCS hydric
3-11	5 YR 4/3		sand	
11-14	2.5 YR 2.5/2		sand	
14-19+	7.5 YR 5/2		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

uncut

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: Topography similar to that of DP3; DP3 probably looked like this prior to cutting

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-__

County: Marquette T 50°N R 29°W S 11 Date: 11/11/2005

Form Completed By: John Fody Wetland Area: DP 33

INSTRUCTIONS: @ wetland flag Z359 UTM 16 T 0431097 5177672

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: DP partially cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/7 4/6

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		U	Fac W
Acer rubrum		S	Fac
Abies balsamea		S	Fac W
Pteridium aquilinum		H	Fac U
Sphagnum spp		H	not listed
Epigaea repens		H	[Lupl]
Vaccinium myrtilloides		H	Fac W-

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 1/3 2/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:

- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils

- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- X (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
- ____(√) Gleyed (gray) soil (i.e. matches Gley page)
- ____(√) Matrix chroma of 2 or less in mottled soils
- X (√) Matrix chroma of 1 or less in unmottled soils
- ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

histic epipedon/black
histic

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-5	5YR 2.5/1		hemic	
5-8	7.5YR 2.5/1		sapric	
8-13+	10YR 3/1		loam	too wet to excavate deeper

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	5YR 2.5/1		sapric	
3-9	5YR 4/2		sand	
9-12	5YR 4/2		sand	+bands of 7.5YR 3/4 (30%)
12-15	7.5YR 3/4		sand	Bs
15-18+	7.5YR 4/3		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX — *For DEQ Use:* File: ___-___-___-___

County: Marquette T 50°N R 29°W S 11 — Date: 11/11/2005

Form Completed By: John Fody — Wetland Area: DR34

INSTRUCTIONS: @ wetland flag ? Z379 UTM 16 T 0431028 5177758

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: site is cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: ___

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/6 4/5

Genus/Species	Common Name	Stratum*	Indicator Status
Populus tremuloides		S	Fac
Calamagrostis canadensis		G	Obl
Scirpus cyperinus		H	Obl
Juncus effusus		H	Obl
Deschampsia flexuosa		H	[Upl]
Vaccinium myrtilloides		H	Fac W-

Aquatic Life Observed ___

Dominant Vegetation *on Upland Side* of the Boundary 0/4 0/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Pteridium aquilinum		H	Fac U
Danthonia spicata		H	[Upl]
Deschampsia flexuosa		H	[Upl]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- _____ (√) Visible observation of inundation (Depth ____ in.)
- _____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Other: _____

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- ✓ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

sandy mucky mineral

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	2.5YR 2.5/1		sand	mucky modified
4-11	5YR 5/2		sand	
11-13+	2.5YR 2.5/2		sand	Really very cemented; could not excavate further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes not NRCS hydric
0-1	2.5YR 2.5/1		sand	mucky modified
1-8	5YR 5/2		sand	
8-10	2.5 YR 2.5/2		sand	
10-14+	5YR 4/6		Sand	very cemented; could not excavate further

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- _____ (√) Emergent Marsh
- X (√) Wet Meadow
- _____ (√) Wet Prairie
- _____ (√) Deciduous Swamp
- _____ (√) Coniferous Swamp
- _____ (√) Deciduous Forest
- _____ (√) Fen
- _____ (√) Bog/Muskeg
- _____ (√) Great Lakes Marsh
- _____ (√) Shrub Swamp
- _____ (√) Floodplain Forest
- _____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

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DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/11/2005

Form Completed By: John Fody Wetland Area: DP 35

INSTRUCTIONS: UTM 16 T 0430965 5177816 @ wetland flag Z 7753

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

Y (Y/N) Is the site significantly disturbed? If yes, describe: site has been heavily rutted by logging equipment creating hummock and hollow microtopography

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/3 2/2

Genus/Species	Common Name	Stratum*	Indicator Status
Populus tremuloides		S	Fac
Calamagrostis canadensis		S	Obl
Calamagrostis canadensis		H	Obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 0/4 0/4

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Danthonia spicata		H	[Upl]
Pteridium aquilinum		H	Fac U
Deschampsia flexuosa		H	[Upl]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- _____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 9 in.)
- ? (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- _____(√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-6	5YR 2.5/2		sand	
6-8	10R 2.5/1		saprist	may be original surface horizon
8-16	5YR 5/2		sand	
16-18+	10R 2.5/2		sand	very cemented

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	10YR 2/1		saprist	not NRCS hydric
1-9	7.5YR 5/2		sand	
9-19+	7.5YR 3/4		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh	_____ (√) Deciduous Swamp	_____ (√) Fen	_____ (√) Shrub Swamp
X (√) Wet Meadow	_____ (√) Coniferous Swamp	_____ (√) Bog/Muskeg	_____ (√) Floodplain Forest
_____ (√) Wet Prairie	_____ (√) Deciduous Forest	_____ (√) Great Lakes Marsh	_____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___

County: Marquette T 50°N R 29°W S 11 Date: 11/11/2005

Form Completed By: John Fody Wetland Area: DP36

INSTRUCTIONS: UTM 16 T 0431066 5177760 @ wetland flag ? 503

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

Y (Y/N) Is the site significantly disturbed? If yes, describe: cut-over and rutted

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: ___

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/5 2/4

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac u
Populus tremuloides		S	Fac
Danthonia spicata		H	[upl]
Calamagrostis canadensis		H	obl
Rubus strigosus		H	Fac w-

Aquatic Life Observed ___

Dominant Vegetation *on Upland Side* of the Boundary 2/3 1/2
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Populus tremuloides		S	Fac
Danthonia spicata		H	[upl]
Calamagrostis	canadensis	H	obl

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- ____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- ____ (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	5YR 2.5/1		sapric	
1-11	5YR 5/2		sand	
11-15+	5YR 3/2 BH 5YR 4/6 BS		sand	very connected; mixture of BH and BS, not stratified

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				upland soils heavily disturbed; a natural profile could not be located in vicinity of data point

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
X (√) Wet Meadow	____ (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

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DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___-___

County: Marquette T 50°N R 29°W S 11 Date: 11/11/2005

Form Completed By: John Fody Wetland Area: DP37

INSTRUCTIONS: UTM 16 T 0431147 5177706 @ wetland flag Z543

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: ___

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/4 4/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Abies balsamea		S	Fac W
Picea mariana		H	Fac W
Sphagnum spp		H	not listed
Calamagrostis canadensis		H	obl
Poaceae		H	various

Aquatic Life Observed ___

Dominant Vegetation *on Upland Side* of the Boundary 2/4 1/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Acer rubrum		S	Fac
Pteridium aquilinum		H	Fac U
Vaccinium angustifolium		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10 R 2.5/1		hemic	
2-4	7.5 YR 2.5/1		sapric	
4->11	10 YR 5/3		sand	
	7.5 YR 2.5/3		sand	too wet to measure boundaries

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1.5	10 R 2.5/1		hemic	not NRCS hydric
1.5-3	10 R 2.5/1		sapric	
3-10	2.5 YR 4/2		sand	
10-15+	2.5 YR 3/3		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present): → cut-over

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-___

County: Marquette T 50°N R 29°W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DP 38

INSTRUCTIONS: @ wetland Fig 7 603 UTM 16 T 0431247 5177717

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: partially cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/5 4/5

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	Fac W
Abies balsamea		S	Fac W
Picea mariana		H	Fac W
Coptis trifolia		H	Fac W
Sphagnum magellanicum		H	not listed
Pteridium aquilinum		H	FAC U

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/4 2/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Picea mariana		H	Fac W
Deschampsia	flexuosa	H	[upl]
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 6 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____ (√) Organic soils (Histosols)
- ____ (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10R 2.5/1		hemic	
2-6	7.5YR 2.5/1		sapric	
6-12	10YR 5/2		sand	
12-14+	7.5YR 2.5/2		sand	too wet to excavate further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10R 2.5/1		hemic	not NRCS hydric
2-4	10YR 2/1		sapric	
4-18	7.5YR 5/2		sand	
18-21+	7.5YR 4/3		sand	

WETLAND DETERMINATION

____ (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
____ (√) Wetland hydrology and/or hydric soil present
____ (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
____ (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___-___

County: Marquette T 50°N R 29°W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DP39

INSTRUCTIONS: e wetland flag Z656 UTM 16 T 0431238 5177789

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: ___

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/6 3/5

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Abies balsamea		S	Fac W
Picea mariana		S	Fac (W)
Acer rubrum		S	Fac
Pteridium aquilinum		H	Fac U
Scirpus cyperinus		H	obl
Polytrichum	sp	H	not listed

Aquatic Life Observed ___

Dominant Vegetation *on Upland Side* of the Boundary 2/5 2/5
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Abies balsamea		S	Fac W
Pteridium aquilinum		H	Fac U
Deschampsia flexuosa		H	[upl]
Picea mariana		S	Fac W

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- _____ (√) Visible observation of inundation (Depth ____ in.)
- _____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ___Adventitious roots ___Shallow root system ___Floating leaves ___Inflated leaves, stems, or root ___Polymorphic leaves ___Oxygen pathway to roots ___Floating stem ___Hypertrophied lenticels ___Multiple trunks or stooling ___Buttressed tree trunks ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10 R 2.5/1		Sapric sand	
2-10.5	5YR 5/2			
10.5-17+	2.5YR 2.5/2 BH	5YR 4/6 Bs	sand	mixture of Bs and BH
				← 40% of horizon

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				not NRCS hydric
0-4	10 R 2.5/1		sapric sand	
4-12	7.5YR 5/2			
12-20+	2.5YR 2.5/3	2.5YR 3/6	sand	mixture of BH and Bs
	BH ↑	Bs ↑	← 20% of	horizon

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- _____ (√) Emergent Marsh
- X (√) Wet Meadow
- _____ (√) Wet Prairie
- _____ (√) Deciduous Swamp
- _____ (√) Coniferous Swamp
- _____ (√) Deciduous Forest
- _____ (√) Fen
- _____ (√) Bog/Muskeg
- _____ (√) Great Lakes Marsh
- _____ (√) Shrub Swamp
- _____ (√) Floodplain Forest
- _____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-__

County: Marquette T 50°N R 29°W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DP40

INSTRUCTIONS: e wetland flag Z 707 UTM 16 T 0431307 5177802

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 1/5 1/5

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Betula papyrifera		S	Fac U+
Calamagrostis canadensis		H	obl
Pteridium aquilinum		H	Fac U
Deschampsia flexuosa			[upl]

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 1/5 1/5
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Abies balsamea		S	Fac W
Prunus serotina		S	Fac U
Pteridium aquilinum		H	Fac U
Deschampsia flexuosa		H	[upl]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- ____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: water @ 15"

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- ____ (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	10 R 2.5/1		hemic	
1-2	7.5YR 2.5/1		sapric	
2-10	10YR 5/3		sand	
10-12	7.5YR 3/2		sand	
12-18+	2.5YR 2.5/2		sand	stony; very cemented

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				not NRCS hydric
0-1	10 R 2.5/1		hemic	
1-2	10 R 2.5/1		sapric	
2-4	2.5YR 5/2		sand	
4-6	5YR 3/3		sand	discontinuous horizon
6-15+	5YR 4/6		sand	quite stony

WETLAND DETERMINATION

- ____ (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- N (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- N (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- ____ (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-__

County: Marquette T 50°N R 29°W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DP 41

INSTRUCTIONS: @ wetland flag Z 778 UTM 16 T 0431309 5177774

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/6 3/5

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Picea mariana		S	Fac W
Populus tremuloides		S	Fac
Scirpus cyperinus		H	obl
Calamagrostis canadensis		H	obl
Sphagnum spp.		H	unlisted
Deschampsia flexuosa		H	[upl]

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/6 2/6
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Abies balsamea		S	Fac W
Picea mariana		S	Fac W
Pteridium aquilinum		H	Fac U
Betula papyrifera		S	Fac U+
Deschampsia flexuosa		H	[upl]
Polytrichum sp.		H	unlisted

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- X (√) Visible observation of inundation (Depth 2 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:

- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

stripped matrix

Morphological Plant Adaptations Observed(√): ___Adventitious roots ___Shallow root system ___Floating leaves ___Inflated leaves, stems, or root ___Polymorphic leaves ___Oxygen pathway to roots ___Floating stem ___Hypertrophied lenticels ___Multiple trunks or stooling ___Buttressed tree trunks ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	10 R 2.5/1		hemic	
1-4	10 R 2.5/1		sapric	
4-6	10YR 4/1		sand	stained with organic matter
6-12+	10YR 5/2		sand	too wet to excavate further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	5 YR 2.5/1		hemic	not NRCS hydric
2-4	5YR 2.5/1		sapric	
4-8	5 YR 4/1		sand	Bh
8-10	5YR 2.5/2		sand	
10-13	5 YR 3/4		loamy	Bs
13-17+	7.5 YR 4/4		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh	_____ (√) Deciduous Swamp	_____ (√) Fen	_____ (√) Shrub Swamp
X (√) Wet Meadow	_____ (√) Coniferous Swamp	_____ (√) Bog/Muskeg	_____ (√) Floodplain Forest
_____ (√) Wet Prairie	_____ (√) Deciduous Forest	_____ (√) Great Lakes Marsh	_____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-___-____-_____

County: Marquette T 50N R 24W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DR4Z

INSTRUCTIONS: Wetland Reg Z 833 UTM 16 T 0431280 5177748

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 1/3 1/3

Genus/Species	Common Name	Stratum*	Indicator Status
Prunus serotina		S	Fac U
Calamagrostis canadensis		S	Obl
Pteridium aquilinum		H	Fac U

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 1/4 1/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Betula papyrifera		S	Fac U+
Pteridium aquilinum		H	Fac U
Picea mariana		H	Fac W

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- ____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: water @ 16"

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- ____ (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	7.5YR 2.5/1		sapric	
3-6	7.5YR 5/2		sand	
6-8	5YR 3/3		sand	BH
8-12	5YR 4/6		sand	
12-17	5YR 3/3		sand	
17-20+	5YR 4/4		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10YR 2/2		sand	not NRCS hydric; appears to be A
4-8	5YR 4/2		sand	
8-9	5YR 3/3		sand	BH
9-15+	5YR 4/6		sand	many stones and pebbles

WETLAND DETERMINATION
- N (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- Y (√) Wetland hydrology and/or hydric soil present
- N (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- N (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	____ (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-__-_____-__

County: Marquette T 50°N R 24°W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DR 43

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: @ wetland flag Z 822 UTM 16 T 0431397 5177709

N (Y/N) Is the site significantly disturbed? If yes, describe: partially cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 6/7 5/6

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		S	Fac
Picea mariana		O	Fac W
Pinus banksiana		O	Fac U
Ledum groenlandicum		H	obl
Abies balsamea		S	Fac W
Alnus rugosa		S	Obl
Sphagnum magellanicum		H	unlisted
Carex ? trisperma		H	Obl
Sphagnum sp		H	unlisted

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 4/8 3/7

(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		S	Fac
Prunus serotina		S	Fac U
Betula papyrifera		S	Fac U+
Abies balsamea		S	Fac W
Picea mariana		S	Fac W
Pinus banksiana		S	Fac U
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

Ledum groenlandicum H obl

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- X (√) Organic soils (Histosols)
- ____ (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____ (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
histosol

Morphological Plant Adaptations Observed(√):
- ____ Adventitious roots
- ____ Shallow root system
- ____ Floating leaves
- ____ Inflated leaves, stems, or root
- ____ Polymorphic leaves
- ____ Oxygen pathway to roots
- ____ Floating stem
- ____ Hypertrophied lenticels
- ____ Multiple trunks or stooling
- ____ Buttressed tree trunks
- ____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	5YR 2.5/2		hemic	
1-16+	5YR 2.5/1		saprist	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-5	5YR 2.5/1		hemic	not NRCS hydric
5-16	5YR 5/3		sand	
16-18+	5YR 3/3		sand	RHS

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- X (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DP 44

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/7 5/6

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	FacW
Acer rubrum		S	Fac
Alnus rugosa		S	Obl
Sphagnum spp		H	unlisted
Picea mariana		H	FacW
Scirpus cyperinus		H	obl
Pteridium aquilinum		H	FacU
Vaccinium myrtilloides		H	Fac.W-

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 4/6 3/5

(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Acer rubrum		S	Fac
Prunus serotina		S	FacU
Abies balsamea		S	FacW
Pteridium aquilinum		H	FacU
Vaccinium myrtilloides		H	FacW-
Ledum groenlandicum		H	obl

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 7 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- X (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√):
- ___Adventitious roots
- ___Shallow root system
- ___Floating leaves
- ___Inflated leaves, stems, or root
- ___Polymorphic leaves
- ___Oxygen pathway to roots
- ___Floating stem
- X Hypertrophied lenticels
- X Multiple trunks or stooling
- ___Buttressed tree trunks
- ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-6	10 YR 2/1		Saprist	
6-10	7.5 YR 5/3		sand	
10-16+	7.5 YR 4/4		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10 R 2.5/1		hemic	not NRCS hydric
2-3	10 YR 2/1		saprist	
3-10	5 YR 5/3		sand	
10-15	2.5 YR 2.5/2		sand	Bh horizon is discontinuous, with
15-20+	5 YR 4/6			intermixture of next horizon

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

cut-over

_____ (√) Emergent Marsh	_____ (√) Deciduous Swamp	_____ (√) Fen	_____ (√) Shrub Swamp
_____ (√) Wet Meadow	X (√) Coniferous Swamp	_____ (√) Bog/Muskeg	_____ (√) Floodplain Forest
_____ (√) Wet Prairie	_____ (√) Deciduous Forest	_____ (√) Great Lakes Marsh	_____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___-___

County: Marquette T 50°N R 29W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DP45

INSTRUCTIONS: @ wetland flag 945 UTM 16 T 0431597 5177588

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/6 4/5

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Acer rubrum		S	Fac
Sphagnum spp.		H	unlisted
Clintonia trifolia		H	Fac W
Pteridium aquilinum		H	Fac U
Carex ? trisperma		H	obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/4 2/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Prunus serotina		O	Fac U
Acer rubrum		S	Fac
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:

- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√):

- ____Adventitious roots
- ____Shallow root system
- ____Floating leaves
- ____Inflated leaves, stems, or root
- ____Polymorphic leaves
- ____Oxygen pathway to roots
- ____Floating stem
- ____Hypertrophied lenticels
- ____Multiple trunks or stooling
- ____Buttressed tree trunks
- ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	5YR 2.5/1		sapric	
3-8	7.5YR 5/2		sand	
8-12 12-14+	7.5YR 2.5/2 7.5YR 4/4		sand sand	too wet to excavate further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (If different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
				not NRCS hydric
0-4 4-6	10YR 2.5/1 5YR 5/3		hemic sand	
6-10	5YR 3/4		sand	
10-13+	5YR 3/3		sand	very stony, difficult to excavate further

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

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DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/12/2005

Form Completed By: John Fody Wetland Area: DP46

INSTRUCTIONS: @ wetland flag Z982 UTM 16T 0431529 5177686

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/6 4/5

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Acer rubrum		S	Fac
Sphagnum spp.		H	unlisted
Ledum groenlandicum		H	Obl
Carex ? trisperma		H	Obl
Pteridium aquilinum		H	Fac U

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 3/6 2/5
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Prunus serotina		S	Fac U
Acer rubrum		S	Fac
Picea mariana		S	Fac W
Abies balsamea		S	Fac W
Pinus banksiana		S	Fac U
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 2 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ___Adventitious roots ___Shallow root system ___Floating leaves ___Inflated leaves, stems, or root ___Polymorphic leaves ___Oxygen pathway to roots ___Floating stem ___Hypertrophied lenticels ___Multiple trunks or stooling ___Buttressed tree trunks ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	10YR 2.5/1		hemic	
1-2	2.5YR 2.5/1		sapric	
2-4	7.5YR 3/1		sand	stained with organic matter
4-8	10YR 4/2		sand	
8-10+	5YR 2.5/2		sand	very rocky and wet; could not excavate further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 2.5/1		Oa	not NRCS hydric
3-6	7.5YR 5/3		sand	
6-11	5YR 4/6		sand	
11-16+	5YR 4/6		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- _____ (√) Emergent Marsh
- _____ (√) Deciduous Swamp
- _____ (√) Fen
- _____ (√) Shrub Swamp
- _____ (√) Wet Meadow
- X (√) Coniferous Swamp
- _____ (√) Bog/Muskeg
- _____ (√) Floodplain Forest
- _____ (√) Wet Prairie
- _____ (√) Deciduous Forest
- _____ (√) Great Lakes Marsh
- _____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX — For DEQ Use: File: __-__-__-__

County: Marquette T 50°N R 24°W S 11 Date: 11/13/2005

Form Completed By: John Fody Wetland Area: DP47

INSTRUCTIONS @ wetland flag Z1013 UTM 16 T 0431426 5177741

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: cut over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/6 3/5

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac u
Acer rubrum		S	Fac
Sphagnum spp.		H	unlisted
Polytrichum sp.		H	unlisted
Ledum groenlandicum		H	obl
Picea mariana		H	Fac (u)
Scirpus cyperinus		S	obl
Pteridium aquilinum		H	Fac u

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/3 2/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		S	Fac (u)
Pteridium aquilinum		H	Fac u
Vaccinium myrtilloides		H	Fac (u)-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 3 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Other: _____

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ___Adventitious roots ___Shallow root system ___Floating leaves ___Inflated leaves, stems, or root ___Polymorphic leaves ___Oxygen pathway to roots ___Floating stem ___Hypertrophied lenticels ___Multiple trunks or stooling ___Buttressed tree trunks ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-5 5-6	2.5YR 2.5/1 7.5YR 2.5/1		Oe Oa	
6-7+ 7-15	7.5YR 4/1 10YR 5/3	5YR 4/6	sand (both)	too wet to excavate
?	7.5 YR 3/3		sand	further and measure horizon boundaries

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3 3-4	10 YR 2.5/1 7.5YR 2.5/1		Oe Oa	not NRCS
4-6 6-7	10YR 5/2 5YR 3/2		sand sand	RH
7-15+	5YR 3/3		Sand	too rocky to easily excavate further

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present): (cut-over)

_____ (√) Emergent Marsh	_____ (√) Deciduous Swamp	_____ (√) Fen	_____ (√) Shrub Swamp
_____ (√) Wet Meadow	X (√) Coniferous Swamp	_____ (√) Bog/Muskeg	_____ (√) Floodplain Forest
_____ (√) Wet Prairie	_____ (√) Deciduous Forest	_____ (√) Great Lakes Marsh	_____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-_____-___

County: Marquette T 50°N R 29°W S 11 Date: 11/13/2005

Form Completed By: John Fody Wetland Area: D48

INSTRUCTIONS: @wetland flag Z 1105 UTM 16 T 0431362 5177775

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 5/5 4/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Acer rubrum		S	Fac
Sphagnum spp.		H	unlisted
Abies balsamea		H	Fac W
Gaultheria hispidula		H	Fac W
Ledum groenlandicum		H	Obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/4 1/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Acer rubrum		S	Fac
Dicranum sp.		H	unlisted
Pteridium aquilinum		H	Fac U
Epigaea repens		H	[upl]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- X (√) Visible observation of inundation (Depth 2 in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ___Adventitious roots ___Shallow root system ___Floating leaves ___Inflated leaves, stems, or root ___Polymorphic leaves ___Oxygen pathway to roots ___Floating stem ___Hypertrophied lenticels ___Multiple trunks or stooling ___Buttressed tree trunks ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10 R 2.5/1		Oe	
4-5	7.5 YR 2.5/1		Oa	
5-14+	7.5 YR 5/2		sand	
?	7.5 YR 4/2		sand	too wet to measure depth

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	7.5 YR 2.5/1		Oa	not NRCS hydric
4-9	2.5 YR 4/2		sand	
9-13	5 YR 3/3		sand	
13-15+	7.5 YR 3/4		sand	rocky/difficult to excavate further

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh	_____ (√) Deciduous Swamp	_____ (√) Fen	_____ (√) Shrub Swamp
_____ (√) Wet Meadow	X (√) Coniferous Swamp	_____ (√) Bog/Muskeg	_____ (√) Floodplain Forest
_____ (√) Wet Prairie	_____ (√) Deciduous Forest	_____ (√) Great Lakes Marsh	_____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-____-__

County: Marquette T 50°N R 24°W S 11 Date: 1/13/2005

Form Completed By: John Foley Wetland Area: DP 49

INSTRUCTIONS: UTM 16 T 0431394 5177781 e wetland flag Z1134

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/3 2/2

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Acer rubrum		S	Fac
Sphagnum spp.		H	unlisted
Coptis trifolia		H	Fac W

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/3 2/3

(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Dicranum sp.		H	unlisted
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 10 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-6	10YR 2.5/1		Oe	
6-7	7.5YR 2.5/1		Oa	
7-15+	10YR 4/1		sand	very stony; difficult to excavate further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10YR 2.5/1		Oe	not NRCS hydric
2-4	7.5YR 2.5/1		Oa	
4-10	5YR 5/2		sand	
10-16	5YR 4/4		sand	
16-18+	7.5YR 4/4		sand	

WETLAND DETERMINATION
- ____ (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- ____ (√) Wetland hydrology and/or hydric soil present
- ____ (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- ____ (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-__-__-__-__

County: Marquette T 50°N R 29°W S 11 Date: 11/13/2005

Form Completed By: John Fody Wetland Area: DP50

INSTRUCTIONS: wetland flag Z 1198 UTM 16T 0431397 5177787

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/4 3/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Larix laricina		S	Fac W
Sphagnum spp.		H	unlisted
Pteridium aquilinum		H	Fac U
Ledum groenlandicum		H	obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/3 1/2
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Acer rubrum		S	Fac
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 8 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____(√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	2.5 YR 2.5/1		oe	
4-5	7.5 YR 2.5/1		Oa	
5-16	10 YR 5/2		sand	
16-19+	5 YR 3/3		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10 R 2.5/1		oe	not NRCS hydric
2-4	2.5 YR 2.5/1		Oa	
4-10	5 YR 5/3		sand	
10-14	5 YR 3/3		sand	
14-21+	7.5 YR 3/4		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- X (√) Deciduous Swamp
- ____ (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-__-__-____-__

County: Marquette T 50°N R 29°W S 11 Date: 11/13/2005

Form Completed By: John Fody Wetland Area: DP 51

INSTRUCTIONS:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: UTM 16 T 0431488 5177738 @ wetland flag Z1228

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/4 4/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Sphagnum sp.		H	unlisted
Chamaedaphne	calyculata	H	OBL
Ledum groenlandicum		H H	OBL

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/4 2/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	
Abies balsamea		S	Fac W
Pteridium aquilinum		H	Fac U
Epigaea repens		H	[Upl]

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 6 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:

- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils

- ____ (√) Organic soils (Histosols)
- X (√) Histic epipedon
- ____ (√) Sulfidic material (H_2S odor)
- ____ (√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____ (√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____ (√) Matrix chroma of 2 or less in mottled soils
  - ____ (√) Matrix chroma of 1 or less in unmottled soils
  - ____ (√) Black mineral soil with gray mottles at ≤ 10 inches
- ____ (√) Confirm soil profile matches local hydric soil list
- ____ (√) Iron and manganese concretions
- ____ (√) Reducing soil conditions (ferrous iron test)
- ____ (√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- X (√) High organic matter in the surface horizon
- ____ (√) Streaking of subsurface horizons by organic matter
- ____ (√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

Histic epipedon

Morphological Plant Adaptations Observed(√):

- ____ Adventitious roots
- ____ Shallow root system
- ____ Floating leaves
- ____ Inflated leaves, stems, or root
- ____ Polymorphic leaves
- ____ Oxygen pathway to roots
- ____ Floating stem
- ____ Hypertrophied lenticels
- ____ Multiple trunks or stooling
- ____ Buttressed tree trunks
- ____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10YR 2.5/1		Oe	
4-8	7.5YR 2.5/1		Oa	
8-12	7.5YR 4/1		sand	
12-14	7.5YR 4/3		sand	
14+	10+	5YR 7.5/2	sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-4	10YR 2.5/1		Oe	not NRCS hydric
4-5	7.5YR 2.5/1		Oa	
5-10	5YR 5/2		sand	
10-15	5YR 4/2		sand	
15-17+	5YR 4/4		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

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DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KFX

For DEQ Use: File: __-__-_____-__

County: Marquette T 50°N R 24°W S 11 Date: 11/13/2005

Form Completed By: John Fody Wetland Area: DP52

INSTRUCTIONS: UTM 16 T 0431572 5177677 @ wetland flag Z1252

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/4 3/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Acer rubrum		S	Fac
Sphagnum spp.		H	unlisted
Chamaedaphne	calyculata	H	obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 4/5 3/4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Abies balsamea		S	Fac W
Picea mariana		S	Fac W
Acer rubrum		S	Fac
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2 / 2-7	2.5 YR 2.5/1 / 7.5 YR 2.5/1		oe / oa	
7-16	10 YR 5/2		sand	
16-18+	5 YR 4/3		sand	too wet to excavate further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2 / 2-4	10 R 2.5/1 / 2.5 YR 5/3		oe / sand	not NRCS hydric
4-6	5 YR 3/3		sand	
6-17+	7.5 YR 4/4		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX — *For DEQ Use:* File: ___-___-___-___

County: Marquette T 50°N R 29°W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: DP53

INSTRUCTIONS: @wetland flag Z127 UTM 16 T 0431605 5177601

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/3 3/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea marina		O	FacW
Picea mariana		S	FacW
Abies balsamea		S	FacW

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 2/3 1/2
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	FacW
Acer rubrum		S	Fac
Pteridium aquilinum		H	FacU

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

snow on ground; many plants not visible

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- _____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- X (√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- _____(√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
histic epipedon

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-9	7.5 YR 2.5/1		Oa	
9-13	10YR 4/2		sand	
13-16+	7.5 YR 2.5/1		Oa	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	10 YR 2.5/1		OE	
1-6	7.5 YR 2.5/1		Oa	
6-8	5 YR 4/3	sand	sand →	
8-13+	7.5 YR 4/2			water @ 13"

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____ (√) Emergent Marsh	_____ (√) Deciduous Swamp	_____ (√) Fen	_____ (√) Shrub Swamp
_____ (√) Wet Meadow	X (√) Coniferous Swamp	_____ (√) Bog/Muskeg	_____ (√) Floodplain Forest
_____ (√) Wet Prairie	_____ (√) Deciduous Forest	_____ (√) Great Lakes Marsh	_____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-__-_____-__

County: Marquette T 50°N R 29°W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: DR54

INSTRUCTIONS: UTM 16T 043164l 5177510 @ wetland flag Z1314

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3|3 3|3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Abies balsamea		S	Fac W
Alnus rugosa		S	Obl

Aquatic Life Observed _____

snow present; many plants not visible

Dominant Vegetation *on Upland Side* of the Boundary 4|5 3|4
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Abies balsamea		O	Fac W
Picea mariana		O	Fac W
Acer rubrum		S	Fac
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	7.5YR2.5/1		Oa	many sand grains present
3-10+	10YR4/2		sand	very stony and wet could not describe profile further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	7.5YR3.5/1		Oa	not NRCS hydric
2-3	7.5YR2.5/1		Oa	
3-11	7.5YR 5/2		sand	
11-15+	10YR 4/3		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- ____ (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- X (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: DP55

INSTRUCTIONS: @ wetland flag Z1331 UTM 16 T 0431728 5177492

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/4 2/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Alces rubrum		S	Fac
Pteridium aquilinum		G	Fac U
Abies balsamea		H	Fac W

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 3/4 3/4

(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Vaccinium myrtilloides		H	Fac W-
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

snow present; many plants not visible

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- _____ (√) Visible observation of inundation (Depth ____ in.)
- _____ (√) Visible observation of soil saturation (Depth ____ in.)
- X (√) Hydric soils (√ below)
- _____ (√) Watermarks
- _____ (√) Drift lines
- _____ (√) Sediment deposits
- _____ (√) Drainage patterns within wetlands

Secondary Indicators:
- _____ (√) Oxidized rhizospheres in upper 12"
- _____ (√) Water stained leaves
- _____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- _____ (√) Bare soil areas
- _____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- _____(√) Organic soils (Histosols)
- _____(√) Histic epipedon
- _____(√) Sulfidic material (H_2S odor)
- _____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - _____(√) Matrix chroma of 2 or less in mottled soils
  - _____(√) Matrix chroma of 1 or less in unmottled soils
  - _____(√) Black mineral soil with gray mottles at ≤ 10 inches
- _____(√) Confirm soil profile matches local hydric soil list
- _____(√) Iron and manganese concretions
- _____(√) Reducing soil conditions (ferrous iron test)
- _____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- _____(√) Streaking of subsurface horizons by organic matter
- _____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10R 2.5/1		oe	
2-5	10R 2.5/1		Oa	
5-11	10YR 5/2		sand	
11-13+	10YR 3/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	7.5YR 2.5/1		oe	not NRCS hydric
1-2	7.5YR 2.5/1		Oa	
2-7	2.5YR 5/2		sand	
7-11	5YR 4/4		sand	
11-19+	7.5YR 4/6		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- _____ (√) Emergent Marsh
- _____ (√) Wet Meadow
- _____ (√) Wet Prairie
- _____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- _____ (√) Deciduous Forest
- _____ (√) Fen
- _____ (√) Bog/Muskeg
- _____ (√) Great Lakes Marsh
- _____ (√) Shrub Swamp
- _____ (√) Floodplain Forest
- _____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: DP 56

INSTRUCTIONS: @ wetland flag Z1350 UTM 16T 0431776 5177357

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3|4 3|4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Pteridium aquilinum		H	Fac U
Ledum groenlandicum		H	Obl

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 4|5 4|5
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Pteridium aquilinum		H	Fac U
Vaccinium myrtilloides		H	Fac W-
Ledum groenlandicum		H	Obl

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

snow present, many plants not visible

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 7 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- X (√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- ____(√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of _____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

histic epipedon

Morphological Plant Adaptations Observed(√): ___Adventitious roots ___Shallow root system ___Floating leaves ___Inflated leaves, stems, or root ___Polymorphic leaves ___Oxygen pathway to roots ___Floating stem ___Hypertrophied lenticels ___Multiple trunks or stooling ___Buttressed tree trunks ___Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	10 R 2.5/2		Oa	
1-10	10 R 2.5/1		Oa	
10-14	7.5 YR 5/2		sand	
14-16+	10 YR 4/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	2.5 YR 2.5/1		Oe	not NRCS hydric
1-3	7.5 YR 2.5/1		Oa	
3-8	5 YR 5/2		sand	
8-15	7.5 YR 5/4		sand	
15-17+	5 YR 4/4		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: __-__-__-__-__

County: Marquette T 50°N R 29°W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: D857

INSTRUCTIONS: UTM 16 T 0431847 5177286

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: @ wetland flag # 1368

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/5 3/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Acer rubrum		S	Fac
Ledum groenlandicum		H	Obl
Vaccinium myrtilloides		H	Fac W-
Pteridium aquilinum		H	Fac U

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 4/5 4/5
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Abies balsamea		S	Fac W
Pteridium aquilinum		H	Fac U
Ledum groenlandicum		H	Obl
Vaccinium myrtilloides		H	Fac W-

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

snow present; many plants not visible

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 10 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1	10R 2.5/1		Oe	
1-5	10 R 2.5/2		Oa	
5-10	10YR 4.5/2		sand	
10-17+	10YR 4/2		sand	

Soil Profile on *Upland Side* of the Boundary not NRCS hydric

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10R 2.5/1		Oe	water @ 16"
3-4	10 R 2.5/1		Oa	
4 & 8-11	5YR 5/2		Sand	BH
	5YR 2.5/2		sand	
11-19+	7.5YR 3/3.5		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended

Applicant: KEX

For DEQ Use: File: __-__-__

County: Marquette T 50°N R 29°W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: DP58

INSTRUCTIONS: @ wetland flag Z 1391

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: UTM 16 T 0431875 5177199

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/4 4/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Abies balsamea		S	Fac W
Coptis trifolia		H	Fac W
Vaccinium myrtilloides		H	Fac W-

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 3/4 2/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	Fac W
Lycopodium clavatum		H	Fac
Cirsium palustre		H	[Fac W+]
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

snow present; many plants not visible

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 12 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-6	10YR 2.5/1		Oa	
6-11	7.5YR 5/2		sand	
11-13	7.5YR 2.5/3		sand	
13-17+	7.5YR 3/3		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	7.5YR 2.5/1		sand	might be muddy mottled
3-8	5YR 5/2		sand	
8-11	5YR 3/2		sand	
11-16+	5YR 4/4		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50° N R 29° W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: DP59

INSTRUCTIONS: @ wetland flag Z 14/5

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: UTM 16 T 0431941 5177130

N (Y/N) Is the site significantly disturbed? If yes, describe: partially cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 3/4 3/4

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Picea mariana		H	Fac W
Ledum groenlandicum		H	Obl
Vaccinium myrtilloides		H	Fac W-
Sphagnum spp		H	not listed

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 1/3 1/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac U
Vaccinium myrtilloides		H	Fac W-
Pteridium aquilinum		H	Fac U

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

snow presently many plants not visible

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
Stripped matrix

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10YR 2.5/1		OE	
2-5	7.5YR 2.5/1		OA	
5-8+	10YR 5/2		sand	too wet to accurately describe profile further
				considerable organic / streaking

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	7.5YR 2.5/1		sand	A — not NRCS hydric
3-6	7.5YR 3/3		sand	
6-7	7.5YR 3.5/1		sand	buried A
7-13	5YR 6.5/2		sand	
13-17+	7.5YR 3/4		sand	

WETLAND DETERMINATION

X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
X (√) Wetland hydrology and/or hydric soil present
Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):
- ____ (√) Emergent Marsh
- ____ (√) Wet Meadow
- ____ (√) Wet Prairie
- ____ (√) Deciduous Swamp
- X (√) Coniferous Swamp
- ____ (√) Deciduous Forest
- ____ (√) Fen
- ____ (√) Bog/Muskeg
- ____ (√) Great Lakes Marsh
- ____ (√) Shrub Swamp
- ____ (√) Floodplain Forest
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: _____

County: Marquette T 50°N R 29°W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: DP 60

INSTRUCTIONS: UTM 16 T 0431939 5177049

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004). @ wetland flag Z±1430

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: cut-over

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/5 4/5

Genus/Species	Common Name	Stratum*	Indicator Status
Pinus banksiana		S	Fac-U
Larix laricina		H	Fac-W
Picea mariana		H	FacW
Vaccinium myrtilloides		H	Fac W-
Ledum groenlandicum		H	OBL

snow present, many plants not visible

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 3/3 3/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	FacW
Vaccinium myrtilloides		H	FacW-
Picea mariana		H	FacW

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 10 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: ____

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	7.5YR 2.5/1		Oa	water @ 10"
2-7	10YR 5/2		sand	
7-10	5YR 2.5/2		sand	BH
10-16+	7.5YR 3/3		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above): not NRCS hydric

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10R 2.5/1		Oe	
2-3	7.5YR 2.5/1		Oa	
3-5	5YR 5/2		sand	
5-11	5YR 4/4		sand	weakly cemented
11-15	5YR 4/4		sand	cemented strongly
15-19+	5YR 3/2		sand	BH

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present): cc'ut – over
- ____ (√) Emergent Marsh
- ____ (√) Deciduous Swamp
- ____ (√) Fen
- ____ (√) Shrub Swamp
- ____ (√) Wet Meadow
- X (√) Coniferous Swamp
- ____ (√) Bog/Muskeg
- ____ (√) Floodplain Forest
- ____ (√) Wet Prairie
- ____ (√) Deciduous Forest
- ____ (√) Great Lakes Marsh
- ____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX

For DEQ Use: File: ___-___-___-___

County: Marquette T 50°N R 29°W S 11 Date: 11/14/2005

Form Completed By: John Fody Wetland Area: DP61

INSTRUCTIONS: @ wetland flag Z1455

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: UTM 16 T 0431909 5177145

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 4/4 4/4

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	FacW
Picea mariana		S	FacW
Ledum groenlandicum		H	Obl
Vaccinium myrtilloides		H	FacW-

snow present, many plants not visible

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary 3/3 3/3
(use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		S	FacW
Vaccinium myrtilloides		H	FacW-
Picea mariana		H	FacW

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:
- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 10 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Other: ____

Secondary Indicators:
- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Hydric Indicators for Non-Sandy Soils
- ____(√) Organic soils (Histosols)
- ____(√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils
- X (√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):
not NRCS hydric

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	10R 2.5/1		Oe	
2-3.5	7.5YR 2.5/1		Oa	
3.5-11	10YR 5/2		sand	
11-14	7.5YR 3/2		sand	

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above): not NRCS hydric

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-1.5	5YR 2.5/1		Oe	
1.5-3.5	7.5YR 2.5/2		sand	stained with OM
3.5-4.5	5YR 5/2		sand	discontinuous horizon
4.5-15+	5YR 3/3.5		sand	

WETLAND DETERMINATION
- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): ____

Comments: ____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant: KEX — *For DEQ Use:* File: ___-___-___-___

County: Marquette T 50°N R 29°W S 11 — Date: 11/14/2005

Form Completed By: John Fody — Wetland Area: DP62

INSTRUCTIONS: UTM 16 T 0431926 5177034

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW: @ wetland flag Z1477

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation *on Wetland Side* of the Boundary (use additional sheets if necessary) 6/6 6/6

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Picea mariana		S	Fac W
Picea mariana		H	Fac W
Larix laricina		H	Fac W
Chamaedaphne calyculata		H	Obl
Vaccinium myrtilloides		H	Fac W-

Aquatic Life Observed _____

Dominant Vegetation *on Upland Side* of the Boundary (use additional sheets if necessary) 3/3 3/3

Genus/Species	Common Name	Stratum*	Indicator Status
Picea mariana		O	Fac W
Pinus banksiana		S	Fac U
Vaccinium myrtilloides		H	Fac W-

snow present; many plants not visible

*Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

- ____ (√) Visible observation of inundation (Depth ____ in.)
- X (√) Visible observation of soil saturation (Depth 0 in.)
- X (√) Hydric soils (√ below)
- ____ (√) Watermarks
- ____ (√) Drift lines
- ____ (√) Sediment deposits
- ____ (√) Drainage patterns within wetlands

Secondary Indicators:

- ____ (√) Oxidized rhizospheres in upper 12"
- ____ (√) Water stained leaves
- ____ (√) Confirm soil profile matches hydric soil list
- X (√) FAC-Neutral test
- ____ (√) Bare soil areas
- ____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

- ____(√) Organic soils (Histosols)
- X (√) Histic epipedon
- ____(√) Sulfidic material (H_2S odor)
- ____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  - ____(√) Gleyed (gray) soil (i.e. matches Gley page)
  - ____(√) Matrix chroma of 2 or less in mottled soils
  - ____(√) Matrix chroma of 1 or less in unmottled soils
  - ____(√) Black mineral soil with gray mottles at ≤ 10 inches
- ____(√) Confirm soil profile matches local hydric soil list
- ____(√) Iron and manganese concretions
- ____(√) Reducing soil conditions (ferrous iron test)
- ____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

- ____(√) High organic matter in the surface horizon
- ____(√) Streaking of subsurface horizons by organic matter
- ____(√) Organic pans: at depth of ____ inches

Supplemental Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

histic epipedon

Morphological Plant Adaptations Observed(√): ____Adventitious roots ____Shallow root system ____Floating leaves ____Inflated leaves, stems, or root ____Polymorphic leaves ____Oxygen pathway to roots ____Floating stem ____Hypertrophied lenticels ____Multiple trunks or stooling ____Buttressed tree trunks ____Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary

Map Unit from Soil Survey:

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-2	5YR 2.5/1		Oe	
2-9	7.5YR 2.5/1		Oa	
9+	10YR 4.5/2		sand	too wet to describe profile further

Soil Profile on *Upland Side* of the Boundary

Map Unit from Soil Survey (if different than above):

Depth (inches)	Matrix color (hue/value/chroma)	Mottle Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 2.5/1		Oe	not NRCS hydric
3-10	5YR 5.5/2		sand	
10-14	2.5YR 2.5/2		sand	
14-18+	5YR 3/3.5		sand	

WETLAND DETERMINATION

- X (√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
- X (√) Wetland hydrology and/or hydric soil present
- Y (Y/N)Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
- Y (Y/N) Is the area REGULATED wetland (refer to *Part 303 - Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

____ (√) Emergent Marsh	____ (√) Deciduous Swamp	____ (√) Fen	____ (√) Shrub Swamp
____ (√) Wet Meadow	X (√) Coniferous Swamp	____ (√) Bog/Muskeg	____ (√) Floodplain Forest
____ (√) Wet Prairie	____ (√) Deciduous Forest	____ (√) Great Lakes Marsh	____ (√) Submergent Marsh

Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

Michigan Department of Environmental Quality, Land and Water Management Division — Part 303 – Wetland Data Form 9/10/04

APPENDIX C

TABLES

ATTACHMENT C-1

Table 1.1. Summary of Upland Subplots

Table 1.1. Summary of Upland Subplots ("X" indicates presence)

Data Collection Point	Vegetation Hydrophytic	Hydrologic Indicators Other than Soil	Hydric Soil (DEQ Criteria)	Hydric Soil (NRCS Criteria)
1			X	
2	X		X	
3	X		X	
4	X		X	
5	X		X	
6	X		X	X
7	X		X	
8	X		X	
9			X	
10			X	
11	X		X	
12	X		X	
13	X		X	
14	X		X	
15				
16	X		X	
17			X	
18	X		X	
19	X		X	
20			X	
21	X		X	
22	X		Indeterminate, soil disturbed	
23			X	
24			X	
25	X		Indeterminate, soil disturbed	
26	X		X	
27	X		X	
28			X	
29			Indeterminate, soil disturbed	X
30	X		X	
31				
32	X		X	
33	X		X	
34			X	
35			X	
36	X		Indeterminate, soil disturbed	
37			X	
38			X	

Data Collection Point	Vegetation Hydrophytic	Hydrologic Indicators Other than Soil	Hydric Soil (DEQ Criteria)	Hydric Soil (NRCS Criteria)
39			X	
40			X	
41			X	
42				
43			X	
44	X		X	
45			X	
46			X	
47	X		X	
48			X	
49	X		X	
50	X		X	
51			X	
52	X		X	
53	X		X	
54	X		X	
55	X		X	
56	X		X	
57	X		X	
58	X		Indeterminate, Lab analysis required	Indeterminate, Lab analysis required
59				
60	X		X	
61	X		X	
62	X		X	

ATTACHMENT C-2

Table 1.2. Summary of Wetland Subplots

Table 1.2. Summary of Wetland Subplots ("X" indicates presence)

Data Collection Point	Vegetation Hydrophytic	Hydrologic Indicators Other than Soil	Hydric Soil (DEQ Criteria)	Hydric Soil (NRCS Criteria)
1	X	X	X	X
2	X	X	X	X
3	X	X	X	
4	X	X	X	
5	X	X	X	X
6	X	X	X	
7	X	X	X	
8	X		X	
9	X		X	
10	X	X	X	X
11	X	X	X	
12	X	X	X	X
13	X	X	X	
14	X	X	X	X
15	X	X	X	X
16	X	X	X	X
17		X	X	
18	X	X	X	X
19	X	X	X	
20	X	X	X	
21	X	X	X	
22	X	X	X	
23	X	X	X	
24	X	X	X	
25	X	X	X	
26	X	X	X	X
27	X	X	X	
28	X	X	X	
29	X	X	Indeterminate, soil disturbed	
30	X	X	X	
31	X	X	X	
32	X	X	X	X
33	X	X	X	X
34	X		X	X
35	X	X	Indeterminate, soil disturbed	
36	X		X	
37	X	X	X	
38	X	X	X	

Data Collection Point	Vegetation Hydrophytic	Hydrologic Indicators Other than Soil	Hydric Soil (DEQ Criteria)	Hydric Soil (NRCS Criteria)
39	X		X	
40			X	
41	X	X	X	X
42			X	
43	X	X	X	X
44	X	X	X	
45	X	X	X	
46	X	X	X	
47	X	X	X	
48	X	X	X	
49	X	X	X	
50	X	X	X	
51	X	X	X	X
52	X	X	X	
53	X	X	X	X
54	X	X	X	
55	X		X	
56	X	X	X	X
57	X	X	X	
58	X	X	X	
59	X	X	X	X
60	X	X	X	
61	X	X	X	
62	X	X	X	X