Appendix C

Wetland Delineation Report

ECO-RESOURCE CONSULTING, LLC

Wetland Delineation Report
for
Spring Branch Creek Wetlands

Prepared for:
Golden Sands Dairy
P.O. Box 330
Bancroft, WI 54921

Prepared by:
Eco-Resource Consulting, LLC
409 Concord Drive
Oregon, WI 53575

Introduction

On behalf of Golden Sands Dairy, Eco-Resource Consulting, LLC (ERC) conducted a wetland determination/delineation of a portion of Section 36, Township 21 North, Range 6 East, Saratoga Township, Wood County, Wisconsin. ERC collected the field data on June 18, 2013. The wetland area is the intermittent stream channel associated with Spring Branch Creek. This ephemeral stream channel has numerous blockages or impedances that have caused the intermittent stream channel flow to be stopped and back-watered. These blockages cause water to back up into the incised stream channel for short periods of time creating wetland conditions.

Wetland Determination Methods

ERC staff conducted the wetland determination and delineation using the 1987 Corps of Engineers Wetlands Delineation Manual (Y-87-1), and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, October 2009. The wetland determination was made using three criteria; vegetation, soils and hydrology, using the technical approach described in the 1987 Corps Manual and 2009 Regional Supplement. Accordingly, ERC staff used the procedures described in the 1987 Corps Manual and Regional Supplement to determine that under normal circumstances, a predominance of hydrophytic vegetation, hydric soils and wetland hydrology were found at the site, and therefore jurisdictional wetlands were present.

The wetland determination was characterized as a normal situation. However, the aforementioned blockages constituted “significant disturbances”. These disturbance conditions were taken into consideration during wetland determination and field delineation.

Three separate areas of investigation were identified; Area One is described as being the approximate 400 feet stretch of stream channel downstream of CTH “U” to the first blockage that is described as an earthen fill. Area Two is described as the next 500 feet of stream channel to the culvert under STH 73. Area Three is described as the stream channel from STH 73 to Adams Avenue or County Line Road, which is the site of another stream channel impedance in the form of a partially crushed culvert that is filled with sand over 60% (title page inset photograph).

Area One

Area One contains 0.19 acres of wet meadow wetlands. The wetlands are confined to the stream channel and banks that contain hydrophytic vegetation, hydric soils and intermittent wetland hydrology.

Plainfield Sand is mapped for, and was found in the area, and is not listed on the Federal and State Hydric Soils Lists. Field observations of hydric soils, hydrophytic vegetation and evidence of wetland hydrology were used to make the wetland determination.

In the upland areas on each side of the stream channel, no redox concentrations or depletions were observed within 20 inches of the soil surface. Field observations of hydrology revealed that saturated soil conditions were greater than 20 inches below the soil surface and vegetation was dominated by upland species.

Area Two

Area Two contains 0.15 acres of wet meadow wetlands. The wetlands are confined to the stream channel and banks that contain hydrophytic vegetation, hydric soils and intermittent wetland hydrology.

Plainfield Sand is mapped for, and was found in the area, and is not listed on the Federal and State Hydric Soils Lists. Field observations of hydric soils, hydrophytic vegetation and evidence of wetland hydrology were used to make the wetland determination.

In the upland areas on each side of the stream channel, no redox concentrations or depletions were observed within 20 inches of the soil surface. Field observations of hydrology revealed that saturated soil conditions were greater than 20 inches below the soil surface and vegetation was dominated by upland species.

Area Three

Area Three contains 0.08 acres of wet meadow wetlands. The wetlands are confined to the stream channel and banks that contain hydrophytic vegetation, hydric soils and intermittent wetland hydrology.

Plainfield Sand is mapped for, and was found in the area, and is not listed on the Federal and State Hydric Soils Lists. Field observations of hydric soils, hydrophytic vegetation and evidence of wetland hydrology were used to make the wetland determination.

In the upland areas on each side of the stream channel, no redox concentrations or depletions were observed within 20 inches of the soil surface. Field observations of hydrology revealed that saturated soil conditions were greater than 20 inches below the soil surface and vegetation was dominated by upland species.

Attached to this letter report are copies of the Wetland Determination Data Forms – Northcentral and Northeast Regions, Figure 1 containing an aerial photograph background of the WDNR 24K Hydro layer and Wood County Soil Survey. Figure 2 includes the locations of the wetland flagging and test pit locations. Also included are photos of the upland and wetland test pits.

Stephen Hjort and Clayton Frazer of ERC performed the determination/delineation field activities on June 18, 2013 using methodologies included in the 1987 U.S. Army Corps of

Engineers Wetland Delineation Manual and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regions, October 2009.

Following review of this information, please forward a jurisdictional determination and a letter regarding the delineation.

Should you have any questions regarding the determination/delineation, please contact us at (608) 432-0113.

Respectfully submitted,

ECO-RESOURCE CONSULTING, LLC

Stephen J. Hjort
Principal/Senior Biologist

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Spring Branch Creek	City/County:	Saratoga, Wood Co	Sampling Date:	6-18-2013
Applicant/Owner:	Golden Sands Dairy	State:	WI	Sampling Point:	UP-1
Investigator(s):	Stephen Hjort & Clay Frazer	Section, Township, Range:	Sec. 36, T21N, R6E		
Landform (hillslope, terrace, etc.):	Intermittent stream channel	Local relief (concave, convex, none):	Concave		
Slope (%): 0-2	Lat.:	Long.:	Datum:		
Soil Map Unit Name	Planifield sand	NWI Classification:	E1k		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

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

___ Surface Water (A1)	___ Water-Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Drainage Patterns (B10)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Moss Trim Lines (B16)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Dry-Season Water Table (C2)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Crayfish Burrows (C8)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Saturation Visible on Aerial Imagery (C9)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Stunted or Stressed Plants (D1)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	___ Shallow Aquitard (D3)
___ Sparsely Vegetated Concave Surface (B8)		___ FAC-Neutral Test (D5)
		___ Microtopographic Relief (D4)

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	
Water table present?	Yes	____	No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches):	>20"

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-1

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Pinus resinosa*	25	Y	FACU
2	*Populus tremuloides*	15	Y	FAC
3	*Quercus palustris*	5	N	FACW
4				
5				
6				
7				
8				
9				
10				
		45	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Populus tremuloides*	25	Y	FAC
2	*Rhamnus cathartica*	2	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		27	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Poa pratensis*	40	Y	FACU
2	*Spartina pectinata*	20	Y	FACW
3	*Fragaria virginiana*	10	N	FACU
4	*Solidago altissima*	10	N	FACU
5	*Andropogon gerardii*	5	N	FACU
6	*Achillea millefolium*	2	N	FACU
7	*Veronicastrum virginicum*	1	N	FAC
8				
9				
10				
11				
12				
13				
14				
15				
		88	= Total Cover	

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	9	23
Sapling/Shrub Stratum	5	14
Herb Stratum	18	44
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across all Strata:	5	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	60.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	25	x 2 =	50	
FAC species	43	x 3 =	129	
FACU species	92	x 4 =	368	
UPL species	0	x 5 =	0	
Column totals	160	(A)	547	(B)
Prevalence Index = B/A =			3.42	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: UP-1

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/1	100					Loamy sand	
6-10	10YR 4/3	100					Silty sand	
10-18	10YR 5/4	100					Well graded sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

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

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Spring Branch Creek	City/County:	Saratoga, Wood Co	Sampling Date:	6-18-2013
Applicant/Owner:	Golden Sands Dairy	State:	WI	Sampling Point:	WET-1
Investigator(s):	Stephen Hjort & Clay Frazer	Section, Township, Range:	Sec. 36, T21N, R6E		
Landform (hillslope, terrace, etc.):	Intermittent stream channel	Local relief (concave, convex, none):	Concave		
Slope (%): 0-2	Lat.:	Long.:	Datum:		
Soil Map Unit Name	Planifield sand	NWI Classification:	E1k		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	X Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		X FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	14

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-1

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Populus tremuloides*	20	Y	FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus idaeus*	10	Y	FAC
2	*Cornus racemosa*	5	Y	FAC
3	*Spiraea alba*	5	Y	FACW
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Solidago gigantea*	20	Y	FACW
2	*Fragaria virginiana*	15	Y	FACU
3	*Galium trifidum*	5	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		40	= Total Cover	

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	4	10
Herb Stratum	8	20
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across all Strata:	6	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	83.33%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	30	x 2 =	60	
FAC species	35	x 3 =	105	
FACU species	15	x 4 =	60	
UPL species	0	x 5 =	0	
Column totals	80	(A)	225	(B)
Prevalence Index = B/A =			2.81	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: WET-1

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 2/2	100					Loamy sand	
5-14	10YR 4/4	98	10YR 5/6	2	C	M	Silty sand	
14-20	10YR 5/4	98	10YR 5/6	2	C	M	Weel graded sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

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

Hydric soil present? Y

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Spring Branch Creek	City/County:	Saratoga/Wood Co	Sampling Date:	6-18-2013
Applicant/Owner:	Golden Sands Dairy	State:	WI	Sampling Point:	UP-2
Investigator(s):	Steve Hjort & Clay Frazer	Section, Township, Range:	S36, T21N, R6E		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	None		
Slope (%): 0-2	Lat.:	Long.:	Datum:		
Soil Map Unit Name	Plainfield sand	NWI Classification:			

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

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

___ Surface Water (A1)	___ Water-Stained Leaves (B9)	
___ High Water Table (A2)	___ Aquatic Fauna (B13)	
___ Saturation (A3)	___ Marl Deposits (B15)	
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	
___ Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	
Water table present?	Yes	___	No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	>20"

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-2

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Pinus resinosa*	50	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		50	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Populus tremuloides*	10	Y	FAC
2	*Prunus serotina*	10	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Poa pratensis*	60	Y	FACU
2	*Solidago altissima*	10	N	FACU
3	*Fragaria virginiana*	5	N	FACU
4	*Galium trifidum*	2	N	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		77	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	10	25
Sapling/Shrub Stratum	4	10
Herb Stratum	15	39
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across all Strata:	4	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	25.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	2	x 2 =	4	
FAC species	10	x 3 =	30	
FACU species	135	x 4 =	540	
UPL species	0	x 5 =	0	
Column totals	147	(A)	574	(B)
Prevalence Index = B/A =			3.90	

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: UP-2

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-3	10YR 2/2	100					Loamy sand	
3-20	10YR 5/4	100					well graded sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Suface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

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

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site:	Spring Branch Creek	City/County:	Saratoga, Wood Co	Sampling Date:	6-18-2013
Applicant/Owner:	Golden Sands Dairy	State:	WI	Sampling Point:	WET-2
Investigator(s):	Stephen Hjort & Clay Frazer	Section, Township, Range:	Sec. 36, T21N, R6E		
Landform (hillslope, terrace, etc.):	Intermittent stream channel	Local relief (concave, convex, none):	Concave		
Slope (%): 0-2	Lat.:	Long.:	Datum:		
Soil Map Unit Name	Planifield sand	NWI Classification:	E1k		

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)
	Surface Water (A1)	Water-Stained Leaves (B9)	Surface Soil Cracks (B6)
	High Water Table (A2)	Aquatic Fauna (B13)	Drainage Patterns (B10)
X	Saturation (A3)	Marl Deposits (B15)	Moss Trim Lines (B16)
	Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Crayfish Burrows (C8)
	Drift Deposits (B3)	Presence of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9)
	Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Stunted or Stressed Plants (D1)
	Iron Deposits (B5)	Thin Muck Surface (C7)	X Geomorphic Position (D2)
	Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Sparsely Vegetated Concave Surface (B8)		X FAC-Neutral Test (D5)
			Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	12"

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WET-2

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Quercus palustris*	10	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Populus tremuloides*	10	Y	FAC
2	*Spiraea alba*	10	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Iris virginica*	20	Y	OBL
2	*Solidago gigantea*	10	Y	FACW
3	*Prunus serotina*	5	N	FACU
4	*Fragaria virginiana*	5	N	FACU
5	*Galium trifidum*	2	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		42	= Total Cover	

Woody Vine Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	2	5
Sapling/Shrub Stratum	4	10
Herb Stratum	8	21
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across all Strata:	5	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100.00%	(A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	20	x 1 =	20	
FACW species	32	x 2 =	64	
FAC species	10	x 3 =	30	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column totals	72	(A)	154	(B)
Prevalence Index = B/A =			2.14	

Hydrophytic Vegetation Indicators:

	Rapid test for hydrophytic vegetation
X	Dominance test is >50%
X	Prevalence index is ≤3.0*
	Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
	Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

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Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: WET-2

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/1	100					Sandy loam	
6-13	10YR 5/4	90	10YR 5/8	10	C	M	Silty sand	
13-19	10YR 5/4	95	10YR 5/8	5	C	M	Well graded sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
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- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
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- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and w eltand hydrology must be present, unless disturbed or problematic

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

Hydric soil present? Y

Remarks:

PHOTOGRAPHS

Test Pit UP-1 6-18-2013

Photograph of Test Pit UP-1 soil profile. Black loamy sand from 0-6 inches, brown sandy loam from 6-10 inches, and yellowish brown from 10-18 inches. No evidence of wetland hydrology, hydric soils or hydrophytic vegetation.

Test Pit WET-1 6-18-2013

Photograph of Test Pit WET-1 soil profile. Very dark brown loamy sand from 0-5 inches, dark yellowish brown silty loam from 5-14 inches with yellowish brown redox concentrations, and yellowish brown sand from 14-20 inches with yellowish brown redox concentrations. Positive evidence of wetland hydrology, hydric soils and hydrophytic vegetation observed.

Test Pit UP-1 6-18-2013

Photograph of vicinity of Test Pit UP-1.

Test Pit WET-1 6-18-2013

Photograph of vicinity of Test Pit WET-1.

Test Pit UP-2 6-18-2013

Photograph of Test Pit UP-2 soil profile. Very dark brown loamy sand from 0-3 inches, yellowish brown sandy loam from 3-20 inches. No evidence of wetland hydrology, hydric soils or hydrophytic vegetation.

Test Pit WET-2 6-18-2013

Photograph of Test Pit WET-2 soil profile. Black loamy sand from 0-6 inches, yellowish brown silty sand from 6-13 inches with yellowish brown redox concentrations, and yellowish brown sand from 13-20 inches with yellowish brown redox concentrations. Positive evidence of wetland hydrology, hydric soils and hydrophytic vegetation observed.

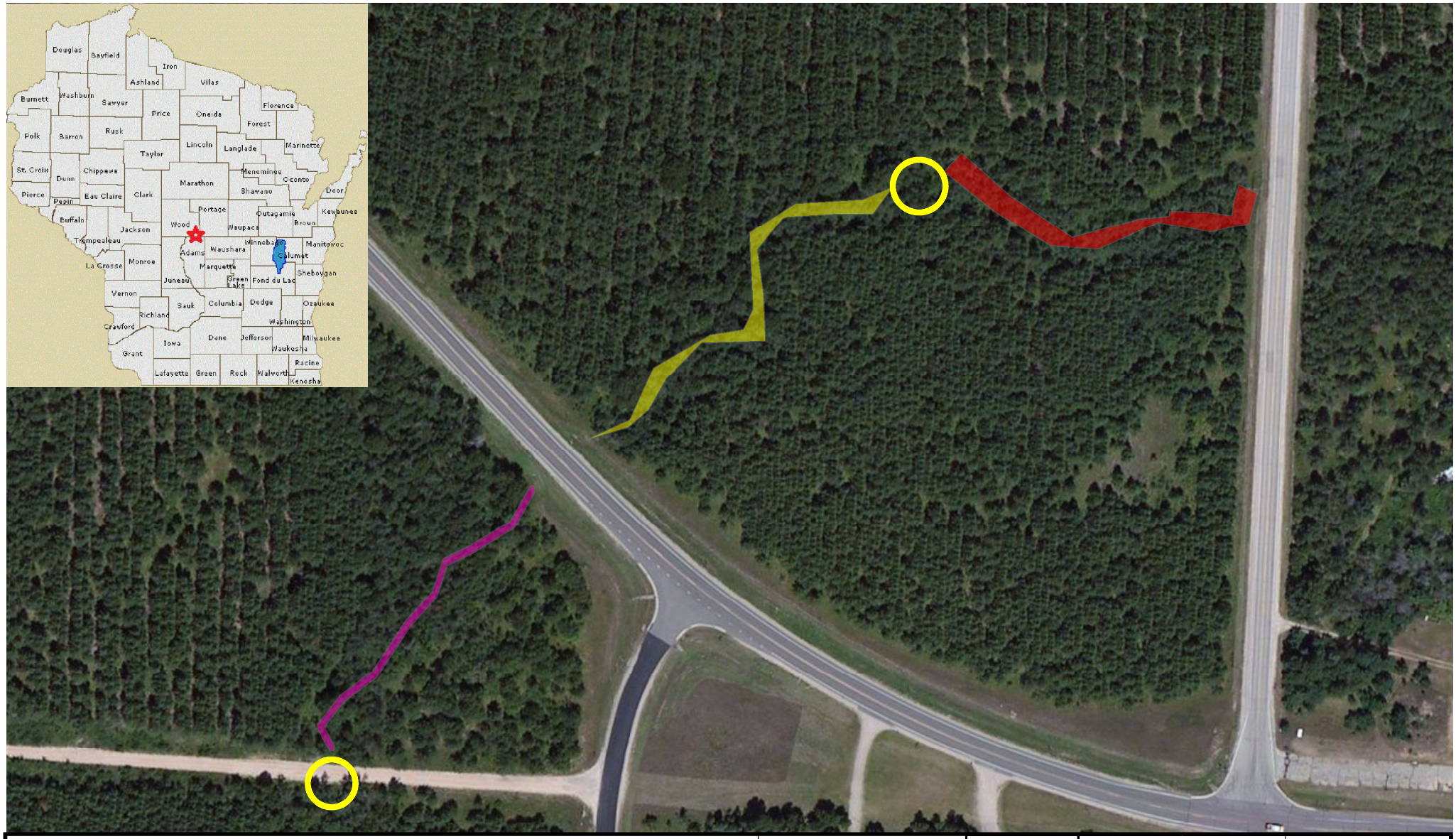
Test Pit UP-2 6-18-2013

Photograph of vicinity of Test Pit UP-2.

Test Pit WET-2 6-18-2013

Photograph of vicinity of Test Pit WET-2.

FIGURES



Wetland Delineation Location

Figure 1 of 2

Golden Sands Dairy
T.21N.-R.6E. S1/2 Sec 36
SaratogaTownship, WoodCounty, WI

Legend

- Wetland1
- Wetland2
- Wetland3
- Impedance

N

Scale
1:1,894
0 45 90 180 Feet

Drawn by: Daniel Fuhs
Project No. 12017
Date 6/28/2013

ERC
ECO-RESOURCE CONSULTING, LLC

Wetland Delineation Location and Soils Map

Figure 2 of 2

Golden Sands Dairy
T.21N.-R.6E. S1/2 Sec 36
SaratogaTownship, WoodCounty, WI

Legend

Soil Types

FrA Friendship Loamy Sand, 1-3% Slope

PfA Plainfield Sand, 0-2% Slope

N

Scale

1:1,604

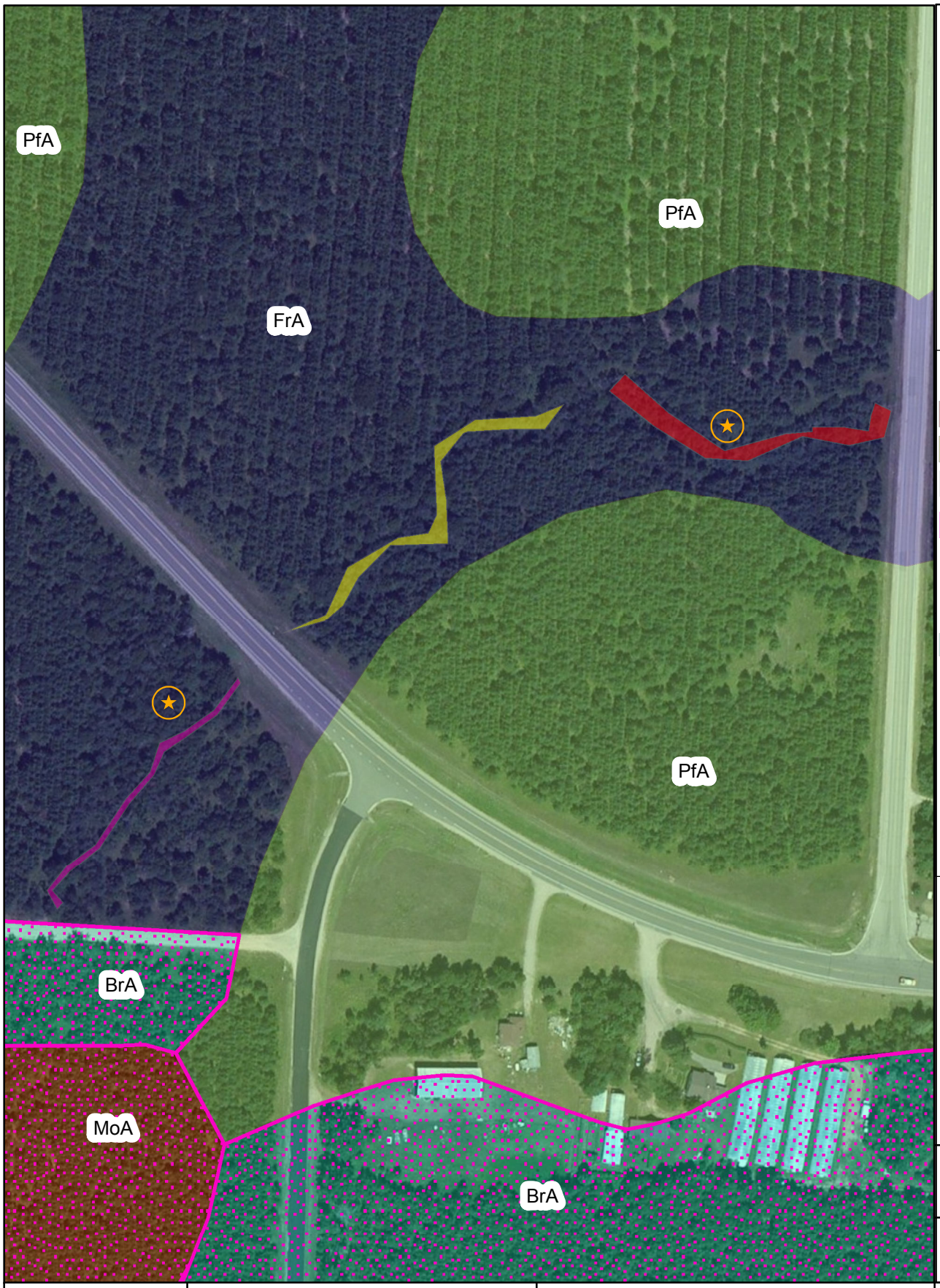
0 40 80 160 Feet

Drawn by: Daniel Fuhs

Project No. 12017

Date 6/28/2013

ECO-RESOURCE CONSULTING, LLC



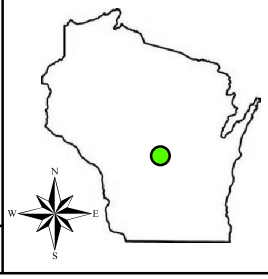
Legend

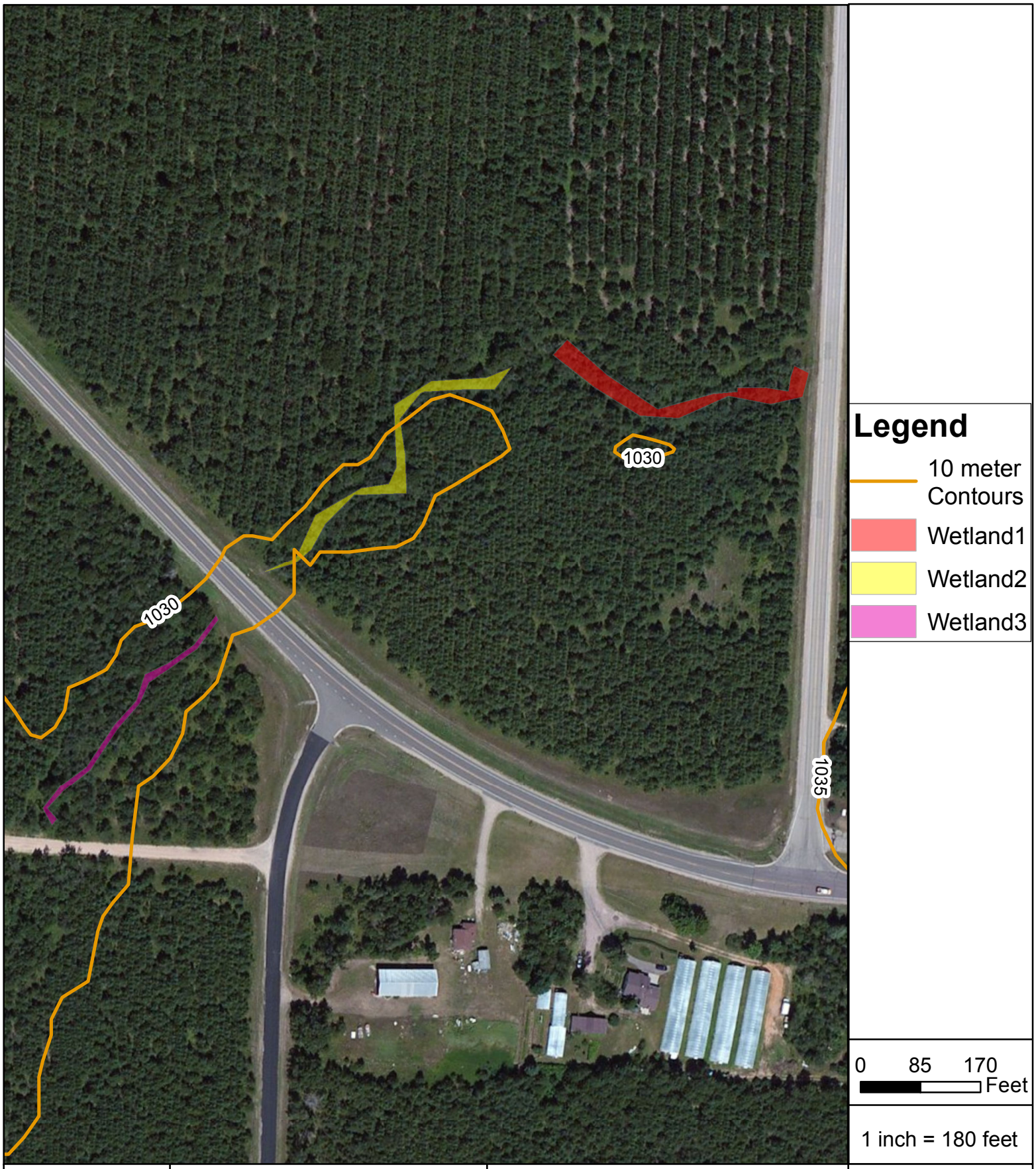
- Wetland1
- Wetland2
- Wetland3
- Wetland Indicators
- Wetland too Small to Delineate
- BrA - Brems Loamy Sand, 0-3% slope
- FrA - Friendship Loamy Sand, 1-3% slope
- MoA - Meehan Loamy Sand, 0-3% slope
- PfA - Plainfield Sand, 0-2% slope

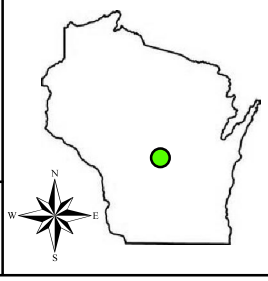
0 85 170 Feet

1 inch = 180 feet

Drawn By: Daniel Fuhs	ERC ECO-RESOURCE CONSULTING, LLC 409 Concord Drive Oregon, WI 53575 www.eco-resource.net	12017 Figure 3 WDNR Surface Water Viewer and NRCS Web Soil Survey Data Golden Sands Dairy Sec. 36 T21N - R6E Saratoga Township
Date: 2/27/2014		
Project Number: 12017		Source : Esri, 08/18/2011 Image
Figure 3 of 4		





Drawn By: Daniel Fuhs	ERC ECO-RESOURCE CONSULTING, LLC 409 Concord Drive Oregon, WI 53575 www.eco-resource.net	12017 Figure 4 Topography Golden Sands Dairy Sec. 36 T21N - R6E Saratoga Township	
Date: 2/27/2014		Source : Esri, 08/18/2011 Image; Wood County Land Records Interactive Map - USGS, Topographic Data	
Project Number: 12017			
Figure 4 of 4			