

TRANSMITTAL FORM

To: Bureau of Design and Environment
Attn: Mr. Matthew Sunderland
From: Illinois Natural History Survey
Re: Wetland Mitigation Monitoring Report

Route and Location

Route: FAS 1637 (TR 478)
County: Sangamon
Project Area: 5.80 acres off Young Road adjacent to the Sangamon River north of Buckhart
Section: 90-08108-00-BR
Sequence Number: 10531

Survey Conducted By: Dennis Keene, Rick Larimore, Dave Ketzner, and Brad Zercher
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Dates Conducted: 7 October 2008

Project Summary:

This is a wetland mitigation monitoring project located on approximately 5.80 acres off Young Road adjacent to the Sangamon River north of Buckhart. This site was previously monitored and had failed to meet the three criteria of being a wetland. This is the fifth year of the second attempt to monitor this site after some additional shrub stage trees were planted before the 2004 monitoring season. Some minor changes in site location also have occurred. The attached report includes an explanation of monitoring methods and results. We also discuss the progress towards attaining the project goals. Additionally, wetland determinations and the computed FQI of the area along with photos and maps of the area are included.

Signed: _____

Dr. Allen E. Plocher
INHS/IDOT Project Coordinator

Date: _____

Signed: _____

Dr. Edward Heske
INHS/IDOT Project Principal Investigator
Director, Center for Wildlife and Plant Ecology

Date: _____

2008 Wetland Mitigation Monitoring Report for FAS 1637 (TR 478) Sangamon County, Illinois

Introduction:

On October 7, 2008 we evaluated a site that hopefully, if it succeeds, will be used as a wetland compensation site. This is the fifth and final year of the proposed five years of monitoring at the site. This site was previously monitored and had failed to meet the three criteria of being a wetland. Changes that were made to the project included planting more shrub stage trees. Also, part of the area that failed was deleted from the new plan and a new area was acquired nearby as a substitute. Thus, previous site numbering and boundaries have changed since the original (1998) project request. Site 1 now consists of the original Site 1 plus part of Site 2. Site 2 now consists of part of the original Site 3 plus a new area. Site 2 consists of a borrow area and an old roadbed area. Site 1 consists of an old roadbed and a previously cropped area. Site 1 is found west of Young Road and Site 2 is located east of Young Road. Site location is NW/4, SW/4, Section 9, T.15N., R.3W. (Mechanicsburg 7.5 minute quadrangle). Some of the previously planted shrub stage trees that died were replaced with different species of shrub stage trees. Vegetation species lists, soil, and hydrology characteristics, as well as wetland determination forms are included in this report. Project goals, objectives, and performance criteria are incorporated in this report, as are monitoring methods, monitoring results, summary information, and recommendations.

Goals, Objectives, and Performance Criteria

Goals, objectives, and performance criteria follow those specified in the IDOT project request (M. Sunderland, IDOT, 2004). Performance criteria are based on those specified in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). Each goal should be attained by the end of the five-year monitoring period. Goals, objectives, and performance criteria are listed below.

Project Goal #1: The created wetland mitigation area should be determined to be jurisdictional wetland by the current federal definition.

Objective: The created wetland should consist of approximately 5.80 acres of wet floodplain forest. It should satisfy the three criteria of the federal wetland definition: dominant hydrophytic vegetation, hydric soils, and wetland hydrology.

Performance Criteria:

A. Predominance of Hydrophytic Vegetation. More than 50% of the dominant plant species must be hydrophytic.

B. Presence of Wetland Hydrology. The site must have soils saturated to the surface (water table within 12 inches to the surface) or be inundated to a depth of less than 2 meters (6.6 ft) for at least 12.5% of the growing season.

C. Presence of Hydric Soils. Hydric soil characteristics should be present, or conditions favorable for hydric soil formation should persist at the site.

Project Goal #2: The forested wetland plant community should meet standards for survival of planted species and overall floristic composition.

Objective: Planted trees should dominate the site.

Performance Criteria: There should be a 100% survival rate of the planted trees. The new wetland mitigation-monitoring plan calls for a total of 125 trees for the whole project. There should be at least 125 (100% survival rate) live-planted trees each year. Trees will be replanted if needed during the monitoring period.

Methods

Project Goals #1:

Performance Criteria:

A. Predominance of Hydrophytic Vegetation. The method for determining dominant vegetation at a wetland site is described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). This method is based on aerial coverage estimates for individual plant species. Each of the dominant plant species is then assigned its wetland indicator status rating (Reed 1988). Any plant rated facultative or wetter (*i.e.*, FAC, FAC+, FACW, and OBL) is considered hydrophytic. A predominance of hydrophytic vegetation in the wetland plant community exists if more than 50% of the dominant species present are hydrophytic.

B. Presence of Wetland Hydrology. The extent of wetland hydrology at the Buckhart Wetland Compensation Site was monitored by the Illinois State Geological Survey and is shown on the accompanying figure (Fucciolo et al. 2008). Wetland hydrology occurs when inundation or saturation to land surface is present for greater than 5% of the growing season (10 days at this site) where the soils and vegetation parameters stated in the Corps of Engineers Wetland Delineation Manual also are met; if either is lacking, then inundation or saturation must be present for greater than 12.5% of the growing season (26 days at this site) to satisfy wetland hydrology criteria (Environmental Laboratory 1987 [<http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf>]).

Inundation and saturation at the site were monitored using a combination of 9 monitoring wells, one staff gauge, and one stage gauge. Water levels were measured at least biweekly during April and May, and monthly during the remainder of the year. Manual readings were supplemented by 1 data logger, which measured the surface- and ground water levels at regular intervals to document all hydrologic events. Additional details regarding site conditions and monitoring results for wetland hydrology in 2008 are summarized in ISGS' Annual Report for Active IDOT Wetland Compensation and Hydrologic Monitoring Sites, September 1, 2007 to September 1, 2008 (Fucciolo et al. 2008). Also, Illinois Natural History Survey personnel will utilize hydrologic field indicators to determine the presence or absence of wetland hydrology as described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987).

C. Presence of Hydric Soils. INHS personnel will examine soil cores for field indicators to determine the presence or absence of hydric soils as described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Field Indicators of Hydric Soils in the United States* (USDA, 2006). Soil profile descriptions from the sites can be found below.

Photography

Photos were taken in each community facing north and south directions. Photographs are presented in Appendix 2.

Results

Project Goal #1: The created wetland mitigation area should be determined to be a jurisdictional wetland by the current federal definition.

Performance Criteria

A. Predominance of Hydrophytic Vegetation.

Dominant hydrophytic vegetation is present in the wet areas at both sites. Site 1 non-wet area herbaceous layer is dominated by panicled aster (*Aster simplex*, FACW), smooth crab grass (*Digitaria ischaemum*, FACU), marsh elder (*Iva annua*, FAC), fall panicum (*Panicum dichotomiflorum*, FACW-), and beadgrass (*Paspalum pubiflorum*, FACW). Site 1 wet area herbaceous layer is dominated by panicled aster (*Aster simplex*, FACW) and marsh elder (*Iva annua*, FAC). In the shrub/sapling stage tree layer planted species of river birch (*Betula nigra*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), and pin oak (*Quercus palustris*, FACW) did not constitute enough coverage of the site to be considered dominants.

Site 2 non-wet area herbaceous layer is dominated by panicled aster (*Aster simplex*, FACW) and fall panicum (*Panicum dichotomiflorum*, FACW-). Site 2 wet area herbaceous layer is dominated by (*Aster simplex*, FACW) and fog-fruit (*Phyla lanceolata*, OBL). In the shrub stage tree layer planted species of river birch (*Betula nigra*, FACW), pecan (*Carya illinoensis*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), swamp white oak (*Quercus bicolor*, FACW+), and pin oak (*Quercus palustris*, FACW) did not constitute enough coverage of the site to be considered dominants.

B. Presence of Wetland Hydrology.

All of Site 1 had more than 5% wetland hydrology during the growing season and may fulfill the wetland hydrology criterion this year. None of Site 1 achieved the 12.5% wetland hydrology during the growing season. This 5% was achieved by an over bank-flooding event from the Sangamon River. A deep borrow area south of Site 1 and inconsistent flooding events from the Sangamon River may prevent this site from reaching the targeted wetland hydrology on a yearly basis during the growing season.

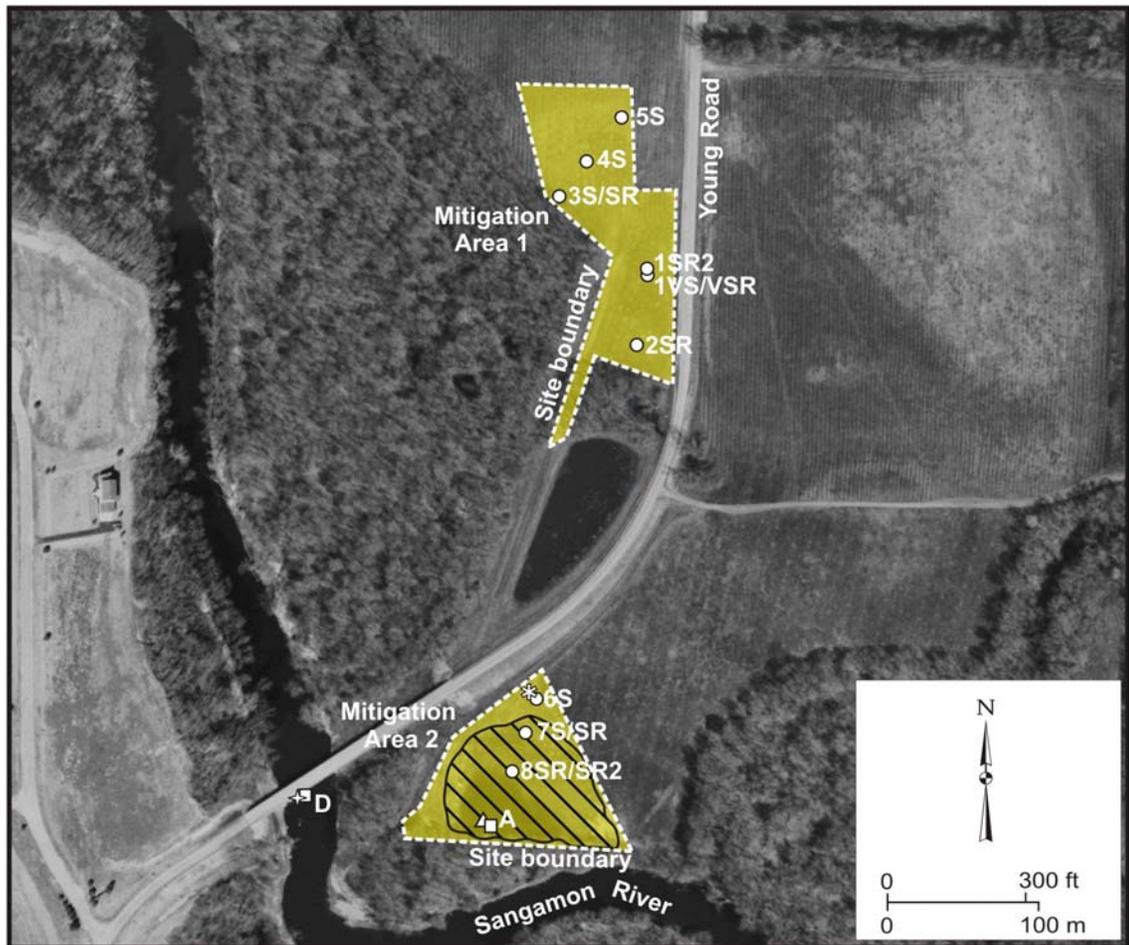
Site 2 is closer to the Sangamon River and receives more overflow from the river during times of high water. A major flooding event from the Sangamon River in June deposited water onto Site 2. This year all of Site 2 including the planted tree area had more than 5% wetland hydrology during the growing season. Also, the excavated area and a portion of the tree planted area at Site 2 had greater than 12.5% wetland hydrology during the growing season. The area greater than 12.5% satisfies the wetland hydrology criterion and the area greater than 5% may fulfill the wetland hydrology criterion this year. Parts of Site 2 where the shrub stage trees were planted had some barren soil areas, which may be attributed to standing water but may also suggest poor soil conditions. This area was also scraped and slopes into the borrow area. Water table depth at the time of the field investigation was greater than 0.76 m (30 in) at Wetland Site 1, and 0 to greater than 1 m (40 in) at Wetland Site 2. Well data map from the ISGS can be found on the following page and in the ISGS report on the site.

Buckhart Wetland Compensation Site (FAS 1637, TR 478)

Estimated Areal Extent of 2008 Wetland Hydrology

Based on data collected between September 1, 2007 and September 23, 2008

Map based on USGS digital orthophotographs, Mechanicsburg, SE and SW quarter quadrangles (ISGS 2005)



2008 Wetland Hydrology

-  > 12.5% of the growing season
-  > 5% of the growing season

-  monitoring well
-  staff gauge
-  In-Situ data logger
-  rain gauge
-  Infinities data logger

C. Presence of Hydric Soils.

Soils were examined at both sites. Site 1 consists of an old crop field along with an old roadbed transecting the site. This area is compacted and soil probing was a problem. Most of the site consists of Tice silty clay loam (non-hydric soil). There was a small area of Sawmill silty clay loam (hydric soil) found at this site. This area consisted of 0.15 ha (0.36 acre) out of a total of 1.27 ha (3.14 acre) at the site.

Site 2 consists of a borrow area and also an old roadbed. The borrow area constitutes the wet area and consists of 0.4 ha (0.99 acre) of hydric soils out of a total of 1.07 ha (2.66 acre). The vast majority of the site where the trees were planted does not have hydric soils. The tables below give a brief soil description of the hydric and non-hydric areas of both sites. Hydric areas will be marked on the aerial photograph. Below are typical soil descriptions at the mitigation site.

Site 1 (west of Young Road)

Tice silty clay loam (non-hydric soil, some areas have less of a surface than described here)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- -ture</u>	<u>Structure</u>
	0-20 in	10YR 3/1						Sil	gr
	20-30 in	10YR 4/3 10YR 5/4 10YR 5/3		Ffp 7.5YR 4/6			2.5Y 4/1	Sicl	Pr

Sawmill silty clay loam (hydric soil)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- -ture</u>	<u>Structure</u>
	0-24 in	10YR 3/1 N 3/						Sicl	Sub bl
	24-36 in	N4/ 2.5Y 4/1		Ffp 7.5YR 4/6				Sicl	Pr

Site 2 (east of Young Road)

Tice silty clay loam (non-hydric soil, furthestmost north of the river)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- -ture</u>	<u>Structure</u>
	0-11 in	10YR 3/1 10YR 3/2 10YR 4/3						sicl	sub bl
	11-19 in	10YR 4/3 10YR 5/3 10YR 5/4	Few 10YR 3/1	ffp 7.5YR 4/6		10YR 4/1		sicl	sub bl
	19-30 in	10YR 4/1 10YR 4/3		cmp 7.5YR 4/6				sicl cl	pr

Tice silty clay loam (non-hydric soil, sample taken closest to the river)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-11 in	10YR 3/2						sil	sub bl
	11-30 in	10YR 4/3 10YR 4/2						sicl	pr

Hydric soil (scraped area)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-7 in	2.5Y 2.5/1 N 3/			Mfp 10YR 4/4			sil	gr
	7-20 in	2.5Y 5/1 2.5Y 5/2 N 4/		Ffp 7.5YR 4/6	Mfp 10YR 4/4			sicl	pr

Hydric soil (borrow area)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-2 in	10YR 3/1						sil	gr
	2-12	2.5Y 6/1 and 4/1		Mcp 7.5YR 4/6				loam	pr
	12-20 in	2.5Y 5/1 and 4/1		Cfp 7.5YR 4/6 Cmp 10YR 5/8				sil	pr

Wetland determination forms can be found in Appendix 1.

Project Goal #2: The created wetland should meet minimum standards for vegetational cover of a wet floodplain forest.

Performance Criteria:

Tree Density (live planted trees/acre for each tree species). Live trees were counted and species tallied for both sites. At this site 125 live planted trees are required each year. In 2004, 200 trees (125 + 75 additional trees) were planted. The sapling/shrub stage trees which were planted at the sites include the following: river birch (*Betula nigra*, FACW), pecan (*Carya illinoensis*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), swamp white oak (*Quercus bicolor*, FACW+), and pin oak (*Quercus palustris*, FACW). The number of individuals per species is presented below. Although the total number of live tree individuals counted went down from 144 (year 2007) to 128, this site still meets the project goal for 2008.

Site 1

<u>Planted Species</u>	<u>Individuals</u>
<i>Betula nigra</i> (river birch)	21
<i>Carya illinoensis</i> (pecan)	19
<i>Fraxinus pennsylvanica</i> (green ash)	32
<i>Quercus bicolor</i> (swamp white oak)	19
<i>Quercus palustris</i> (pin oak)	<u>20</u>
	111 sapling/shrub stage trees/3.14 acres

Site 2

<u>Planted Species</u>	<u>Individuals</u>
<i>Betula nigra</i> (river birch)	05
<i>Carya illinoensis</i> (pecan)	01
<i>Fraxinus pennsylvanica</i> (green ash)	08
<i>Quercus bicolor</i> (swamp white oak)	0
<i>Quercus palustris</i> (pin oak)	<u>03</u>
	17 sapling/shrub stage trees/2.66 acres

Summary and RecommendationsProject Goal 1:

This wetland mitigation site is located on the Sangamon River floodplain. The area consists of land previously in crops and an abandoned roadbed (Sites 1 and 2). Additionally, Site 2 now has a borrow pit. A pre-existing floodplain forest is adjacent to this borrow area. Prior to construction, the vast majority (95%) of this site did not support hydric soils or wetland hydrology. Other than the excavation of the borrow pit and surface scraping in some areas, no other hydrologic alteration was carried out. One major flooding event occurred in June. All of Site 1 met the greater than 5% wetland hydrology criterion and, would meet Project Goal 1 if hydric soils and dominant hydrophytic vegetation were also present. But, only a small area in Site 1 met the three wetland criteria this year (08) 0.15 ha (0.36 acres) and met project goal 1. For three out of the last five years Site 1 did not meet the wetland hydrology requirements. Thus, Site 1 did not meet the three wetland criteria and did not satisfy Project Goal One.

Most of Site 2 that did meet the wetland hydrology criterion (greater than 12.5%) occurred mainly outside the tree planted area. This area (wet meadow) also met the hydric soil and dominant hydrophytic vegetation criteria. This wet meadow in Site 2 had a total area of 0.4 ha (0.99 acres) that met the three wetland criteria this year (2008). This area meets Project Goal 1. Even though the rest of Site 1 met the greater than 5% wetland hydrology this year (2008), soils were still not hydric and will not become so unless more water is introduced onto the site. For the last five years only 0.4 ha (0.99 acre) met the three wetland criteria and thus, satisfies Project Goal One.

Thus, the total wetland area that meets the wetland criteria and meets Project Goal One for the last five years is 0.51 ha (1.27 acres). The forested wetland acreage at this site is 0.11 ha (0.28 acre) and 0.4 ha (0.99 acres) is classified as a wet meadow.

Project Goal 2:

Sixteen trees perished this year. Actual overall tree survival ($128/200 = 64\%$) is still over the required 125 live trees present. Although Project Goal 2's tree survival is being met, most of the surviving trees occur outside of the wetland. The area this year (2008) that does meet the three criteria of a wetland occurs in the borrow pit area (wet meadow, Wetland Site 2) where no trees are planted and in a small area in Wetland Site 1 where trees do occur (0.11 ha, 0.28 acre). Floristic quality was still poor at all sites even though there was less mowing this year. Some natural tree regeneration is present outside the inundated area (wet meadow area). Planted trees at the site varied in height from 1.8 to 4.6 m (6 to 15 ft) this year (2008). The majority of the proposed forest wetland acreage of 2.3 ha (5.8 acres) at this site does not support any forest wetland acreage over the last five years.

Appendix 1: Wetland Report For FAS 1637 (TR 478) Monitoring Report in Sangamon County

Project Description:

This is a wetland survey conducted for a wetland mitigation monitoring project FAS 1637 (TR 478) in Sangamon County. The following sources were examined while surveying the project area to determine wetland locations and boundaries: United States Geological Survey topographic map and National Wetland Inventory (NWI) map (Mechanicsburg 7.5 minute quadrangle); *Soil Survey of Sangamon County, Illinois*; aerial photographs; *National List of Plant Species That Occur In Wetlands: Illinois*; the 1987 *Corps of Engineers Wetlands Delineation Manual*; and onsite vegetation, soils, topographic and hydrologic indicators. Four routine onsite wetland determinations were completed. Wetland Site 1 and Wetland Site 2 satisfied the wetland criteria.

The Floristic Quality Index (FQI), developed by Swink and Wilhelm (1979) and modified by J. Taft, D. Ladd, G.S. Wilhelm, and L.A. Masters (*Erigenia*, 1997), was applied to the vegetation of each wetland. This index should not be used as a substitute for quantitative vegetation analysis in assessing plant communities, but it does provide a measure of the floristic integrity of each site. The FQI was calculated as follows: $I = R/\sqrt{N}$, where R represents the sum of the numerical ratings for all species native to Illinois recorded in the area, and N represents the number of recorded native species. The numerical rating for each species is shown in the species list for the site. The mean-rated quality also was determined by dividing the sum of numerical ratings for all native taxa by the number of recorded native taxa. FQI values of ten or less indicate low natural quality. Sites with FQI values of 20 or more (mean rated quality ≥ 3.0) possess some evidence of native character and may be considered environmental assets.

Site 1 - Wetland 1: This wet meadow/forest restoration is located 15 m (50 ft) west of Young Road and 366 m (1200 ft) north of the Sangamon River. This site has dominant hydrophytic vegetation, hydric soils, and wetland hydrology. Thus, we determined that this site is a wetland. The NWI did not code this site as a wetland. This site functions as a water storage area and sediment retention area for the Sangamon River. Wildlife habitat at this site is of low quality. The FQI is 11.6 with planted trees and the mean-rated quality is 2.3 (FQI is 10.2 and mean-rated quality is 2.1 without planted species). These numbers are indicative of an average natural quality. The natural quality of this site increased slightly in 2008 probably due to less mowing. At the project site 0.146 ha (0.361 acre) meets the three wetland criteria this year.

Site 2 - Wetland 2: This wet meadow is located 40 m (130 ft) southeast of Young Road and 30 m (100 ft) north of the Sangamon River. Dominant hydrophytic vegetation and hydric soils were present and the site was saturated or inundated greater than 12.5% during the growing season. Thus, this site meets the criteria of a wetland this year. The NWI did not code this site as a wetland. This site functions as a water storage and sediment retention area for the Sangamon River. This site may provide decent seasonal wildlife habitat for reptiles and amphibians. The FQI is 8.2 and the mean-rated quality is 2.1. These numbers are indicative of a poor natural quality and may be a reflection of prolonged inundation in this area.

Watershed Data

The Sangamon River in the project area has a width of 36.5 m (120 ft) and had a moderate flow rate. This stream consists of a clay-silt substrate. This project is located in the Sangamon River-Upper basin and has a USGS hydrologic unit code of 7130006.

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 - Wetland 1 (page 1 of 4)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 15 m (50 ft) west of Young Road and 366 m (1200 ft) north of the Sangamon River

Do normal environmental conditions exist at this site? Yes: X No:
 Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Aster simplex</i>	FACW	herb
2. <i>Iva annua</i>	FAC	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Sawmill silty clay loam

On Sangamon County hydric soils list? Yes: X No:

Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No: Redox depletions: Yes: No: X

Matrix color: N 4/

Other indicators: This soil is found in a depressional area.

Note: some of this area may have been scraped

Hydric soils: Yes: X No:

Rationale: The Natural Resources Conservation Service classifies Sawmill silty clay loam as having aquic conditions. This soil has iron masses and an iron depleted matrix. Additionally, this soil meets the NRCS hydric soil indicator A12. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 - Wetland 1 (page 2 of 4)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 15 m (50 ft) west of Young Road and 366 m (1200 ft) north of the Sangamon River

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA

Depth to saturated soil: > 0.76 m (30 in)

Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, sheet flow, and overflow from the Sangamon River. Water leaves the site via evapotranspiration and groundwater recharge.

Size of watershed: Approximately 3279 km² (1266 mi²)

Other field evidence observed: The site is found in a depressional area and sediment deposits were observed.

Wetland hydrology: Yes: X No:

Rationale: Well data collected by the ISGS substantiated that this site had more than 5% wetland hydrology during the growing season this year. Therefore, this site did satisfy the wetland hydrology criteria.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:

Rationale for decision: This site has dominant hydrophytic vegetation, hydric soils, and wetland hydrology. Thus, we determined that this site is a wetland. The NWI did not code this site as a wetland.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 - Wetland 1 (page 3 of 4)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 15 m (50 ft) west of Young Road and 366 m (1200 ft) north of the Sangamon River

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Acer saccharinum</i>	silver maple	shrub	FACW	1
<i>Amaranthus tuberculatus</i>	tall waterhemp	herb	OBL	1
<i>Ammannia coccinea</i>	long-leaved ammannia	herb	OBL	5
<i>Aster simplex</i>	panicled aster	herb	FACW	3
<i>Betula nigra</i>	river birch	shrub (planted)	FACW	4
<i>Campsis radicans</i>	trumpet creeper	herb	FAC	2
<i>Carex</i> sp.	sedge	herb	---	--
<i>Commelina diffusa</i>	day flower	herb	FACW	3
<i>Cyperus esculentus</i>	chufa	herb	FACW	0
<i>Digitaria ischaemum</i>	smooth crab grass	herb	FACU	**
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Fraxinus pennsylvanica</i>	green ash	sapling (planted)	FACW	2
<i>Iva annua</i>	marsh elder	herb	FAC	0
<i>Morus alba</i>	white mulberry	tree	FAC	**
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Paspalum pubiflorum glabrum</i>	beadgrass	herb	FACW	3
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Physalis subglabrata</i>	smooth ground cherry	herb	UPL	0
<i>Polygonum pensylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Populus deltoides</i>	eastern cottonwood	tree	FAC+	2
<i>Quercus palustris</i>	pin oak	shrub (planted)	FACW	4
<i>Rorippa sessiliflora</i>	sessile-flowered cress	herb	OBL	3
<i>Rudbeckia laciniata</i>	cutleaf coneflower	herb	FACW+	3
<i>Ruellia strepens</i>	smooth ruellia	herb	FAC+	6
<i>Rumex crispus</i>	curly dock	herb	FAC+	**
<i>Salix nigra</i>	black willow	tree	OBL	3
<i>Senecio glabellus</i>	butterweed	herb	OBL	0
<i>Setaria glauca</i>	pigeon grass	herb	FAC	**
<i>Sida spinosa</i>	prickly sida	herb	FACU	**
<i>Solidago gigantea</i>	late goldenrod	herb	FACW	3
<i>Spermocoe glabra</i>	smooth buttonweed	herb	FACW+	4
<i>Ulmus americana</i>	American elm	shrub	FACW-	5

* Coefficient of Conservatism (Taft et al. 1997), ** Non-native species

FQI = $49/\sqrt{23} = 49/4.8 = 10.2$ (without planted species)

Mean-rated quality = $48/23 = 2.1$ (without planted species)

FQI = $59/\sqrt{26} = 59/5.1 = 11.6$ (with planted species)

Mean-rated quality = $59/26 = 2.3$ (with planted species)

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 - Wetland 1 (page 4 of 4)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 15 m (50 ft) west of Young Road and 366 m (1200 ft) north of the Sangamon River

Determined by: Dennis J. Keene (soils and hydrology)
Dave Ketzner and Rick Larimore (vegetation
and hydrology)
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1816 South Oak St.
Champaign, Illinois 61820
(217) 244-0873 (Keene)

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 – Non-Wetland Area (page 1 of 2)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 3 m (10 ft) west of Young Road and 366 m (1200 ft) north of the Sangamon River

Do normal environmental conditions exist at this site? Yes: No:
 Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No:

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Aster simplex</i>	FACW	herb
2. <i>Digitaria ischaemum</i>	FACU	herb
3. <i>Iva annua</i>	FAC	herb
4. <i>Panicum dichotomiflorum</i>	FACW-	herb
5. <i>Paspalum pubiflorum glabrum</i>	FACW	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 80%

Hydrophytic vegetation: Yes: No: **Rationale:** There are no dominants that are OBL, FACW, FAC+, or FAC.**SOILS**

Series and phase: Tice silty clay loam

On Sangamon County hydric soils list? Yes: No: Is the soil a histosol? Yes: No: Histic epipedon present? Yes: No: Redox concentrations: Yes: No: Redox depletions: Yes: No:

Matrix color: 10YR 4/3

Other indicators: None

Hydric soils: Yes: No: **Rationale:** Tice silty clay loam is a somewhat poorly drained soil that lacks hydric soil characteristics.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 – Non-Wetland Area (page 1 of 4)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 3 m (10 ft) west of Young Road and 366 m (1200 ft) north of the Sangamon River

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA

Depth to saturated soil: > 1.3 m (50 in)

Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, sheet flow, and overflow from the Sangamon River. Water leaves the site via evapotranspiration, sheet flow to lower areas, and groundwater recharge.

Size of watershed: Approximately 3279 km² (1266 mi²)

Other field evidence observed: The site had sediment deposits and well data collected by the ISGS substantiated that this site had more than 5% wetland hydrology during the growing season this year.

Wetland hydrology: Yes: No: X

Rationale: There was not ample field evidence indicating that this site is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland?	Yes: No: X
Rationale for decision:	Although this site had dominant hydrophytic vegetation, it lacked hydric soils and wetland hydrology. Thus, we determined that this site is not a wetland. The NWI did not code this site as a wetland.

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 - Wetland 2 (page 1 of 3)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow

Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.

Location: 40 m (130 ft) southeast of Young Road and 30 m (100 ft) north of the Sangamon River

Do normal environmental conditions exist at this site? Yes: X No:
 Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Aster simplex</i>	FACW	herb
2. <i>Phyla lanceolata</i>	OBL	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Undetermined (scraped excavated area)

On Sangamon County hydric soils list? Yes: X No: Undet: X

Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No: Redox depletions: Yes: X No:

Matrix color: N 4/

Other indicators: This soil is found in a depressional area.

Hydric soils: Yes: X No:

Rationale: This soil has pore linings, iron masses, and an iron depleted matrix. Additionally, this soil meets the NRCS hydric soil indicator F2 (Loamy Gleyed Matrix). These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 - Wetland 2 (page 2 of 3)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow

Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.

Location: 40 m (130 ft) southeast of Young Road and 30 m (100 ft) north of the Sangamon River

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA

Depth to saturated soil: > 50 in (1.3 m)

Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, overflow from the Sangamon River, and sheet flow from higher surrounding areas. Water leaves the site via evapotranspiration and groundwater recharge.

Size of watershed: Approximately 3279 km² (1266 mi²)

Other field evidence observed: This site is found in a low area, had bare areas, some standing water, and sediment deposits.

Wetland hydrology: Yes: X No:

Rationale: Well data collected by the ISGS substantiated that this site had greater than 5% and 12.5% wetland hydrology during the growing season this year, and therefore, satisfied the wetland hydrology criteria.

DETERMINATION AND RATIONALE:

Is the site a wetland?	Yes: X	No:
Rationale for decision:	This site has dominant hydrophytic vegetation, hydric soils, and wetland hydrology. Thus, we determined that this site is a wetland. The NWI did not code this site as a wetland.	

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 - Wetland 2 (page 3 of 3)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow

Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.

Location: 40 m (130 ft) southeast of Young Road and 30 m (100 ft) north of the Sangamon River

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Aster simplex</i>	panicled aster	herb	FACW	3
<i>Campsis radicans</i>	trumpet creeper	herb	FAC	2
<i>Carex crus-corvi</i>	sedge	herb	OBL	6
<i>Cyperus esculentus</i>	chufa	herb	FACW	0
<i>Fraxinus pennsylvanica</i>	green ash	herb	FACW	2
<i>Hibiscus laevis</i>	halberd-leaved rose mallow	herb	OBL	4
<i>Iva annua</i>	marsh elder	herb	FAC	0
<i>Morus alba</i>	white mulberry	herb	FAC	**
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Phalaris arundinacea</i>	reed canary grass	herb	FACW+	**
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Polygonum pensylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Polygonum ramosissimum</i>	bushy knotweed	herb	FAC-	3
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Salix exigua</i>	sandbar willow	shrub	OBL	1
<i>Salix nigra</i>	black willow	shrub	OBL	3
<i>Spermacoce glabra</i>	smooth buttonweed	herb	FACW+	4

* Coefficient of Conservatism (Taft et al. 1997)

** Non-native species

FQI = $32/\sqrt{15} = 32/3.9 = 8.2$ Mean-rated quality = $32/15 = 2.1$

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 – Non-Wetland Area (page 1 of 2)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.

Location: 37 m (120 ft) southeast of Young Road and 91 m (300 ft) north of the Sangamon River

Do normal environmental conditions exist at this site? Yes: X No:
 Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION**Dominant Plant Species****Indicator Status****Stratum**1. *Aster simplex*

FACW

herb

2. *Panicum dichotomiflorum*

FACW-

herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:**Rationale:** More than 50% of the dominants are OBL, FACW, FAC+, or FAC.**SOILS**

Series and phase: Undetermined (excavated and compacted area)

On Sangamon County hydric soils list? Yes: No: X

Is the soil a histosol? Yes: No: X

Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No:

Redox depletions: Yes: No: X

Matrix color: 10YR 5/3 and 5/4

Other indicators: None

Hydric soils: Yes: No: X**Rationale:** While this soil had some iron masses, it lack the depleted soil matrix required by the NRCS hydric soil guide.

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 – Non-Wetland Area (page 2 of 2)

Field Investigators: Keene, Larimore, and Ketzner

Date: 7 October 2008

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.

Location: 37 m (120 ft) southeast of Young Road and 91 m (300 ft) north of the Sangamon River

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA

Depth to saturated soil: > 50 in (1.3 m)

Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, overflow from the Sangamon River, and sheet flow from higher surrounding areas. Water leaves the site via evapotranspiration, sheet flow to lower areas, and groundwater recharge.

Size of watershed: approximately 3279 km² (1266 mi²)

Other field evidence observed: The site had sediment deposits and well data collected by the ISGS substantiated that this site had more than 5% wetland hydrology during the growing season this year.

Wetland hydrology: Yes: No: X

Rationale: There was not ample field evidence indicating that this site is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

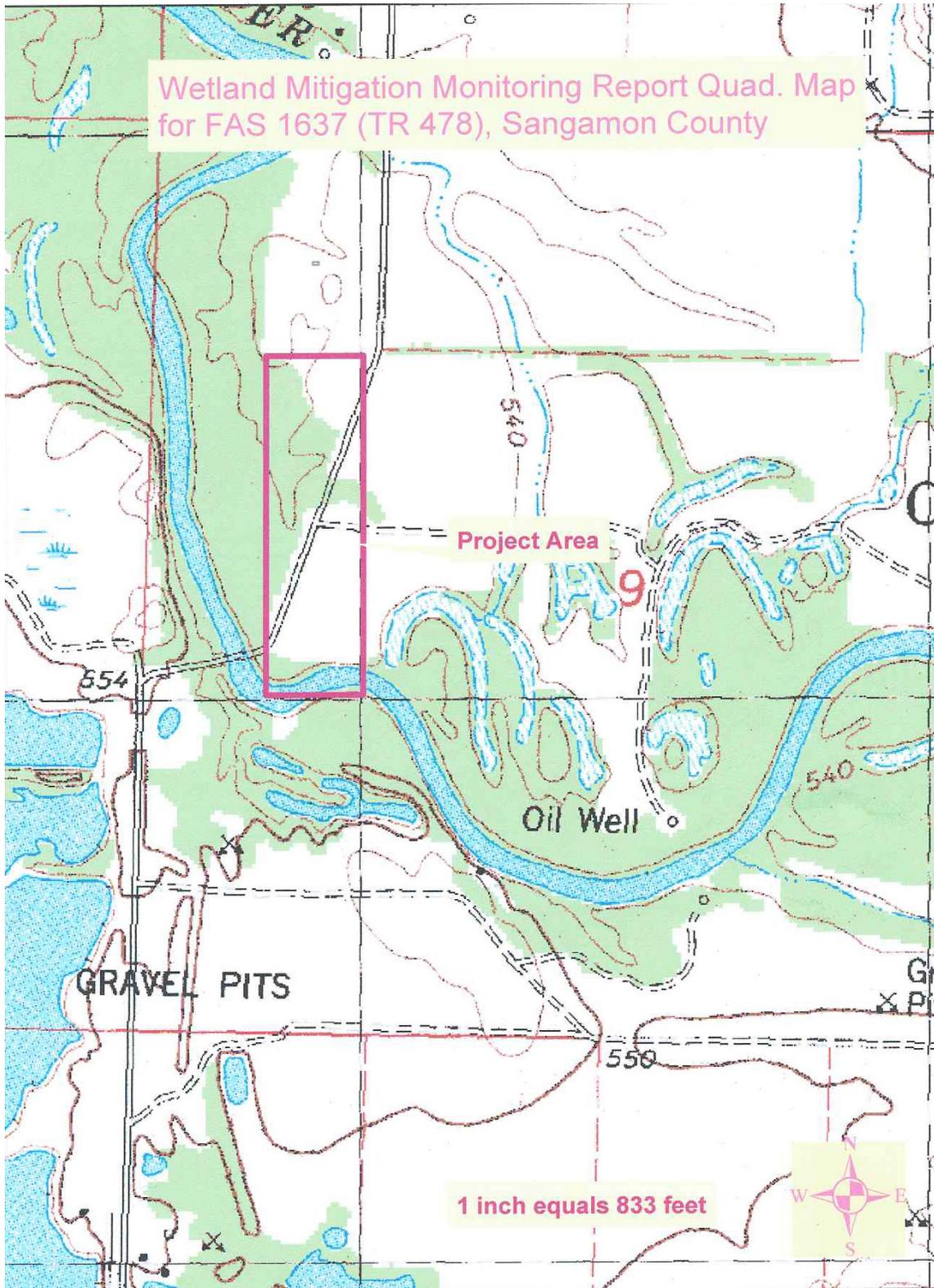
DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: No: X
Rationale for decision:

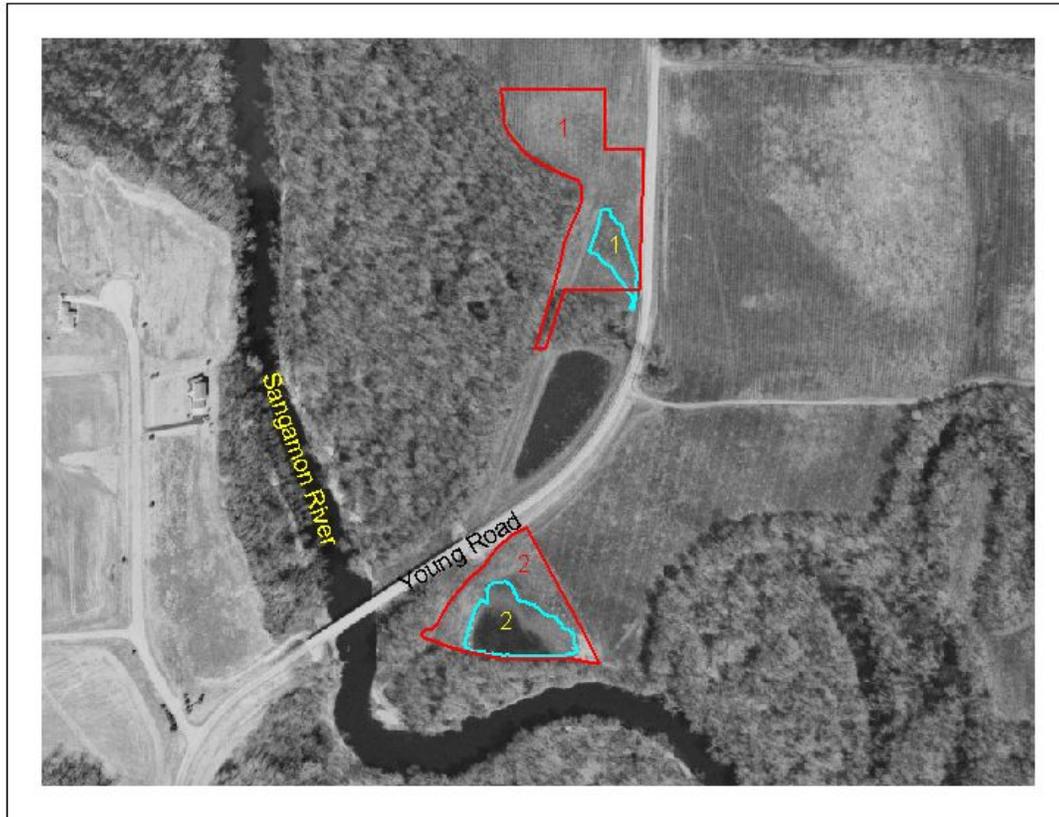
While this site had dominant hydrophytic vegetation, it lacked hydric soils and wetland hydrology. Thus, we determined that this site is not a wetland. The NWI did not code this site as a wetland.

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Wetland Mitigation Monitoring Report Quad. Map
for FAS 1637 (TR 478), Sangamon County



Wetland Mitigation Monitoring Report Map for FAS 1637 (TR 478), Sangamon County



0 400 800 Feet



scale 1:4800
1 inch=400 ft

0 100 200 Meters



-  Project site boundary
-  Wetland site boundary



01/09

Appendix 2:
Wetland Mitigation Monitoring Photos for
FAS 1637 (TR 478)



Photo of Site 1, facing north



Photo of Site 1, facing north



Photo of site 2, facing southeast



Photo of site 2, facing southwest on old road bed