2010 Wetland Mitigation Monitoring Report for Harrisburg Site 2, FAP 857 (IL 14), Fox River Bridge Replacement: Saline County, Illinois

Introduction:

This is a wetland mitigation monitoring site report for Harrisburg Site 2 (FAP 857, IL 14). This site is mitigation for the impact caused by the proposed bridge replacement at the Fox River crossing on IL Route 14 in White County. On October 13-14, 2010 we evaluated a site near Harrisburg that hopefully, if it succeeds, will be used as a wetland compensation site. This is the third year of the proposed five years of monitoring at the site. This wetland mitigation site is located on the western edge of the city of Harrisburg. The parcel is located in the SW/4 of Section 17 in T. 9 S. and R. 6 E. in Saline County. The goal of this project is to establish 10.2 acres (4.1 ha) of forested wetland. A wetland mitigation report was previously performed on this site in 2006 (Marcum *et al*. 2006). Significant site changes have occurred since that survey. The north part of the site has been reworked and preexisting vegetation was removed. Trees/shrubs that were orginally in the north to northeast area of the site were removed. Soils were scraped and compacted on most of the site. At this site 1.962 ha (4.852 ac) of wetlands were delineated in 2006 (Marcum *et al*. 2006). As proposed in the monitoring plan, shrub stage wetland trees were planted along with a wetland grass mixture. 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 Illinois Department of Transportation (IDOT) project request (Sunderland 2008). 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 10.2 acres (4.1 ha) 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 (Environmental Laboratory 1987) without hydric soils and dominant hydrophytic vegetation. 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 5% of the growing season (Environmental Laboratory 1987) with hydric soils and dominant hydrophytic vegetation. Using the 2010 Midwest Region supplement (U.S. Army Corps of Engineers 2010) standard requires 14 or more consecutive days of flooding or ponding, or a water table 12 in. (30 cm) or less below the soil surface during 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: The wetland restoration should compensate in-kind for loss of forested wetlands. The wetland compensation should be composed of vegetation characteristic of forested wetlands. Planted trees should dominate the site along with native non-weedy vegetation.

Performance Criteria:

A. Tree Survival Rate: There should be a 90% survival rate of the planted trees by the end of a five-year monitoring period. The wetland mitigation-monitoring plan originally called for a total of 715 trees for the whole project but more trees were planted in 2009. There should be at least 644 (90% survival rate) live planted trees each year. Trees should be replanted if needed during the monitoring period.

B. Herbaceous Cover: Including herbaceous cover, no single species should constitute more than 25% of the surviving species.

C. Native Vegetation: Native vegetation, excluding weedy species and exotics such as *Phragmites australis, Phalaris arundinacea, Typha* spp., and *Lythrum salicaria*, should cover at least 70% of the compensatory mitigation site. Spraying to control or limit the spread of *Phragmites australis* or other weedy vegetation will be done by various organizations mentioned in the Wetland Compensation Plan sent by IDOT (2006).

Methods

Project Goals #1:

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 Harrisburg Site 2 Wetland Compensation Site was monitored by the Illinois State Geological Survey and is shown on the wetland hydrology map (Miner *et al*. 2010) in Appendix 1. Wetland hydrology occurs when inundation or saturation to land surface is present for greater than 5% of the growing season (11 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). Using the 2010 Midwest Region supplement (U.S. Army Corps of Engineers 2010) standard requires 14 or more consecutive days of flooding or ponding, or a water table 12 in. (30 cm) or less below the soil surface during the growing season.

Inundation and saturation at the site was monitored using a combination of 31 monitoring wells and 5 staff gauges. Water levels were measured weekly from March until mid-May and monthly during the rest of the year. Additional details regarding site conditions and monitoring results for wetland hydrology in 2009-2010 are summarized in ISGS' Annual Report for Active IDOT Wetland Mitigation and Hydrologic Monitoring Sites, September 1, 2009 to August 31, 2010 (Miner *et al*. 2010). Also, Illinois Natural History Survey personnel utilized 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 examined 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 2010). Soil profile descriptions from the sites can be found in Appendix 1.

Project Goals #2: All planted trees were counted and identified when possible by INHS personnel tracing through the site. All vegetation including species dominants were identified at the various sites and species lists were compiled. Photos of existing vegetation are presented in Appendix 3.

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 at three sites (1, 2 Wet, 4). In the shrub/sapling stage layer, planted tree species pecan (*Carya illinoensis*, FACW), swamp white oak (*Quercus bicolor*, FACW+), Shumard's oak (*Quercus shumardii*, FACW-)/pin oak (*Quercus palustris,* FACW) did not constitute enough coverage of any of the 5 sites to be considered dominants.

The herbaceous layer at Site 1 is dominated by red top (*Agrostis alba*, FACW), late boneset (*Eupatorium serotinum,* FAC+), prairie switchgrass (*Panicum virgatum,* FAC+), and Canada goldenrod (*Solidago canadensis*, FACU). Site 1 met the dominant hydrophytic vegetation criterion.

The herbaceous layer at Site 2 Non-wet area is dominated by red top (*Agrostis alba*, FACW) and giant foxtail (*Setaria faberi,* FACU+). The herbaceous layer at Site 2 Wet area is dominated by red top (*Agrostis alba*, FACW), late boneset (*Eupatorium serotinum,* FAC+), and by Canada goldenrod (*Solidago canadensis*, FACU). Also found in the shrub/sapling stage layer were a few white oak (*Quercus alba*, FACU) and swamp chestnut oak (*Quercus michauxii*, FACW) that were planted but not on the planted list. Site 2 Non-wet did not meet the dominant hydrophytic vegetation criterion while Site 2 Wet met the dominant hydrophytic vegetation criterion.

The herbaceous layer at site 3 is dominated by red top (*Agrostis alba*, FACW), broom sedge (*Andropogon virginicus,* FAC-), and by Canada goldenrod (*Solidago canadensis*, FACU). Site 3 did not meet the dominant hydrophytic vegetation criterion.

The herbaceous layer at site 4 is dominated by prairie switchgrass (*Panicum virgatum*, FAC+). Site 4 met the dominant hydrophytic vegetation criterion.

The herbaceous layer at site 5 is dominated by (*Festuca arundinacea*, FACU+). Site 5 did not meet the dominant hydrophytic vegetation criterion.

B. Presence of Wetland Hydrology.

Areas with 12.5% wetland hydrology satisfied the wetland hydrology criteria and areas with 5% may satisfy wetland hydrology (Environmental Laboratory, 1987). Using the 2010 Midwest Region supplement (U.S. Army Corps of Engineers 2010) 14 or more consecutive days during the growing season meets the wetland hydrology criterion. About 1/4 to 1/3 of Site 1 had more than 5% and 14 or more straight days of wetland hydrology during the growing season and would fulfill the wetland hydrology criterion this year. Most of Site 2 Wet had more than 5% and 14 or more consecutive days with some small areas making 12.5% of wetland hydrology during the growing season. These areas would fulfill the wetland hydrology criterion this year. Most of Site 3 had more than 5% and 14 or more consecutive days of wetland hydrology during the growing season and would fulfill the wetland hydrology criterion this year. Most of Site 4 had more than 5% and 14 or more consecutive days with some small areas making 12.5% of wetland hydrology during the growing season. These areas would fulfill the wetland hydrology criterion this year. Well data for Site 5 collected by the ISGS substantiated that almost all of this site had greater than 5% wetland hydrology and 14 or more consecutive days of wetland hydrology. Thus, almost all of Site 5 meets the criteria for wetland hydrology. Illinois State Geological Survey personnal estimate that 8.0 ha (19.7 ac) out of a total site area of approximately 14.2 ha (35.0 ac) satisfied wetland hydrology criteria (Environmental Laboratory 1987) for greater than 5% of the growing season in 2010, whereas 2.7 ha (6.7 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region supplement (U.S. Army Corps of Engineers 2010) to the 1987 Manual, they estimated that 10.1 ha (25.0 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season (Miner, *et al.* 2010). Note, data using the 2010 Midwest Region supplement (U.S. Army Corps of Engineers 2010) is presented here as a comparison and should not be used to evaluate the hydrology of this site. Well data map from the ISGS can be found on the following page and in the ISGS report on the site (Miner *et al*. 2010).

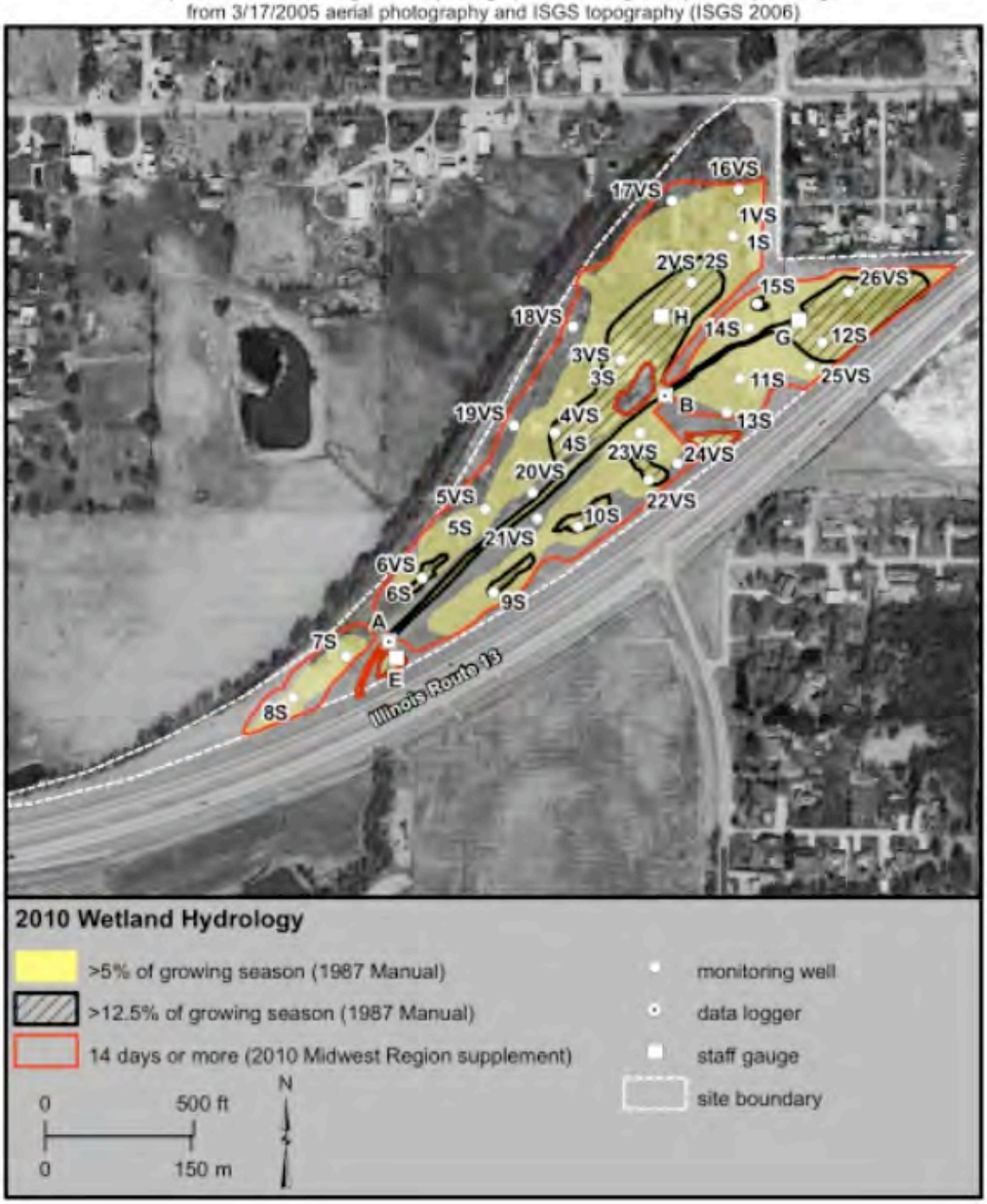
Drainageway overflow, precipitation, and sheet flow from higher areas are the principle inputs of hydrology of all the sites discussed above. Major hydrology outputs for all sites discussed above include evapotranspiration, sheet flow to the drainageway, and groundwater recharge. Drift lines were found in Site 2 Wet near the drainageway. Water table depth for all sites was below 24 inches at the time of the field investigation.

Harrisburg, Site 2 Wetland Mitigation Site
(FAP 857)

Estimated Areal Extent of 2010 Wetland Hydrology

September 1, 2009 though August 31, 2010

map based on USGS digital orthophotograph Harrisburg NW quarter quadrangle
from 3/17/2005 aerial photography and ISGS topography (ISGS 2006)



C. Presence of Hydric Soils.
Soils were examined throughout the project site. Previously, where Sites 1 and 2 now exist was a floodplain forest that now has been cleared. The whole mitigation monitoring site has been excavated to some extent to create a greater surface area for floodwater retention, resulting in more wetlands. This area is heavily compacted and soil probing is problematic no matter if the site is wet or dry. The soils in this area have been worked to the extent that they will be described as scraped and not given a soil series name. The soils at Sites 2, 4, and 5 appear to satisfy the hydric soil criterion. Soils at Sites 1 and 3 may be hydric but due to surface disturbance their appearance would not satisfy the hydric soil requirements.

The tables below give a brief soil description of the hydric and non-hydric areas of found at this site.

Sites 1 and 3 (non hydric soil - scraped area)

Hor-izon	Depth	Matrix Color	Concre -tions	Iron Masses	Pore linings	Iron Deplet.	Clay Deplet.	Tex-ture	Structure
	0-4 in	10YR 5/4		CMP 7.5YR 5/8				sil	
	4-12 in	10YR 5/8, 6/1		FFP 7.5YR 5/8				sicl	
	12-20 in	10YR 5/8 2.5Y 6/1		FMP 7.5YR 4/6				sicl	
	20-30 in	2.5Y 6/1		MMP 7.5YR 5/8				sicl	

Sites 2, 4 and 5 (hydric soil - scraped area)

Hor-izon	Depth	Matrix Color	Concre -tions	Iron Masses	Pore linings	Iron Deplet.	Clay Deplet.	Tex-ture	Structure
	0-7 in	10YR 5/2 N 4/		CMP 7.5YR 5/8 FFP 7.5YR 4/6				sil	
	7-15 in	2.5Y 5/1, 6/1, 7/1 N 4/		CMP 7.5YR 5/8 FFP 7.5YR 4/6 FMP 10YR 5/6				sil	
	15-25 in	2.5Y 5/1		MMP 7.5YR 5/8 FFP 7.5YR 4/6 FFP 10YR 5/6				sil	

Wetland determination forms can be found in Appendix 1.

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

Performance Criteria:

Tree Density (live planted trees/acre).

Live trees were counted and species tallied for the entire site. At this site at least 644 live-planted trees are required each year. The sapling/shrub stage wetland tree species which were planted at the sites include the following: pecan (*Carya illinoensis*, FACW), swamp white oak (*Quercus bicolor*, FACW+), and pin oak (*Quercus palustris,* FACW). Other sapling/shrub stage trees which were planted but not on the tree plant list include the following: basket oak (*Quercus michauxii),* shumard oak (*Quercus shumardii*), and white oak (*Quercus alba*). The number of individuals per species is presented below. This site had 709 sapling/shrub stage tree species present. This site meets the tree density project goal for 2010.

Planted Species	**Individuals**
Carya illinoensis (pecan)	157
Quercus alba (white oak) *	12
Quercus bicolor (swamp white oak)	187
Quercus michauxii (basket oak) *	13
Quercus palustris (pin oak)/*Quercus shumardii* (shumard oak)*	340
	709 sapling/shrub stage trees/10.2 acre

* Planted but not on tree plant list.

Floristic Composition.

As stated previously, no single species should constitute more than 25% cover at the site. Visual observation determined that all Sites (Sites 1-3 have *A. alba*, Site 4 - *P. virgatum*, and Site 5 – *F. arundinacea*) have single species that constitute more than 25% cover. Thus, this goal is not met.

Also, native vegetation, excluding weedy species should constitute 70% or more of the vegetative cover of the site. Visual observation determined that Sites 1 through 4 meet the goal of 70% or greater native vegetation. Site 5 does not meet this goal.

Summary and Recommendations

Project Goal 1 (Wetlands):
This wetland mitigation monitoring site is located on a floodplain just west of Harrisburg. A mitigation site assessment was performed in 2006 (Marcum *et al*). The following community types existed at that time: non-native grassland, native grassland (prairie plantings), shrubland, mesic floodplain forest, marsh, wet meadow, and wet shrubland. After clearing and reworking some of the site, the following community types are now present: non-native grassland, wet meadows, and forblands. Approximately 29 out of 35 acres (82%) of the site had either hydric soils or hydric soil features caused by the site preparation and soil disturbance. About 20 out of 35 acres (57%) of the site had at least 5% wetland hydrology and about 7 out of 35 acres (20%) of this site had 12.5% or greater wetland hydrology during the growing season. Dominant hydrophytic vegetation occurred on approximately 30 out of 35 acres (86%) of the site. We calculated that this site (Part of Sites 2W and 4) contained approximately 7.2 ha (17.6 acres) of wetland this year (2010). Project Goal 1 consists of obtaining 10.2 wetland acres at this site. Thus, this site meets Project Goal 1 for wetland acreage needed. Previously, total wetland acreage found after the intial site investigation in 2006 was 1.962 ha (4.852 acre) (Marcum *et al.*). Total wetland acreage found after the first year of monitoring (Keene *et al*. 2008) this site was 0.704 ha (1.744 acres). Total wetland acreage found after the second year (Keene *et al*. 2009) of monitoring was 9.7 ha (24 acres). Water control structures were installed in the drainageway in 2008 and became operational in 2009. These structures are apparently the main reason wetland acreage increased after the first year of monitoring. While it seems that the water control structures were successful again this year, we believe that an additional board or two should be installed in the water control structures to raise the water level even higher in the drainageway. This would increase the overflow onto the site and ensure wetness on this site even during a drier than normal year.

Project Goal 2 (Tree Density and Floristic Composition):
Planted sapling/shrub stage trees overall survival count was 709. This marks a decrease from 2009 report of 59 trees at this site (Keene et al. 2009). Site goal documentation suggests there should be a 90% (644) tree survival by the end of a five-year monitoring period. With the additional trees planted in 2009, and even with the decrease in tree survivorship in 2010, this site is still well above its needed allotment and meets the project goal of at least 90%. Tree growth seems minimal to slow this past year and tree survivorship may continue to be a concern. Soil compaction may be the most important factor limiting tree growth and health until the trees adjust to the growing conditions. Secondly, mowing may also have been a contributing factor in tree survivorship on this site this year. Half of Site 4 had been mowed prior to the field investigation and if trees were planted in this area they may have perished.

No single species should constitute more than 25% of the site. No sites achieved this goal. More native species needs to be planted at all sites. Native vegetation (excluding *Phragmites australis*, *Phalaris arundinacea*, *Typha* spp., and *Lythrum salicaria*) should cover at least 70% of the site. Five (Sites 1, 2W, 2NW, 3, and 4) out of the six sites do meet the goal of at least 70% native cover. Also no non-native or weedy species should be dominant in the wetland areas. Only Site 2NW and Site 5 had non-native species as dominants. Sites 1 – 3 had weedy species as dominants.

It appears at the time of our field investigation a more aggressive stance has been taken against controlling *Phragmites australis*. *Phragmites australis* which occurs in Site 2W had been mowed. Further west in the drainageway though, *Phragmites australis* and *Typha* spp. still occur and need to be dealt with. Also on the north-northwest border of the site *Phragmites australis* is still prevalent. Continued mowing and spraying is needed to control these weedy species before they spread to the rest of the site.

Literature Cited

Environmental Laboratory. 1987. Corps of Engineers wetland determination manual. Department of the Army, Waterways Experiment Station, Corps of Engineers, Vicksburg, MS. Technical Report Y-87-1.

Illinois Department of Transportation, 2006. Wetland Compensation Plan IL 14 (FAP 857). 19 pp.

Keene, D., D. Ketzner, P. Marcum, R. Larimore, and B. Zercher, P. 2008. Wetland Mitigation Monitoring Report for FAP 857 (IL 14). Technical report submitted to the Illinois Department of Transportation. 38 pp.

Keene, D., D. Ketzner, P. Marcum, R. Larimore, and B. Zercher, P. 2009. Wetland Mitigation Monitoring Report for FAP 857 (IL 14). Technical report submitted to the Illinois Department of Transportation. 39 pp.

Marcum, P., D. Keene, B. Zercher, P. Tessene, and J. Zylka. 2006. Wetland Mitigation Monitoring Report for FAP 857 (IL 14). Technical report submitted to the Illinois Department of Transportation. 43 pp.

Miles, C. 1978. Soil survey of Saline County, Illinois. United States Department of Agriculture-Soil Conservation Service in cooperation with Illinois Agricultural Experiment Station. 94 pp. + maps.

Miner, J.J., S.E. Benton, K.E. Bryant, M.C. Campbell, K.W. Carr, A.K.M. Knight, C.W. Knight, , E.T. Plankell, and G.E. Pociask. 2010. Annual report for active IDOT wetland mitigation and hydrologic monitoring sites, September 1, 2009 through August 31, 2010. Report submitted to the Illinois Department of Transportation, Bureau of Design and Environment Wetland Units.

Reed, P. B., Jr. 1988. National List of plant species that occur in wetlands: Illinois. U. S. Fish and Wildlife Service, National Wetlands Inventory. NERC-88/18.13.

Sunderland, M. 2008. Illinois Department of Transportation Mitigation Site Monitoring request for FAP 857 (IL 14).

Swink, F. and G. Wilhelm. 1979. A method for environmental assessment of open land. Pages 850-861 in Plants of the Chicago Region, 3rd edition. The Morton Arboretum, Lisle, IL. 922 pp. + 1xxiii.

Taft, J.B., G.S. Wilhelm, D.M. Ladd, and L.A. Masters, 1997. Floristic quality assessment for vegetation in Illinois: a method for assessing vegetation integrity. Erigenia 15: 3-95.

U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), ed. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center

United States Department of Agriculture, Natural Resources Conservation Service. 2010. Field Indicators of Hydric Soils in the United States, Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils. 44 pages

Appendix 1:

Wetland Report for the Wetland Mitigation Monitoring Report for FAP 857 (IL 14), Fox River Bridge Replacement: Saline County, Illinois

Project Description:

This is a wetland survey conducted for a wetland mitigation-monitoring project (FAP 857, IL 14) for the impact caused by the proposed bridge replacement at the Fox River crossing on IL Route 14 in White 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 (Harrisburg 7.5 minute quadrangle); *Soil Survey of Saline County, Illinois* (Miles, 1978)*;* aerial photographs; *National List of Plant Species That Occur In Wetlands: Illinois* (Reed 1998)*;* the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987)*;* and onsite vegetation, soils, topographic and hydrologic indicators. Five routine onsite wetland determinations were completed. Site 4 and part of Site 2 (Site 2W) satisfied the wetland criteria.

The Floristic Quality Index (FQI), developed by Swink and Wilhelm (1979) and modified by (Taft *et al.* 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 possess some evidence of native character and may be considered environmental assets.

Wetland boundaries were recorded using a Trimble Global Positioning System. The locations of the determination sites were overlain on a digital orthoquad (DOQ), and approximate wetland acreages were determined for the site using ArcView 3.2. Printouts of the DOQ are included with this report.

Site 1: This forbland is located in the southwest part of the project area, south of an old railroad line, and north of IL Rt. 13. Although this site had dominant hydrophytic vegetation and some of it had wetland hydrology, it lacked hydric soils. Thus, we determined that this site is not a wetland. The NWI did not code this site as a wetland. The FQI is 13.3 and the mean-rated quality is 2.1 with the planted trees. The FQI is 10.0 and the mean-rated quality is 1.7 without planted trees. These values are indicative of average natural quality.

Site 2W: This wet meadow occupies most of the monitoring site occurring in the north and central part of the site, north of IL Rt. 13 and southeast of the old railroad embankment. Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are present; thus, this site meets the three criteria of a wetland. The NWI did not code this site as a wetland. This site functions as a floodwater storage area and provides poor to average wildlife habitat quality. The FQI is 20.9 and the mean-rated quality is 2.6 with planted trees. Although this site remains highly disturbed, these values are indicative of a high natural quality and this site may be considered an environmental asset. The FQI is 17.3 and the mean-rated quality is 2.2 without planted trees. These values are indicative of an average natural quality. This wet meadow comprises approximately 5.7 ha (14.0 acres) in the project site.

Site 3: This forbland is located in the north part of the monitoring area, north of the drainageway that bisects the site and south of the old railroad embankment. This site lacked hydric soils and dominant hydrophytic vegetation but had wetland hydrology. Thus, we determined that this site is not a wetland. The NWI did not code this site as a wetland. The FQI is 13.7 and the mean-rated quality is 2.4 with the planted trees. The FQI is 10.2 and the mean-rated quality is 1.9 without the planted trees. These values are indicative of an average natural quality.

Site 4: This wet meadow is located in the central part of the project area, north of IL 13 and just south of the drainageway that bisects the site. Based on the presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, we determined that this site is a wetland. The NWI did not code this site as a wetland. The FQI is 18.6 and the mean-rated quality is 3.1 with planted trees. The FQI is 15.4 and the mean-rated quality is 2.8 without planted trees. These values are indicative of average natural quality. This wet meadow comprises approximately 1.5 ha (3.6 acres) in the project area.

Site 5: This non-native grassland is located in the north part of the site, just north of IL 13 and just south of the drainageway that bisects the site. This site had hydric soils but lacked wetland hydrology and dominant hydrophytic vegetation. Thus, we determined that this site is not a wetland. The NWI did not code this site as a wetland. The FQI is 4.5 and the mean-rated quality is 2.0. These values are indicative of a low natural quality.

Stream Description and Characterization

One main drainageway is present within the monitoring site assessment area. This drainageway, an unnamed tributary to the West Harrisburg Ditch, flows from the southwest corner of the project area across the middle of the site and exits at the east edge of the project toward Harrisburg Site 1. This unnamed tributary, between 0.6 and 2.4 m (2 and 8 ft) wide, is straightened and channelized. Water was 0.65 m (2.5 ft) deep in areas (mainly near the water control structure) and shallower in most other areas. There was no water flowing at the time of the field investigation. Drainageway substrate consisted of a silt-clay composition. This unnamed tributary drains into the Middle Fork of the Saline River approximately 5.6 km (3.5 mi) to the northeast. The Middle Fork of the Saline River then empties into the Saline River, which flows into the Ohio River. The watershed area above the monitoring site is approximately 3.9 km^2 (1.5 mi^2). The USGS hydrologic unit code for this basin is 05140204 (Saline River).

ROUTINE ON-SITE WETLAND DETERMINATION
Site 1 (page 1 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Forbland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: Southwest part of the site, south of an old railroad line, and north of IL Rt. 13

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: X No:
Note: Soil surfaces were recently scraped in this area.

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Agrostis alba*	FACW	herb
2. *Eupatorium serotinum*	FAC+	herb
3. *Panicum virgatum*	FAC+	herb
4. *Solidago canadensis*	FACU	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 75%

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

SOILS

Series and phase: Undetermined (scraped soil)
On Saline 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 5/4, 5/8, and 6/1
Other indicators: none

Hydric soils: Yes: No: X
Rationale: Although this site had iron masses, it lacks the required depleted matrix in order to be a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 1 (page 2 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Forbland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: Southwest part of the site, south of an old railroad line, and north of IL Rt. 13

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
Depth to saturated soil: > 0.6 m (24 in)
Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, sheet flow from any surrounding higher areas, and drainageway overflow. Water leaves the site via evapotranspiration, sheet flow to the drainageway, and groundwater recharge.
Size of watershed: Approximately 3.9 km^2 (1.5 mi^2)
Other field evidence observed: sparsely vegetated level surface (maybe due to compacted soil and not necessarily caused by standing water)

Wetland hydrology: Yes: No: X
Rationale: Because hydric soils are not present at this site you would need at least 12.5% of the growing season having wetland hydrology at this site. Well data collected by the ISGS substantiated that only part of this site had 5% wetland hydrology (Miner *et al* 1010).

DETERMINATION AND RATIONALE:

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

ROUTINE ON-SITE WETLAND DETERMINATION
Site 1 (page 3 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Forbland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: Southwest part of the site, south of an old railroad line, and north of IL Rt. 13

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Agrostis alba	red top	herb	FACW	0
Ambrosia artemisiifolia	bitterweed	herb	FACU	0
Ampelopsis cordata	heart-leaf pepper-vine	herb	FAC+	2
Andropogon virginicus	broom sedge	herb	FAC-	1
Aster pilosus	hairy aster	herb	FACU-	0
Barbarea vulgaris	winter cress	herb	FAC	*
Boltonia asteroides	false aster	herb	FACW	5
Campsis radicans	trumpet creeper	woody vine, herb	FAC	2
♣*Carya illinoensis*	pecan	shrub	FACW	6
Carya sp.	-----	herb	---	--
Chamaesyce supina	milk spurge	herb	UPL	0
Cirsium discolor	field thistle	herb	UPL	3
Conyza canadensis	horseweed	herb	FAC-	0
Cynanchum laeve	blue vine	herb	FAC	1
Dactylis glomerata	orchard grass	herb	FACU	*
Daucus carota	Queen-Anne's-lace	herb	UPL	*
Diospyros virginiana	persimmon	shrub	FAC	2
Echinochloa muricata	barnyard grass	herb	OBL	0
Erechtites hieracifolia	fire weed	herb	FACU	2
Erigeron annuus	annual fleabane	herb	FAC-	1
Eupatorium serotinum	late boneset	herb	FAC+	1
Festuca arundinacea	alta fescue	herb	FACU+	*
Fraxinus pennsylvanica	green ash	shrub	FACW	2
Hypericum punctatum	spotted St. Johns-wort	herb	FAC+	3
Iva annua	marsh elder	herb	FAC	0
Juncus interior	inland rush	herb	FAC+	3
Juniperus virginiana	eastern red cedar	shrub	FACU	1
Liquidambar styraciflua	red gum	herb	FACW	6
Oxalis stricta	yellow wood sorrel	herb	FACU	0
Panicum anceps	panic grass	herb	FACW	3
Panicum dichotomiflorum	fall panicum	herb	FACW-	0

(species list continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 1 (page 4 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Forbland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: Southwest part of the site, south of an old railroad line, and north of IL Rt. 13

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Panicum virgatum	prairie switchgrass	herb	FAC+	4
Penstemon sp.	------	herb	---	--
Phragmites australis	common red reed	herb	FACW+	1
Plantago lanceolata	buckhorn	herb	FAC	*
♣*Quercus bicolor*	swamp white oak	shrub	FACW+	7
♣*Quercus palustris*	pin oak	shrub	FACW	4
♣*Quercus shumardii*	Shumard's oak	shrub	FACW-	7
Rubus flagellaris	dewberry	shrub	FACU-	2
Rumex crispus	curly dock	herb	FAC+	*
Salix nigra	black willow	shrub	OBL	3
Setaria faberi	giant foxtail	herb	FACU+	*
Sida spinosa	prickly sida	herb	FACU	*
Solidago canadensis	Canada goldenrod	herb	FACU	1
Sorghum halepense	Egyptian millet	herb	FACU	*
Toxicodendron radicans	poison ivy	herb	FAC+	1
Tridens flavus	false red top	herb	UPL	1
Ulmus americana	American elm	herb	FACW-	5
Verbena urticifolia	white vervain	herb	FAC+	3

♦Coefficient of Conservatism (Taft *et al*. 1997)
*Non-native species
♣ planted tree species
mean C value (mCv) = $\sum C/N$ = 83/39 = 2.1 (with planted tree species)
FQI = $\sum C/\sqrt{N}$ = 83/√39 = 13.3 (with planted tree species)
mean C value (mCv) = $\sum C/N$ = 59/35 = 1.7 (without planted tree species)
FQI = $\sum C/\sqrt{N}$ = 59/√35 = 10.0 (without planted tree species)

Determined by: Dennis J. Keene (soils and hydrology)
David Ketzner, Paul Marcum, Rick Larimore (vegetation and hydrology)
Illinois Natural History Survey
1816 South Oak St.
Champaign, IL 61820
(217) 244-0873 (Keene)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2W (page 1 of 5)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area occupies most of the monitoring site occuring in the north and central part of the site, north of IL Rt. 13 and southeast of the old railroad embankment.

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: X No:
Some of the soil surface has been scraped.

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Agrostis alba*	FACW	herb
2. *Eupatorium serotinum*	FAC+	herb
3. *Solidago canadensis*	FACU	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 67%

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

SOILS

Series and phase: Undetermined (scraped soil)
On Saline 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: 2.5Y 5/1 and 5/2, N 4/
Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:
Rationale: This soil has a depleted matrix and iron masses. This soil meets the NRCS hydric soil indicator F3 (depleted matrix). Although this soil portrays hydric characteristics, there's no way to know if these characteristics are relict in nature due to the scraping of the site or a reflection of current wet conditions.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2W (page 2 of 5)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area occupies most of the monitoring site occuring in the north and central part of the site, north of IL Rt. 13 and southeast of the old railroad embankment.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
Depth to saturated soil: > 0.6 m (24 in)
Overview of hydrological flow through the system: This site is hydrologically influenced by goundwater, precipitation, sheet flow from higher surrounding areas, and drainageway overflow. Water leaves the site via evapotranspiration, sheet flow to the drainageway, and groundwater recharge.
Size of watershed: Approximately 3.9 km^2 (1.5 mi^2)
Other field evidence observed: some sparsely vegetated concave surface areas

Wetland hydrology: Yes: X (in most areas) No:
Rationale: Well data collected by the ISGS substantiated that most of this site had greater than 5% wetland hydrology, parts of the site had 12.5% wetland hydrology, and all of the site had 14 days straight of wetland hydrology during the growing season this year (2010). Thus, 71% of this site meets the criteria for wetland hydrology (Miner *et al*. 2010).

DETERMINATION AND RATIONALE:

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

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2W (page 3 of 5)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area occupies most of the monitoring site occuring in the north and central part of the site, north of IL Rt. 13 and southeast of the old railroad embankment.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Agrostis alba	red top	herb	FACW	0
Ambrosia artemisiifolia	bitterweed	herb	FACU	0
Ampelopsis cordata	heart-leaf pepper-vine	woody vine	FAC+	2
Andropogon virginicus	broom sedge	herb	FAC-	1
Apocynum cannabinum	dogbane	herb	FAC	3
Aster pilosus	hairy aster	herb	FACU-	0
Aster simplex	panicled aster	herb	FACW	3
Aster vimineus	frost flower	herb	FACW-	3
Barbarea vulgaris	winter cress	herb	FAC	*
Bidens aristosa	swamp marigold	herb	FACW	1
Bidens frondosa	common beggar-ticks	herb	FACW	1
Boltonia asteroides	false aster	herb	FACW	5
Campsis radicans	trumpet creeper	herb	FAC	2
Carex vulpinoidea	fox sedge	herb	OBL	2
♣*Carya illinoensis*	pecan	shrub	FACW	6
Chamaesyce maculata	nodding spurge	herb	FACU-	0
Chamaesyce supina	milk spurge	herb	UPL	0
Conyza canadensis	horseweed	herb	FAC-	0
Cyperus esculentus	chufa	herb	FACW	0
Cyperus strigosus	straw colored flatsedge	herb	FACW	0
Dichanthelium acuminatum	panic grass	herb	FAC	2
Diodia virginiana	large buttonweed	herb	FACW	4
Diospyros virginiana	persimmon	shrub	FAC	2
Echinochloa muricata	barnyard grass	herb	OBL	0
Eleocharis obtusa	spike rush	herb	OBL	2
Elymus canadensis	canada wild rye	herb	FAC-	4
Eupatorium perfoliatum	common boneset	herb	FACW+	4
Eupatorium serotinum	late boneset	herb	FAC+	1
Euthamia graminifolia	grassleaf goldenrod	herb	FACW-	3
Festuca arundinacea	tall fescue	herb	FACU+	*

(species list continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2W (page 4 of 5)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area occupies most of the monitoring site occuring in the north and central part of the site, north of IL Rt. 13 and southeast of the old railroad embankment.

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Fraxinus pennsylvanica	green ash	shrub	FACW	2
Gnaphalium obtusifolium	catfoot	herb	UPL	2
Hibiscus lasiocarpus	hairy rose mallow	herb	FACW+	5
Hypericum mutilum	dwarf St. Johns-wort	herb	FACW	5
Hypericum punctatum	spotted St. Johns-wort	herb	FAC+	3
Iva annua	marsh elder	herb	FAC	0
Juncus effusus solutus	common rush	herb	OBL	4
Juncus interior	inland rush	herb	FAC+	3
Liquidambar styraciflua	red gum	herb	FACW	6
Lonicera japonica	Japanese honeysuckle	woody vine	FACU	*
Ludwigia alternifolia	seedbox	herb	OBL	5
Ludwigia palustris	marsh purslane	herb	OBL	4
Ludwigia polycarpa	false loosestrife	herb	OBL	5
Mimulus alatus	winged monkey flower	herb	OBL	6
Oenothera biennis	evening primrose	herb	FACU	1
Panicum dichotomiflorum	fall panicum	herb	FACW-	0
Panicum virgatum	prairie switchgrass	herb	FAC+	4
Paspalum laeve	smooth lens grass	herb	UPL	2
Phragmites australis	common red reed	herb	FACW+	1
Platanus occidentalis	sycamore	herb	FACW	3
Polygonum punctatum	dotted smartweed	herb	OBL	3
Populus deltoides	eastern cottonwood	shrub	FAC+	2
Prunella vulgaris elongata	self-heal	herb	FAC	1
♣*Quercus alba*	white oak	shrub	FACU	5
♣*Quercus bicolor*	swamp white oak	shrub	FACW+	7
♣*Quercus michauxii*	basket oak	shrub	FACW	7
♣*Quercus palustris*	pin oak	shrub	FACW	4
♣*Quercus shumardii*	Shumard's oak	shrub	FACW-	7
Rubus pensylvanicus	blackberry	shrub	FAC-	2
Salix nigra	black willow	shrub	OBL	3
Scirpus atrovirens	bulrush	herb	OBL	4

(species list continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2W (page 5 of 5)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area occupies most of the monitoring site occuring in the north and central part of the site, north of IL Rt. 13 and southeast of the old railroad embankment.

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Setaria glauca	pigeon grass	herb	FAC	*
Sida spinosa	prickly sida	herb	FACU	*
Solanum carolinense	horse-nettle	herb	FACU-	0
Solidago canadensis	Canada goldenrod	herb	FACU	1
Sorghum halepense	Egyptian millet	herb	FACU	*
Tridens flavus	false red top	herb	UPL	1
Trifolium hybridum	alsike clover	herb	FAC-	*
Trifolium repens	white clover	herb	FACU+	*
Typha angustifolia	narrow-leaved cattail	herb	OBL	*
Typha latifolia	cattail	herb	OBL	1
Verbascum thapsus	woolly mullein	herb	UPL	*
Verbena hastata	blue vervain	herb	FACW+	3
Verbena urticifolia	white vervain	herb	FAC+	3
Vernonia gigantea	tall ironweed	herb	FAC	4

♦Coefficient of Conservatism (Taft *et al*. 1997)
*Non-native species
♣ planted tree species
mean C value (mCv) = $\sum C/N = \sum 170/66 = 2.6$ (with planted tree species)
FQI = $\sum C/\sqrt{N} = 170/\sqrt{66} = 20.9$ (with planted tree species)
mean C value (mCv) = $\sum C/N = \sum 134/60 = 2.2$ (without planted tree species)
FQI = $\sum C/\sqrt{N} = 134/\sqrt{60} = 17.3$ (without planted tree species)

Determined by: Dennis J. Keene (soils and hydrology)
David Ketzner, Paul Marcum, and Rick Larimore (vegetation and hydrology)
Illinois Natural History Survey
1816 South Oak St.
Champaign, IL 61820
(217) 244-0873 (Keene)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 1 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Forbland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area is found in the north part of the monitoring site, north of the drainageway that bisects the site and south of the old railroad embankment.

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: X No:
Some of the soil surface has been scraped.

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. *Agrostis alba*	FACW	herb
2. *Andropogon virginicus*	FAC-	herb
3. *Solidago canadensis*	FACU	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 33%

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

SOILS
Series and phase: Undetermined (scraped soil)
On Saline 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 5/4, 5/8, and 6/1
Other indicators: none

Hydric soils: Yes: No: X
Rationale: Although this site had iron masses, it lacks the required depleted matrix in order to be a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 2 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Forbland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area is found in the north part of the monitoring site, north of the drainageway that bisects the site and south of the old railroad embankment.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
Depth to saturated soil: > 1 m (40 in)
Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, sheet flow from any surrounding higher areas, and drainageway overflow. Water leaves the site via evapotranspiration, sheet flow to the drainageway, sheet flow to lower areas, and groundwater recharge.
Size of watershed: Approximately 3.9 km^2 (1.5 mi^2)
Other field evidence observed: none

Wetland hydrology: Yes: No: X
Rationale: Well data collected by the ISGS substantiated that most of this site had greater than 5% and 14 days or more of wetland hydrology during the growing season this year (2010). No area had 12.5% wetland hydrology at this site. Because hydric soils are not present at this site, wetland hydrology of at least 12.5% of the growing season is needed in order to have wetland hydrology at this site (Miner *et al,* 2010).

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: No: X
Rationale for decision: This site lacked dominant hydrophytic vegetation, 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.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 3 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Forbland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area is found in the north part of the monitoring site, north of the drainageway that bisects the site and south of the old railroad embankment.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Acer rubrum	red maple	herb	FAC	5
Agalinis fasciculata	false foxglove	herb	FACW	6
Agrostis alba	red top	herb	FACW	0
Ambrosia artemisiifolia	bitterweed	herb	FACU	0
Ambrosia trifida	giant ragweed	herb	FAC+	0
Andropogon virginicus	broom sedge	herb	FAC-	1
Aster pilosus	hairy aster	herb	FACU-	0
Barbarea vulgaris	winter cress	herb	FAC	*
Bidens aristosa	swamp marigold	herb	FACW	1
Calystegia sepium	American bindweed	herb	FAC	1
Campsis radicans	trumpet creeper	herb	FAC	2
♣*Carya illinoensis*	pecan	shrub	FACW	6
Cirsium discolor	field thistle	herb	UPL	3
Conyza canadensis	horseweed	herb	FAC-	0
Dichanthelium acuminatum	panic grass	herb	FAC	2
Dichanthelium clandestinum	broad-leaved panic grass	herb	FACW	4
Diospyros virginiana	persimmon	shrub	FAC	2
Erechtites hieracifolia	fire weed	herb	FACU	2
Eupatorium perfoliatum	common boneset	herb	FACW+	4
Eupatorium serotinum	late boneset	herb	FAC+	1
Gnaphalium obtusifolium	catfoot	herb	UPL	2
Hypericum punctatum	spotted St. Johns-wort	herb	FAC+	3
Lonicera japonica	Japanese honeysuckle	herb	FACU	*
Oenothera biennis	evening primrose	herb	FACU	1
Oxalis stricta	yellow wood sorrel	herb	FACU	0
Panicum virgatum	prairie switchgrass	herb	FAC+	4
Paspalum laeve	smooth lens grass	herb	UPL	2
Passiflora incarnata	large passion-flower	herb	FACU	5
Polygonum pensylvanicum	giant smartweed	herb	FACW+	1
♣*Quercus bicolor*	swamp white oak	shrub	FACW+	7
♣*Quercus palustris*	pin oak	shrub	FACW	4
♣*Quercus shumardii*	Shumard's oak	shrub	FACW-	7

(species list continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 4 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Forbland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area is found in the north part of the monitoring site, north of the drainageway that bisects the site and south of the old railroad embankment.

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Rubus pensylvanicus	blackberry	shrub	FAC-	2
Rumex crispus	curly dock	herb	FAC+	*
Setaria faberi	giant foxtail	herb	FACU+	*
Setaria glauca	pigeon grass	herb	FAC	*
Sida spinosa	prickly sida	herb	FACU	*
Solidago canadensis	Canada goldenrod	herb	FACU	1
Tridens flavus	false red top	herb	UPL	1

♦Coefficient of Conservatism (Taft *et al*. 1997)
*Non-native species
♣ planted tree species
mean C value (mCv) = ∑C/N = ∑80/34 = 2.4 (with planted tree species)
FQI = ∑C/√N = 80/√34 = 13.7 (with planted tree species)
mean C value (mCv) = ∑C/N = ∑56/30 = 1.9 (without planted tree species)
FQI = ∑C/√N = 56/√30 = 10.2 (without planted tree species)

Determined by: Dennis J. Keene (soils and hydrology)
David Ketzner, Paul Marcum, and Rick Larimore (vegetation and hydrology)
Illinois Natural History Survey
816 South Oak St.
Champaign, IL 61820
(217) 244-0873 (Keene)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 4 (page 1 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: Central part of site, north of IL 13 and just south of the drainageway that bisects the site.

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: X No:
Some of the soil surface has been scraped.

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
Panicum virgatum	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: Undetermined (scraped soil)
On Saline County hydric soils list? Yes: 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: No: X
Matrix color: 2.5Y 5/1 and 5/2, N 4/
Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:
Rationale: This soil has a depleted matrix and iron masses. This soil meets the NRCS hydric soil indicator F3 (depleted matrix). Although this soil portrays hydric characteristics, there's no way to know if these characteristics are relict in nature due to the scraping of the site or a reflection of current wet conditions.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 4 (page 2 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: Central part of site, north of IL 13 and just south of the drainageway that bisects the site.

HYDROLOGY

Inundated: Yes: X No: Depth of standing water: NA
Depth to saturated soil: > 0.6 m (24 in)
Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, sheet flow from any surrounding higher areas, and drainageway overflow. Water leaves the site via evapotranspiration, sheet flow to the drainageway, sheet flow to lower areas, and groundwater recharge.
Size of watershed: Approximately 3.9 km^2 (1.5 mi^2)
Other field evidence observed: none

Wetland hydrology: Yes: X (about 2/3 of site) No:
Rationale: Well data collected by the ISGS substantiated that a little less than 2/3 of this site had greater than 5% wetland hydrology during the growing season this year (2010). Most of the site had 14 days or more of wetland hydrology during the growing season this year (2010). There were only small areas that had 12.5% wetland hydrology. Areas with 5% or 12.5% wetland hydrology satisfy the wetland hydrology criteria (Miner *et al*. 2010).

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:
Rationale for decision: Based on the presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, we determined that 2/3 of this site is a wetland. The NWI did not code this site as a wetland.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 4 (page 3 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: Central part of site, north of IL 13 and just south of the drainageway that bisects the site.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Acalypha rhomboidea	three-seeded mercury	herb	FACU	0
Acer rubrum	red maple	herb	FAC	5
Ambrosia artemisiifolia	bitterweed	herb	FACU	0
Andropogon virginicus	broom sedge	herb	FAC-	1
Carex sp.	sedge	herb	----	--
♣*Carya illinoensis*	pecan	shrub	FACW	6
Catalpa sp.	-----	herb	FACU	--
Cirsium discolor	field thistle	herb	UPL	3
Cyperus pseudovegetus	false green flat sedge	herb	FACW	5
Cyperus strigosus	straw colored flatsedge	herb	FACW	0
Dichanthelium acuminatum	panic grass	herb	FAC	2
Dichanthelium scoparium	-----	herb	FACW	9
Echinochloa muricata	barnyard grass	herb	OBL	0
Elaeagnus umbellata	oleaster	shrub	UPL	*
Eleocharis obtusa	blunt spike rush	herb	OBL	2
Erechtites hieracifolia	fire weed	herb	FACU	2
Eupatorium perfoliatum	common boneset	herb	FACW+	4
Eupatorium serotinum	late boneset	herb	FAC+	1
Euthamia graminifolia	grassleaf goldenrod	herb	FACW-	3
Fraxinus pennsylvanica	green ash	shrub	FACW	2
Gnaphalium obtusifolium	catfoot	herb	UPL	2
Hibiscus lasiocarpus	hairy rose mallow	herb	FACW+	5
Juncus interior	inland rush	herb	FAC+	3
Juniperus virginiana	eastern red cedar	shrub	FACU	1
Lespedeza cuneata	Chinese bush clover	herb	UPL	*
Ludwigia alternifolia	seedbox	herb	OBL	5
Ludwigia palustris americana	marsh purslane	herb	OBL	4
Oenothera biennis	evening primrose	herb	FACU	1
Panicum virgatum	prairie switchgrass	herb	FAC+	4
Populus deltoides	eastern cottonwood	shrub	FAC+	2
♣*Quercus bicolor*	swamp white oak	shrub	FACW+	7
♣*Quercus palustris*	pin oak	shrub	FACW	4
♣*Quercus shumardii*	Shumard's oak	shrub	FACW-	7
Rubus discolor	himalaya-berry	shrub	UPL	*

(species list continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 4 (page 4 of 4)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet meadow
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: Central part of site, north of IL 13 and just south of the drainageway that bisects the site.

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland indicator status	C♦
Salix nigra	black willow	shrub	OBL	3
Scirpus atrovirens	dark green rush	herb	OBL	4
Solidago canadensis	Canada goldenrod	herb	FACU	1
Ulmus americana	American elm	herb	FACW-	5
Verbena hastata	blue vervain	herb	FACW+	3
Vernonia gigantea	tall ironweed	herb	FAC	4

♦Coefficient of Conservatism (Taft *et al*. 1997)
*Non-native species
♣ planted tree species
mean C value (mCv) = ∑C/N = ∑110/35 = 3.1 (with planted tree species)
FQI = ∑C/√N = 110/√35 = 18.6 (with planted tree species)
mean C value (mCv) = ∑C/N = ∑86/31 = 2.8 (without planted tree species)
FQI = ∑C/√N = 86/√31 = 15.4 (without planted tree species)

Determined by: Dennis J. Keene (soils and hydrology)
David Ketzner, Paul Marcum, and Rick Larimore (vegetation and hydrology)
David Ketzner (GPS)
Illinois Natural History Survey
1816 South Oak St.
Champaign, IL 61820
(217) 244-0873 (Keene)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 5 (page 1 of 3)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Non-native grassland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area is found in the north part of the site, just north of IL 13 and just south of the drainageway that bisects the site.

Do normal environmental conditions exist at this site? Yes: X No:
Has the vegetation, soil, or hydrology been significantly disturbed? Yes: X No:
Some of the soil surface may have been removed.

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
Festuca arundinacea	FACU+	herb

Percent of dominant species that are OBL, FACW or FAC: 0 %

Hydrophytic vegetation: Yes: No: X
Rationale: There were no dominants that were OBL, FACW or FAC.

SOILS
Series and phase: Undetermined (scraped soil)
On Saline 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: 2.5Y 5/1 and 5/2, N 4/
Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:
Rationale: This soil has a depleted matrix and iron masses. This soil meets the NRCS hydric soil indicator F3 (depleted matrix). Although this soil portrays hydric characteristics, there's no way to know if these characteristics are relic in nature due to the scraping of the site or a reflection of current wet conditions.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 5 (page 2 of 3)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Non-native grassland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area is found in the north part of the site, just north of IL 13 and just south of the drainageway that bisects the site.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
Depth to saturated soil: > 0.6 m (24 in)
Overview of hydrological flow through the system: This site is hydrologically influenced by groundwater, precipitation, sheet flow from higher surrounding areas, and drainageway overflow. Water leaves the site via evapotranspiration, sheet flow to the drainageway, and groundwater recharge.
Size of watershed: Approximately 3.9 km^2 (1.5 mi^2)
Other field evidence observed: none

Wetland hydrology: Yes: No: X
Rationale: Well data collected by the ISGS substantiated that almost all of this site had greater than 5% wetland hydrology and 14 days straight of wetland hydrology in the same areas during the growing season this year (2010). Due to lack of dominant hydrophytic vegetation, only a very small area with 12.5% wetland hydrology would satisfy the wetland hydrology criterion. Thus, almost none of this site meets the criteria for wetland hydrology (Miner *et al*. 2010).

DETERMINATION AND RATIONALE:

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

ROUTINE ON-SITE WETLAND DETERMINATION
Site 5 (page 3 of 3)

Field Investigators: Keene, Ketzner, Marcum, and Larimore
Dates: October 12-13, 2010
Project Name: FAP 857 (IL 14)
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Non-native grassland
Legal Description: SW/4, Sec. 17 T. 9S., R. 6E.
Location: This area is found in the north part of the site, just north of IL 13 and just south of the drainageway that bisects the site.

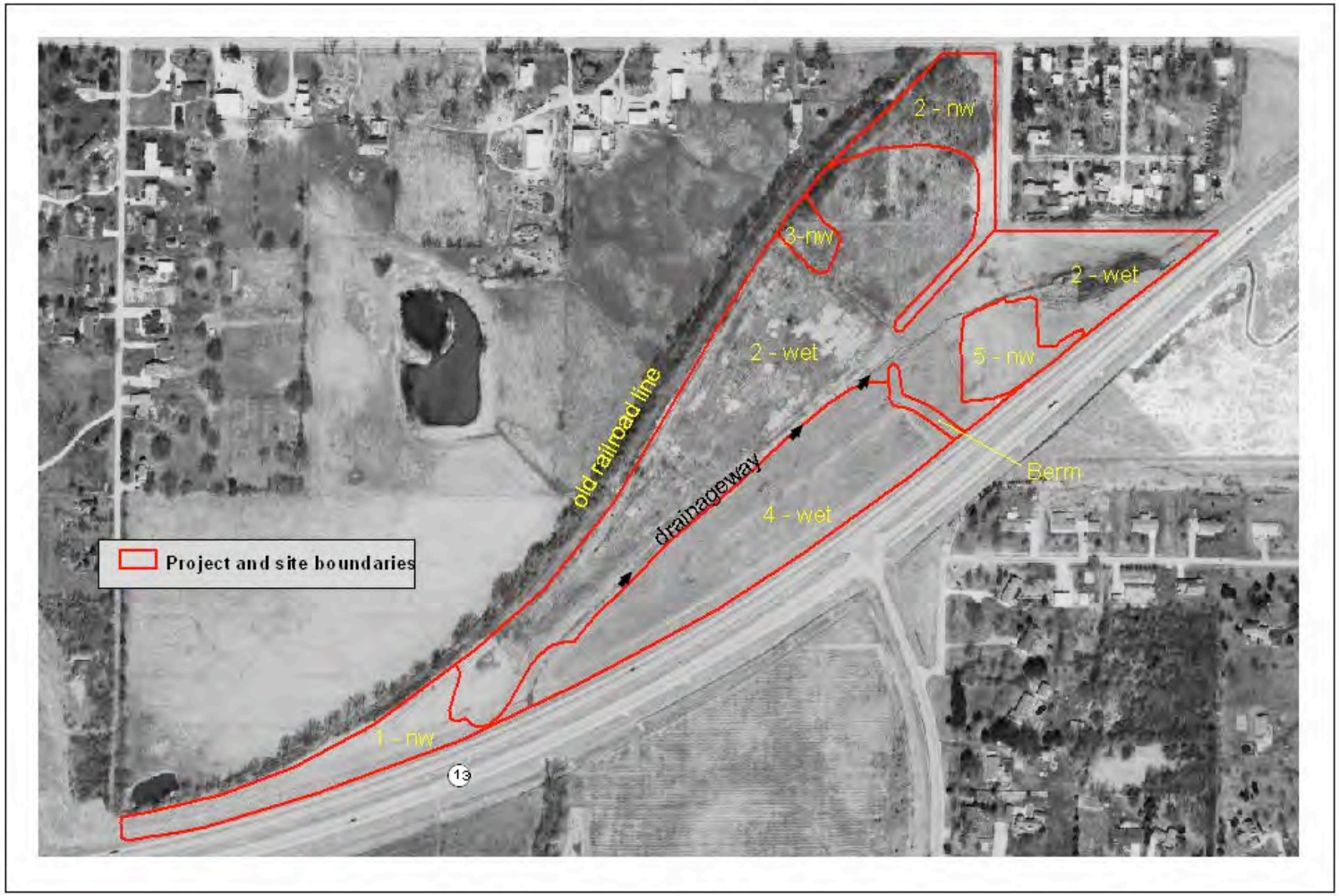
SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	CC*
Acer rubrum	red maple	herb	FAC	5
Andropogon virginicus	broom sedge	herb	FAC-	1
Cirsium discolor	field thistle	herb	UPL	2
Festuca arundinacea	alta fescue	herb	FACU+	*
Juniperus virginiana	eastern red cedar	herb	FACU	1
Rumex crispus	curly dock	herb	FAC+	*
Setaria glauca	pigeon grass	herb	FAC	*
Solidago canadensis	Canada goldenrod	herb	FACU	1

♦Coefficient of Conservatism (Taft *et al*. 1997)
*Non-native species
mean C value (mCv) = $\sum C/N = \sum 10/5 = 2.0$
FQI = $\sum C/\sqrt{N} = 10/\sqrt{5} = 4.5$

Determined by: Dennis J. Keene (soils and hydrology)
David Ketzner, Paul Marcum, and Rick Larimore (vegetation and hydrology)
David Ketzner (GPS)
Illinois Natural History Survey
1816 South Oak St.
Champaign, IL 61820
(217) 244-0873 (Keene)

FAP 857, IL Route 14
Mitigation Site Monitoring
Saline County



0 400 800 Feet scale 1:4800 1 inch=400 ft 0 100 200 Meters 01/11

Appendix 2:
Wetland Mitigation Monitoring Photos for FAS 857 (IL 14)

Site 2 wetland

Site 2 wetland

Phragmites australis and *Typha* spp. in drainageway (needing control)

Phragmites australis on north border near old railroad embankment (needing control)

Phragmites australis on north border near old railroad embankment (needing control)

Water control structure in drainageway (needs more boards or a high solid material barrier installed to increase water height level)

Site 4

Site 4 (mowed area)

Site 5