

Attachment 8
Wyanet Connection Wetland Delineation Report

TRANSMITTAL

To: Illinois Department of Transportation
Bureau of Design and Environment
Attn: Barb Traeger
From: Illinois Natural History Survey
Re: Wetland Survey

Route and Location

Project Title: Wyanet Connection
Location: Between BNSF and IAIS railroad lines
Sequence No.: 15795
IDOT Dist. No.: 3
County: Bureau County

Surveys Conducted By: Brian Wilm, Scott Wiesbrook,
and Brad Zercher
University of Illinois
Institute of Natural Resource Sustainability
Illinois Natural History Survey
1816 S. Oak Street
Champaign, IL 61820
(217) 244-2176 (Wilm)
bwilm@inhs.illinois.edu

Date Conducted: 26 April, 2010

Project Summary:

A wetland survey was conducted for proposed work on the Wyanet Connection, between the BNSF and IAIS railroad lines, in Bureau County, Illinois. Summary information regarding the wetland determination site is presented in the wetland project report. The plant species list is found in Appendix A and the wetland determination form is included in Appendix B. Wetland boundaries were recorded using a Trimble Global Positioning System. The spatial data has been digitally uploaded to the intranet site (http://frotycap.isgs.uiuc.edu/idot_extranet). The location of the determination site was overlaid on a digital orthoquad (DOQ) using ArcGIS; printouts of this DOQ are included with this report and one copy is included in Appendix C.



Signed: _____
Dr. Allen Plocher
INHS/IDOT Project Principal Investigator and Project Coordinator

Date: 5/5/10

WETLAND PROJECT REPORT

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Introduction and Project Summary:

The following sources were examined while surveying the project corridor to determine wetland locations and boundaries: United States Geological Survey topographic maps and National Wetland Inventory (NWI) maps (Wyanet 7.5 minute quadrangles); *Soil Survey of Bureau County, Illinois* (Zwicker 1992); *National List of Plant Species that Occur in Wetlands: Illinois* (Reed 1988); the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987); *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (U.S. Army Corps of Engineers 2008); and the NRCS, USDA, Web Soil Survey. These materials were used during on-site evaluation of vegetation, soils, and hydrology.

All potential wetlands within the specified study area were examined. One routine on-site wetland determination was performed; the site was determined to be a wetland.

Wetland boundaries were recorded using a Trimble Global Positioning System. The spatial data has been digitally uploaded to the intranet site (http://frostycap.isgs.uiuc.edu/idot_extranet). The location of the determination site

was overlaid on a digital orthoquad (DOQ) using ArcGIS 9.x software (ESRI 2002). Printouts of this DOQ are included with this report.

The Floristic Quality Index (FQI) is used to assess the ecological integrity of communities (Swink and Wilhelm 1994, Taft et al. 1997). This index provides a measure for the quality or environmental integrity of each individual community. The FQI is calculated as follows:

$$FQI = R/\sqrt{N}$$

where R represents the sum of the numerical ratings for all species recorded at the site and N represents the total number of recorded species. Numerical ratings for each species are shown in the species list for each community. Plants not identified to species level are not given a numerical rating. Plants not native to Illinois are also not scored. The mean Coefficient of Conservatism (mean C), defined as the sum of the numerical ratings divided by the total number of native Illinois species (R/N), was also determined. Although generalizations are problematic, for interpretive purposes it can be said that FQI values of ten or less for individual sites indicate low natural quality. Sites with FQI values of twenty or more (mean C>3.0) possess some evidence of native character and may be considered environmental assets.

Wetland Site Summary:

Site 1: This pond (with its associated wooded fringe) borders both the north and south sides of the BNSF railroad line at the northeasternmost part of the project area. Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present; therefore, the site is a wetland. The FQI for the site is 11.9 and the mean coefficient of conservatism is 2.3; these values are indicative of fair floristic quality. The site is identified in the National Wetlands Inventory as semipermanently flooded, emergent, palustrine wetland (PEMF). This wetland provides wildlife habitat for waterfowl and wading birds, while also providing significant storage of surface water runoff. The wetland covers 0.224 ha (0.555 acres) within the project corridor, while totaling 1.791 ha (4.428 acres) overall.

Stream Characterization and Watershed Classification

Pond Creek at the project area was substantially entrenched with moderately to steeply sloping stream banks; stream banks were moderately well vegetated. Channel width was about 12 m (40 ft); water was clear with a slight brownish tint. Flow was moderate, with a depth estimated to be less than 1 m (3.3 ft). Substrate was primarily silt. Woody debris was common.

The project area occurs within the Illinois River – Ottawa to East Peoria watershed (USGS Hydrologic Unit Code 7130001).

Literature Cited

- Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. 207 pp.
- ESRI. 2002. ArcGIS 9.x. Environmental Systems Research Institute, Redlands, CA, USA.
- 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. 117 pp.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> [Accessed April 15 - May 5, 2010].
- Swink, F. and G. Wilhelm. 1994. Plants of the Chicago Region. 4th Ed. Indiana Academy of Sciences. 900 pp.
- 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. 2008. Interim regional supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, eds. J. S. Wakely, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-27. U. S. Army Engineer Research and Development Center, Vicksburg, MS.
- Zwicker, S. E. 1992. Soil survey of Bureau County, Illinois. United States Department of Agriculture – Soil Conservation Service, in cooperation with the Illinois Agricultural Experiment Station. Illinois Agricultural Experiment Station Soil Report No. 139. 302 pp. + maps.

Appendix A. Plant Species List

Site 1 – Pond and Associated Wooded Fringe

DOMINANT PLANT SPECIES

| Scientific name | Common name | Stratum | Wetland indicator Status | Coefficient of Conservatism |
|-----------------------------|-------------------|---------------|--------------------------|-----------------------------|
| <i>Lemna minor</i> | common duckweed | herb | OBL | 3 |
| <i>Phalaris arundinacea</i> | reed canary grass | herb | FACW+ | * |
| <i>Salix nigra</i> | black willow | tree, sapling | OBL | 3 |
| <i>Scirpus fluviatilis</i> | river bulrush | herb | OBL | 3 |

*Species not native to Illinois

ALL PLANT SPECIES

| Scientific name | Common name | Stratum | Wetland indicator Status | Coefficient of Conservatism |
|------------------------------------|------------------------------|----------------------|--------------------------|-----------------------------|
| <i>Acer negundo</i> | box elder | shrub | FACW- | 1 |
| <i>Campanula americana</i> | American bellflower | herb | FAC | 4 |
| <i>Carex</i> sp. | sedge | herb | ---- | -- |
| <i>Chaerophyllum procumbens</i> | wild chervil | herb | FAC+ | 1 |
| <i>Cornus drummondii</i> | rough-leaved dogwood | shrub | FAC | 2 |
| <i>Cryptotaenia canadensis</i> | honestwort | herb | FAC | 1 |
| <i>Ellisia nyctelea</i> | Aunt Lucy | herb | FAC+ | 1 |
| <i>Galium aparine</i> | annual bedstraw | herb | FACU | 0 |
| <i>Impatiens capensis</i> | jewelweed | herb | FACW | 2 |
| <i>Iris shrevei</i> | southern blue flag | herb | OBL | 5 |
| <i>Lemna minor</i> | common duckweed | herb | OBL | 3 |
| <i>Lonicera maackii</i> | Amur honeysuckle | shrub | UPL | * |
| <i>Morus alba</i> | white mulberry | tree, sapling | FAC | * |
| <i>Parthenocissus quinquefolia</i> | Virginia creeper | vine, herb | FAC- | 2 |
| <i>Phalaris arundinacea</i> | reed canary grass | herb | FACW+ | * |
| <i>Plantago rugelii</i> | red-stalked plantain | herb | FAC | 0 |
| <i>Polygonum amphibium</i> | water smartweed | herb | OBL | 3 |
| <i>Polygonum scandens</i> | climbing buckwheat | herb | FAC | 2 |
| <i>Prunus serotina</i> | wild black cherry | shrub | FACU | 1 |
| <i>Quercus macrocarpa</i> | bur oak | tree, sapling, shrub | FAC- | 5 |
| <i>Ranunculus abortivus</i> | little-leaf buttercup | herb | FACW- | 1 |
| <i>Ranunculus sceleratus</i> | cursed crowfoot | herb | OBL | 3 |
| <i>Rorippa islandica</i> | marsh yellow cress | herb | OBL | 4 |
| <i>Salix nigra</i> | black willow | tree, sapling, shrub | OBL | 3 |
| <i>Scirpus fluviatilis</i> | river bulrush | herb | OBL | 3 |
| <i>Sicyos angulatus</i> | bur cucumber | herb | FACW- | 3 |
| <i>Solidago gigantea</i> | late goldenrod | herb | FACW | 3 |
| <i>Toxicodendron radicans</i> | poison ivy | vine, herb | FAC+ | 1 |
| <i>Ulmus americana</i> | American elm | tree, sapling, shrub | FACW- | 5 |
| <i>Viburnum opulus</i> | European high-bush cranberry | shrub | UPL | * |
| <i>Viola pratincola</i> | common blue violet | herb | FAC | 1 |
| <i>Vitis riparia</i> | riverbank grape | vine, herb | FACW- | 2 |

*Species not native to Illinois

$$FQI = R/\sqrt{N} = 62/\sqrt{27} = 11.9$$

$$\text{mean } C = R/N = 62/27 = 2.3$$

Appendix B. Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Wyagnet Connection City/County: Bureau Sampling Date: 4/26/10
 Applicant/Owner: Illinois Department of Transportation - District 3 State: Illinois Sampling Point: 1
 Investigator(s): Wilm, Wiesbrook, Zercher Section, Township, Range: SE/4, NW/4, Section 20, T. 16 N., R. 8 E.
 Landform (hillslope, terrace, etc.): Excavated depression Local relief (concave, convex, none): Concave
 Slope (%): < 1% Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: NRCS mapped as Water and Muscatune silt loam; Revised to Sable silty clay loam, overwash NWI classification: PEMF

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Remarks: _____ | |

VEGETATION – Use scientific names of plants.

| <u>Tree Stratum</u> (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | | |
|--|------------------|-------------------|------------------|---|--|
| 1. <u>Salix nigra</u> | | yes | OBL | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B) | |
| 2. _____ | | | | | |
| 3. _____ | | | | | |
| 4. _____ | | | | | |
| 5. _____ | | | | | |
| _____ = Total Cover | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ | |
| <u>Sapling/Shrub Stratum</u> (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | | |
| 1. <u>Salix nigra</u> | | yes | OBL | | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) |
| 2. _____ | | | | | |
| 3. _____ | | | | | |
| 4. _____ | | | | | |
| 5. _____ | | | | | |
| _____ = Total Cover | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| <u>Herb Stratum</u> (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | | |
| 1. <u>Lemna minor</u> | | yes | OBL | | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. <u>Phalaris arundinacea</u> | | yes | FACW+ | | |
| 3. <u>Scirpus fluviatilis</u> | | yes | OBL | | |
| 4. _____ | | | | | |
| 5. _____ | | | | | |
| 6. _____ | | | | | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| 9. _____ | | | | | |
| 10. _____ | | | | | |
| _____ = Total Cover | | | | | |
| <u>Woody Vine Stratum</u> (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | | |
| 1. _____ | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| 2. _____ | | | | | |
| _____ = Total Cover | | | | | |

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

Dominant hydrophytic vegetation is present throughout the entire site.

SOIL

Sampling Point: 1

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

| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|----|----------------|----|-------------------|------------------|---------|--------------------------------------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-12+ | 10YR 3/1 | 85 | 7.5YR 4/4 | 15 | C | M, PL | CL | Redox include soft masses in matrix. |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

This site is the pond and associated fringe which is inundated or saturated for significant duration during the growing season.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): <66
 Water Table Present? Yes No Depth (inches): At surface
 Saturation Present? Yes No Depth (inches): At surface
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

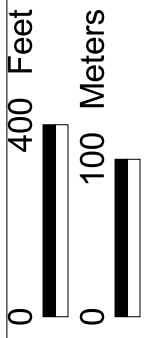
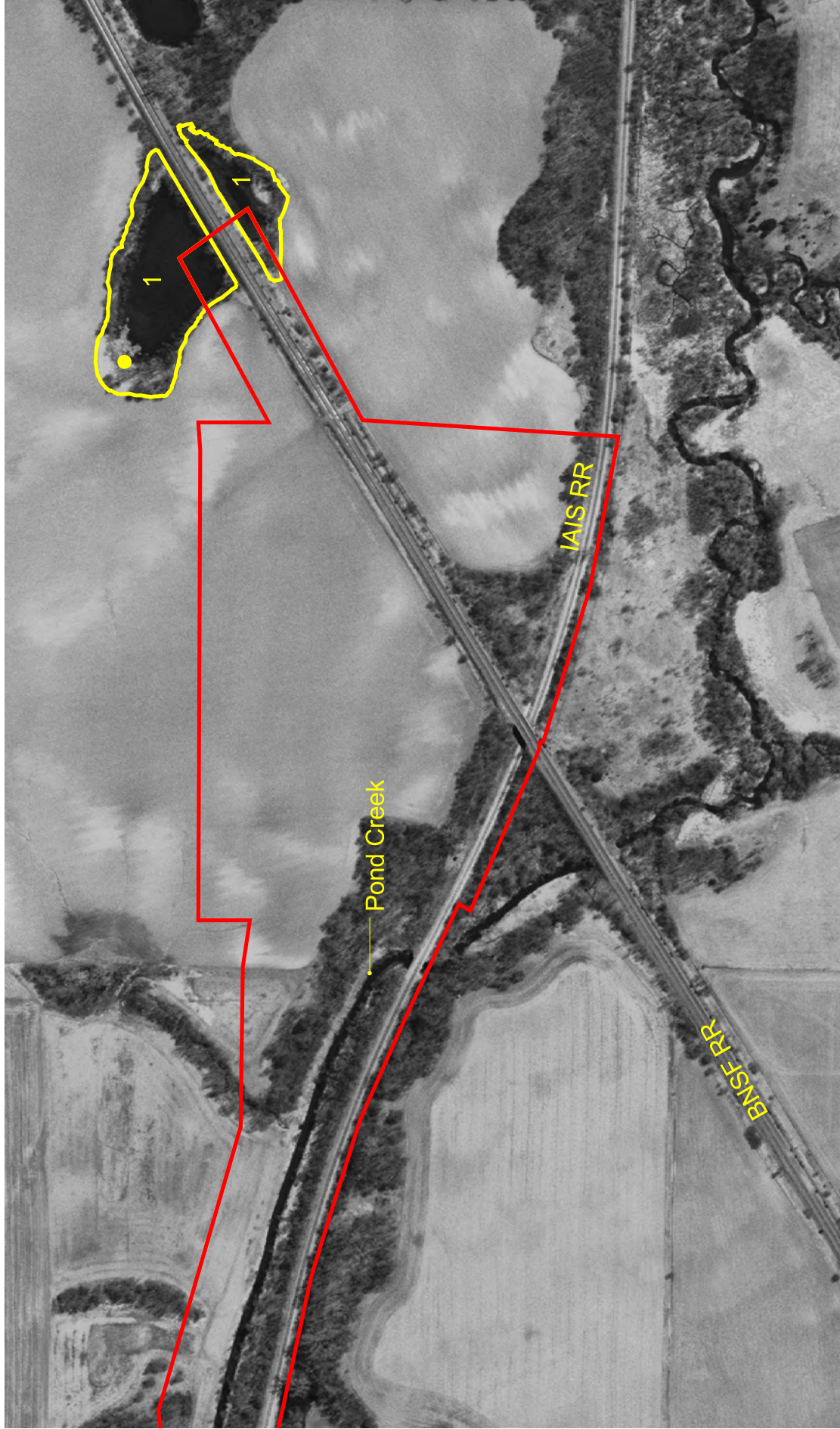
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This excavated depression and its associated fringe appear to be saturated or inundated to a depth less than 2 m for a significant duration during the growing season.

Appendix C. Project Area and Wetland Delineation Figure

**Wyanet Connection
Between BNSF RR and IAIS RR
over Pond Creek
Bureau County**



scale 1:4800
1 inch=400 ft



