

WETLAND DELINEATION REPORT

for

UMORE MINING AREA

Rosemount, Minnesota

Prepared for:

University of Minnesota

UMore Park
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1.0. INTRODUCTION

This report pertains to the proposed UMore Park Sand and Gravel Resources Project located in Rosemount and Empire Township, Minnesota. The “site” addressed in this report is located in Rosemount, south of County Road 42, north of County Road 46, and east of Biscayne Ave. (Figure 1). The project area extends south into Empire Township to 170th Street, but this report addresses only the Rosemount portion of the project area. The site lies within U.S. Public Land Survey Section 33, the S¹/₂ of Section 28 and the W¹/₂ of the S¹/₂ of Section 27, Township 115 North, Range 19 West.

In 2008, Applied Ecological Services, Inc. (AES) was retained as a subcontractor to Short Elliott Hendrickson (SEH) by the University of Minnesota to provide professional wetland services as part of the environmental review for an Environmental Impact Statement (EIS) for a proposed sand/gravel mining project. AES conducted a wetland delineation of the site.

On September 9, 16, and 24, 2008, AES conducted a Routine On-Site Wetland Determination for wetlands on the site. On October 14, 2008, AES convened a Technical Evaluation Panel (TEP) meeting at the site, including representatives of the City of Rosemount, Empire Township, and the Dakota County Soil and Water Conservation District (Dakota SWCD). The Board of Water and Soil Resources (BWSR) representative was not present at the TEP meeting. All TEP members present were in agreement with the wetland delineation. Subsequently, a BWSR representative conducted an independent site review and requested that additional areas be reviewed for potential wetlands. In September 2009, AES completed additional field work to document site wetlands.

2.0. METHODS

Prior to fieldwork, the site was subjected to a preliminary remote assessment using a UMore Park inventory of site wetlands (completed by Bonestroo in 2007), City of Rosemount Wetlands Inventory (completed in 1998, updated in 2005 and 2007), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory, Minnesota Department of Natural Resources (MNDNR) Public Waters Inventory, 2-foot topographic contours, and the 2002 U.S. Farm Services Agency (FSA) Dakota County digital orthophoto (Figure 2). Soils were assessed using the USDA Soil Survey of Dakota County, Minnesota (2006, Figure 3).

Historical aerial photographs were reviewed for all on-site wetlands and potential wetland areas following BWSR guidelines (*Atypical Procedure: Offsite Hydrology Determination by Using Rainfall Data with Farm Services Agency Imagery*, 2006). All available FSA aerial photographs of the site between 1984 and 2000 were obtained from the Dakota County SWCD. Additional aerial photographs were obtained from Dakota County for 1937, 1951, 1964, 1974, 2002, 2005, 2006 and 2008. Photographs were analyzed for signs of crop stress, drowned out crops, uncropped wetland areas, and areas with standing water. Antecedent moisture conditions were determined using the web-based procedure available at the Minnesota Climatology Working Group. For FSA aerial photographs and other aerial photographs of unknown month of origin, the antecedent moisture requirements were based on April, May, and June precipitation records.

AES’s 2008 wetland field work followed the Routine On-Site Determination methodology described in the *Corps of Engineers Wetlands Delineation Manual* (U.S. Army Corps of Engineers Waterways Experiment Station, 1987) as required by Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act (WCA). AES’s 2009 wetland field work followed the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (U.S. Army Corps of Engineers Engineer Research and Development Center, 2008). Employment of these methods resulted in the identification of wetlands, which met the criteria for hydrophytic vegetation, hydric soils, and wetland hydrology. AES marked field data points and

wetland-upland boundaries with pin flags and recorded locations with a sub-meter accuracy GPS unit (Trimble ProXR datalogger with Recon backpack).

Once wetland conditions were confirmed in the field, soils, vegetation, and hydrology were documented at representative locations along the wetland-upland boundary. Numerous additional data points were evaluated in the field but not documented on data forms. Plant species dominance was determined based on the percent aerial or basal coverage visually estimated within a representative plot of comparable elevation, following Corps manuals. Taxonomy was based on the *Manual of Vascular Plants of Northeastern United States and Adjacent Canada, Ed. 2* (Gleason & Cronquist, 1991). Indicator status of plant species was taken from the *National List of Plant Species That Occur in Wetlands: 1988 Minnesota* (Reed, 1988), with “+” and “-“ modifiers dropped during the 2009 field work per the Midwest Supplement. Soils were typically characterized to a minimum depth of 18 inches (20-inch minimum for 2009 fieldwork), utilizing Munsell Soil Color Charts and standard soil texturing methodology. Wetland hydrology criteria were assessed in soil cores and the surrounding area, following Corps manuals. Rosemount Wetland Functional Assessment forms were also completed for all delineated site wetlands within the City of Rosemount.

3.0. RESULTS

3.1. Review of Existing Data

The UMore Park wetland inventory (completed by Bonestroo in 2007) identified 2 wetlands and 0 potential wetland areas within the site. The City of Rosemount Wetland Inventory identified 13 wetlands on the site. NWI mapping identified 10 wetlands within the site. Many of these same NWI wetlands were also identified by the Rosemount Wetlands Inventory (Figure 2). Many of these wetlands areas were also identified as closed basins in a review of site topographic data. The MNDNR Public Waters Inventory (PWI) map does not identify Public Waters on or in the immediate vicinity of the site. The Soil Survey of Dakota County identifies several soil types on the site, primarily Waukegan silt loams, Kennebec silt loams, Wadena loams, and Hawick coarse sandy loams (Figure 3). All of these soils are classified as non-hydric. Review of historical aerial photographs revealed no areas with wet signatures in more than 50% of the years with normal precipitation, and one area (Wetland R8) with wet signatures in exactly 50% of the years with normal precipitation (Attachment 1).

Precipitation data retrieved from the Minnesota Climatology Working Group for the three months preceding AES’s September 2008 fieldwork indicated below average precipitation during this time period (9.86 inches compared to a mean of 13.55 inches and a 30-70% range of 10.4 to 15.67 inches) and precipitation remained below average through September and October. Precipitation for the three months prior to AES’s September 2009 fieldwork was 13.6 inches, with a normal amount of precipitation in June (3.93 inches; 30-70% range 3.75 to 5.49 inches), an abnormally low amount of precipitation in July (1.86 inches; 30-70% range 2.95 to 4.85 inches), and an abnormally high amount of precipitation in August (7.81 inches; 30-70% range 3.70 to 5.33 inches).

3.2. Wetland Determinations and Delineations

All confirmed and potential wetland areas investigated during field visits in 2008 and 2009 are depicted on the Delineated Wetlands and Data Points map (Figure 4). Five wetlands (Wetlands R1, R4, R5, R8, and R19) were delineated and are shown on Figures 4 through 8. The associated data forms for delineated wetlands and other documented areas are provided in Attachment 2. Brief descriptions of delineated wetlands are provided below, and Attachment 3 provides the completed Rosemount Wetland Functional Assessment forms for all delineated site wetlands. Site photographs are provided in Attachment 4.

Wetland R1

Cowardin: PEMA

Circular 39: Type 1

Soil Mapping Unit: Kennebec silt loam

Wetland R1 corresponds to the wetland indicated as 512 on the Rosemount Wetland Inventory. This wetland is located in an old field grassland just north of County Road 46 in the southwestern portion of the Rosemount site (Figure 5). Field observations agree with the Rosemount Wetland Inventory and indicate that the basin is a PEMA. One sampling transect was documented at Wetland R1. The small basin was characterized as the low point of a conspicuous depression. There was no standing water present, and there was no saturated soil within 18 inches of the soil surface. This low spot was dominated by curly dock (*Rumex crispus*), ovate spikerush (*Eleocharis ovata*), sedge (*Carex* sp.), quack grass (*Agropyron repens*), and Pennsylvania smartweed (*Polygonum cf. pennsylvanicum*). Aerial photo review showed wet signatures in 2 out of 12 normal years. The transect data point within the wetland contained 10YR2/1 silt loam to 18+ inches. Soils and vegetation within the upland showed no evidence of wetland characteristics. The delineated boundary generally followed an obvious change in plant communities and topography.

Wetland R4

Cowardin: PEMA

Circular 39: Type 1

Soil Mapping Unit: Wadena loam

Wetland R4 does not correspond to a wetland indicated on any wetland inventories for the site area. It is located along the eastern edge of Biscayne Avenue in the southwestern portion of the Rosemount site (Figure 6). Field observations indicate that the basin is a PEMA. One sampling transect was documented at Wetland R4. The small basin was a mud flat characterized as the low point of a depression, and standing water was present in the center of the depression. The depression was dominated by Pennsylvania smartweed (*Polygonum pennsylvanicum*) and barnyard grass (*Echinacholoea crusgalli*). Aerial photo review showed wet signatures in 1 out of 12 normal years; however several photos indicated that agricultural cropping has avoided the area through the years. The transect data point within the wetland contained 10YR2/2 clay loam with 10YR4/4 mottles from 0 to 15 inches and 10YR3/4 loamy clay with sand and fine gravel with 2.5YR 2.5/4 mottles from 15-22+ inches. Soils and vegetation within the upland showed no evidence of wetland characteristics. The delineated boundary generally followed an obvious change in plant communities and topography.

Wetland R5

Cowardin: PEMA

Circular 39: Type 1

Soil Mapping Unit: Waukegan silt loam

Wetland R5 corresponds to the wetland indicated as 593 on the Rosemount Wetland Inventory. This wetland is located in the old field grassland just east of Biscayne Avenue in the west-central portion of the Rosemount site (Figure 6). The Rosemount Wetland Inventory did not indicate a Cowardin type for this wetland, but field observations indicate that the wetland is a PEMA. One sampling transect was documented at Wetland R5. The small basin was a dry, clay pan mud flat characterized as the low point of a slight depression. There was no standing water present, and there was no saturated soil within 18 inches of the soil surface. The depression was dominated by Pennsylvania smartweed (*Polygonum pennsylvanicum*), barnyard grass (*Echinacholoea crusgalli*) and meadow fescue (*Festuca pratensis*). Aerial photo review showed wet signatures in 2 out of 12 normal years. The transect data point within the wetland contained 10YR6/6 silty clay from 0 to 1 inch, 10YR2/1 silt loam with sand from 1 to 7 inches, and 10YR4/3 sand and gravel with silty clay inclusions from 17 to 18+ inches. Soils and vegetation within the upland showed no evidence of wetland characteristics. The delineated boundary generally followed an obvious change in plant communities and topography.

Wetland R8

Cowardin: PEMC

Circular 39: Type 3

Soil Mapping Unit: Kanaranzi loam

Wetland R8 corresponds to the wetland indicated as 469 on the Rosemount Wetland Inventory. This wetland is located just east of a lift station on the south side of County Road 42 in the north-central portion of the site (Figure 7). The Rosemount Wetland Inventory indicated that the wetland was a PEMA and used as an “ag experiment pond.” Field observations indicated that the basin is a PEMC that receives concentrated stormwater runoff from County Road 42 and a residential development north of the road. One sampling transect was documented at Wetland R8. The basin was characterized as the low point of an obvious depression. Standing water was present in the basin, but there was no saturated soil within 18 inches of the soil surface at the wetland data point. The perimeter of the open water was dominated by barnyard grass (*Echinacholoa crusgalli*), Pennsylvania smartweed (*Polygonum pennsylvanicum*), marshpepper knowtweed (*Polygonum hydropiper*) and meadow fescue (*Festuca pratensis*). Aerial photo review showed wet signatures in 6 out of 12 normal years. The transect data point within the wetland contained 10YR2/1 silty clay loam 0 to 13 inches from the surface, and 10YR2/1 silty clay loam with 10YR4/2 mottles at 13-18+ inches. Soils and vegetation within the upland showed no evidence of wetland characteristics. The delineated boundary generally followed an obvious change in plant communities and topography.

Wetland R19

Cowardin: PEMA

Circular 39: Type 1

Soil Mapping Unit: Waukegan Silt Loam

Wetland R19 does not correspond to a wetland indicated on any wetland inventories for the site area. It is located south of County Highway 42, in a plowed agricultural field in the north-central portion of the site (Figure 8). Field observations indicated that the basin is a PEMA. One sampling transect was documented at Basin R19. The basin was a temporarily flooded, cropped depression with standing water. The vegetation was dominated by soybeans (*Glycine max*) and spotted ladythumb (*Polygonum persicaria*). Aerial photo review showed wet signatures in 1 out of 12 normal years. The water table was present at a depth of 0.5” and the soil was saturated at the surface. The transect data point within the wetland contained 10YR2/1 clayey loam soils from 0-2 inches, 10YR2/2 loamy clay soils with some sand and gravel from 2-15 inches, 10YR2/1 (60%) and 10YR4/3 (40%) clay soils with some sand and gravel from 15-20 inches and 10YR2/2 (80%) and 10YR5/4(20%) loamy clay soils with rocks and gravel from 20-24+ inches. Soils and vegetation within the upland showed no evidence of wetland characteristics. The delineated boundary generally followed an obvious change in plant communities and topography.

Table 1. Wetland Summary Table

Wetland ID	Wetland Type	Cowardin Classification	Size (acres)
Wetland R1	1	PEMA	0.002
Wetland R4	1	PEMA	0.202
Wetland R5	1	PEMA	0.005
Wetland R8	3	PEMC	0.691
Wetland R19	1	PEMA	0.816
		TOTAL ACREAGE:	1.716

4.0. REGULATORY ANALYSIS

AES's assessment of site wetlands indicated that all delineated wetlands were isolated depressions that did not fall under the definition of Waters of the U.S., and therefore were not under the jurisdiction of the U.S. Army Corps of Engineers. AES provided the St. Paul District Corps office with field documentation of our wetland work and received an Approved Jurisdictional Determination letter (Attachment 5), confirming that the Corps has no jurisdiction over site wetlands.

Under the Minnesota Wetland Conservation Act (WCA), all delineated wetlands in Minnesota fall within the jurisdiction of the Local Government Unit (LGU). The Local Government Unit for the site is the City of Rosemount (with Empire Township the LGU representative for the southern portion of the site, addressed under separate cover). Any proposed project on the site must first follow WCA sequencing (first avoid, then minimize, and then mitigate wetland impacts), and impacts to jurisdictional wetland must be mitigated through wetland replacement.

5.0. REFERENCES & DATA SOURCES

- Board of Water and Soil Resources. 2006. Atypical procedure: offsite hydrology determination by using rainfall data with farm services agency imagery. <http://www.bwsr.state.mn.us/wetlands/wca/Mapping-Conventions-Cropland.pdf>. Accessed 8/2009.
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- U.S. Army Corps of Engineers. 1987. Corps of Engineers wetlands delineation manual. Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- U.S. Army Corps of Engineers. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, Wetlands Regulatory Assistance Program. ERDC/EL TR-08-27. September 2008
- U.S. Department of Agriculture, Natural Resource Conservation Service. 2006. Soil survey geographic (SSURGO) database for Dakota County, Minnesota. <http://soildatamart.nrcs.usda.gov>
- U.S. Fish & Wildlife Service, National Wetlands Inventory (acquired from MNDNR Data Deli).

Figure 1. Site Location

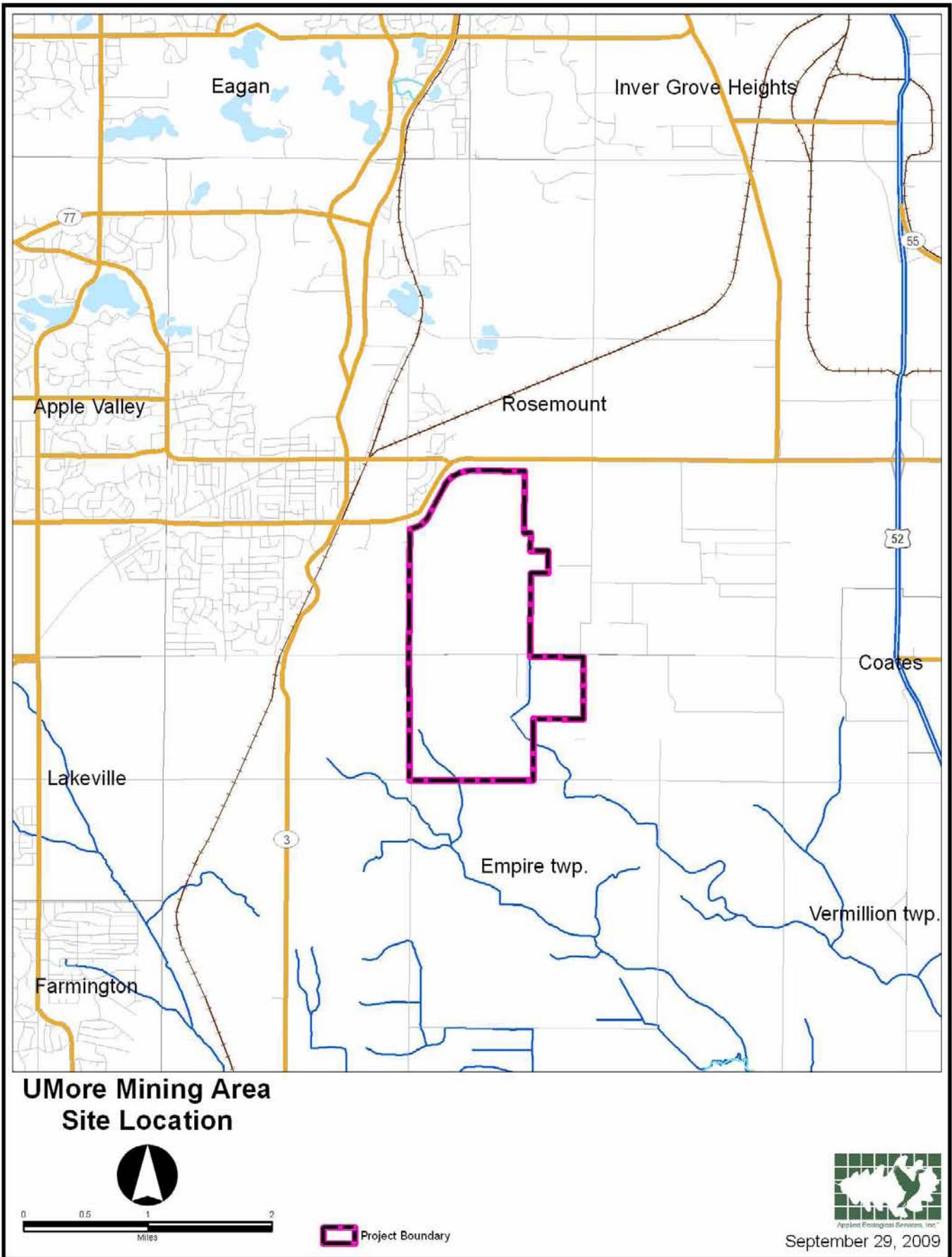


Figure 2. Existing Wetland Data

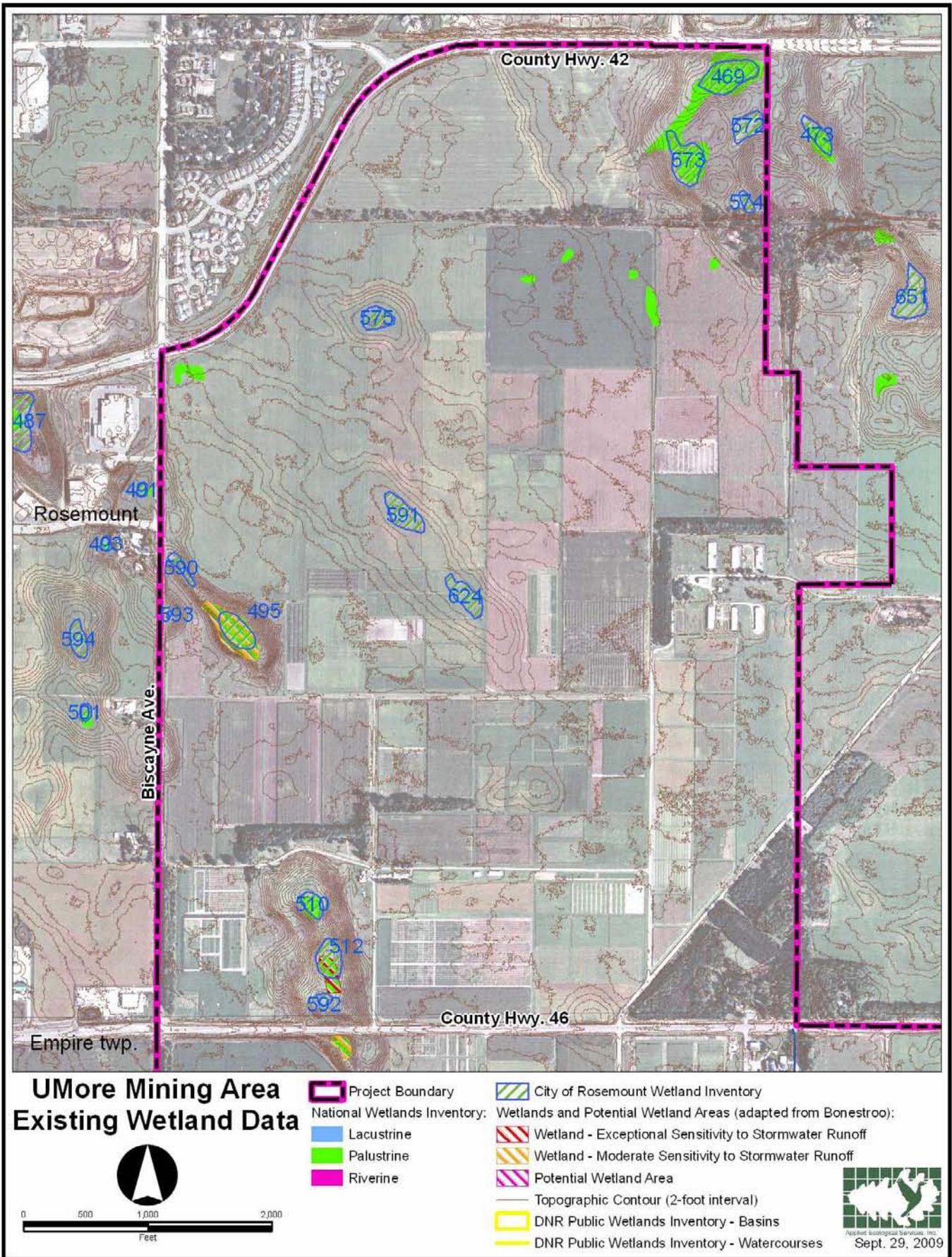


Figure 3. Soils Data

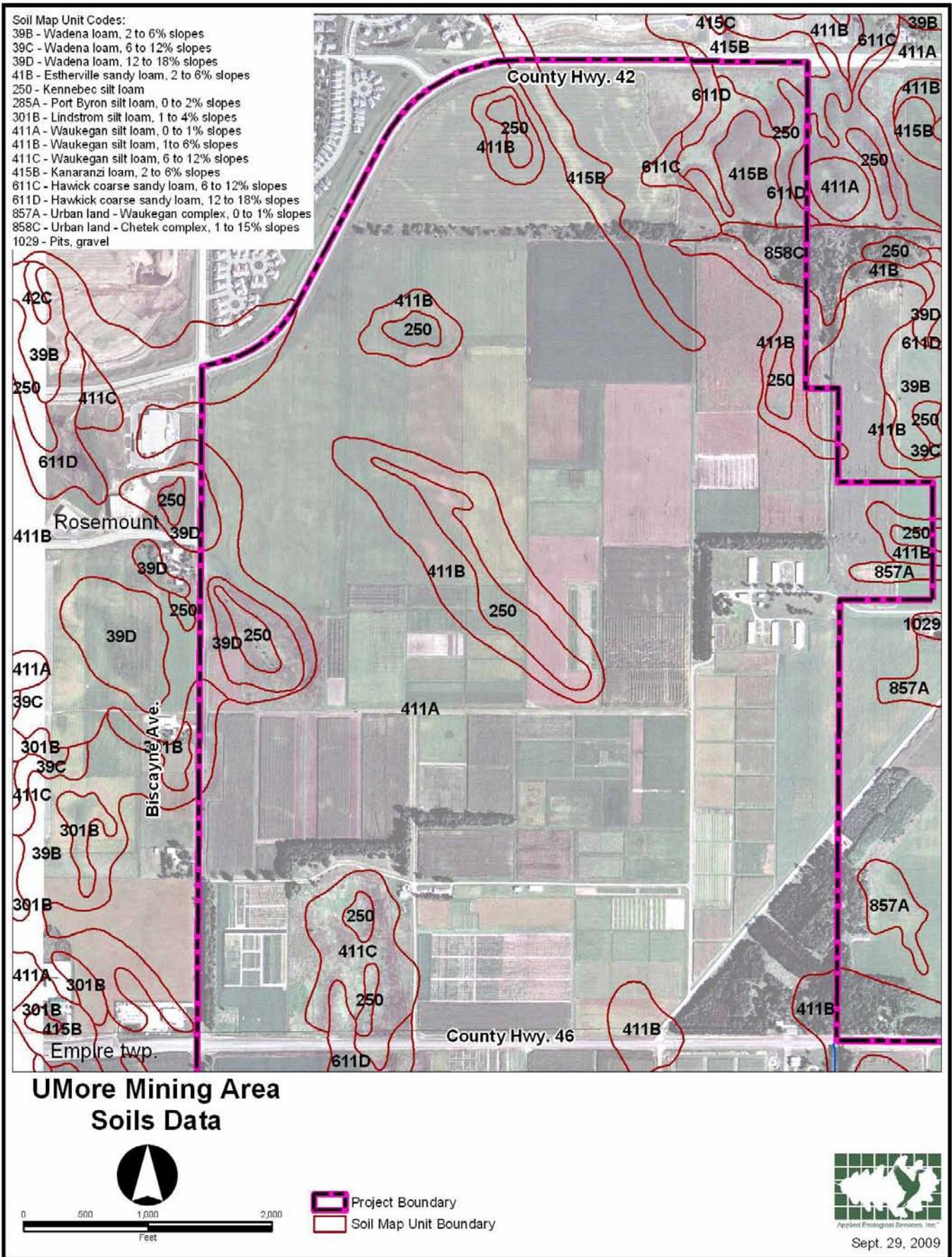


Figure 4. Delineated Wetlands and Data Points

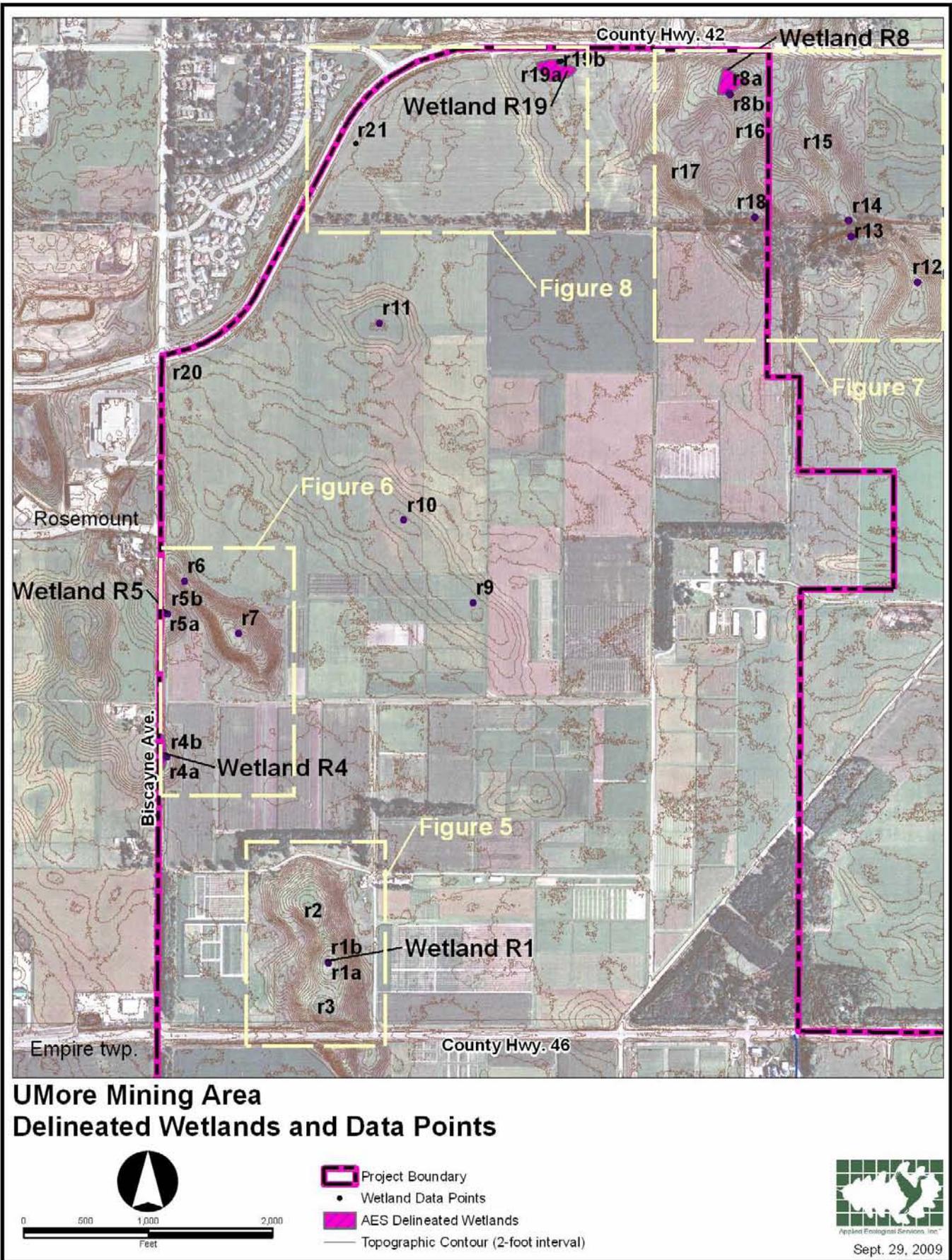


Figure 5. Wetland R1 and Data Points r2 & r3



Figure 6. Wetlands R4 & R5 and Data Points r6 & r7

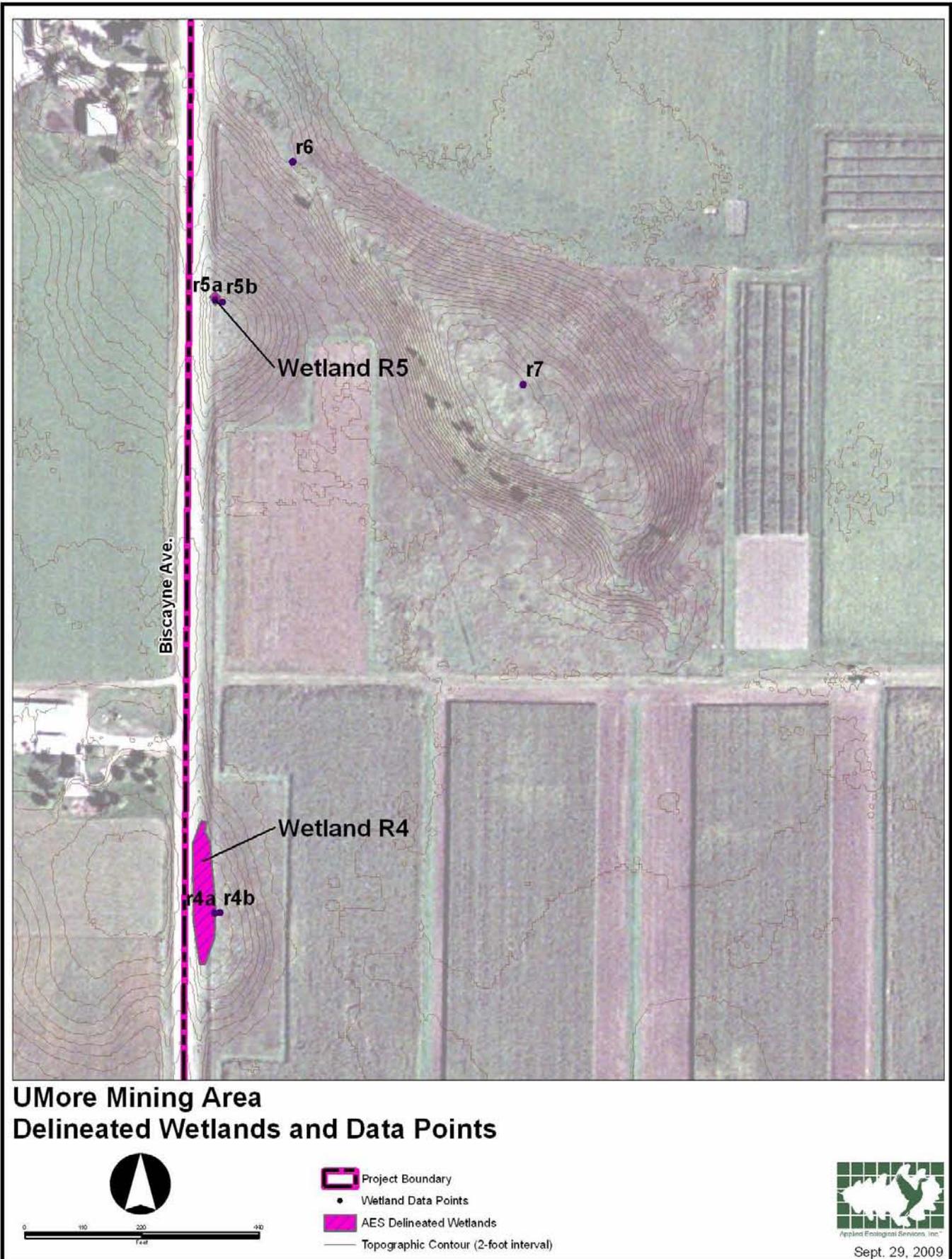


Figure 7. Wetland R8 and Data Points r12 through r18

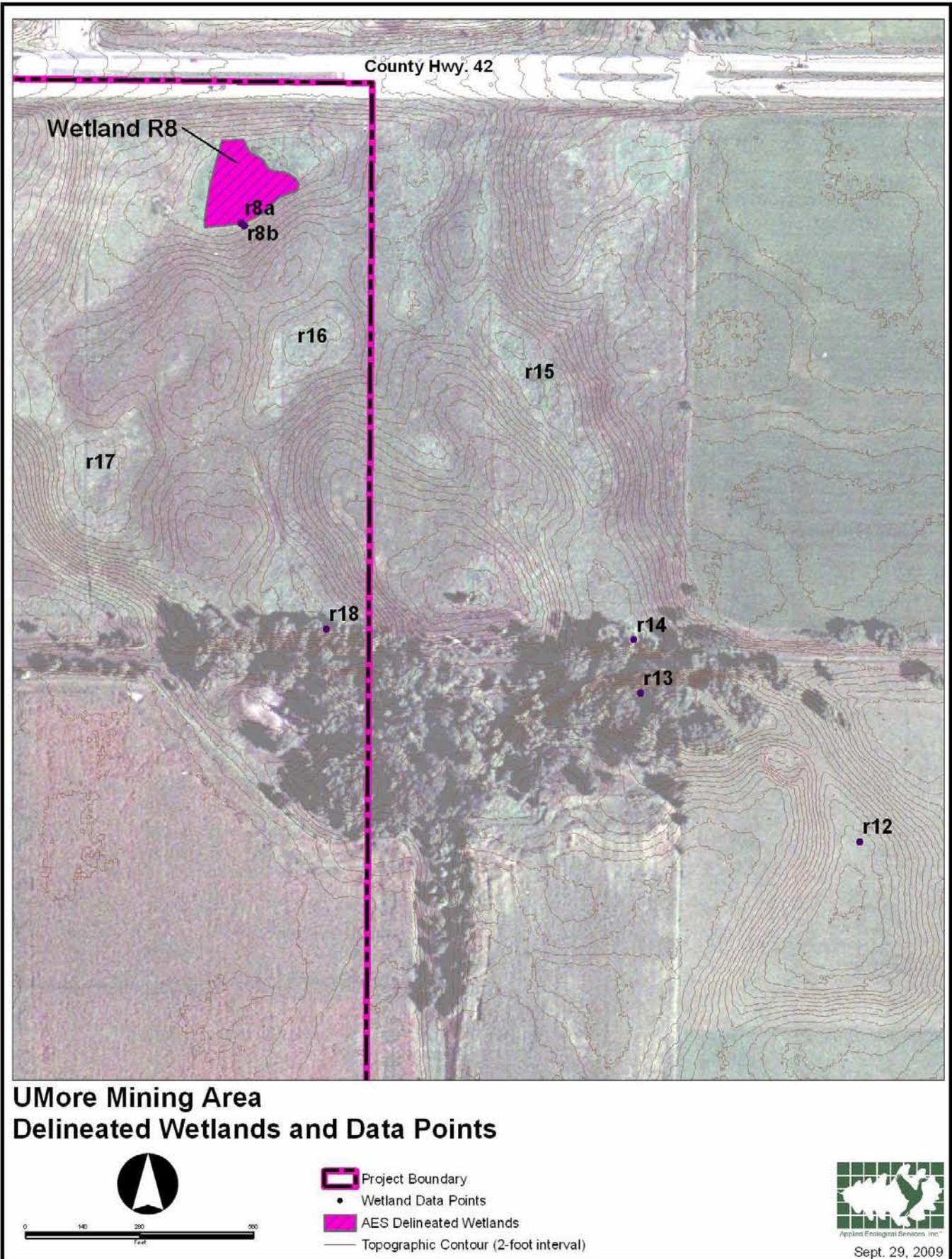


Figure 8. Wetland R19 and Data Point r21

