



**BUCKHART  
WETLAND COMPENSATION SITE**

**ISGS #58**

FAS 1637 TR 478

Sangamon County, near Buckhart, Illinois

**Primary Project Manager: Eric T. Plankell**

**Secondary Project Manager: Keith W. Carr**

**SITE HISTORY**

- 1996: Young Road was realigned and a new bridge was constructed over the Sangamon River. Construction of wetland mitigation areas was subsequently completed.
- July 2000: ISGS was tasked to conduct hydrologic monitoring for the presence and extent of wetland hydrology. Prior to the installation of any monitoring instruments at the site, monitoring was halted by IDOT.
- April 2004: ISGS was again tasked to conduct hydrologic monitoring at three mitigation sites labeled as Mitigation Areas 1-3.
- May-June 2004: ISGS installed eight S wells (1S - 8S), two VS wells (1VS and 8VS), three surface-water staff gauges (A, B, and C), and a rain gauge at the site. Additionally, a fixed point (D) was marked on the bridge from which the Sangamon River stage could be measured.
- August 2004: ISGS installed a surface-water data logger (RDS 1) and a river-stage data logger (Sonic). Instrument elevations were determined using a rod and level, and instrument locations were determined using a Trimble XR Pro GPS unit. In addition, a topographic survey of the site was completed using a Leica TC 702 Total Station.

**WETLAND HYDROLOGY CALCULATION FOR 2004**

We estimate that the total area of created wetland that satisfied wetland hydrology criteria for greater than 5% of the 2004 growing season was 1.8 ac (0.7 ha), whereas the area that satisfied wetland hydrology criteria for greater than 12.5% of the 2004 growing season was 1.5 ac (0.6 ha). These estimates are out of a total site area of 2.5 ac (1.0 ha) and are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in nearby Springfield is April 6 and the season lasts 205 days; 5% of the growing season is 10 days and 12.5% of the growing season is 26 days.
- Total precipitation at the nearby Springfield, IL Abraham Lincoln Capital Airport Weather Station was 93% of normal for the period from September 2003 through August 2004. Precipitation at this station was below normal in September and December 2003 and in January, February, April, May, June, and August 2004. Precipitation at this station was above normal for all other months in the reporting year.
- In 2004, water levels in wells 1S, 3S, 7S, 8S, and 8VS satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. In addition, wells 7S, 8S, and 8VS also satisfied the

wetland hydrology criteria for greater than 12.5% of the growing season.

- In 2004, surface-water staff gauge A, located within a closed depression in Mitigation Area 3, recorded inundation to a depth of at least 164.19 m (538.67 ft) for greater than 5% of the growing season. Staff gauge A also recorded inundation to a depth of at least 164.01 m (538.08 ft) for greater than 12.5% of the growing season.
- Flooding is known to have occurred at the site at least twice during the 2004 growing season. On May 18, 2004, wells 7S, 8S, 8VS, and staff gauge A, all located within a closed depression in Mitigation Area 3, were observed to be inundated. Subsequent visits to the site showed that these instruments continued to be inundated until at least June 9, with approximately 2.5 cm of standing water observed at the base of well 7S. The water-level elevation was equal to 164.03 m (538.15 ft), the highest of these instruments. A second flooding event was observed at this site on June 18, 2004. All wells in Mitigation Areas 1 and 3 and staff gauge A were observed to be inundated at this time.
- Limitations of the wetland hydrology determination are as follows:
  - The wetland-hydrology polygons in Mitigation Area 3 were drawn on an ISGS topographic map with a 0.1-meter contour interval. The areas of wetland hydrology were calculated using a Tamaya Super PLANIX  $\beta$  Digitizing Area-Line Meter.
  - Due to an incomplete topographic data set for Mitigation Area 1, it was not possible to accurately draw wetland-hydrology polygons around wells 1S and 3S. Therefore, wetland acreage in the vicinity of these two wells was not calculated.
  - The first reliable water-level measurements were recorded at the site on May 18, 2004. Water levels at the site during the early part of the growing season, from April 6 through May 17, are unknown. It is possible that additional areas of the site may have met wetland hydrology criteria during this time frame, and that the overall acreage meeting wetland hydrology criteria for the 2004 reporting year could have been greater than as reported.

#### PLANNED FUTURE ACTIVITIES

- Monitoring will continue until no longer required by IDOT.

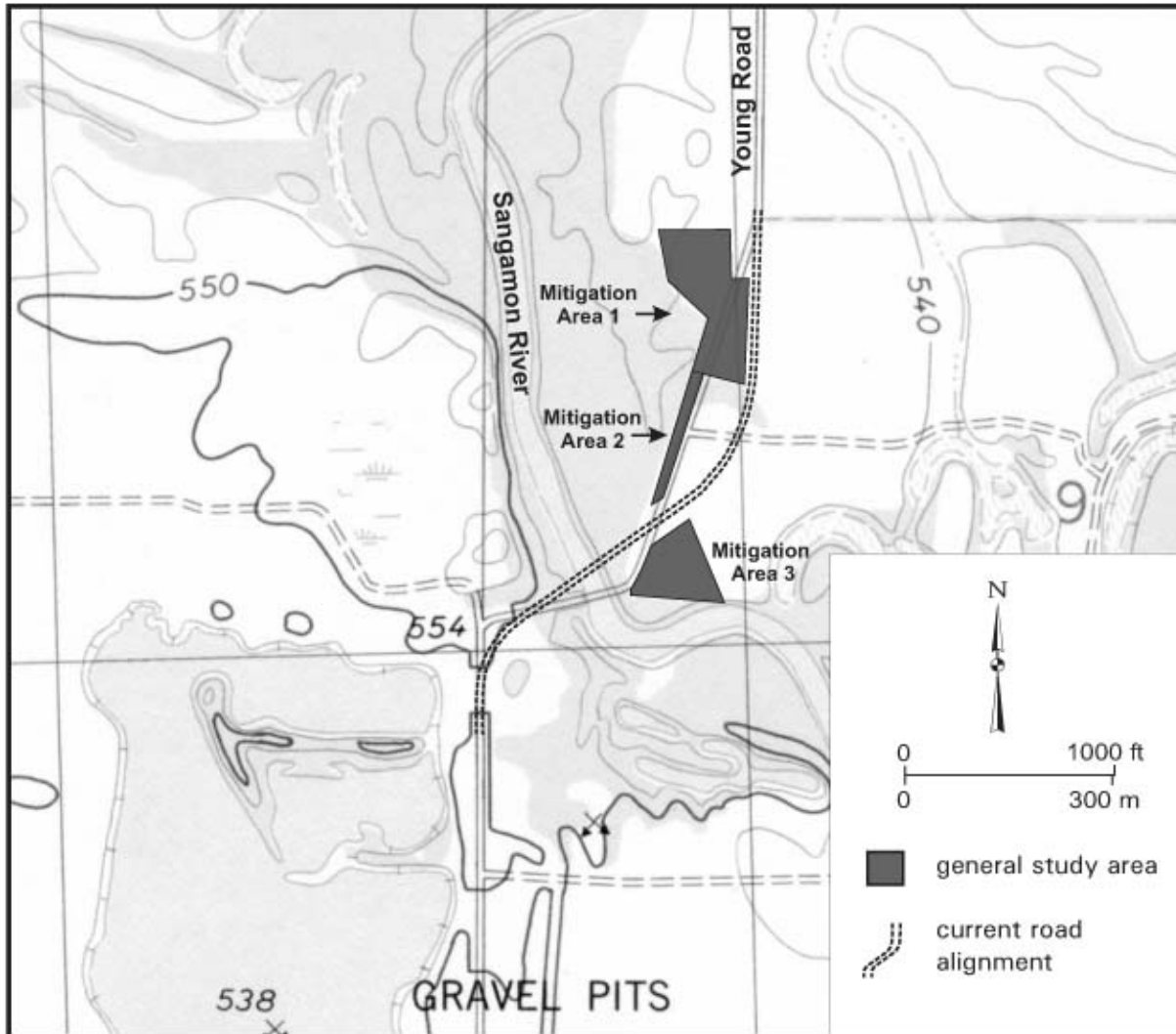
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## General Study Area and Vicinity

from the USGS Topographic Series, Mechanicsburg, IL 7.5-minute Quadrangle (USGS 1982)

contour interval is 10 feet



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## Estimated Areal Extent of 2004 Wetland Hydrology

Based on data collected between May 18, 2004 and September 1, 2004

map based on USGS digital orthophotographs Mechanicsburg, SE and SW quarter quadrangles produced from 4/12/98 aerial photography (ISGS 2001)



- | 2004 Wetland Hydrology  |                               |   |                   |
|---|-------------------------------|---|-------------------|
|  | > 12.5% of the growing season |  | monitoring well   |
|  | > 5% of the growing season    |  | stage gauge       |
|   |                               |  | RDS data logger   |
|   |                               |  | rain gauge        |
|   |                               |  | Sonic data logger |





## Buckhart Wetland Compensation Site September 2003 through August 2004

### Total Monthly Precipitation Recorded On Site and at the Springfield, IL Abraham Lincoln Capital Airport Weather Station

