



**CARBONDALE
WETLAND COMPENSATION SITE**

ISGS #65

FAP 322

Jackson County, near Carbondale, Illinois

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Secondary Project Manager: Gregory A. Shofner

SITE HISTORY

- March 2002: ISGS was tasked by IDOT to monitor wetland hydrology for this compensation site.
- April 2002: ISGS initiated water-level monitoring activities.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that 0.1 ac (0.05 ha) out of a total of 9.9 ac (4.0 ha) satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004, whereas 0.08 ac (0.03 ha) satisfied wetland hydrology for greater than 12.5% of the growing season. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Carbondale is April 4 and the season lasts 203 days; 5% of the growing season is 10 days and 12.5% of the growing season is 25 days.
- Total precipitation for the reporting period from September 2003 through August 2004 was 87% of normal. Drier than normal conditions prevailed in September, October, and December 2003 and in February, April, June, and August 2004. Precipitation was at or above normal in November 2003 and in January, March, May and July 2004.
- In 2004, monitoring well 5S 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. Well 5S also satisfied the wetland hydrology criteria for greater than 12.5% of the growing season.
- The water levels recorded at data loggers RDS1 and Gauge A show that flood events from Piles Fork supply surface water to the created wetland areas. The area in the basin surrounding RDS1 below approximately 123.1 m (403.8 ft) is inundated for greater than 5% of the growing season and therefore satisfies wetland hydrology criteria. A small area below approximately 123.0 m (403.5 ft) was inundated for greater than 12.5% of the growing season.
- Limitations of the wetland hydrology determination are as follows:
 - The wetland hydrology estimate includes the entire IDOT parcel. Therefore, areas planned for wetland preservation and enhancement are included in the wetland hydrology acreage estimate.
 - The area of wetland hydrology was calculated using GIS methods. The wetland-hydrology polygon was drawn from an ISGS topographic map (0.1-meter contour interval) rectified to GPS positions of water-level instruments and point features identifiable from digital orthophotography.

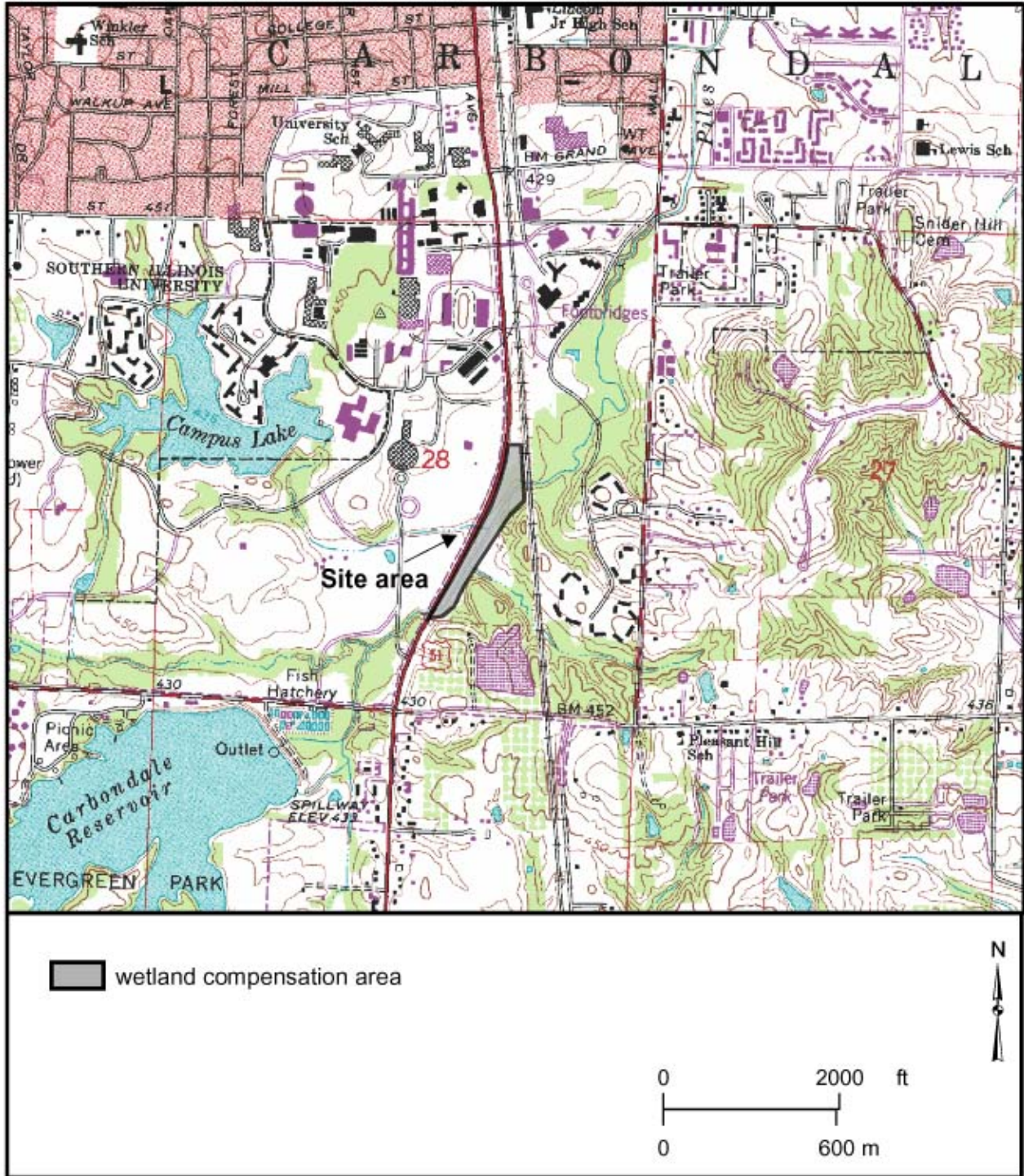
- Instrument locations were determined using GPS in November 2002 and March 2003. The GPS positions of instruments were superimposed on digital orthophotography.

PLANNED FUTURE ACTIVITIES

- Water-level monitoring activities will continue through 2007 or until no longer required by IDOT.

**Carbondale Wetland Compensation Site
(FAP 322)
Site and Vicinity**

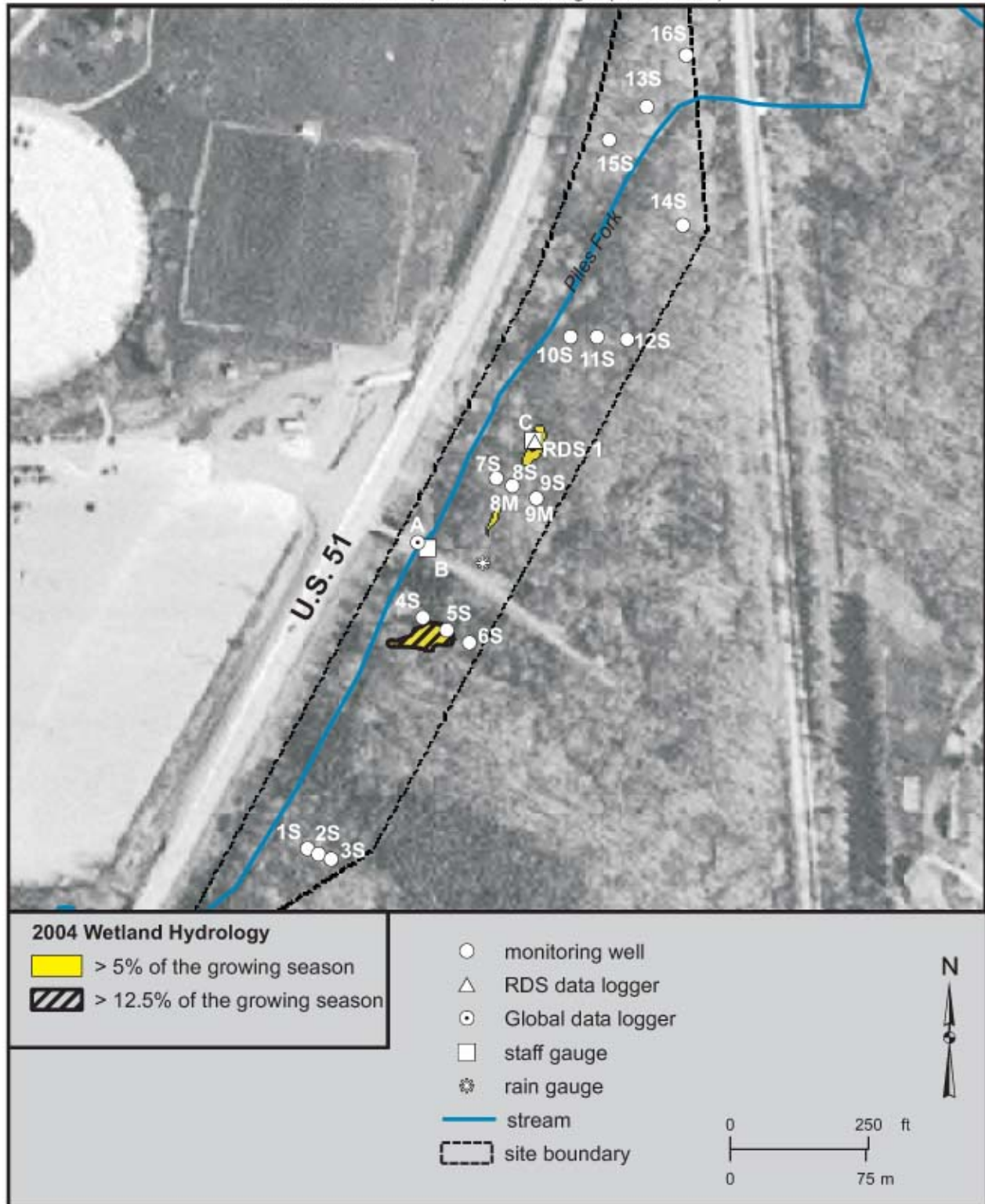
from the USGS Topographic Series, Carbondale, IL 7.5-minute Quadrangle
(USGS 1966; photorevised 1990)
contour interval is 10 feet



Carbondale Wetland Compensation Site (FAP 322)

Estimated Areal Extent of 2004 Wetland Hydrology

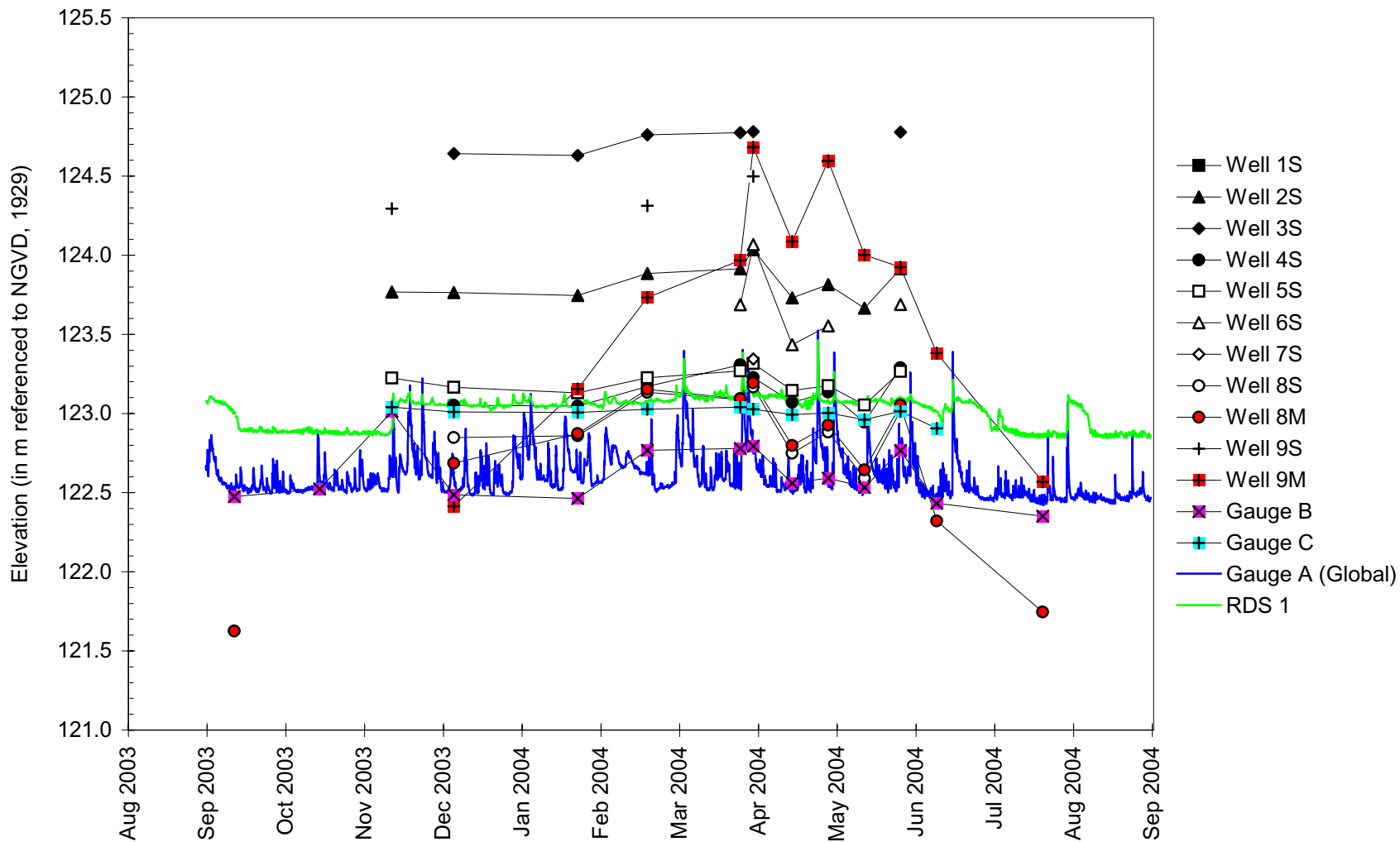
map based on IDOT mitigation design plan rectified to USGS digital orthophotograph
Carbondale NW quarter quadrangle (ISGS 2002)



Carbondale Wetland Compensation Site

September 1, 2003 to September 1, 2004

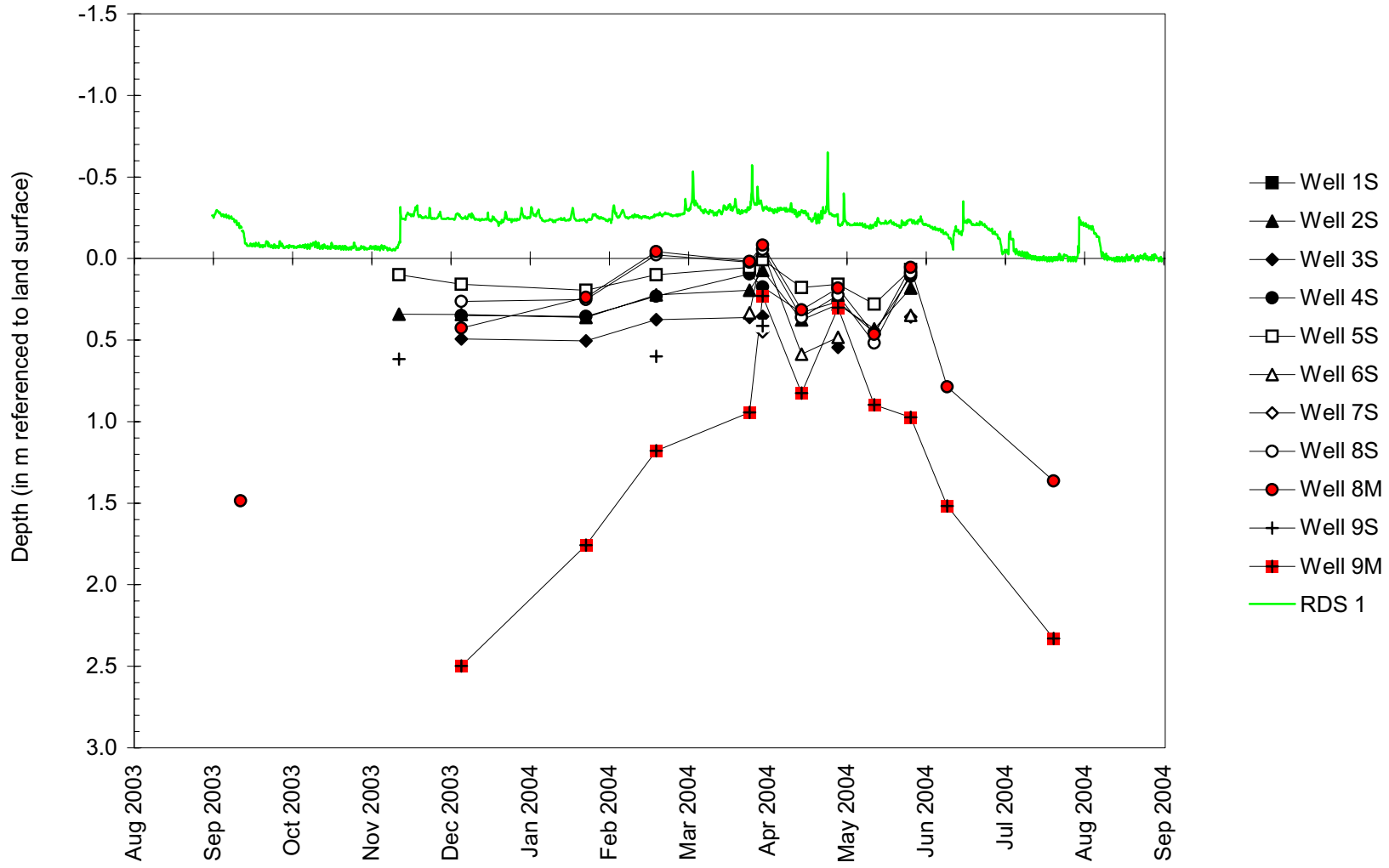
Water-Level Elevations in Selected Monitoring Wells, on the Stage Gauge, and at the Data Loggers



Carbondale Wetland Compensation Site

September 1, 2003 to September 1, 2004

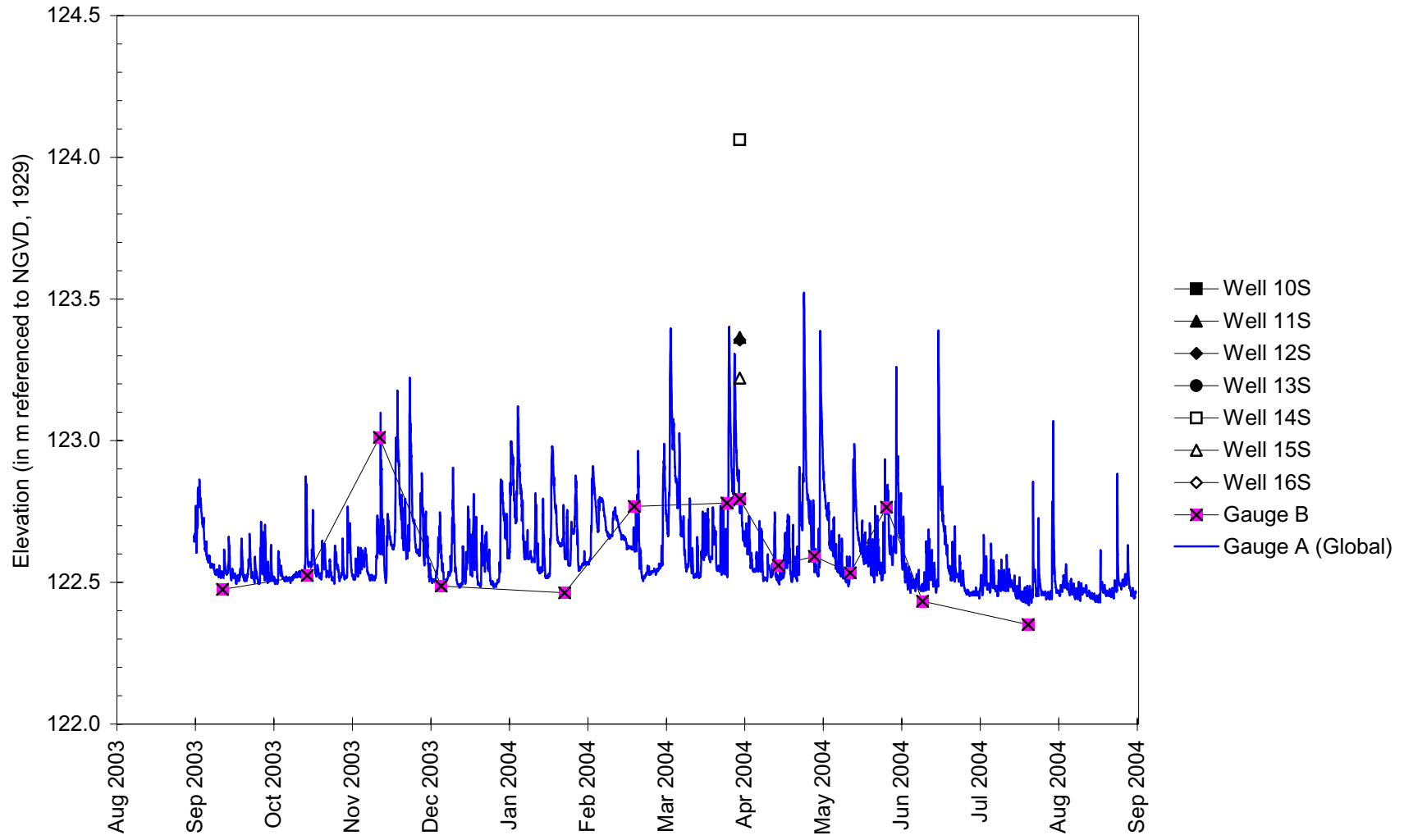
Depth to Water in Selected Monitoring Wells and at the RDS Data Logger



Carbondale Wetland Compensation Site

September 1, 2003 to September 1, 2004

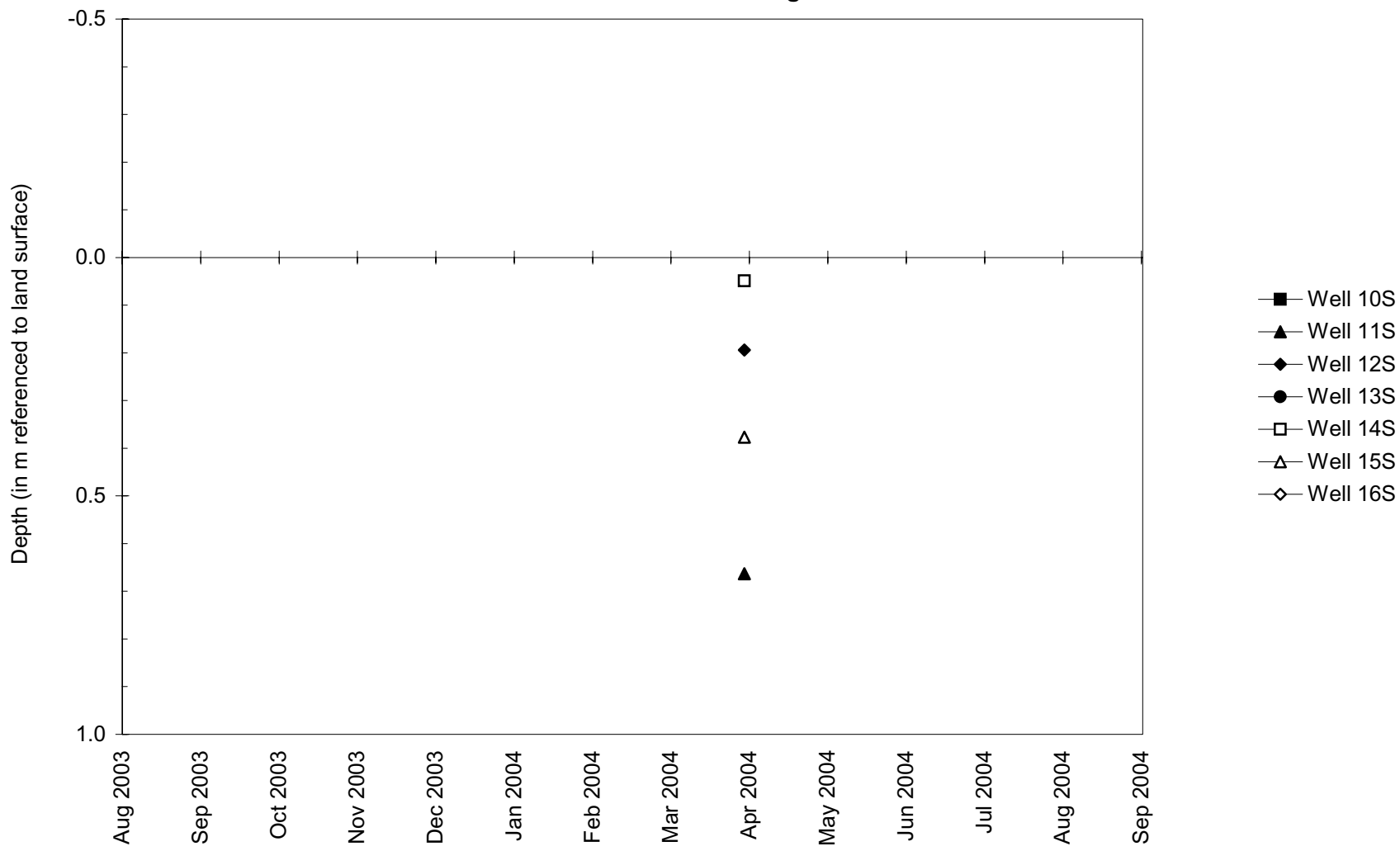
Water-Level Elevations in Selected Monitoring Wells, on the Stage Gauge, and at the Global Data Logger



Carbondale Wetland Compensation Site

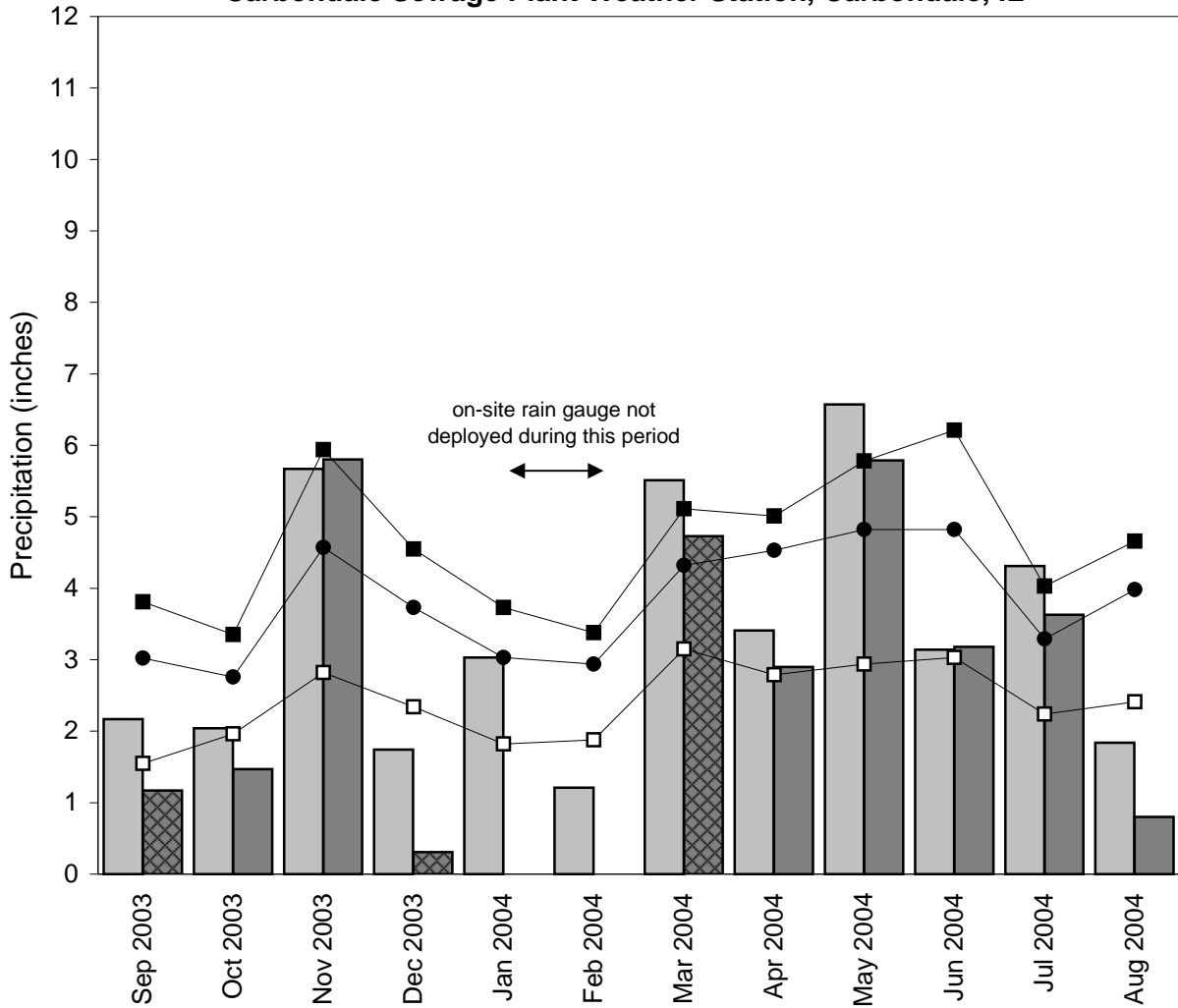
September 1, 2003 to September 1, 2004

Depth to Water in Selected Monitoring Wells



Carbondale Wetland Compensation Site September 2003 through August 2004

**Total Monthly Precipitation Recorded On Site and at the
Carbondale Sewage Plant Weather Station, Carbondale, IL**



- monthly precipitation recorded at weather station (Midwestern Regional Climate Center)
- monthly precipitation recorded on site by ISGS
- 1971-2000 monthly average precipitation (National Water and Climate Center)
- 1971-2000 monthly 30% above average threshold (National Water and Climate Center)
- 1971-2000 monthly 30% below average threshold (National Water and Climate Center)
- ▨ data incomplete

Graph last updated October 1, 2004