MILAN BELTWAY, GREEN ROCK **ISGS #44**
WETLAND MITIGATION SITE
FAU 5822
Sequence #67
Henry County, near Green Rock, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: Kathleen E. Bryant

SITE HISTORY

- December 2005: IDOT tasked the ISGS to conduct five-year performance monitoring of the Green Rock wetland mitigation site.

- March 2006: The monitoring network was installed by ISGS on Phase I of the site.

- November 2007: The monitoring network was installed by ISGS on Phase II of the site.

WETLAND HYDROLOGY CALCULATION FOR 2010

The site is divided into two portions, Phase I and Phase II. In 2010, 16.7 ha (41.3 ac) out of a total area of 16.7 ha (41.3 ac) in Phase I, satisfied wetland hydrology criteria for more than 5% of the growing season, and 15.9 ha (39.4 ac) satisfied wetland hydrology criteria for more than 12.5% of the growing season. Additionally, 4.3 ha (10.7 ac), out of a total area of 4.3 ha (10.7 ac) in Phase II, satisfied wetland hydrology criteria for more than 5% of the growing season, and 3.9 ha (9.7 ac) satisfied wetland hydrology criteria for more than 12.5% of the growing season. Using the 2010 Midwest Region supplement (U.S. Army Corps of Engineers 2010) to the 1987 Manual, we estimate that 16.7 ha (41.3 ac) of Phase I and 4.3 ha (10.7 ac) of Phase II satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- According to the MRCC, the median date that the growing season begins at the nearby Quad City International Airport weather station in Moline, Illinois, is April 13 and the season lasts 196 days; 5% of the growing season is 10 days and 12.5% of the growing season is 25 days. According to methods outlined in the 2010 Midwest Region supplement, we estimate that March 18 was the starting date of the 2010 growing season based on soil temperatures measured at the mitigation site.

- Total precipitation during the monitoring period as recorded at the Quad City International Airport weather station in Moline, Illinois, was 121% of normal and total precipitation in Spring 2010 (March through May) was 109% of normal.

- In 2010, water levels measured in all of the soil-zone monitoring wells satisfied wetland hydrology criteria for more than 5% of the growing season. Water levels measured in all of the soil-zone monitoring wells except 15S, 22S, and 23S satisfied wetland hydrology criteria for more than 12.5% of the growing season. Water levels measured in all of the soil-zone monitoring wells satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season as per the 2010 Midwest Region supplement.

- Rock River stage data recorded at the U.S. Geological Survey gauge in Moline, Illinois, and surface-water data recorded by an on-site data logger (Sluice SW), reveal that the site was flooded seven times during the monitoring period, with four of these floods

(April 8-17, May 13-22, June 19-July 3, and July 25-August 12) occurring during the 2010 growing season. The longest period of inundation on the site resulted from the flood that occurred in July and August. Surface water on the site, as measured by the gauge Sluice SW, was at or above an elevation of 173.30 m (568.60 ft) long enough to satisfy the wetland hydrology criteria for more than 5% of the growing season. Additionally, surface water measured at that gauge was at or above an elevation of 173.00 m (567.61 ft) for 14 or more consecutive days during the growing season per the 2010 Midwest Region supplement. Inundation persisted in isolated depressions after flood water had receded. At gauges A and B, surface water was at or above 172.95 m (567.45 ft) for a period long enough to satisfy wetland hydrology criteria for more than 12.5% of the growing season, and at gauge D surface water was at or above 173.13 m (568.03 ft) for a period long enough to satisfy wetland hydrology criteria for more than 12.5% of the growing season.

ADDITIONAL INFORMATION

- A surface-water data logger (Sluice SW) was added to the site on April 27 in order to further refine analysis of Rock River stage data. The water-level data recorded by the logger reveal that the site floods when stage at Moline, Illinois, rises to about 3.3 m (11.0 ft), which is an elevation of about 171.39 m (562.34 ft).

- On-site observations reveal that surface water on the site tends to flow westward. Three surface-water outlets were seen that convey water to the Green River (marked by arrows on the attached wetland hydrology map). After water has stopped flowing through the lowest outlet, about 20 cm (8 in.) to 30 cm (12 in.) of surface water remains on most of the site. This extends the period of inundation enough to satisfy wetland hydrology criteria.

- The ISGS has now completed 5 years of post-construction monitoring of Phase I and 3 years of post-construction monitoring of Phase II.

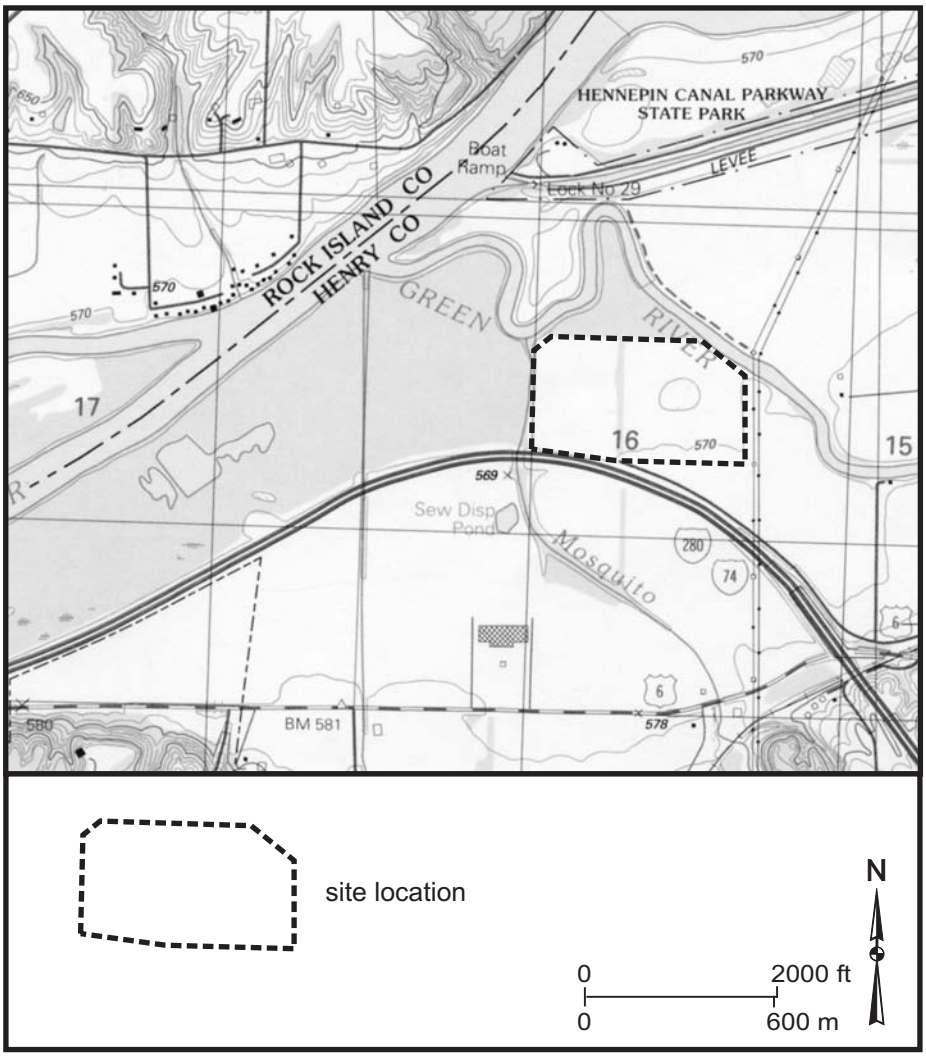
PLANNED FUTURE ACTIVITIES

- Monitoring of the site will continue until no longer required by IDOT.

Milan Beltway, Green Rock Wetland Mitigation Site (FAU 5822)

General Study Area and Vicinity

from the USGS Topographic Series, Coal Valley, IL (W) (USGS 1991) and
Green Rock, IL (E) (USGS 1992) 7.5-minute Quadrangles
contour interval is 10 feet



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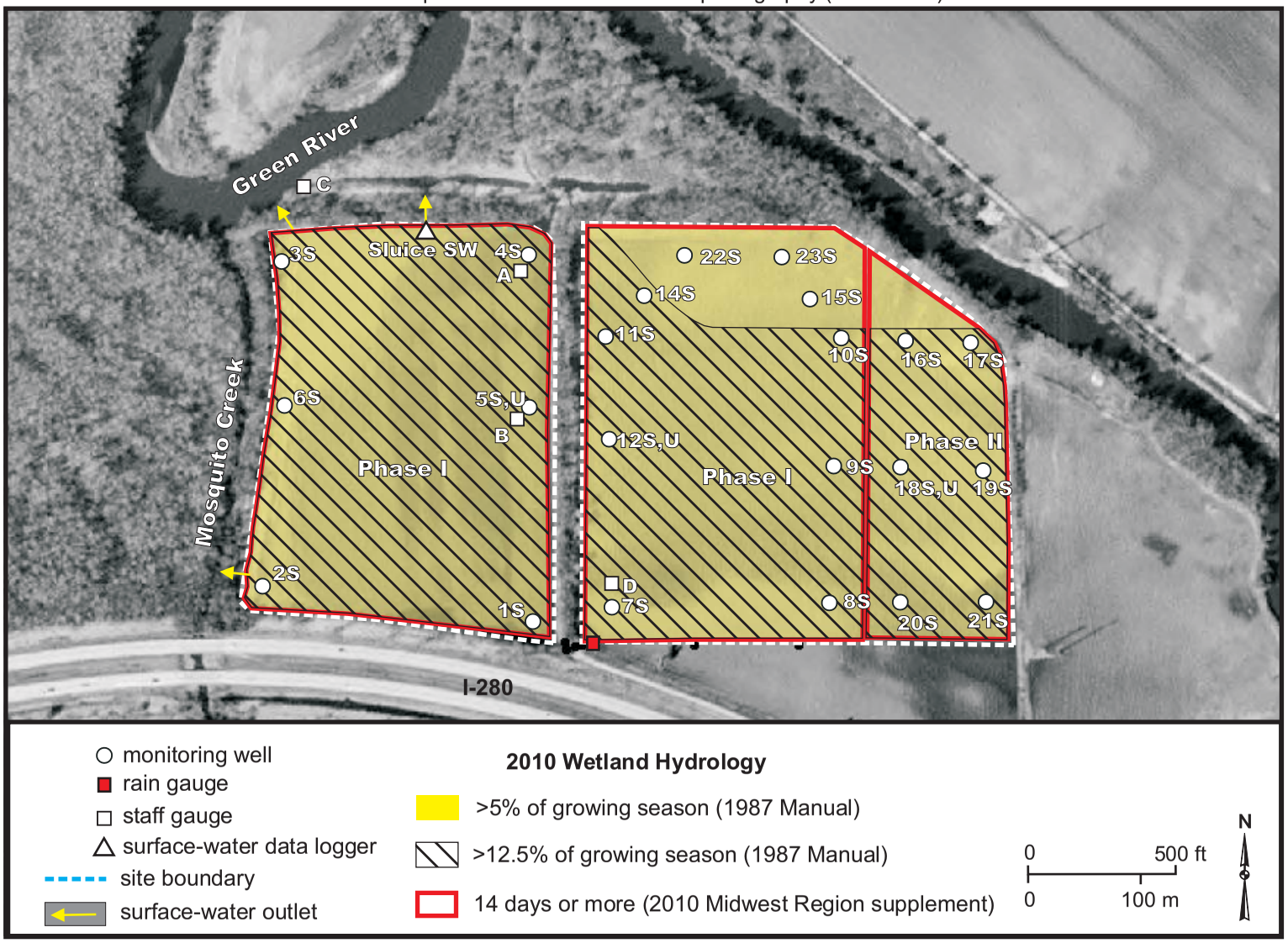
Estimated Areal Extent of 2010 Wetland Hydrology

Based on data collected September 1, 2009 through August 31, 2010

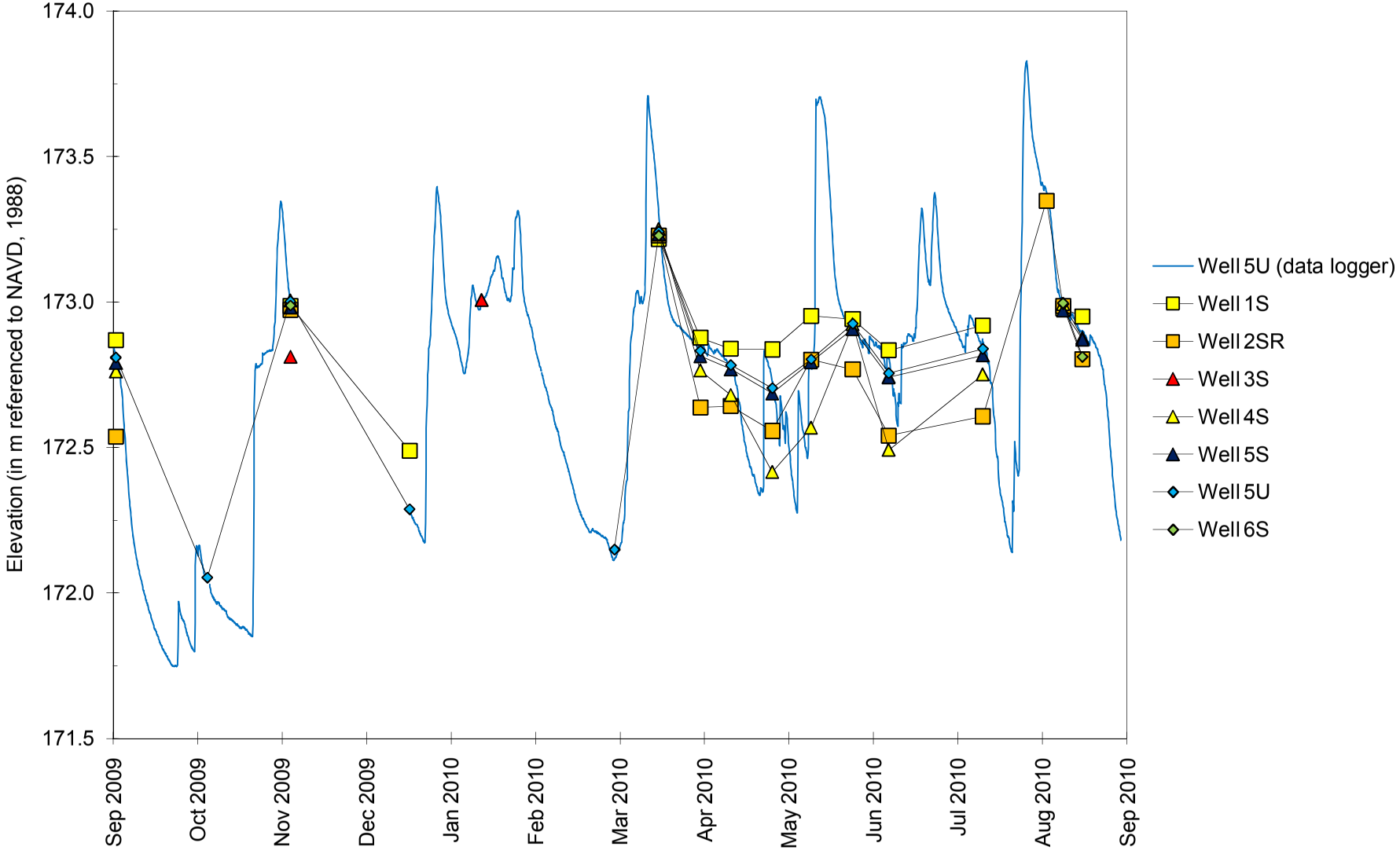
Map based on USGS digital orthophotograph, Coal Valley NE quarter quadrangle
produced from 4/14/98 aerial photography (ISGS 2006)



Milan Beltway, Green Rock Wetland Mitigation Site

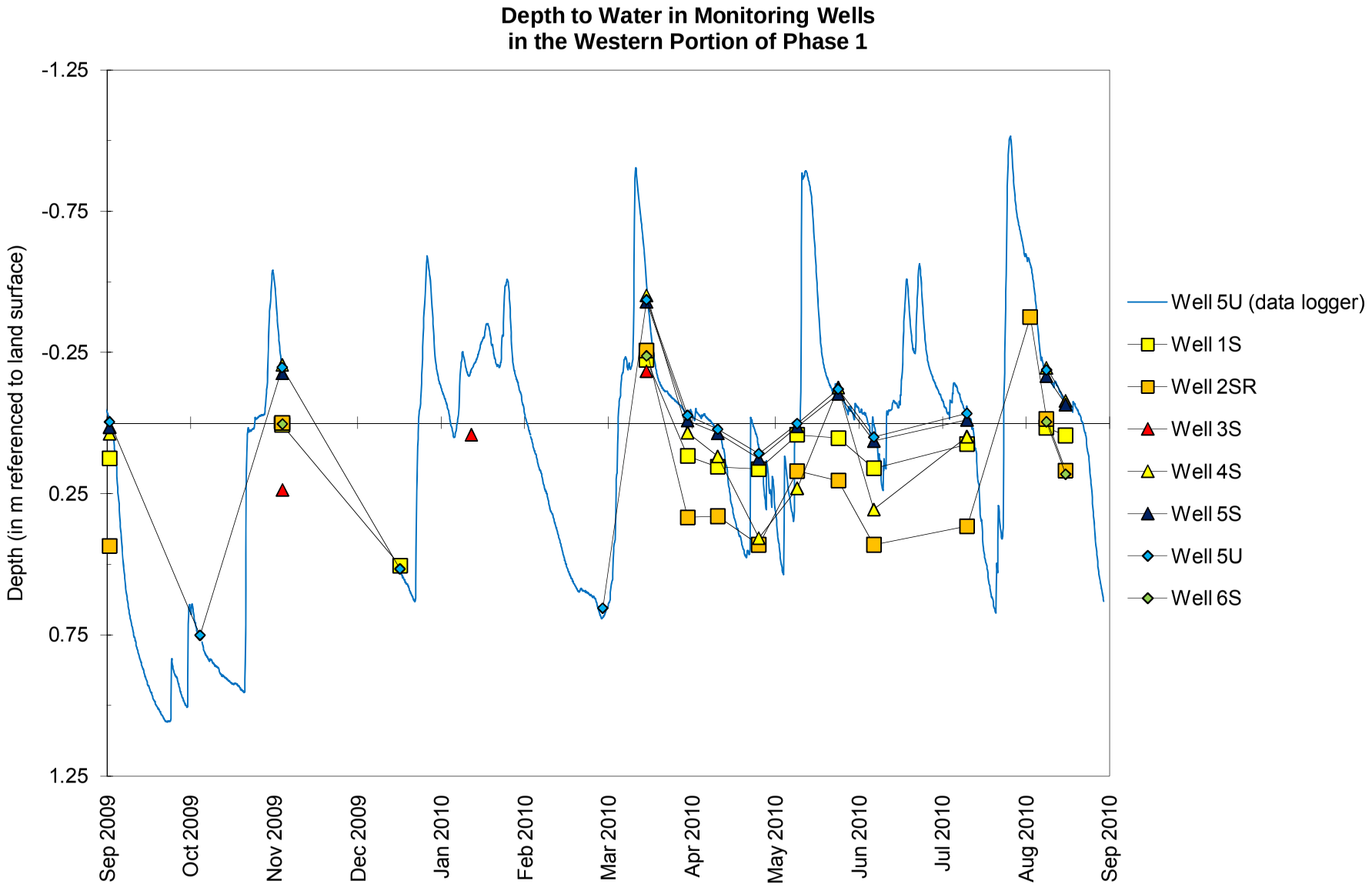
September 1, 2009 through August 31, 2010

Water-Level Elevations in Monitoring Wells in the Western Portion of Phase 1



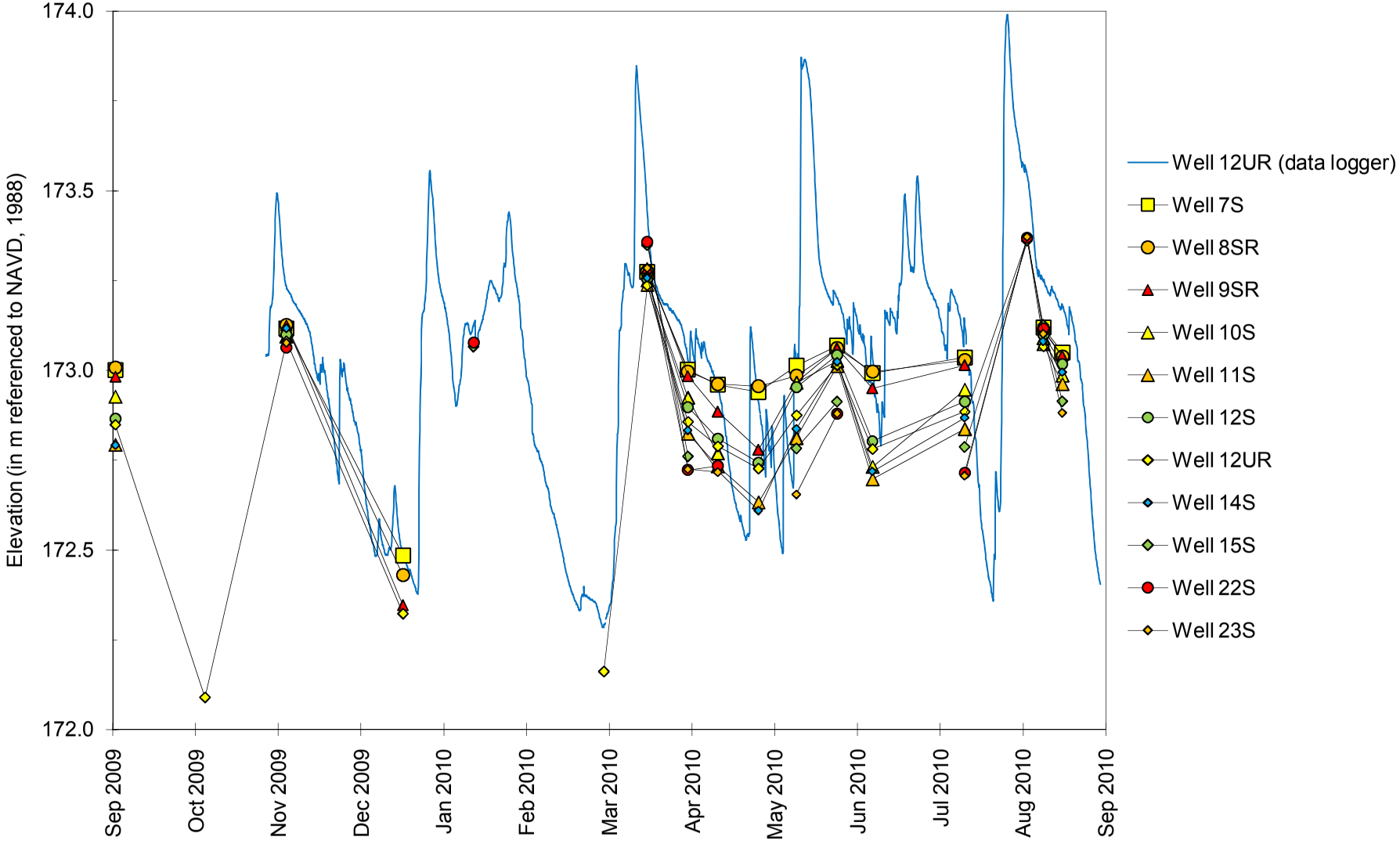
Milan Beltway, Green Rock Wetland Mitigation Site

September 1, 2009 through August 31, 2010

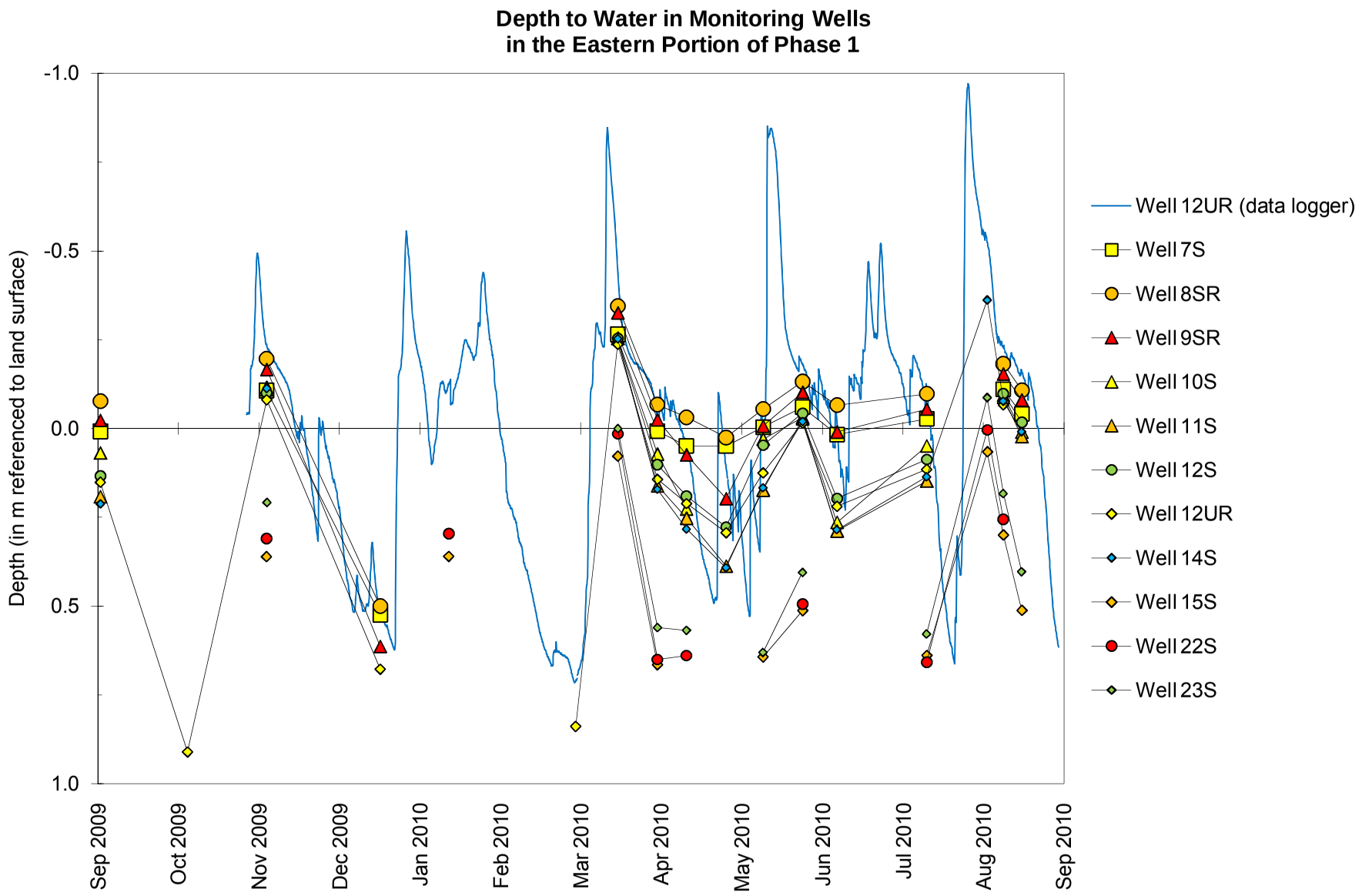


Milan Beltway, Green Rock Wetland Mitigation Site
September 1, 2009 through August 31, 2010

Water-Level Elevations in Monitoring Wells in the Eastern Portion of Phase 1

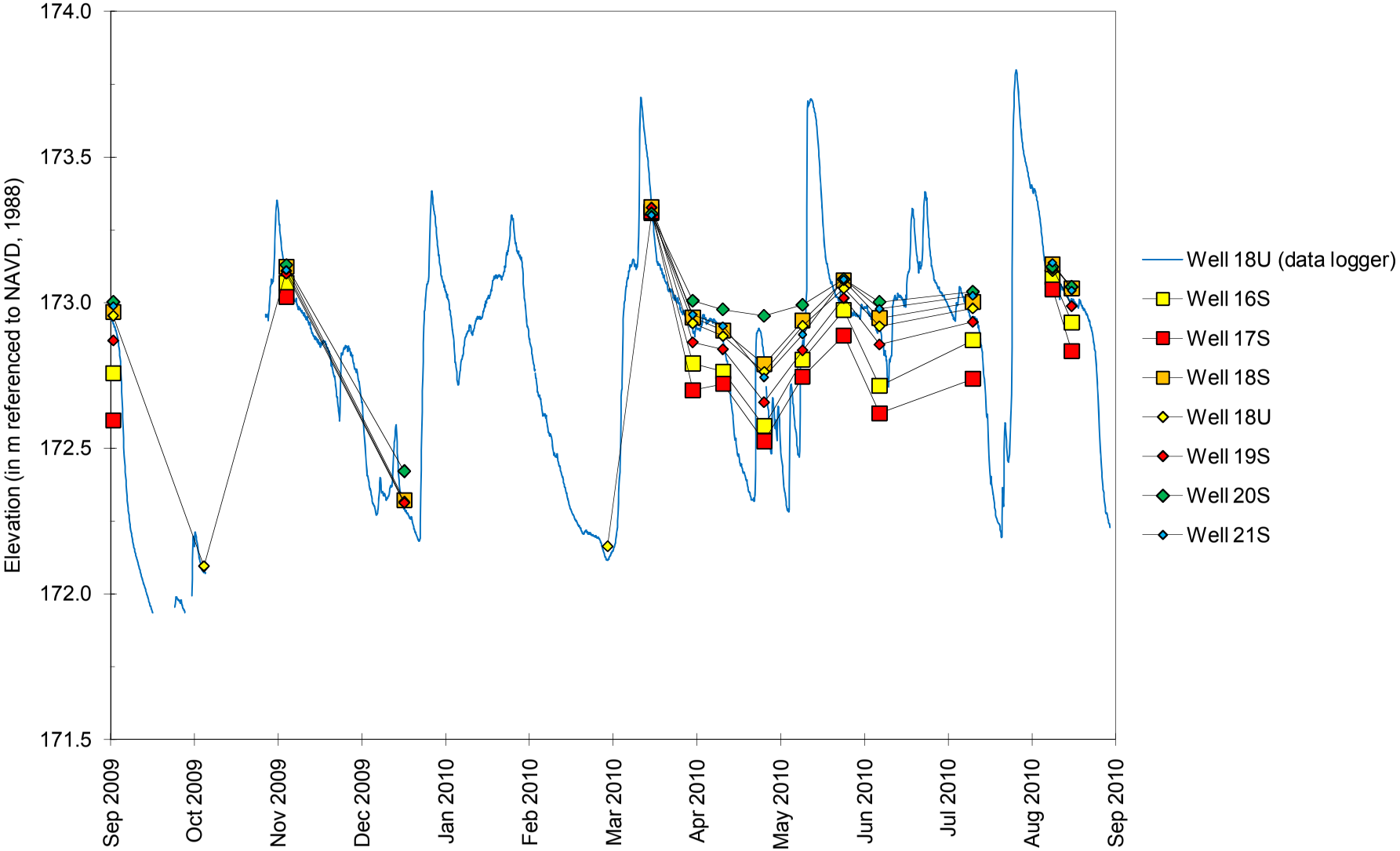


Milan Beltway, Green Rock Wetland Mitigation Site
September 1, 2009 through August 31, 2010

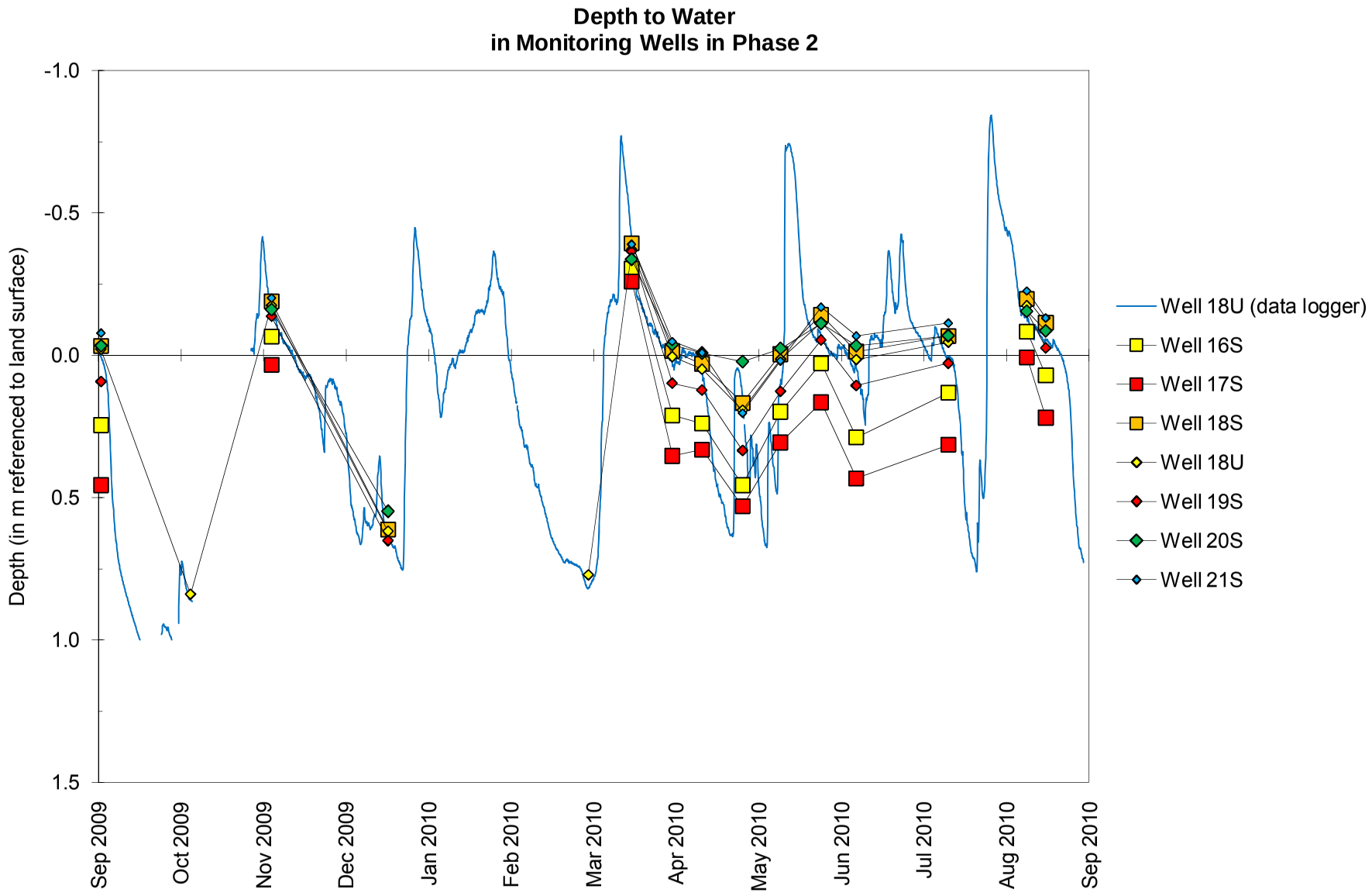


Milan Beltway, Green Rock Wetland Mitigation Site
September 1, 2009 through August 31, 2010

Water-Level Elevations in Monitoring Wells in Phase 2



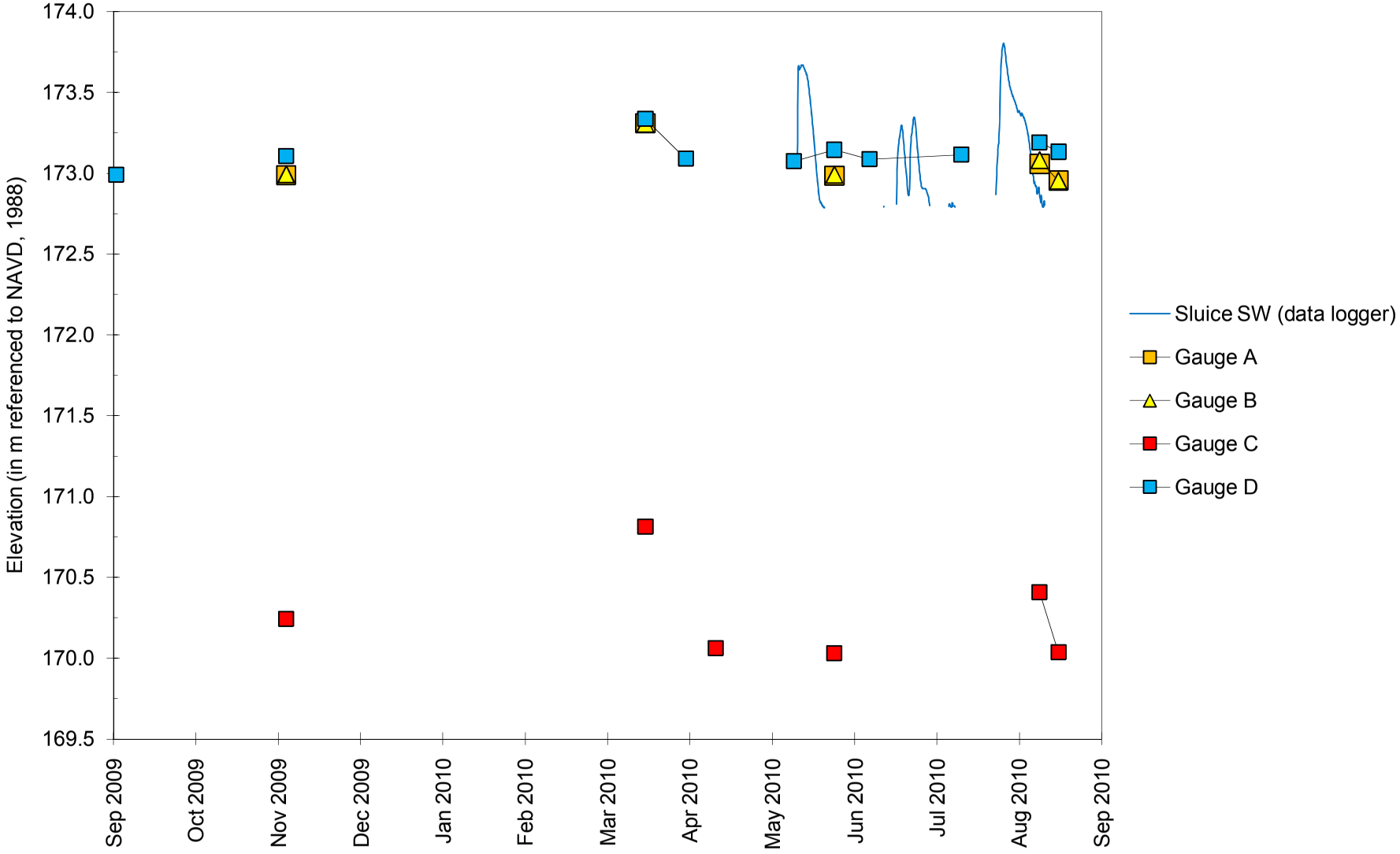
Milan Beltway, Green Rock Wetland Mitigation Site
September 1, 2009 through August 31, 2010



Milan Beltway, Green Rock Wetland Mitigation Site

September 1, 2009 through August 31, 2010

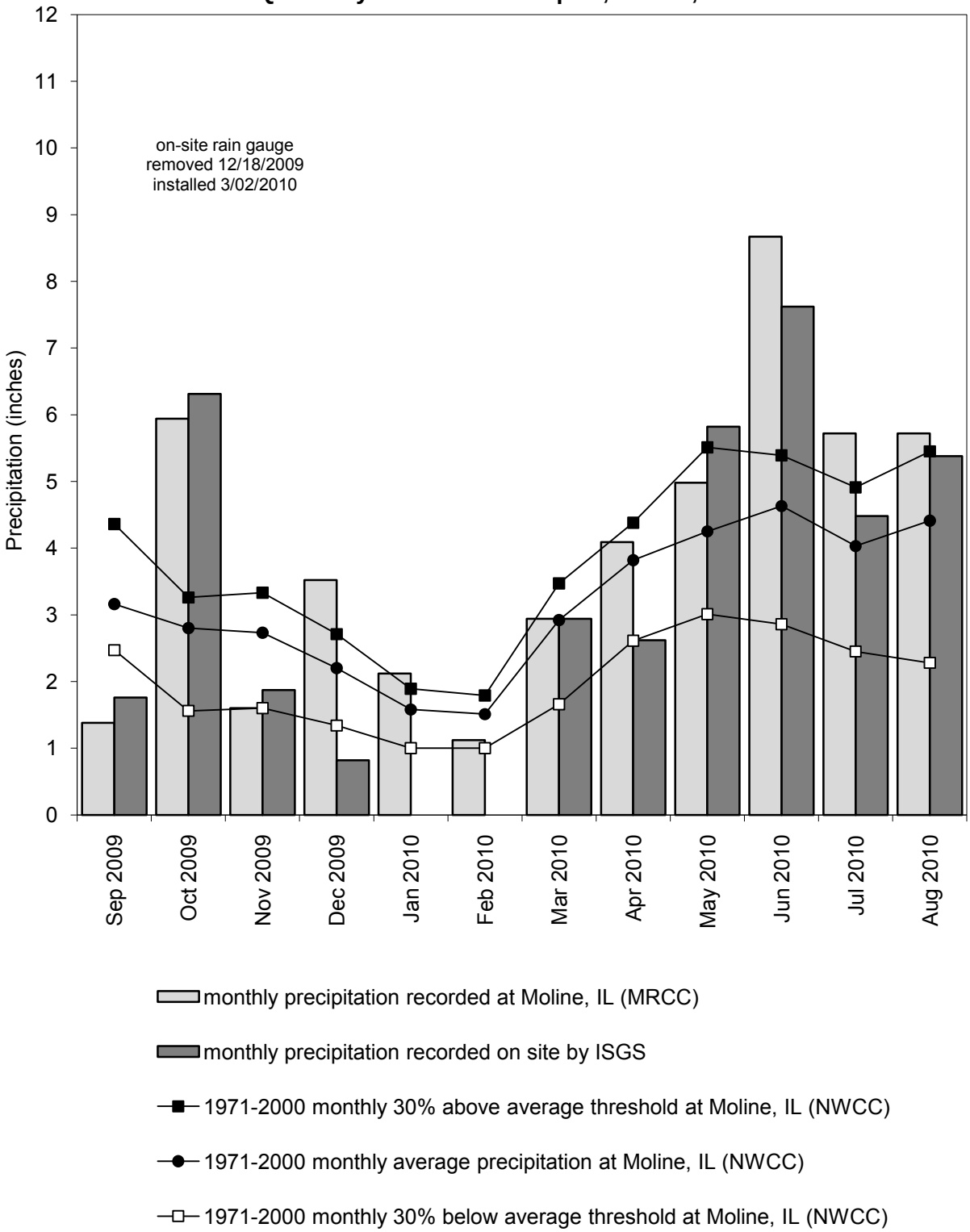
Water-Level Elevations
at Staff Gauges and Surface-Water Data Loggers



Milan Beltway, Green Rock Wetland Mitigation Site

September 2009 through August 2010

Total Monthly Precipitation Recorded on Site and at the Quad City International Airport, Moline, IL



Graph last updated October 08, 2010