# SECTION 2
# CONTINUATION OF THE 2003 PHASE II FIELD ACTIVITIES

## 2.1 UPSTREAM RIVER AND FLOODPLAIN CROSS SECTIONS

### 2.1.1 Collection Summary

River and floodplain cross section information was obtained upstream of the Study Area to collect river geometry data to support the design of a potential ice control structure (ICS) in the upstream portion of the Grasse River between Louisville and Massena. A total of 13 transects extending from just downstream of Louisville Road to just downstream of NY State Route 37 were surveyed from April 13 to April 20, 2004 to develop cross sectional profiles (**Figures 2-1 and 2-2**). At each point along the transect line, elevation data, water depth, and sediment depth information (where applicable) were collected in the river and floodplain. Each transect extended into the northern and southern floodplain to an elevation of approximately 210 feet (ft.) mean sea level (MSL). The spacing of survey points along each transect varied; where the topography was more variable, survey information was recorded at approximately 10-ft. intervals, where topography was less variable (e.g., floodplain areas), survey points were spaced further apart (e.g., 50- to 100-ft. intervals). Survey points along each transect were located using the differential global positioning system (DGPS).

Prior to performing survey work in the floodplain portion of each transect, access agreements were requested from each of the necessary property owners. Of the 17 property owners from whom access was requested, four access agreements were not obtained. As a result, some transect locations had to be adjusted slightly to ensure the floodplain survey was performed on properties with access agreements; if field adjustments could not be made, the floodplain portion of that particular transect was not surveyed.

Survey information was not obtained for upstream transect 4 (US4) on the northern floodplain, US11 on the northern and southern floodplain, and US13 on the southern floodplain. Further, three transects were adjusted in the field or did not achieve the specified elevation.

Within the southern floodplain, US1 did not extend to the prescribed 210 ft MSL because this elevation was not achieved prior to reaching the property boundary, and access was not obtained for the adjacent property. Also, the last four transect points along US6 were collected off the transect line due to access constraints. Lastly, US7 did not extend to the prescribed 210 ft. MSL in the southern floodplain as the last several stations extended into the floodplain with little to no change in elevation; the maximum elevation achieved was 207.1 ft. MSL.

### 2.1.2 Results

Cross-sectional profiles developed for each of the upstream transects are presented in **Figure 2-3**. Details regarding the coordinates, elevation, and water and sediment depths are included in on the attached CD-ROM (**Appendix A**) in the date table entitled sed_probe.

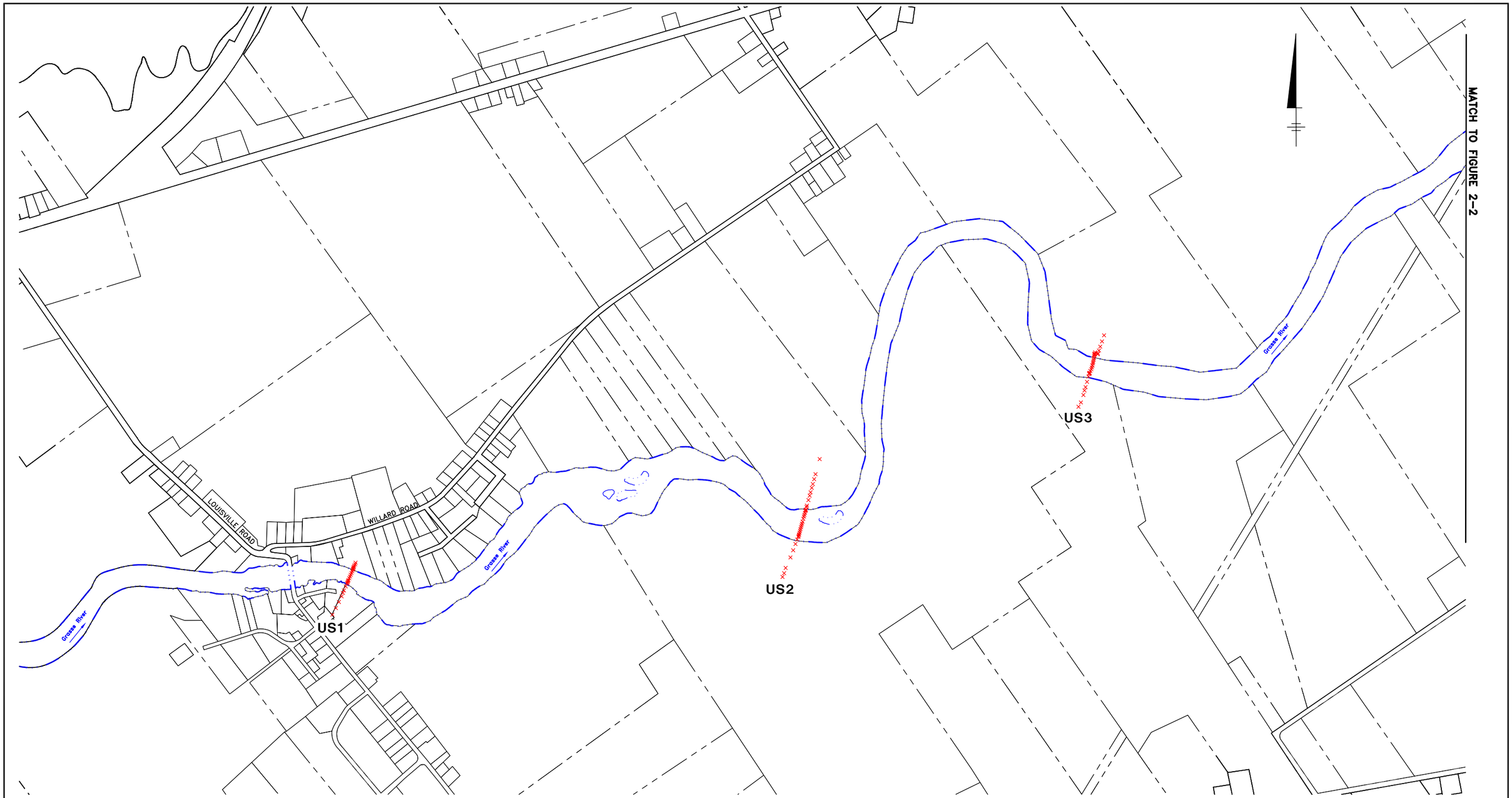
The majority of the sediments probed were reported to be silts and/or sands over a hard/stiff bottom or rock. The average sediment depths for the 13 transects was 3.2 ft. Two transects exhibited little to no sediment – US1 and US3. US1 had sediment at only one of the 12 locations probed; the sediment was 1.8 ft. thick, described as sand over rock, and occurred near the southern bank. The remainder of the probed locations along US1 indicated a rocky bottom. Also, along US3 only 7 of the 17 probed locations indicated sediment; sediment depths ranged from 0.0 to 2.7 ft.

The maximum water depths at the time of the survey were recorded at US9 and ranged from 2.0 ft. to 11.8 ft. The shallowest water depths were recorded at US-01 and ranged from 2.0 ft to 2.7 ft. The remaining 12 transects had average water depths ranging from 4.0 ft. (US-12) to 7.8 ft. (US-04) with an average water depth of 5.9 ft. There was no overall pattern in the change of water depths over the length of the river.

The average distance to achieve approximately 210 ft. MSL in the northern and southern floodplain was approximately 365 ft. (average of 11 transects) and approximately 350 ft. (average of 9 transects), respectively. The range of distances to achieve the target elevation in

the northern floodplain was approximately 50 ft. (US1) to 600 ft. (US9); in the southern floodplain the distances ranged from 90 ft. (US12) to 570 ft. (US4).

This information will be utilized in the feasibility study of potential ICS locations being considered for the Study Area. The feasibility study for the ICS will be summarized and presented in a separate document.




LEGEND:

US1 — APPROXIMATE UPSTREAM CROSS-SECTION POINT LOCATION AND TRANSECT ID

PROPERTY BOUNDARY

NOTES:

1. BASEMAP INFORMATION OBTAINED FROM A FIGURE BY CAMP DRESSER & MCKEE ENTITLED "ALCOA, INC. – MASSENA OPERATIONS – WEST PLANT" DATED AUGUST 1, 2003.
2. PROPERTY INFORMATION OBTAINED FROM ST. LAWRENCE COUNTY REAL PROPERTY DATA FOR 2000.
3. RESULTS OF THE UPSTREAM SURVEY ACTIVITIES ARE ILLUSTRATED ON FIGURE 2-3.

0 500' 1000'
GRAPHIC SCALE

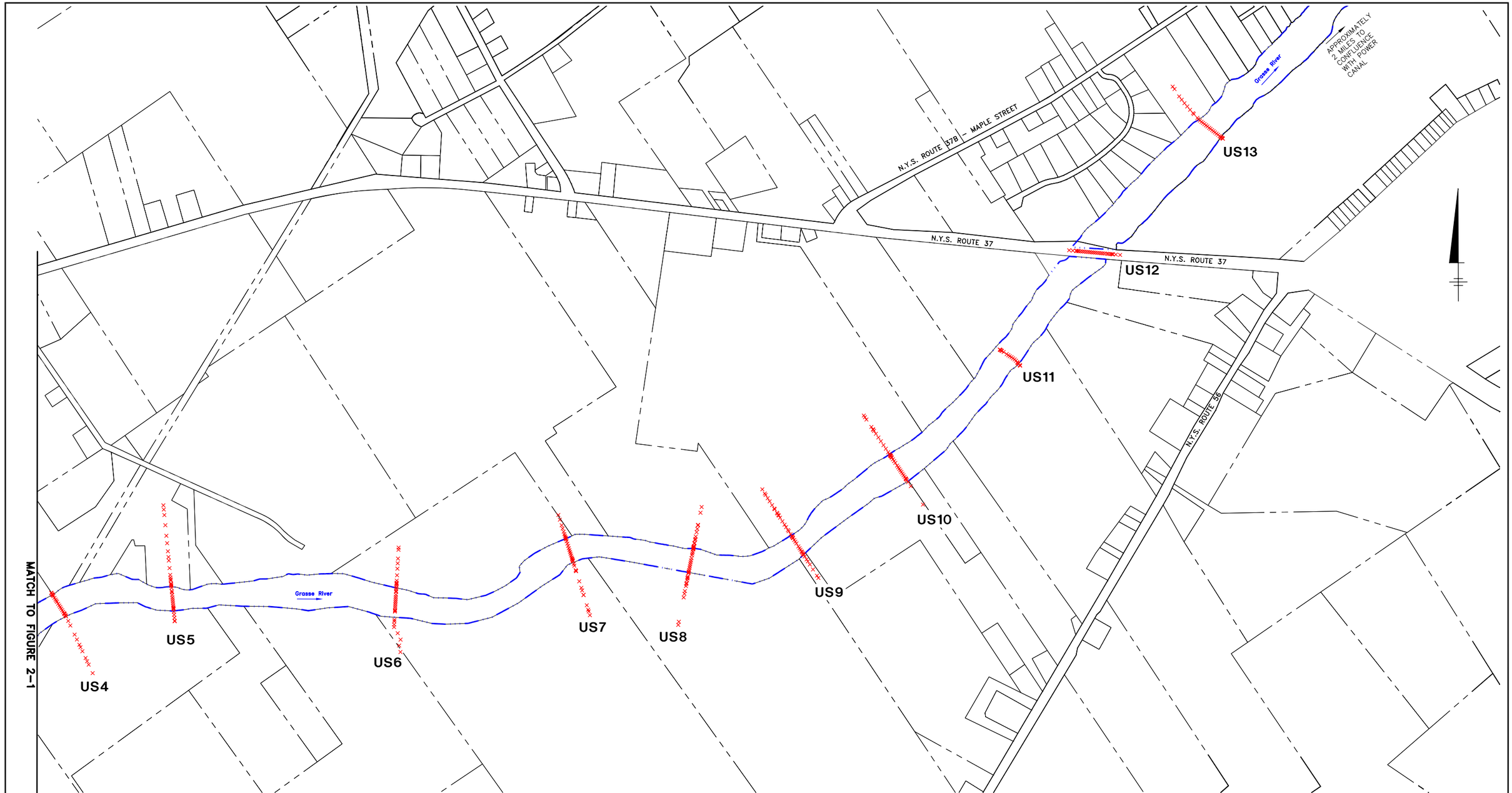
X: 10493X02.DWG, 10493X02.TIF
L: ON=*, OFF=*REF
P: PAGESET/SYR-DL
3/11/05 SYR-85-DMJ GMS NES
10493005/10493B01.DWG

GRASSE RIVER STUDY AREA
MASSENA, NEW YORK
2004 DATA SUMMARY REPORT

# UPSTREAM CROSS SECTION LOCATIONS - US1 THROUGH US3

ALCOA

FIGURE
2-1




LEGEND:

US1 — APPROXIMATE UPSTREAM CROSS-SECTION POINT LOCATION AND TRANSECT ID

PROPERTY BOUNDARY

NOTES:

1. BASEMAP INFORMATION OBTAINED FROM A FIGURE BY CAMP DRESSER & MCKEE ENTITLED "ALCOA, INC. – MASSENA OPERATIONS – WEST PLANT" DATED AUGUST 1, 2003.
2. PROPERTY INFORMATION OBTAINED FROM ST. LAWRENCE COUNTY REAL PROPERTY DATA FOR 2000.
3. RESULTS OF THE UPSTREAM SURVEY ACTIVITIES ARE ILLUSTRATED ON FIGURE 2-3.

0 500' 1000'
GRAPHIC SCALE

X: 10493X02.DWG, 10493X01.TIF
L: ON=*, OFF=*REF*
P: PAGESET/SYR-DL
3/11/04 SYR-BS-DMJ DMS NES
10493005/10493B02.DWG

GRASSE RIVER STUDY AREA
MASSENA, NEW YORK
2004 DATA SUMMARY REPORT

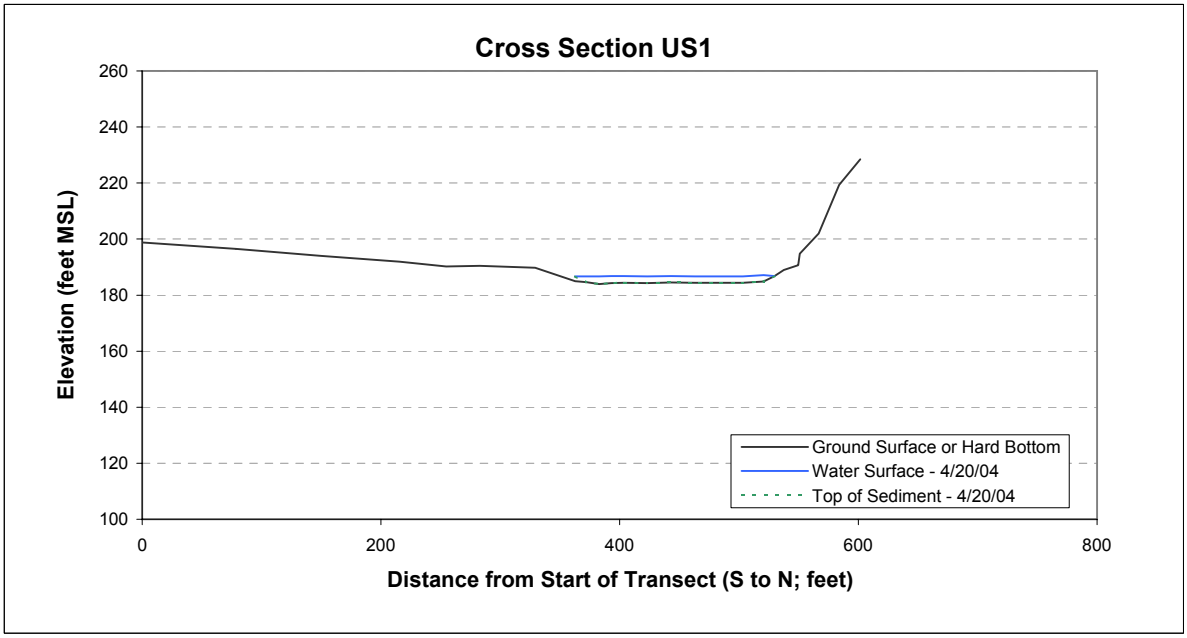
# UPSTREAM CROSS SECTION LOCATIONS - US4 THROUGH US13

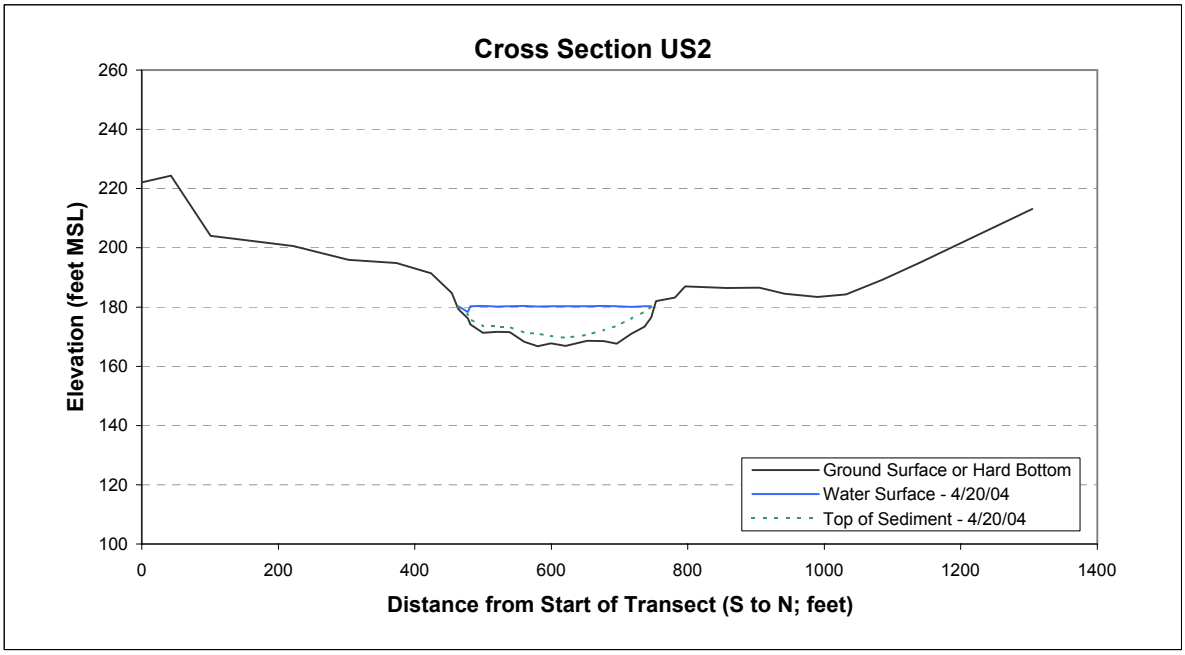
ALCOA

FIGURE 2-2

**GRASSE RIVER STUDY AREA**
**MASSENA, NEW YORK**

**FIGURE 2-3**
**2004 Data Summary Report**
**Cross Sectional Profiles of the Grasse River and Its Floodplains Between Louisville and Massena**

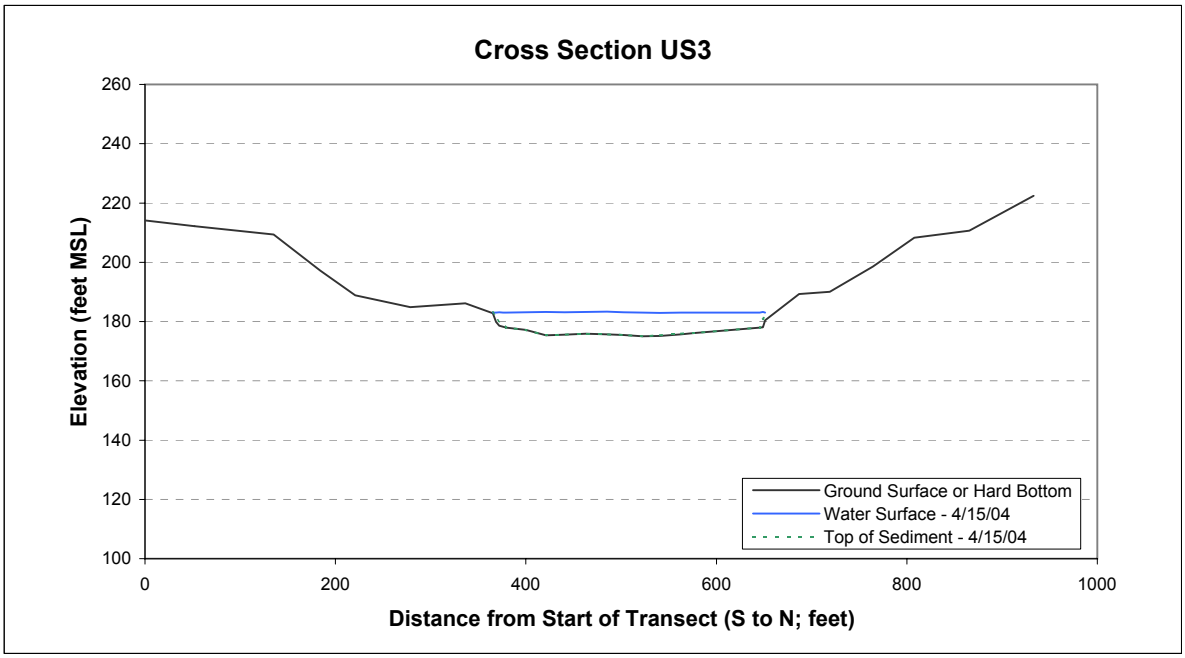


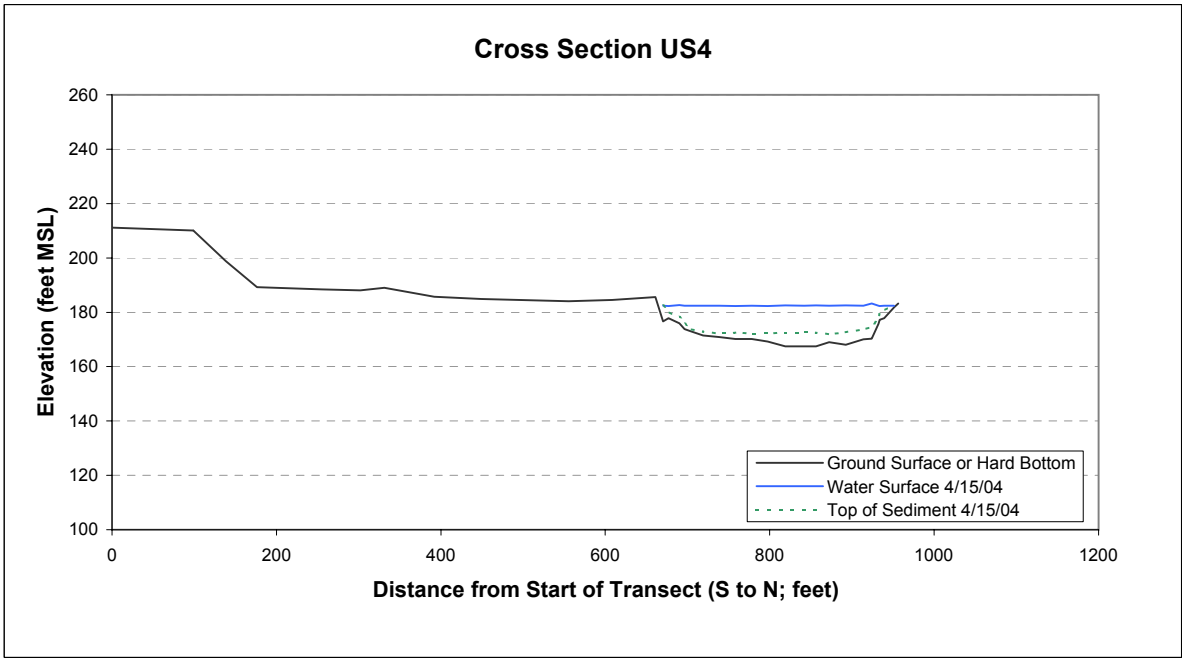




See notes on page 7.

**GRASSE RIVER STUDY AREA**
**MASSENA, NEW YORK**

**FIGURE 2-3**
**2004 Data Summary Report**
**Cross Sectional Profiles of the Grasse River and Its Floodplains Between Louisville and Massena**

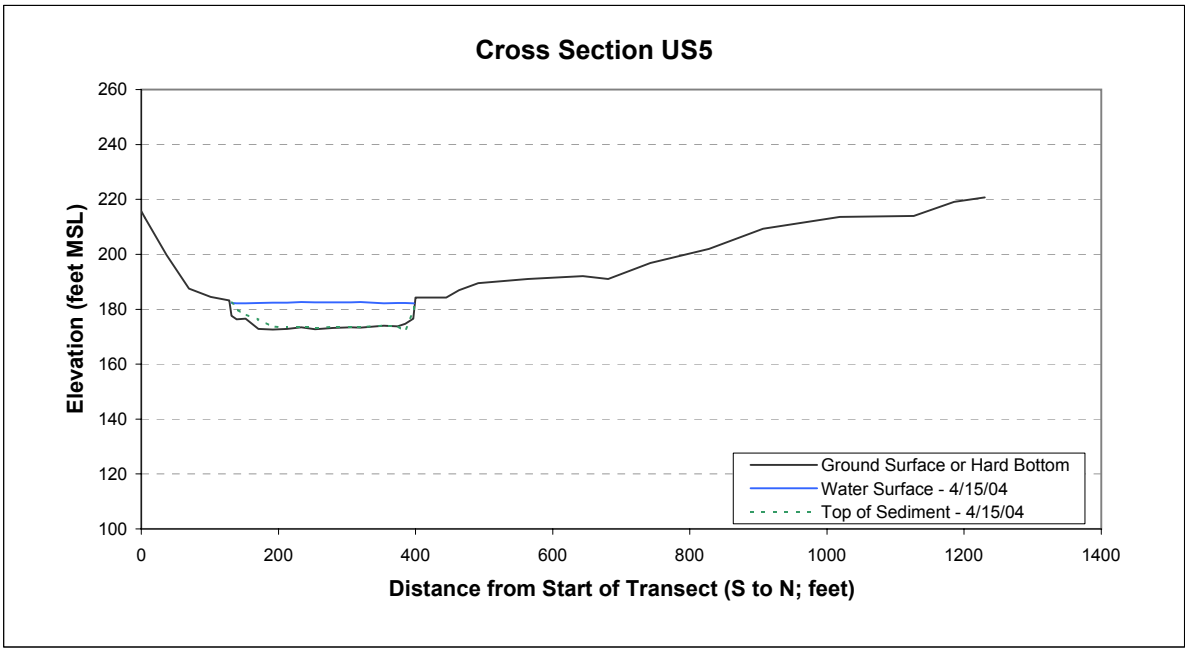


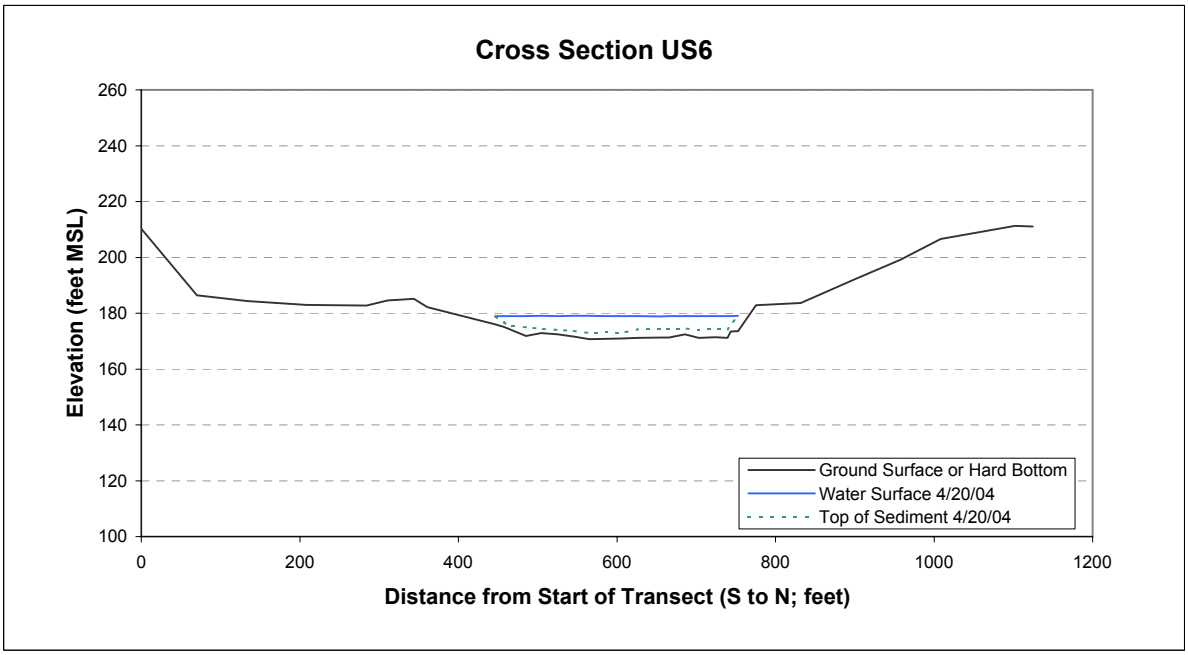




See notes on page 7.

**GRASSE RIVER STUDY AREA**
**MASSENA, NEW YORK**

**FIGURE 2-3**
**2004 Data Summary Report**
**Cross Sectional Profiles of the Grasse River and Its Floodplains Between Louisville and Massena**

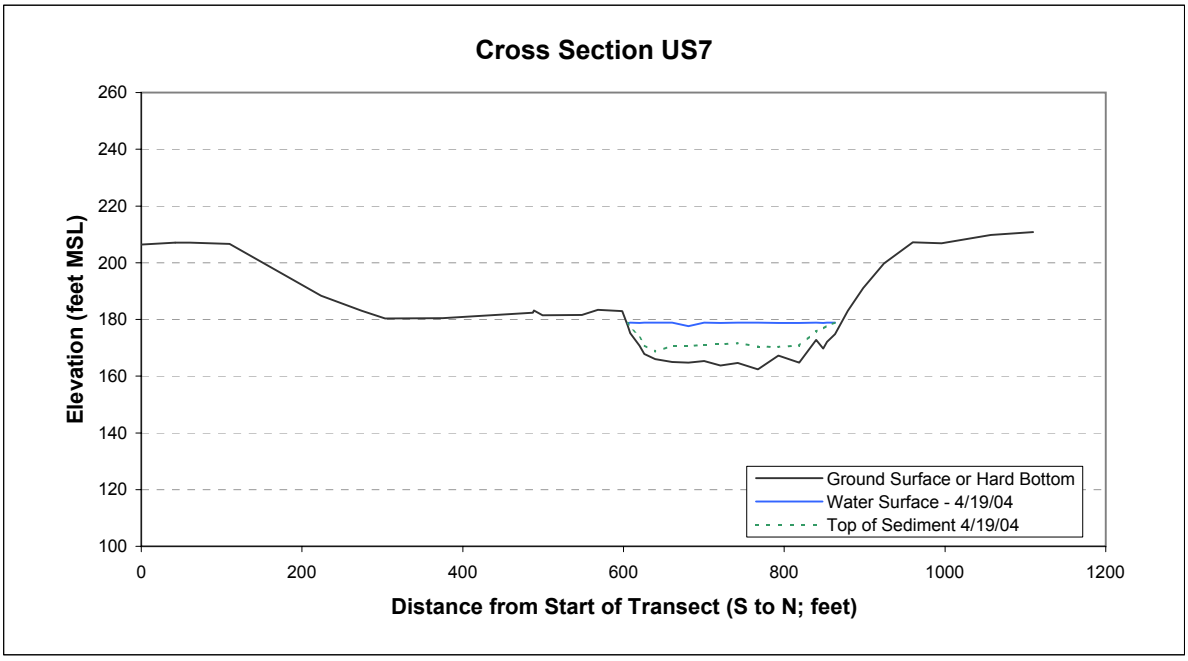


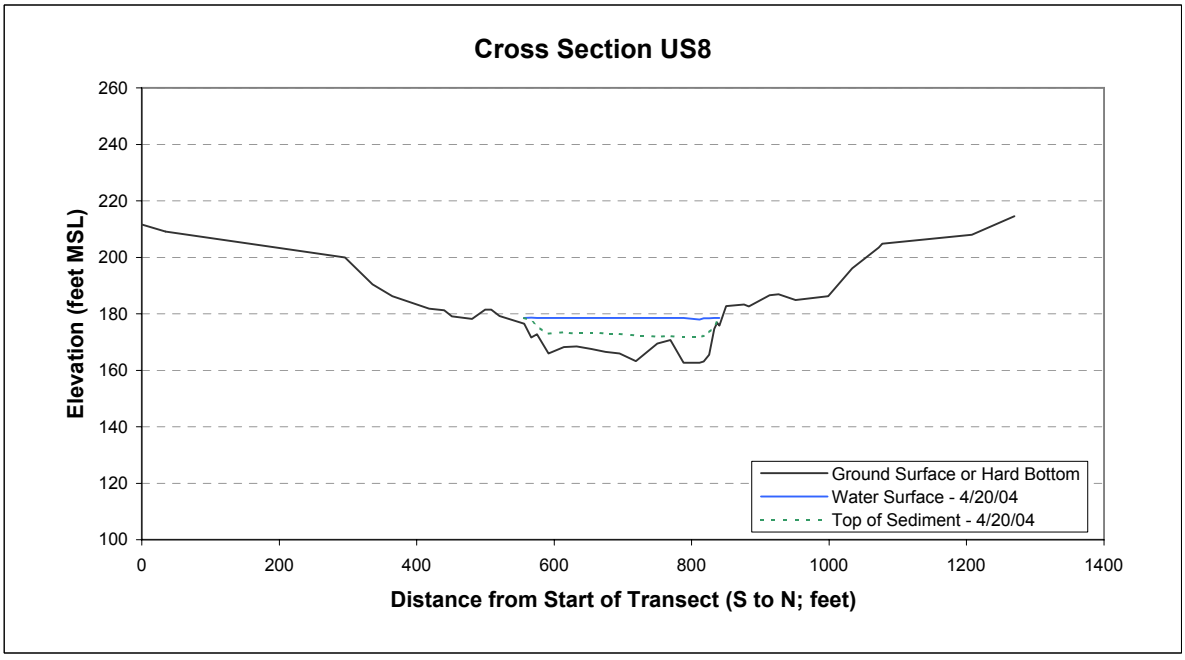




See notes on page 7.

**GRASSE RIVER STUDY AREA**
**MASSENA, NEW YORK**

**FIGURE 2-3**
**2004 Data Summary Report**
**Cross Sectional Profiles of the Grasse River and Its Floodplains Between Louisville and Massena**

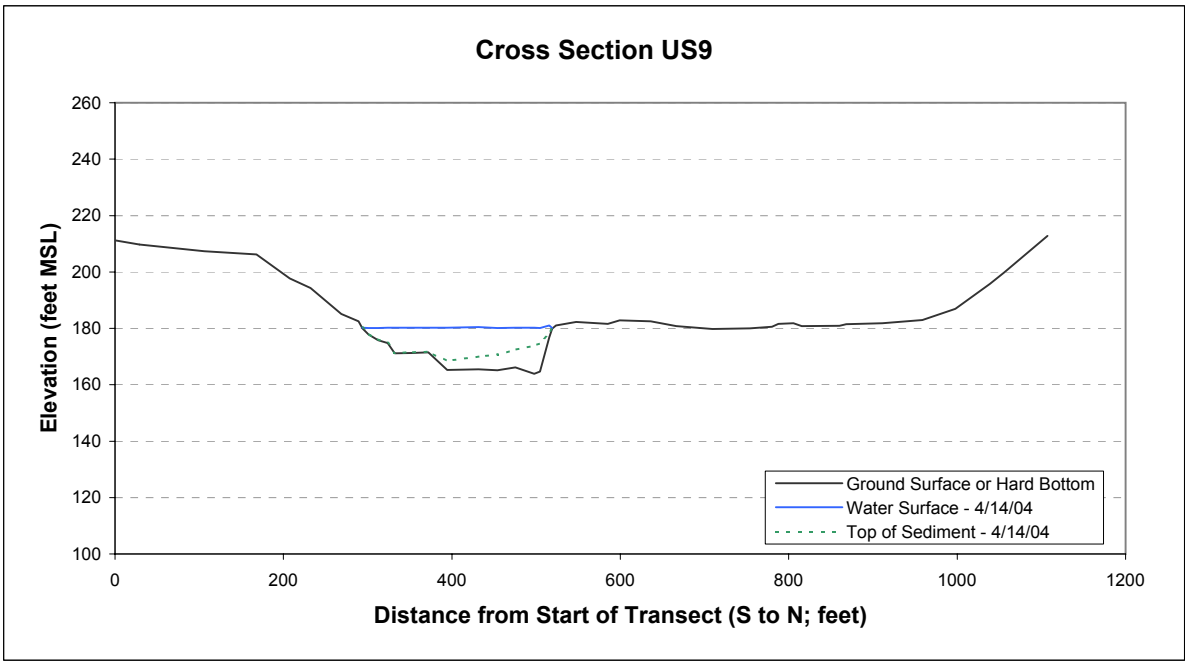


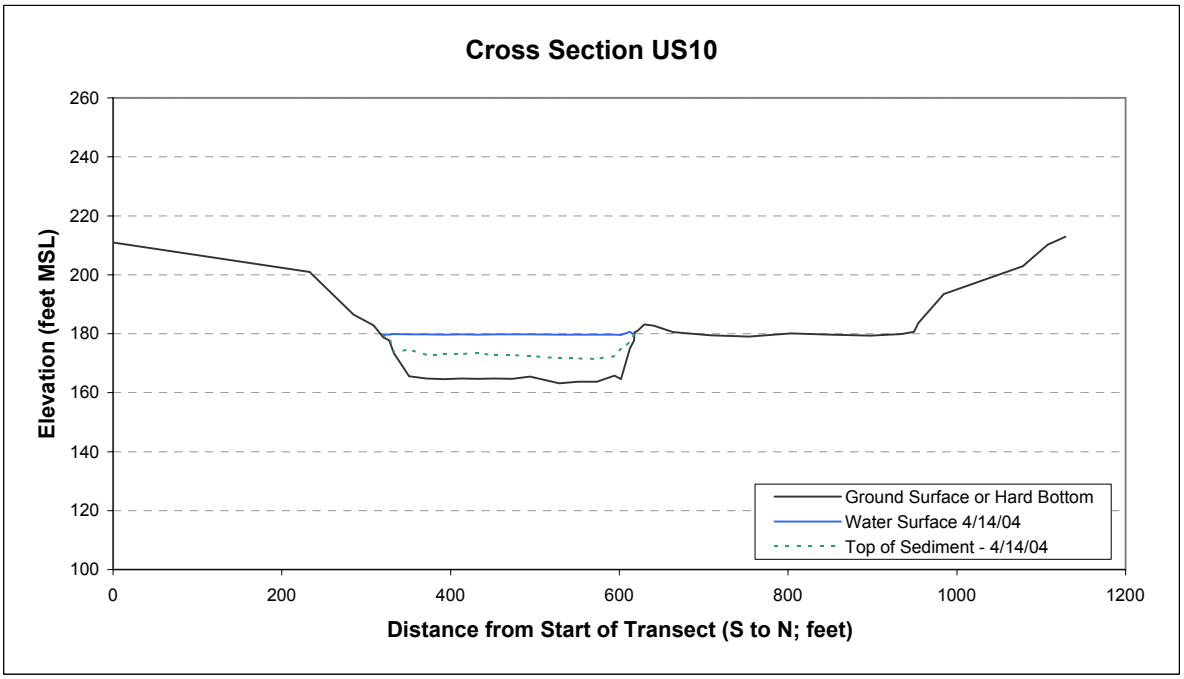




See notes on page 7.

**GRASSE RIVER STUDY AREA**
**MASSENA, NEW YORK**

**FIGURE 2-3**
**2004 Data Summary Report**
**Cross Sectional Profiles of the Grasse River and Its Floodplains Between Louisville and Massena**

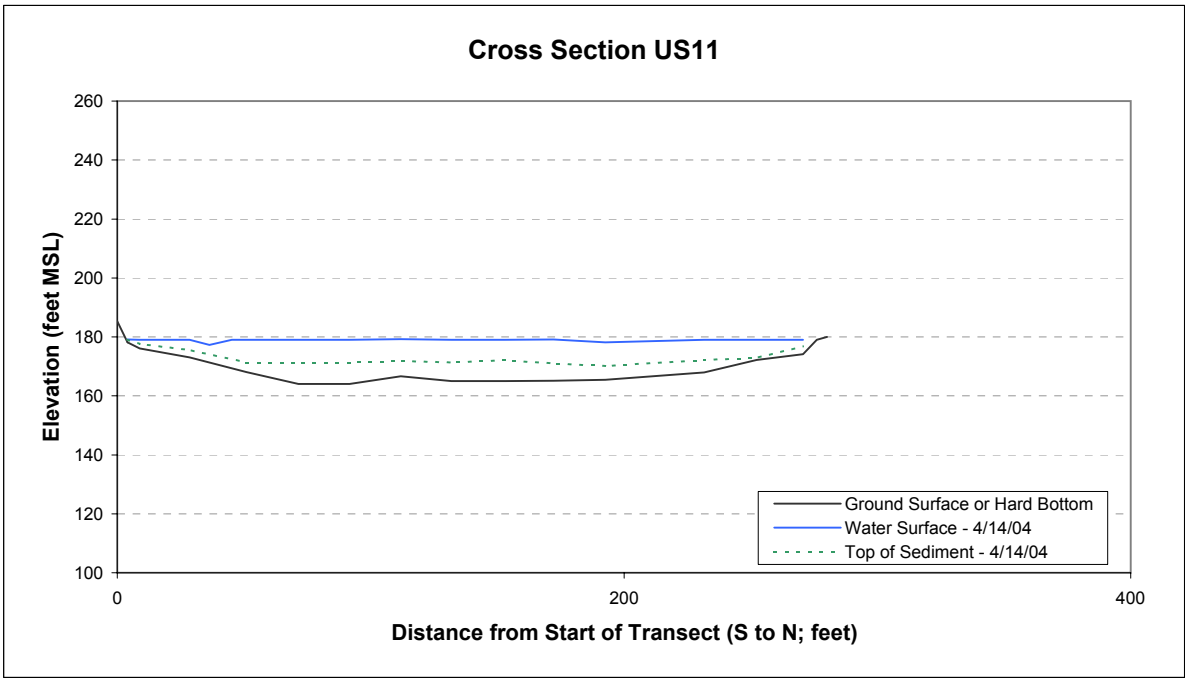


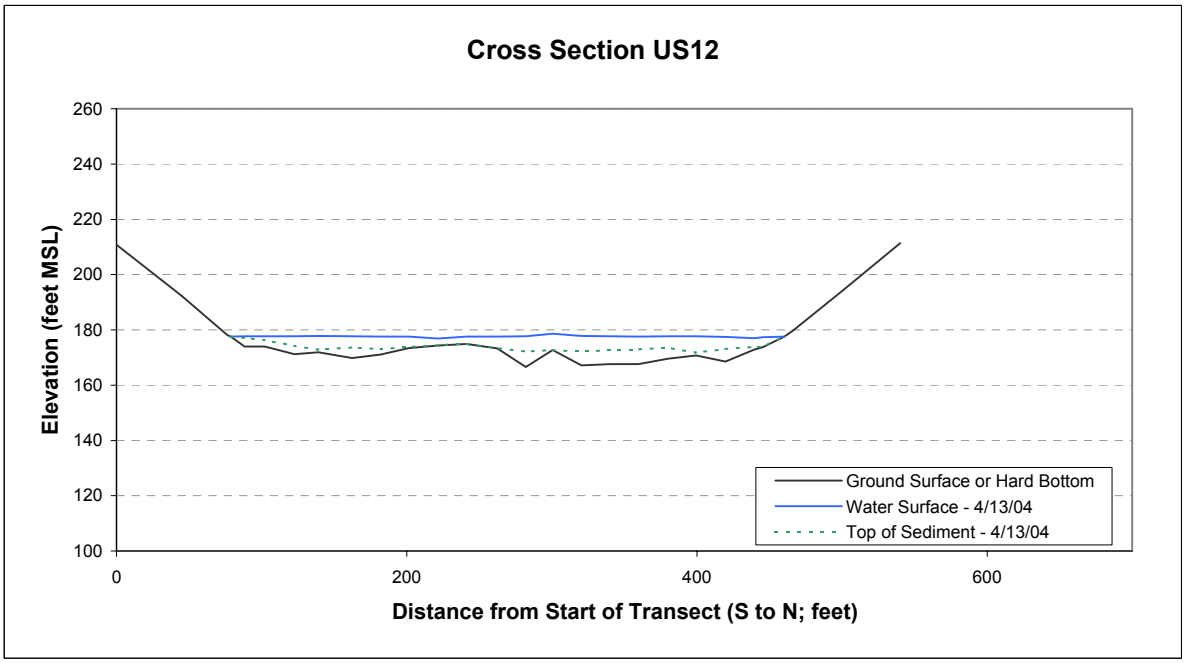




See notes on page 7.

**GRASSE RIVER STUDY AREA**
**MASSENA, NEW YORK**

**FIGURE 2-3**
**2004 Data Summary Report**
**Cross Sectional Profiles of the Grasse River and Its Floodplains Between Louisville and Massena**

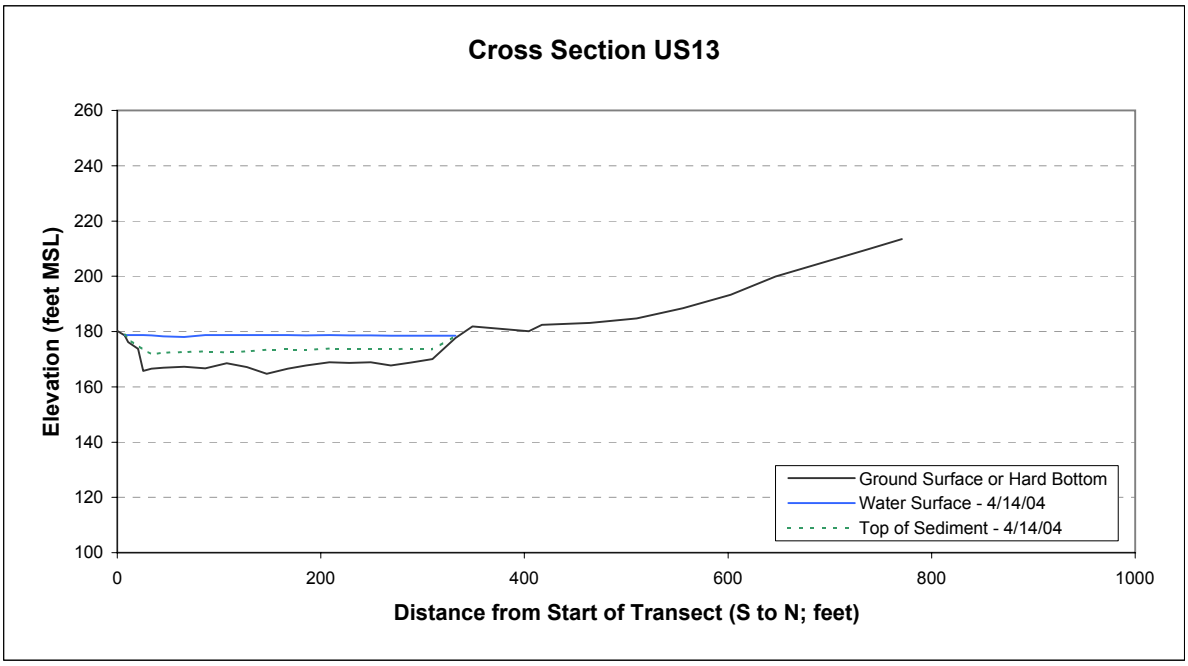



See notes on page 7.

**GRASSE RIVER STUDY AREA**
**MASSENA, NEW YORK**

**FIGURE 2-3**
**2004 Data Summary Report**
**Cross Sectional Profiles of the Grasse River and Its Floodplains Between Louisville and Massena**




Notes:

1. Elevations based on United States Lakes Survey (USLS) 1935.
2. Information presented is reflective of conditions encountered at the date of collection, actual collection date is indicated in the legend.
3. The x-axis represents the distance in feet along the transect beginning south of the Grasse River and extending northward.
4. Transect US1 does not extend to an elevation of 210 feet mean sea level (MSL) on the southern floodplain, as this elevation was not reached before intersecting the property line, and access was not obtained for the adjacent property.
5. Survey information was not obtained for US4 on the northern floodplain, US11 on the northern and southern floodplains, and US13 on the southern floodplain as access was not granted by the respective property owners.
6. The last four points listed under Transect US6 were collected off the transect line due to access considerations (e.g., points collected along property line).
7. Transect US7 does not extend to an elevation of 210 feet MSL on the southern floodplain, as there was a change in grade and the targeted elevation would not be achieved for several additional stations out into the floodplain.