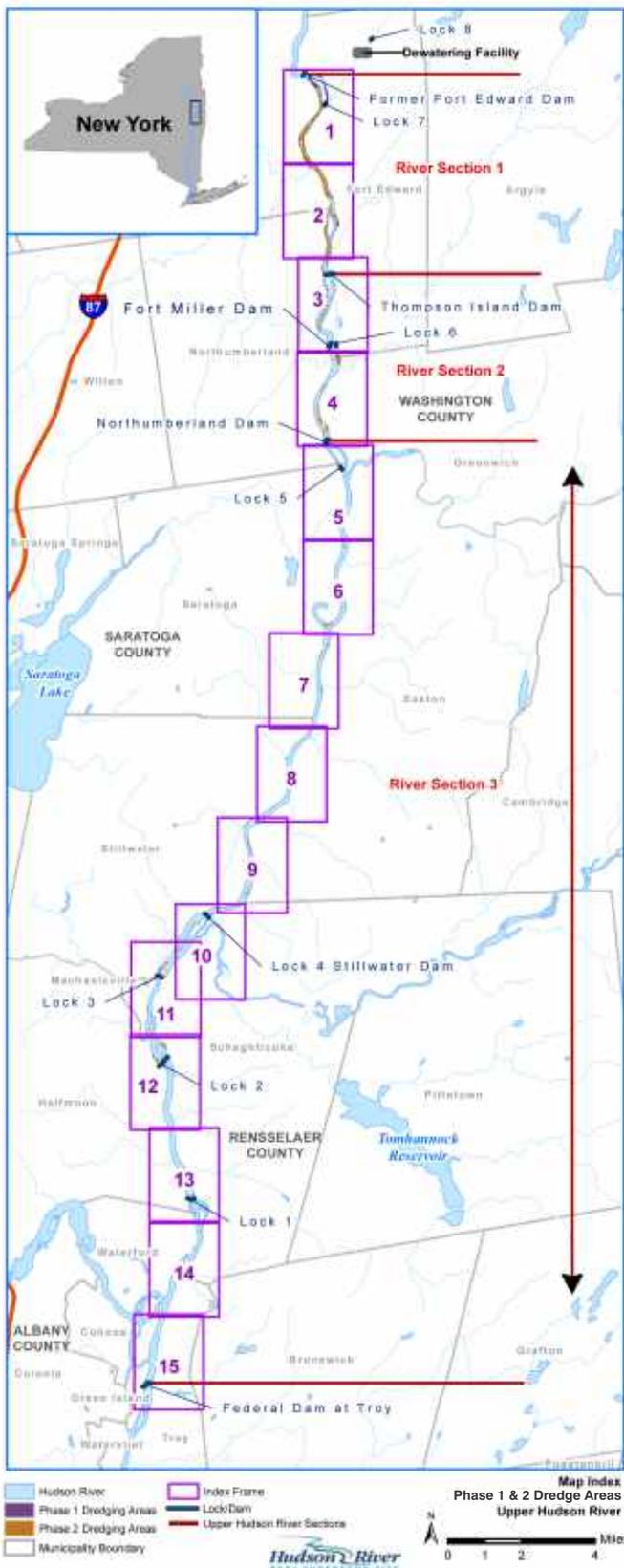




## Phase 2 Phase 2 Overview Factsheet

Spring 2012



### Phase 2 Overview

In February 2002, EPA issued a Record of Decision (ROD) for the Hudson River PCBs Superfund site that calls for targeted environmental dredging of approximately 2.65 million cubic yards of PCB-contaminated sediment from a 40-mile section of the Upper Hudson River. PCBs, or polychlorinated biphenyls, are considered probable human carcinogens and are linked to other adverse health effects. The primary goal of the Hudson River PCBs cleanup is to protect people and the environment from unacceptable risks due to PCB-contaminated sediments in the Upper Hudson River.



The cleanup of the Hudson River is occurring in two phases. Phase 1 of the project was conducted by General Electric Co (GE) with oversight by EPA from May to November 2009. During this phase, approximately 283,000 cubic yards of PCB-contaminated sediment was removed from a six-mile stretch of the Upper Hudson River near Fort Edward, New York. After an extensive evaluation by an independent panel of scientists and input from a broad range of stakeholders, EPA developed plans for the second part of the cleanup. Phase 2 is being conducted at full production to remove the remainder of the contaminated river sediment targeted for dredging. Phase 2, Year 1 was conducted from June to November 2011 along a one and one-half mile section of the Hudson River south of Ford Edward. Approximately 363,000 cubic yards of contaminated sediment were removed, exceeding the target of 350,000 yards established for the 2011 season.

The dredging target for 2012 (Phase 2, Year 2) is 350,000 cubic yards of sediment, which likely will be exceeded as a result of processing facility improvements that will help to increase productivity.

It is estimated that the second phase of the project will take five to seven years to complete.

### Where will the dredging be done?

The ROD covers three sections of the Upper Hudson River: River Section 1 (from the former Fort Edward Dam to the Thompson Island Dam); River Section 2 (from the Thompson Island Dam to the Northumberland Dam); and River Section 3 (from the Northumberland Dam to the Federal Dam at Troy). Within the River Sections (see Map Index on page 4), dredging is conducted in areas of approximately five acres each, called "certification units" (CUs).

Phase 1 dredging was conducted in portions of River Section 1. Phase 2 dredging began with the areas that were not completed in Phase 1 and will continue downstream through River Sections 2 and 3. In 2011, dredging took place in CUs 9 – 16 and 19-25 (see Map 1). In 2012, dredging will resume beginning where dredging ended in 2011 and is expected to continue approximately 3 miles south, through the area of Griffin Island, in CUs 26 - 54.

### How were the dredge areas selected?

The dredge areas were identified using the results of a multi-year sediment sampling program conducted by GE that began in 2002 and generated more than 50,000 sediment samples taken from the bottom of the Upper Hudson River. The sampling data allowed EPA and GE to determine the distribution of the PCBs in the sediment, refine estimates of the amount of PCBs in the sediment, and establish river sediment characteristics (e.g., silt, sand, gravel). Phase 2 of the project was designed using the Phase 2 Dredge Area Delineation report (including

the Phase 2 Intermediate and Final Design reports) and knowledge gained during Phase 1. In addition, before the start of the 2011 dredge season, 3,900 additional samples were taken from the river bottom in River Section 1 to more accurately determine the depth and location of PCBs. Some additional sediment sampling will occur in River Sections 2 and 3 as the project continues. Various project design reports are available on the project Web site at [www.epa.gov/hudson](http://www.epa.gov/hudson).

### How is PCB-contaminated sediment removed, processed and disposed of?

Mechanical dredges are used to remove sediment from the river bottom. Dredges mounted on deck barges use environmental clamshell buckets to place dredged sediments into barges. Tugboats then push the filled barges to a dewatering and sediment-processing facility located on the Champlain Canal in Fort Edward, NY. Once there, the most contaminated sediment is processed first. Debris is removed and sediment is mechanically dewatered; the water is treated on-site before being returned to the Champlain Canal. The dewatered sediment and debris are loaded onto railcars for transport to a secure, PCB-approved landfill.

Dredging and processing operations are continually monitored and evaluated to determine if changes are needed to improve operations. Improvements for 2012 include equipment modifications and changes at the processing facility that will further increase productivity (see Figure 1).

Data and operations are constantly evaluated to ensure that the momentum of cleanup work in the river continues and that the biggest sources of ongoing contamination are addressed. After an extensive review of the first phase of dredging, EPA modified a number of requirements for dredging. These refinements include:

- **Improved sampling and dredge design:** Improved sampling methods provide more complete information on the extent of contamination in the targeted dredge areas.
- **Fewer dredge passes:** Fewer bucket bites or dredge "passes" (typically two) are needed to remove PCBs from the targeted dredge areas.
- **Less capping:** Capping is limited to 11% of the dredged area, excluding areas that must be capped due to considerations such as encountering bedrock. In some locations capping of the river sediments is necessary to isolate small amounts of PCBs remaining after dredging.

## Performance Standards

The performance standards were designed to ensure dredging operations are done safely and public health is protected. Three engineering performance standards were created to protect water intakes and the environment: resuspension (transport of PCBs down river); residuals (PCBs left behind); and productivity (complete the project efficiently). Five quality of life performance standards were developed (air quality, noise, lighting, odor, and navigation) for the purpose of minimizing the effects of dredging on people, businesses, and communities. These standards are re-evaluated and may be adjusted, as needed, as dredging operations move from the uppermost portions of the river into areas much further downstream.

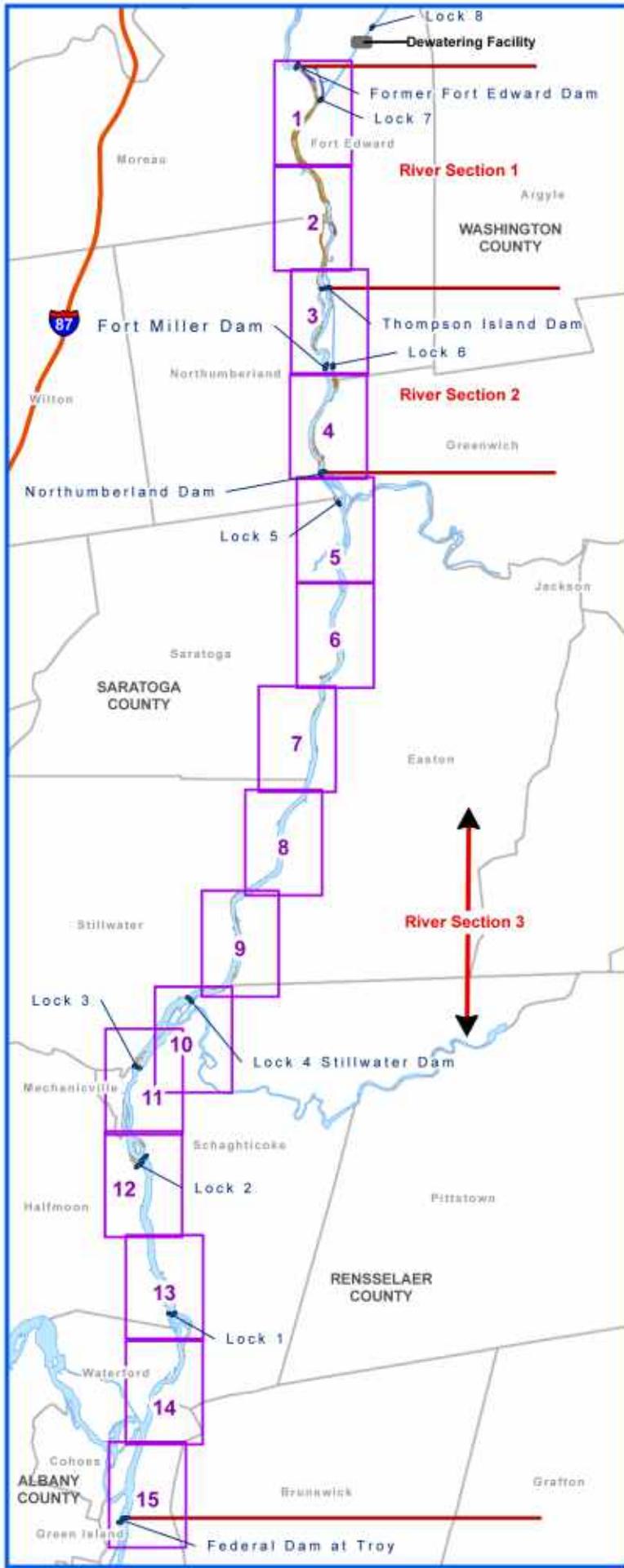
## In-River Monitoring

The Federal Safe Drinking Water Act standard of 500 parts per trillion (ppt) is used as the resuspension standard for the project. Compliance with this standard is monitored through an extensive river quality monitoring program at upstream, near-field (within 300 meters downstream of dredging), mid-field (approximately 1-2 miles downstream), and at far-field (greater than 2 miles downstream) locations. When resuspension or other performance standards are not met, GE will be required to conduct evaluations and adjust dredging operations. Air monitoring also occurs 24/7 during dredging operations. For quality of life issues such as odor, noise, or lighting, monitoring will occur regularly, as well as in response to complaints; and GE will be required to take action to address the issue.

Performance standard monitoring data is available on EPA's Hudson Dredging Data web site:  
[www.hudsondredgingdata.com](http://www.hudsondredgingdata.com)



**Figure 1:** Processing Facility improvements for winter/spring 2012 include expansion of the coarse material staging area and construction of a second barge unloading station, additional size separation equipment, and a second gravity thickener.

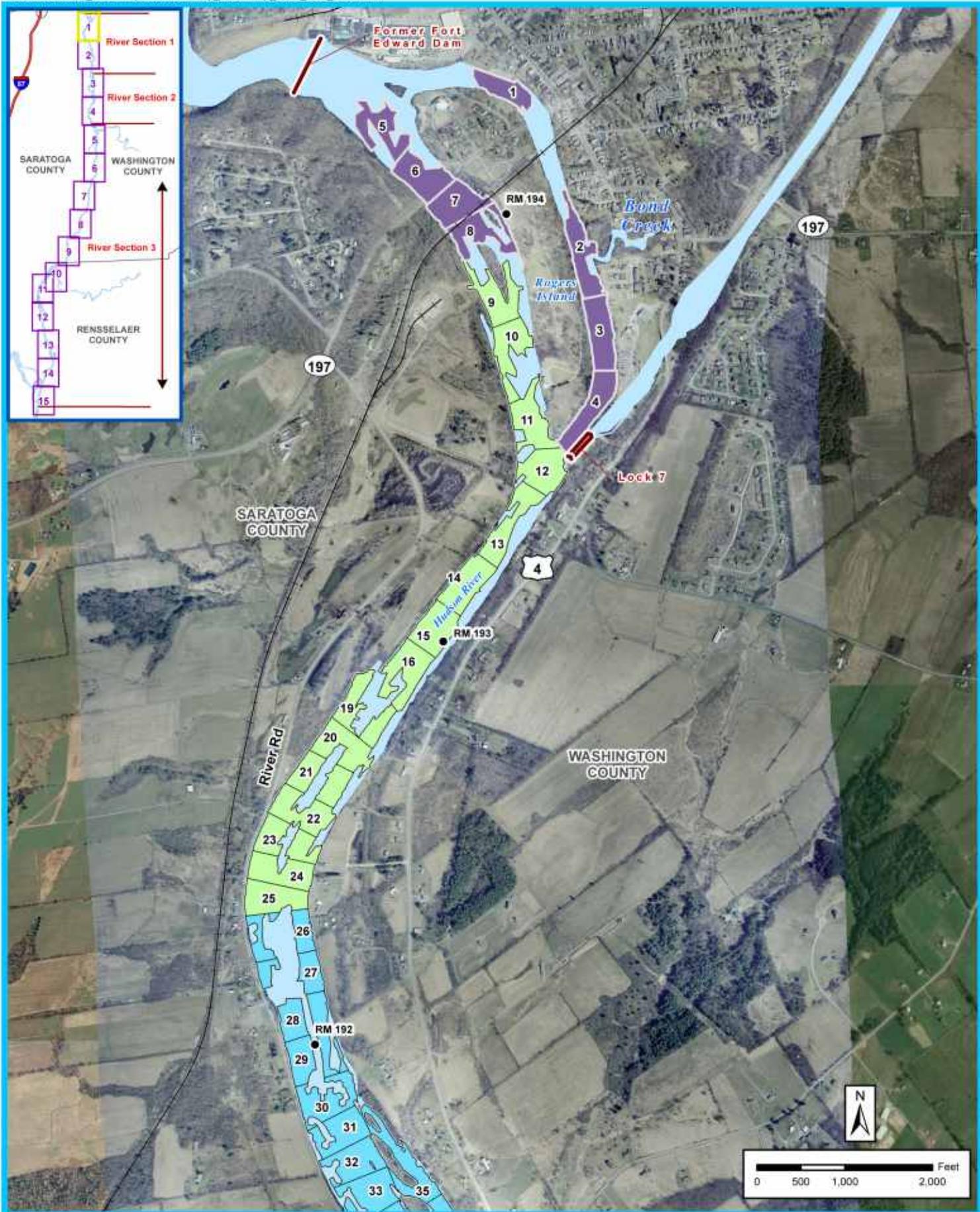


### Map Index

**LEGEND**

- Index Frame
- Lock/Dam
- Upper Hudson River Sections
- Hudson River
- Phase 1 Dredging Areas
- Phase 2 Dredging Areas
- Municipality Boundary

0 1 2 4 Miles

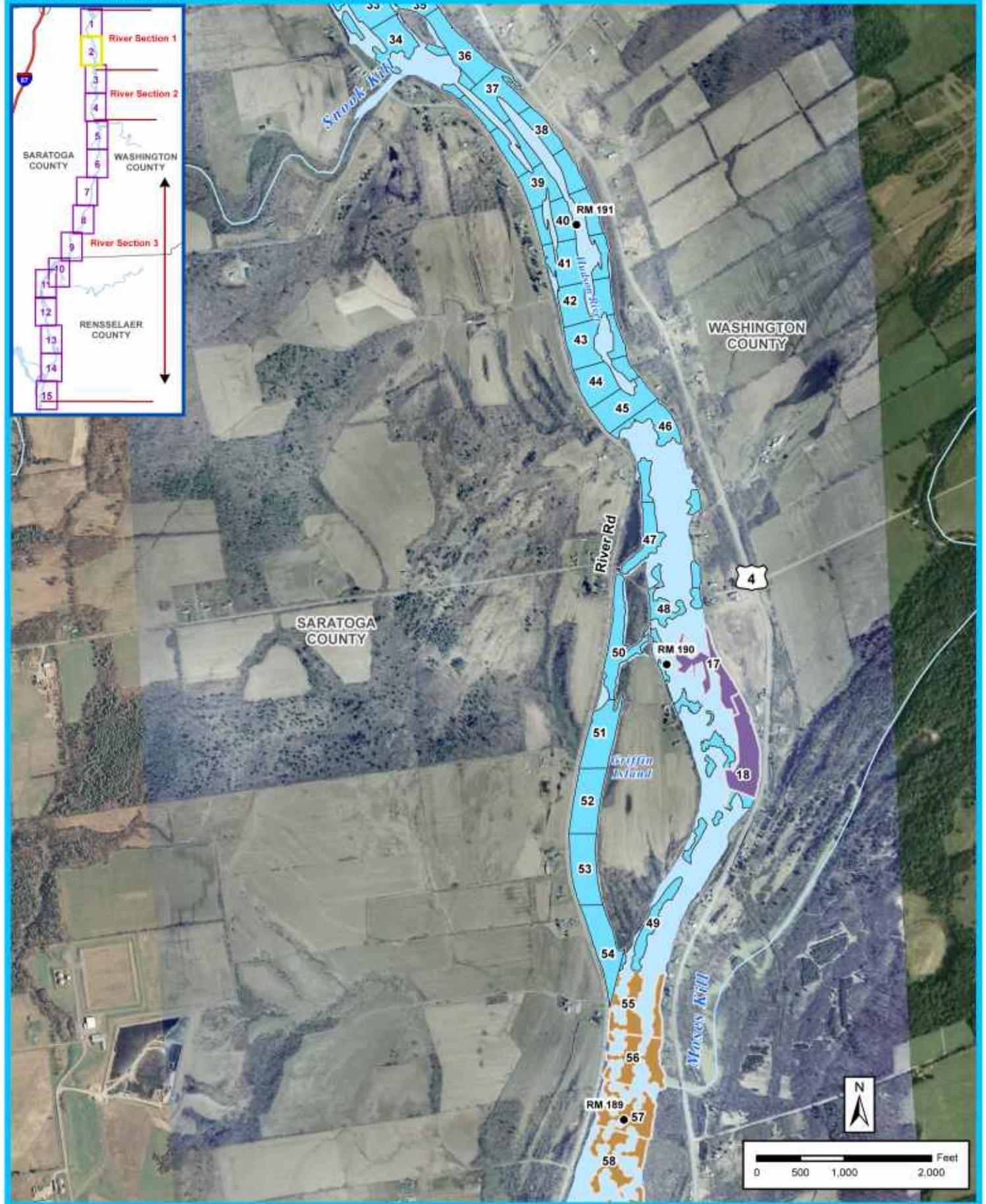


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- Phase 2 Year 2 (2012) Dredged Areas

### Phase 1 and 2 Dredge Areas Map 1

Aerial Photo Provided by  
GE April 22, 2007. River Flow  
at Time of Photo 18, 500 cfs



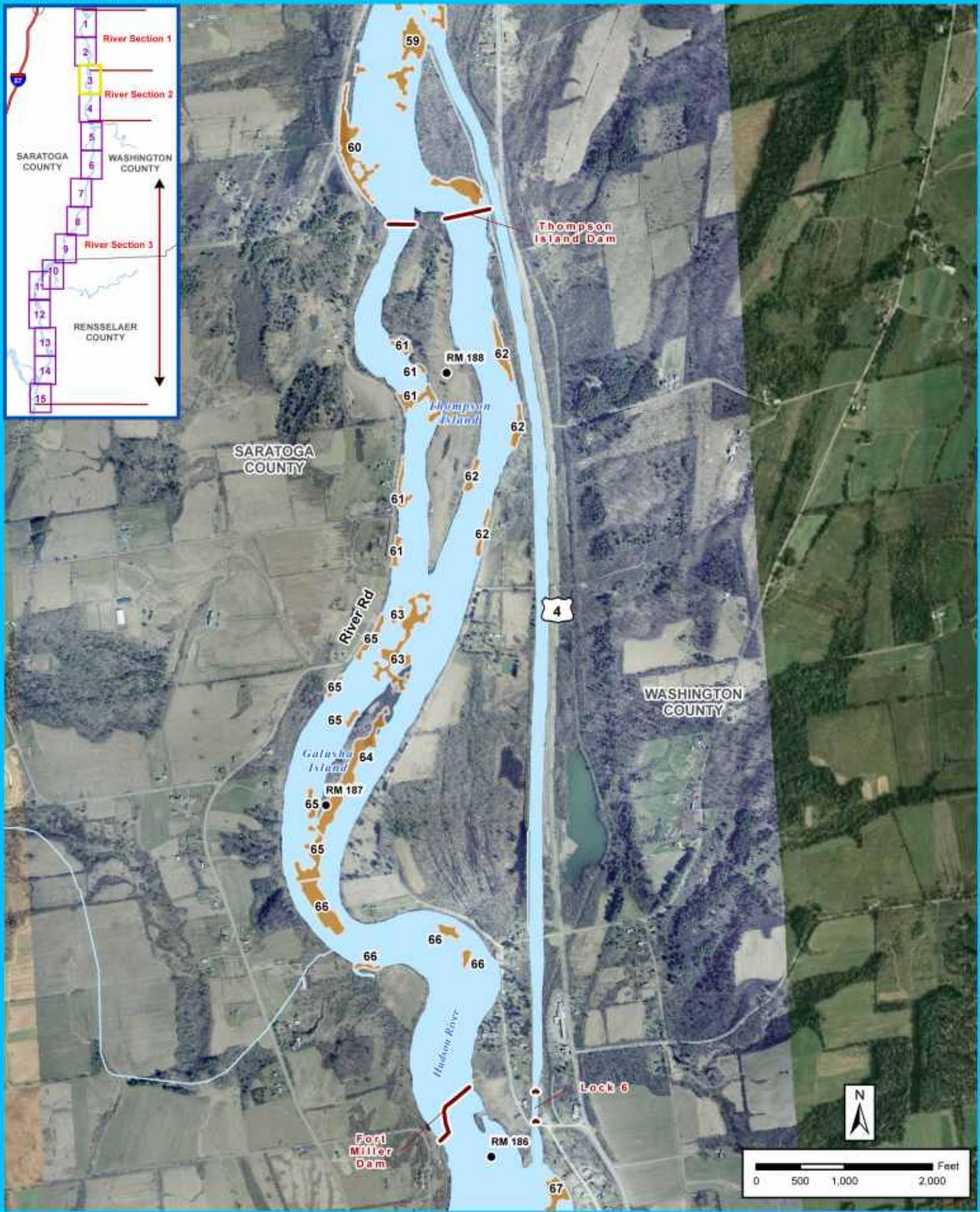


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**Phase 1 and 2 Dredge Areas**  
Map 2

Aerial Photo Provided by  
GE April 22, 2007. River Flow  
at Time of Photo 18,500 cfs





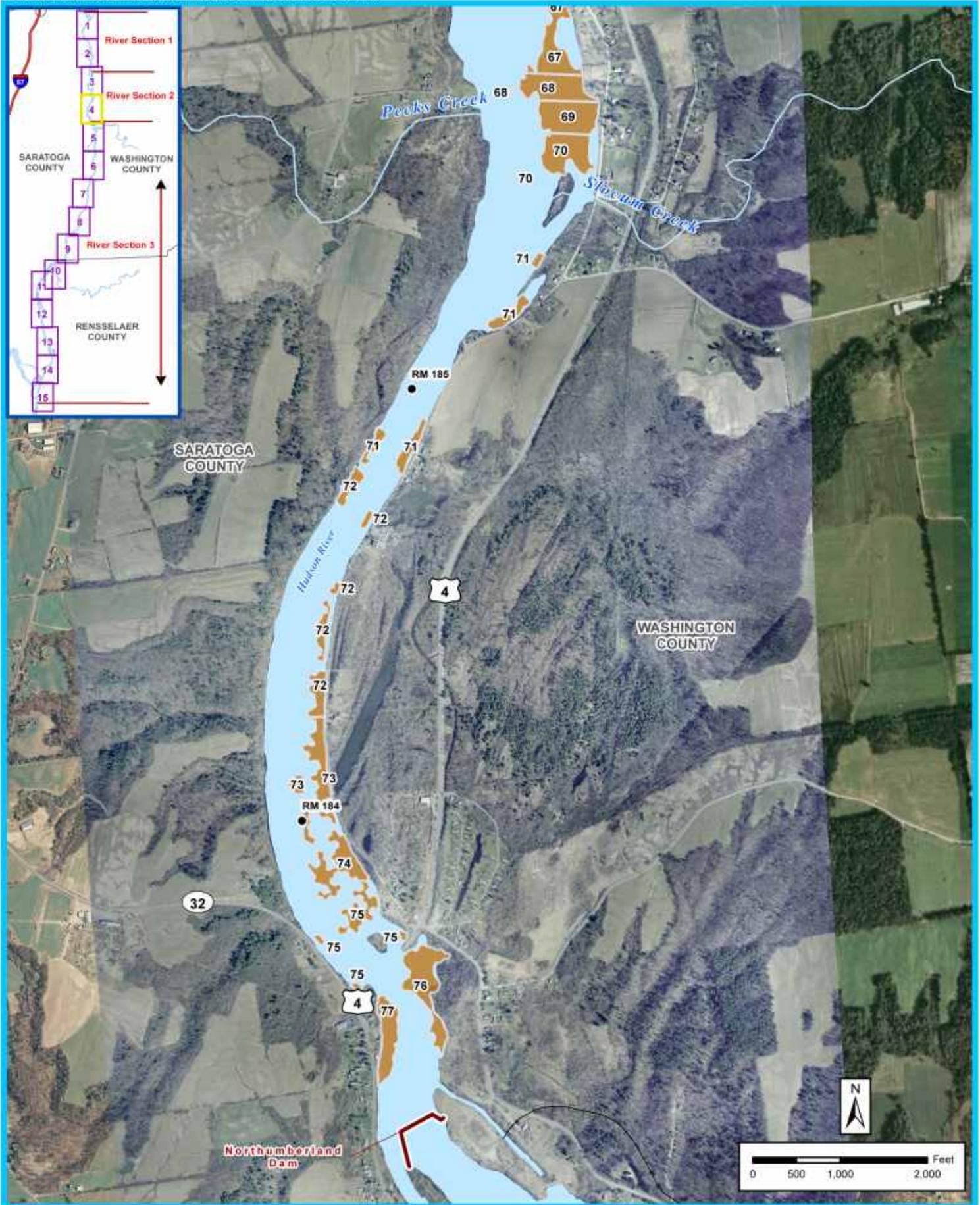
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### Phase 1 and 2 Dredge Areas Map 3

Aerial Photo Provided by  
GE April 22, 2007, River Flow  
at Time of Photo 18,500 cfs



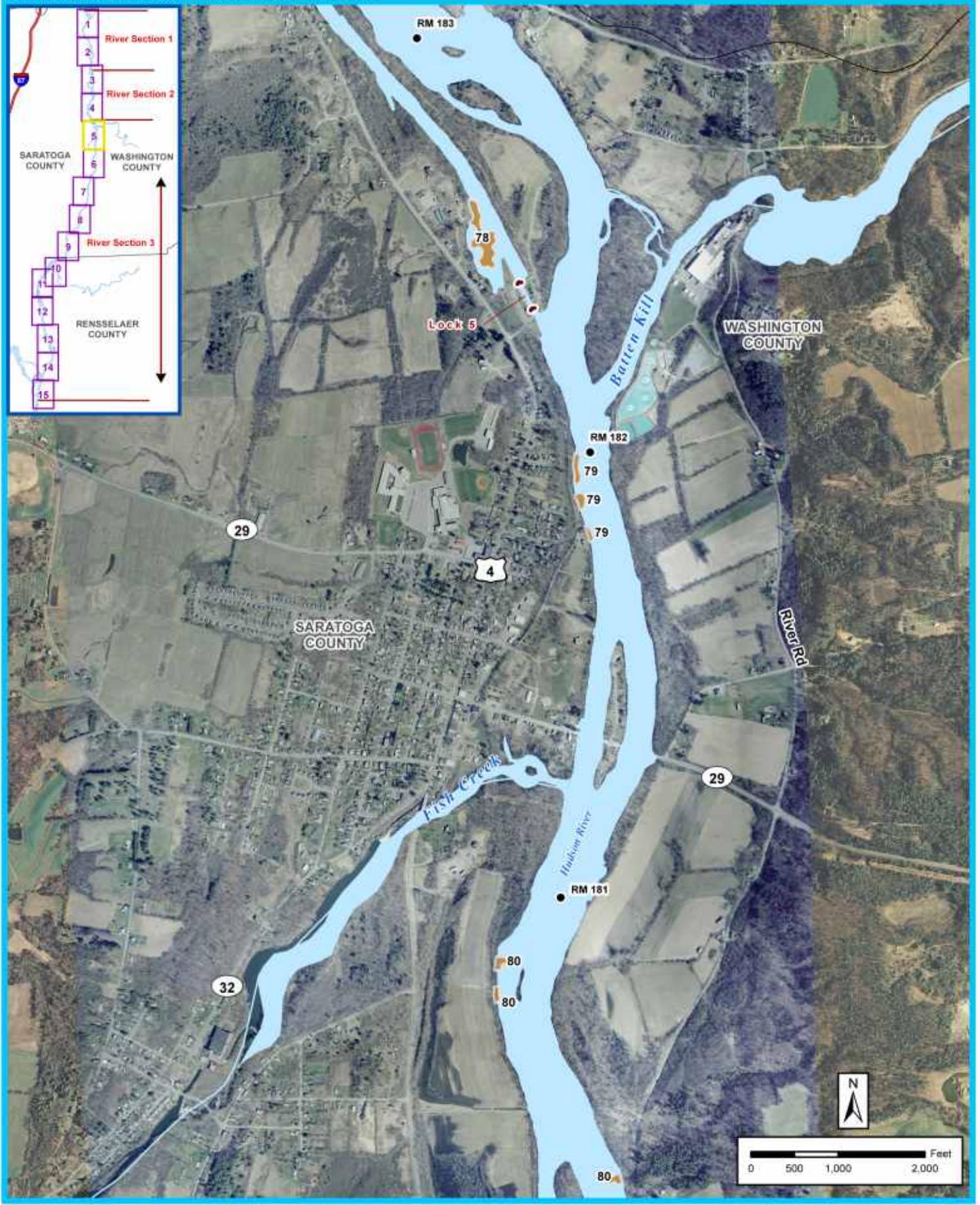


**Phase 1 and 2 Dredge Areas**  
**Map 4**

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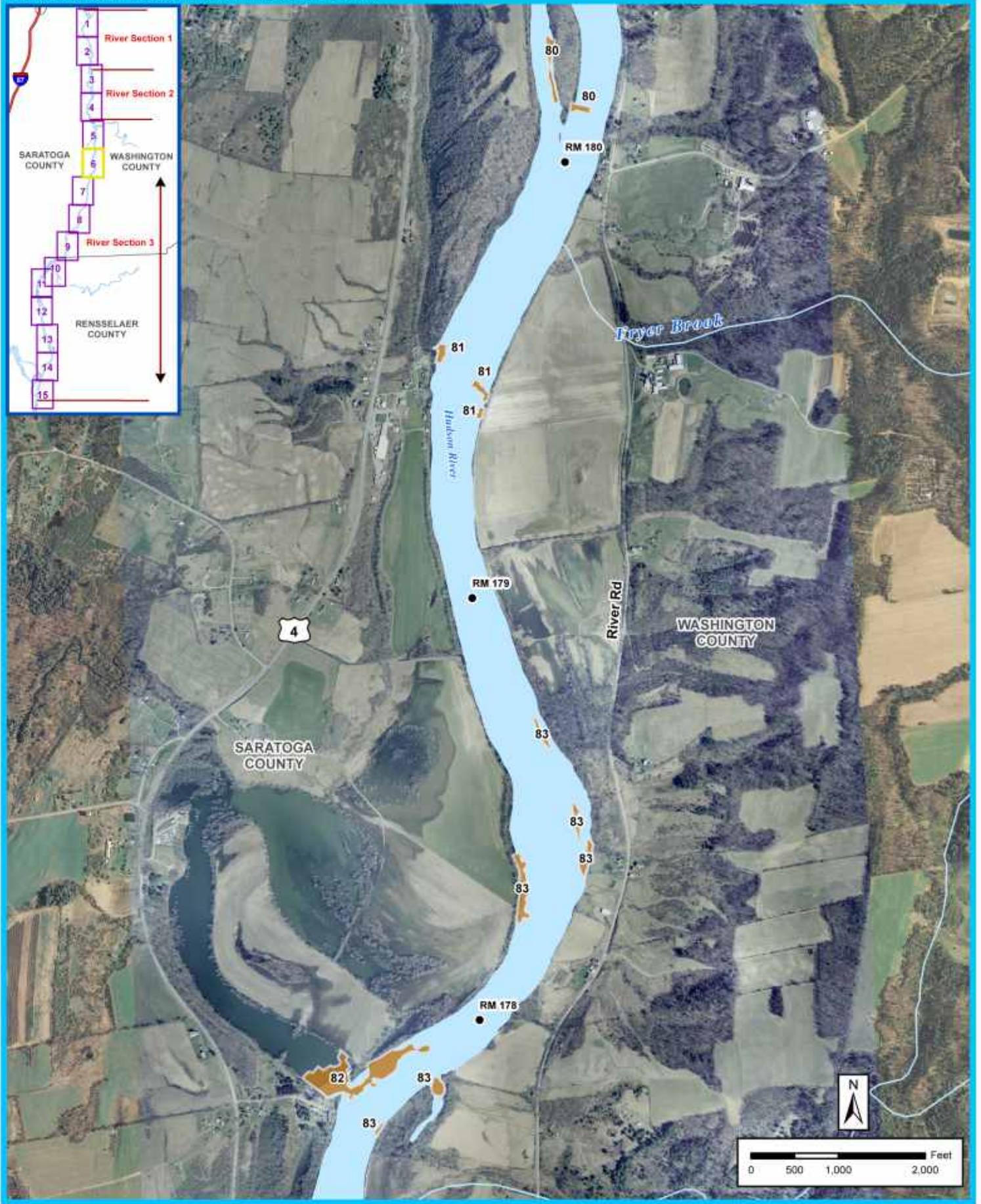


**Phase 1 and 2 Dredge Areas  
Map 5**

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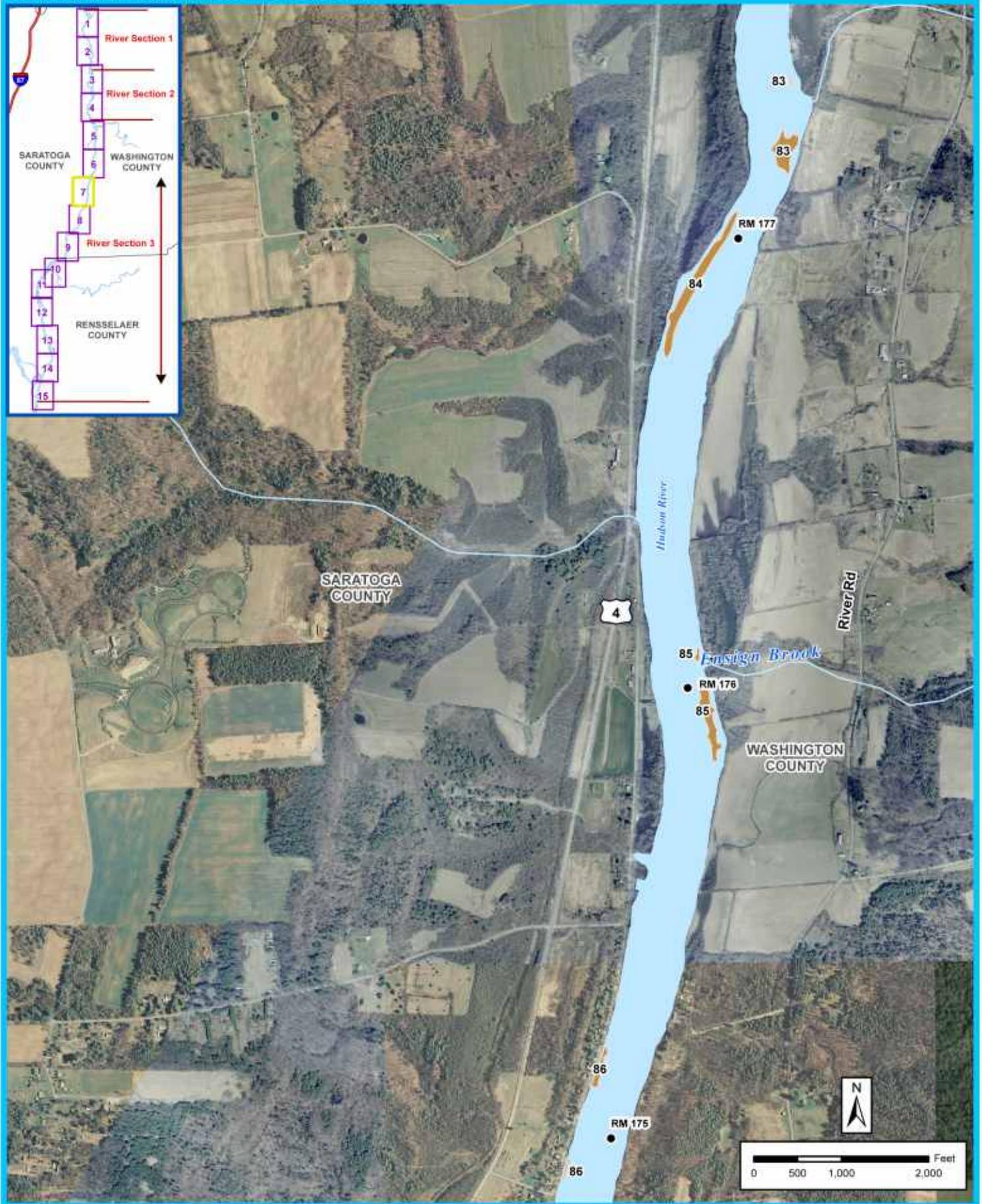
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**Phase 1 and 2 Dredge Areas**  
**Map 6**

Aerial Photo Provided by GE April 22, 2007. River Flow at Time of Photo 16, 500 cfs



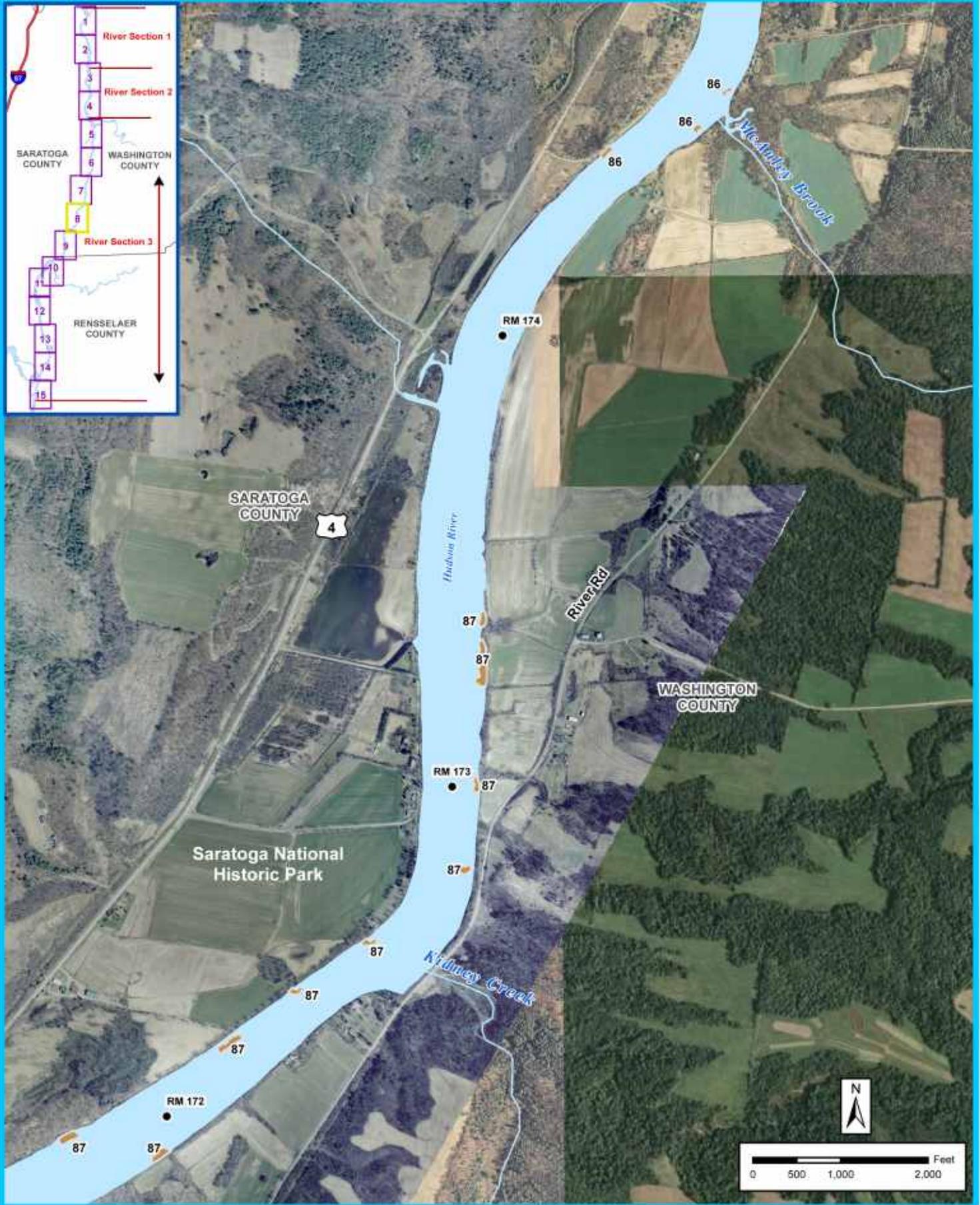


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**Phase 1 and 2 Dredge Areas**  
**Map 7**

Aerial Photo Provided by  
 GE April 22, 2007. River Flow  
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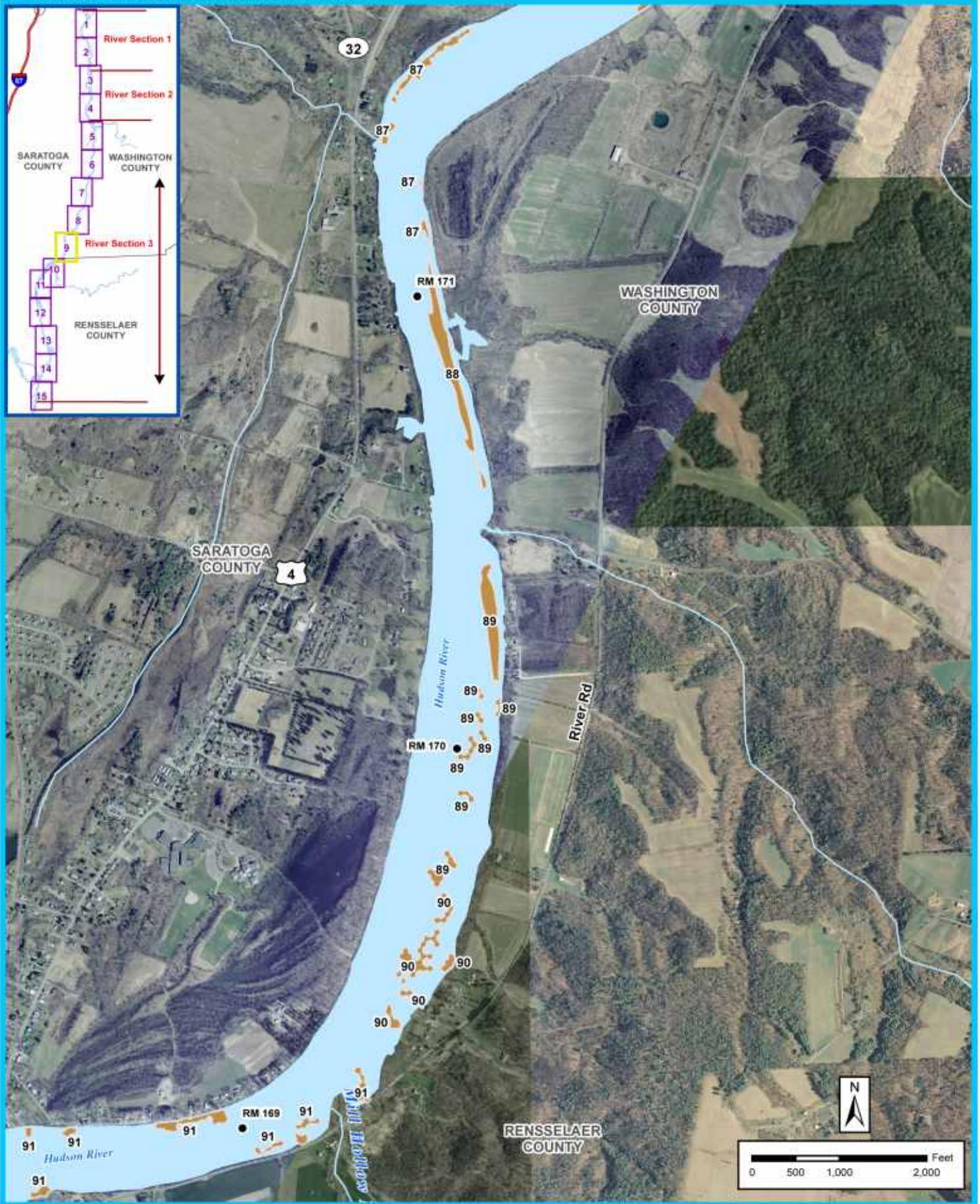


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### Phase 1 and 2 Dredge Areas Map 8

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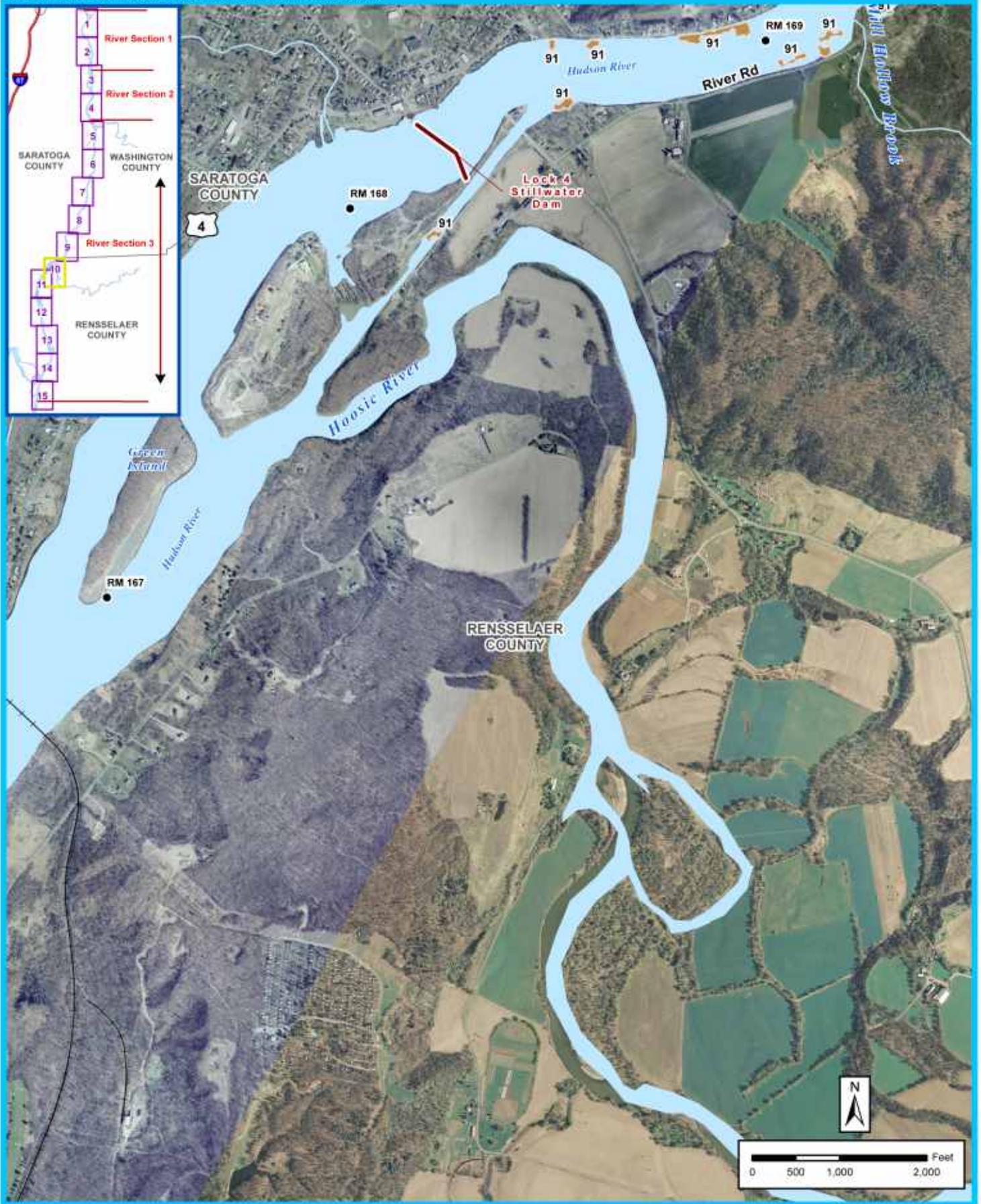


- River Mileposts
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**Phase 1 and 2 Dredge Areas**  
**Map 9**

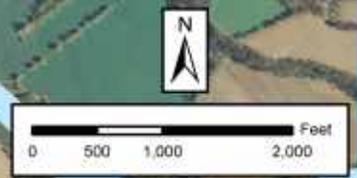
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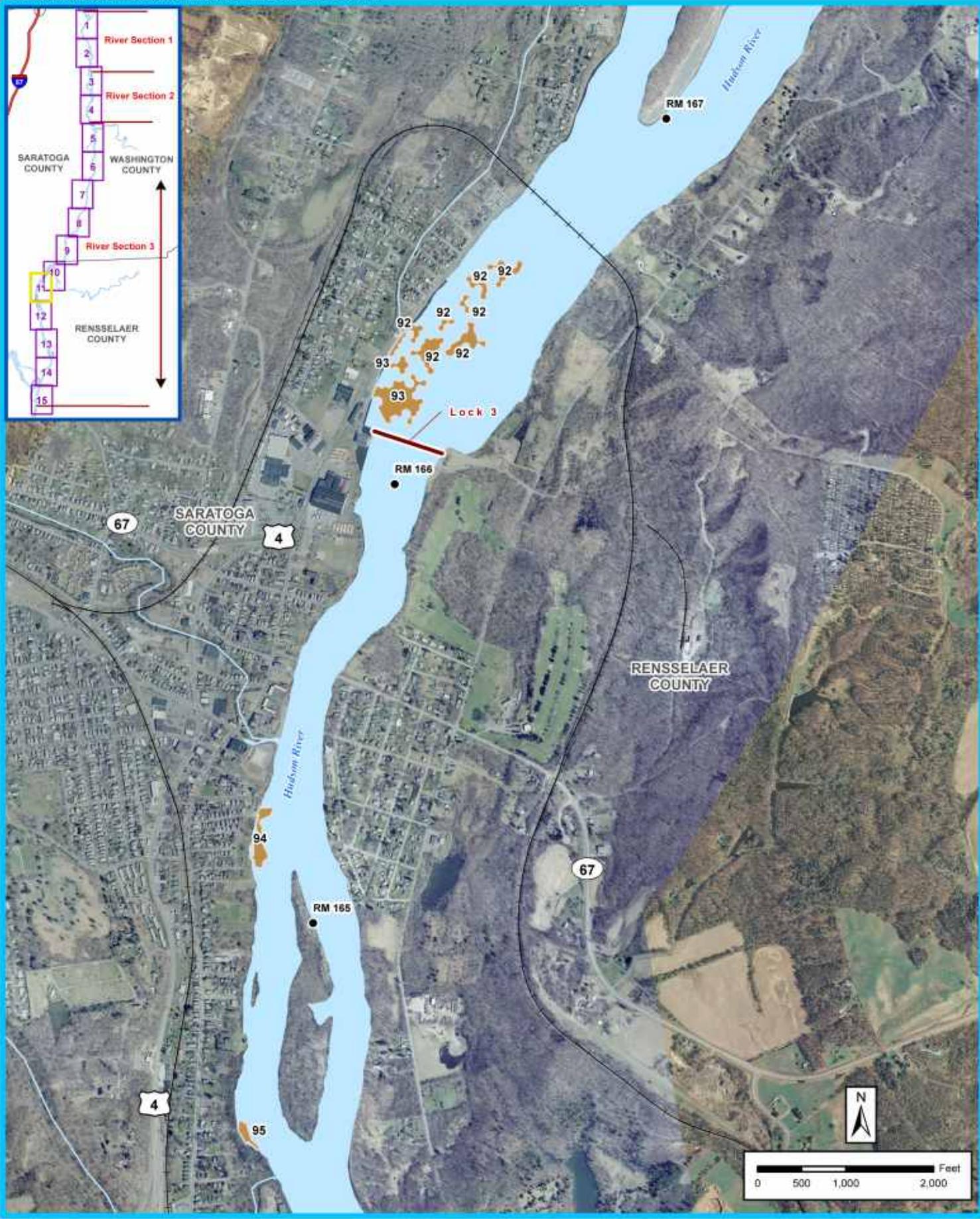
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**Phase 1 and 2 Dredge Areas**  
**Map 10**



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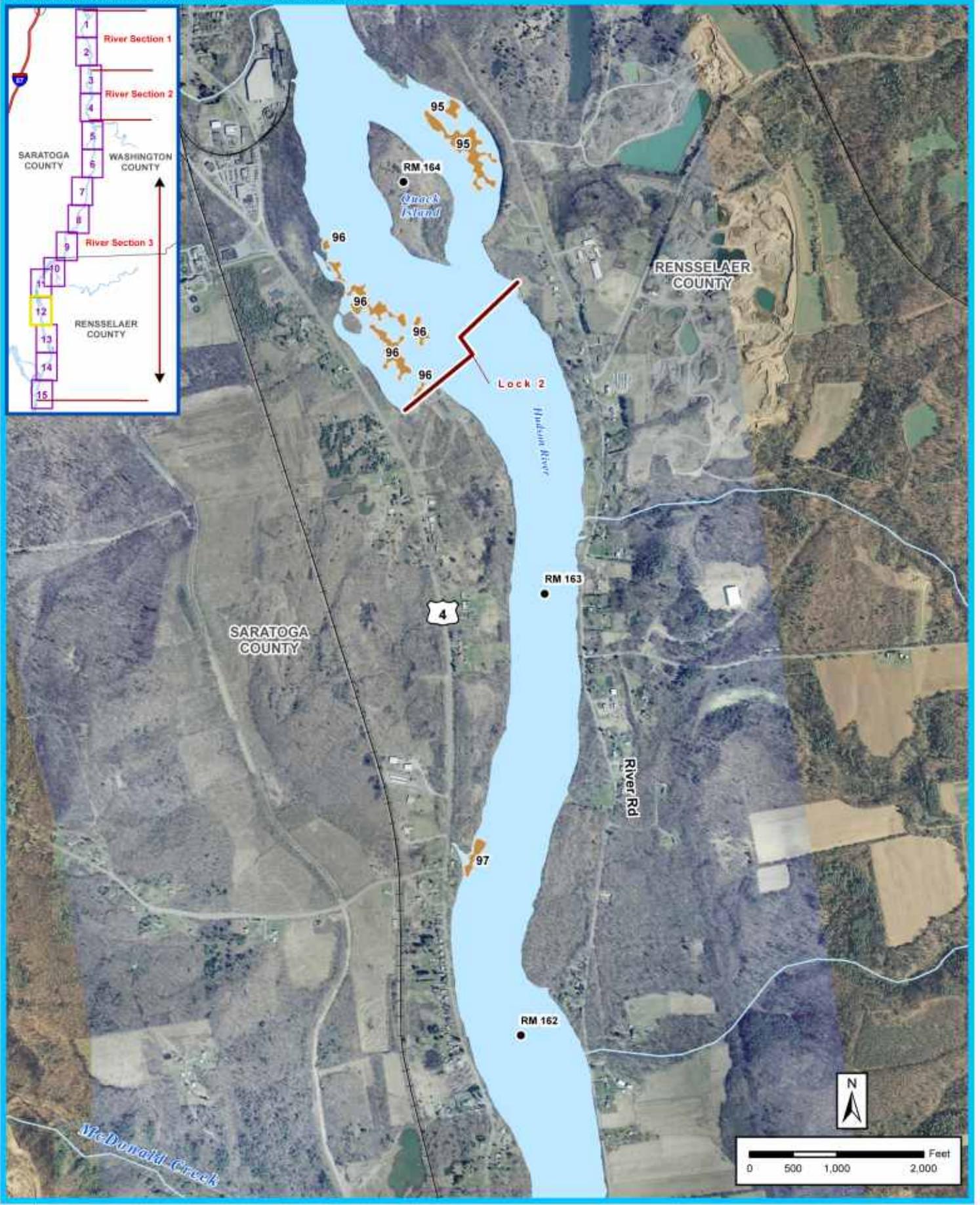
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**Phase 1 and 2 Dredge Areas**  
Map 11

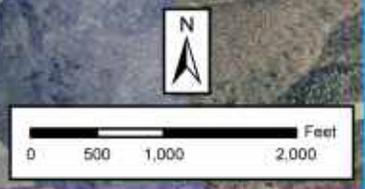
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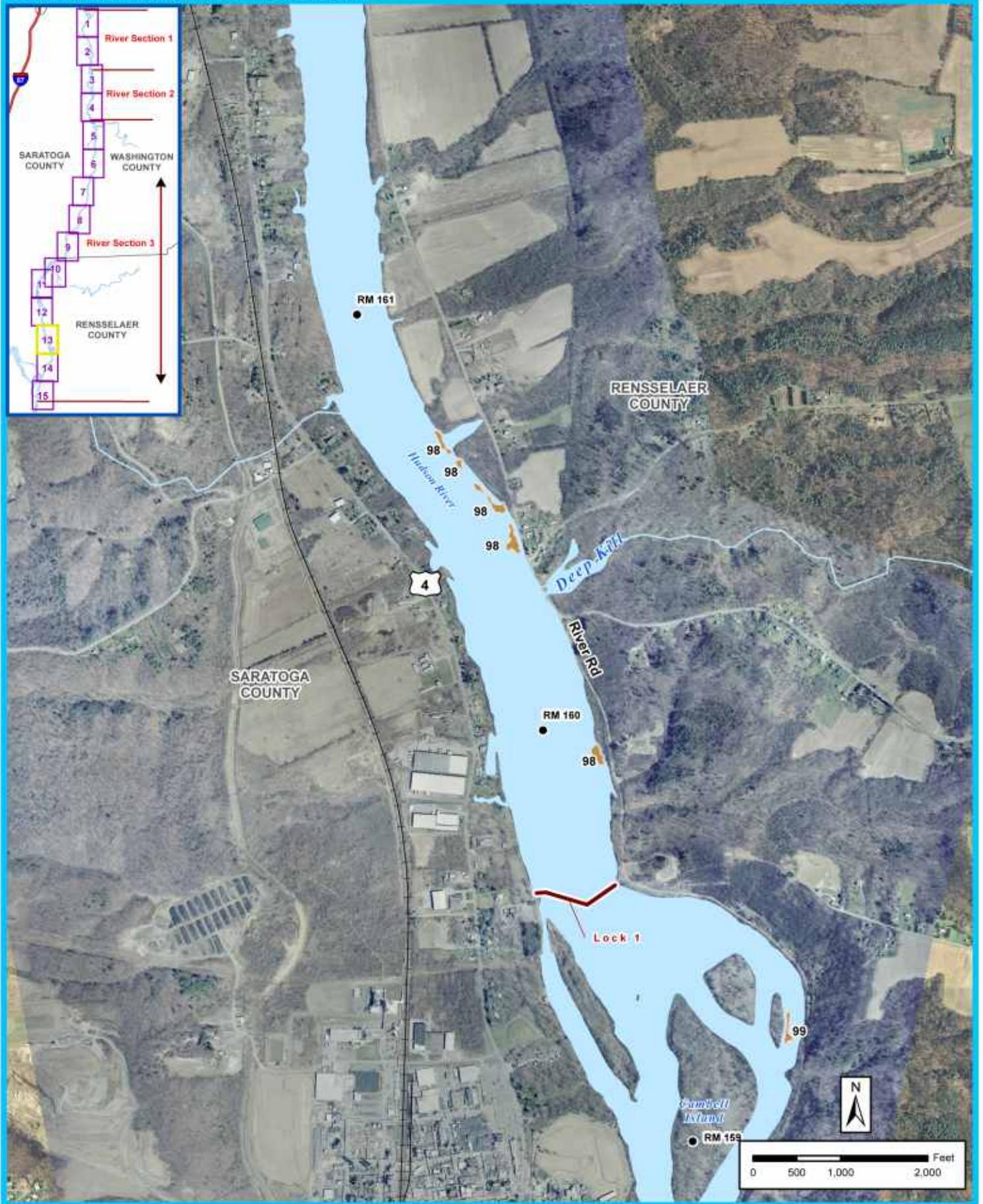
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**Phase 1 and 2 Dredge Areas**  
Map 12



Aerial Photo Provided by GE April 22, 2007. River Flow at Time of Photo 18, 500 cfs



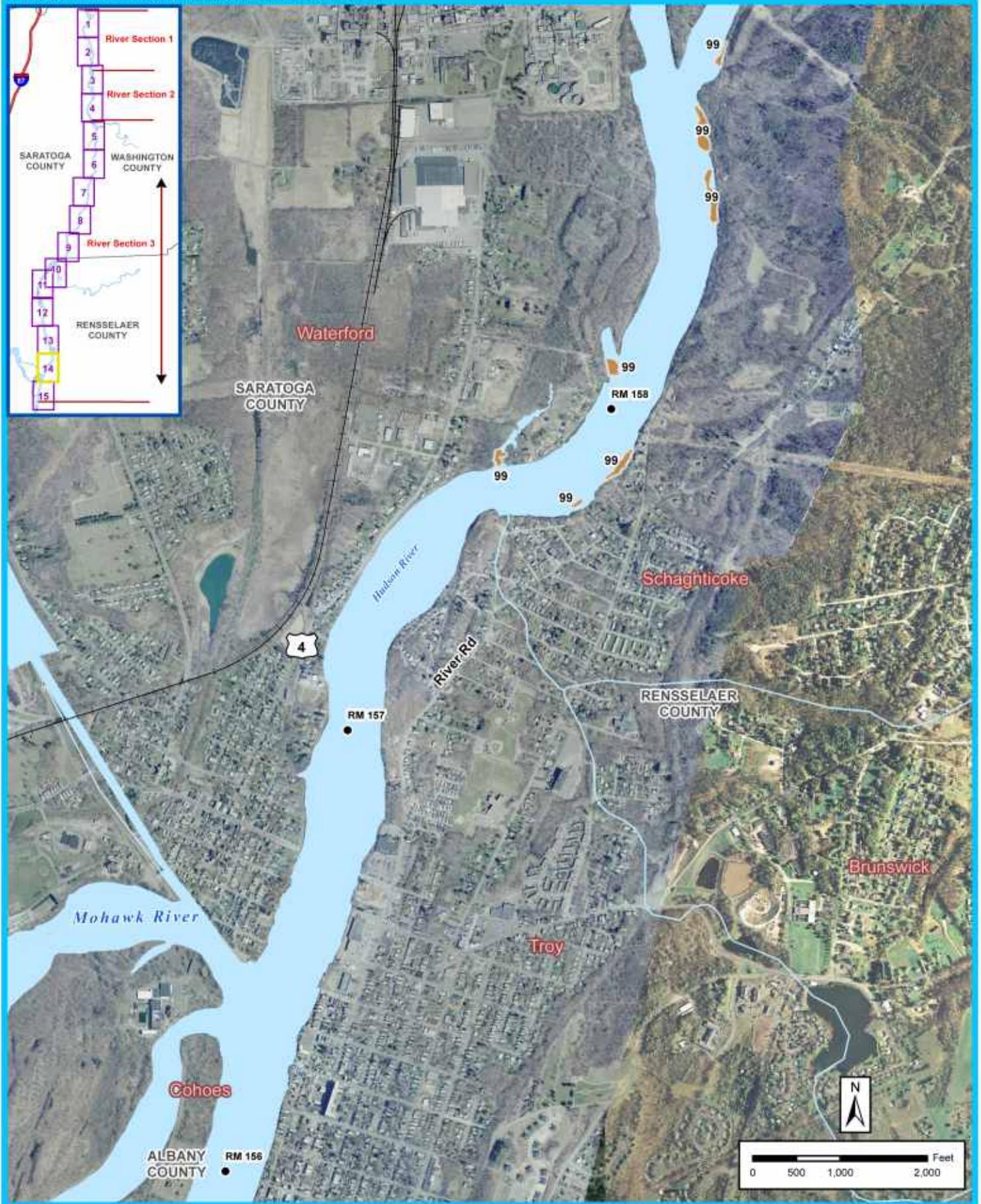


**Phase 1 and 2 Dredge Areas**  
**Map 13**

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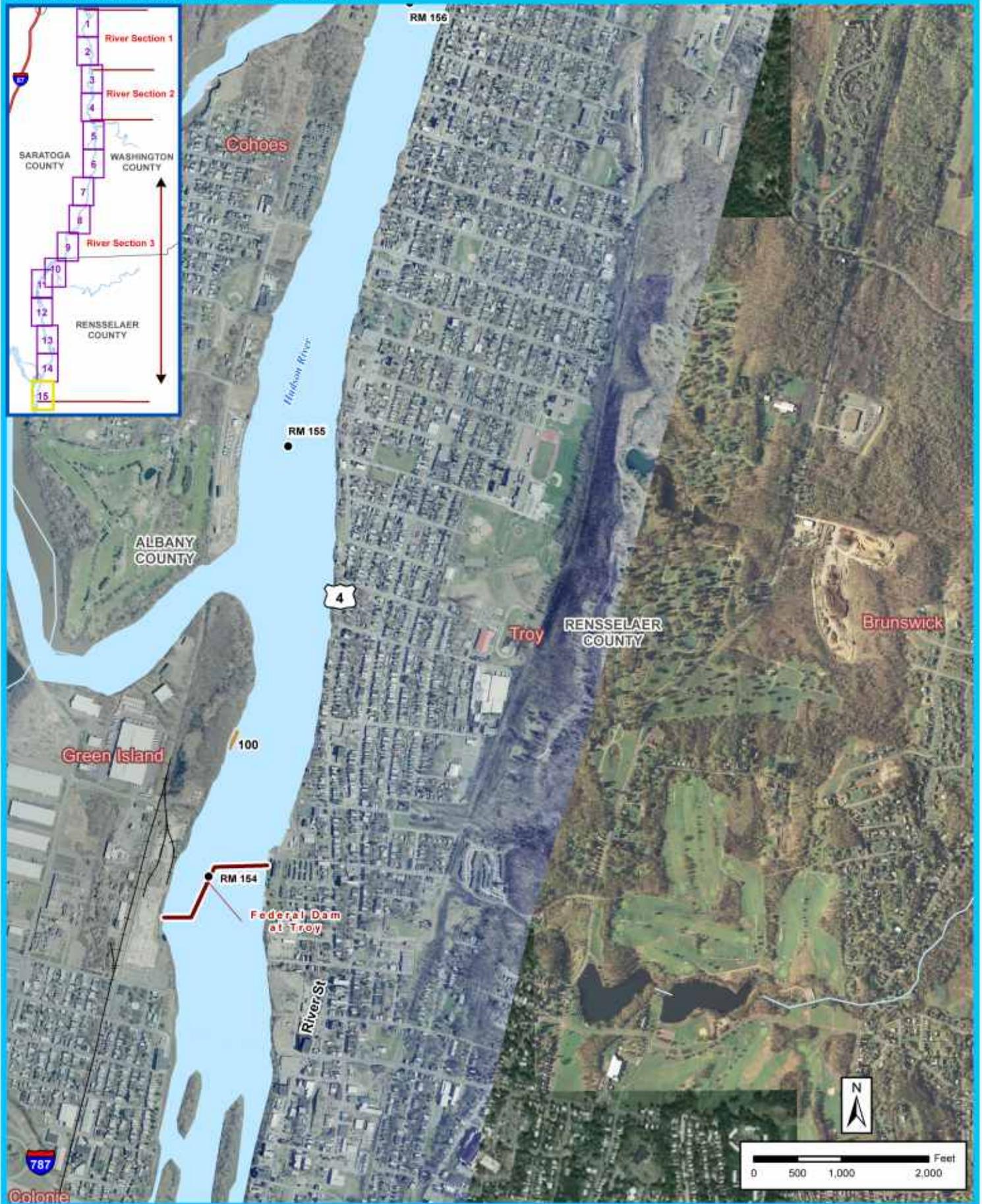


- River Mileposts
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**Phase 1 and 2 Dredge Areas**  
**Map 14**

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 at Time of Photo 18, 500 cfs





**Phase 1 and 2 Dredge Areas**  
**Map 15**

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Aerial Photo Provided by  
 GE April 22, 2007. River Flow  
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## For More Information

EPA will continue the public outreach program for this project. The program includes maintaining the Hudson River Field Office, providing project information and meeting with riverfront residents living near the dredging areas. Visit\*, call toll-free, or write to the Hudson River Field Office at the address below for more information.

### EPA Contacts:

• Gary Klawinski, *Remedial Project Manager*  
Hudson River Field Office  
421 Lower Main Street  
Hudson Falls, NY 12839  
(518) 747-4389 or (866) 615-6490 Toll-Free  
hrfo@roadrunner.com

• Larisa Romanowski, *Community Involvement Coordinator*  
Hudson River Field Office  
421 Lower Main Street  
Hudson Falls, NY 12839  
(518) 747-4389 or (866) 615-6490 Toll-Free  
hrfo@roadrunner.com

*\*The Field Office hours are Monday – Friday, 8:00 am – 4:30 pm, with evening hours by appointment.*

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#### EPA Regional Public Liaison

EPA Region 2 has designated a public liaison as a point-of-contact for community concerns and questions about the federal Superfund program in New York, New Jersey, Puerto Rico, and the U.S. Virgin Islands. To support this effort, the Agency has established a 24-hour, toll-free number that the public can call to request information, express concerns, or register complaints about Superfund. The public liaison for EPA's Region 2 office is: George H. Zachos, U.S. EPA, Region 2, 2890 Woodbridge Avenue MS-211, Edison, New Jersey 08837, (732) 321-6621, Toll-free (888) 283-7626.