



## American Council of Engineering Companies of Wisconsin

2013 Engineering Excellence Award

Category E: Environmental



**Mead  
& Hunt**

Fishery and Wetland Mitigation for Safer Taxiway

La Crosse Municipal Airport

La Crosse, Wisconsin

# 2013 Engineering Excellence Awards Official Entry Form

Please furnish all information requested below. Firm(s), project name and client/owner name(s) should be typed as they are to appear on the award. This entry form may be completed electronically. Electronic signatures are acceptable. Visit [www.acecwi.org](http://www.acecwi.org) to download the writable form. A fee of \$625 for ACEC WI members or \$1,500 for non-members must be included with the entry. **The deadline for submission is October 10, 2012, 4:00 p.m.**

**Name of Project (limit 45 characters)**

Fishery and Wetland Mitigation for Safer Taxiway

**Project Location (city/state)**

La Crosse and Ferryville, Wisconsin

**Entering Firm Name(s)\***

Mead & Hunt

\* If a joint venture between two or more engineering firms, list each for award and recognition purposes.

**Principal Approval**

I have read this Engineering Excellence Awards competition entry and believe it to be accurate.

Name Andrew J. Platz, PE

Title President

Signature 

**Primary Contact**

Name Lisa Kinsman

Title Project Manager

Address 6501 Watts Road

City Madison State WI Zip 53719

Phone 608-279-7488

Email [lisa.kinsman@meadhunt.com](mailto:lisa.kinsman@meadhunt.com)

**Marketing Contact (optional)**

Name Lori Wilson

Title Marketing Coordinator

Address 6501 Watts Road

City Madison State WI Zip 53719

Phone 608-443-0386

Email [lori.wilson@meadhunt.com](mailto:lori.wilson@meadhunt.com)

**Entry Category (select one)**

- A.  Studies, Research & Consulting
- B.  Building/Technology Systems
- C.  Structural Systems
- D.  Survey & Mapping Technology
- E.  Environmental
- F.  Water & Stormwater
- G.  Water Resources
- H.  Transportation
- I.  Special Projects
- J.  Small Projects
- K.  Energy
- L.  Industrial & Manufacturing Processes & Facilities

**Client**

Firm Name La Crosse Municipal Airport

Address 2850 Airport Road

City La Crosse State WI Zip 54603

**Owner (if different from client)**

Firm Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

I currently believe the work of the consulting engineer meets the intended uses and expectations for the project and hereby grant permission to enter this project into the ACEC WI 2013 Engineering Excellence Awards competition and authorize publication of its outstanding features, unique aspects or innovations. I agree the project was substantially completed and ready for use between November 1, 2010 and October 10, 2012.

**Client Contact**

Name Clint Torp, CM

Title Airport Manager

Signature 

**Owner Contact (if different from client)**

Name \_\_\_\_\_

Title \_\_\_\_\_

Signature \_\_\_\_\_

# Engineering Excellence Awards Official Entry Form

## Completion/Use Dates

Scheduled completion August 2011

Actual completion August 2011

## Budget Information

*(all entries complete this section, excluding Category A)*

If your firm was responsible for the entire project, then the entrant's portion of the total project construction budget should be equal to the total project construction budget. If your firm was not responsible for the entire project, then the entrant's portion of the total project construction budget should be the amount of the project construction budget your firm was responsible for.

Total project budget

\$ 14 million

Entrant's design portion of total project budget

\$ 1 million

Total project actual

\$ 14 million

Entrant's design portion of total project actual

\$ 1 million

## Category A Costs

*(Category A projects only)*

Budgeted \_\_\_\_\_

Actual \_\_\_\_\_

## Qualifications-Based Selection (QBS)

To assist in raising the awareness of the importance of the QBS process, please check the box below if a QBS process was used to procure AE services for this project.

***This data will not impact judging.***

QBS selection process was used to procure A/E services

**Submission Due to ACEC WI  
October 10, 2012 by 4:00 p.m.**

### Deliver/ship to:

ACEC WI  
3 South Pinckney Street, Suite 800  
Madison, WI 53703

### Questions:

Contact ACEC WI at 608-257-9223 or  
acecwi@acecwi.org.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

#### **PHOTO 1**

This graphic illustrates the improvements to the airfield. When aircraft left the terminal and headed north to Taxiway C, they had to cross Runway 18/36 at its midpoint. Extending Taxiway F by 4,800 feet allows planes to taxi to the north end of the runway instead, a safer solution.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 2**

This aerial photo of La Crosse Municipal Airport was taken before the Taxiway F extension. The original taxiway, C, is the asphalt strip to the east of the primary runway, 18/36. Runway 18/36 and Taxiway C both run north/south, parallel to the terminal.





Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 3**

This image of La Crosse Municipal Airport shows the completed Taxiway F project. The new taxiway pavement can be seen on the west, or left, side of the primary runway. The Mississippi River is in the background of the photo, at the end of the runway.





Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 4**

A truck places fill material into Lake Onalaska for the future Taxiway F as an aircraft lands on Runway 18/36 in the background. Crews dredged 17,000 cubic yards of lake muck prior to placing more than 100,000 cubic yards of material in the lake.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 5**

In this aerial photo, construction crews dredge the open water of Lake Onalaska while fill placement progresses. The completed fill is the lighter portion of land, while the dredged material dewatering site can be seen on the left side of the picture.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 6**

Construction crews extend the concrete culvert pipe and push breaker run into the lake water during the taxiway construction project.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 7**

The mitigation corridor along the Mississippi River, seen from the bluffs above the Sugar Creek wetland. Locating mitigation sites was challenging, because they had to be in Wisconsin and within two miles of the river but could not be part of the Mississippi River Fish and Wildlife Refuge.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 8**

The Pettibone Park Lagoon is a popular fishing spot within the City of La Crosse. The underground pipe system pumped oxygen-rich water from the Mississippi River into the lagoon to curtail winter fish kills, providing results that localized aerators could not.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 9**

The Pettibone Park pumps were located in a 16-foot-deep underground concrete valve to ensure the pumps did not interfere with the park's usage, views and historic structures. The pumps, expected to last more than 20 years, were fitted with 15-horsepower, 460-volt, three-phase motors, sized to convey 2,300 gallons per minute.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 10**

Pettibone Park provides handicapped-accessible fishing piers and is the location for a popular City of La Crosse Parks Department program that teaches youth to fish. Thanks to oxygenation improvements, the park lagoon is also a desirable ice fishing location.



Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 11**

A backhoe excavates the Sugar Creek site. Restoration of the wetland included removing more than 100 years of alluvial silts eroded from coulee-top farms within the 23,000-acre watershed.



Fishery and Wetland Mitigation for Safer Taxiway  
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**PHOTO 12**

Crews plant the pond edge of the Sugar Creek site. The plant protection structures, seen in the foreground, protected 8,000 plants from wildlife grazing, which also increased the survival of breeding frogs.

## Executive Summary

Frequently, implementing the best engineering solution can seem to clash with preserving natural resources, and airports can get caught in this conflict. With more than 30,000 annual operations, La Crosse Municipal Airport (LSE) must balance safety with efficiency and improvements with environmental concerns.

Due to a Federal Aviation Administration recommendation, LSE hired Mead & Hunt to plan and design the Taxiway F extension, an important step in improving the airport's safety.

Mead & Hunt designed the taxiway literally from the (nonexistent) ground-up. Dredging sediment from and filling Lake Onalaska was an inventive solution that enhanced the airfield's operations and ensured its place in the national aviation system.

With the initial challenge solved, Mead & Hunt faced a new problem: how to mitigate the taxiway's effects on Mississippi River resources. After dozens of options were investigated, the Sugar Creek and Pettibone Park sites were selected.

By carefully researching and planning each step of the mitigations, Mead & Hunt was able to provide the community with natural resources that provided economic, environmental, educational and sustainable benefits.

At Pettibone Park, Mead & Hunt devised a pump system to provide a steady stream of fresh, oxygenated water to the park's lagoon, which eliminated a long-standing fishery management problem: winter fish kills. Now the City of La Crosse has a fishery suitable for anglers of all ages and abilities.

To restore the Sugar Creek wetland, Mead & Hunt used in-depth analysis and monitoring, smart planting methods and advanced biological products. The wet meadow and waterfowl pond's design protects the land from floods while providing a constant source of water for the native plants. The project also included the creation of an innovative floristic quality measurement that can be used nationwide. This site is ahead of schedule by three years, and LSE is preparing to turn the wetland over to a local land trust, ensuring the land's upkeep while alleviating a maintenance duty for the airport.

Mead & Hunt designed and implemented an enhanced fishery, a thriving wetland and a safer airport, while also advancing the fields of aviation engineering and environmental science. Working with local stakeholders, agencies and the airport, Mead & Hunt proved ground-breaking engineering and environmental sensitivity are not mutually exclusive goals.

## Project Description

### ROLE OF THE ENTERING FIRM

Mead & Hunt was the primary consultant, providing planning, engineering, design and construction administration services on this project.

### ROLE OF OTHER CONSULTANTS

There were eight subconsultants involved in the fishery and wetland mitigation project. The percentage of work and role for each company follows:

#### ***Sugar Creek Prime Contractor***

- Strupp – 5% of construction

#### ***Pettibone Park Prime Contractor***

- A-1 Excavating – 2.5% of construction

#### ***Planting***

- Cedarburg Science (now BHE Environmental) – 0.5% of construction

#### ***Land Appraisals for Wetland Mitigation Sites***

- Becher-Hoppe Associates, Inc. – 3.1% of design

#### ***Geotechnical Exploration and Evaluation***

- Soils and Engineering Services – 2.4% of design
- Braun Intertec Corporation – 1% of design

#### ***Archaeological Evaluations***

- AVD Archaeological Services – 1.5% of design
- Mississippi Valley Archaeology Center – 0.5% of design

### DESCRIPTION OF ENTRANT'S CONTRIBUTION

#### **Original or Innovative Application of New or Existing Techniques**

As a community's gateway to the world, airports are often required to meet complicated challenges, and La Crosse Municipal Airport is no exception. More than 200,000 people

pass through this commercial service airport annually. The airport must meet federal, state and local requirements to operate safely and efficiently, while remaining a good neighbor to the community. Sometimes, a conflict can arise between the best engineering solution and the environment. Luckily, the airport and Mead & Hunt were able to improve both the airport's safety and the region's natural resources.

La Crosse Municipal Airport, or LSE, is located on French Island, which is bordered by the Mississippi River, the Black River and Lake Onalaska. Lake Onalaska is among the most important waterfowl staging areas in the central United States, hosting around 500,000 birds during migration. The lake is also a popular recreation destination, among the best pan-fisheries in the Upper Midwest.

#### ***The Problem***

As a result of a Federal Aviation Administration recommendation, LSE hired Mead & Hunt to improve the safety of the airfield. Because of Taxiway F's location, when a plane left the terminal and taxiied north, it had to cross the airport's primary runway (18/36) at the midpoint. Extending Taxiway F by 4,800 feet provides a full-length taxiway, helping aircraft avoid a runway incident.

To build the proposed taxiway, approximately 8.64 acres of Lake Onalaska and adjoining wetlands at the proposed taxiway location needed to be dredged, then filled. The affected area was a shallow-water wetland that was important for migratory waterfowl and served as a fish nursery, due to its exceptional plant cover and position within the Upper Mississippi River Fish and Wildlife Refuge.

To mitigate the taxiway extension's effects in compliance with the Clean Water Act Section 404 permit, the airport was required to provide a replacement fish habitat and wetland restoration that followed very narrow criteria.

Normally, a project can be mitigated by banking Department of Transportation (DOT) wetland credits. However, the taxiway extension required special mitigation, due to the high-value resources it was impacting. Mead & Hunt and the airport were tasked with finding restoration sites in the State of Wisconsin and within two miles of the Mississippi River. As a matter of federal policy, refuge lands and waters could not be used for a Section 404 mitigation project. This eliminated more than 30,000 acres spanning 150 miles and seven counties from consideration.

### ***The Solution***

Mead & Hunt solved this problem through outreach to regional public and private conservation organizations, as well as fishery and wildlife staff at the state and county levels who are not normally involved in mitigation projects. After reviewing and rejecting 40 sites in seven riparian counties, two were selected.

For the fishery mitigation, the 19-acre Pettibone Park lagoon, a valuable Mississippi River backwater, was chosen. The City of La Crosse park has the only nonrefuge water body in the region suited for anglers of all ages and abilities.

The 21-acre Sugar Creek wetland site, only 1,300 feet from the Mississippi River, has a cold-water stream fed by steep groundwater gradients in the adjacent coulee or valley. This constant supply of cool groundwater and dissolved minerals favors native wetland plants. Both sites were restored with completely different technical approaches.

### ***Pettibone Park: Fishery Mitigation Site***

Restoration of the Pettibone Park lagoon addressed a fishery management issue that had been unresolved for nearly 20 years due to technical and financial difficulties. The lagoon's quiet waters attracted wintering fish, but the lack of freshwater inflow eventually suffocated them due to low oxygen levels

beneath the ice. Of several options studied, the preferred solution was a submerged, automated pump system drawing freshwater from the adjacent river and dispersing it within the lagoon. The system included two 2,300-gallon-per-minute submerged pumps that were each capable of running the entire system alone. Other features included a remote alarm, a highly sensitive control system to adjust pump levels, and a tamper-resistant and flood-proof control panel.

The Pettibone solution also had to factor in aesthetic considerations. A major feature of the park is a historically significant Romanesque Revival sandstone gazebo near the lagoon. To avoid visual impact to this resource, the pump was hidden underground.

### ***Sugar Creek: Wetland Mitigation Site***

To restore the Sugar Creek site to wetland status, extensive research and analysis were needed. Mead & Hunt scientists developed a HEC-RAS model to understand the site's hydrology and hydraulics under flood conditions, which could occur from a local storm in the coulee or a regional flood on the Mississippi.

The restoration included a waterfowl pond and a wet meadow. To provide these habitats with a constant supply of water, they needed to be positioned within the water table. A year of monitoring determined the depth and seasonal behavior of the water table. Ten soil borings mapped the depth and types of modern alluvium, or undesirable silt deposits smothering the wetland soil.

As a result of these explorations, Sugar Creek was successfully restored. More than 40,000 yards of modern alluvium was excavated to expose the water table and provide water for the wet meadow and pond. The topography of the site was also designed to protect the site from large floods. The wet meadow was graded on an incline that matches the water table and provides drainage to the pond at the bottom of the

site. A broad-crested weir directs Sugar Creek floods to the pond, which has a return culvert to the creek. Without this weir and grading design, silt nutrients and invasive plant seeds would compromise the wet meadow's quality.

Long-term stewardship of the Sugar Creek project was arranged with the Mississippi Valley Conservancy (MVC), a local land trust that will assume the title and incorporate the site into its adjacent Sugar Creek Preserve. In addition, the MVC will be able to leverage the land donation for additional grants to purchase other conservancy lands.

The US Army Corps of Engineers (Corps) and the Department of Natural Resources (DNR) required a high level of mitigation quality and accurate monitoring to declare the project successful. The Sugar Creek wetland included a complex mix of more than 140 native species over 10 acres. To monitor the site, Mead & Hunt developed a new floristic quality index that combined three conservation measurements: each plant's cover (or area), frequency of occurrence and conservation value. The index, called the Quantitative Coefficient of Conservatism (qCOC), provides a single number, on a scale of one to 10, that objectively shows the site's quality. The qCOC is extremely sensitive to plant community changes and wetland management.

The Sugar Creek site has proven to have very high floristic quality, with a qCOC similar to Wisconsin State Natural Area wetlands. While most mitigation sites struggle to achieve basic wetland communities in five or more years, Sugar Creek exceeded expectations by reaching permit standards in just three years.

### **Future Value to the Engineering Profession and Perception by the Public**

The projects associated with the taxiway improvements required creative solutions that are useful for engineers and scientists in Wisconsin and beyond.

The Sugar Creek restoration has widespread implications for similar projects in the Upper Midwest. Removing modern alluvium to expose a buried water table reverses 100 years of adverse impacts, common throughout the region. The topographic design works with a natural water supply, instead of introducing foreign artificial structural elements, like levees.

The creation of the qCOC provides the most accurate single metric to track the success of a restoration project. Any state or region that has conservation rankings for their native flora can use this method.

The Pettibone lagoon pumped-water system is a more durable and effective method to correct low oxygen than the common solution: aerators, which have highly localized benefits.

Combined, the two projects provide ecological and recreational benefits that far exceed common mitigation standards. Mead & Hunt directly improved the airport's community using engineering and environmental planning and science. This yielded a highly visible solution, creating a positive public image for professional consultants and our client.

### **Social, Economic and Sustainable Design Considerations**

By extending Taxiway F, the airport's safety, value and function were improved. The airfield's new layout ensures this economic driver can continue to support its local community.

Although the original benefit of the fishery and wetland mitigation was to allow the airport to proceed with the Taxiway F extension, they provided additional value to the community.

The Pettibone project increased the social, economic and educational status of the park. Alleviating this long-standing fishery management issue also made the park more environmentally friendly. Now, the lagoon is cleaner,

youth fishing programs have been enhanced and year-round fishing has been restored in this unique Mississippi River setting.

Restoring a wet meadow and waterfowl pond provides ecological benefits to the region by creating a highly diverse ecosystem in a critical riparian setting. The Sugar Creek wetland is self-sustaining and low-maintenance, by design. The planting specifications included 140 high-value species native to regional wetlands that are also readily available. The plants' availability ensured the plans could be easily implemented, while the diversity of the species enabled overall stability for the plant community. Success was also achieved by using the water table to encourage ideal growing conditions.

In addition, the long-term stewardship agreement Mead & Hunt brokered between the airport and the MVC is mutually beneficial. The airport will be relieved of the upkeep of a remote piece of land, while the MVC will expand its preserve and qualify for more grants for regional bluff conservation.

The Sugar Creek wetland also increased the usability of the surrounding MVC reserve by improving access to these public lands along State Highway 35. These improvements help MVC's education programs, encourage local use and enhance tourism.

Each of these projects provides a substantial, measurable benefit to La Crosse and the wider Mississippi River community.

### **Complexity**

The environmental document for the Taxiway F and mitigation projects considered the technically feasible options to reduce adverse effects, while meeting federal taxiway design criteria. The preferred approach was dredging the sediment and filling in the smallest allowable area of the lake, a unique solution.

Restoring wetlands for Clean Water Act permits demands in-depth knowledge of modern land uses' impacts on wetlands. Reversing these impacts required extensive site research, hydraulic and hydrologic analysis and coordinated interdisciplinary design.

Mead & Hunt environmental scientists encouraged native plant growth by specifying the use of a rarely used fungal soil inoculant. This biological inoculant favors native plants over exotic weeds by nurturing root growth in deeper soil horizons that are less important to weeds but crucial to native plants. As a result, the entire site was completely dominated by native vegetation at the end of the first growing season, at least three years ahead of an untreated site.

Mead & Hunt accomplished each project objective by solving complex problems to the satisfaction of the airport, surrounding communities, and federal and state agencies.

### **Exceeding Client/Owner Needs**

The Pettibone project was a cost-effective, low-maintenance solution. Previously, the City used aerators to oxygenate the lagoon, which were ineffective, because their effect was too localized. By using more powerful pumps, the entire lagoon is properly enhanced, which was immediately noticed by lagoon users and fishery staff.

To ensure continued success, two pumps were installed. If one pump fails, the entire system can run on the other pump during repairs, protecting the fishery from a lethal period of time without oxygenated water. The pump system has been successfully running for three years without problems. The pumps are currently operating at 50 percent capacity and still exceeding the performance standards set by the Corps and DNR.

In most cases, mitigation projects must restore 1.5 times the amount of resources affected. However, the Sugar Creek mitigation designs exceeded the Corps and DNR's expectations by so much, that only 10 of the normally required 13 acres were needed.

Due to Sugar Creek's hydrologic design, diverse plantings and innovative treatment, the site has performed exceptionally well. Its first year, it was already three years ahead of schedule, and it is on-track to meet permit performance standards this fall. The wetland is now a stable ecosystem that is a model for mitigation performance nationwide.

Both mitigation projects were built at the same time as Taxiway F, meeting the permit goals and allowing all aspects of the taxiway construction to proceed.

As the prime consultant, Mead & Hunt provided design and construction administration services for the Taxiway F extension, as well as the environmental design, coordination and permitting to select and restore the Sugar Creek wetland and the Pettibone Park lagoon. Mead & Hunt staff worked closely with airport staff on this on-time, on-budget project:

- Budgeted and actual project total: \$14 million
- Entrant's design portion of total project (budgeted and actual): \$1 million
- Scheduled and actual completion: Aug. 2011

### **Why Project is Worthy of Special Recognition**

Extending Taxiway F was an important step in improving LSE's safety. Mead & Hunt solved this problem by designing an innovative solution: dredging and filling 8.64 acres of Lake Onalaska to provide land for the extension.

Because of the taxiway's environmental effects on the Upper Mississippi River Fish and Wildlife Refuge, Mead & Hunt had to find mitigation sites that satisfied extremely spe-

cific criteria. Working with regional public and private conservation organizations, as well as fishery and wildlife staff, Mead & Hunt explored 40 options and settled on Sugar Creek and the Pettibone Park lagoon.

Mitigation projects can often be looked at as an obstacle or a means to an end. By working with local stakeholders and agencies, Mead & Hunt designed unique restoration solutions that didn't just mitigate the taxiway's effects but actually improved the community's local resources.

By carefully researching and planning each step of the mitigation projects, Mead & Hunt was able to implement innovative solutions:

- Creating a new floristic quality index, the qCOC, which can be used across the nation to measure a restoration's success.
- Using new products, such as the fungal inoculant, to encourage native plant growth.
- Designing a wetland with plant diversity, native plants and commercial availability in mind, to ensure the end result is successful. In this case, the restoration is three years ahead of schedule.
- Partnering with a local land trust to relieve the airport of stewardship of a remote site.
- Designing a sustainable wetland based on water table conditions, instead of using artificial structures, such as levees.
- Exceeding mitigation standards in an extremely challenging environment.
- Using existing technology to improve a local lagoon without negatively impacting the aesthetic qualities of the surroundings.

The combination of these solutions advanced the fields of engineering and environmental planning, while proving the two are not mutually exclusive.

Mead & Hunt gave the community significant economic, sustainable, educational, social and recreational benefits by providing an enhanced fishery; a restored, self-sustaining wetland; and a safer airport.



## Key Participants

Firm Name	Key Contact Name	Address	City/State/ZIP	Phone Number
Strupp	Patrick Strupp	N3567 Shiftar Road	La Crosse, WI 54603	608-781-9828
A-1 Excavating	Al Gingras	PO Box 90	Bloomer, WI 54724	715-456-9091
Cedarburg Science (now BHE Environmental)	Ginny Plumeau	PO Box 72020	Cedarburg, WI 53012	262-376-0735
Becher-Hoppe Associates, Inc.	Randy Van Natta	330 Fourth Street, PO Box 8000	Wausau, WI 54403	715-845-8000
Braun Intertec Corporation	Brandon Wright	2309 Palace Street	La Crosse, WI 54603	608-781-7277
Soils and Engineering Services	Duane Reichel	1102 Stewart Street	Madison, WI 53713	608-274-7600
Mississippi Valley Archaeology Center	Barry Miller	1725 State Street	La Crosse, WI 54601	608-785-6474
AVD Archaeological Services	Al Van Dyke	305 South Britton Road	Union Grove, WI 53182	262-878-9960





# La Crosse Municipal Airport **DISTINCT ADVANTAGES**



2850 Airport Rd. La Crosse, WI 54603-1264 — Phone: (608) 789-7464 Fax: (608) 789-7469  
Airport Manager: Clinton R. Torp — <http://www.lseairport.com> — Assistant Airport Manager: Vacant

American Council of Engineering Companies of Wisconsin  
3 S. Pickney Street, Suite 800  
Madison, WI 53703

Dear ACEC,

The La Crosse Municipal Airport (LSE) selected Mead & Hunt as the design and engineering consultant for the Fishery and Wetland Mitigation for Safer Taxiway project. Mead & Hunt has worked with LSE on a variety of architectural, planning, environmental and engineering projects since the 1990s.

When the Federal Aviation Administration (FAA) safety inspector recommended extending Taxiway F full length to the Runway 18 end to improve airfield safety and reduce the potential for a runway incursion, we engaged Mead & Hunt to conduct an environmental assessment and subsequent taxiway and mitigation design. Because the taxiway extension would require a portion of Lake Onalaska (a high-profile Mississippi River backwater) to be filled, we knew this project would require meeting a challenging balance of aviation and environmental standards with innovative project design and creative mitigation solutions.

During the environmental process, the resource agencies voiced a high level of concern over impacts to fisheries, wetlands and waterfowl habitat in Lake Onalaska as a result of the proposed taxiway fill. The permitting agencies gave strict mitigation guidance that would only consider wetland and fishery mitigation sites within 2 miles of the Mississippi River yet outside the 30,000 acre federal wildlife refuge. Wetland banking was not allowed. Agencies also required that the proposed mitigation site be maintained in perpetuity. To complicate matters more FAA would not allow the mitigation site to be within 10,000 feet of any airport, so on-airport mitigation was not an option.

Facing the daunting task of finding a solution that fit all of these mitigation criteria, Mead & Hunt went above and beyond in the search for the needed land to create the mitigation sites and make the project move forward by expertly evaluating over 40 parcels of land in seven counties. Once the Pettibone Park Lagoon in La Crosse was identified as the fishery mitigation site and the land purchase was complete for the separate wetland mitigation site near Sugar Creek in Ferryville, WI, the innovative design of the mitigation sites moved quickly forward. In result, an important local fishery has been restored in the Pettibone lagoon, the Sugar Creek wetland has attained State Natural Area quality in only 3 growing seasons, and stewardship has been arranged with a local land trust.

Mead & Hunt exceeded our expectations. Beginning with an environmental assessment in 2003, they saw this complicated project through approvals and mitigation to final design and construction management, which completed in August 2011. They involved federal and state permitting agencies and stakeholders early in the process and showed initiative and forethought that resulted in a successful project completion. Mead & Hunt brought solid experience in airport design and expertise in environmental challenges.

Thanks to Mead & Hunt's inventive mitigation, strong stakeholder relationships and dedication to LSE, our community can benefit from an enhanced fishery, a thriving wetland and a safer airport. We would not have been able to extend Taxiway F without their environmental, engineering and planning expertise.

Thank you,

Clint Torp, CM  
Airport Manager  
La Crosse Municipal Airport

#### Aviation Board

OFFICERS • Chairman: John J. Satory, Vice Chairman: Chris E. Olson

MEMBERS • Jerome H. Rusch, Bill Harnden, Jon M. Olson, Carol Kratz, Jeffrey Schroeder, Neil Duresky

## Media release

Sources: Lisa Kinsman, PE, Project Manager, [lisa.kinsman@meadhunt.com](mailto:lisa.kinsman@meadhunt.com)  
Perry Rossa, PH, Project Scientist, [perry.rossa@meadhunt.com](mailto:perry.rossa@meadhunt.com)  
Contact: Lori Wilson, Marketing Coordinator, [lori.wilson@meadhunt.com](mailto:lori.wilson@meadhunt.com)

Tuesday, October 23, 2012



### FOR IMMEDIATE RELEASE

#### ***La Crosse Municipal Airport and Mead & Hunt improve community, win ACEC award***

The American Council of Engineering Companies of Wisconsin presented an Engineering Excellence Award to Mead & Hunt, Inc., for its role in the planning, design, engineering and construction administration of Taxiway F at La Crosse Municipal Airport and the associated mitigation projects in La Crosse and Ferryville, Wisconsin. The projects included an improved fishery, a flourishing wetland and a safer airport, while advancing the fields of aviation engineering and environmental science.

Frequently, implementing the best engineering solution can seem to clash with preserving natural resources, and airports can get caught in this conflict. With more than 30,000 annual operations, La Crosse Municipal Airport must balance safety with efficiency and improvements with environmental concerns.

Due to a Federal Aviation Administration recommendation, the airport hired Mead & Hunt to plan and design the Taxiway F extension, an important step in improving the airport's safety. Because the proposed taxiway extension area spanned part of Lake Onalaska, dredging sediment from and filling the lake was a creative solution. However, it created another challenge: mitigating the effects of the taxiway in the valuable Mississippi River corridor.

By carefully researching and planning each step of the mitigations, Mead & Hunt was able to provide the community with valuable natural resources.

-more-

“Thanks to Mead & Hunt’s inventive mitigation, strong stakeholder relationships and dedication to LSE, our community can benefit from an enhanced fishery, a thriving wetland and a safer airport,” said Clint Torp, CM, Airport Manager. “We would not have been able to extend Taxiway F without their environmental, engineering and planning expertise.”

At Pettibone Park, Mead & Hunt devised a pump system to provide a steady stream of fresh, oxygenated water to the park’s lagoon, which eliminated a long-standing fishery management problem: winter fish kills. Now, the City of La Crosse has a fishery suitable for anglers of all ages and abilities.

To restore the Sugar Creek wetland, Mead & Hunt used in-depth analysis and monitoring, smart planting methods and advanced biological products. The wet meadow and waterfowl pond’s design protects the land from floods while providing a constant source of water for the native plants. The project also included the creation of an innovative floristic quality measurement that can be used nationwide. This site is ahead of schedule by three years, and the airport is preparing to turn the wetland over to a local land trust, ensuring the land’s upkeep while alleviating a maintenance duty for the airport.

Combining thorough environmental planning with advanced science and aviation engineering improved the airport’s safety and operations while giving the community important economic, educational and recreational benefits. In short, Mead & Hunt proved ground-breaking engineering and environmental sensitivity are not mutually exclusive goals.

“The wide array of technical expertise coupled with true professionalism is what made these projects flow smoothly and effectively,” said Dan Wruck, former Airport Manager. “The Taxiway Fox [F] project is truly representative of a long arduous and extremely complex diverse project.”

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*Photos available upon request.*



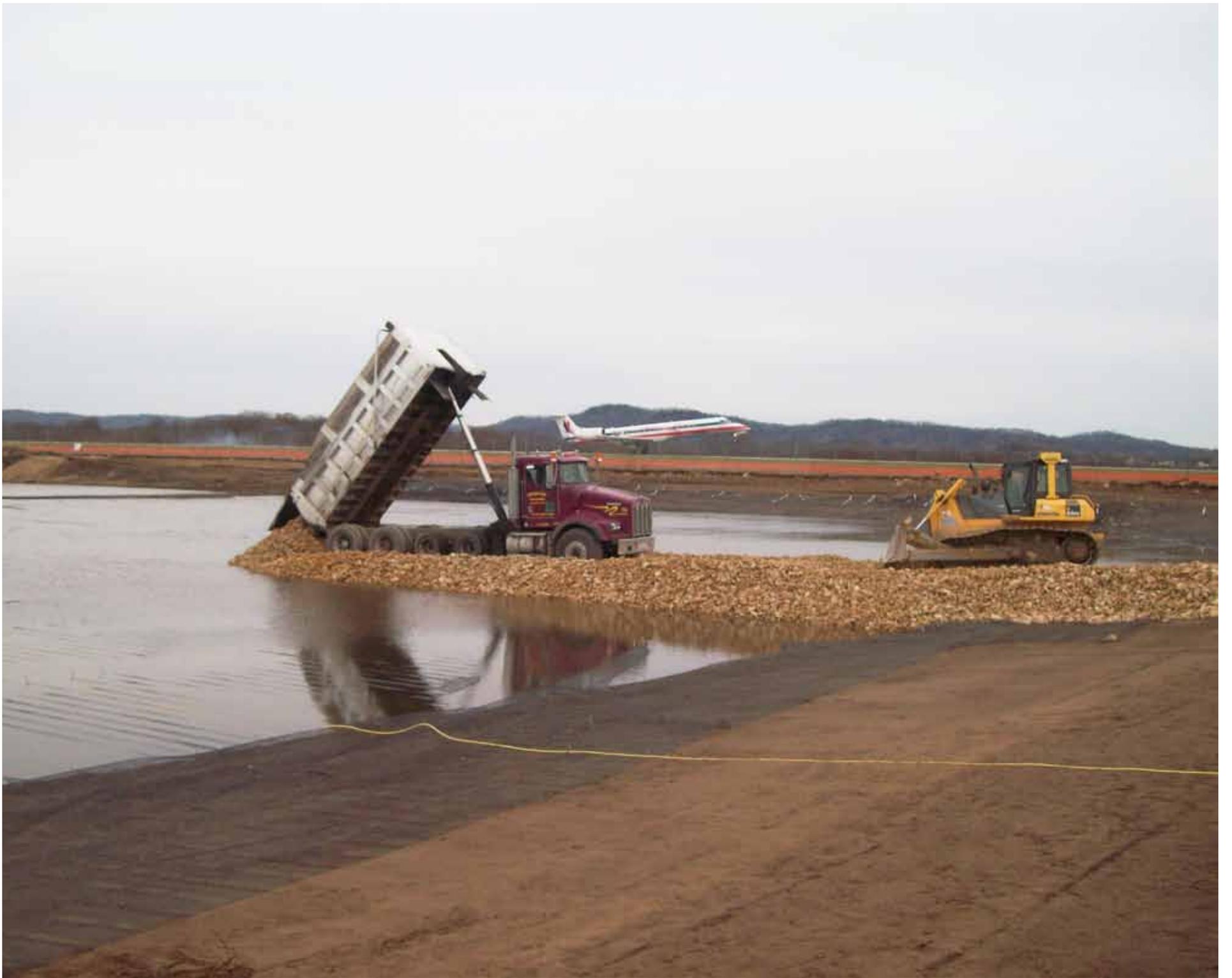
Lake Onalaska

New Taxiway F extension and taxiway connectors

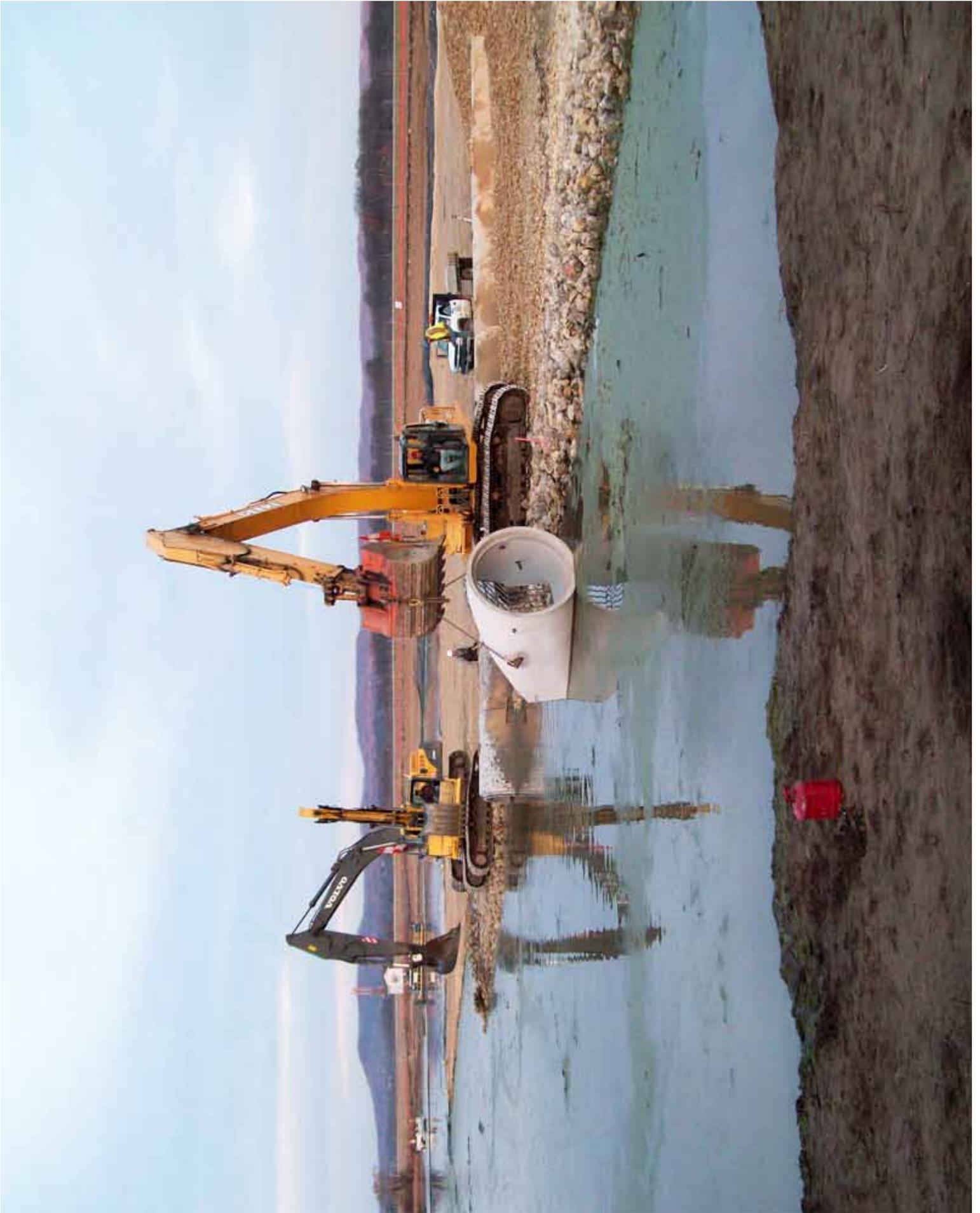
Taxiway C (previous taxiway)

Runway 18/36

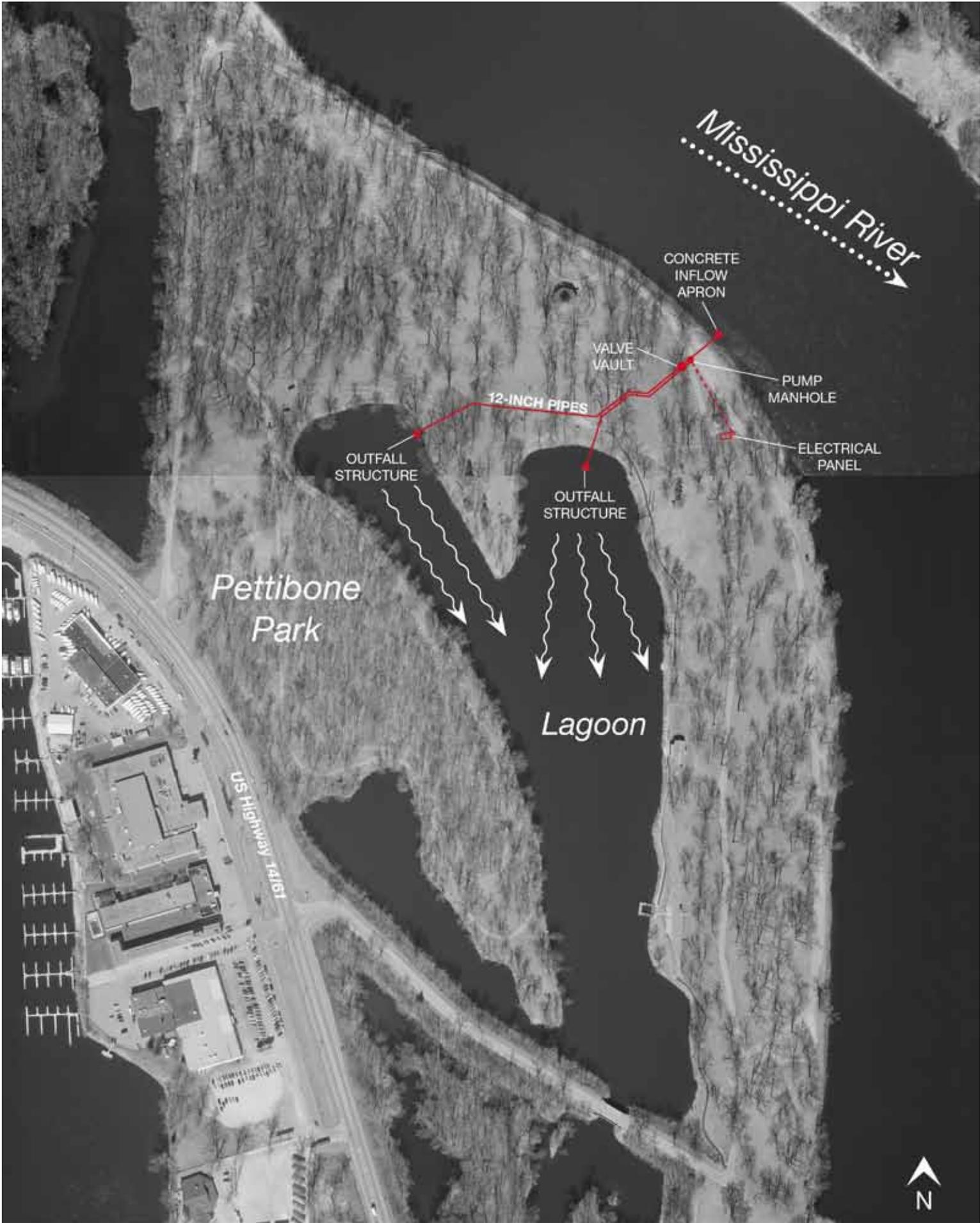
Terminal











Mississippi River

CONCRETE  
INFLOW  
APRON

VALVE  
VAULT

PUMP  
MANHOLE

ELECTRICAL  
PANEL

12-INCH PIPES

OUTFALL  
STRUCTURE

OUTFALL  
STRUCTURE

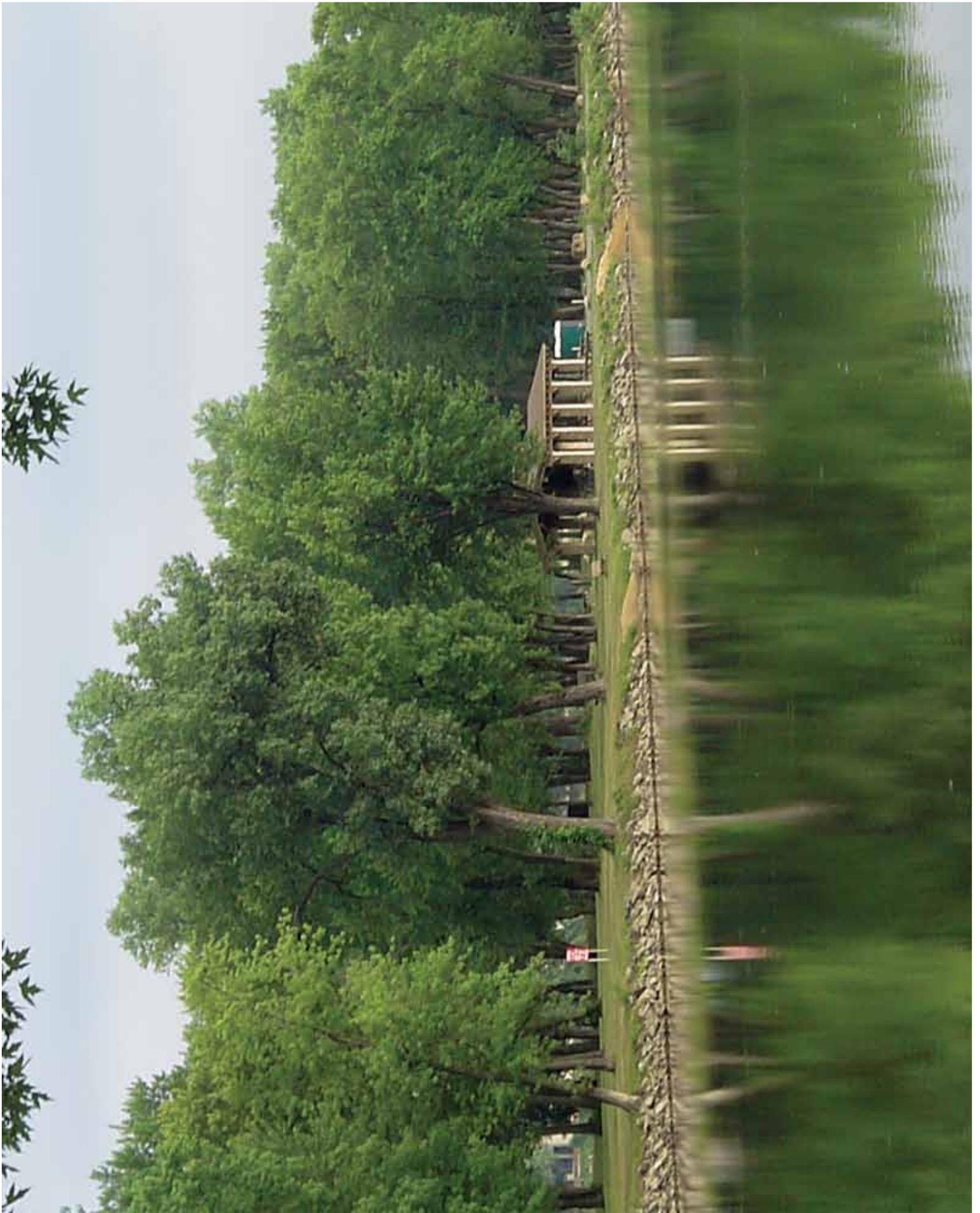
Pettibone  
Park

Lagoon

US Highway 14181









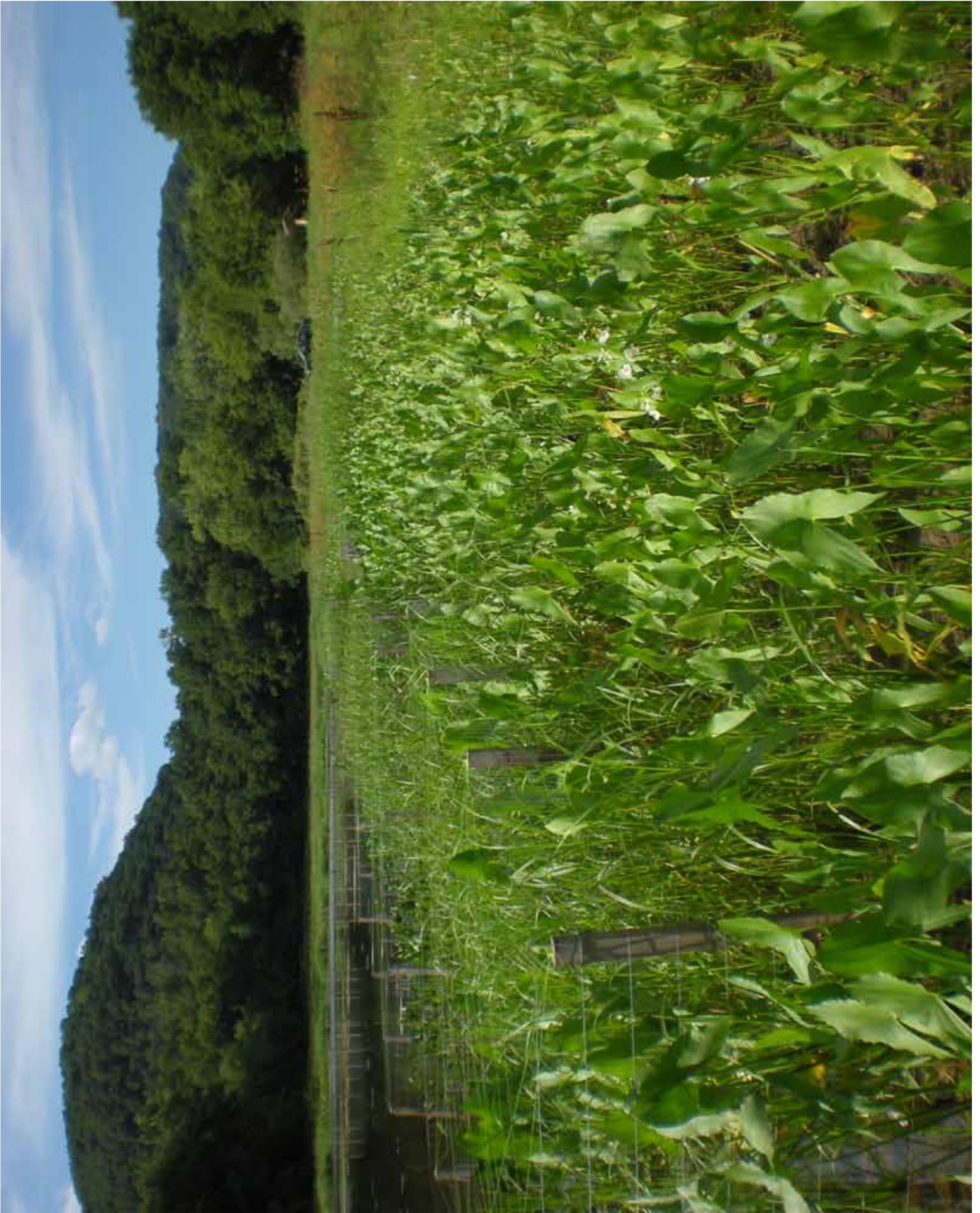




Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 13**

River bulrush, pickerel weed and arrow arum thrive on the shoreline. This photo was taken at the pond edge in late summer, less than three months after planting.

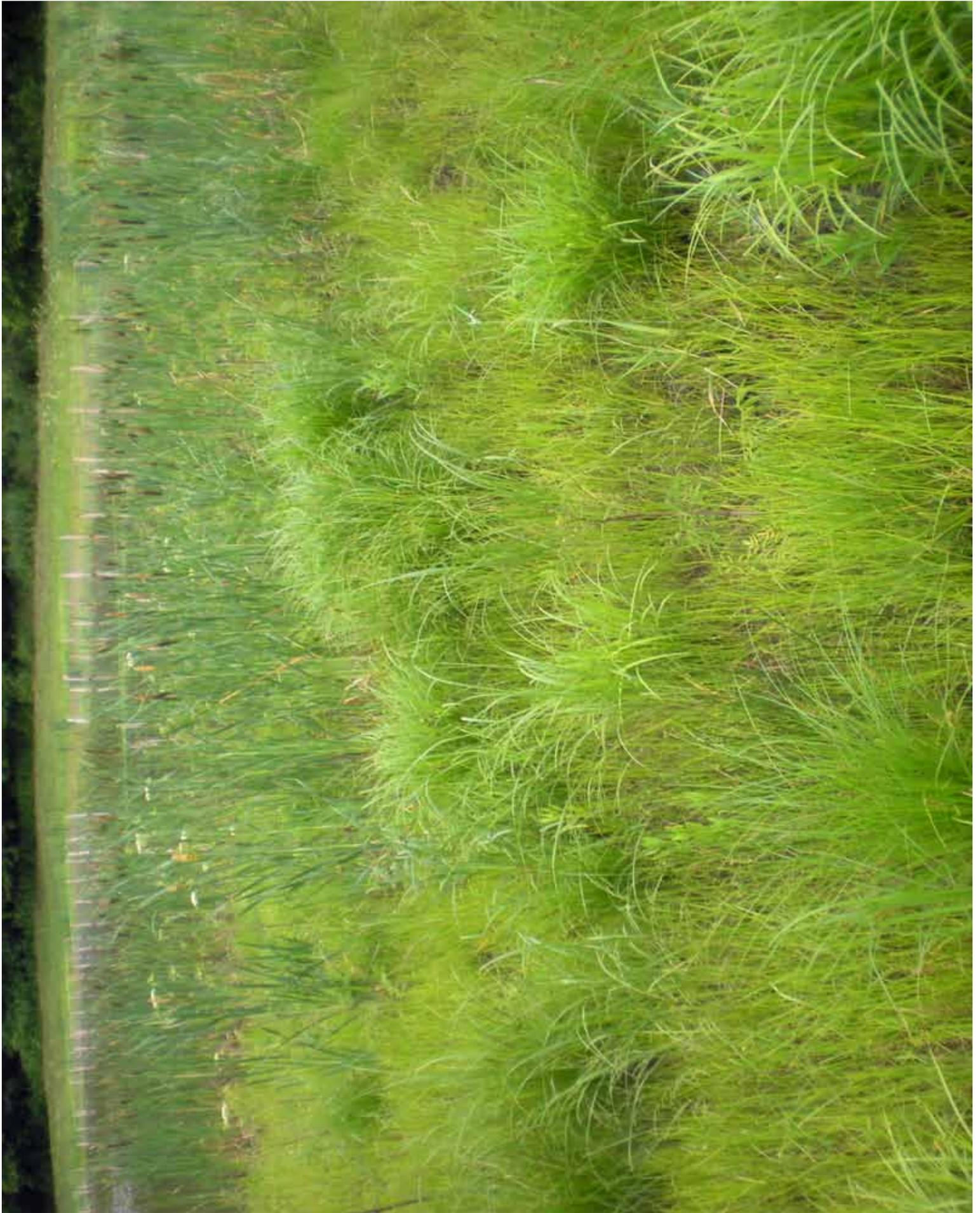




Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 14**

Native sedges dominate the wet meadow portion of Sugar  
Creek only two years after seeding.





Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 15**

The planted woodland edge of the Sugar Creek site teems with native plants, including cardinal flower, prairie sage, big bluestem, great blue lobelia and tall boneset.

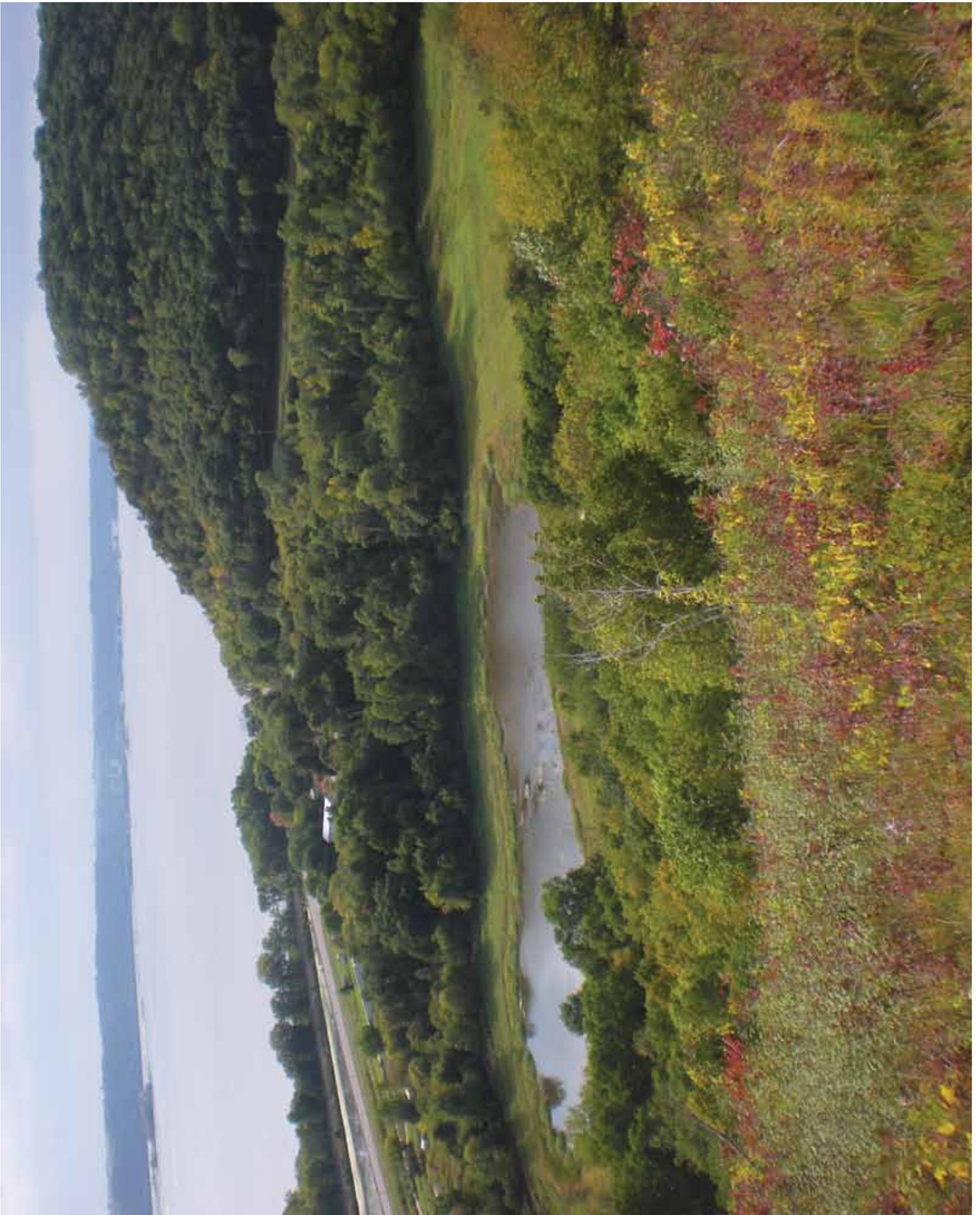




Fishery and Wetland Mitigation for Safer Taxiway  
La Crosse Municipal Airport  
La Crosse, Wisconsin

**PHOTO 16**

This photo is a late-summer view of the successful Sugar Creek wetland mitigation site with the Mississippi River in the background. The project included a waterfowl pairing pond, an inclined wet meadow with groundwater contact and 140 species of native plants.



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