Attachment #1 RRF 87

ST. PAUL DISTRICT (MVP) - CORPS OF ENGINEERS

2010 Dredging Schedule by Equipment **26-Apr-2010**

Scheduled Dredging Jobs

Pool	Dredge Cut Name	River Mile	Dredging Dates	Depth (ft) & Est. Quantity	Equip.	Placement Site	Dredge Notice #	Task Order #	Cat.
					GZ				
					DQ				
					GM				
					CM1				
					CM2				
					CM3				

* Currently Dredging
** Dredging Complete

Cat. Codes: E = Emergency
I = Imminent Closure
R = Routine Dredging

Equipment:	Scheduled:		Unscheduled:	Total:
Government Hydraulic - GOETZ (GZ) =	0		365,543	365,543
Government Hydraulic - DUBUQUE (DQ) =	0		0	0
Government Mechanical - HAUSER/WADE (GM) =	0		0	0
Contract Hydraulic - (CH) =	0		0	0
Contract Mechanical - (CM1) =	0	CM1&2	143,792	143,792
Contract Mechanical - (CM2) =	0			
EMP - Contract Mechanical - (CM3)=	0			
Total Dredging Quantities =	**0**		**509,335**	**509,335**

Potential Unscheduled Dredging Jobs

Pool	Dredge Cut Name	River Mile		Depth & Est. Quantity		Equip.	Placement Site			Cat.
2	Pine Bend	823.5 - 824.0		12	16,854		2-823.8-LMT			R
2	Boulanger Bend	820.5 - 821.0		12	42,828		2-821.1-LMP			R
2	Boulanger Bend Lwr Lgt	819.9 - 820.2		12	11,237		2-821.1-LMP			R
2	Freeborn Light	818.2 - 819.1		12	40,137	CM	2-821.1-LMP			R
4	Chippewa Delta	763.2		9	207,439	GZ	4-762.7-LWT			R
4	Crats Island	758.9 - 759.3		12	34,107	GZ	4-759.3-LWT			R
4	Teepeeota Point	757.6 - 757.9		12	12,108	GZ	4-757.5-LWT			R
4	Grand Encampment	756.5 - 756.8		12	17,847	GZ	4-756.5-LWT			R
4	Beef Slough	753.9 - 754.4		12	41,080	CM	4-754.0-LWP			I
5	Upper Zumbro	749.5 - 749.8		12	6,209	CM	5-749.8-RMP			R
5	Mule Bend	747.8 - 748.4		12	21,178	GZ	5-748.0-RMT			R
5	Fisher Island	744.9 - 745.4		12	38,206	GZ	5-744.7-LWT			R
5A	Betsy Slough	731.0 - 731.9		13	34,658	GZ	5A-731.9-LWP			R
6	Below Winona RR Bridge	723.4 - 723.8		12	8,218	CM	6-726.3-RMP			R
6	Gravel Point	722.0 - 722.2		12	11,632	CM	6-726.3-RMP			R
9	Abv Atchafalaya Bluff	660.0 - 660.9		12	36,516	CM	9-663.5-LWP			R
10	McMillan Island	618.0 - 619.0		12		CM	10-618.7-RIT			R
	Total quantity for jobs that have not been scheduled =				580,254					

ST PAUL DISTRICT - CORPS OF ENGINEERS

2010 CHANNEL MANAGEMENT & PLACEMENT SITE ACTIVITIES SCHEDULE

Updated: 25 April 2010

Pool(s)	Status	Job Name/Description	Work Type (see Key)	River Mile(s)	Work Dates	Approximate Construction Time	Equip	Cubic Yards Dredged	Rock (Tons)	Comments/Job Notes
Scheduled Channel Management Activities										
Potential Channel Management Activities										
2		Notch 31 Wing Dams (LP2 CMS)	SM/WD	NA	NA		MR	*11,000*		Pending NESP funding. Need MnDNR Protected Waters Permit.
2		Boulanger Slough	ST		2010					Conducting hydraulic analysis for plan alternatives.
3		Carter Slough	SM	807.3R	2010		MR			Cap structure with channel maint material. Pending EC-H input.
4		Lower Pool 4 CMS	ST		2010					Pending hydraulic modeling and evaluation .
8		Crosby Slough Protection (P8 CMS)	CL/BS	690.3L	NA	*1 week*	MR		*1,000*	OSIT held 5/30/07. Design pending.
8		Raise & Extend 3 Wing Dams (P8 CMS)	SM/WD	690.2L	NA	*1 week*	MR		*1,500*	OSIT held 5/30/07. Design pending.
9		Mooring Buoy	OT	687.8R	2010	*1 week*	MR			Modification to kevels.
Scheduled Placement Site Activities										
2		Pine Bend	RE	823.8L	2010		MR			Access dredging may be required.
2		Upper Boulanger	RE	821.5L	2010		MR			Reshape if site is needed. Access dredging may be required.
2		Lower Boulanger	RE	821.1L	2010		MR			Reshape. Access dredging may be required.
3		Corps Island - Unloading	EX	799.2R	2010		CT	*350,000*		Awarded to LS Marine. Work pending EA/WiDNR permits.
4	**	Wabasha Gravel Pit	RE	761.0R	2010		MR			Reshape site to discourage nesting. Begin 2012 execavation planning.
4		Crats Island	RE	759.3L	2010		GZ			Prepare site for dredging ops.
5		Fisher Island - Unloading	EX	745.8R	2010		CT	*650,000*		West Newton Chute. Stabilize swallow habitat.
5		Lost Island	RE	744.7L	2010		GZ			Goetz to add pipe to inner berm.
5A	**	Fountain City	RE	731.9L	2010		MR			Prepare site for dredging ops.
7		Trempealeau	OT	714.1L	2010		CH			Repair gate to site.
9		Lansing Hwy Bridge	RE	663.5L	2010		MR			Prepare site for dredging ops.
10		Mississippi Gardens	RE	642.4L	2010		MR			Repair access road.
10		Buck Creek	RE	618.0R	2010		MR			Reshape site to discourage nesting.
Potential Placement Site Activities										
MN		Cargill East River	RE/BS	14.1R	2010		MR			Pending stabilization design.
4		Red Wing Wildlife League	BS	791.9R	2010		CT/MR			Mech CT add material, M&R stabliize. EA pending.
4		Red Wing Commercial Harbor	IN	791.6R	2010		MR			Relocate placement site per city plan. Pending OSIT coord.
4		Cut 5	BS	786.6L	2010					Mech CT add material, M&R stabliize. EA pending.
5A		Wilds Bend								
Other Scheduled M&R Work										
All		USCG Daymark Stabilization	OT		2010					AToNs stabilization. Pedning USCG info .
All	**	Spring Buoy Setting	OT		31 Mar - 2 Apr 2010					Buoy pre-setting for USCG
4		Upper Approach to LD 4	OT	753.4L	2010		MR			Remove obstruction. Pending C&H survey.
5		Re-vegitation Historic Placement Sites	OT	744.0 - 744.7						Work coordinated by Dennis Anderson

Key

*	Currently operating at this job.	BS	Bank Stabilization	CT	Contractor (Mechanical, Hydraulic, Other)
**	Work has been completed.	CL	Closure	PO	Purchase Order
WS	Work Suspended	DR	Dredging	CH	COE Channels & Harbors Unit
CMS	Channel Management Study	DS	Drop Structure	NR	COE Natural Resource Project Office
WC	Work Canceled	EX	Excavation	MR	COE Maintenance & Repair Unit
		FB	Fabrication	GZ	COE Dredge Goetz
		IN	Installation	DQ	COE Dredge Dubuque
		IS	Island	IaDNR	Iowa Department of Natural Resources
		LS	Landscaping	MnDNR	Minnesota Department of Natural Resources
		RE	Reshaping	WiDNR	Wisconsin Department of Natural Resources
		WD	Wing Dam	*Itl*	Italicized numbers are estimates.
		SM	Structure Modification		
		ST	Study		
		OT	Other (see Comments)		

Attachment #2 RRF 87

1) For the most part, pool 9 & 10 beach plan comments are in now (most recent review of pool 10 by USFWS, McGregor District and they reported no comment.)

2) Draft EA for both pools has been circulated to RWG partners and several have commented but waiting on a comments from a couple of other RWG members and hope to have by next week time-frame.

3) Intend to move forward with necessary EA work in later May (cultural, potential mussel work, etc.,)

4) Intend to have final draft plans to RRF prior to late Aug meeting and in time for a 30 day review, unless EA process delays….?

5) Also, some potential for beach plan work beginning in Winona District FWS pools this summer but will be discussing with Mary Stephanski in May after her return from TDY.

6) Dan – I need to discuss potential storage from recreational boating site data (currently housed SMU,) with you and see if we have some potential to do that.

7) RWG to meet in May.

8) Scot J. can provide to above if he'd like plus pass along UMRCC info. If he'd like.

Attachment #3 RRF 87

Lock and Dam 3

-Navigation Safety and Embankment Improvements Project

- Red Wing Wildlife Protective League Bank Projection Project

- Fish Passage Feasibility Study

Presentation for the

River Resources Forum

By:

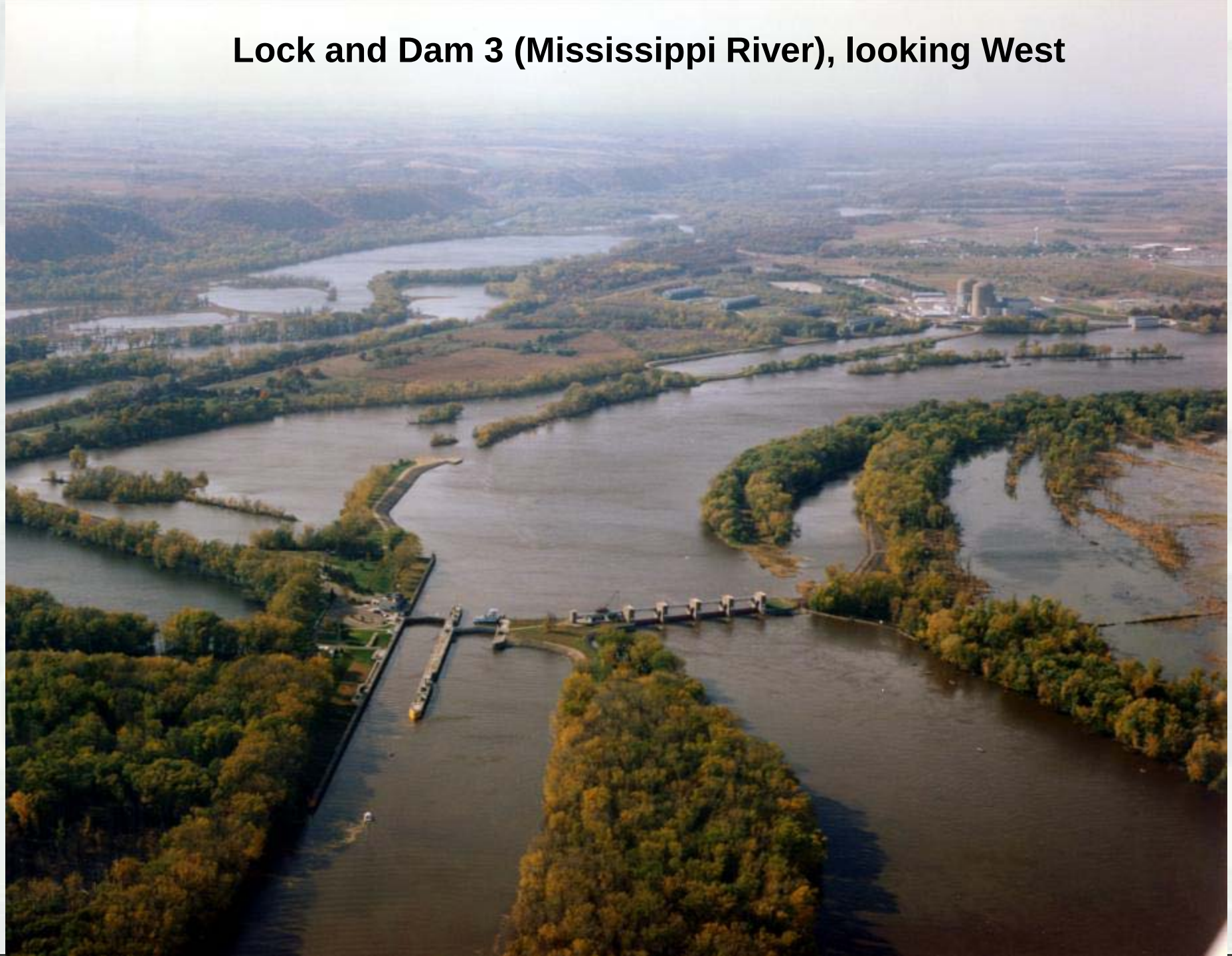
David Saddoris

Project Manager
St. Paul District
US Army Corps of Engineers

27 April 2010

LD3 Navigation Safety and Embankments Project

Lock and Dam 3 (Mississippi River), looking West



LD3 Navigation Safety and Embankments Project

Problems at Lock and Dam 3 (LD3):

- **Weak embankments**
- **Navigation safety (outdraft condition)**

LD3 Wisconsin Embankment System

LD3 Navigation Safety and Embankments Project

Existing Problems:

- Navigation safety concerns due to outdraft

- Weak embankments

Plan:

-Extend landward guidewall

- Channel modifications

-Strengthen WI embankments

LD3 Navigation Improvements

LD3 Navigation Safety and Embankments Project

General Reevaluation Report/Environmental Impact Statement (GRR/EIS): Approved in 2007

- Funding for construction uncertain until ARRA

Funding: American Recovery and Reinvestment Act of 2009 (ARRA)

- Funding announcement on April 28, 2009
- Funding: $70,239,000

LD3 Navigation Improvements

LD3 Navigation Safety and Embankments Project

Three construction contracts:

- Navigation and Channel Improvements: Design-Build
  - Contract Awarded: December 2009 for $27M
  - Contractor: Edward Kraemer & Sons

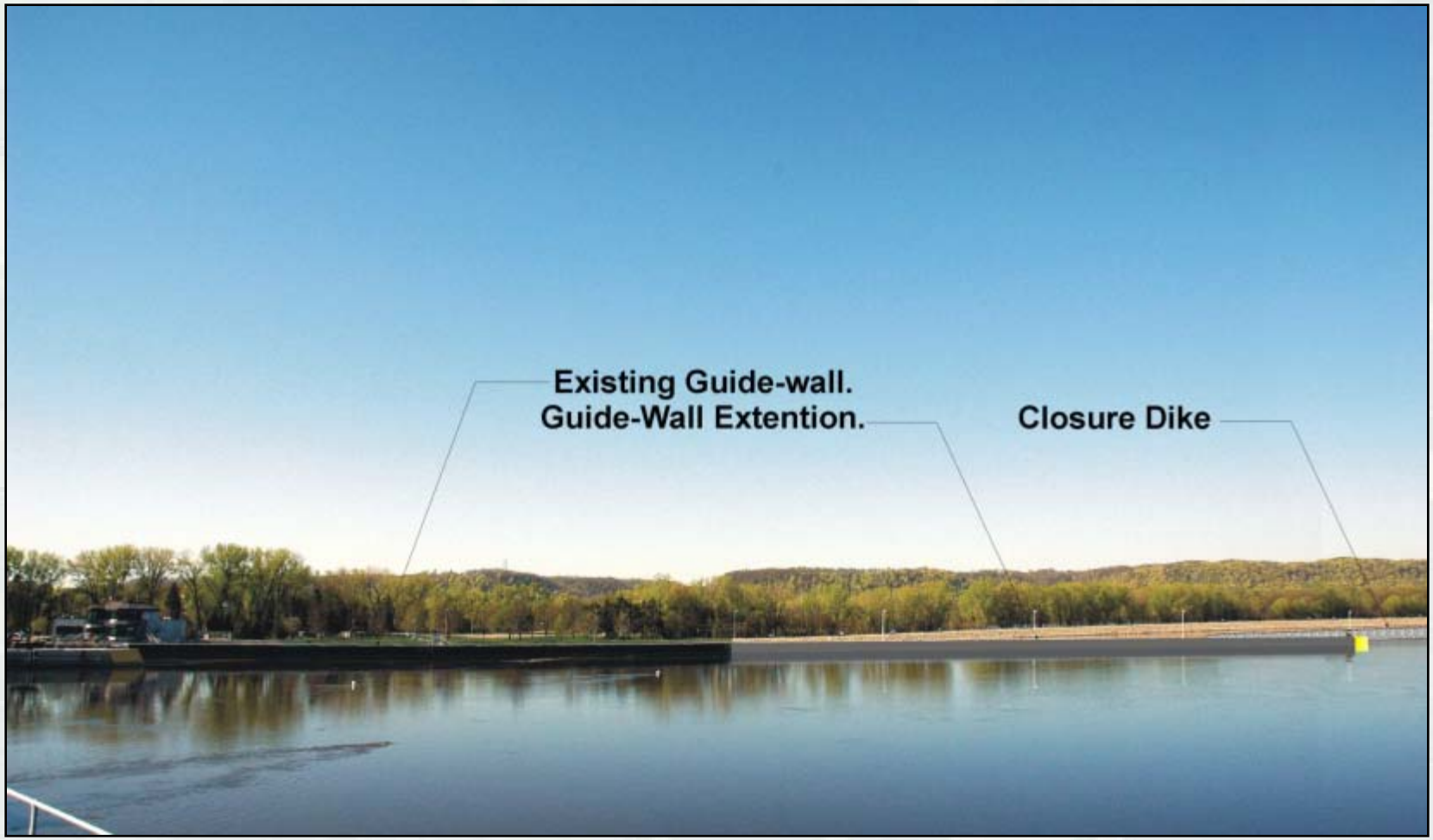
- Upper Embankments: Design-Bid-Build
  - Contract Awarded: January 2010 for $5.2M
  - Contractor: Coastal Environmental Group, Inc.

- Lower Embankments: Design-Build
  - Contract Awarded: February 2010 for $19M
  - Contractor: Edward Kraemer & Sons

LD3 Navigation Improvements

Limits of Dredge and Fill with Completed Wall - Early 2011

LD3 Navigation Improvements



LD3 Navigation Improvements

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LD3 Navigation Improvements

Schedule

April 2009 – Funding announcement

December 2009 - Contract award

June 2010 – Anticipated start of construction

September 2011 – Anticipated construction completion

LD3 Navigation Improvements

Next Steps

1) Finalize in-water BMP and dredging and placement plans

2) Contractor submit final design (10 May 2010)

3) Agency review of final design (10 May 2010)

4) Contractor mobilize (late May/early June 2010)

5) Start construction (June 2010)

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LD3 Navigation Improvements

<u>Considerations during construction:</u>

- Fish spawning
- Turbidity and suspended solids
- Transportation of materials
- Safety (both construction team and public)
- Impacts on commercial and recreational boaters

LD3 Navigation Improvements

Navigation Season Lock Open/Close Dates (To allow for Winter work by Contractors):

- Fall 2010 Close: November 22, 2010
- Spring 2011 Open: March 28, 2011

During 2010 & 2011 Navigation Seasons:

- Contractor will be allowed to close LD 3 for up to 96 hrs/month.
- Max. 24 hrs per closure; closures to be separated by at least 24 hours to clear tow traffic; Contractor to provide 7 days notice for closures
- No closures on Friday, Saturday, Sunday or holidays
- Boaters be aware of contractor's floating plant working in the channel and along the Wisconsin embankments. Corps will work with the USCG to possibly establish slow-no wake zone in construction areas.

LD3 Upper Embankment Improvements

LD3 Upper Embankment Improvements

LD3 Upper Embankments Improvements

Schedule

April 2009 – Funding announcement

January 2009 - Contract award

August 2010 – Anticipated start of construction

December 2011 – Anticipated construction completion

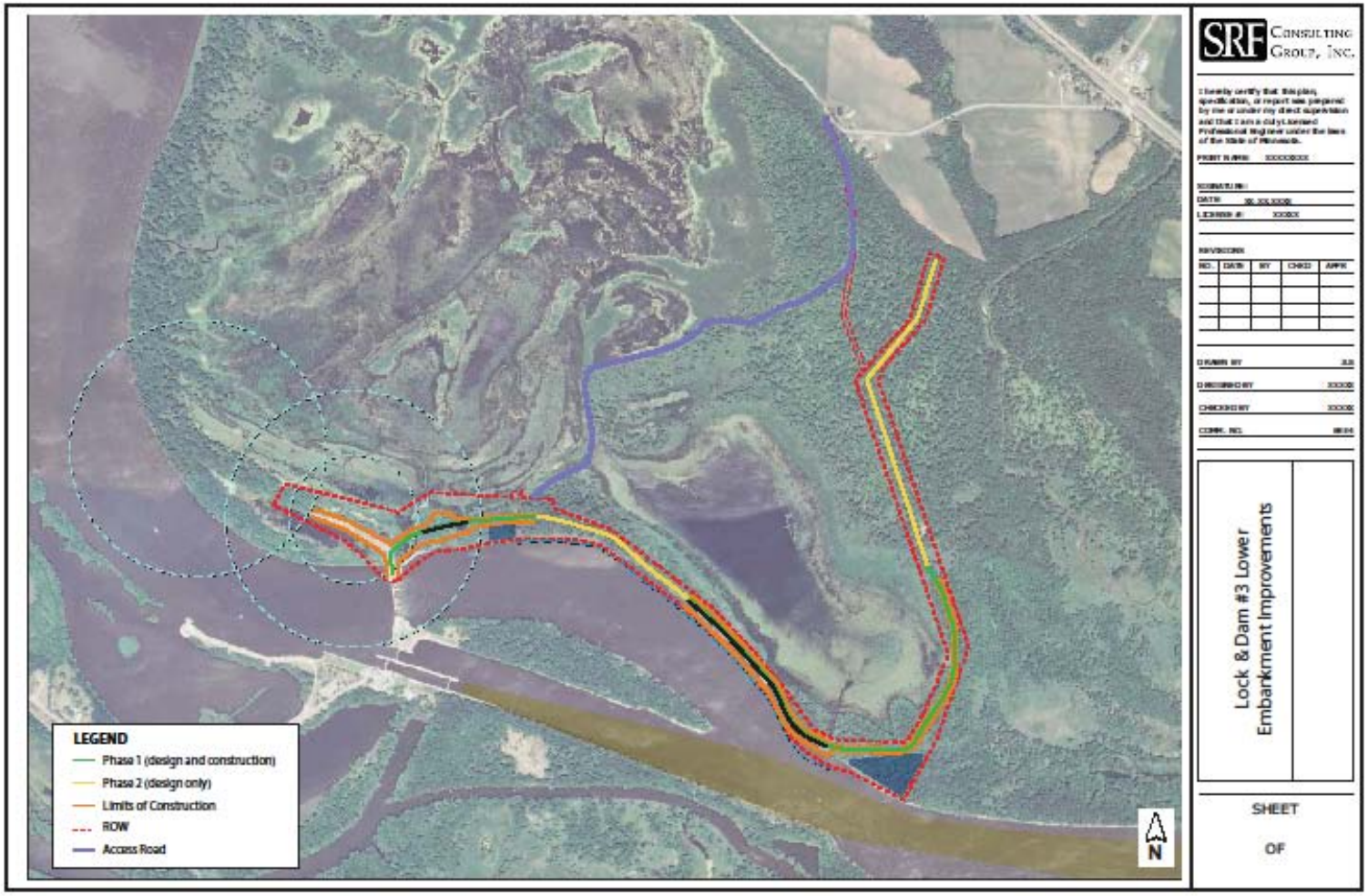
LD3 Upper Embankment Improvements

<u>Key construction considerations:</u>

- Transportation and disposal of materials
- Eagle nesting

LD3 Lower Embankment Improvements

LD3 Lower Embankment Improvements



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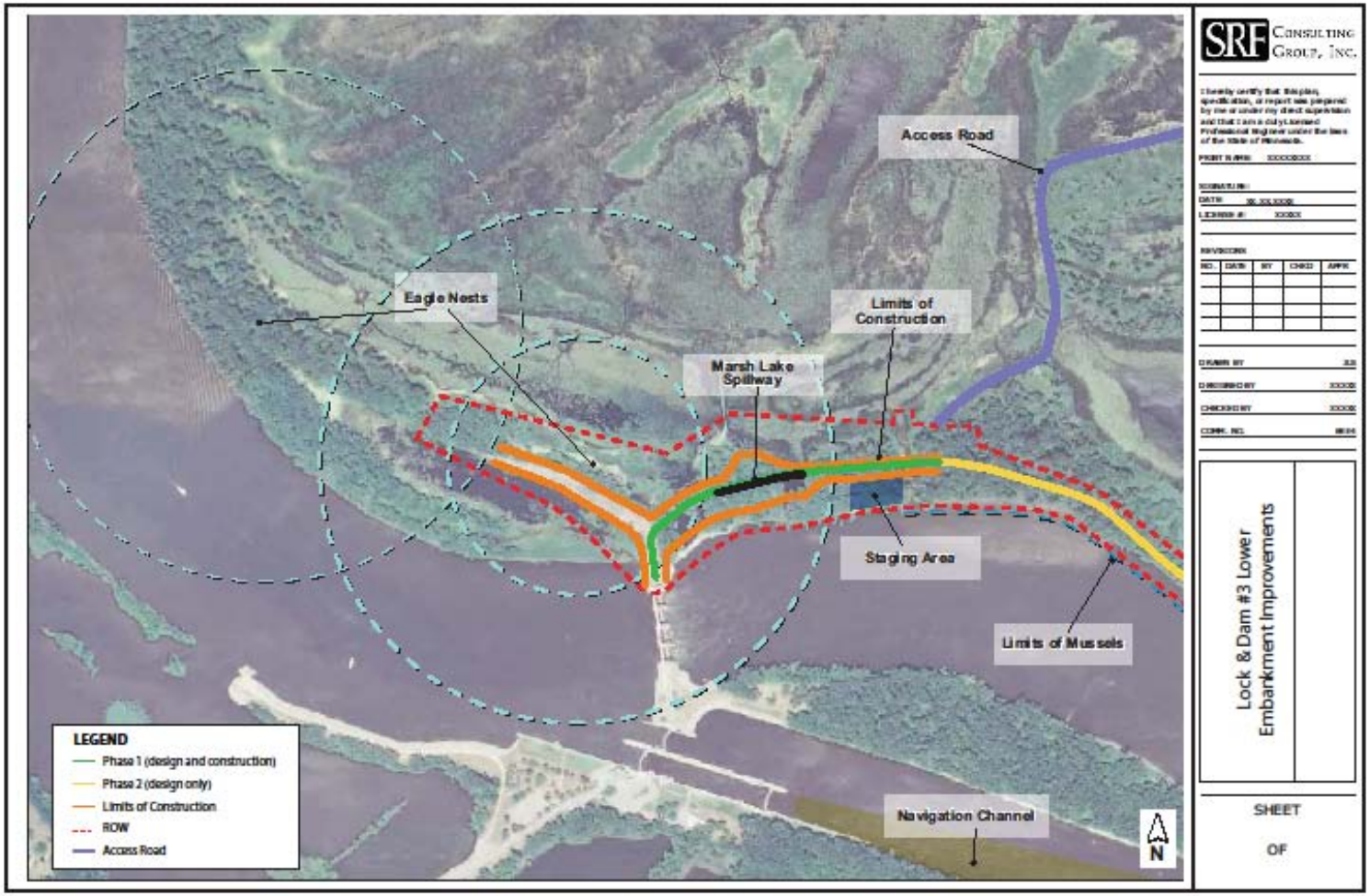
LD3 Lower Embankment Improvements



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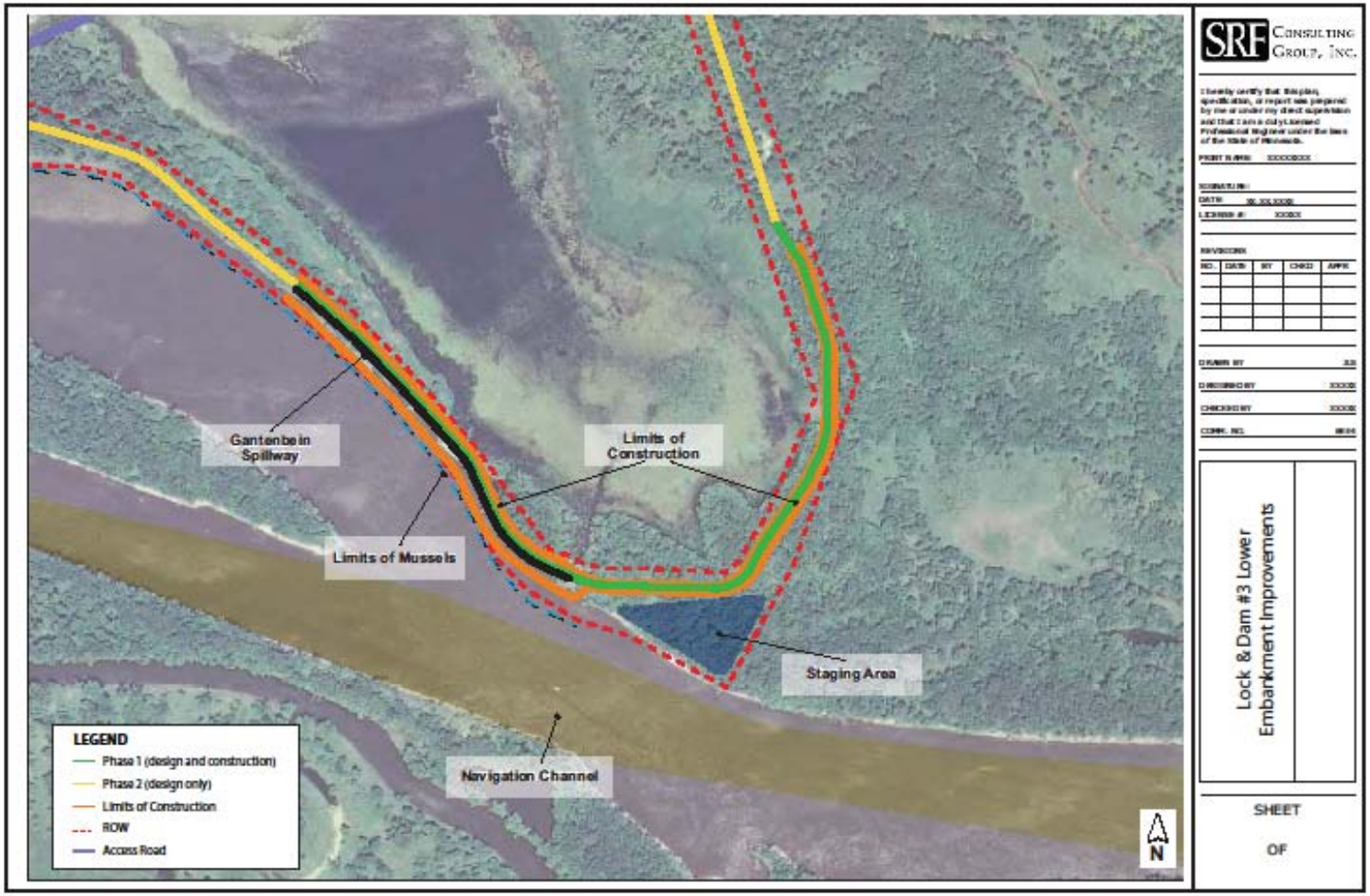
LD3 Lower Embankment Improvements



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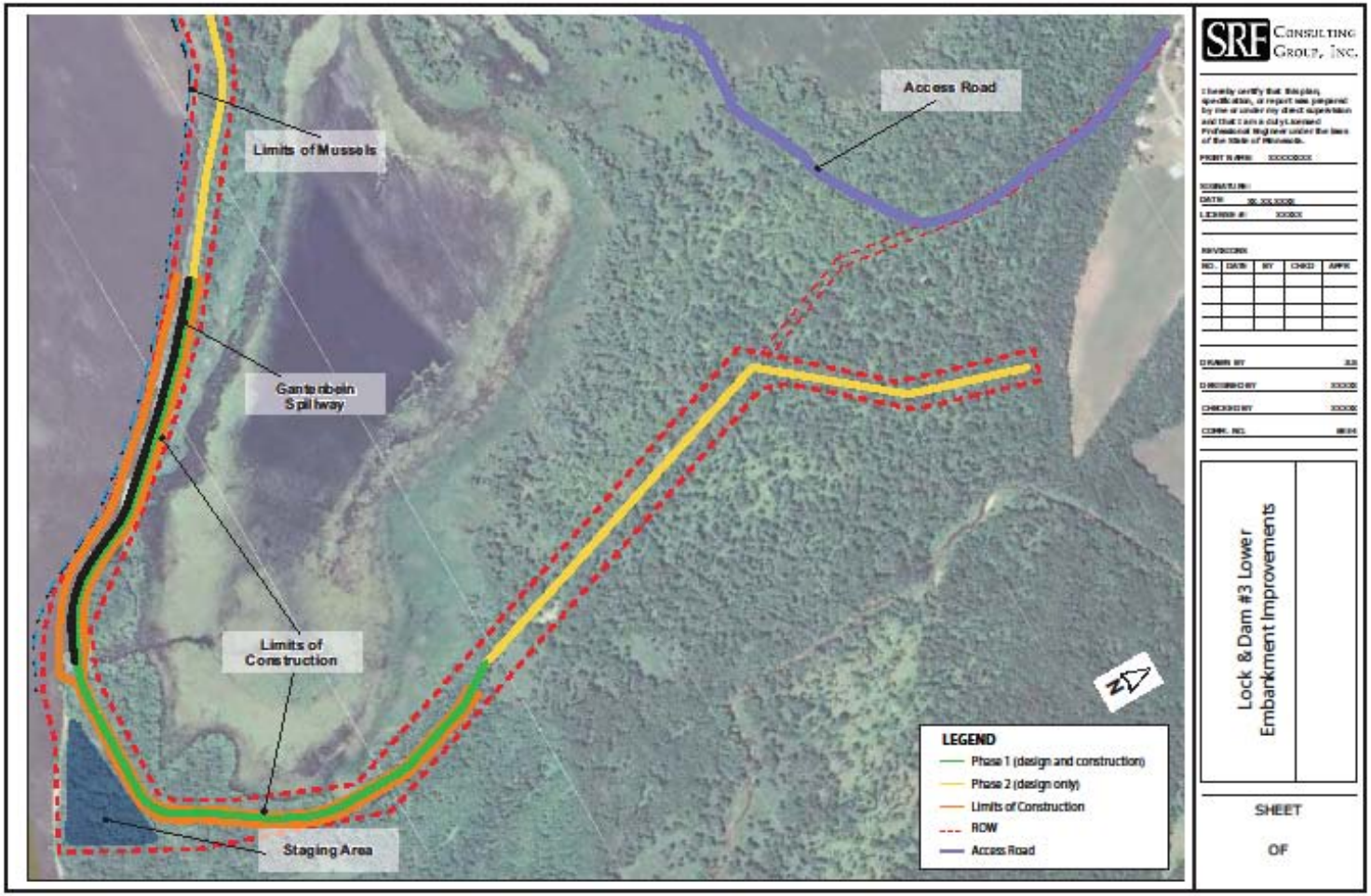
LD3 Lower Embankment Improvements



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LD3 Lower Embankment Improvements

Schedule

April 2010 – Funding announcement

February 2010 - Contract award

August 2010 – Anticipated start of construction

November 2011 – Estimated construction completion

LD3 Lower Embankment Improvements

Next Steps

1) Obtain final Wisconsin DNR Chapter 30 permit and Water Quality Certification

2) Contractor submit preliminary Design Development Report (DDR)

3) Contractor submit 65% design

4) Obtain soil borings

5) Start construction (August 2010)

LD3 Lower Embankment Improvements

Key construction considerations:

- Eagle nesting
- Mussel beds
- Wetland protection
- Transportation and disposal of materials
- Proximity of construction to recreational users

LD3 Embankment Improvements

Mitigation Lands:

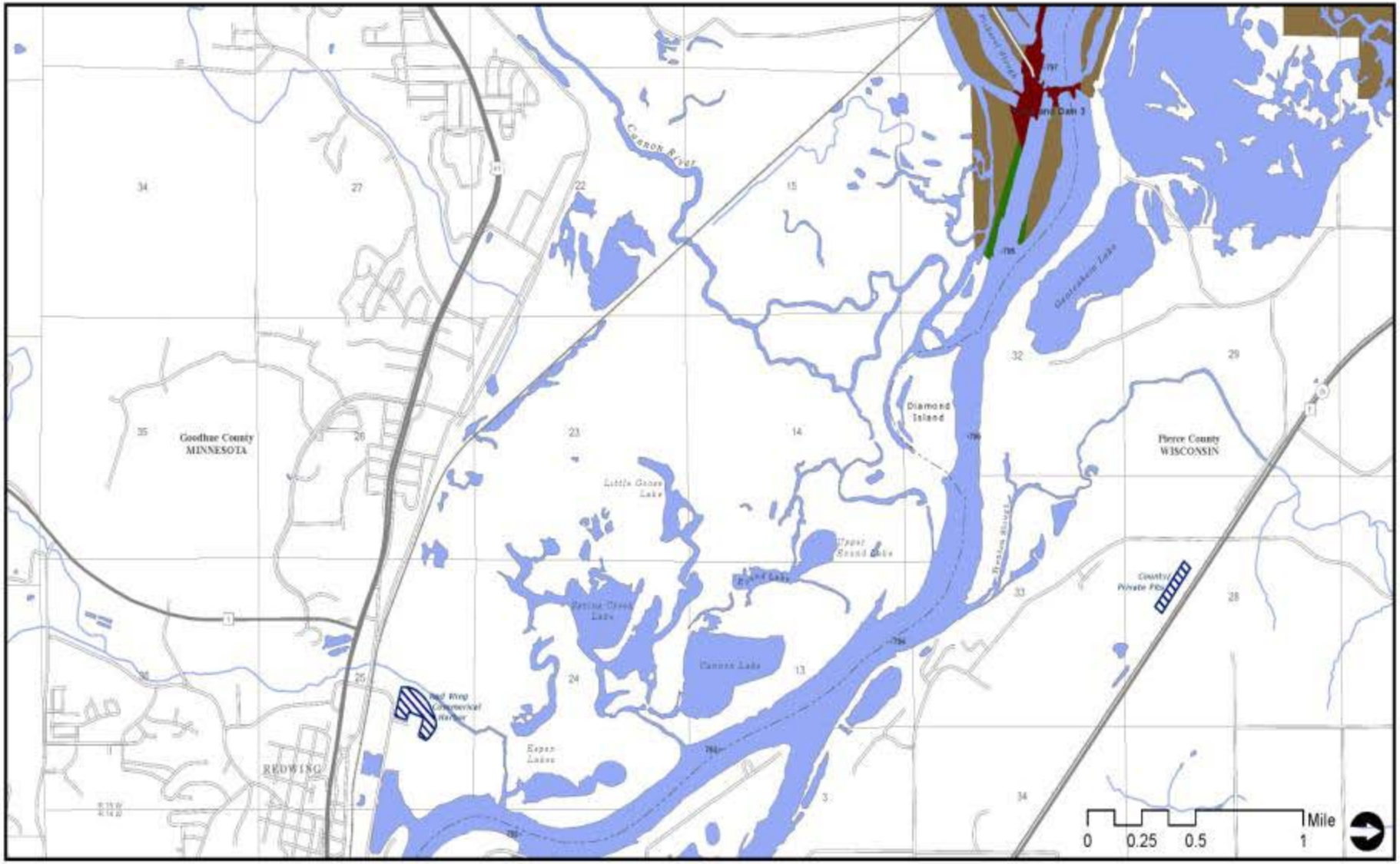
- 313 acres of floodplain land that has been cleared for agriculture
- Land that can be restored to native floodplain forest (not already floodplain forest)
- Acquired in fee from willing sellers
- To date ~190 acres acquired for restoration
- Currently looking for additional lands to purchase

Red Wing Wildlife Protective League (RWWL)

Proposed Bank Protection Project

Red Wing Wildlife League (RWWL) Dredge Disposal Project

- Mitigation for Lock and Dam 3 Navigation Improvements closure berm
- Lower RWWL site (River Mile 791.9-793)
- Use dredge material from Cannon River and Trenton dredge cuts
- Protect approximately one mile of river bank
  - Enhances more than 3 acres of channel border aquatic habitat at higher levels of river discharge
  - Covers more than 4.5 acres of shoreline riparian area
- Construct 46 tree groins to reduce further shoreline erosion



Master Plan for Public Use Development and Resource Management
Upper Mississippi River

CORPS LANDS	FWS LANDS	LAND USE ALLOCATIONS*
		Project Operations
		Recreation / Intensive Use
		Recreation / Low - Density
		Natural Area
		Wildlife Management

- Major Roads
- Streets
- Railroads
- State Land
- Other Federal Land
- Dredged Material Placement Sites
- State Boundary
- County Boundary
- Miles Above Ohio River
- Boat Ramps

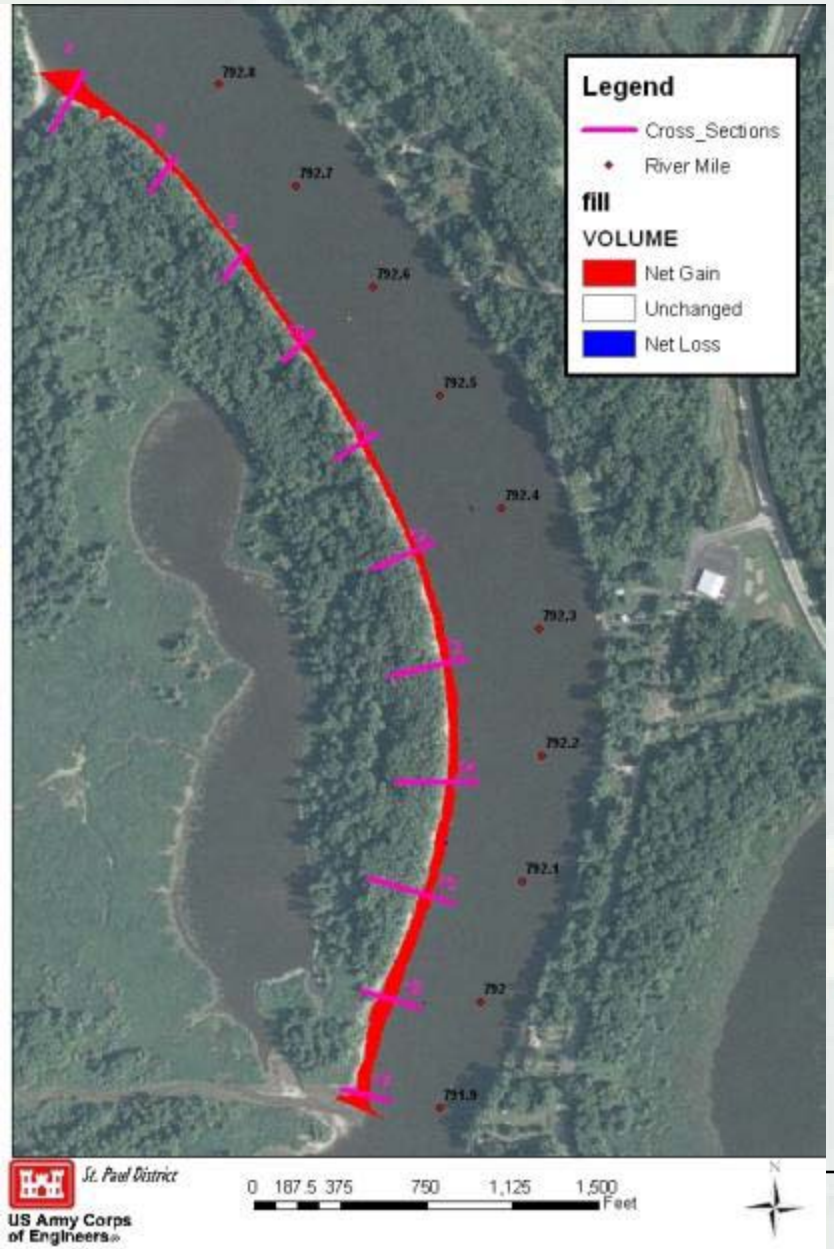
*See text Section 4 for definitions of land use allocation categories.

U.S. Army Corps of Engineers
St. Paul District

Land Use Allocation

Pool 4 Mile 791.4-797.2 Plate 15 of 68

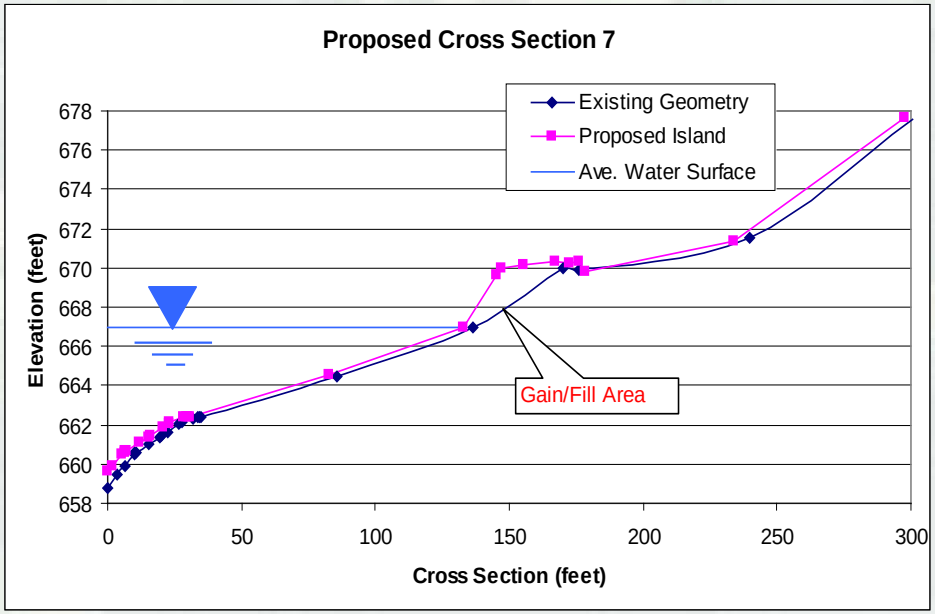
RM 791.9-793 Dredge Disposal

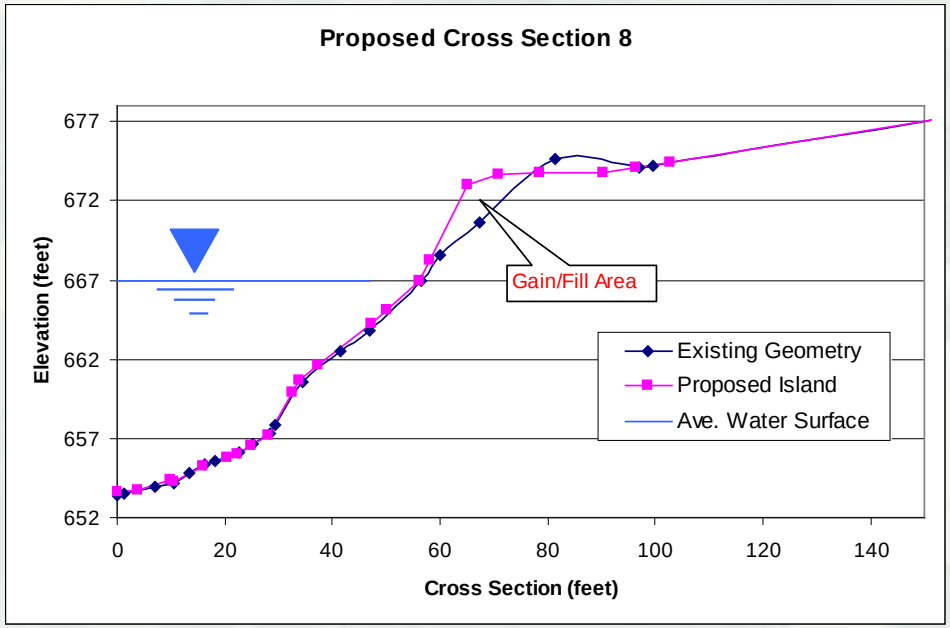


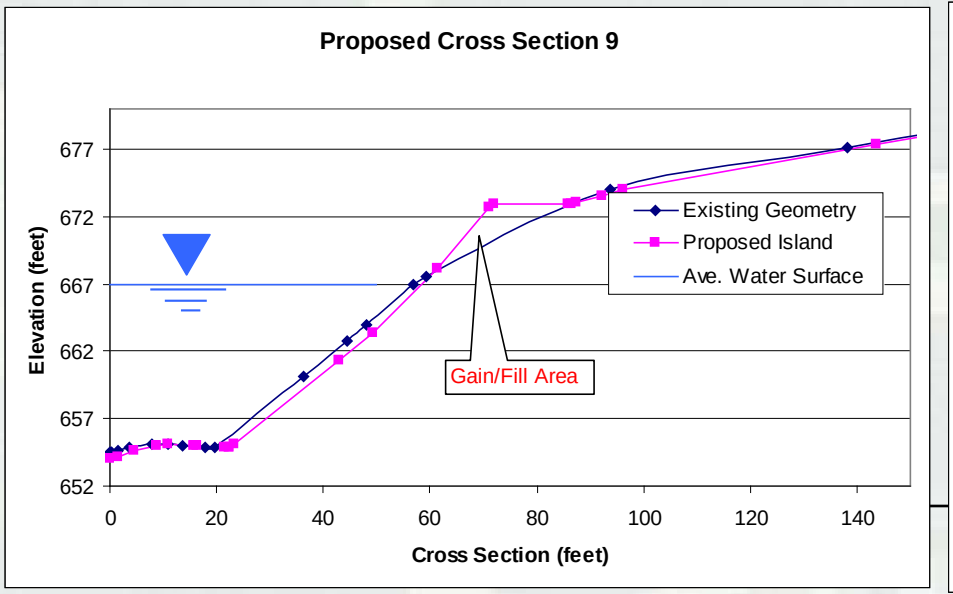
Based on design and existing topography, the amount of material required for construction is…

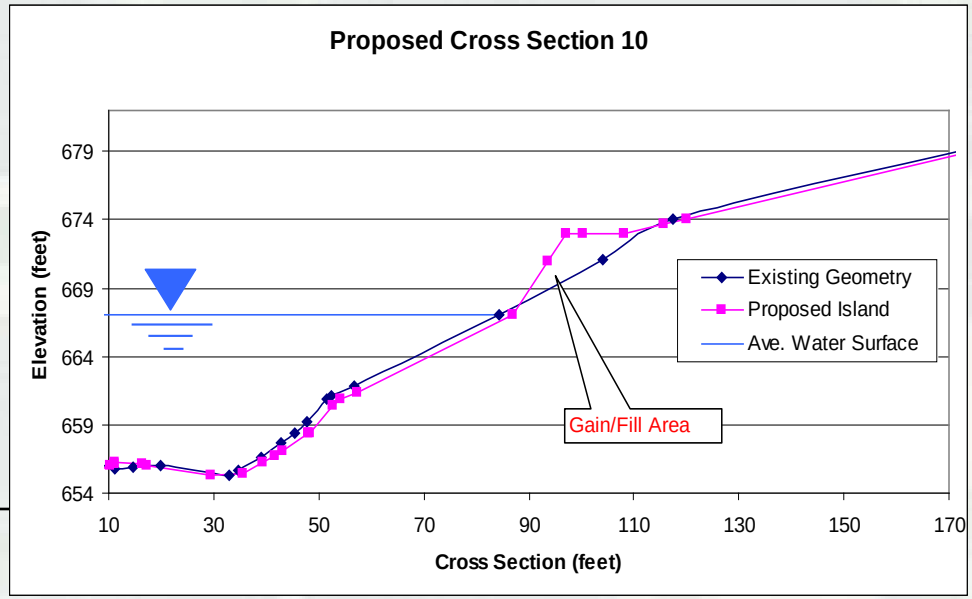
	Volume (yd^3)	Footprint Area (ft^2)
Total Fill Areas	37,000	200-230k
Non-slope Fill Area	N/A	60k

Proposed Cross Sections

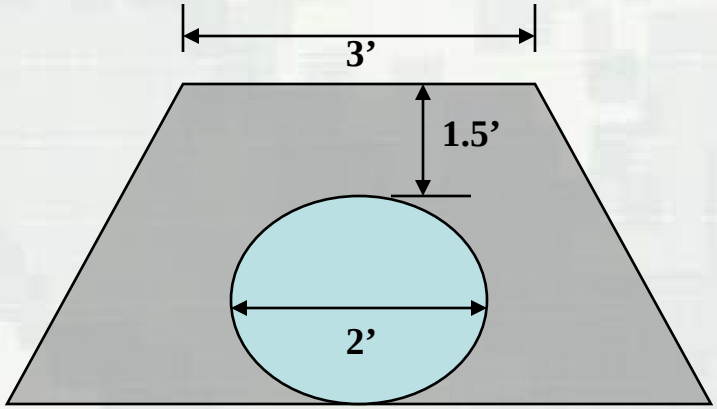


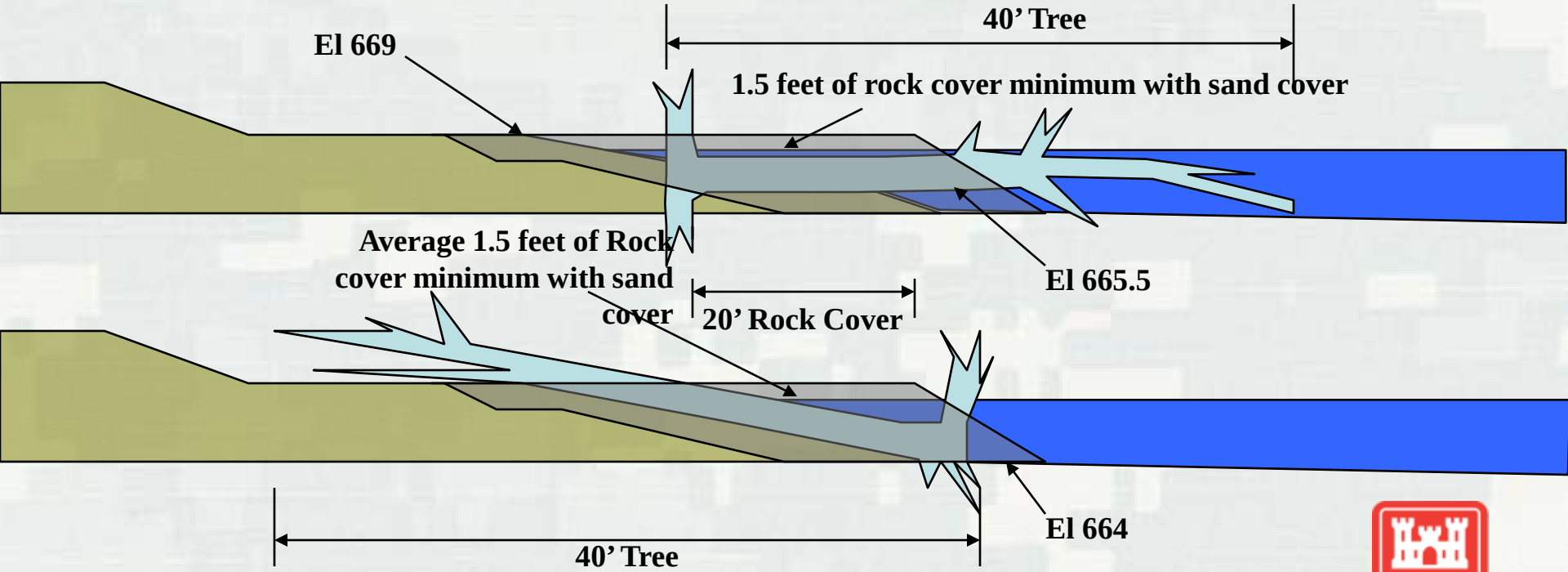






Pool 4, Groins With Trees





Note: If only 15’ of tree is covered, need 2 feet of rock cover.

Red Wing Wildlife League (RWWL) Dredge Disposal Project

Other Considerations

- Real Estate
  - 25-year bank protection easement
- Maintenance
  - USACE does not intent to maintain placed material
- Plantings
  - Topsoil and vegetation (willow plantings) by others is optional
- Flooding
  - Assume 100-yr Flood Water Surface does not need to be analyzed
- Tree Groins
  - Vary direction of tree placement; minimum 25% trees with roots in beach and minimum 25% trees with roots in water.
- Field Fit Dredge Disposal
  - Finished elevations will vary with tree root elevations
  - Cross sections show disposal meeting water surface, during construction disposal can extend to no further than 5 feet into water.

Lock and Dam 3 Fish Passage Feasibility Study

Lock and Dam 3 Fish Passage Feasibility Study

Milestones Achieved to Date

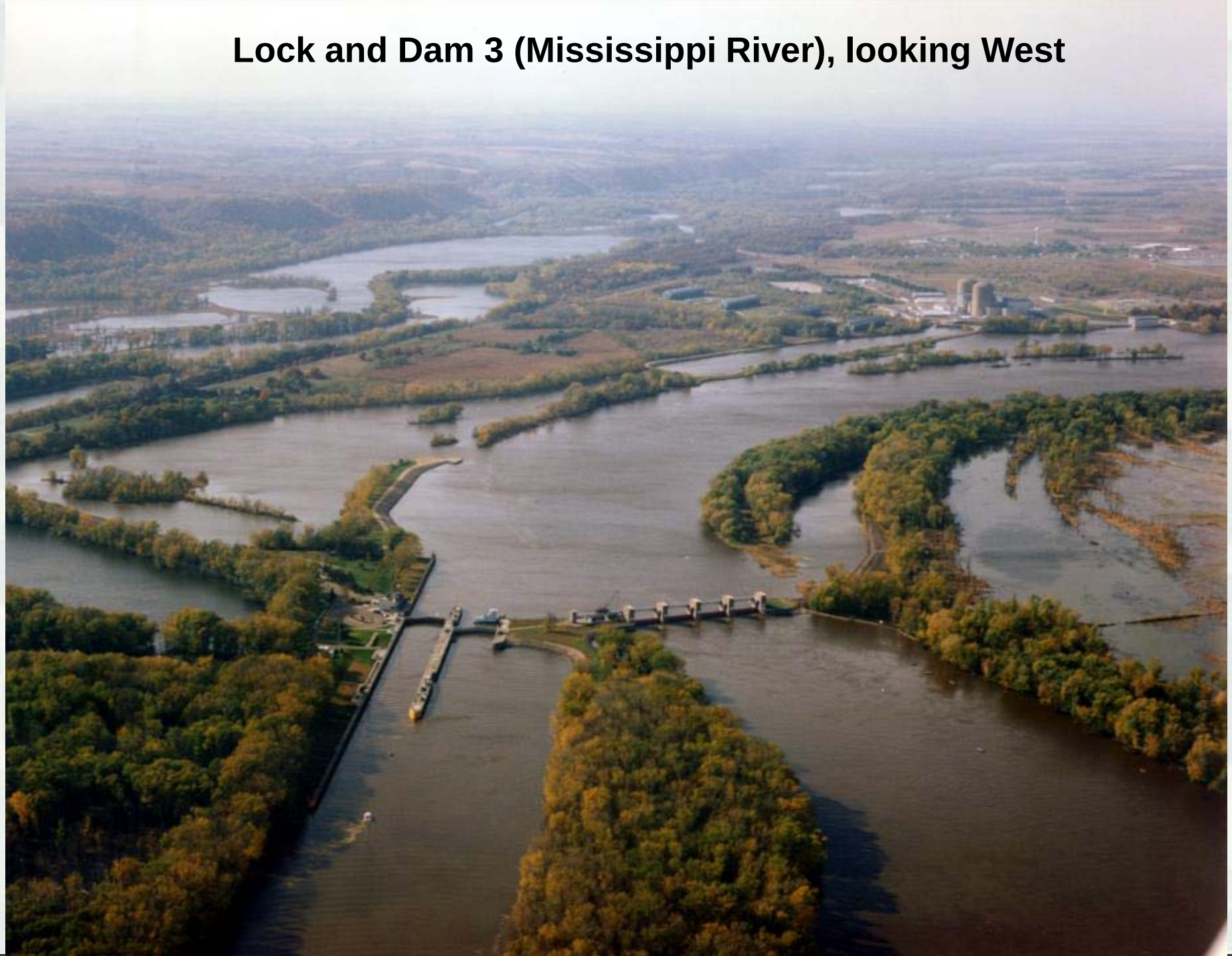
- Conceptual design and cost estimate (2007)
- LD3 Fish passage partner meeting (14 Jan. 2010)
- River Resources Forum endorsement (email vote – ratified 8 Feb. 2010)
- MVD approval of fact sheet (19 Feb. 2010)
- Scope of Work transmitted to HDR Engineering, Inc. (4 March 2010)
- Request additional ARRA funding from MVD (18 March 2010)
- Award task order to HDR Engineering, Inc. (20 March 2010)
- Kick-off meeting with agencies and other stakeholders (15 April 2010)

Lock and Dam 3 Fish Passage Feasibility Study

Study Considerations

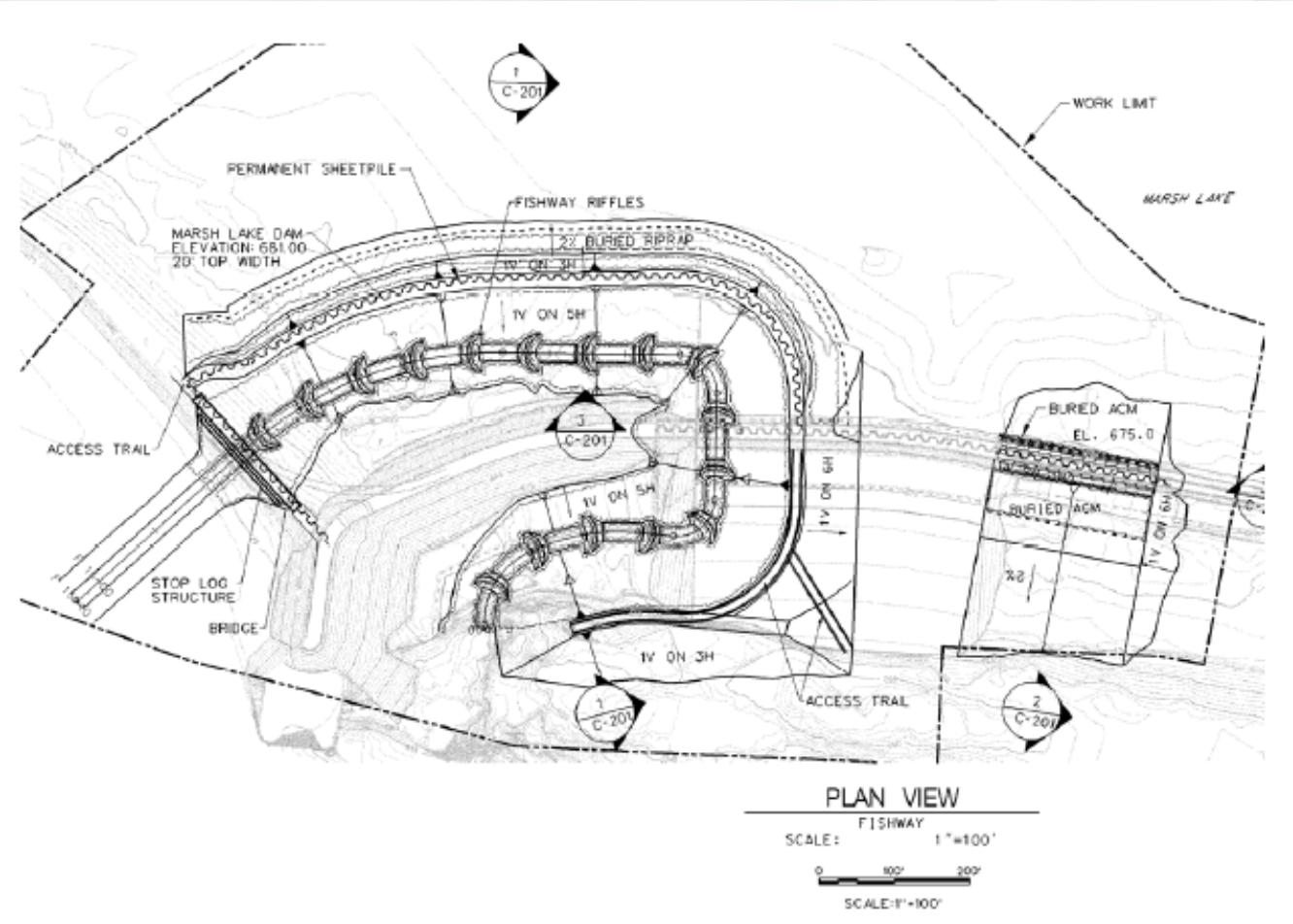
- ARRA funding of $548k for study
- Study completed under EMP authority
  - A different authority may be used for construction
- Cost estimate for construction of conceptual design = $14.9M (2007 price level)
- Maintenance of structure to be considered
- Potential impacts to Asian Carp migration to be considered
- Study schedule assumes an EA and FONSI

Lock and Dam 3 (Mississippi River), looking West



Lock and Dam 3 Fish Passage Feasibility Study

Conceptual Fish Passage Structure (2007)



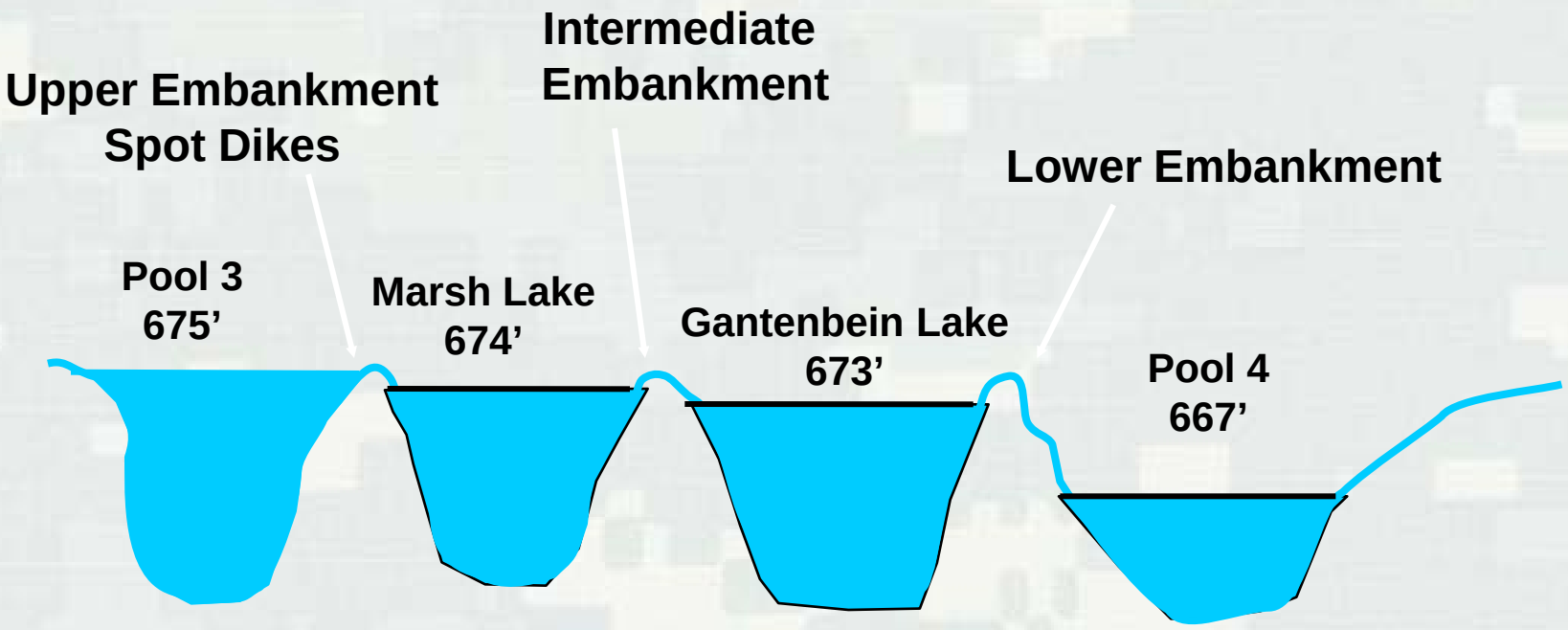
Lock and Dam 3 Fish Passage Feasibility Study

Study Key Milestones

- Final Problem Appraisal Report (PAR) – June 2010
- Alternative Formulation Briefing (AFB) – October 2010
- Final draft Definitive Project Report(DPR)/Environmental Assessment(EA) – November 2010
- Final DPR/EA and FONSI – February 2010

Thank you!

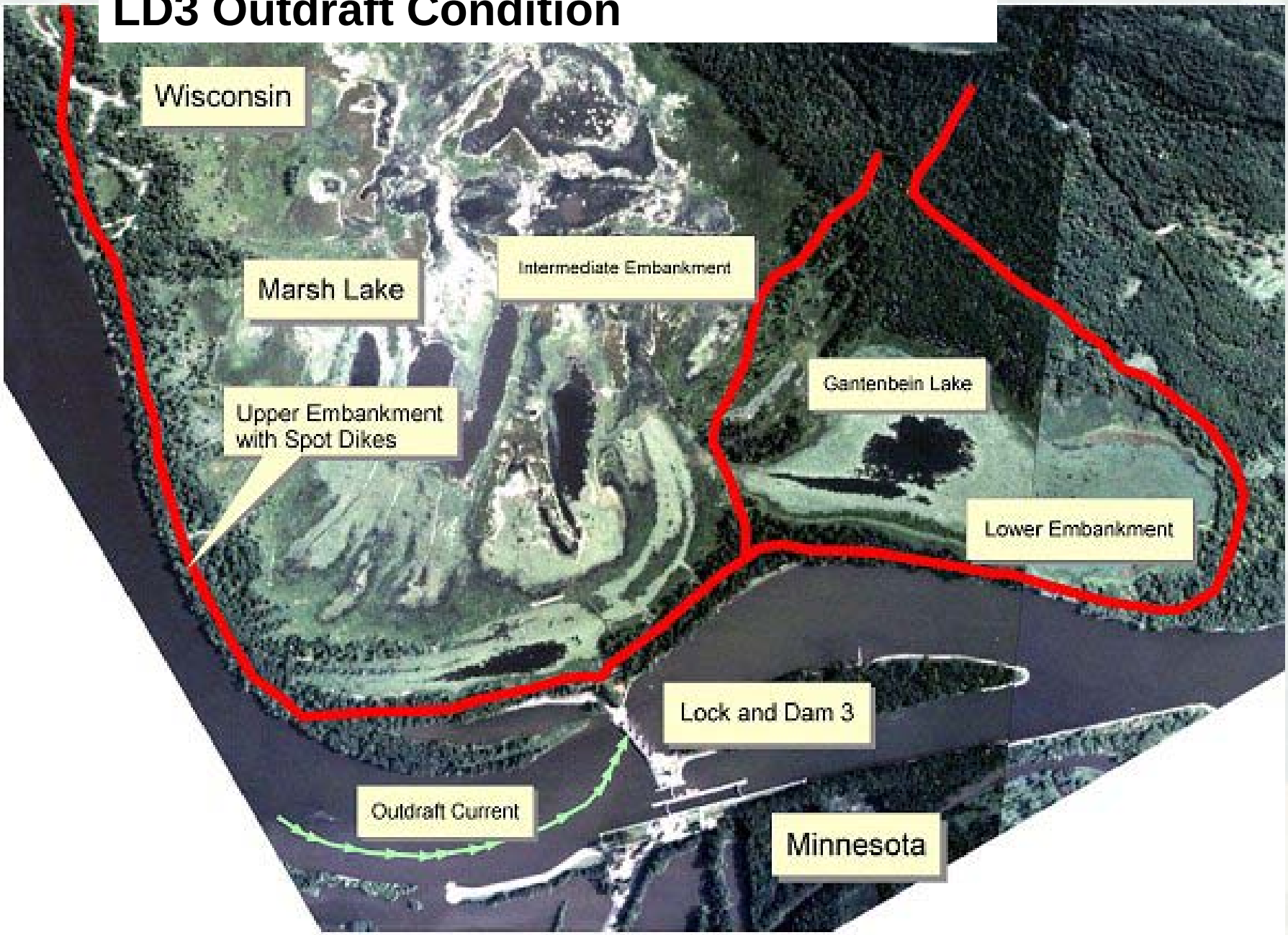
LD3 Navigation Safety and Embankments Project



Deteriorating spot dikes
upper embankment

Emergency repairs on lower embankment holding Marsh Lake

LD3 Outdraft Condition



Tow being swept toward dam gates by outdraft current

Barge sunk in dam gates

LD3 Navigation Safety and Embankments Project

Navigation Safety and Weak Embankment concerns are related.

Scenario for Dam Failure:

- Navigation accident -> Dam gates closed
- Gates closed -> Pool rises
- Pool rises -> Overtopped embankments
- Overtopped embankments -> Scour channel develops
- Scour channel around dam -> Accidental drawdown of Pool 3

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LD3 Navigation Safety and Embankments Project

Lock and Dam 3 is at high risk of failure:

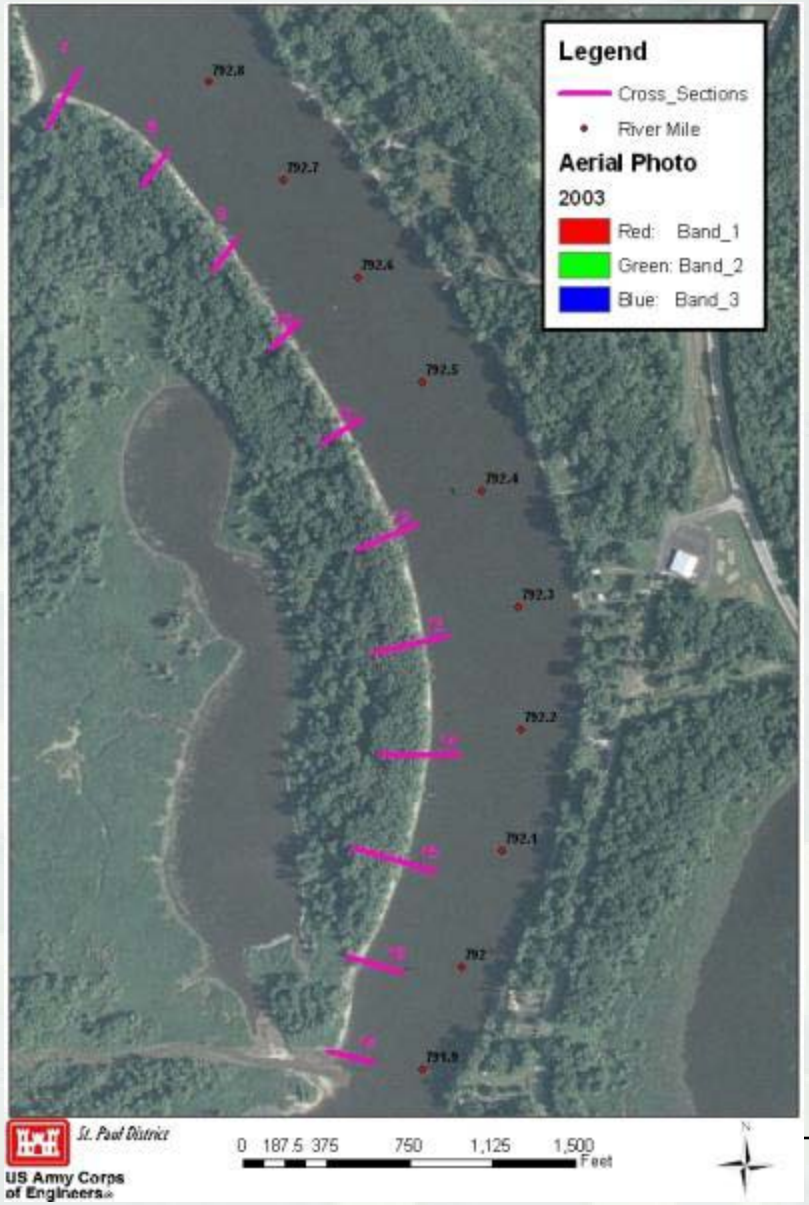
- 2006 Inland Waterways Users Board (IWUB) Annual Report noted LD 3 as a top priority Capstone Activity (1 of 5 Corps wide)
- 2005 Risk Assessment of Dams found LD 3 to be the 2nd most vulnerable to failure of the Corps Navigation projects

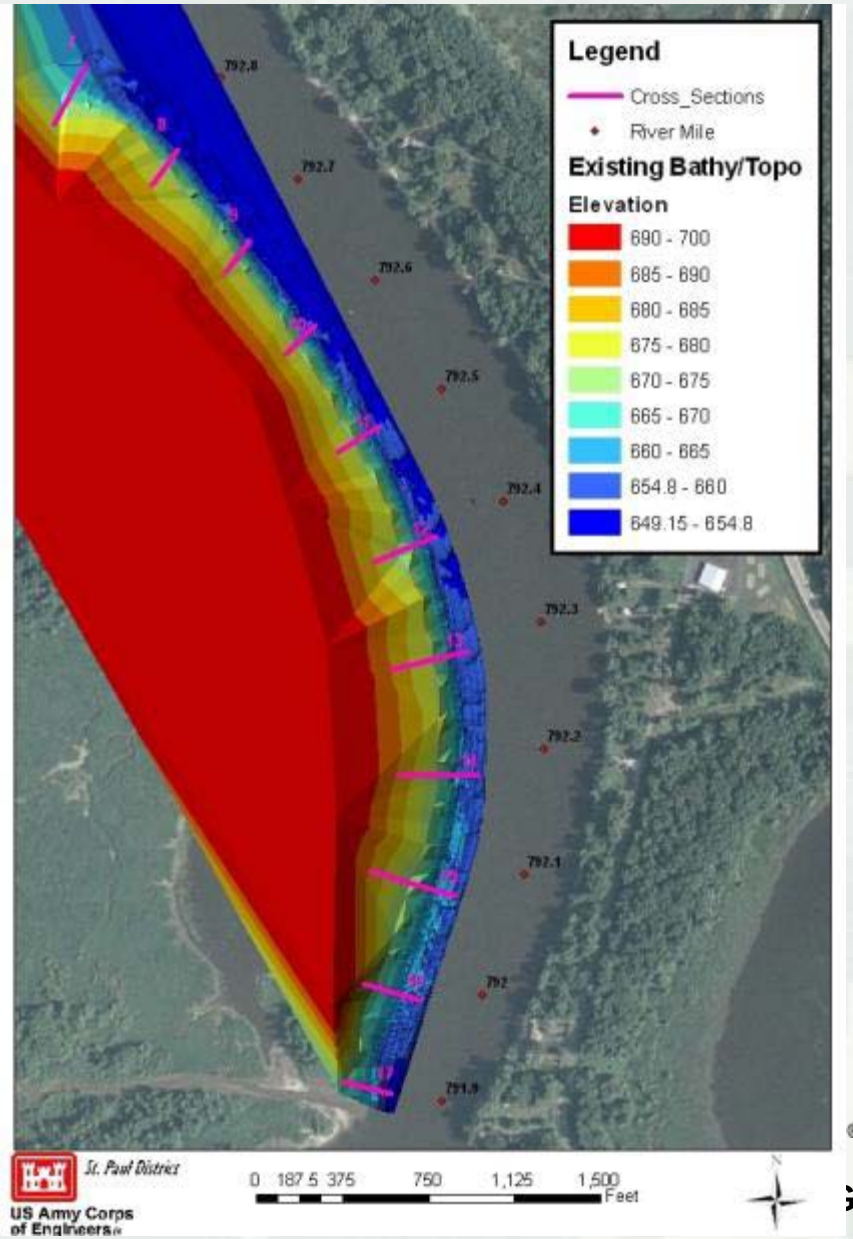
LD3 Navigation Safety and Embankments Project

Impacts of Dam Failure and Loss of Pool 3:

- Commercial navigation closure
  - Avg. Annual Tonnage shipped through LD 3 = 9.95 Million tons
- Power generation impacts
  - Pool 3 provides cooling water for 2 power plants including the Prairie Island nuclear power plant which provide 40% of the power to the Twin Cities. Both plants would be shut down by a drop in pool elevation
- Recreational boating closure
  - Annually an avg. of 18,500 recreational boats lock through LD 3
- Environmental loss of fisheries and other wildlife habitat

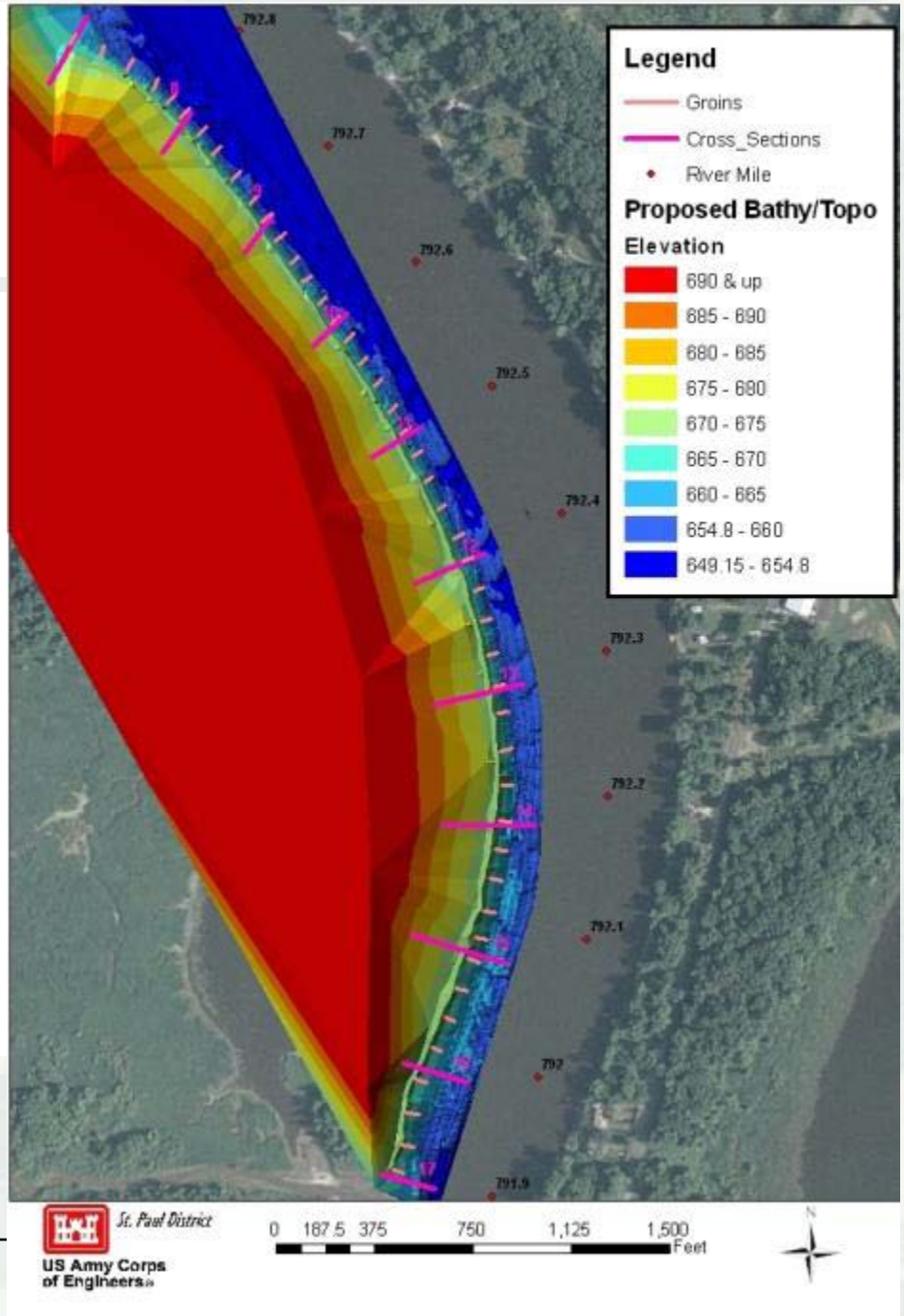
RM 791.9-793 Existing Conditions





RM 791.9-793 Dredge Disposal

- 10-15 ft extension of elevation of tree roots
  - 10 ft Minimum,15 ft Maximum
  - Dictated by Max slope of 3H:1V
  - Average elevation 673
  - Ranges between 670 & 680
- 46 Tree Groins
  - Use existing dead trees
  - Anchor using riprap, then buried by sand fill
  - Spaced 100 feet apart



Attachment #4 RRF 87

WATERWAYS COUNCIL, INC.

Paul C. Rohde
Vice President

River Resources Forum
April 27, 2010
Winona, MN

WATERWAYS COUNCIL, INC.

The national public policy organization advocating a modern and well-maintained system of ports and inland waterways

WCI Membership

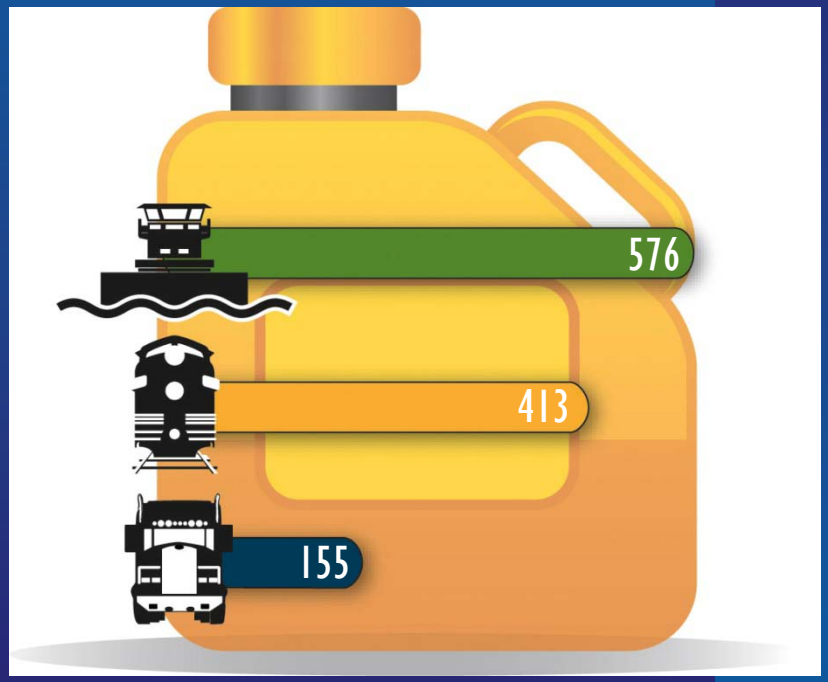
- *Tug and barge companies*
- *Shippers of goods on our inland waterways*
- *Companies using goods shipped on inland waterways*
- *Ports*
- *Economic Development organizations & Chambers of Commerce*
- *Agricultural associations and groups*
- *Recreation & Conservation groups*
- *Labor organizations*
- ***Those who recognize waterways transportation as the most energy efficient, environmentally sustainable and economically sound means of shipping America's bulk commodities – the building blocks of our economy***
- *Partnership with other stakeholders, federal and state agencies, etc….*

Advantages of Inland Waterways Transport:

Moving Freight Efficiently Throughout America

Transporting freight by water is the most energy-efficient option.

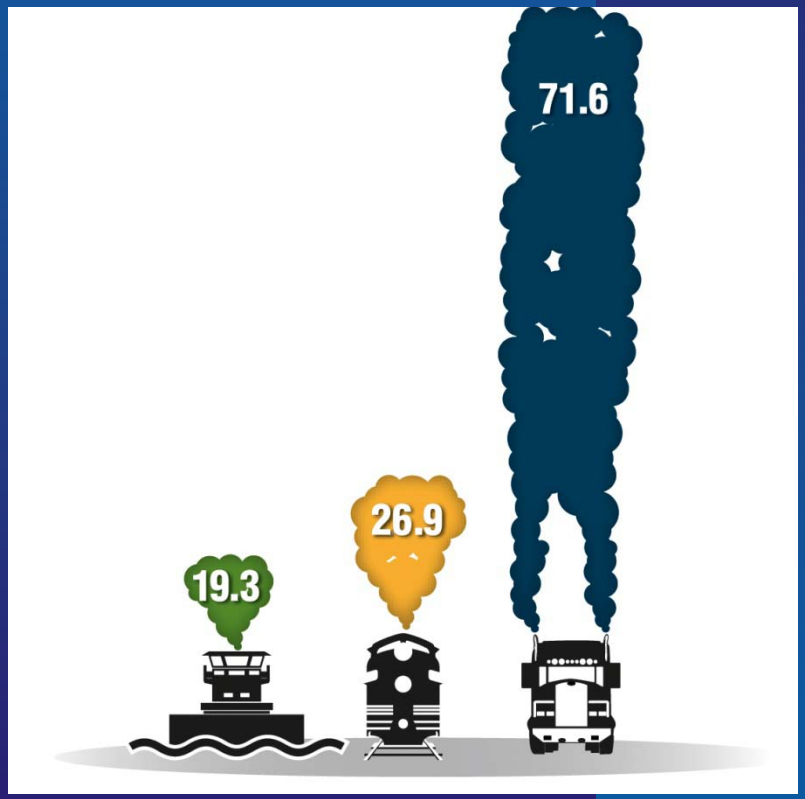
Towboats and barges are 3.5 times more fuel efficient! Towboats and barges can move one ton of cargo 576 miles per gallon of fuel. A rail car moves that same ton of cargo 413 miles, and a truck only 155 miles….



Ton-miles Traveled per Gallon of Fuel

Advantages of Inland Waterways Transport: **The Greener Way to Go**

- Towboat transportation emits fewer greenhouse gases
- Towboats emit 371% less CO2 than trucks, 39% less than rail
- Also lowest in grams per ton-miles for HC, CO, PM, NO



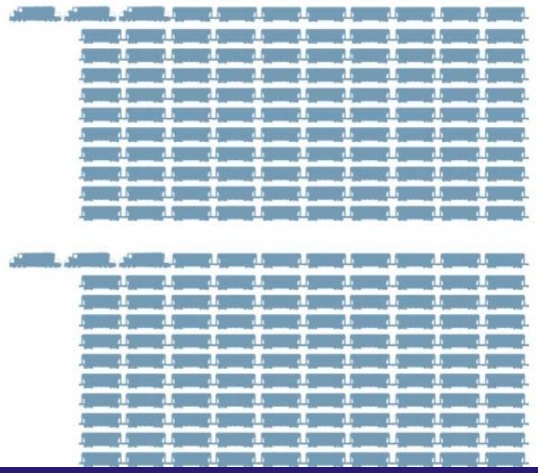
Tons of CO_2 per Million Ton-miles

Advantages of Inland Waterways Transport:

One 15-Barge Tow = 216 Rail Cars or 1,050 Trucks - Dry Cargo

One 15-Barge Tow

216 Rail Cars + 6 Locomotives



1,050 Large Semi Tractor-Trailers

…or 2,160 Trucks - Liquid Cargo!

SHOULD WE USE INLAND WATERWAYS TRANSPORTATION?

- Energy Efficiency
- Environmentally Sustainable
- Reducing Congestion

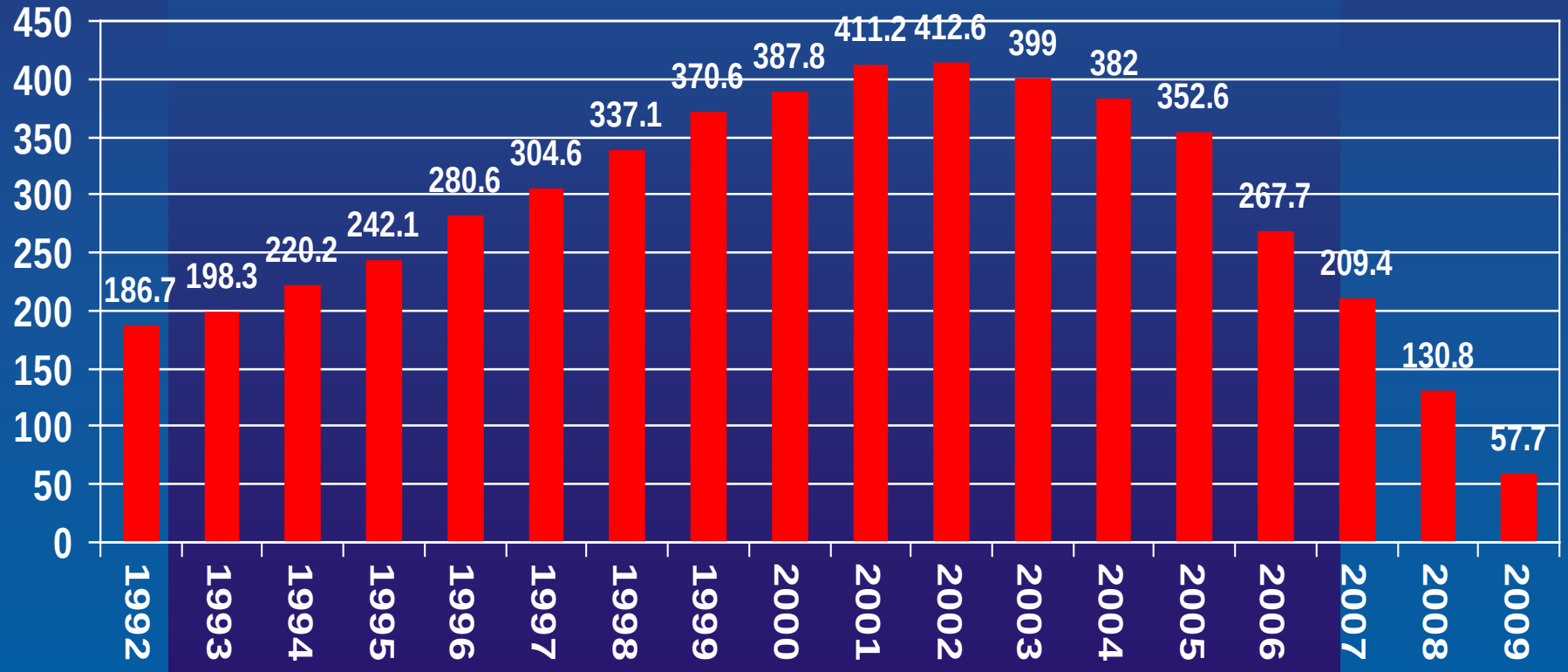
SO WHAT'S THE PLAN?

- Invest in its Upkeep?
- Commit to Improvements - Utilize More Efficiently?
- Promote Usage Of?

“We” Just Don’t Get It!

- Our inland waterways infrastructure is crumbling
- Administration(s) calling for lockage fee tripling the taxes for shipping on our inland waterways
- De-Authorize NESP???
- Great Lakes States are suing to force the permanent closure of locks in the Chicago area = eliminate any waterborne commerce connecting the Rivers and Great Lakes
- The Harbor Maintenance Trust fund has a $5 billion surplus yet we can’t get our ports and waterways dredged to their authorized depths

Inland Waterways Trust Fund Year-End Balances 1992 - 2009



Current Projects Over Budget

Olmsted Lock & Dam

- $775 million Original Estimate 1988
  - $387.5MM Industry Share from IWTF
- $2 billion Current Estimate
  - $1B Industry Share from IWTF

Lower Monongahela Locks & Dams 2, 3 & 4

- $554MM Original Estimate 1992
  - $277MM Industry Share from IWTF
- $1.7 billion Current Estimate
  - $850MM Industry Share from IWTF

Projects Funded Under Current System

New Construction

- **Olmsted**—$136 million in FY11 ($700 million more to complete by FY19)
- **Kentucky Lock**—$2.868 million in FY11 ($400+ million to complete by FY29)
- **Lower Monongahela River Locks & Dams 2, 3 & 4**—
  $2 million in FY11 ($1.1+ billion to complete by FY23)
- **Chickamauga**—$0 in FY11, restart in FY22 & completed in FY25
- **IHNC Lock in New Orleans**—$0 in FY11, restart in FY29 & completed in the 2040's
- **NO OTHER NEW STARTS UNTIL AFTER FY 2040!**

Rehabilitation

- **Emsworth Dam**—$11.5 million ($4.1 million more to complete by FY13)
- **Markland Lock & Dam**—$5.4 million, will be completed in FY11
- **Upper Mississippi Lock 27**—$350,000 ($17+ million to complete the project)

Inland Marine Transportation System Investment Strategy Team

- Inland Waterways Users Board
- U.S. Army Corps of Engineers

Team of Experts Tasked to Initiate a Long Term, National Capital Development Plan

Inland Waterways Capital Development Plan

- Prioritize navigation projects across the entire system
- Improve the Corps of Engineers' project management and processes to deliver projects on time and on budget
- Recommend a funding mechanism that is affordable and meets the needs of the entire system

Funding Mechanism

- Maintains the existing 50% industry/50% federal cost sharing formula for new lock construction
- Maintains the existing 50% industry/50% federal cost sharing formula for major rehabilitation projects at locks costing $100 million or more
- Repairs to existing locks costing less than $100 million are 100% federally funded
- Dam construction and repair projects are 100% federally funded
- The industry cost share of individual projects would be capped at original cost estimate plus an inflation factor plus other agreed upon costs
- The 20 cents per gallon tax on fuel currently paid by the barge and towing industry would increase between 30% and 45%

Construction Projects Funded Under Inland Waterways Capital Development Plan

- **Chickamauga Lock** complete in FY15
- **Olmsted Lock** complete in FY19
- **Kentucky Lock** complete in FY19
- **Lower Mon 2, 3 & 4** complete in FY23
- **Upper Mississippi River Lock 25 complete in FY19**
- **High Island to Brazos River, TX** start FY13, complete FY15
- **LaGrange Lock start FY17, complete FY24**
- **IHNC Lock in New Orleans** start FY21, complete FY28
- **Greenup Lock** start FY22, complete FY27
- **Upper Mississippi Lock 22 start FY22, complete 2030's**
- **Upper Mississippi Lock 24 start FY24, complete 2030's**

Rehabilitation Projects Funded Under Inland Waterways Capital Development Plan

- **Emsworth** completed FY13
- **Markland** completed FY11
- **Upper Mississippi Lock & Dam 25** completed FY14
- **Lower Monumental Lock & Dam** completed FY13
- **O'Brien Lock** start FY13, complete FY15
- **Greenup Dam** start FY13, complete FY18
- **John T. Myers** start FY16, complete FY16
- **Meldahl Dam** start FY15, complete FY19
- **Montgomery Dam** start FY16, complete FY23
- **Mel Price Lock** start FY23, complete FY23
- **Arkansas River Lock 2** start FY24, complete FY25
- **Joe Harden Lock** start FY24, complete FY24
- **Willow Island Lock & Dam** start FY26, complete FY29
- **Marmet Lock & Dam** start FY27, complete FY29
- **Upper Mississippi Lock 22** start FY30, complete FY30

How do We Convince Congress to Invest in Inland Waterways Infrastructure?

We’ve Got Great Advantages to Talk About. . .

Administration and Congress: POLICY CHANGE starts with EDUCATION

- Grassroots
- Media
  - Press Releases
  - Editorial Board Meetings
  - Op-Eds Published
  - Columns and Commentaries
  - Events
- Marketing

Grass'-roots': *(pl. n., used with a sing. or pl. verb)*

1. **People or society at a local level, rather than at the center of major political activity.**

ex: *A grassroots movement (often referenced in the context of a political movement) is one driven by the constituents of a community...*

2. **The groundwork or source of something.**

The Five "*-ates*" of Grassroots

- Congregate
- Educate
- Motivate
- Activate
- Advocate

Messages Carried Best by Grassroots Communities

- Environmental Benefits
- Transportation Challenges
- Energy Efficiency
- Jobs Creation

Get America Working!

Barge & Boat Tours: 290,000+ People

- 1992-2008

Information Inputs = Membership Activity

Outreach Impacts Elected Officials

- Diversity of Messengers
- Representing Thousands+
- Unity of Message

- Timeliness
- Repetition
- Follow-Through
- Consistent & Multiple Communications

Administration and Congress: POLICY CHANGE starts with EDUCATION

- Grassroots
- **Media**
  - **Press Releases**
  - **Editorial Board Meetings**
  - **Op-Eds Published**
  - **Columns and Commentaries**
  - **Events**
- **Marketing**

Administration and Congress
POLICY CHANGE starts with EDUCATION

- Grassroots
- Media
  - Press Releases
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Administration and Congress: POLICY CHANGE starts with EDUCATION

- Grassroots
- Media
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  - Op-Eds Published
  - Columns and Commentaries
  - Events
- Marketing
  - Website
  - TV Ad Spots
  - Social Media – YouTube, Facebook, etc..

waterwayscouncil.org

offers more information, easy to navigate

Serving you by advocating a modern and well-maintained national system of ports and inland waterways.

WATERWAYS COUNCIL, INC.

ABOUT US | THE WATERWAYS SYSTEM | JOIN WATERWAYS COUNCIL | MEDIA CENTER | LINKS AND RESOURCES | MEMBERS ONLY

WATERWAYS WORK FOR AMERICA

Cherrie Felder
Vice President, Channel Shipyard Companies
"Recognizing the potential of waterways to accommodate growing transportation demand, relieve highway…"

Click here for more industry leaders' perspectives on how our waterways work for America.

WCI NEWS

- *Capitol Currents newsletter - to latest issue*
- *Waterways Council Decries President's FY 2010 Inland Waterways Lockage Fee Proposal - May 15, 2009*
- *Senator Tom Harkin Receives 8th Annual Waterways Council Leadership Service Award - February 27, 2009*
- *Waterways Council, Inc. Names Officers and Directors - December 3, 2008*
- *Waterways Council, Inc. Submits Comments on Army Corps' Principles & Guidelines*
- *Cornel Martin has been named Waterways Council, Inc. President & CEO (designate) - July 14, 2008*
- *Waterways Council, Inc.'s Midwest Vice President,*

PRIORITY INFRASTRUCTURE PROJECTS
Click on the map to see the individual projects

WATERWAYS
COUNCIL, INC.

TV Ad and
Social Media Campaign

Attachment #5 RRF 87

Reach Planning - Upper Impounded Reach (Program Neutral)

Fish and Wildlife Workgroup – Reach Planning Subgroup

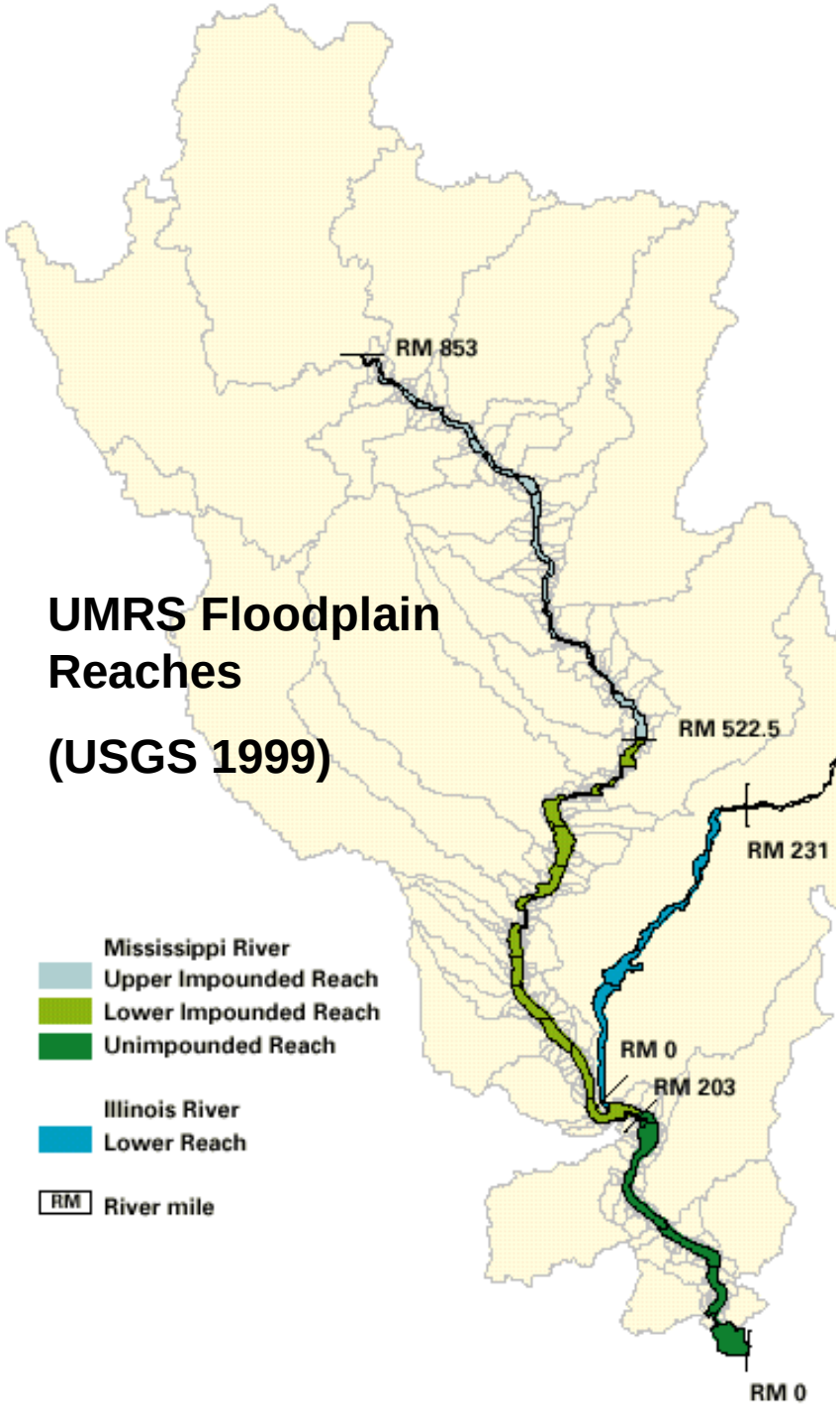
April 2010

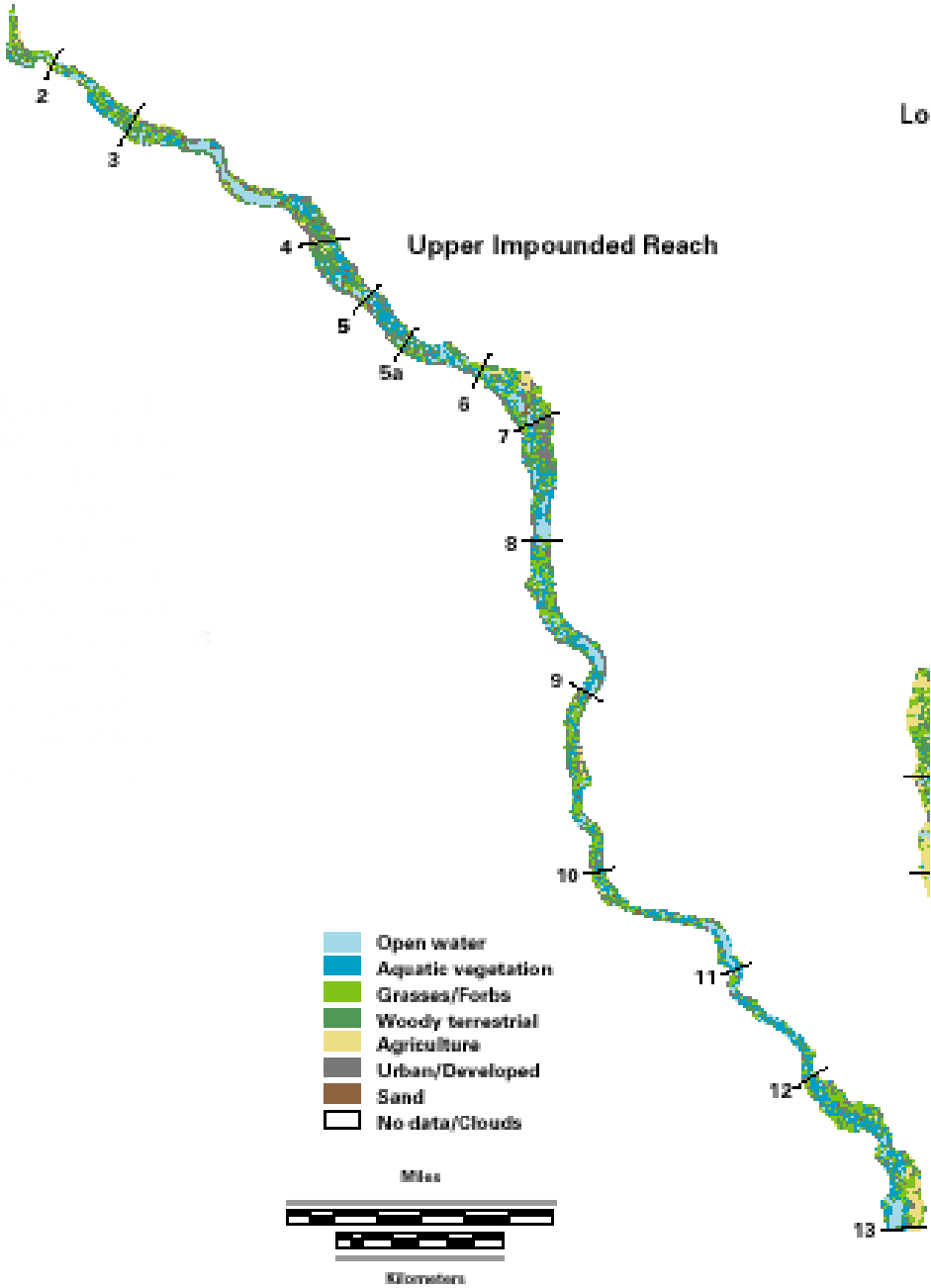
Reach Planning

- Identify:
  - Unique Characteristics
  - Stressors
  - Objectives and Performance Criteria
  - Project Areas
  - Indicators
- To Improve Decision Making and Project Selection Within an Adaptive Management Framework

UMRS Floodplain Reaches

(USGS 1999)





An Ecosystem Conceptual Model based on Five Essential Ecosystem Characteristics (Harwell, et al., 1999) was used to illustrate ecological relationships and organize information

Physical & Chemical Processes

Geomorphology
Sediment load
Erosion & Deposition
Delta formation
Sinuosity

Water Quality
Temperature
Dissolved Oxygen
TSS
Nutrients

H&H
Wsel
Flow distribution
Waves
Duration
Groundwater
Velocity

Habitat & Biota

Habitats
Wetlands
Shallow water habitat
Connectivity

Biota
SAV (acres, composition)
Fish
Birds
Invasives

Decision Support System

Island growth/delta expansion in upper Lake Pepin
Sediment trapping, zero bed load leaving Lake Pepin

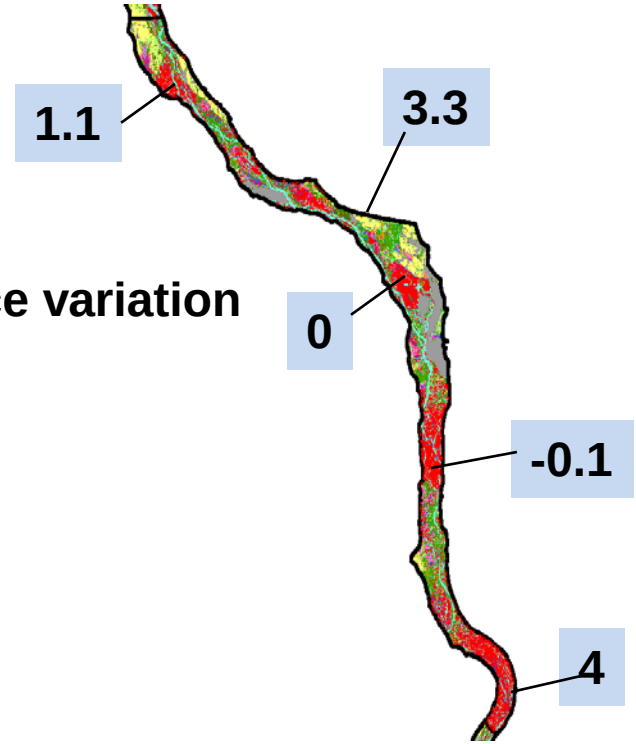
GIS data from past work has been used to populate a Decision Support System (DSS)

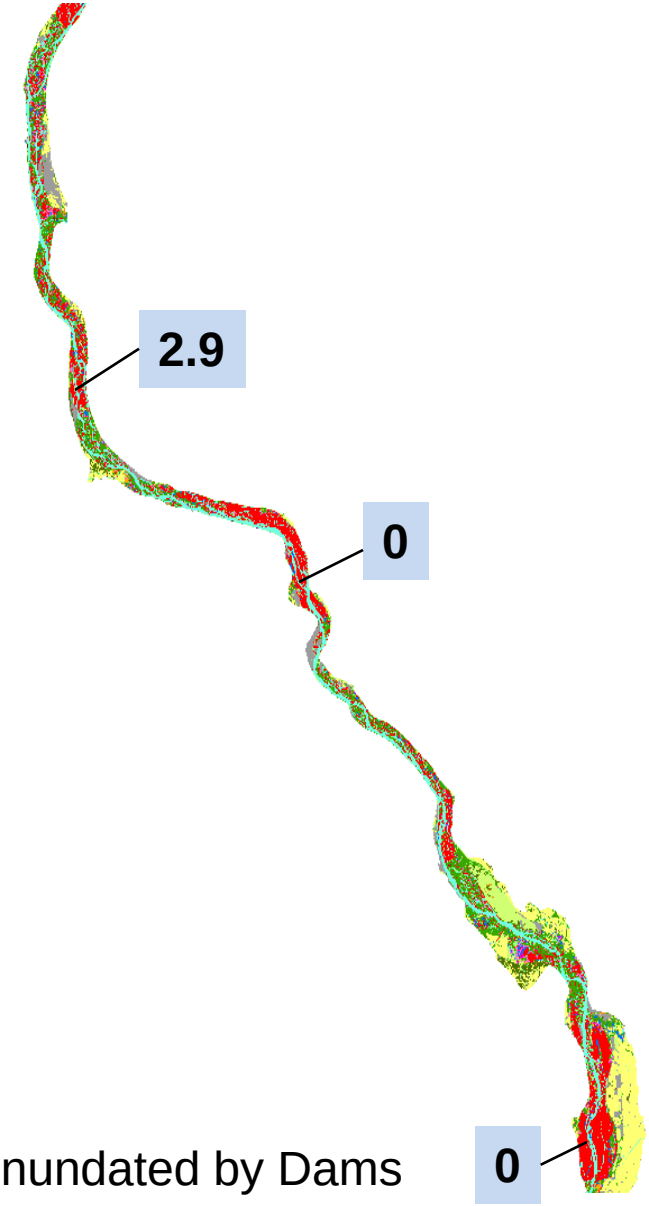
Stressors

Impoundment by locks and dams

River regulation affecting stage hydrograph

2.9 **Water surface variation**





Inundated by Dams

Upper Impounded Reach: 17 Ecosystem Objectives

Aquatic vegetation
Stage hydrograph
Habitat connectivity
Water clarity
Contaminants loading and re-mobilization
Lateral hydraulic connectivity
Sediment Transport
Nutrient loading
Sediment loading
Bird community
Mussel community
Fish community
Riparian habitat
Floodplain forest and prairie areas
Off-Channel areas
Channel areas
Restore rapids in the gorge

Objectives and Performance Criteria

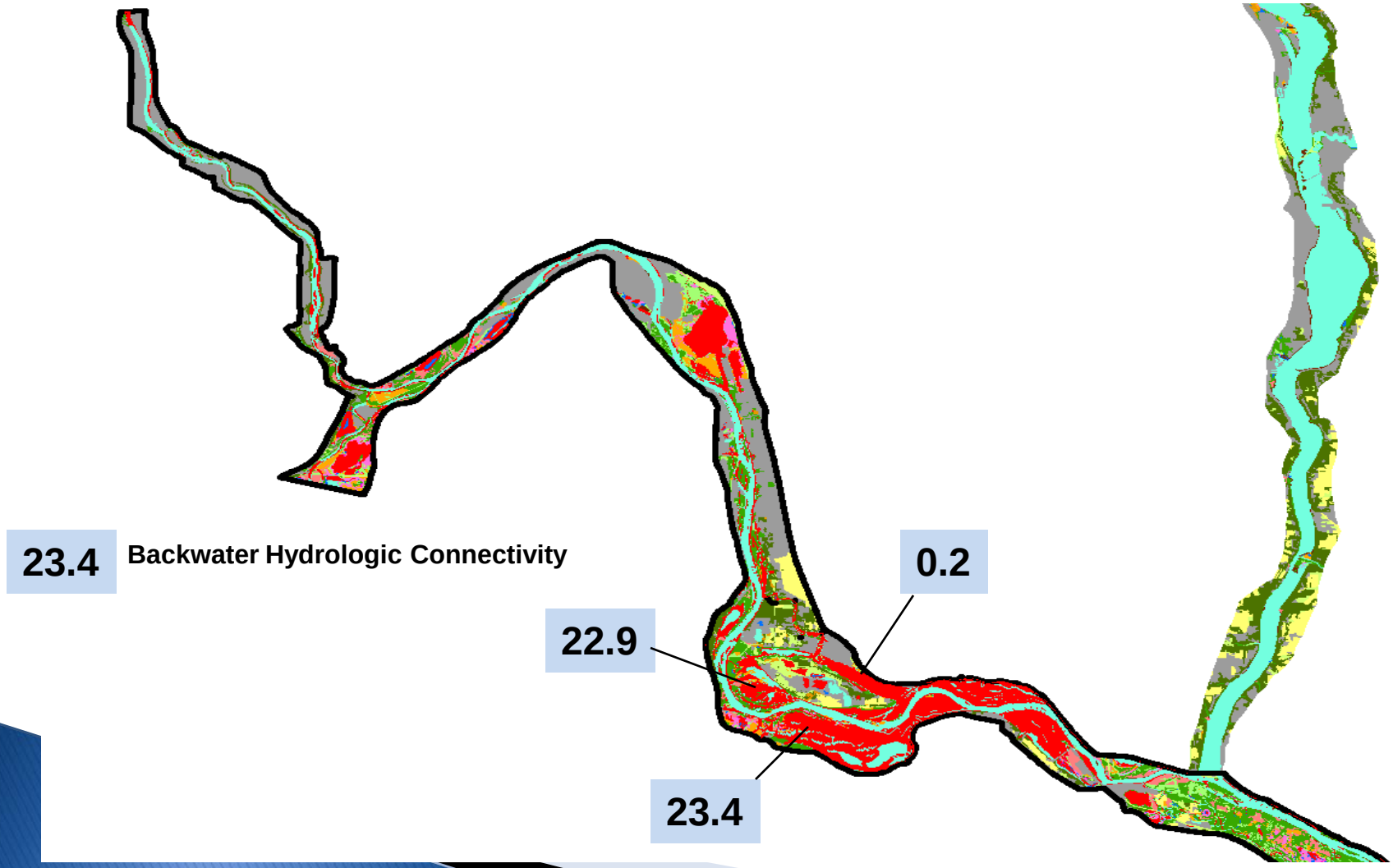
Improved water clarity	TSS (mg/L) - To achieve SAV targets, summer average TSS concentrations will need to be reduced about 32% (47 to 32 mg/L) from existing conditions based on the combined monitoring data for Locks and Dams 2 and 3. It is suggested that attainment be based on achieving a median and 90th percentile summer average TSS concentrations of 32 and 44 mg/L, respectively, based on combined bi-weekly monitoring at Locks and Dams 2 and 3. Achieve a Secchi depth based on June through September averages at lock and dam 3 and in Lake Pepin of 47 and 80 cm respectively by 2025. Backwaters: Achieve a Secchi depth of 80 cm for the June through September averages.
Reduced nutrient loading	Reduce Phosporous loads to GR 1 by 2025. Minnesota River: 50% based on 19?? To 200? average Miss R u/s of TC: 20% based on 19?? To 200? average St. Croix River: 20% based on 19?? To 200? average Cannon River: 50% based on 19?? To 200? average Other Tributarie: 20% based on 19?? To 200? average From Scenario 17, Lake Pepin TMDL Study Backwater nutrient concentrations TP < 0.1 mg/L TN < 1.23 mg/L

Establishing performance criteria

- Based on:
  - EMP HREPs
  - LTRM Data
  - EPP
  - HNA
  - Navigation Study
  - Lake Pepin TMDL
  - Mississippi Makeover

Objectives:

A more natural stage hydrograph
Restored lateral hydraulic connectivity



Conceptual Models

- A variation of the Harwell CM was used to show the relationship between objectives, test for completeness, and organize information

Upper Floodplain Reach, Geomorphic Reach 1
Reach Scale Objectives Conceptual Model
Aquatic Vegetation

Primary Objective

Aquatic Vegetation Objective:

Diverse and abundant native aquatic vegetation communities (SAV, EAV, R/F)

Aquatic Vegetation Performance Criteria
SAV in MCB: Increase the frequency of occurrence to >21% in the MCB areas based on the EMAP sampling protocol (this corresponds to a frequency of occurrence of > 12% using the LTRMP sampling protocol).
Increase species richness (maximum # of species) to 11.

SAV in Backwaters: Increase the frequency of occurrence to >49% in the Contiguous Backwaters based on the LTRMP sampling protocol. Increase SAV in backwaters <2m deep to >___kg/ha with species richness of >____ and Shannon diversity index > ____ by 2025.

EAV in Backwaters: Increase the spatial extent of EAV to >_____acres with >___ species richness and community Shannon diversity index > ____by 2025.

Spatial coverage performance criteria for lentic fish:
Summer: Aquatic vegetation cover in the range of 40-60% of off - channel areas.
Winter: Aquatic vegetation cover in the range of 25-50%.

Spatial coverage performance criteria for lotic fish
Increase coverage in MCB and secondary channels to 10% of area

Objectives

Habitat Objective

Restored riparian habitat

Restored aquatic off-channel areas

Restored channel areas

Biogeochemistry Objectives:

Improved water clarity

Reduced nutrient loading

Reduced sediment loading from tributaries and sediment resuspension in and loading to backwaters

Geomorphology Objective:

Restore a sediment transport regime so that transport, deposition, and erosion rates and geomorphic patterns are within acceptable limits

Hydraulics and Hydrology Objective:

A more natural stage hydrograph

Altered hydraulic connectivity

Performance Criteria

Habitat Performance Criteria

Restore >50% of the length of currently armored or stabilized river bank to natural channel border and riparian zone habitat by 2060.

Backwaters: 1) Restore hydraulic and sediment transport conditions in existing backwaters to desired range of variation

Impounded Areas, Lower Pool 2: Restore areas that are permanently inundated to a desired pattern of contigous backwaters, isolated wetlands, floodplain lakes, riparian habitat, and secondary channel habitat.

Vermillion River Bottoms: Restore hydraulic and sediment transport conditions in the Vermillion River Bottoms to desired range of variation

Biogeochemistry Performance Criteria:

TSS (mg/L) - Summer average TSS concentrations will need to be reduced about 32% (47 to 32 mg/L) from existing conditions based on the combined monitoring data for Locks and Dams 2 and 3.

Achieve a Secchi depth based on June through September averages at lock and dam 3 of 47 cm.

Backwaters: Achieve a Secchi depth of 80 cm for the June through September averages.

Reduce Sediment and Phosporous loads to GR 1 by 2025.
Minnesota River: 50% from 19?? To 200? average
Miss R u/s of TC: 20% from 19?? To 200? average
St. Croix River: 20% from 19?? To 200? average
Cannon River: 50% from 19?? To 200? average
Other Tributaries: 20% from 19?? To 200? average

Backwaters/Floodplain Nutrient Concentrations:
TP < 0.1 mg/L (Sullivan, 2008)
TN < 1.23 mg/L (Sullivan, 2008)

Minimize Mississippi River sediment loading to the Vermillion River Bottoms for flows below the 2-year flood event.

Geomorphology Performance Criteria:
Backwaters: Alter connectivity between backwaters and channels or between sub-areas within backwaters to reduce sediment and nutrient inputs

Impounded Areas, Lower Pool 2: Reduce connectivity between historic floodplains and channels for total river discharges less than the two year flood to create contigous backwaters, isolated wetlands, and floodplain lakes.

Vermillion River Bottoms: Eliminate connections from the Mississippi River to the Vermillion Bottoms for discharges lower than the 2-year flood event.

Lower tributary valleys: Floodplains and delta should be a sink for sediments. Tributary distributary channels should convey sediments to the delta fan.

Achieve wind fetch criteria based on water depth in aquatic off-channel areas.

Water Depth (ft)	1	2	3	4
Fetch (ft)	1500	3500	6000	9000

Hydraulics and Hydrology Performance Criteria:

Stage Hydrograph
On a periodic (e.g. one to two consecutive years in ten years) or permanent basis where feasible, maintain lower water levels starting as soon as possible following the spring flood through September 1st so that the following criteria are met:

- Low flow (75% exceedance) - wsel decreased 1' at lock and dams 2 and 3
- Moderate flow (25% exceedance) - wsel decreased 2' at lock and dam 2 and 1' at lock and dam 3
- High flow (2-year flood) - wsel decreased 2' at lock and dam 2

Hydraulic Connectivity:
Backwaters: Alter connectivity between backwaters and channels or between sub-areas within backwaters to reduce sediment and nutrient inputs

Impounded Areas Lower Pool 2: Reduce hydraulic connectivity between historic floodplains and channels for total river discharges less than the two year flood to create contiguous backwaters, or isolated wetlands and floodplain lakes.

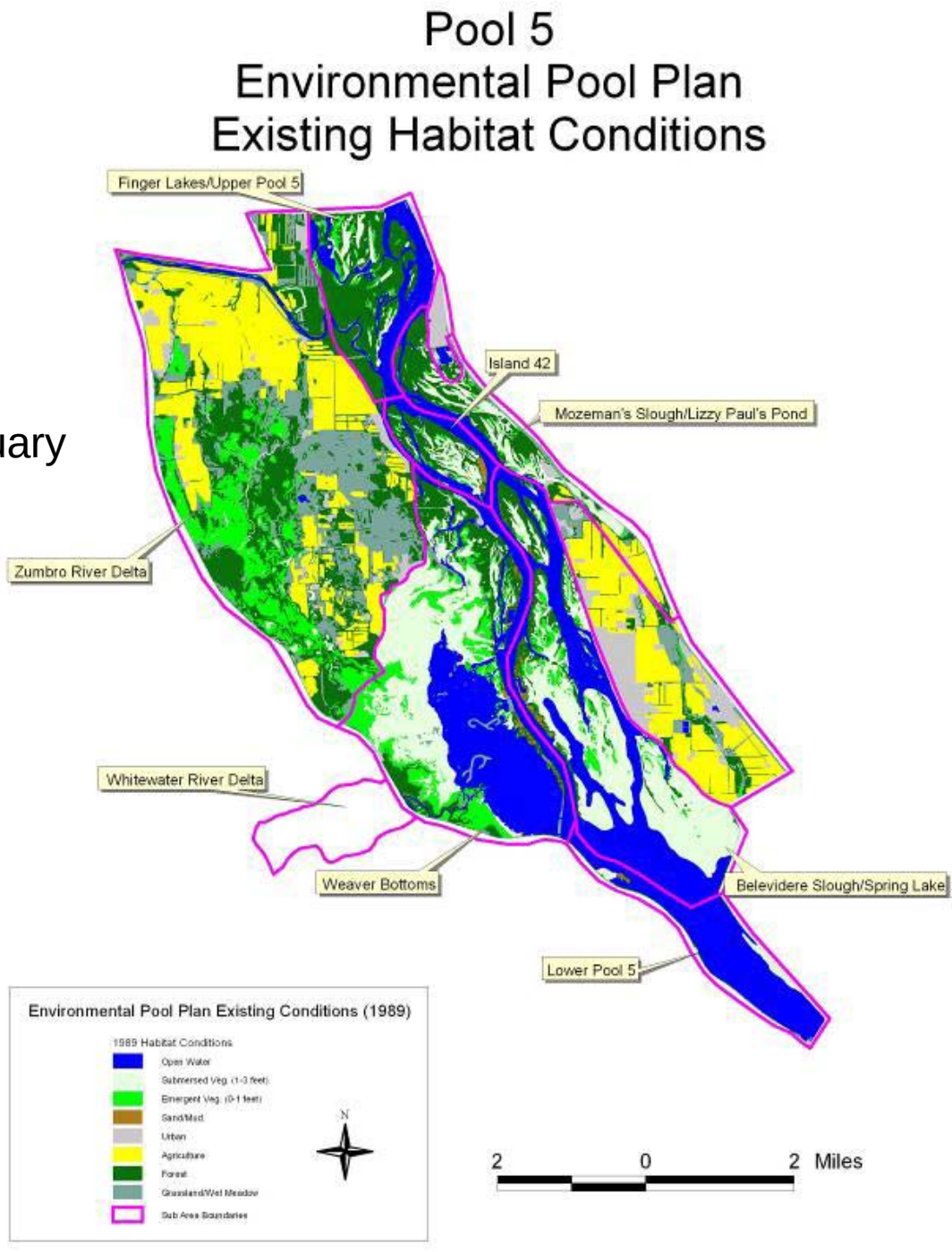
Vermillion River Bottoms: Eliminate flow from the Mississippi River to the Vermillion Bottoms for discharges lower than the 2-year flood event.

Lower tributary valleys: Increase connectivity so floodplains convey water for flood events greater than the 2-year recurrence interval. Tributary distributary channel connectivity should vary seasonally based on historic ranges.

Project Areas

- Project areas were identified at a January 2010 meeting of the reach planning subgroup

- Not surprisingly, many of the project Areas identified previously for the Environmental Pool Plans EPP were identified for Reach Planning



Potential Future Project Areas - Upper Impounded Reach		
January 6, 2010 Reach Planning Meeting Onalaska WI		Existing Fact Sheet
Reach Scale	**Project Proposal Authors**	
Naturalized stage hydrograph	Corps	
Floodplain restoration	Corps	
Fish passage projects	Corps	
Geomorphic Reach 1 Upper Gorge – St. Anthony Falls to Head of Lake Pepin		
Sub-Area	**Project Proposal Authors**	
Rapids	MN DNR	X
Minnesota Valley	USFWS	X
Lower Pool 2	MN DNR	X
Lower Vermillion River Bottoms	MN DNR	X
Cannon River Bottoms	MN DNR	X
Marsh/Gantenbein Lake	WI DNR	
North and Sturgeon Lakes	MN DNR	X
Geomorphic Reach 2 Lake Pepin		
Pierce County Islands	WI DNR	X
Head of Lake Pepin	WI DNR	
Lake Pepin Tributary Deltas	MN DNR	

Geomorphic Reach 3 & 4 – See Handout

Next Steps

- Finish Upper Impounded Reach Appendix summarizing stressors, objectives, project areas
- Reach Planning Subgroup Meeting
- FWWG Meeting
- NECC/EMPCC, May 18-20
- Select Projects to Move Forward With during first 4 year planning cycle.
- Work on Adaptive Management Protocols

ENVIRONMENTAL MANAGEMENT PROGRAM (St. Paul District) - 04/28/10

PROJECT - constr $ - (pool) Contact	FY09 - $7,390,000*		FY10 - $4,770,000**	
	$1,000	TASKS	$1,000	TASKS
Spring Lake Islands -$4.4M - (5) Novak	0	None		Complete O&M manual
Pool Slough - $0.8M - (9) Powell	1	Complete O&M manual		Closeout
Harpers Slough - $11.0M - (9) DeZellar	69	Continue draft DPR planning	150	Draft DPR - Sep
Capoli Slough - $10M - (9) D. Anderson	115	Continue draft DPR planning	150	Draft DPR - May Final DPR - Sep
Long Meadow Lake - $0.8M -(Mn) Novak	44	None		Complete O&M manual
Pool 8 Islands Phase III - $18.1M				
Stage 2 - $7.6M 2A = $300K (N-1,3,4,5,6) 2B = $4.9M (W-1,2,3,4) 2B Opt = $2.4M (N-7&8) Devendorf/Hendrickson	827	Complete 2B construction - Sep		
Stage 3 - $9.6M 3A = $2.5M (C2a-2c,C2,C3) 3A Opt = $3.1M (C4,C5,N2) 3B = $3.6M (C6-C8) Devendorf/Hendrickson/Powell	 2,455 3,100 150	Award Stg 3A contract - Apr Award Stg 3A options - May Inititate Stg 3A construction Work on P&S for Stg 3B contract	 3,647	 Continue Stg 3A construction Award Stg 3B contract - May Initiate Stg 3B construction - Jun
Lake Winneshiek - $4.6M - (9) Novak	0	Defer planning	10	Fact sheet approved by MVD Initiate planning
Conway Lake - $2.5M - (9) Novak	0	Defer planning	20	Resume planning
McGregor Lake - $6.4M - (10) Novak	0	Defer Initiation of planning	10	Fact sheet approved by MVD Initiate planning
Finger/Clear Lake - $0.1M - (5) Stefanik	180	Complete EMP portion (Clear Lake dredging)	5	Clear Lake bathymetry
Fish Passage - $15M - (4) Saddoris	0	None	348	Complete PAR - Jun Initiate DPR
Completion reports Clark	25	Continue preparation of Completion Reports	40	Complete 4 reports - Guttenberg WP, Lansing BL, Peterson Lk, Indian Sl
Performance monitoring Wilcox/Novak	23	Develop program Monitoring	30	Develop program Monitoring
Biological monitoring	0	None	0	None
Baseline monitoring Novak/Wilcox	15	Develop program Monitoring	15	Develop program Monitoring
EMP DeZellar/Powell/Novak	188	Program management	210	Program management
FWS Assistance DeZellar/Novak	110	Funds to FWS	135	Funds to FWS
TOTALS	7,302		4,770	

*Reflects allocation of $17.71M for entire EMP ($4.33M for MVP) plus $3.06M ARRA

** Reflects allocation of $16.47M for entire EMP ($2.69M for MVP) plus $1.986M ARRA plus $88K FY09 carryover

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Attachment #7 RRF 87

River Resources Forum – Hydroelectric Projects Update

Nanette M. Bischoff, P.E.
Project Manager
St. Paul District FERC Coordinator

- Statistics
- Licensed projects in St. Paul District
- Proposed projects in St. Paul District
- Hydropower developers
- The licensing process
- Where to find more info

Hydropower in IA, MN, WI

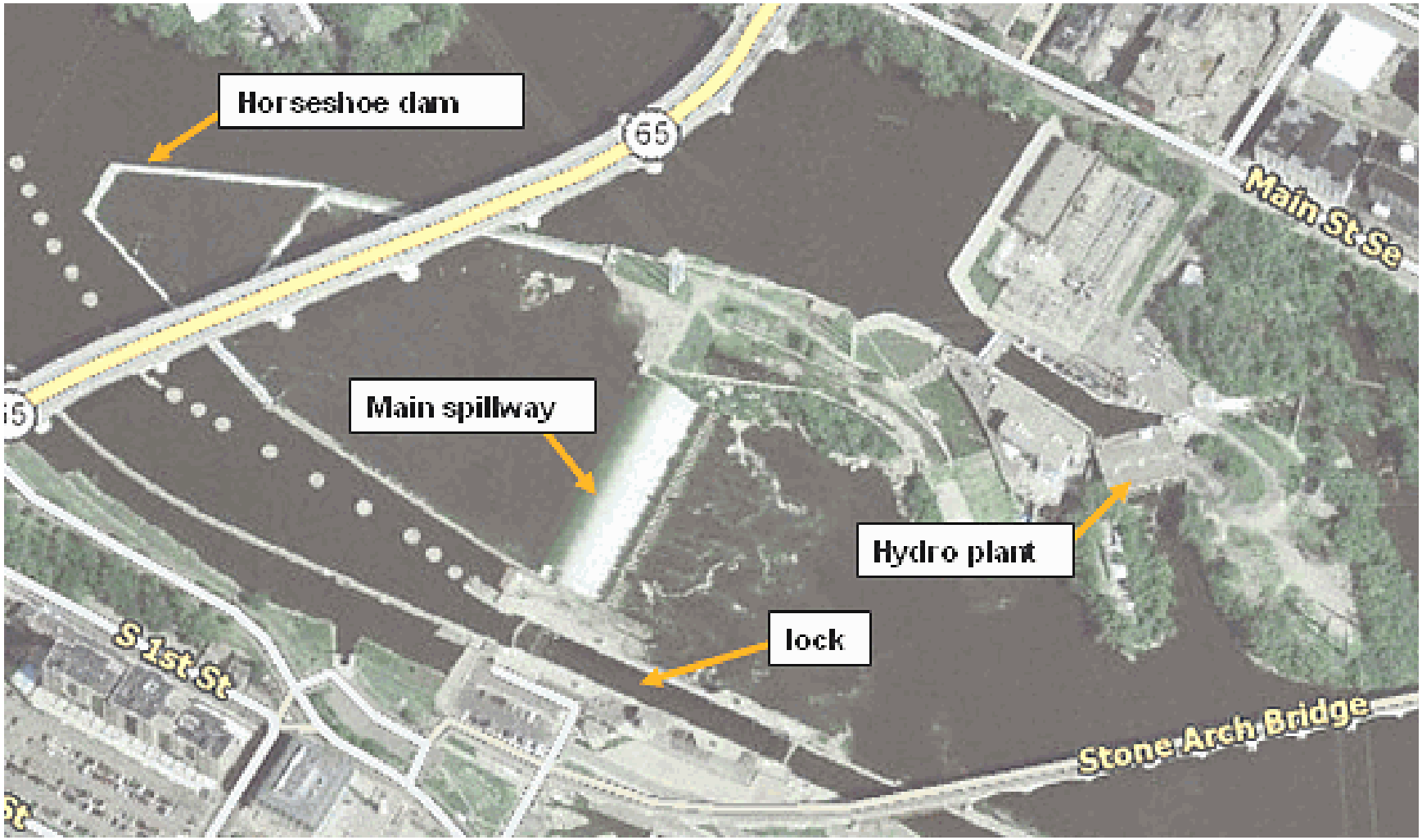
- 105 licensed projects
- 8 pending permit applications
- 17 issued permits
- Current list available on FERC website
  - www.FERC.gov

Corps involvement in Hydropower

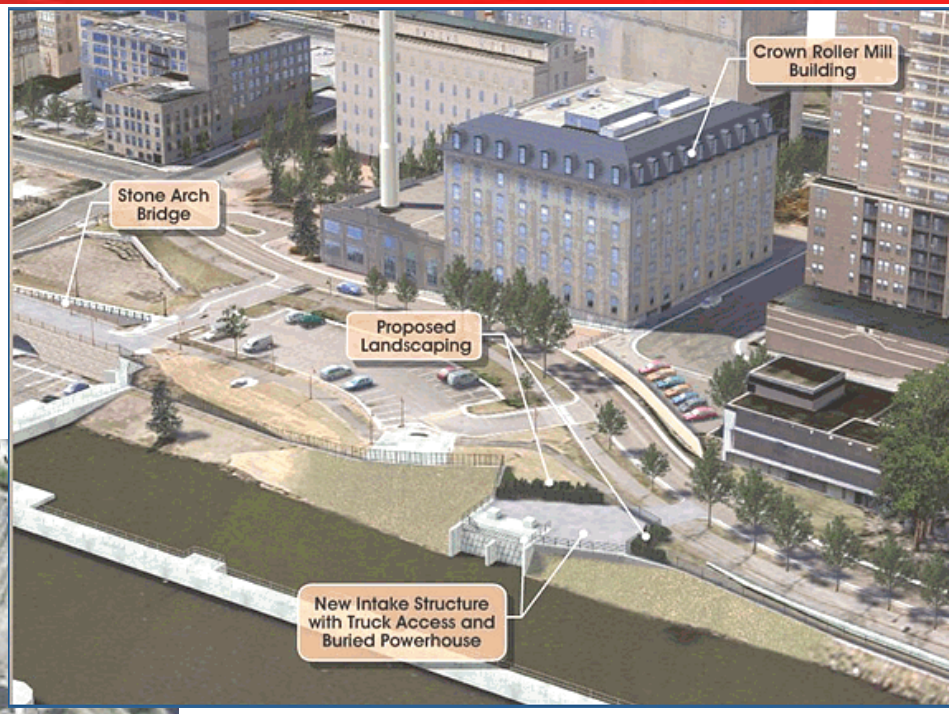
- At Corps sites - direct
- At non-corps sites – regulatory

HYDROPOWER PROJECTS AT CORPS SITES

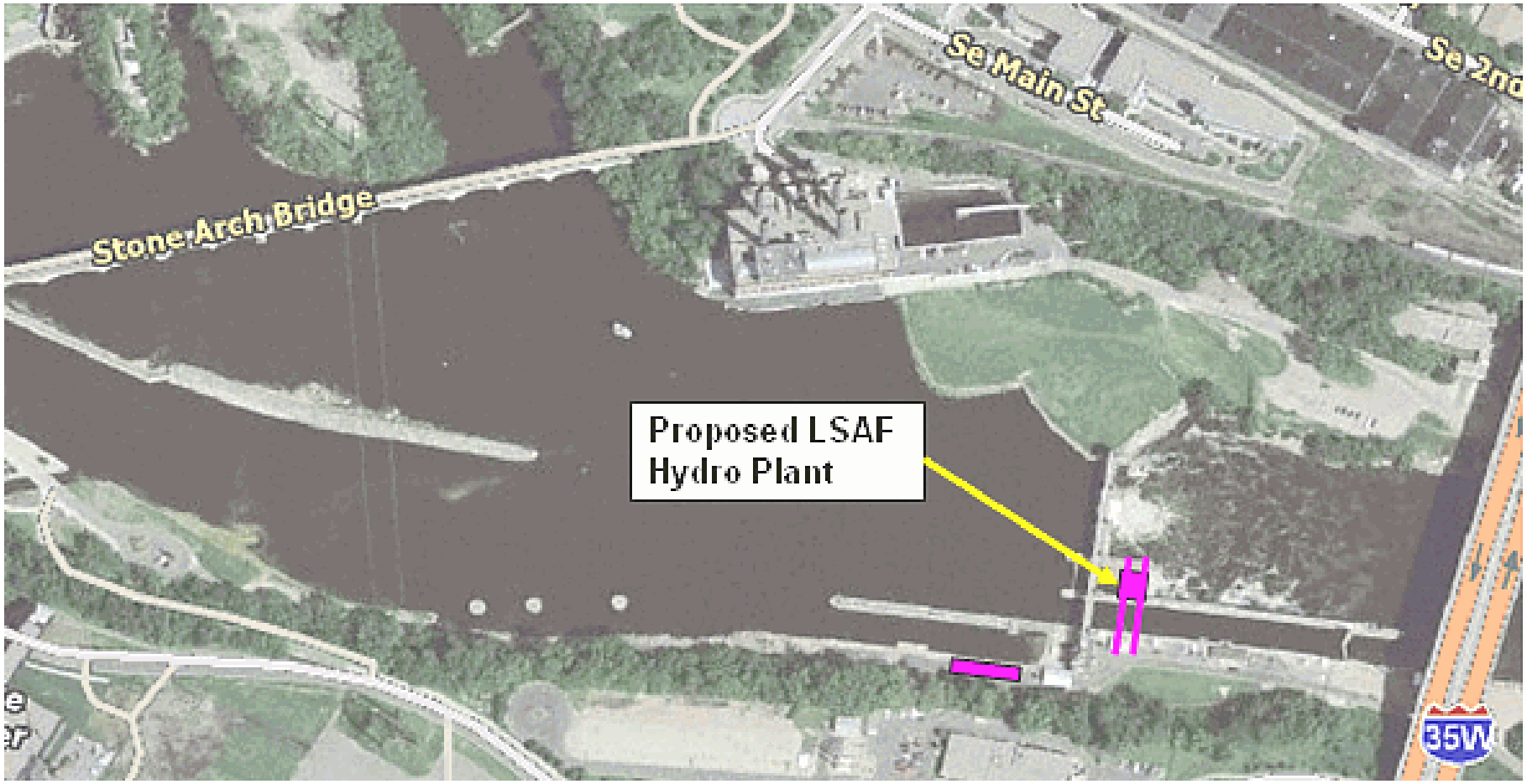
Existing: St. Anthony Falls Hydro



Proposed:
Crown Mill Hydro



Under Construction: LSAF Hydro



Under Construction: LSAF Hydro

Existing: Twin Cities Hydro (Ford)

Existing: L/D 2 Hydro (Hastings)

Projects Proposed by Free Flow Power

- Locations: L/D 3, 4, 6, 7 (competing), 9 (dual), 10 (competing)
- Typical Proposal:

The proposed Lock & Dam #3 Water Power Project is envisioned to utilize a combination of modular Very Low Head (VLH) turbine generators and hydrokinetic turbine generators to extract the energy that is currently dissipated at the Lock and Dam drop. The VLH units would be integrated into the movable dam section of the existing structure and the hydrokinetic units would be deployed in the higher velocity sections of river channel adjacent to the existing moveable dam. The placement and mounting of the generating units will take into account the navigational, flood control, and recreational purposes of the Lock and Dam as well as the operational and management parameters which are currently in place and being used by the USACE.

Projects Proposed by Symbiotics

- Location: L/D 5, 8
- Typical Proposal:

The project would consist of modifications to the existing facility by adding a powerhouse containing four 7.5MW turbines capable of generating an estimated project capacity of 30 megawatts; a switchyard; and approximately 0.1 miles of proposed 69kV transmission line. It is anticipated at this time that the proposed project would interconnect into the utility distribution systems owned by the local utility.

The project would operate in a run-of-the-river mode, using flows of the Mississippi River, and would generate an estimated 135GWh annually. The project would be accessed by existing roads.

Projects Proposed by Hydro Green Energy

- Location: L/D 5A (Mighty Mouse), 7 (Predator)(competing), 9 (Gumby)(dual), 10 (Guttenberg) (competing)
- Typical Proposal:

The hydropower development will consist of one horizontal array of 7 hydropower turbines, which will be installed in a single row, in a new door that will be installed in the auxiliary lock itself, along with movable panels that can open and close off flow to the units during an event that would require a suspension of generation.

The generated power will connect to the electric grid the following way: a tie into the low voltage side of the existing transformer bus at the U.S. Army Corps of Engineers facilities. This transformer exists for the purposes of providing power for the operation of the navigational lock and the dam. If that is determined to be unfeasible by our electrical subcontractor, the alternative option would be to install a second larger transformer alongside the existing USACE transformer.

Hydropower Developers

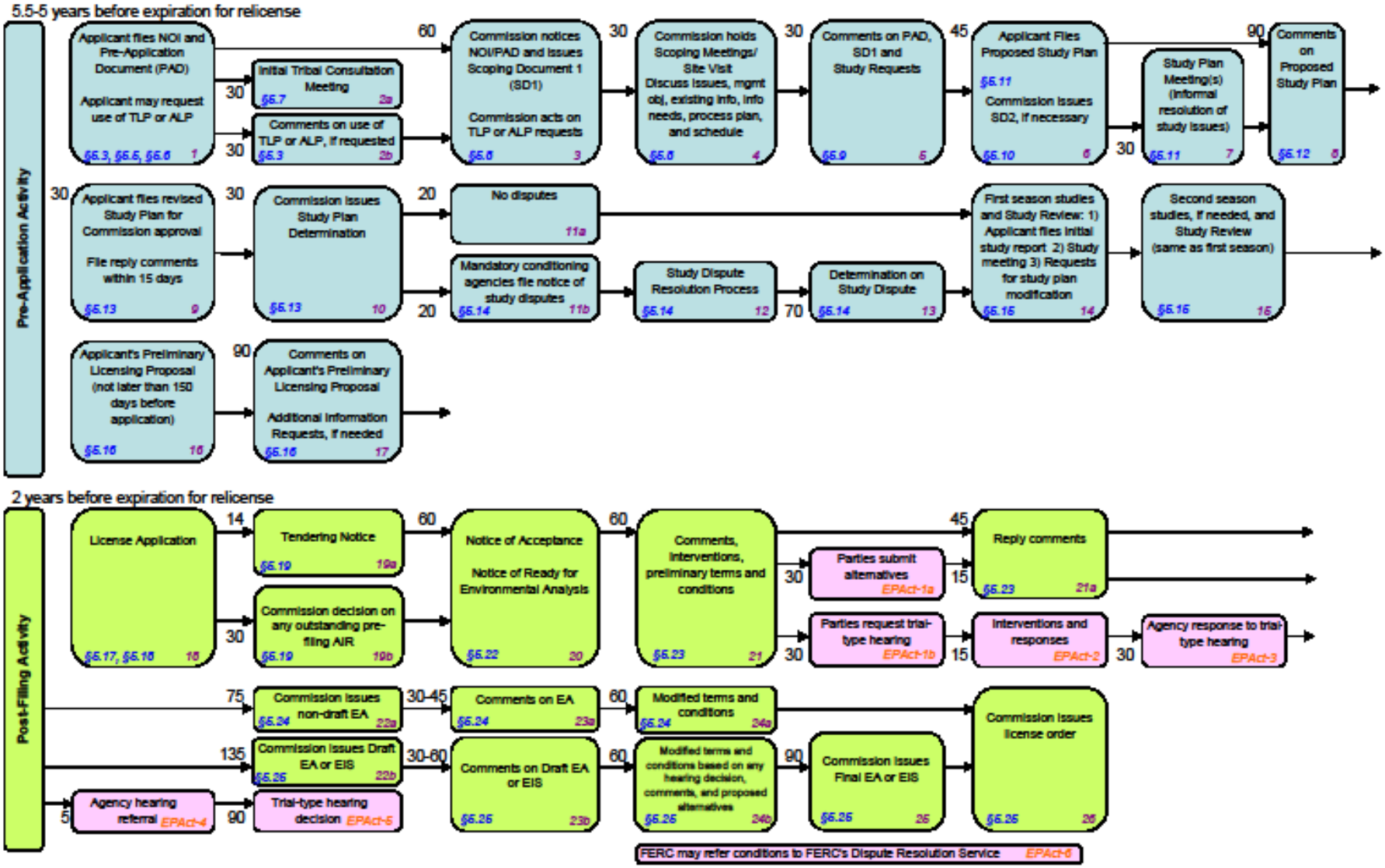
- Xcel Energy
- Northern States Power
- Wisconsin Power/light
- Consolidated Waterpower Co.
- Brookfield Power
- Symbiotics
- Fieldstone Energy
- Free Flow Power
- Hydro Green Energy
- Allete
- Wisconsin Electric
- Wisconsin Public Svc
- Domtar
- Flambeau Hydro
- Kaukauna
- Midwest Hydro
- N.E.W. Hydro
- Other
- Private owners

FERC Licensing Process

- Application for Preliminary Permit
- Motions to intervene/Competing permit applications
- Permit issuance by FERC
- Agency consultation
- Pre-application document/studies
- License application
- License issuance by FERC

Integrated Licensing Process

(Section 241 of the Energy Policy Act of 2005)



*Section 241 of the Energy Policy Act of 2005 in pink.

How to find info on hydropower:

- www.ferc.gov

US Army Corps of Engineers

Under "industries", click on "hydropower

US Army Corps of Engineers

Make selections under "licensing"

About FERC | News | Congress | Documents & Filing | Industries | Legal Resources | Market Oversight | Enforcement

- Electric
- Hydropower
  - Annual Charges
  - Dam Safety and Inspections
  - Environment
  - Industry Activities
  - General Information
- Gas
- Liquefied Natural Gas (LNG)
- Oil

Related Topics

- Find information about projects in your area

- Hydropower Landmark Orders
- Accounting Matters
- Forms
- Guide to Electronic Information at FERC PDF

Industries >> Hydropower

Hydropower

The Commission's responsibilities include: Issuance of licenses for the construction of a new project; Issuance of licenses for the continuance of an existing project (relicensing); and Oversight of all ongoing project operations, including dam safety inspections and environmental monitoring.

Licensing

- Integrated, Traditional, and Alternative Licensing Processes
- ILP Effectiveness Evaluation
- Preliminary Permits
- Issued Preliminary Permits XLS
- Pending Preliminary Permits XLS
- Issued Licenses since 2007
- Complete list of Issued Licenses XLS
- Issued Exemptions XLS
- Pending Licenses, Relicenses and Exemptions XLS
- Small/Low-Impact Hydropower Projects

more »

Compliance

- Form 80
- Compliance Handbook PDF
- Jurisdiction Determination
- Renewable Energy Tax Credit Guidelines Pursuant to the Energy Policy Act of 2005 PDF

more »

Dam Safety & Inspections

Projects

- Taum Sauk Pumped Storage Project (No. P-2277), Dam Breach Incident
- Swinging Bridge Dam Safety Remediation Project (P-10482)

Regulations, Guidelines and Manuals

- Final Dam Safety Surveillance Monitoring Plan
- Emergency Action Plans, Chapter 6 (Final Version)

more »

How to find info on hydropower:

- Get docket/license number from list of licenses and permits
- Search the FERC e-library
  - http://www.ferc.gov/docs-filing/elibrary.asp
  - Example: For the LSAF Hydropower project, search on docket number “P-12451”
  - E-subscribe to new issuances on each project

- Questions?

- Contact info:

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