

St. Charles Riverwall



Kristine Meyer, P.E., CFM
Wills Burke Kelsey Associates, Ltd.

IAFSM Annual Conference
Session 3C
March 10, 2010





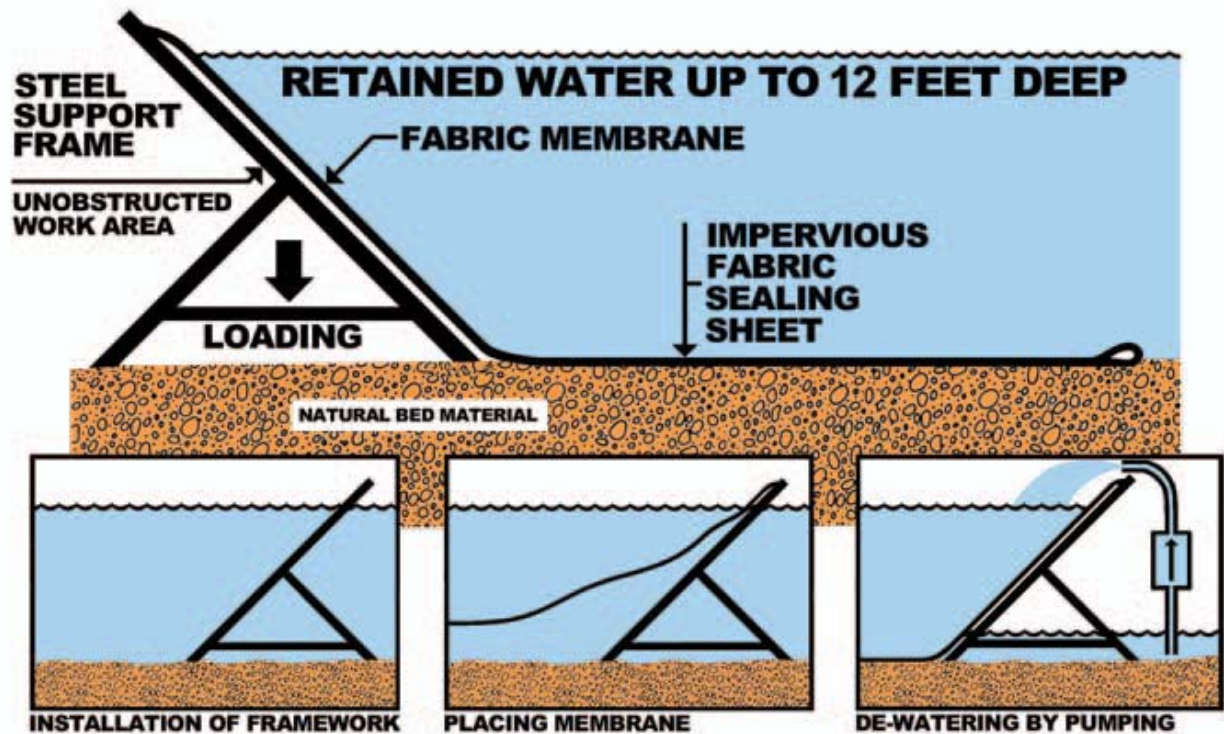
Project Facts

- Restoration of Riverwall and Plaza of Historic Building
- Adjacent to the St. Charles Dam on the Fox River
- In River Work completed with use of Portadam™ System
- Treatment of Water before Discharging back into the Fox River



Portadam™ System

- Steel A-frame Structure
- Comes in Heights of either 5, 7, or 10 Feet
- Fabric Membrane Liner
- Bed Material



Courtesy of Portadam Inc.



Hydraulic Modeling

- Because of St. Charles Dam, Downstream Water Surface Elevation not Significant
- HEC-RAS Modeling Completed; Levee Used for Location of the Portadam
- Low Opening Upstream of Project ; 0.1 Foot Requirement Became Critical





Hydraulic Modeling

- Ownership of Dam was in Question, Hesitant to Pin Anything to Structure
- Same was True for Downstream End of Project with State Bridge Abutment
- Use of Sandbags Throughout Project





Water Quality Standards

- Clear Water Standard Imposed as a Condition of 404 Permit for Fisheries Protection
- Standard Originated with SWCD Review of Project
- Standard was Cleaner than Background
- Original Std = 10 NTU
- Allowed Std = 20 NTU



Discharge water once it had been cleaned.



Permitting

- IDNR-OWR
- USACE
- Kane County Stormwater
- KDSWCD Review
- USFWS
- IDNR
- IHPA
- NPDES

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES
APPLICATION FOR PERMIT

**FLOODWAY CONSTRUCTION IN NORTHEASTERN ILLINOIS
CONSTRUCTION IN A PUBLIC WATER (FOX RIVER)**

ST. CHARLES RIVERWALL

Prepared For:
CITY OF ST. CHARLES
TWO EAST MAIN STREET
ST. CHARLES, IL 60174

WBK Project No. 08-0084

January 22, 2009



WILLS BURKE KELSEY ASSOCIATES
116 West Main Street, Suite 201
St. Charles, Illinois 60174-1854
Phone: 630-443-7755 Fax: 630-443-0533
www.wbkengineering.com



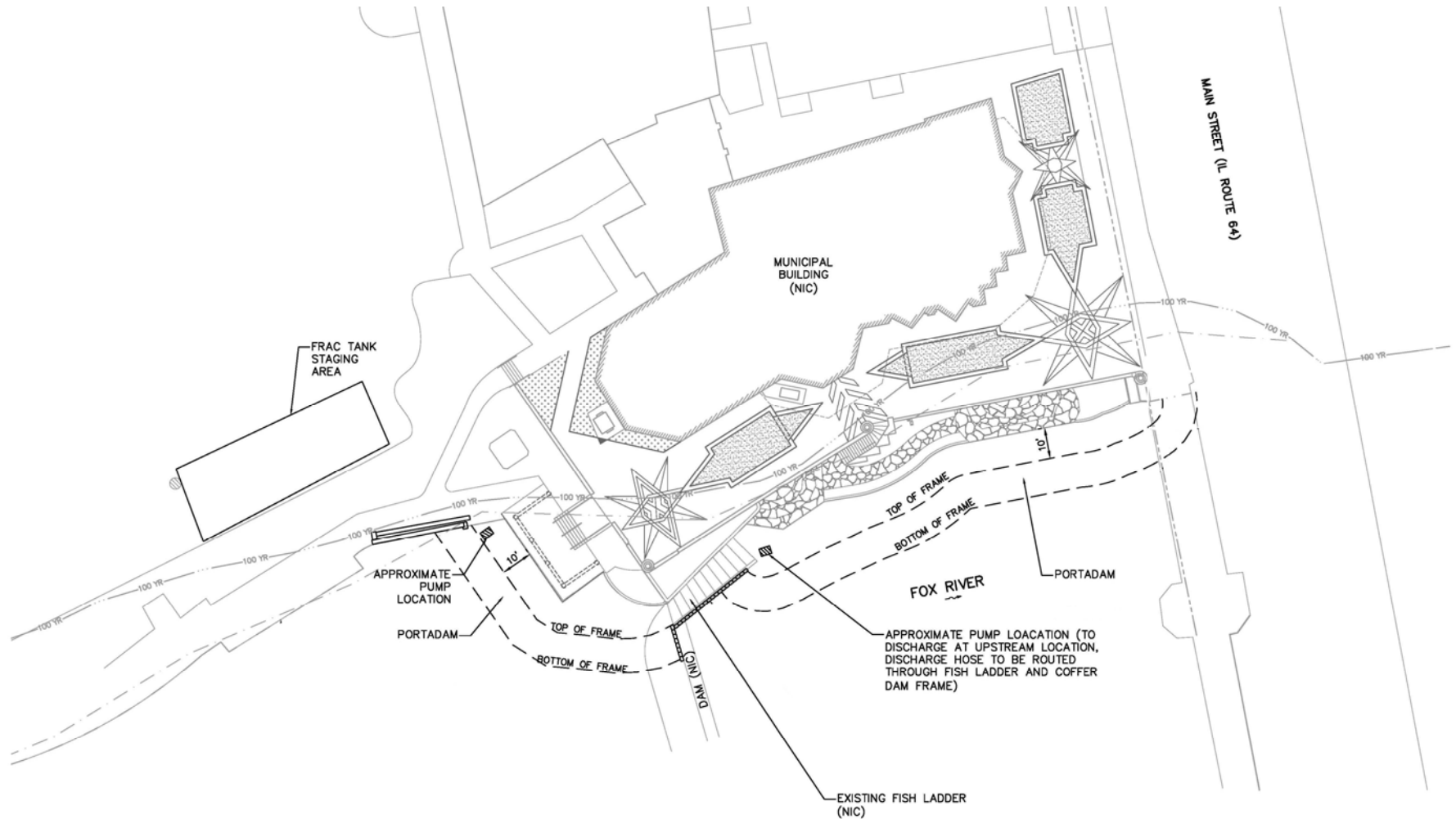
Construction

- In-River work was completed in approximately 3 months
- 1 ION for discharge of high turbidity water
- Plaza restoration will be completed in Spring 2010

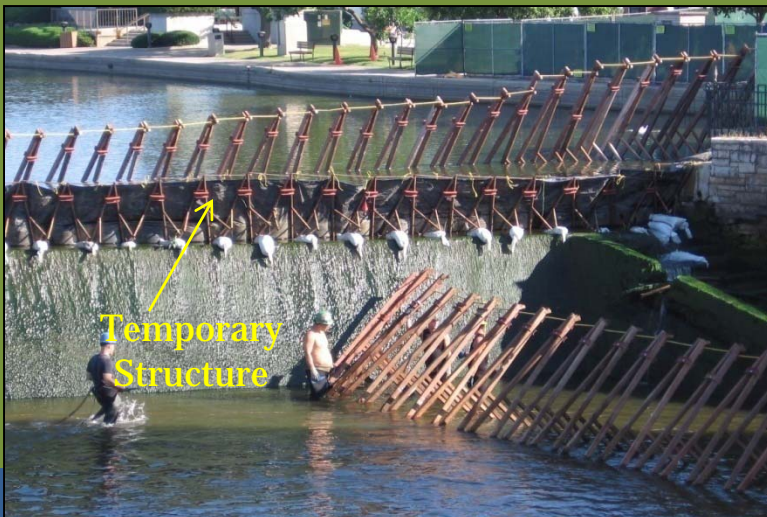


View of wall looking upstream prior to construction

Plan View



Installation of Portadam System

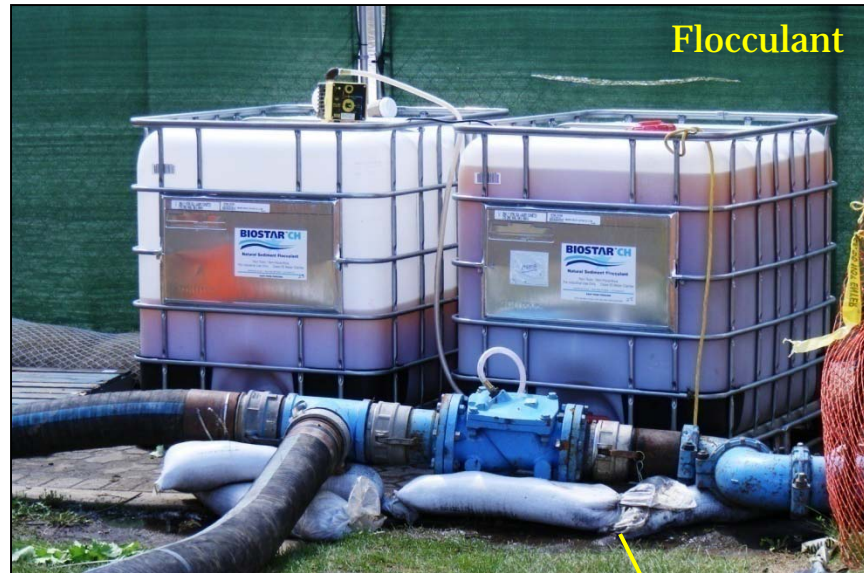


Installation of Portadam System



Dewatering Operations

- Pumps
- Flocculant
- Sand Filters
- Weir Tank
- Bag Filters
- Automated Water Quality Monitoring System



Dewatering Operations



Turbidity Reading



Construction



Discharge from downstream

Intake for filtration system

Platform
being
reconstructed

Construction



Construction



River
Bottom

Disassembly of System

- Turned Pumps off for Downstream Section; Maintained Upstream Section
- Removed Downstream Liner and Frames
- Turned Pumps off for Upstream Section
- Removed Frames and Liner for Upstream Section
- Removed All Dewatering Equipment

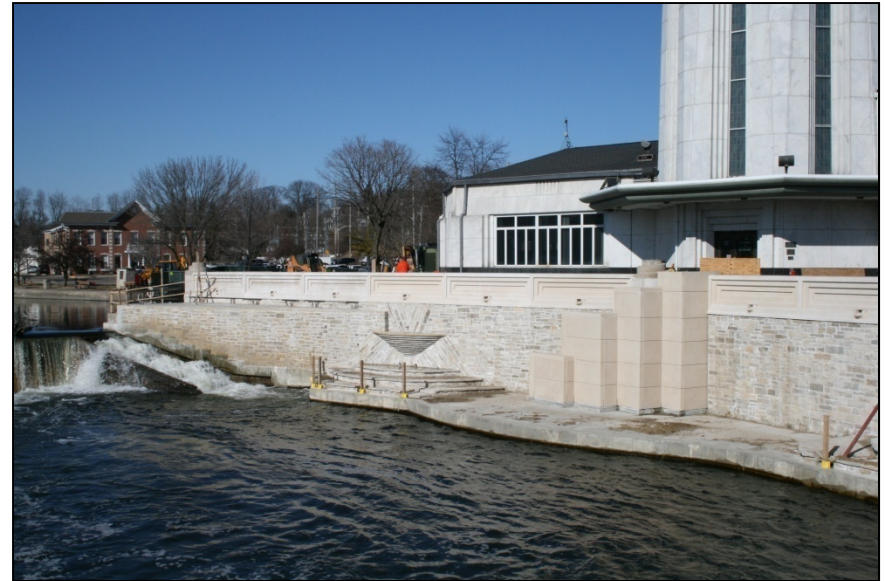


Lesson's Learned



- Flood contingency plan important.
- Dam construction and disassembly required sequence approval by resource agencies.
- Design should include a plan that can be permitted and constructed (We knew that!).
- Contractor experience with in water construction near a dam is crucial.
- Dewatering specifications/details very important.
- Algae can be serious issue although not technically a pollutant. It impacts permitted dewatering plan.

Questions?



Thank you for your attention.

