

River Breakup 2021 Preparedness

Presenter: Matthew Hough

Title: Deputy Chief Administrative Officer

Meeting Date: March 9, 2021

Overview

- Supports
 - Structural versus Non-Structural Mitigation
 - Permanent Berm Construction
 - Underground Infrastructure Improvements
 - Temporary Mitigation Measures
 - Sandbag Program
 - Ice Breaking and Dredging
 - Emergency Management
 - River Monitoring
 - Financial Investment
 - Next Steps
-

Supports

Contractors and Consultants

- AECOM
- Associated Engineering
- Hatfield Consultants
- Hydra International Ltd.
- IBI Group
- McMurray Aviation
- Stantec Inc.
- Urban Systems

- Wilco Contractors Northwest Inc.
- WSP Global Inc.

Oil Sands Community Alliance

- Civeo Corporation
- Imperial Oil Ltd. (Esso)
- Suncor Energy Inc.
- Syncrude Canada Ltd.

Supports

(continued)

- ATCO Ltd.
- Canadian Red Cross
- Government of Alberta
- Insurance Bureau of Canada
- Institute for Catastrophic Loss Reduction
- Lloyd's of Canada

Structural versus Non-Structural Mitigation

Structural

- Berms
- Dams
- Floodways

Non-Structural

- Raising structures
- Land use planning and zoning
- Acquisitions and relocation

Structural versus Non-Structural Mitigation

(continued)

Active

- Ice breaking
- Storm sewer sluice gates



Passive

- Retaining Walls
- Berms



FLOOD MITIGATION REACHES (1-11) AND CLEAR WATER DR PHASES

REACH 1
REACH 2
REACH 3/CWD PHASE 4
REACH 4/CWD PHASE 2
REACH 5/CWD PHASE 1
Reach 5 New alignment
2 lanes completed at 200.0 m
CWD Ph 2 and 3 completed at 200.0 m
Reach 6/CWD PHASE 3
Reach 7
Reach 8
REACH 11/SALINE CREEK SECONDARY EGRESS ROAD
Reach 10
10JHP - new alignment
100' and alignment
portion of Reach 10 to be covered under Saline Creek Secondary Egress Road
Complete of 248.0 m
CONSTRUCTION COMPLETION

LEGEND

- FLOOD MITIGATION REACHES (1-11)
- 10-YEAR FLOOD REACH
- 100-YEAR FLOOD REACH
- CONSTRUCTION COMPLETION
- CONSTRUCTION COMPLETION

0 100 FEET

THE SALINE CREEK FLOOD MITIGATION PROJECT IS A JOINT VENTURE OF THE CITY OF SALINE, MISSOURI, AND THE MISSOURI DEPARTMENT OF TRANSPORTATION. THE PROJECT IS A PART OF THE SALINE CREEK FLOOD MITIGATION PROJECT. THE PROJECT IS A PART OF THE SALINE CREEK FLOOD MITIGATION PROJECT. THE PROJECT IS A PART OF THE SALINE CREEK FLOOD MITIGATION PROJECT.

- www.rmwb.ca**

Permanent Berm Construction

(continued)

Longboat Landing Pedestrian Pathway Engagement:

- December 15, 2020 to February 15, 2021
- 81 surveys completed
- 64% indicated support for the pathway
- 25% did not support the pathway
- 11% responded other
- 59 respondents provided additional comments

Berm construction remains the priority

Permanent Berm Construction

(continued)

- Reach 7 construction commences in 2021



Permanent Berm Construction

(continued)



- Reach 9 construction concluded in 2020

Underground Infrastructure Improvements

Objectives:

1. Consistent Flood Protection Standard
2. Comprehensive Flood Protection System
3. Inspection and Maintenance Program

- Water Treatment Plant Preparedness (previously reported)
- Outfalls, Valves, Automation and Maintenance
- Outfalls, Manholes and Culverts
- Passageways and Exit Points
- TaigaNova, Wastewater Treatment Plant and Longboat Landing
- Lift Stations and Booster Stations

Underground Infrastructure Improvements

(continued)

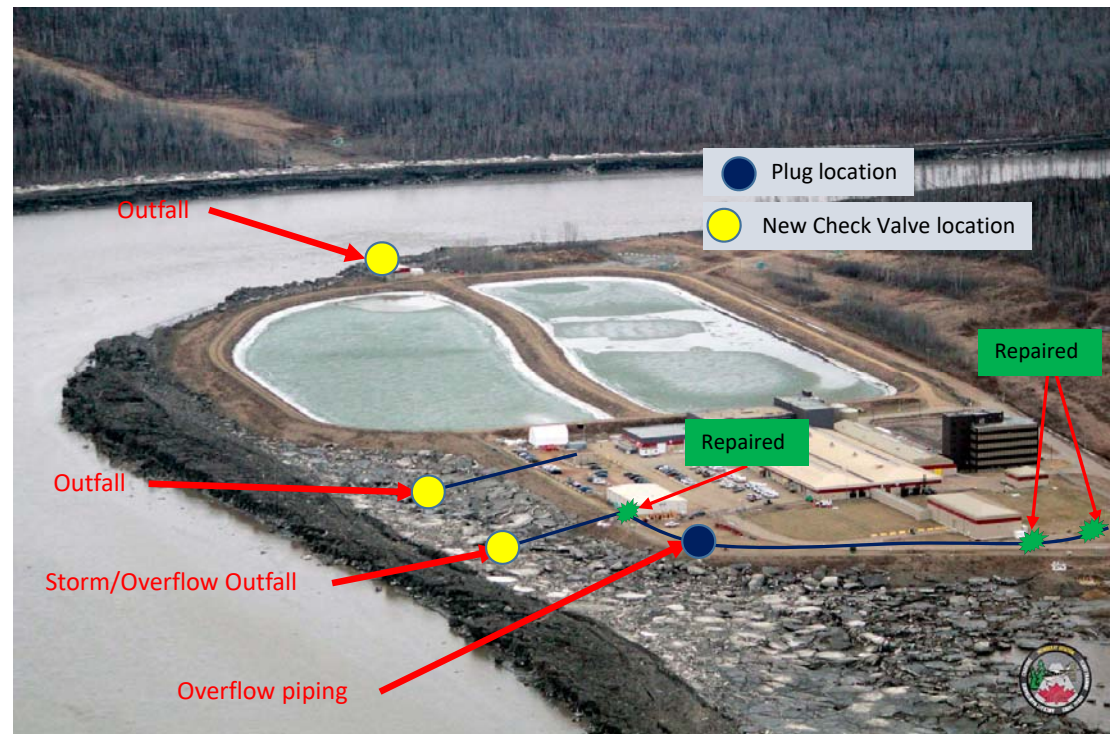
Water Treatment Plant Preparedness – Outfalls and Valves

Complete

- *Outfall* sluice gate ●
- Clear wells overflow flap gates ✱

Spring 2021

- Temporary plug at *overflow piping* ●

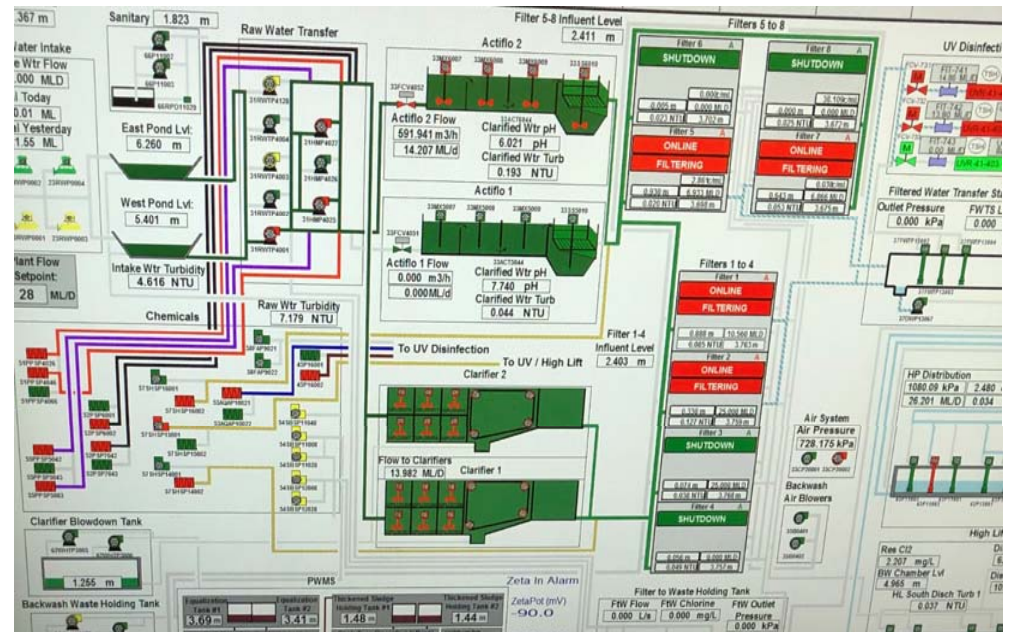


Underground Infrastructure Improvements

(continued)

Water Treatment Plant Preparedness – Automation

- Enhanced monitoring and alarm systems
- Automation of shut down following turbidity alarm in clearwells



Water Treatment Control Room System
SCADA (Supervisory Control and Data Acquisition)

Underground Infrastructure Improvements

(continued)

Water Treatment Plant Preparedness – Isolation Valve Maintenance Program

- In July 2020 divers complete maintenance on valves and piping
- Buildup of precipitate on the fittings, fixtures, and valves prevented isolation of the bypass and clearwells, attributed to 2016 Wildfire
- January 2021 inspection revealed no build up



Precipitate found on the isolation valves in July 2020, with a sledgehammer for scale reference

Underground Infrastructure Improvements

(continued)

Outfalls, Manholes and Culverts

- Flap gates at each outfall will be inspected and adjusted (if required)
- Riverside manhole covers will be replaced with watertight covers
- Cover inserts will be installed in higher elevation manholes
- Culverts will be plugged and blocked



This image shows a manhole insert to prevent river water from entering the system

Underground Infrastructure Improvements

(continued)

Passageways and Exit Points

- Temporary plugs to be installed
- Storm water will be managed with pumps
- Sanitary bypass pumping will be setup in preparation of river breakup
- Sanitary bypassing pumping will only be required if river water enters the sanitary system
- Smaller networks will use hydro-vac trucks to manage sanitary flows



This images shows a pump

Underground Infrastructure Improvements

(continued)

TaigaNova Eco-Industrial Park, Wastewater Treatment Plant and Longboat Landing

- Mitigate any exfiltration from the effluent manholes at the Wastewater Treatment Plant (WWTP)
- Limit river water from entering Longboat Landing through a plug and pump program



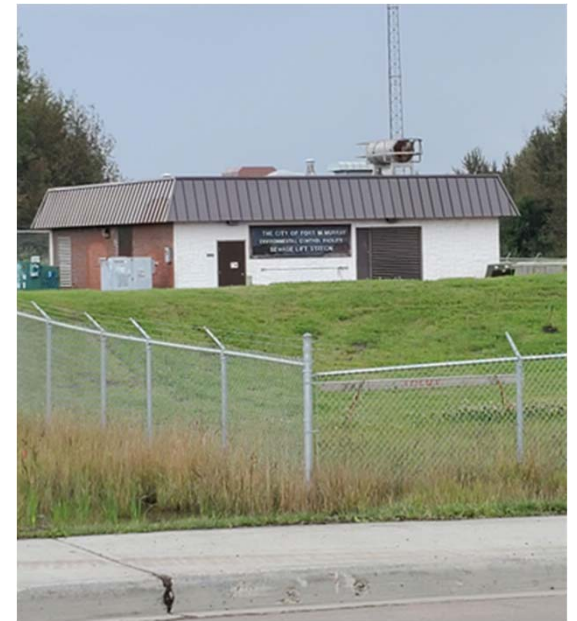
Sanitary manholes location South of TaigaNova

Underground Infrastructure Improvements

(continued)

Lift Stations and Booster Stations

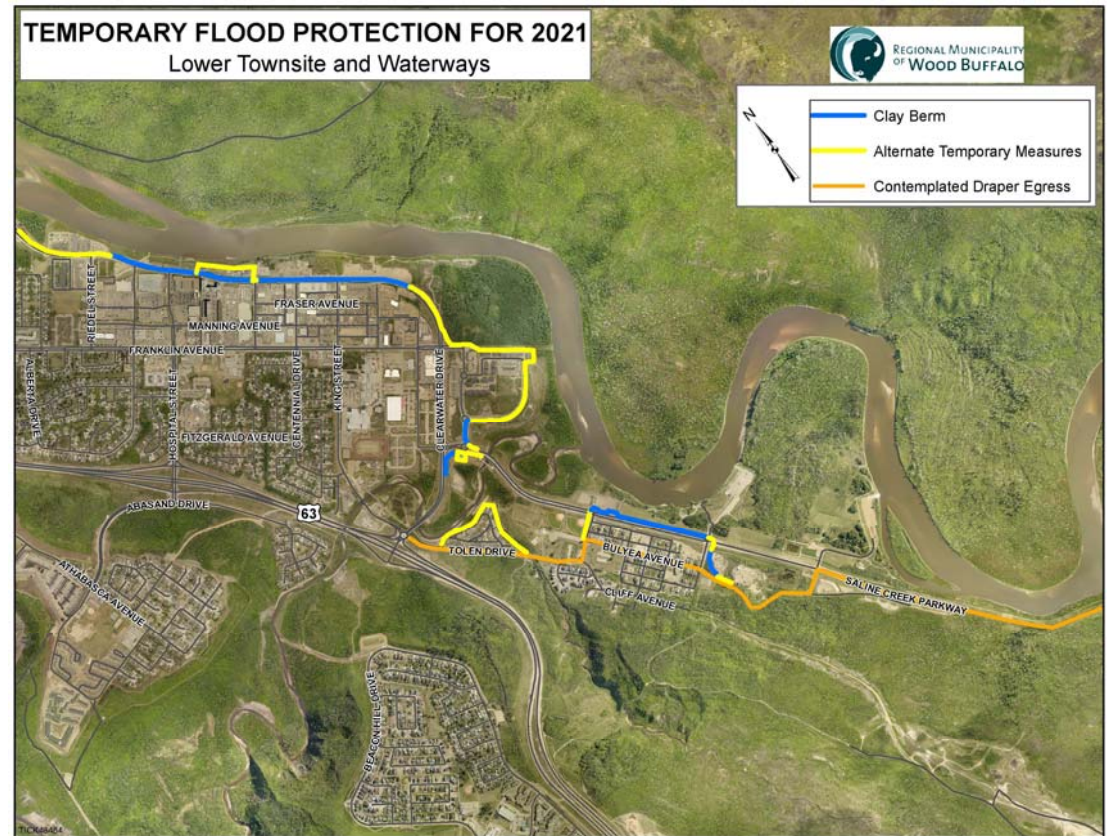
- Using sandbags to limit flood water at all access ways and generators
- Closing isolation valves at station capacity
- Reviewing Emergency Response Plans
- Incorporating Lessons Learned
- WWTP emergency response plan to address impacts of river flood



Fort McMurray Sanitary Lift Station

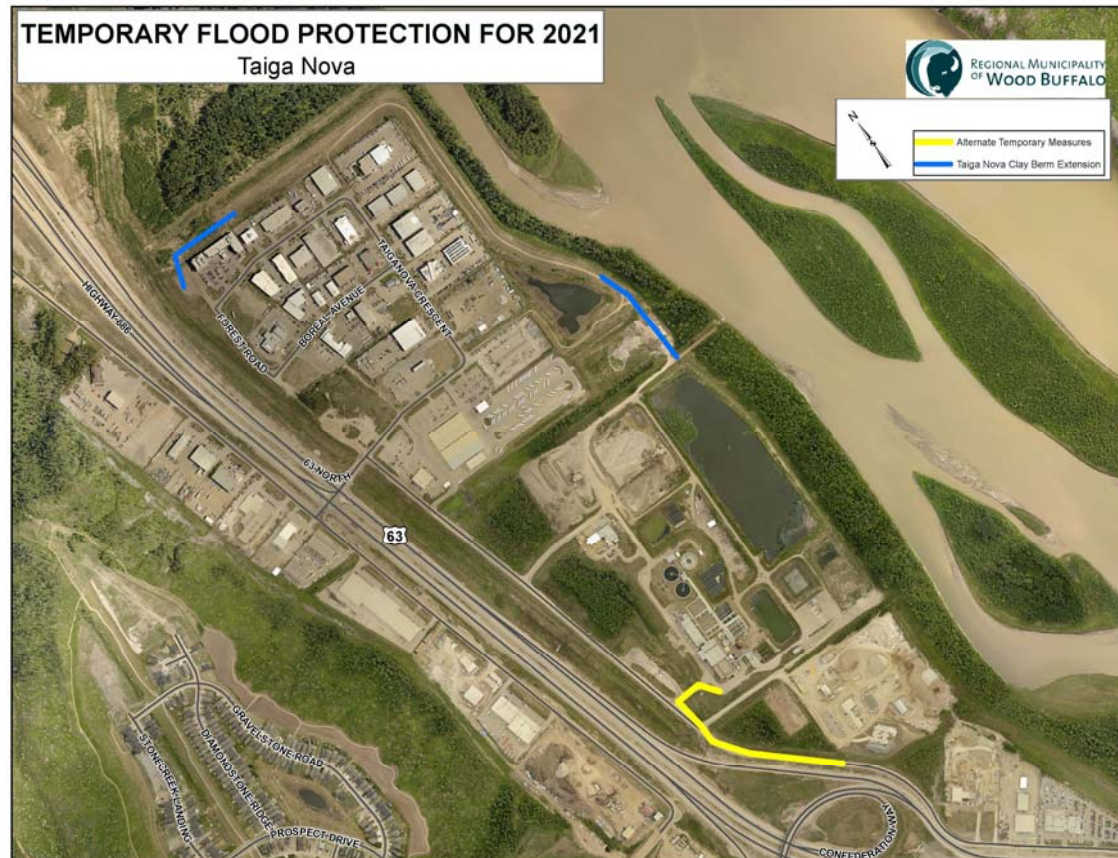
Temporary Mitigation

- Located where permanent mitigation is not complete and temporary clay berms could not be constructed
- Set-up and removal timeline
- Anticipated road closures



Temporary Mitigation

(continued)

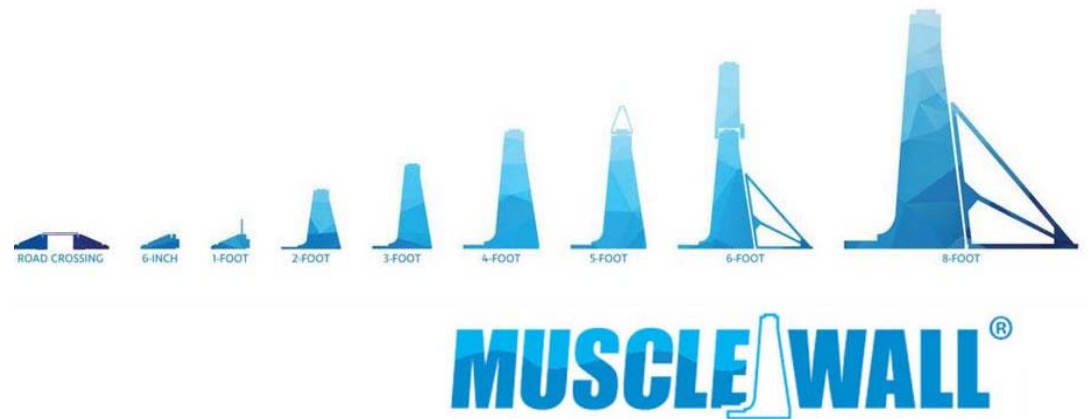


Temporary Mitigation

(continued)

Muscle Walls

- Rapid deployment portable retaining walls



Temporary Mitigation

(continued)



Triple Dams

- Durable, flexible, water filled bags
- Up to 3.8 m high and 7.0 m wide
- Set back from the river and ice due to topography, slopes, and vegetation

Sandbag Program

- Intended to help property owners enhance flood defenses
- Distribution location shown below; drop-off location to be determined
- COVID protocols in place



Ice Breaking and Dredging

- Supplemental mitigation to berm construction
- Ongoing research
- Provincial and federal legislative requirements
- Explored in 2017



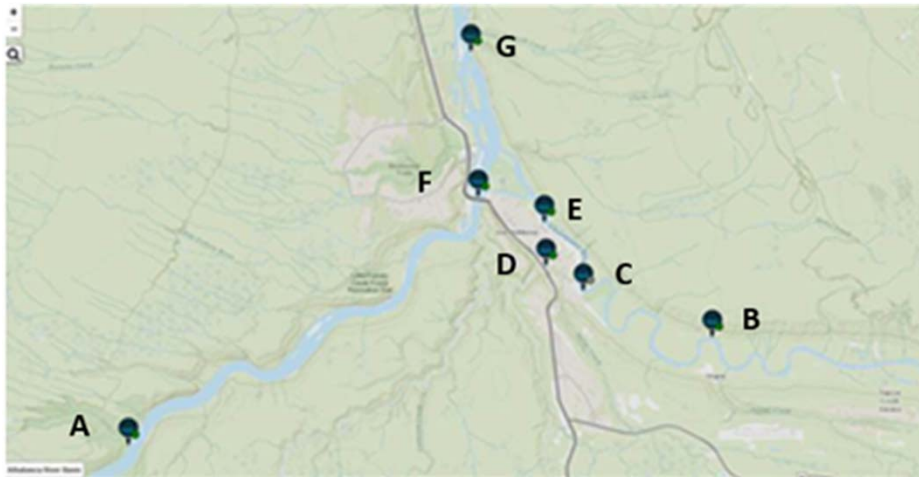
Emergency Management

- Multi-departmental and agency collaboration
- Rehearsal Of Concepts (ROC)
- Updated Emergency Social Services (ESS) Plan and Community Emergency Management Plans (CEMPs)
- RMWB *Alertable* app



River Monitoring

- Collaboration with Alberta Environment and Parks
- Continuous visual and electronic monitoring
- Alberta Rivers mobile application



Financial Investment



- \$44 million budget for 2021
- \$63 million planned through 2023
- All berms will be built to the 1:200 year flood elevation level of 250.9 m as directed by Council
- \$18 million commitment from Federal and Provincial governments

Next Steps

- Ongoing collaboration
- Continued insurance advocacy
- 2021 timelines
- Community Townhall on Thursday, March 18 at 6:00 p.m.
- rmwb.ca/riverbreakup

Thank You