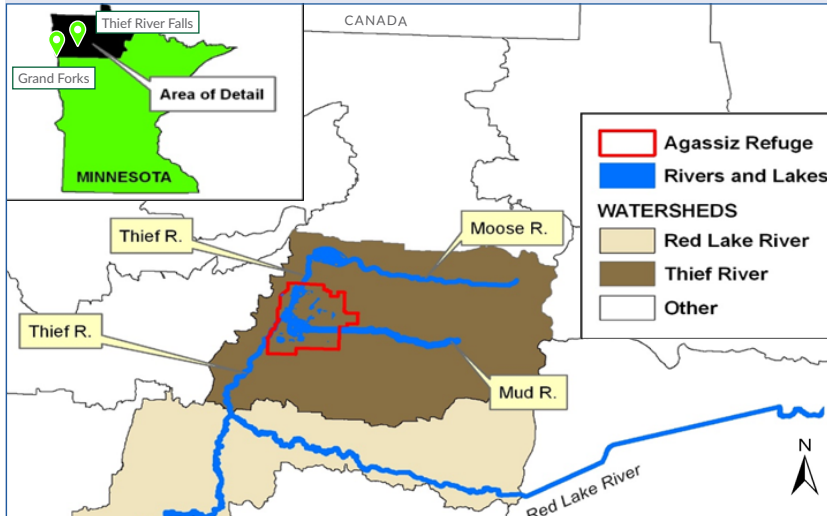




Mud River Enhancement Project

Marshall County, Minnesota

This project will improve the Agassiz National Wildlife Refuge migratory bird habitat by designing a nature-based channel to convey incoming Mud River flow. These enhancements will mimic natural function and provide an ecosystem benefit that is lacking on the landscape in northwest Minnesota.



PROJECT GOALS

- 1 Enhance natural riverine, riparian, and floodplain functions along the Mud River.
- 2 Improve migratory bird habitat and restore ecological functions that were lost due to drainage practices.
- 3 Mitigate upstream influences that negatively effect the refuge's wetlands.

Project Outcomes and Benefits

- Increase meandered stream habitat for wildlife
- Increase floodplain access during flood events
- Improve water quality and quantity across the watershed
- 6 mile increase in stream habitat and 700 acres of floodplain access



BEFORE

Limited Value Habitat
Low Plant Diversity



AFTER

High Value Aquatic Stream
Transitioning to Riparian
Habitat and Upland Trees

Mud River Enhancement	Funding Request	Total Leverage	Leverage Source	TOTAL
Phase 1 ML 2026 (approved)	\$2.97M	\$655,000	DNR, USFWS, RLWD	\$6,157,000
Phase 2 ML 2027 (proposed)	\$3.2M			
Total	\$6.157M			

Total Requested Funding by Resource Type (ML 2027)

Type	Wetland	Prairie	Forest	Habitat	TOTAL FUNDING
Restore	✓	-	-	-	\$2,500,000
Enhance	✓	-	-	-	\$700,000
Total	✓	-	-	-	\$3,200,000

Complete Project Scope:

Balancing Functionality and Cost

Constructing only a portion of the stream restoration would make it difficult to achieve meaningful ecological function while remaining financially responsible.

LEARN MORE

For more information about this or other projects contact the RLWD.



Redlakewatershed.org



218.681.5800



RLWD@redlakewatershed.org



RED LAKE
WATERSHED
DISTRICT

Mud River Enhancement Project



Peak Flow into Agassiz Pool

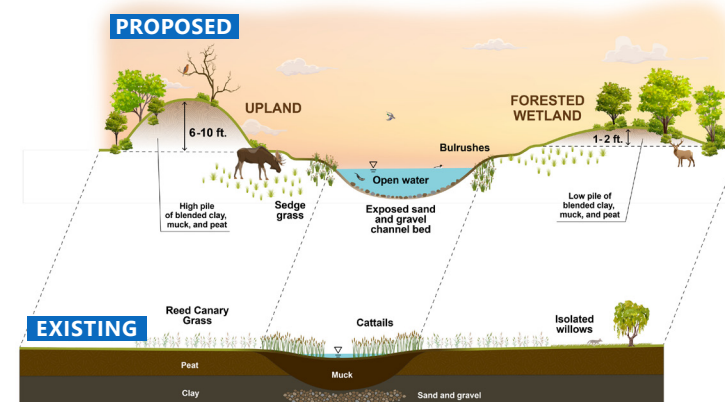
EXISTING = 675 cfs
PROPOSED = 575 cfs



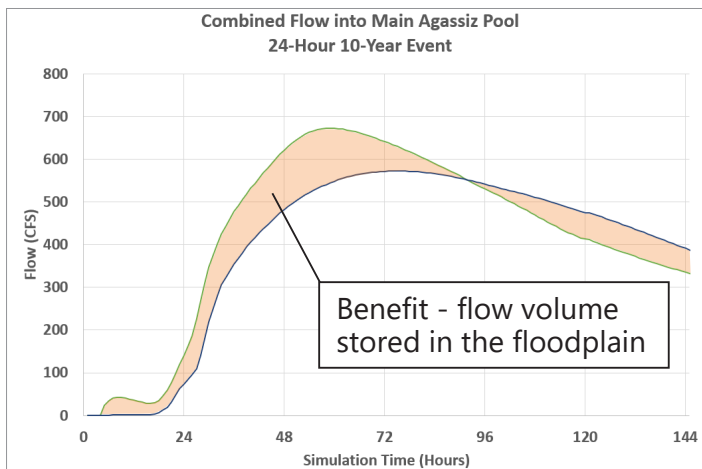
Downstream flow reductions
will reduce sediment
transported to Thief River
Falls water supply.

CHANNEL DESIGN PRINCIPLES

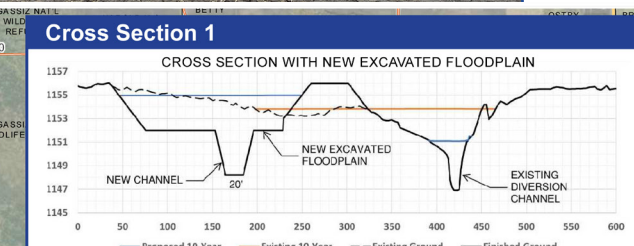
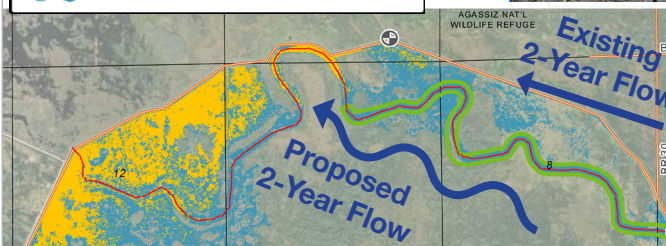
- Cost-effective, functioning channel design based on fluvial geomorphic principles.
- At least 80% of Mud River flow will be directed to channel enhancement.
- Self-sustaining channel—meaning the majority will not require regular vegetation control or sediment cleanout.
- Diverse vegetative communities connecting with existing desirable species, irregular floodplain grading, and plantings to disrupt the existing monoculture.



INCREASED FLOODPLAIN ACCESS



- 10Y Existing Flood - 300 ac
- 10Y Proposed Flood - 1,000 ac



Existing
Proposed

