



# Re-Creation of a Historical Island in the Mississippi River: Restoring Habitat in an Urban Setting

Group 1

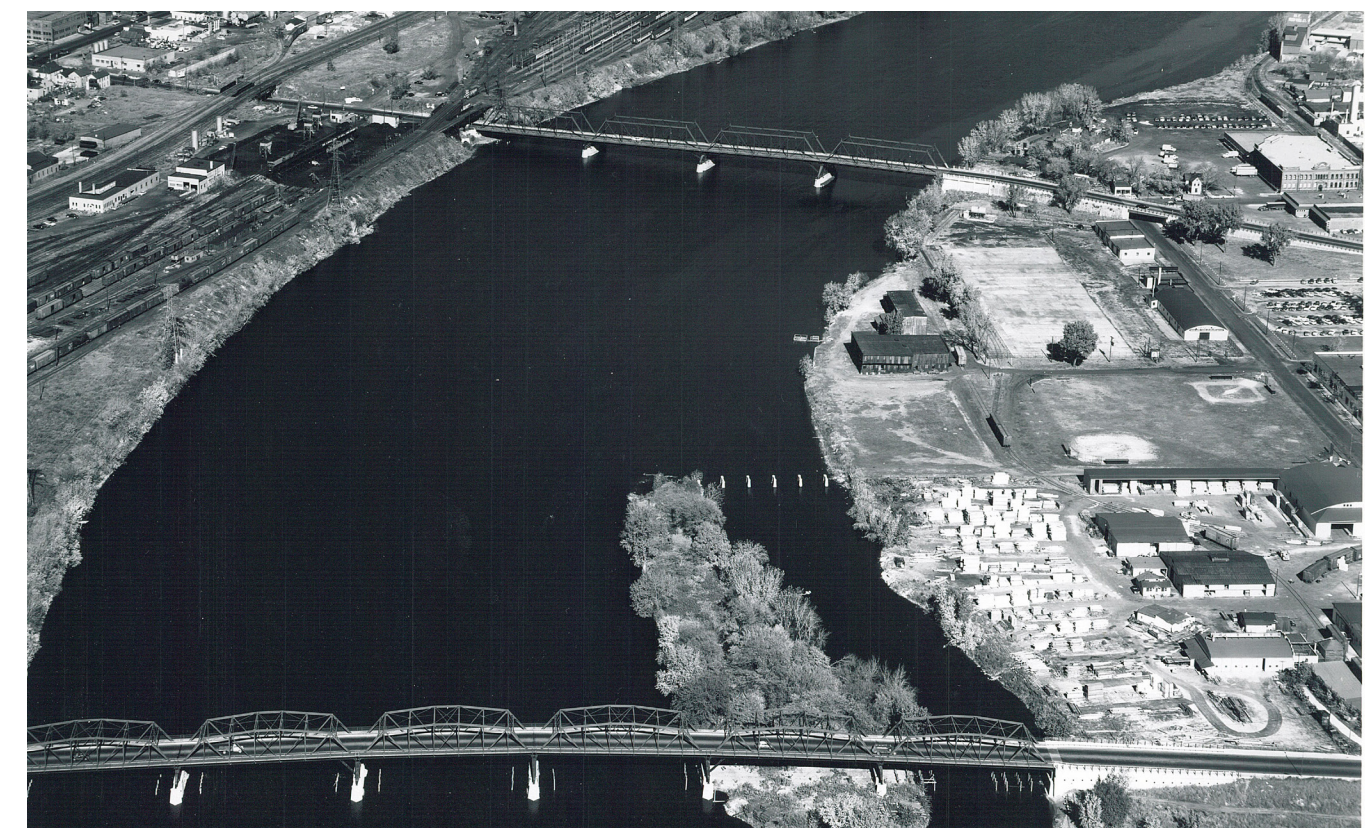
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## project background

The Minneapolis Park and Recreation Board recreated the historic Halls Island in 2017 and 2018, restoring natural habitat and providing public park access to greenspace along the Mississippi Riverfront near downtown Minneapolis. In the 1960s, the historic island was dredged and the channel filled by the prior property owner to expand the shoreline property. The fill contained polycyclic aromatic hydrocarbons (PAHs), metals, and debris that was either removed or covered as part of island reconstruction and habitat creation. The reconstructed island is approximately three acres in area and has approximately 3,000 feet of shoreline.



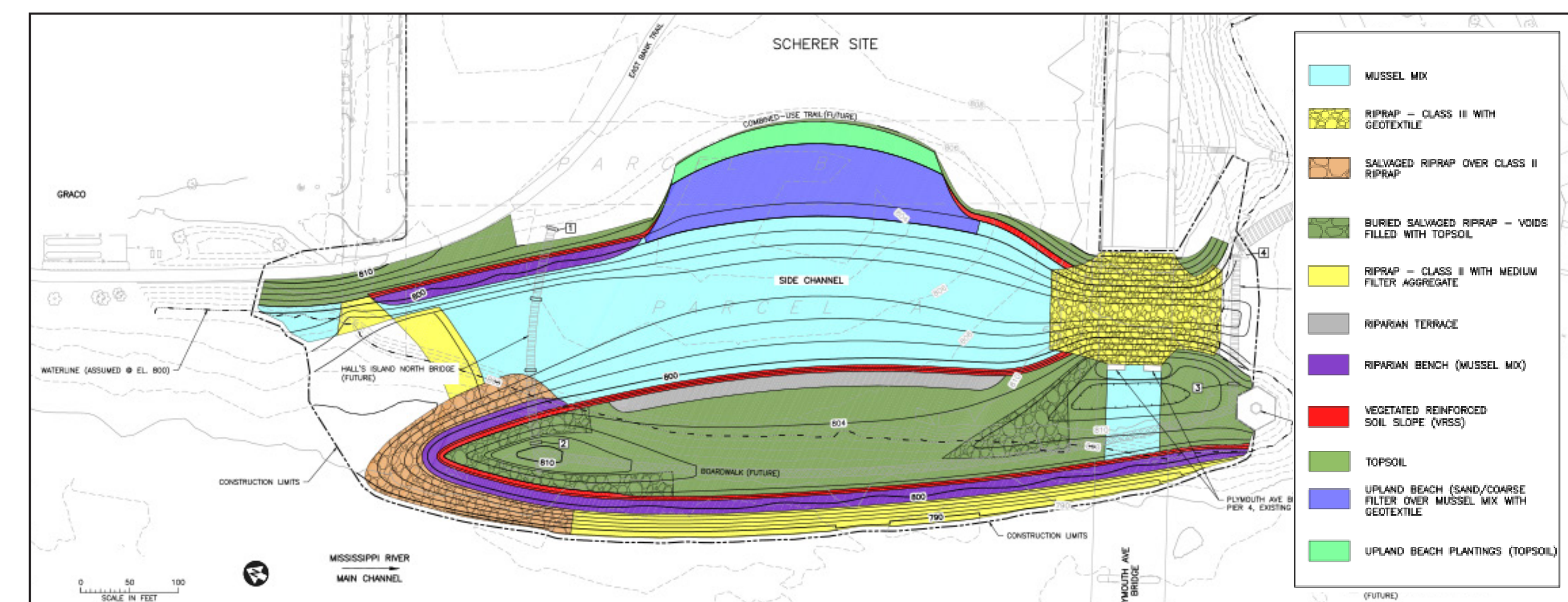
1903 historic Halls Island map



1955 historic Halls Island aerial photo

## design approach

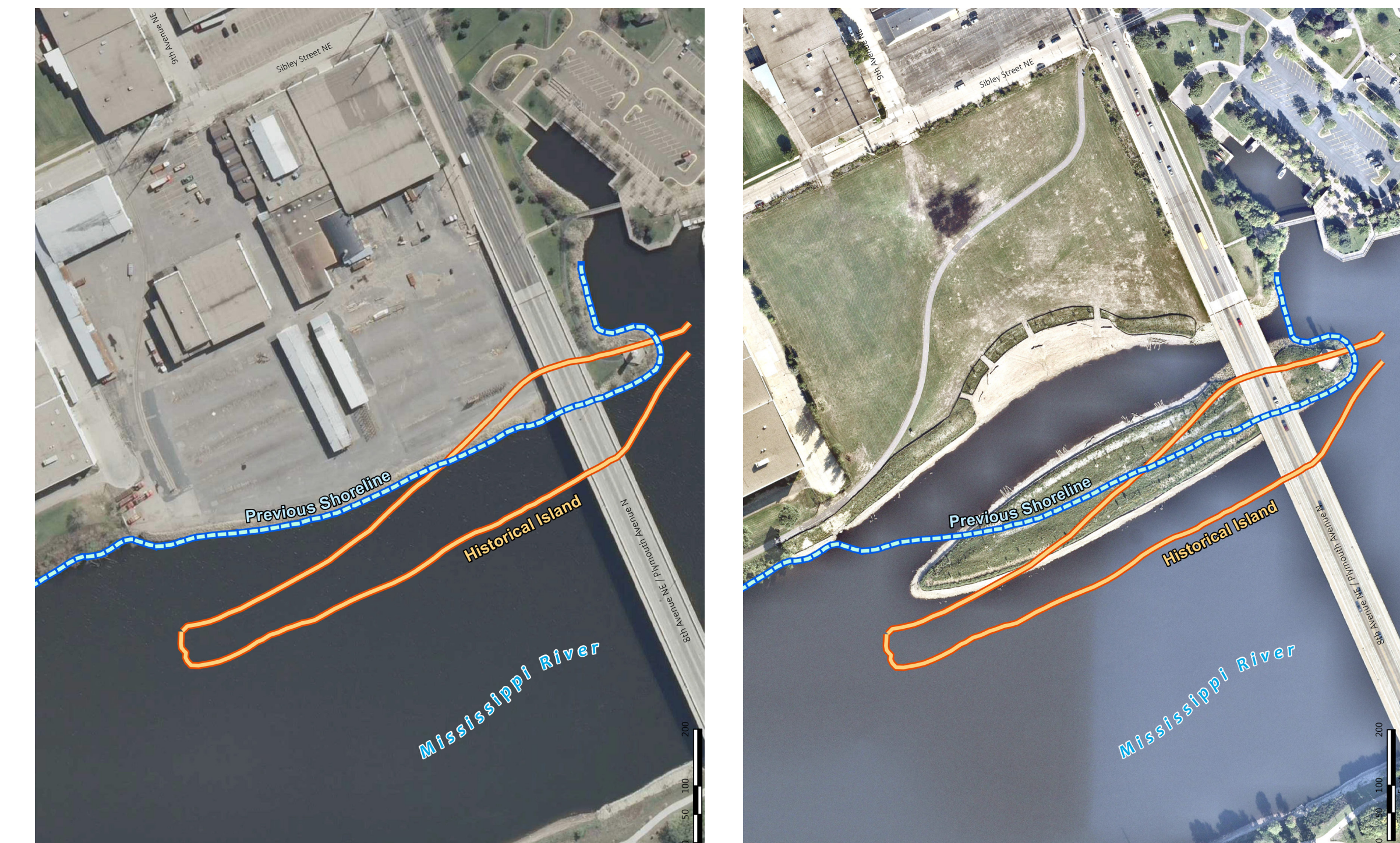
The design approach required consideration of historic contamination, hydrodynamics, sediment transport, island and channel stability, reuse of site materials, habitat creation, and future island use. Delft3D and HEC-RAS models were used to design the island geometry so that it met floodway and floodplain requirements, allowed for desired sediment deposition and flushing, and maintained a stable cover during flood events. To mitigate potential exposure to contamination left in place, various covers were placed. The cover materials were selected to perform multiple functions: protect burrowing species, provide optimal habitat for native fish and mussels, and protect the island and channel from erosion.



reconstructed Halls Island cover material plan

## construction

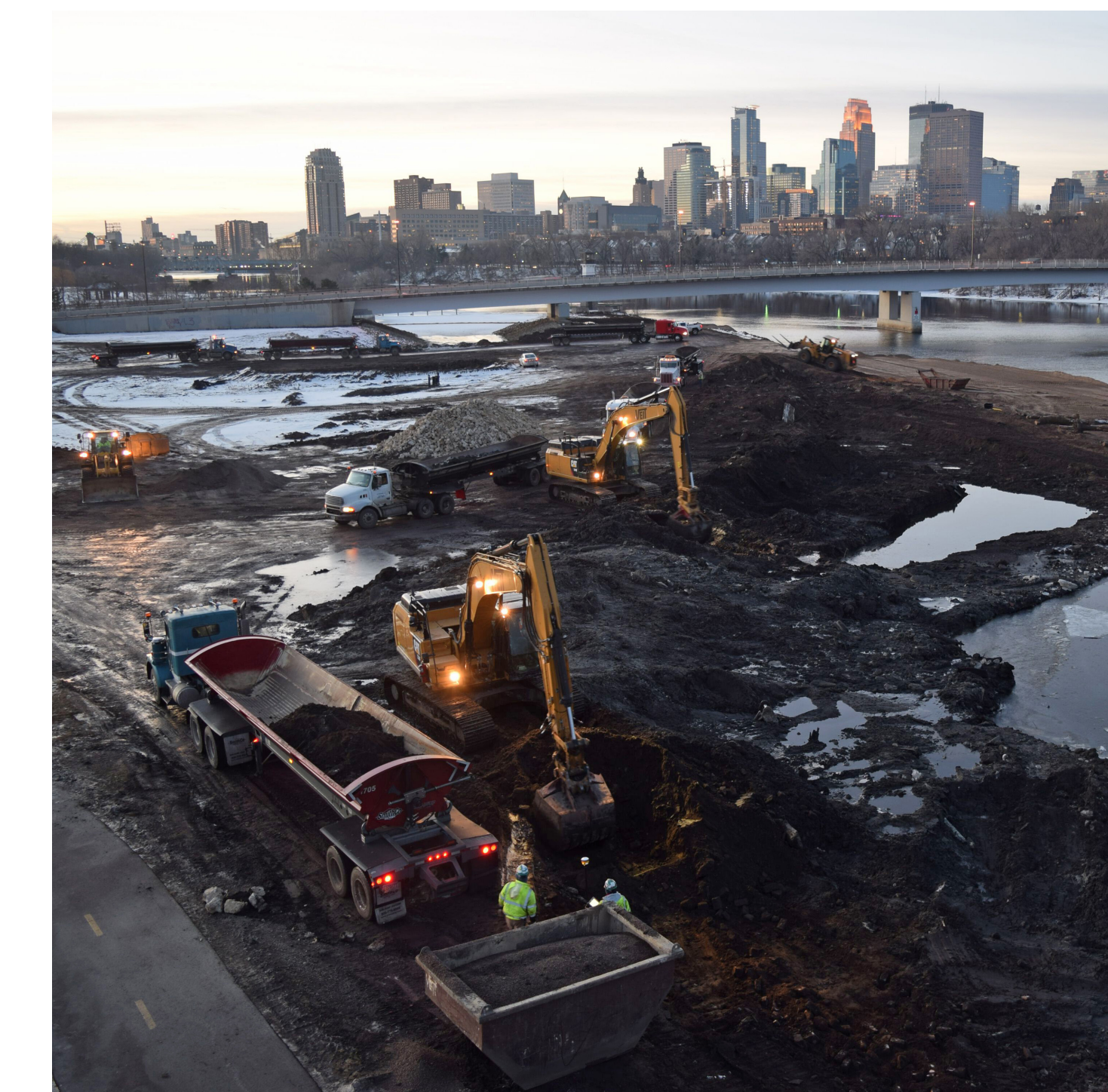
Careful planning and strategic construction sequencing allowed the island to be built from land during winter months without dewatering or the need for marine-based construction equipment. The outer island section was constructed from land first, then, working back toward shore, the channel was excavated and cover materials were placed while keeping land bridges on both ends of the channel. Plantings were completed in the spring. Approximately 55,000 cubic yards of contaminated soil was excavated and disposed of at a landfill; 7,500 cubic yards of soil and 2,500 CY of rip rap were reused for island construction; and 23,000 CY of clean fill and cover material were brought on site.



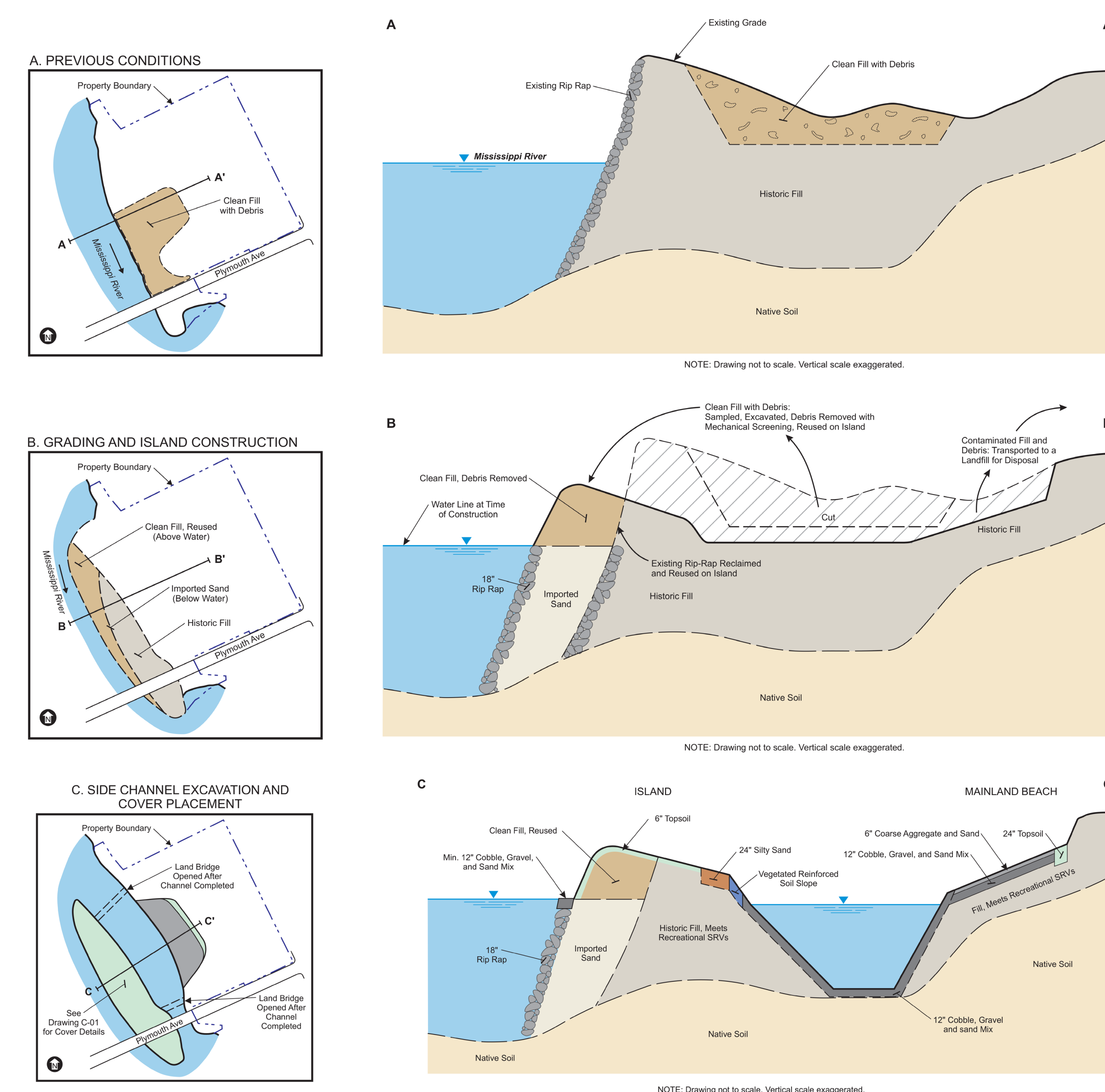
pre- and post-construction aerial photos of Halls Island



excavation of channel (photo credit: MWMO)



excavation and hauling of fill material (photo credit: MWMO)



construction sequence summary



fill debris



soil screening equipment removed debris from soils that were reused on-site

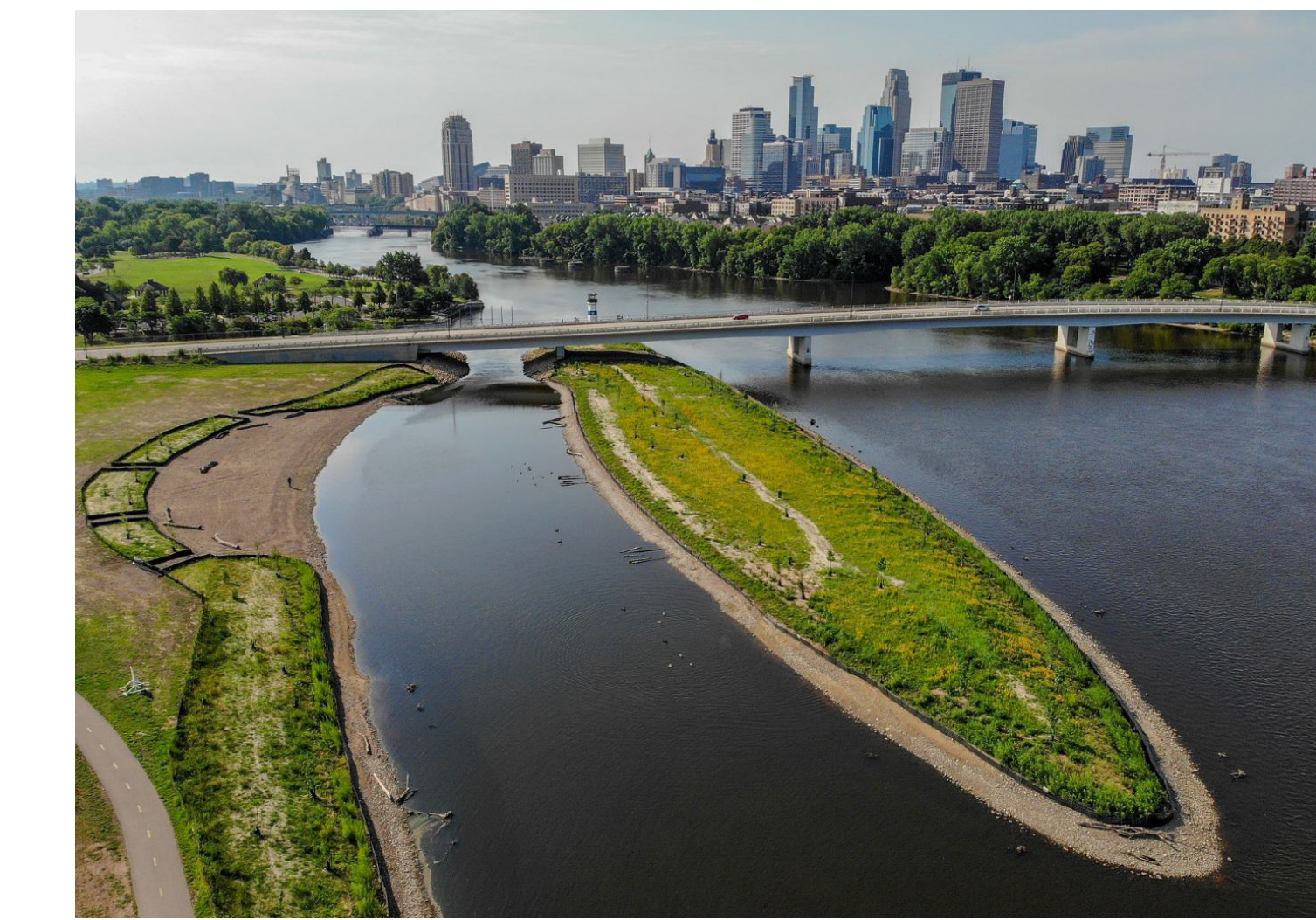


land bridges were used to contain suspended sediments and for truck and excavator traffic during construction



planting of trees, shrubs and willow stakes on the riparian bench (photo credit: MWMO)

## finished island



Halls Island with downtown Minneapolis in background (photo credit: MWMO)



restored shoreline facing Halls Island (photo credit: MWMO)

The Hall's island project transformed a segment of an urban river corridor into a valuable habitat and community asset. The restoration of this area created approximately three acres of new habitat in the Mississippi River for birds, fish, mussels, turtles, and other wildlife. In an urban area where natural spaces are limited, the new island and adjacent beach provide a unique space for cyclists, runners, walkers, canoeists, kayakers, anglers, and nature enthusiasts to access the river and view a variety of wildlife.



smallmouth bass caught in channel between Halls Island and shoreline

## habitat features

- additional shoreline and island habitat created
- diverse channel substrates provide mussel and fish habitat, while also preventing burrowing organisms from reaching impacted sediments
- log vanes and root wads slow water flow and reduce erosion while providing fish and turtle nesting habitat
- vegetated reinforced soil slopes (VRSS) mimic natural upstream island shorelines, provide bird habitat near the waterline, and protect the shoreline from erosion

## award-winning project

Minnesota Brownfields ReScape Award Winner for Community Impact



## acknowledgements

project conceived and funded by:

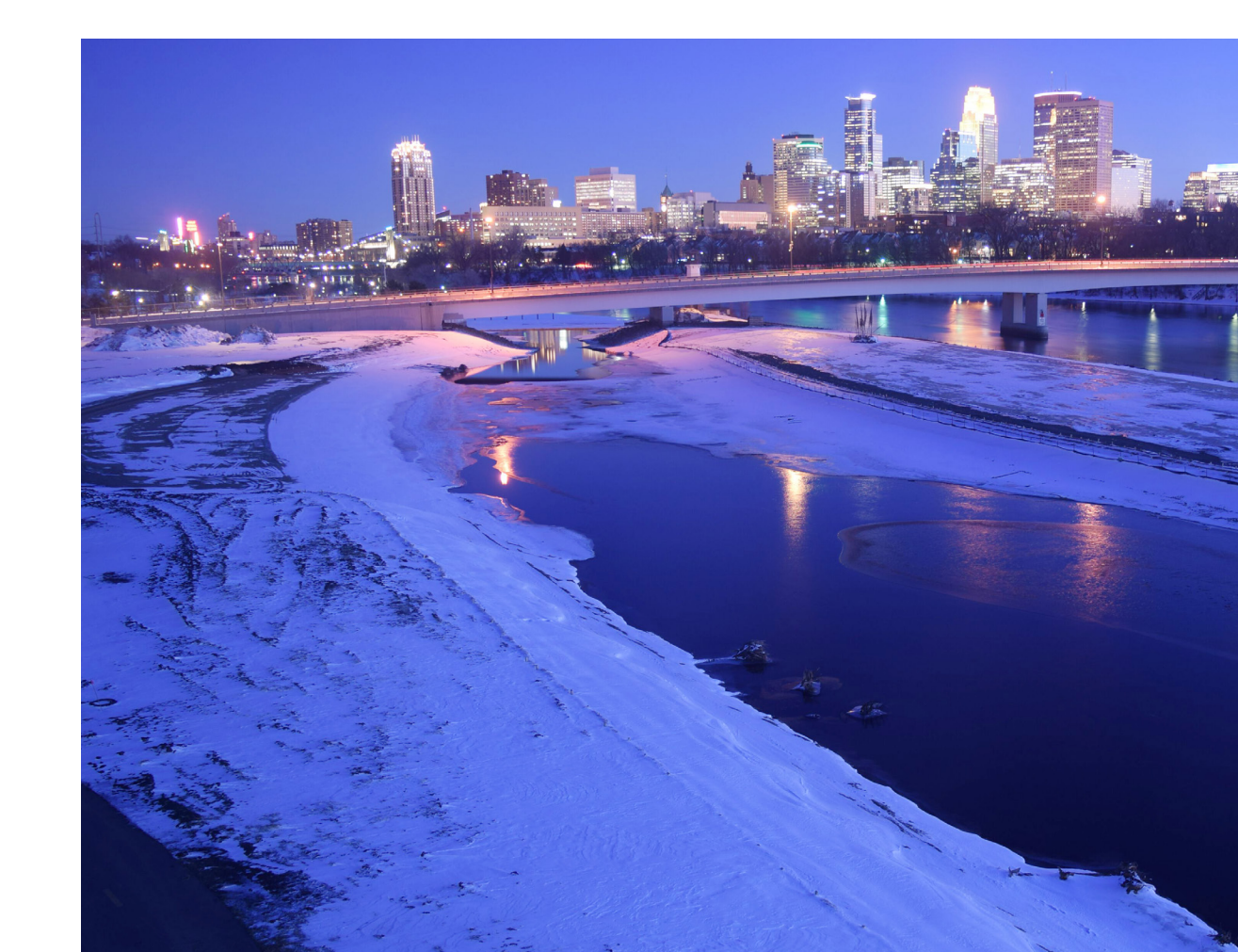
Minneapolis Park and Recreation Board

Mississippi Watershed Management Organization

architect: Tom Leader Studio



TOM LEADER STUDIO  
Landscape Architecture



Halls Island immediately after island and channel construction (photo credit: MWMO)