GRAND RAPIDS RESTORATION

The longest river in Michigan

"Before the river was changed by the work of man, the rapids had a nearly uniform descent for about a mile... sufficient to give a decided turbulent and wild appearance to the waters, and to make a noise that broke the stillness of the forest and echoed from the neighboring hills."

—Charles A Whittemore, Kent Scientific Institute of Grand Rapids, 1895

"Compare it with the rapids at Sault Ste. Marie."

—1913 Grand Rapids Progress

"Here is plenty of fish and plenty of game, and the greatest country for honey that I ever saw."

"There was that spring an unprecedented catch upon the rapids of sturgeon, pickerel, bass, suckers, and other members of the finny tribe."

"The rapids provide the best clamming in the state."

—Accounts of early pioneers

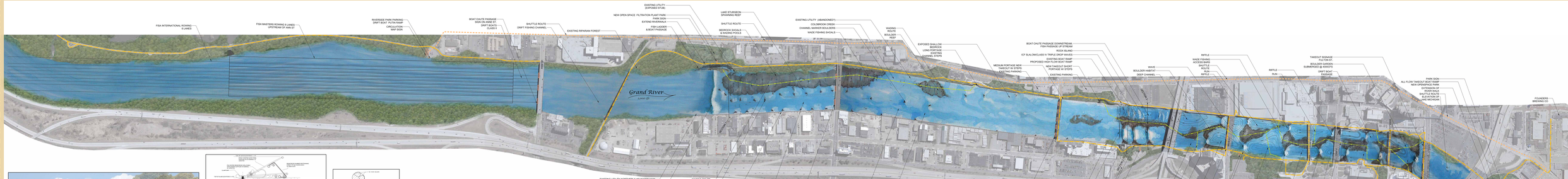
Benefits to restoration:

- 500% increase in fish holding habitat
- 5 times increase in habitat diversity
- 850% increase in lake sturgeon spawning habitat
- 100% upstream fish passage
- 1 sea lamprey adjustable velocity barrier
- 75% reduction in low flow width to depth ratio
- 1700% increase in hyporheic exchange (stream health)
- Direct improvement to aquatic habitat
- Reduction in fine sedimentation
- Propagation of 100,000 mussels
- 275% increase in sport fishing perimeter
- 4 additional acres of native riparian forest

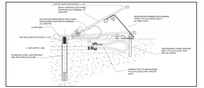
The Outdoor Recreation Economy $646 billion annual spending —Outdoor Industry Association 2012

Benefits to recreation:

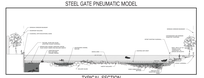
- 8 1,000m lanes FISA Masters Rowing Course
- 6 2,000m lanes FISA International Rowing Course
- 2 new riverside parks
- Shoreline interaction at all riverfront parks
- 12 acres of limestone bedrock shoals
- 5 educational signs
- 100% downstream drift passage
- 9,400 feet of whitewater rapids
- 400m of International Canoe Federation Local Merit Slalom course
- 8 International Canoe Federation Whitewater Rodeo features



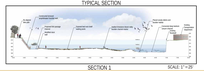
ADJUSTABLE HYDRAULIC STRUCTURE FISH AND BOAT PASSAGE PERSPECTIVE



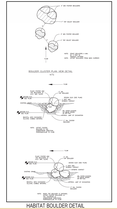
STEEL GATE PNEUMATIC MODEL



TYPICAL SECTION



SECTION 1 SCALE 1" =20'



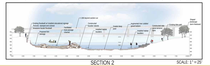
HABITAT BOULDER DETAIL

TRIPLE DROP WAVES WITH BOAT AND FISH PASSAGE PERSPECTIVE

DEVOS PLACE PERSPECTIVE

SLAB STONE TERRACE DETAIL

BOULDER WALL DETAIL

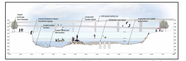


SECTION 2 SCALE 1" =20'

WADING ROUTE PERSPECTIVE

AH-NAB-AWEN PARK ACCESS PERSPECTIVE

BEDROCK SPLASH POOL



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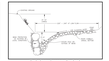

TYPICAL CHANNEL BAR

RIVER

Grand Rapids WhiteWater

OCTOBER 2013