PORT OF TOLEDO WETLAND RESTORATION PROJECT AT DUCK CREEK
TOLEDO-LUCAS COUNTY PORT AUTHORITY
2023 AAPA ENVIRONMENTAL IMPROVEMENT AWARDS APPLICATION
JUNE 2023

1. PROJECT SUMMARY

The Toledo-Lucas County Port Authority, in partnership with Cleveland Cliffs, successfully applied to the state of Ohio's H2Ohio grant program to improve a severely degraded stream and floodplain complex along Duck Creek, a small direct tributary to Lake Erie. The entire length of Duck Creek has been manipulated, altered, or culverted throughout the years as the result of various industrial development projects. This portion of Duck Creek bisects the property owned by the Port Authority and leased to Cleveland Cliffs who produces direct reduced iron at the site, an ingredient in steel production. Cleveland Cliffs imports more than 2 million tons of iron ore each year via Great Lakes vessels to this location, known as the Ironville Marine Terminal, and has invested more than $1 billion into the construction of the facility.

The goal of this project was to reduce man-made impairments and restore a portion of Duck Creek to create a better ecological foundation for wildlife and improve water quality. Small streams, like Duck Creek, can support diverse populations of wildlife such as fish, amphibians, reptiles, and aquatic insects, as part of their life cycle history within the Great Lakes or for birds along their migratory patterns. It is hoped this project will help spur additional work and restoration on Duck Creek and nearby tributaries.

H2Ohio is a comprehensive water quality initiative that is working to strategically address serious water issues that have been building in Ohio for decades. Such problems include

harmful algal blooms on Lake Erie caused by phosphorus runoff from farm fertilizer; failing drinking water, wastewater, and home sewage treatment systems due to aging infrastructure; and lead contamination from old water pipes and fixtures.

The project scope includes the restoration of a degraded floodplain wetland and creation of a new wetland through excavation and reworking existing earthen spoils to create new upland prairie pollinator habitat.

2. GOALS AND OBJECTIVES

The goal of this project was to mitigate the impacts of decades of industrial development on this portion of Duck Creek by restoring and creating wetlands which would result in the creation of habitat and improvement of water quality. The H2Ohio funding objective is the creation of a highly connected wetland habitat directly to Duck Creek and Lake Erie with the intent of reducing nutrients before reaching Lake Erie. An additional objective was transforming this portion of Duck Creek from a channelized straight-line ditch to a more natural channel within the floodplain.

The project design specifically replaced 1,440 LF of channelized Duck Creek with 2,055 LF of reconfigured meandering natural channel. The new alignment promotes hydrologic interaction with restored wetlands for nutrient processing. The existing 8.25 acres of degraded wetlands were restored by removing and managing invasive species like phragmites and native plantings and graded to provide topographic diversity. Along with the restoration of 2.31 additional acres, total wetlands created increased to 10.56 acres. Additionally, to the south of Duck

Creek, former earthen spoils left behind from the construction of the Cleveland Cliffs facility were graded and seeded to create 10.37 acres of pollinator habitat.

3.a. DISCUSSION AND BACKGROUND

In May, 2021 The Toledo-Lucas County Port Authority and the Ohio Department of Natural Resources entered into a grant agreement under Ohio Governor DeWine's H2Ohio program in the amount of $1,800,000 for the purpose of restoring wetlands and reducing nutrients in Duck Creek at the Ironville marine terminal operated by Cleveland Cliffs. The project site is part of and surrounded by a larger 182-acre former Gulf Oil / Chevron Refinery Site that was purchased for $3.4 M by the Toledo-Lucas County Port Authority to expand the Port of Toledo. The Port Authority invested over $23 M to improve the site for use as an active marine terminal with the ability to transload cargo from vessel to rail to truck in any combination. The Ironville site is bisected by Front Street with 74 acres located on the Maumee River (west) side of Front Street and 107 acres on the upland (east) side of Front Street.

The entire site is under a long-term lease to Midwest Terminals to operate and manage the site on behalf of the Port Authority. The Ironville terminal received a Job Ready Site Certification from the Ohio Development Services Agency and in 2017, Cleveland Cliffs announced they would invest in this former brownfield to construction a new HBI plant to supply a new feedstock for steel furnaces throughout the Great Lakes Region. A portion of the Ironville terminal was subsequently sub-leased to Cleveland Cliffs and the HBI project broke

ground in April 2018. The HBI plant became operational in 2020 and represents a $1 Billion investment by Cleveland Cliffs in the site.

3.b. OBJECTIVES AND METHODOLOGY

The Duck Creek wetland restoration and nutrient reduction project at Ironville has the support of Midwest Terminals and Cleveland Cliffs and represents the first phase of a potential suite of additional floodplain wetland restoration and stream channel naturalization projects along Duck and Otter Creeks. The project scope included engineering, design, permitting, and implementation costs to (1) reconfigure 1440 lineal feet of Duck Creek into 2055 lineal feet of meandering channel, (2) restore, enhance, and treat invasive species on 8.25 acres of existing riparian wetlands adjacent to Duck Creek, and (3) create 2.31 additional acres of new riparian wetlands on the Duck Creek floodplain. The Port Authority entered into a management agreement with Cleveland Cliffs to manage and maintain the wetland after construction under the direction of the Port Authority.

3.c. HOW PROJECT FULFILLS THE AWARD CRITERIA

3.c.1. BENEFITS TO ENVIRONMENTAL QUALITY, BEAUTIFICATION, OR COMMUNITY INVOLVEMENT:

While the site is not open to the general public, the degraded nature of the site and monoculture of invasive species did not provide a good aesthetic nor did it function well for the environment. The removal of the invasive species and replacement of a diverse planting community is a dramatic improvement to site aesthetics and function. The project seeded

over 100 lbs of diverse native seeds containing more than 20 different wetland and riparian species. Containerized shrubs and trees, along with over 3,000 live stakes, were also installed in the area. These plantings will develop into a woody riparian component important for shading and many bird species. Several hundred herbaceous plugs were installed into the numerous inundated wetlands to start this native community. A volunteer effort was also held to harvest local species from the Ottawa National Wildlife Refuge and then installed into the inundated wetlands.

3.c. 2. INDEPENDENT INVOLVEMENT AND EFFORT BY THE PORT:

The Toledo-Lucas County Port Authority in partnership with the Ohio Department of Natural Resources developed a request for qualifications (RFQ) for consultant and contracting services to fully implement the project under a design/build approach. The RFQ included the goals and objectives of the project and specifically how the project design would improve Lake Erie water quality by processing nutrients and removing sediment from Duck Creek before reaching Lake Erie. The RFQ included a detailed description of work to be performed, schedule of tasks, timeline with project milestones, cost estimates by task, and deliverables. The Port Authority led the competitive procurement activities and directed a large team that included Midwest Terminals, Cleveland Cliffs, the Ohio Department of Natural Resources, and EnviroScience, the environmental engineering and design firm and its team members: RiverReach Construction and Geo. Gradel. The Port Authority then provided administrative and fiscal oversight of the project, conducted multiple site visits, and met with the project team every two weeks to discuss progress. The Port Authority also worked with Cleveland Cliffs and the project team to

promote the project in the community through newspaper articles in the Toledo Blade and to organize a ribbon cutting with the Director of the Ohio Department of Natural Resources.

3.c.3. CREATIVITY OF SOLUTION OR PROGRAMS:

Natural channel design and ecological restoration are creative alternatives to traditional maintenance activities. When streams are channelized, the intent is to address large flow events and drain surrounding landscape for development or use. The Toledo-Lucas County Port Authority and Cleveland Cliffs recognized this reach of Duck Creek was both non-functional for industrial use and that re-ditching Duck Creek would only result in a channel shape that is not effective/functional for 99% of the flow regime, thus advocated and planned for this beneficial change. The restored channel was sized appropriately in relation to the watershed size and was designed to be efficient at moving both water and sediment creating a more sustainable system. An appropriately sized channel also allows storm flows to overbank and utilized the wide floodplain to both deposit silt and detain stormwater.

3.c.4. APPARENT PROJECT RESULTS:

Almost immediately, wildlife began re-populating the restored area. Observations of bowfin, northern pike and sunfish species were documented in the area. Numerous shorebirds, herons, and egrets were observed utilizing the wetland habitats. As the project matures, the habitat quality will improve and provide a better environment for wildlife.

Estimates of wetland function with respect to nutrient removal/uptake were forecasted based on pre-project water quality samples. Estimates of wetland uptake were based on

inundation model iterations to evaluate the acres of water in contact with wetland vegetation. This analysis suggested that the wetland will have a 58% increase in nutrient uptake/processing in comparison to the existing condition.

3.c.5. COST EFFECTIVENESS OF THE PROGRAM:

Utilizing the design/build approach, the project team was able to deliver the completed design and construction within the budget funded through the H2Ohio program. This was a great accomplishment given that the team encountered unexpected site conditions including 1) adjustments of the design to optimize water flow both under normal conditionals and during seiche events when Lake Erie water levels rise and flow up the creek , 2) removal of beaver dams inhibiting flow of the creek, 3) modifying design around an active natural gas line, and 4) encountering some legacy contamination within the footprint of the project that was removed, relocated, and capped with two feet of material per Ohio's Voluntary Action Plan standards for the site. Additionally, the project team was able to identify and re-use some material that a contractor had left over from another project on this site saving the cost of procuring the material elsewhere.

3.c.6. TRANSFERABILITY OF IDEA TO PORT INDUSTRY:

Natural channel design and ecological restoration is a highly applicable technique to many Port properties to reverse the traditional methods and techniques used to manage water and drainage. However, this approach requires a fundamental shift in management thought process to embrace natural functioning systems. Traditional management relies on repeated disturbance to construct or engineer a condition that is non-natural and will perpetually revert

to a nature state. This constant and long-term maintenance requires both time and money that could be directed elsewhere. Embracing the natural systems and prioritizing its function and well-being will create more resilient areas which are capable of preventing invasive species, erosion, climate change, sedimentation and water management. Nature is very resilient and can function even in small spaces… if allowed. It is hopeful this project will inspire a shift in management considerations even some of the most industrial brownfield properties surrounding America's Ports.

Members of the project team including Cleveland Cliffs, Ohio Department of Natural Resources, RiverReach, Geo Gradel, and the Toledo-Lucas County Port Authority during a site visit.

Help Us Bring Native Plants Back to Duck Creek!

Ohio Department of Natural Resources and Toledo-Lucas County Port Authority along with project partners Cleveland Cliffs, EnviroScience Inc., RiverReach Construction and Geo. Gradel Co. need your help to reestablish native plants along Duck Creek in Toledo.

Project is funded by H2Ohio to restore over 2,000 ft of Duck Creek and over 10 acres of wetlands. Project construction is almost complete and re-establishing the native plants will help to make sure this area provides a healthy and diverse habitat for natural wildlife, in addition to reducing the nutrients that feed harmful algae blooms in Lake Erie.

This volunteer effort will be led by EnviroScience biologists that will be on hand to instruct volunteers in plant identification and proper plant harvesting and planting techniques of these important native Ohio plants. This is a great opportunity for people interested in learning from an expert about native Northwest Ohio plants and Duck Creek's unique wetland biology.

We are looking for volunteers to join us on Thursday, May 4th from 9:00 AM to 12:00 PM to help first harvest plants at the Ottawa National Wildlife Refuge. The following day on Friday, May 5th plants will be installed. There are two different events where we are looking for 15-20 volunteers each. This work will occur in wetlands and volunteers will be in remote areas, in water and using hand tools.

Registration and FAQs about the Events

Why should you volunteer?

- **You will have the chance to learn from an expert about plants native to Northwest Ohio and the important watershed of Duck Creek.**
- **You will make a positive impact on the environment and our community.**
- **You will meet new people and work together towards a common goal.**

What to bring:

- **Wear comfortable clothing that you don't mind getting dirty.**
- **Boots, waders and/or closed-toe shoes that can get muddy and wet.**
- **Sunscreen and a hat.**
- **Gloves and a reusable water bottle.**
- **Small hand saw if available.**

EnviroScience will also provide some waders and hand tools to assist in the effort but if available to the volunteer please bring.

Registration is requested. Please contact us at 330-347-7795 pquent@enviroscienceinc.com so we can have a proper head count for this event.

Thank you for your support and we hope to see you there!

Call for Volunteers to harvest plants from Ottawa National Wildlife Refuge to relocate to Duck Creek Project Site

Volunteers harvesting and relocating native plants to the project site.

One of the wetlands with the Cleveland Cliffs HBI Facility in the background.

The Project Team during a site visit.

A portion of the newly reconfigured Duck Creek with the pollinator mounds in the background.