

Abstract:

Implementing creative methods to remediate and re-inhabit the post-industrial McLouth landscape, a brownfield located at the southern end of the Detroit River. The issue of Brownfield landscapes has been brought to the forefront of our attention due to the general de-industrialization of the United States. As contamination and derelict land became a larger issue in the United States, the Environmental protection agency was established. In order to make these places viable again, remediation and clever programming become a primary concern. The thesis inquiry intends to provide creative solutions to re-inhabit our post-industrial brownfield landscapes. Looking to local history, landowner intent, community desire, and bio-remediation tactics to propose of viable future for the former McLouth steel complex. A contextual analysis of the McLouth landscape was completed to understand the landscape throughout time. Additionally, precedents of successfully remediated and now productive landscapes are influential in the proposal for the future of McLouth. As the site enters into a period of remediation, a phased approach that implements productivity, education, and bio-remediation are the means necessary to usher in the future of McLouth. As our nation continues to de-industrialize we must reimagine how our post-industrial brownfield landscapes will be re-inhabited in the future.

A
BROWNFIELD'S
FUTURE

A vision for the future of the former McLouth Steel Complex.

CONTENTS WITHIN

00

01

02

03

04

05

06

07

08

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PREFACE

1-4 Introducing *A Brownfield's Future*.

ORIENTING

5-8 Introducing *A Brownfield's Future*.

MCLOUTH LANDSCAPE OVER TIME

9-18 The McLouth landscape and its context throughout time.

MCLOUTH GOVERNANCE

19-24 People and organizations who have the power to influence the future of McLouth.

CONTAMINANTS + REMEDIATION

25-30 Categorizing the nature of contamination of McLouth and solutions for the future.

INFLUENCES ON THE FUTURE

31-44 Case studies and other influential research which has informed the proposed future of McLouth.

THE FUTURE OF MCLOUTH

45-60 A phased plan for McLouth's future.

CONCLUDING REMARKS

61-64

SOURCES + FIGURES

65-70

THESIS STATEMENT

The post-industrial landscapes of the United States are often forgotten about places. Especially those which are heavily contaminated. These lands are formally known as Brownfields. The common perception of these places is often negative. They often sit empty and derelict for many years. These characteristics perfectly describe the operating location of *A Brownfield's Future*. The thesis inquiry is rooted at a physical site known as the McLouth Steel Complex, located at the southern end of the Detroit River, in Trenton and Riverview Michigan. There are a variety of challenges which perpetuate a site's vacancy. Economic and environmental hurdles are often the most common issues. Though the challenge is immense, it is time that we overcome it to prove that productive landscapes can have a positive impact on the communities in which they reside.

The importance of brownfield redevelopment is an immense and often overlooked issue within the United States and around the world. Though this thesis recognizes one large brownfield site; the United States Environmental Protection Agency (EPA) estimates that 450,000 of these sites exist in the United States alone. Elizabeth Geltman from the University of Michigan recognizes the importance and challenges of brownfield redevelopment. As our nation continues to de-industrialize, it is vital to begin to imagine what these once productive landscapes may become (1).

The Environmental Protection Agency is the primary governing institution and resource when considering the process of brownfield

redevelopment (2). This organization can assist in the funding of remediation efforts, lead teams of remediation experts, and help ensure that harmful environmental acts will not be committed in the future. Though the EPA has positive attributes, one could argue that their commitment and level of control of the future is lacking.

The topic of remediation within the larger conversation of brownfield development is often a costly and time-consuming process. A noteworthy strategy highlighted by Kate Kennen and Niall Kirkwood, is the idea of bio-remediation. Bio-remediation is simply stated as the process of remediation using plants and other passive strategies. Bio-remediation shows promise when attempting to develop a site's future. Often, these remediation efforts can be implemented into the final design of the place. Creating a productive landscape both in terms of human activity and cleaning of the land.

A Brownfield's Future is asking the following questions about the post-industrial McLouth landscape: How can we re-inhabit our postindustrial brownfield landscapes? How can community input and landowner's intent be hybridized to create a meaningful environment for all? How can remediation and other natural cleaning efforts be implemented into the final design of a place? What does it look like to have a productive landscape which has a positive impact on the community?

Our post-industrial landscapes are often forgotten, it is time that we begin to re-inhabit them, capturing the past to imagine

1-Geltman, Elizabeth Glass., and Michigan Publishing publisher. *Recycling Land Understanding the Legal Landscape of Brown field Development*. University of Michigan Press, 2000.

2-Hollander, Justin B., et al. *Principles of Brownfield Regeneration Cleanup, Design, and Reuse of Derelict Land*. Island Press, 2010.

a more positive future. The definition of a productive landscape is changing, gone are the days of smokestacks and smog. Our productive landscapes of tomorrow will be centers for life, innovation, and lessons learned.

The working methodology has been an encyclopedic discovery of the local landscape and the variety of innovations which have taken place on the shores of the Detroit River. The current design intervention is very much concerned with tracing historic and natural paths to re-imagine the postindustrial productive landscape which used to exist at the McLouth site.

The current approach attempts to please a variety of stakeholders involved in the future of the site. One may argue that a path forward should be direct and dedicated to a sole purpose. The proposed intervention weaves together a variety of programs and thought processes. One could also say that the proposal is unrealistic given a variety of pragmatic elements.

There are limitations to the overall proposal for the site. Most notably, the current land ownership and their poor record of accomplishment to work with the communities they operate in. Additionally, the site which has been chosen for study has not gone through an entire site characterization process, simply stated: a comprehensive process of determining contaminants and their extents. Without a complete environmental assessment, the proposed interventions will rely on speculative and incomplete information.

Though the challenges for Brownfield redevelopment are immense, the future of these sites will be a constant challenge which places around the world will face. The proposal at McLouth will highlight the potential of this site. It will seek to integrate its history of productivity, community input and remediation techniques into one cohesive landscape. Unrestricted by pragmatic concerns, a vision and benchmark for the future of brownfields can and will be developed. Though these places are often forgotten about, let us begin to re-inhabit them and make them a center for life and innovation.

ORIENTING 01

WHERE AND WHAT IS MCLOUTH

A Brownfield's Future will closely follow the history and events surrounding the former McLouth Steel Site in the EPA's region five. The former McLouth steel site is located in the state of Michigan, in the southeastern county of Wayne. The site spans approximately 273-acres across two municipalities: Trenton and Riverview. The site has roughly one mile of Detroit River frontage. The river frontage, in addition to a vast rail network, and relatively easy access to major highways made it an epicenter for steel production. However, once steel production ceased, there was a new scene to behold, an obsolete and rusting hulk sending a message of dereliction and despair(1). Local officials and civic leaders of Trenton and Riverview are aware of the possibilities for reuse, though it seems they are discouraged by high costs and unfulfilled promises.

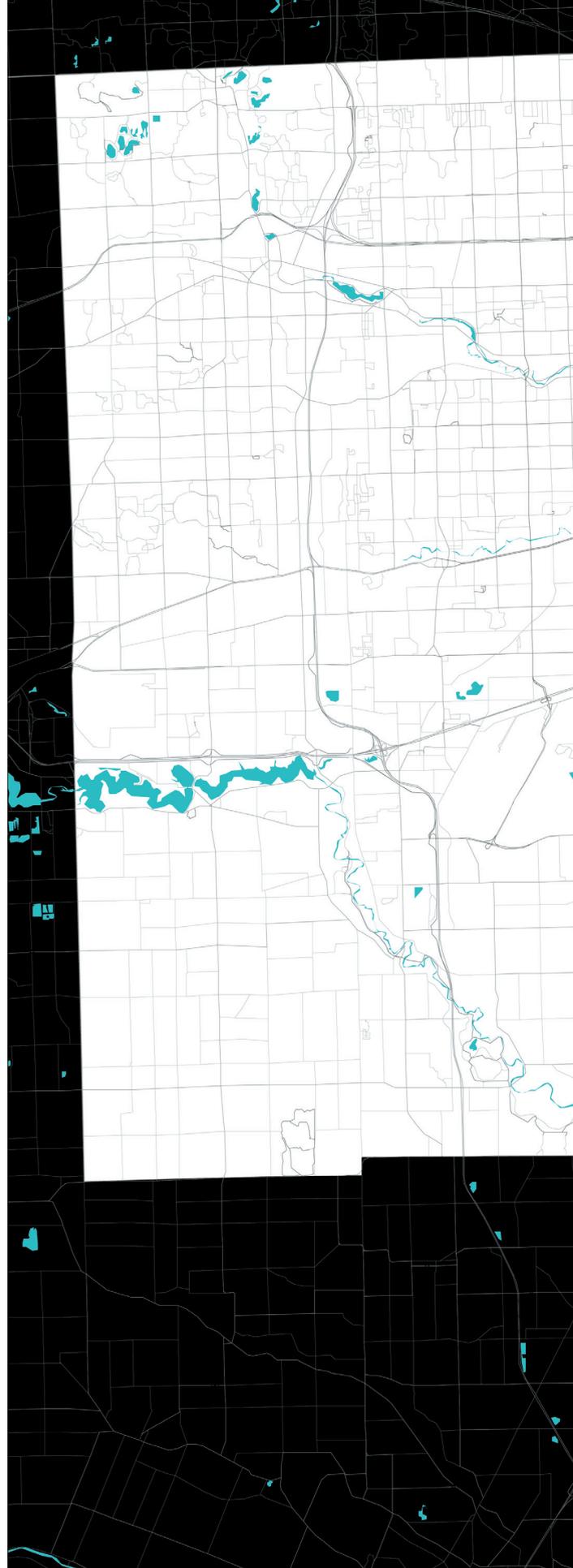




FIGURE 1.1 MCLOUTH LOCATION

INTRODUCTION

The life stages of a brownfield are often the same, regardless of the geographic location of the site. Studying the progression of McLouth has led to the realization of five major cycles within the timeline of its existence. The identified eras are as follows: pre-Industry, production and contamination, dereliction, remediation, and finally redevelopment and habitation. Analyzing each of the phases in detail has informed the development approach for the McLouth site.

PRE-INDUSTRIAL ERA

The first major life cycle identified is the pre-industrial era. Arguably, this period extends back to the initial creation of earth. However, this study looks at the land a couple of decades before McLouth inhabited the landscape. During this period, the landscape looked much different; natural elements were the dominating factor within the landscape. Photos document what the banks of the Detroit River once looked like. Trenton's riverfront had natural edges with many boathouses on its banks. Historical geological surveys inforce this narrative, the changing path of the river unfolds over time. This is the case of many waterfronts, the land becomes more valuable and is filled over time to meet the demand for production and space.

The thought of production within this landscape extends back as early as 1932. During this time it appears that levels of production were already occurring adjacent to the site at the Sibley Quarry.



FIGURE 2.1 SURVEY 1906



FIGURE 2.2 LOOKING TOWARD MCLOUTH

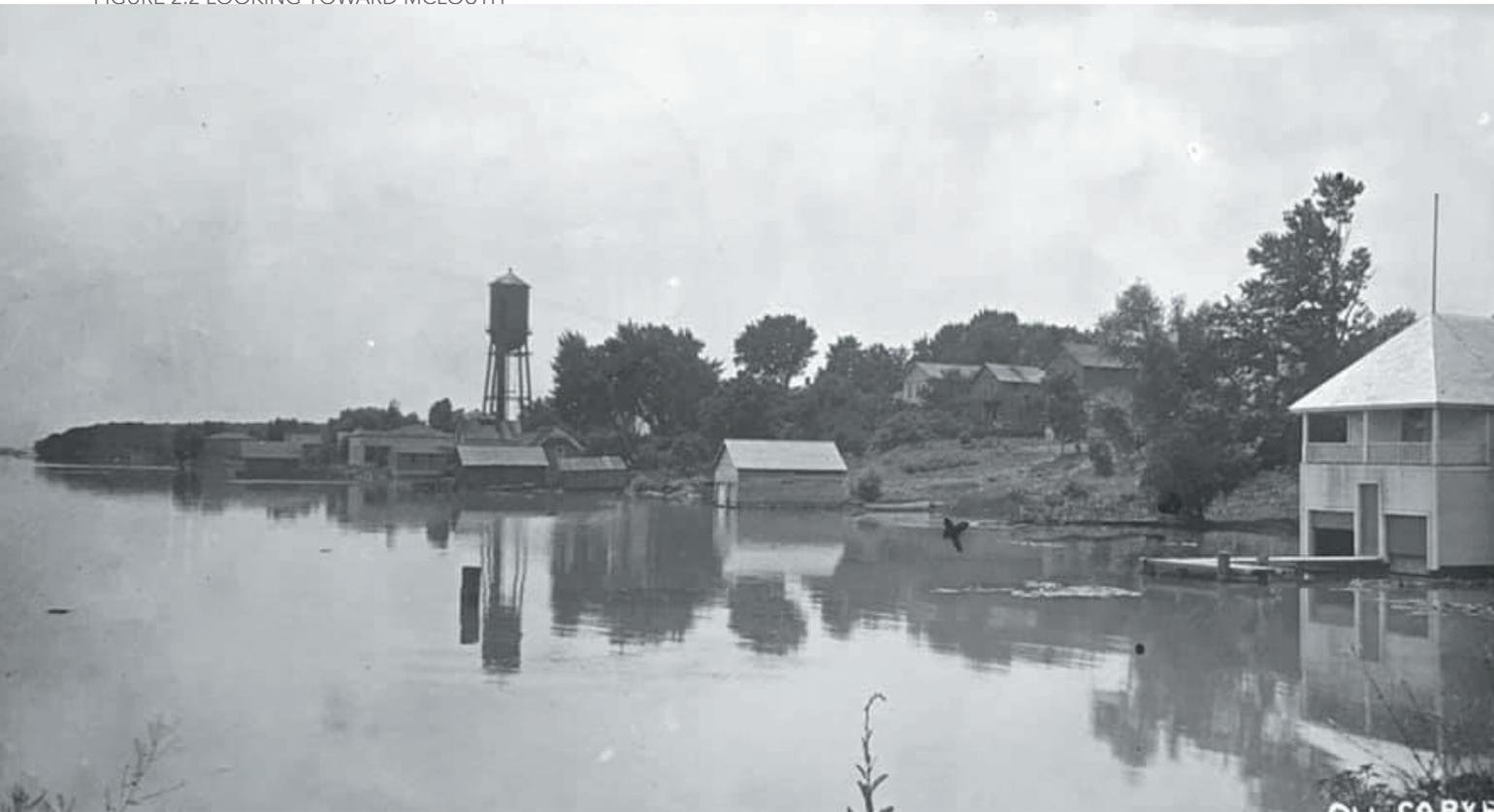


FIGURE 2.3 TRENTON'S HISTORIC WATERFRONT



FIGURE 2.4 - SIBLEY QUARRY



FIGURE 2.5 - MCLOUTH CONSTRUCTION



FIGURE 2.6 - SURVEY 1952

INDUSTRIAL ERA

The founding of many of America's brownfields was motivated by a common desire, to produce at a rate the country demanded and consumed. McLouth, like many other producers, was fastly outgrowing its facilities within the intercity. Given the dense population and other external factors, it often made sense to purchase inexpensive land outside of the city. To solve this issue, McLouth steel set its sight on Trenton Michigan, where they purchased an approximately 1-mile stretch of land in 1948, which is now the McLouth Brownfield site (1). Construction soon ensued on the new 100-million dollar expansion of McLouth in Trenton.

Though the effects of McLouth seem negative and long-lasting, its contribution to society must be acknowledged and possibly celebrated. McLouth was one of the first steel factories in the United States to become computerized(3). Additionally, at its peak, McLouth was generating more than 40% of the city of Trenton's tax base and employing nearly 3000 people (3). In contemporary American culture, industrial production often has a negative connotation. The space in and around an industrial site is perceived to be contaminated and unsafe for human habitation; that assumption in most cases is accurate. Although industrial production can have negative effects on the human population, arguably, the positive impacts of industrial production and innovation have advanced the way we live. Additionally, many former employees were proud to have worked at the steel factory, when surveyed: many cited that they had "a good paying job". Moving forward with this mindset we cannot risk adopting the "general attitude

that negative impacts could be excused" due to "the benefits of human development" (2). It is with this critical lense we move forward to a brighter McLouth future.

Innovations within the site's immediate context include advancements in steel production, a variety of shipbuilding techniques, and the outboard boat motor. Moving to the future, we must ask the question: is industrial production and innovation still vital to our way of life? Though, industrial production is often perceived negatively. An opportunity presents itself: our past industrial brownfield sites can be re-situated as centers for manufacturing innovation. Devoting the brownfields to future innovation and manufacturing paves a path forward, all the while preserving our undeveloped greenfield landscapes (Geltman). The collage pictured on the next spread summarized the industrial nature of the McLouth site, it calls to our attention the site's connection to the Detroit River in addition to other transit systems. The collage hints at a viable next step for McLouth.

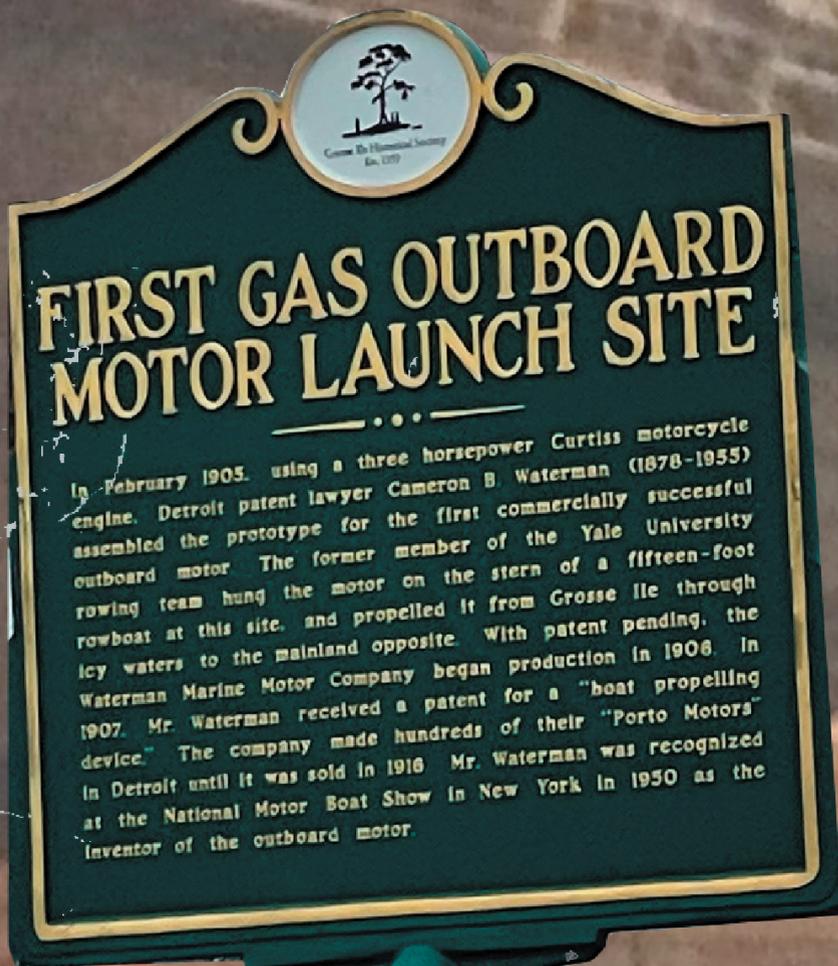
Production and advancement at McLouth can be celebrated and possibly reimplemented. One must be critical of the long-term effects of McLouth's heavy industry. Often following an exciting era of production, dereliction and despair follow.

2-"McLouth Steel Corporation Collection." Detroit Historical Society, 2018.

3-Burinskienė, Marija, et al. "Preventive Indicators for Creating Brownfields." *Sustainability* (Basel, Switzerland), vol. 7, no. 6, 2015, pp. 6706–6720.

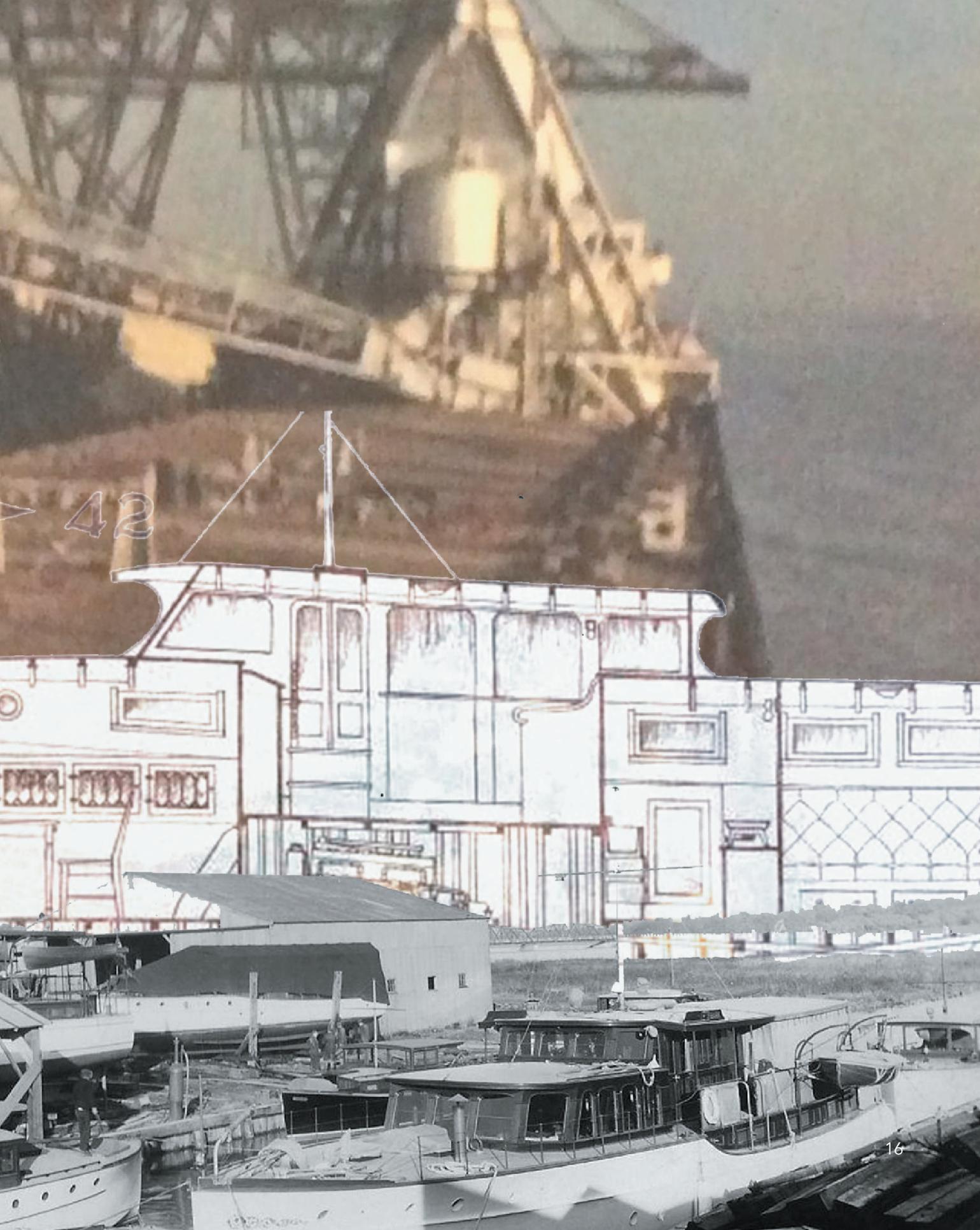
4- "Trenton McLouth Steel Plant." detroiturbex.com , detroiturbex.com/content/industry/mclouth/.

FIGURE 2.7 - MCLOUTH PRODUCTION



Liggett
CORPORATION





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8

DERELICTION + DESPAIR

The phase of Dereliction and Despair begins after production has ceased and the productive entity files for bankruptcy. McLouth filed for bankruptcy in 1995, production officially ceased in 1996 (2). The McLouth site sat empty for many years, with a few promises to redevelop it. The most promising effort to move McLouth out of a phase of dereliction and despair has been the recent efforts of the U.S. EPA and the purchase agreement signed by the Moroun family. The Moroun's purchase of McLouth has moved the site forward, though there is a concern about the trajectory of the site's future. In a typical situation, the site's future use will be determined upon remediation.



FIGURE 2.8 - DERELICT MCLOUTH

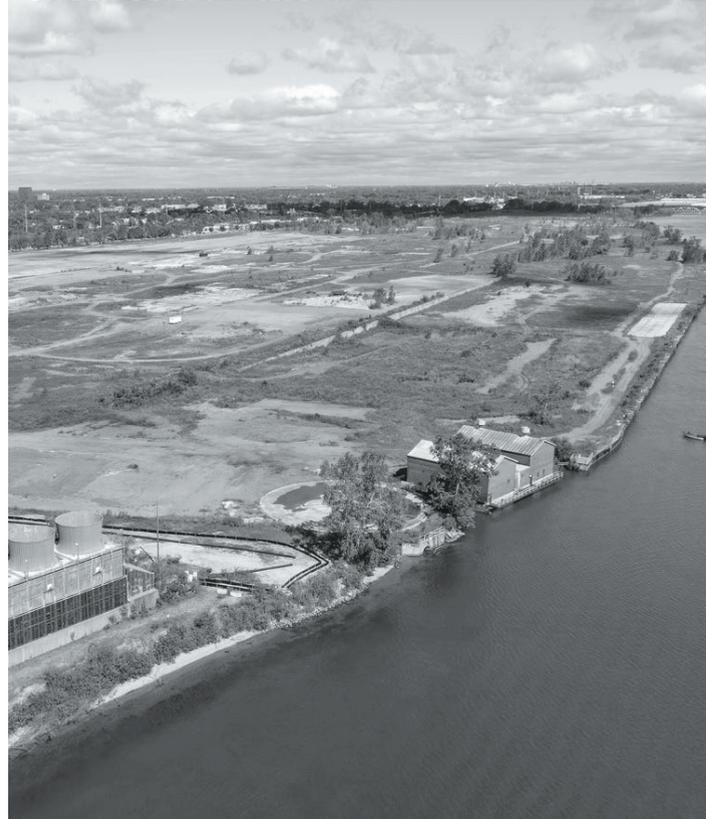


FIGURE 2.9 - MCLOUTH POST DEMO

REMEDICATION

Currently, the site is going through a formal characterization process led by the E.P.A. following the successful demolition and surface-level remediation completed by the Moroun family⁵). The completion of the remediation phase marks the beginning of the redevelopment period.

REDEVELOPMENT

The redevelopment stage of a brownfield's life is often the most exciting part of a site's history. When a site reaches redevelopment, much has been accomplished, a now remediated site shows promise to contribute to the community once more. Often, the future of a site becomes highly contested. The redevelopment of a Brownfield must be carefully considered, as local opinions and emotions are high; due to previously negative experience of the place.

Moving forward means: acknowledging the past, whether good or bad. The pre-industrial landscape tells us what the land looked like in its natural state, possibly hinting at what it may need to become. The era of production and contamination should be remembered to celebrate all that was accomplished, and to be critical of what it has done. Dereliction and despair helps to remind us of the mistakes mistakes of humanity; so that they will no be made again. Remediation and Redevelopment serve as an opportunity to innovate and create a more promising future for all.

5- "MCLOUTH Steel Corp Clean Up Activities." EPA, Environmental Protection Agency, 20 Oct. 2017, cumulis.epa.gov/supercpa/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0502434.

INTRODUCTION

Throughout a Brownfield's existence, a variety of key individuals and organizations will be involved, either in the process of its Brownfield generation or its movement toward a brighter future. It is worth noting that though large organizations and powerful people ultimately make the final decision, anyone can involve themselves in the future of McLouth and sites like it.

THE FOUNDER

A notable figure in the history of the McLouth site, is the man from whom it got its name. Henry B. McLouth founded the McLouth Steel Corporation in 1934 in the City of Detroit (6). The McLouth corporation later expanded to the City of Trenton to build on the site that is now considered a brownfield by the EPA. Though Henry McClouth can be criticized for his role in the contamination of the site, he can also be praised for his role in the employment of thousands of people across his facilities. Henry B. McLouth died in 1954 (6).

ENVIRONMENTAL AGENCIES

Most important to the future of the McLouth site is the involvement of the United States Environmental Protection Agency and the Michigan Department of Environment, Great Lakes, and Energy (Formerly known as the Michigan Department of Environmental Quality, MDEQ). The EPA, is an independent federal agency tasked with environmental protection matters (7). Michigan EGLE, is the state agency for environmental issues. While attending an E.P.A. community advisory meeting, it was explained that the E.P.A. has jurisdiction over the southern portion of the McLouth site and MDEQ has jurisdiction

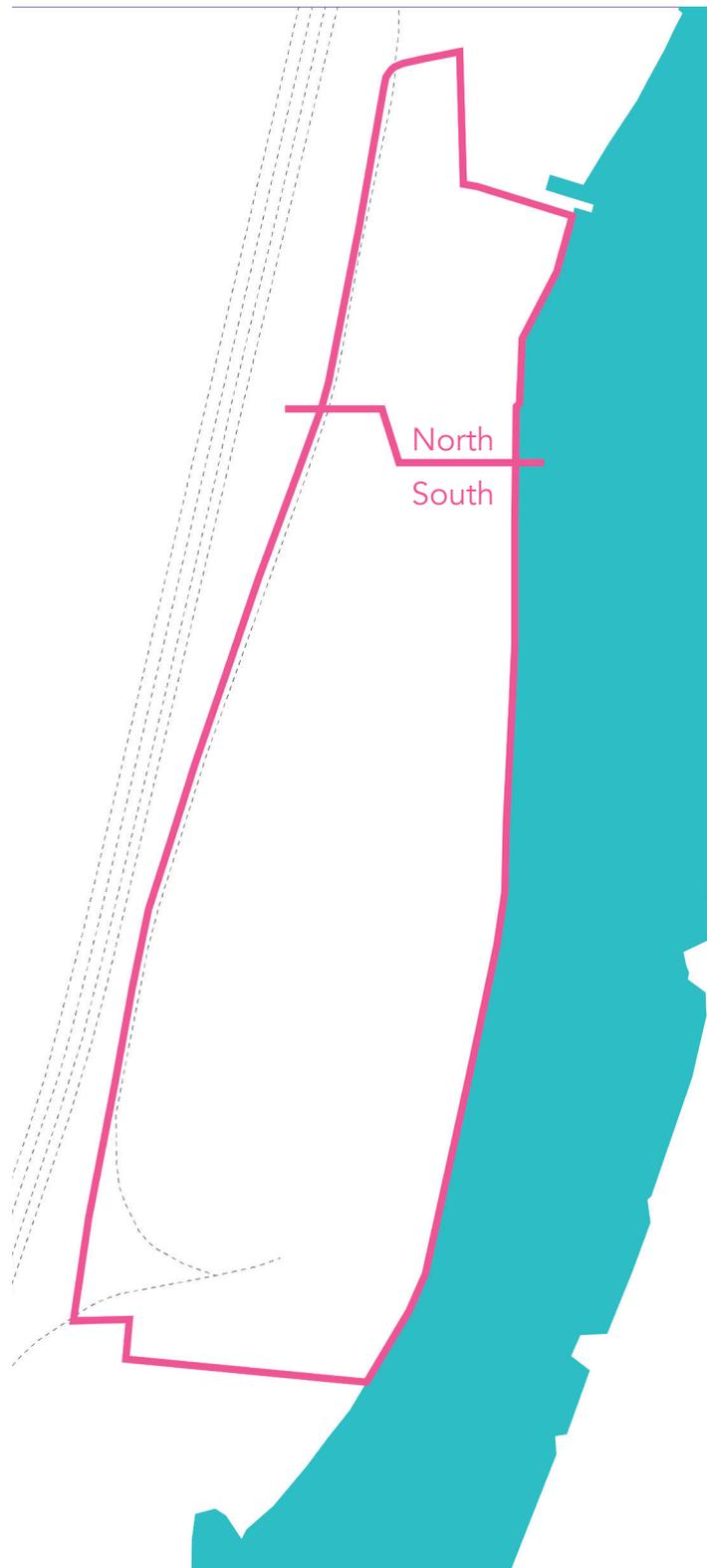


FIGURE 3.1 -NORTH SOUTH

6-"McLouth Steel Corporation Collection." Detroit Historical Society, 2018.

7-"Our Mission and What We Do." EPA, Environmental Protection Agency, www.epa.gov/aboutepa/our-mission-and-what-we-do.

8-"MCLOUTH Steel Corp Clean Up Activities." EPA, Environmental Protection Agency, 20 Oct. 2017, cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0502434.

over the north. The EPA was first involved with the McLouth site as early as 1979, when the site entered into the EPA's Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) Assessment program (10). Though, no action was taken against the site. The EPA entered the site into the EPA's RCRA program (9). The RCRA program, simply stated, is a piece of legislation which gave the EPA the power to control the handling of hazardous materials (10). The EPA was involved again in 2007, leading a series of emergency responses to remove contaminants from the McLouth site (8). In 2009 the EPA recommended the site should be entered into the EPA's superfund program. The superfund designation is given to sites that have some of the highest levels of contamination (11). Following a variety of steps, the EPA listed the site on the National Priorities List (NPL) in 2019. The EPA defines the NPL as "the list of sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the EPA in determining which sites warrant further investigation". Following this designation the EPA began a series of heavy handed remediation efforts with the site's current ownership in 2020 (8). Simultaneous to federal efforts, Michigan's EGLE has been working on remediation on the northern portion of the site for many years.

LAND OWNER

The Northern and Southern portions of McLouth are collectively owned by the Moroun family. The Moroun's MSC land company holds title to the southern portion of the site, which they claimed in 2018 (9). Additionally, the Morouns hold title to the northern portion of the site under the Trenton-Riverview Railroad company, a Moroun family subsidiary (8). They have held title to the northern portion of the site since the year 2000 (8). In partnership with the EPA, the Moroun family has committed over 20 million dollars to clean up the southern portion of the site (12). The agreement stated that a variety of efforts would need to be made over the next six years in an effort to clean up the site. Surprisingly, the EPA and the Moroun family have successfully completed items outlined in the agreement, some of which include: implementing strategies to prevent rain water run-off, removal of 45 structures, and the further investigation of contaminants on site (8). Though the efforts of the Moroun family and the EPA are admirable, there are considerable concerns from the community about the current ownership and their vision for the site's future. Addressing the future use of the McLouth site has been a top priority of community members and local governments.

9- "McLouth Milestone Graphic." Epa.gov, Environmental Protection Agency, semspub.epa.gov/work/05/955601.pdf.

10- "Resource Conservation and Recovery Act (RCRA) Overview." EPA, Environmental Protection Agency, www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-overview.

11- "What Is Superfund?" EPA, Environmental Protection Agency, www.epa.gov/superfund.

LOCAL RESIDENTS + GOVERNMENT

The efforts of local governments and community activists should not go unnoticed. A notable effort by the community has been: to stop industrial rezoning of the site. A series of protests and community organizations actively informed a new zoning policy for the city of Trenton, and the McLouth site in particular. Considering the outrage from the community, the city of Trenton has rezoned the McLouth site as a waterfront revitalization district (13). The designation could allow industrial use on the site once more. However, there are now greater restrictions. For instance, any proposed use on the site has to go through a feasibility study. Though a step in the right direction, the community's desire of a mixed use zoning has not been achieved. A group of community activists are still advocating and asking questions to ensure that McLouth is restored for the best possible use(14). Community members are also encouraged to attend Community Advisory Group meetings Facilitated by the EPA. During these sessions, members of the community can ask a variety questions about the site and its progress.

Throughout a site's history, a variety of negative and positive stakeholders will affect the site and its future use. It is imperative to understand the cycles through which a piece of land, like McLouth, has gone through. Understanding a site's deep and complicated history will inform a carefully thought out future.

- 12-Hicks, Mark. "\$20 Million Cleanup Wraps at Former McLouth Steel Site." The Detroit News, <https://www.detroitnews.com/story/news/local/wayne-county/2021/11/23/20-million-cleanup-done-for-mer-mclouth-steelsite/8744653002/>.
- 13-Newspapers, Times-Herald. "Trenton Approves Zoning Ordinance for New Waterfront Revitalization District." TimesHerald and Sunday Times Newspapers, 18 Dec. 2020, <https://www.downriversundaytimes.com/2020/12/18/trenton-ap-proves-zoning-ordinance-for-new-waterfront-revitalization-district/>.
- 14-Spruill, Larry. "Protesters Gather at Trenton City Hall to Reject Mclouth Steel Zoning Changes." WDIV, WDIV ClickOnDetroit, 2 Aug. 2020, <https://www.clickondetroit.com/news/local/2020/08/02/protesters-gather-at-trenton-city-hall-to-reject-mclouth-steel-zoning-changes/>.



NO NO
INDUSTRIAL INDUSTRIAL
WATERFRONT WATERFRONT

CONTAMINANTS OF MCLOUTH

There are variety of contaminates present at the McLouth site. Currently, there is no thorough understanding of the nature of the contaminants of McLouth. However, reports from other clean-up activities performed by the E.P.A. suggest the presence of arsenic, chromium, cadmium and lead (15). These elements of contamination help provide answers to the interventions of the future. The known contaminants on-site can be phyto-extracted using things such as switch grass, milk weed, and poplar trees. This palette of plants become influential for the proposed landscape interventions.

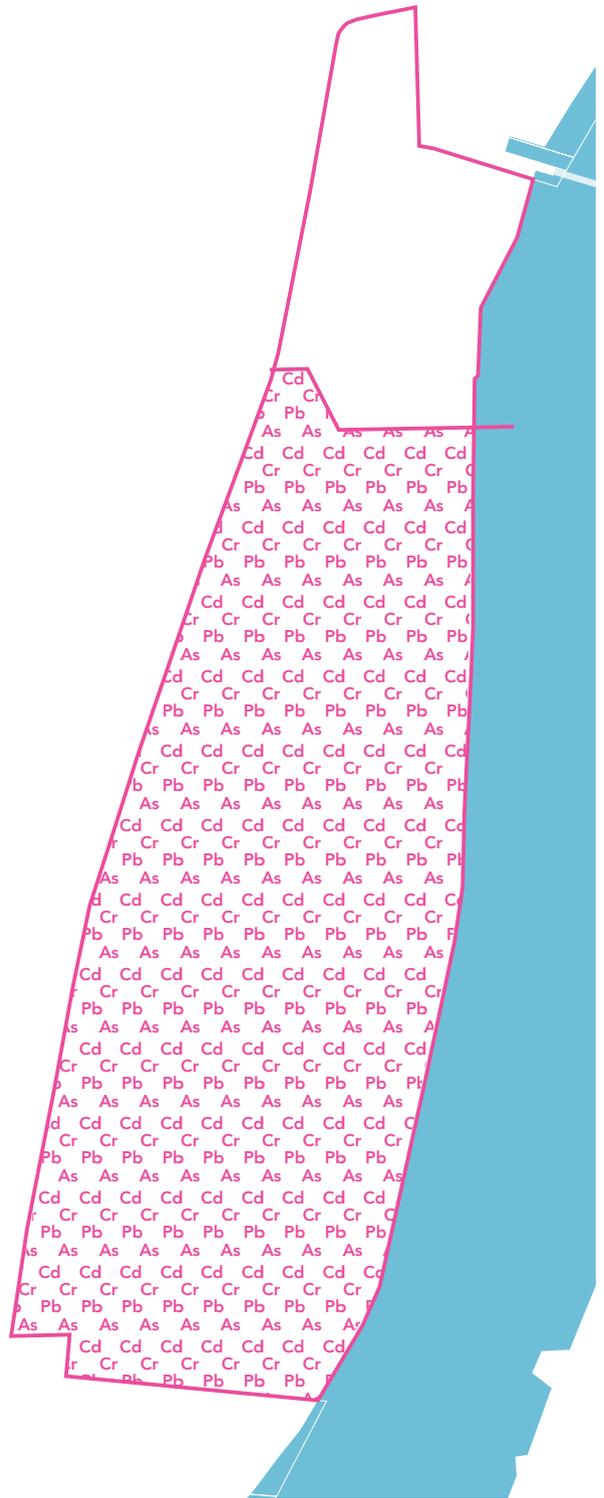


FIGURE 4.1 -CONTAMINATION HYPOTHESIS

15-Kelly, Brian. "Enforcement Action Memorandum - Determination of Threat to Public Health and the Environment at the McLouth Steel Facility- Southern Section, 1491 Jefferson Avenue, Trenton, Michigan 48183." UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, 5 June 2018.

As arsenic



FIGURE 4.2

Cd cadmium



FIGURE 4.3

Cr chromium



FIGURE 4.4

Pb lead



FIGURE 4.5

REMEDIATION

The remediation stage is possibly the most vital phase of a brownfield's existence, as it will move the site from a state of despair into one of hope. There are many things to consider when remediating a site. In recent years a variety of efforts have been made by the E.P.A to begin remediating the site.

The remediation stage is possibly the most important phase of a Brownfield's life, as it will move the site from a state of despair into one of hope. There are many things to consider when remediating a site.

The first major step of proper remediation is site characterization. The site characterization process is led by an EPA project manager, the project manager's are deployed from a variety of locations. McLouth is located within the EPA's region five, the field office for region five is located in Chicago, IL. Once an EPA project manager is assigned to a site, the begin the process of Characterization in partnership with a selected contractor. The goal of the site characterization process is: " to gather accurate, detailed, and comprehensive information about a contaminated site so that all safety, cleanup, and transfer measures can be tailored specifically to the present threats" (17). Beyond determining the scope of the hazard and its best remediation option, through this process, the EPA is attempting to derive a solution which reduces cost, accelerates redevelopment and improves decision certainty (18).

Following site Characterization, a remediation strategy may be selected. Often, there are two different types of remediation strategies that can be used. Traditional approaches for remediation are

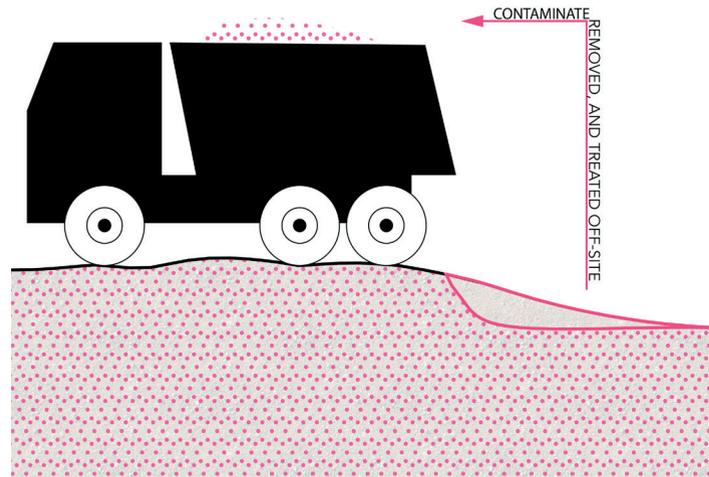


FIGURE 4.6 -TYPICAL REMEDIATION

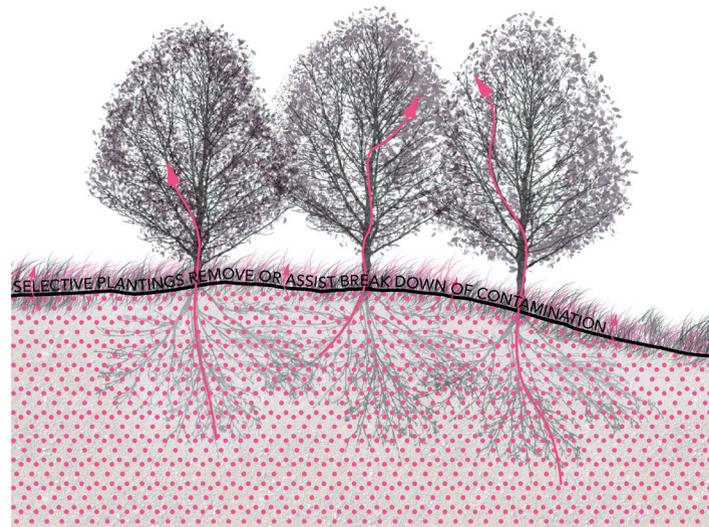


FIGURE 4.7 -PHYTO-REMEDICATION

16-Kennen, Kate, and Niall Kirkwood. "Phytotechnology and the Contemporary Environment: an Overview." *Phyto: Principles and Resources for Site Remediation and Landscape Design*, Routledge, New York, NY, 2015.

17-"Hazardous Waste Site Characterization." NET OSHA HAZWOPER Online Training Courses and Certifications, <https://www.natlenvtrainers.com/blog/article/hazardous-waste-site-characterization>.

often expensive and limit possible design intervention in the remediation process (15). An example of traditional remediation methods is to dig and haul the contaminant. The dig and haul approach requires the use of heavy machinery to remove the contaminant from the site, the contaminant is then transported away to either be treated or stored. There are inherent dangers to this approach, as the contaminant can effectively be erased from the site's history, burdening other populations or landscapes instead (16).

Phyto-Remediation is a viable alternative, the collection of phyto based strategies can be referred to as phytotechnology. Phytotechnology "is the use of vegetation to remediate, contain or prevent contaminants in soils, sediments and groundwater, and/or add nutrients, porosity and organic matter" (16). Phytotechnology could be the future to solving contamination around the world (16). The implementation of such strategies often means a more cost effective approach to remediation. Additionally, this approach can be seamlessly integrated in the newly designed landscape. Instead of erasing the contaminant, phytotechnologies can celebrate the process of natural restoration practices. A principal which was directly integrated into the future proposal for McLouth.

Though phytotechnologies show promise, limitations exist. Most notably, is the limitation by contaminant type and the extent of contamination. In current research and implementation, these technologies are often limited to sites with shallow contamination. In addition, plants can only

break down certain types of contaminants. Contaminants can be categorized as: organic or inorganic. Organic contaminants are compounds created by man, plants can break these down into smaller, less toxic pieces. Whereas, inorganic contaminants are elements which cannot be broken down by plants (16).

The Remediation process ultimately determines how the site will be used in the future. Ironically, the EPA determines their intended level of remediation by the intended use of the site. Once remediation is complete, the site will be bound by the level of remediation which was determined in the site characterization process. The McLouth's promising future begins with the integration of both: development and remediation into a cohesive process.

18-"Characterization and Monitoring Technologies for Cleaning Up Contaminated Sites." EPA, Environmental Protection Agency, www.epa.gov/remedytech/characterization-and-monitoring-technologies-cleaning-contaminated-sites.

INTRODUCTION

A variety of things have come to influence the proposed future for the McLouthsite. The following precedents and research activities provided direction on how to program and prepare the site for its future uses.

LANDSCHAFTSPARK DUISBURG NORD

Landschaftspark Duisburg Nord is located on the grounds of a former steel factory in Germany. The formerly contaminated landscape has been redeveloped into a park for people to enjoy. The park brings to our attention the trend of developed countries' deindustrialization (19).

Given the cost of remediation and demolition, many of the structures were to remain standing (19). These rusting structures have become monuments to the site's productive past and create an intriguing environment to inhabit.

Possibly more intriguing than the design is the operational organization surrounding the park. Different portions of the landscape have been leased to local businesses. For instance, a local diving club has rented out a formerly flooded gasometer (19). The innovative passive funding mechanisms will inform the proposal for McLouth's future.



FIGURE 5.1 GASOMETER



FIGURE 5.2 DUISBURG NORD EVENT

19-"Landschaftspark Duisburg-Nord." Great City Parks, by Alan Tate, Spon Press, New York, 2001, pp. 114-122.

FRESH KILLS PARK

Fresh kills is a former landfill located on Staten Island in New York. The park was designed by Field Operations. The park once complete will be the largest park development within the city in over a century (20). The plans put forth by Field Operations are a series of phases that will transform the space from New York's once largest landfill into a space that can be safe for the residents of New York. A variety of goals were set for the park some of which include: organizing and staging park programming around existing natural resources and site features, identifying unique opportunities to generate revenue to sustain the park, and restoring natural habitats that may have been affected by the land-fill operations(21).

The aspirations and challenges very closely relate to the challenges at McLouth. The approach of McLouth's plan, in many ways, mimics the desire outlined in the Fresh Kills master plan.



FIGURE 5.3 - FRESH KILLS PARK PLAN

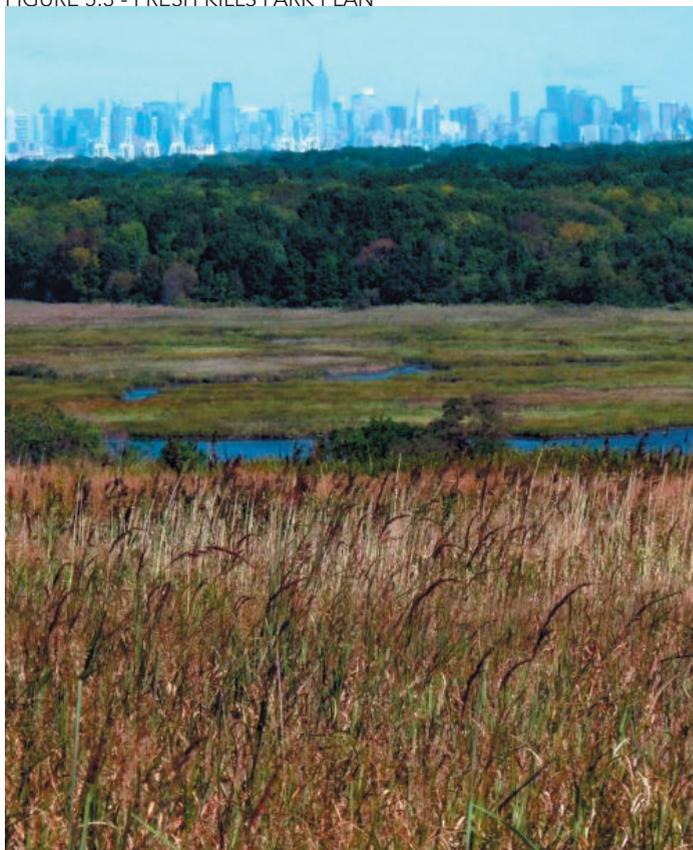


FIGURE 5.4 - GROUNDED IN FRESH KILLS

20-"The Park Plan." Freshkills Park, The Freshkills Park Alliance, freshkillspark.org/the-park/the-park-plan.

21-"Fresh Kills Park: Lifescape." nyc.gov, www1.nyc.gov/assets/planning/download/pdf/plans/fkl/2_dmp.pdf.

SOLAR STRAND

Solar Strand is an interactive solar array located at the University of Buffalo. The array and its surrounding grounds were designed by Walter Hood and his team. In total, the intervention covers around 3-acres of land and generates 750kw of power each year (22). Though a primary objective of the project was concerned with generating electricity, it aimed to create an educational atmosphere which borrowed its shape from a strand of DNA. The photovoltaic array became an inhabitable and productive landscape for the public to enjoy.

There are many benefits to installing large ground solar arrays as seen in the Solar Strand project. These ground-mounted arrays are the most cost effective options when looking for renewable energy sources (23).

Though large scale arrays have many positive attributes, there are a variety of barriers to entry. Among them are concerns about site lines, disruption to natural systems, and the amount of space they demand (23). These concerns may become more irrelevant when proposing to site a mass array on contaminated Brownfield Landscapes. In the case of McLouth, over 273 acres of relatively flat land has been left unoccupied due to environmental contamination. Though initially people cannot inhabit this land, solar arrays and remediation tactics can cohabitate to reinstate the productive landscape.



FIGURE 5.5 - IN THE ARRAY

22- "Solar Strand: Asla Climate Change Exhibition." Solar Strand | ASLA Climate Change Exhibition, ASLA, climate.asla.org/SolarStrand.html.

23- Scognamiglio, Alessandra. "'Photovoltaic Landscapes': Design and Assessment. A Critical Review for a New Transdisciplinary Design Vision." *Renewable & Sustainable Energy Reviews*, vol. 55, 2016, pp. 629–661.

COMMUNITY SURVEY

When redeveloping real estate the community is often blocked from contributing to a place's future. In an attempt to change this dynamic, a community survey was launched using local Facebook groups. The survey first asked the respondent about their experience of McLouth; did they work at McLouth, did they know someone who worked there, did they live near McLouth. Depending on the respondent's selection, the survey directed them to a set of individual questions based on their experience with McLouth. Generally speaking, the questions asked the respondent about their perceptions of McLouth and what they dreamed that the place could become.

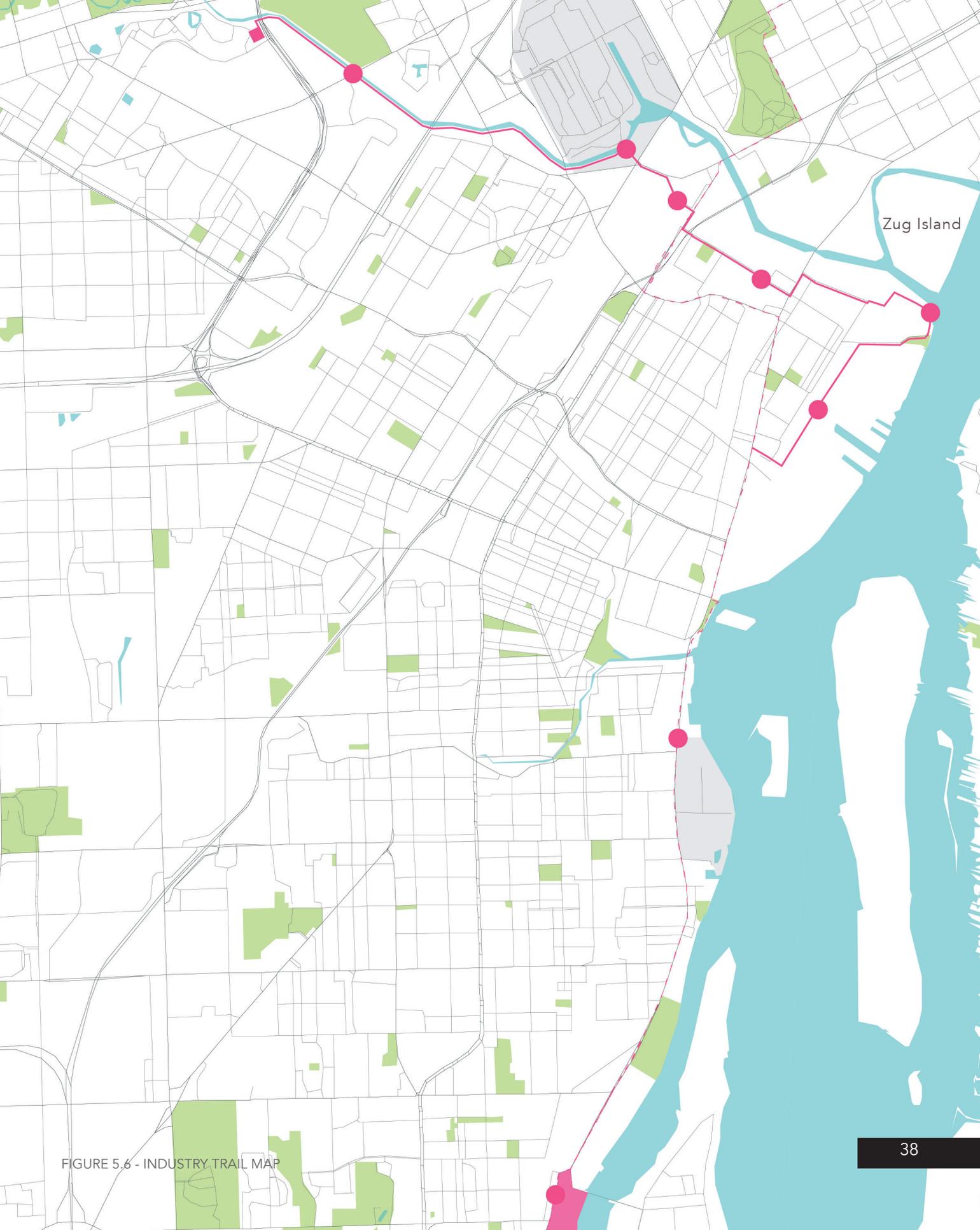
The responses were limited to eighteen individuals. Common themes and wishes became apparent. The documented perceptions of the respondents were negative, though some were happy to have a steady well paying job. Looking to the future respondents, wished to have public space and a mix of uses.

The survey directly influenced the approach for McLouth's future. The proposed development approach integrates the site's history and the wishes of the broader community.

INDUSTRY TRAIL

Industry trail is a collaboration between Casey Nurnberger and Travis Schroeder. The trail intended to celebrate the industrial innovation and production that occurs along the Rouge and Detroit Rivers. Often, these sites are not inhabited by people, unless they are working at one of the industrial powerhouses.

The trail brings people back into the industrial landscape, allowing for community enlightenment and industrial accountability. Industrial trail begins at the Henry Ford Museum (pink box) in Dearborn , MI and continues to link major industrial production centers along the Rouge and Detroit Rivers, terminating at the former McLouth steel complex in Trenton,MI. Each of the following stops along the path would be sponsored by an industry partner. The proposed origin point of the trail was strategically chosen, as the Henry Ford Museum attracts people from around the world, in addition to the organization having a vast knowledge of managing and exhibiting materials.



Zug Island

FIGURE 5.6 - INDUSTRY TRAIL MAP



FIGURE 5.7 - RIVER

River is an intervention composed by Casey Nurnberger. A large format, screen obelisk extends from the river, displaying the progression of the local landscape over time. The intended sponsor of this intervention is the U.S. Fish and Wildlife Service.

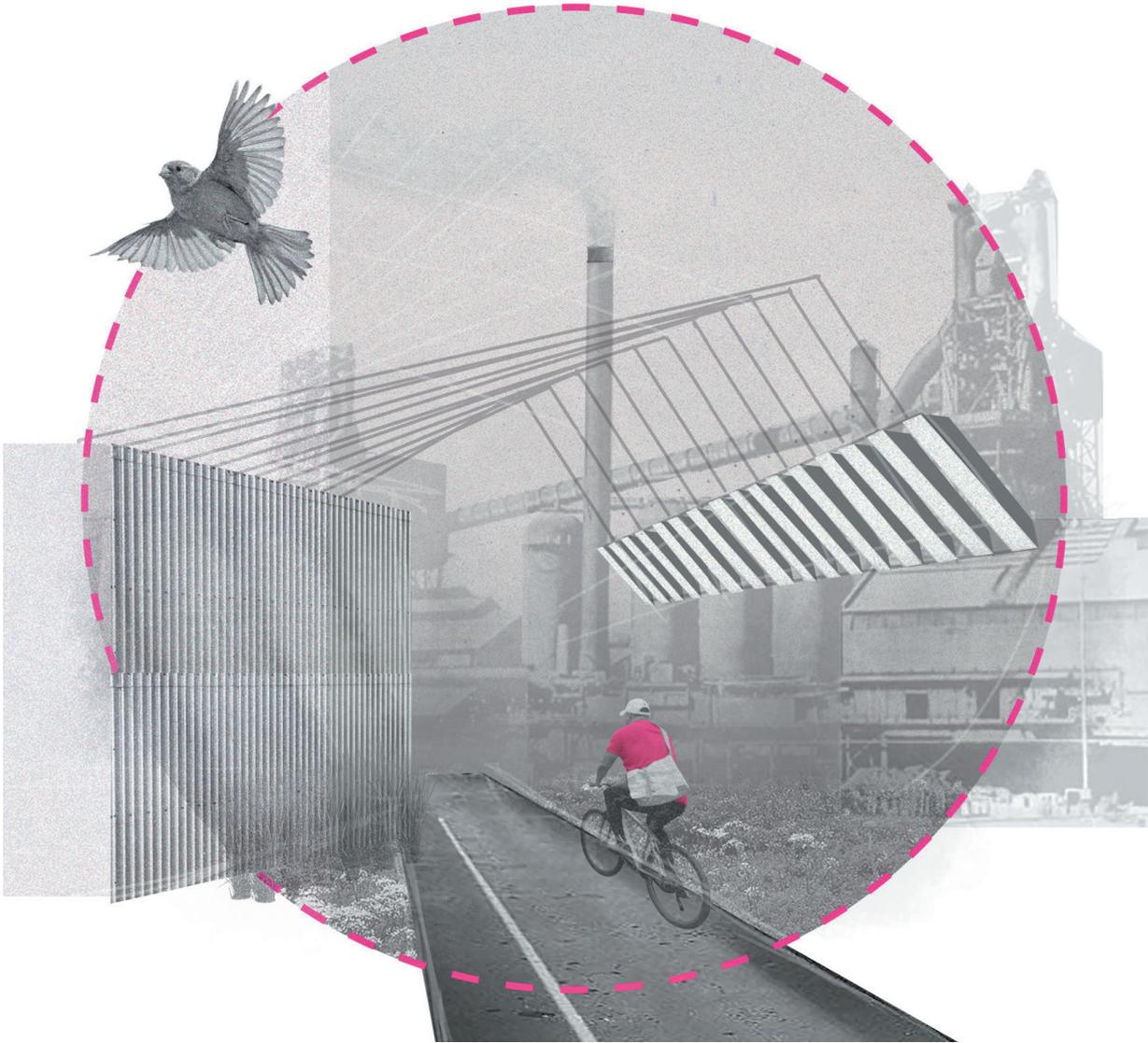


FIGURE 5.8 - AUTO

The next major stop along the Industry Trail is the auto intervention. The above intervention composed by Casey Nurnberger, intends to place the inhabitant on Ford's assembly line. Mimicking the innovative assembly lines located at the sponsoring organization's Ford Rouge plant.

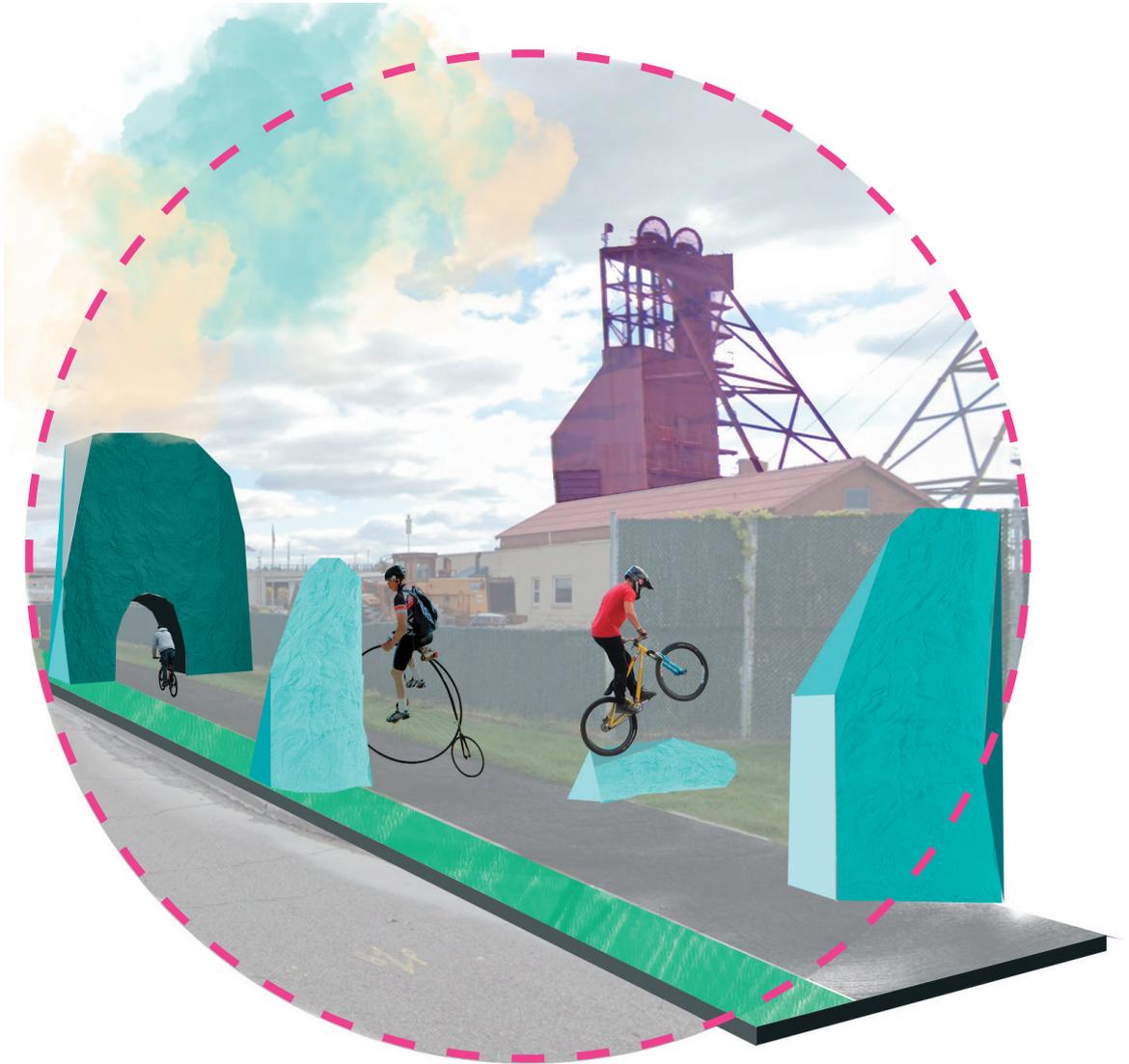


FIGURE 5.9 - SALT

Salt is an intervention sponsored by the Detroit Salt company. Inhabitants along this portion of the path experience the vertical mine shaft extending to the ground below. Enhancing the experience, adventurous individuals can scale large rock formations modeled after the salt found below the ground.

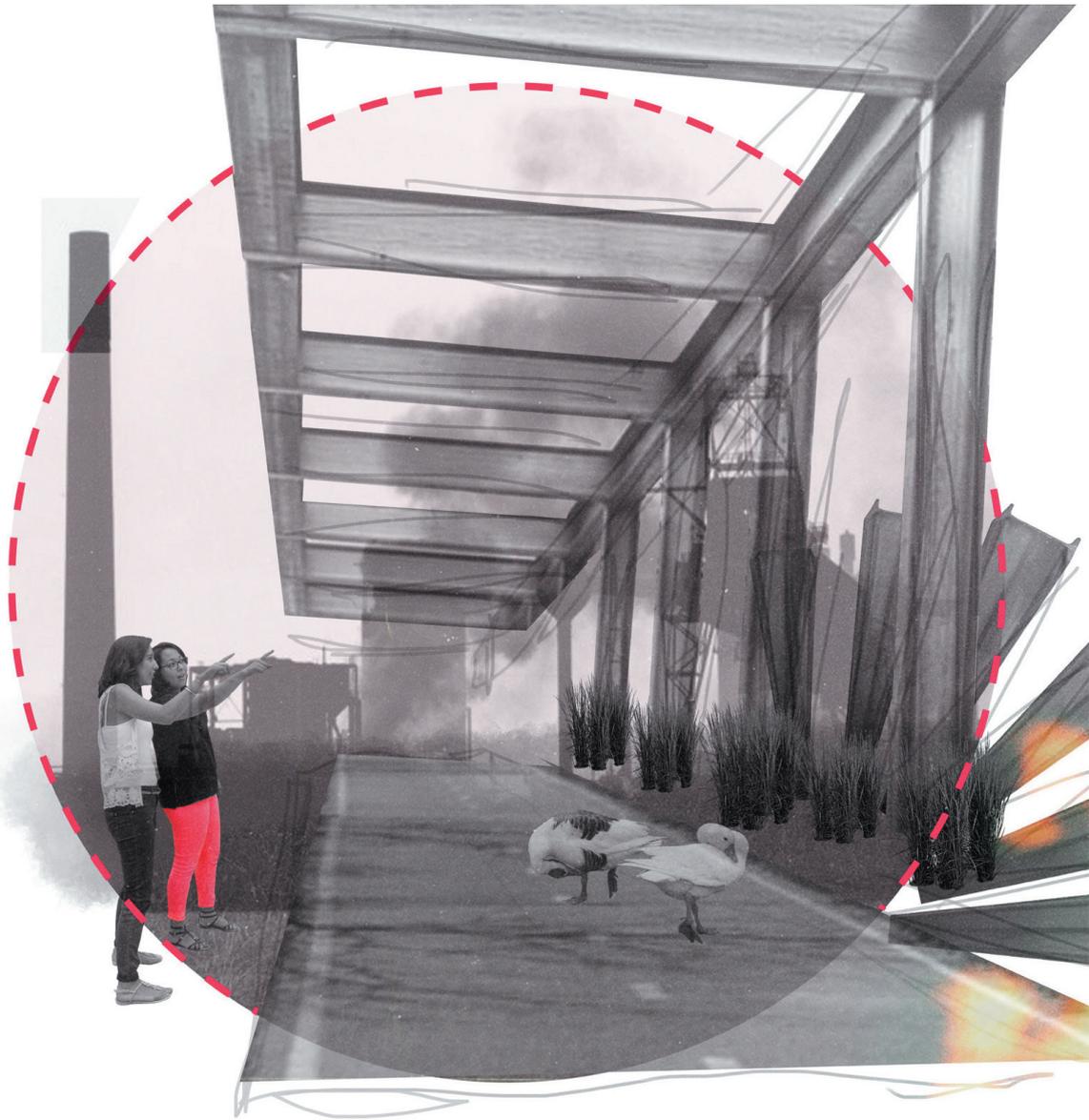


FIGURE 5.10 - STEEL

Steel is an intervention located near the sponsoring organization: U.S. Steel. The intervention composed by Casey Nurnberger displays artifacts of steel from the decommissioned Zug Island steel production facilities.



FIGURE 5.11 - NAVAL ARTIFACT

Naval innovation is sited at the former McLouth steel complex, the terminus of Industry Trail. Users along this portion of the path experience relics of decommissioned great lakes freighters. These relics pay homage to the history of naval production in the past and the future.

The Industry Trail was a collaborative exercise proposed by Casey Nurnberger and Travis Schroeder. The proposed interventions sought to create an educational path through one of Detroit's epicenters of production. The interventions are scaled appropriately to encourage human habitation of this space that is commonly off-limits. This habitation holds our industrial producers accountable for the negative impacts of their production. Though it does not solve all issues, it sheds light on what happens in the unknown.

The ideas of education and accountability brought forth in this exercise have informed the final proposal and approach that will be used at the former McLouth steel complex.

INTRODUCTION TO THE FUTURE

A brownfield's next step toward an alternative future is often difficult. The case of McLouth is no different. The Moroun family has completed a major milestone of demolishing derelict structures and taking the first steps of remediation; insinuating that the future is upon us (1). Often, developers erase a place's contaminated past, instead, it should be embraced. Though the future of McLouth is unknown, the community fears that their opinions will be disregarded and heavy contamination on the site will be reinstated.

Until this point, A brownfield future has presented the life stages of a site as separate. Though this is often true, two life stages must be integrated. Remediation and Redevelopment rely on each other for success. To create an unrestricted future for this place, these two elements should be thought of as one.

The proposed future will borrow from community desire, historic land formation, past industry, and current risks. The community survey presented common themes among the community. The first being their desire for a park and the second being their desire to move away from the industry. Instead of completely abandoning the idea of industry, the future of McLouth will need to propose a scenario where production and life can coexist.

THE APPROACH

The approach for the future of McLouth was informed by a variety of exercises and precedents covered in the previous chapter.

Ultimately, the plan is to introduce a phased approach which will be completed over the next decade. The phases aim to prioritize human habitation and interaction. There will be both long and short-term forms of habitation occurring on the site. The only way the site becomes viable is if people are willing to go to it. Additionally, if the industry is reinstated at the site, the presence of the public help keep the new industry accountable.

The following diagrams highlight the different phases and their intended accomplishments. Though this is not a comprehensive proposal for the future, it aims to make the place an inhabited and viable landscape once more.

PHASE 0

Phase 0 represents the current status of the site. Though efforts have been made to complete a surface-level remediation, the site is going through a site characterization process. Following site characterization, the site's remediation strategy will be selected. The E.P.A. estimates that the selected remediation strategy will be determined by the year 2024. Currently the site is fenced off, allowing no public interaction. The outlines indicated on the image represent the northern and southern portions of the site. The black figures on the southern end of the site are the only remaining structures in the current day.



FIGURE 6.1 - CURRENT STATE

PHASE 1

After the remediation strategy is selected, public access bands and paths will be prioritized for complete remediation and re-inhabitation. In the future, these areas will remain open to the public as easements. No future development can occur in these locations. The bands were placed according to the historic footprints of the McLouth steel site. Phase 3 will usher the era of redefined production on the site.

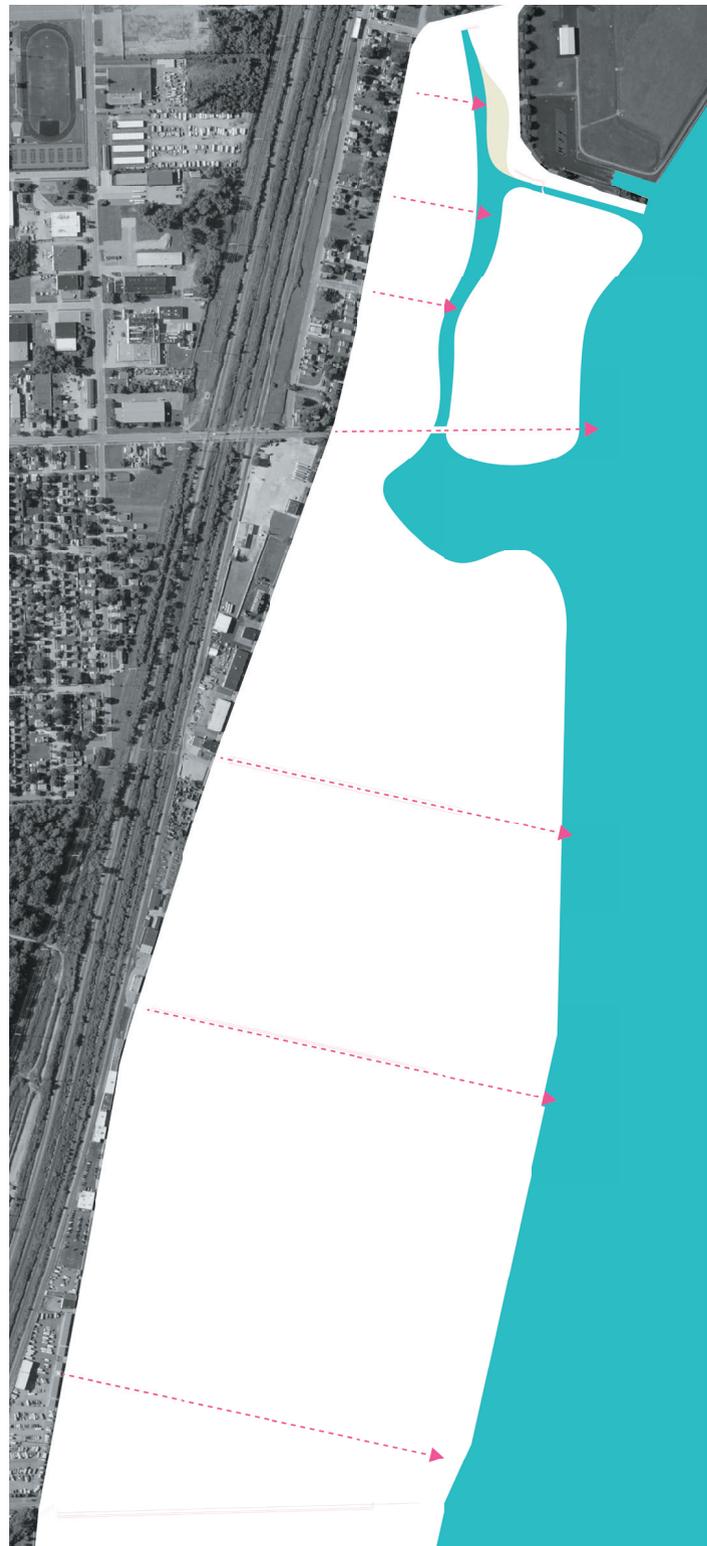


FIGURE 6.2 - PHASE 1

PHASE 2

Phase two is slated to begin as soon as the year 2026. This phase will usher in new definition of productivity. A solar remediation field will be instated in the footprints of the former steel factory. The placement of the solar panels at this juncture is symbolic, however, the solar fields could be expanded if found to be viable. Allowing solar to inhabit the landscape enables the site to be inhabited sooner with no or little remediation. While the landscape is producing power, a selection of plants will be remediating the landscape slowly over time.

The solar field's current size of 34 acres could produce as much as 11,900mwh of energy each year. Producing enough energy to power 1092 Michigan homes a year. Though this may seem minimal, the solar arrays could easily be adjusted depending on demand for the remainder of the site. Following complete remediation and return on investment, the solar panels could be relocated and new structures can be constructed.

Additionally, the dredging of a new bay will begin on the northern portion of the site. The bay will allow people to recreate in an environment safe from the aggressive currents of the Detroit River. It will also restore the historic marshlands in an attempt to combat current flooding concerns in the region.

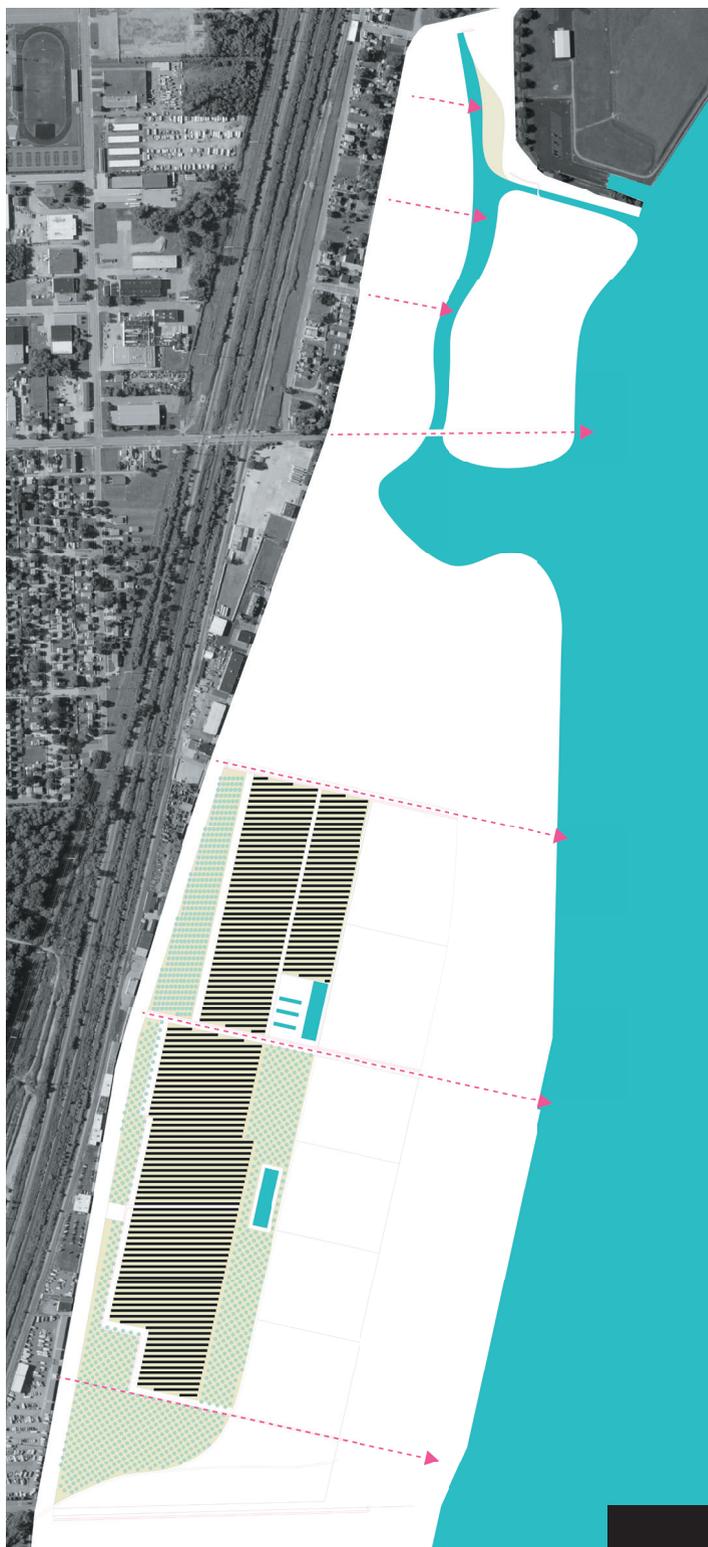


FIGURE 6.3 - PHASE 2

PHASE 3

Phase three marks the official and long-term human habitation of the site. In the year 2028 construction of the new Naval Innovation Center will begin. The academic anchor will help drive further development of the site in its entirety. The Naval Innovation Center borrows from the site's relationship to water and boating. It will contribute to the success of the region by completing research and design of naval-related interventions.

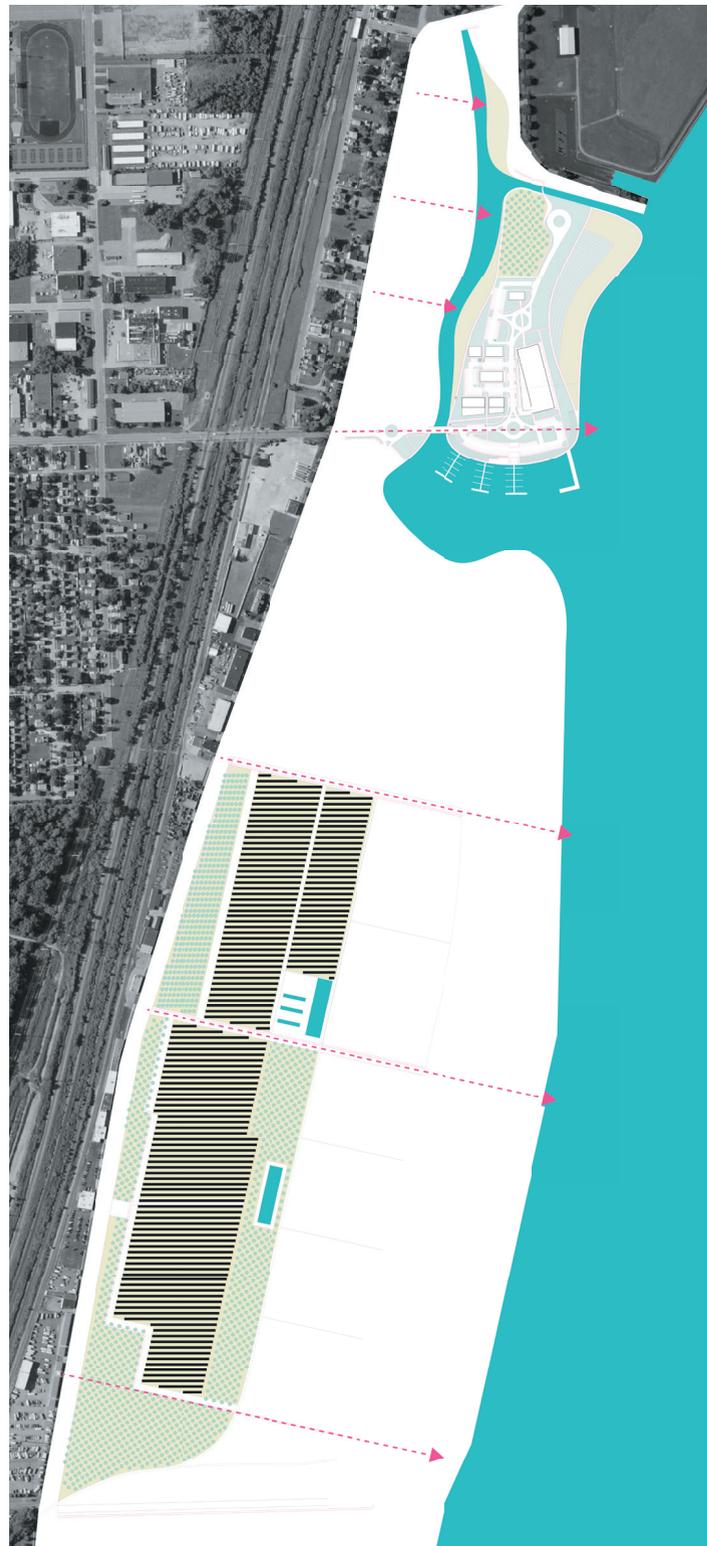


FIGURE 6.4 - PHASE 3

PHASE 4

Phase five is a collaboration between the current lands owners of Mclouth and local restaurant Sibley Gardens. The restaurant would enter into a land lease beginning in 2030. Sibley Gardens could diversify their dining environments, and educate people on the process of bio-remediation.

In addition to Sibley Gardens' expansion, a new center for naval production will be constructed on the northern portion of the site. The facility is earth-sheltered, re-using dredge material from the newly constructed bay. Sheltering the facility allows for lower energy consumption and a place to store the otherwise wasted material.

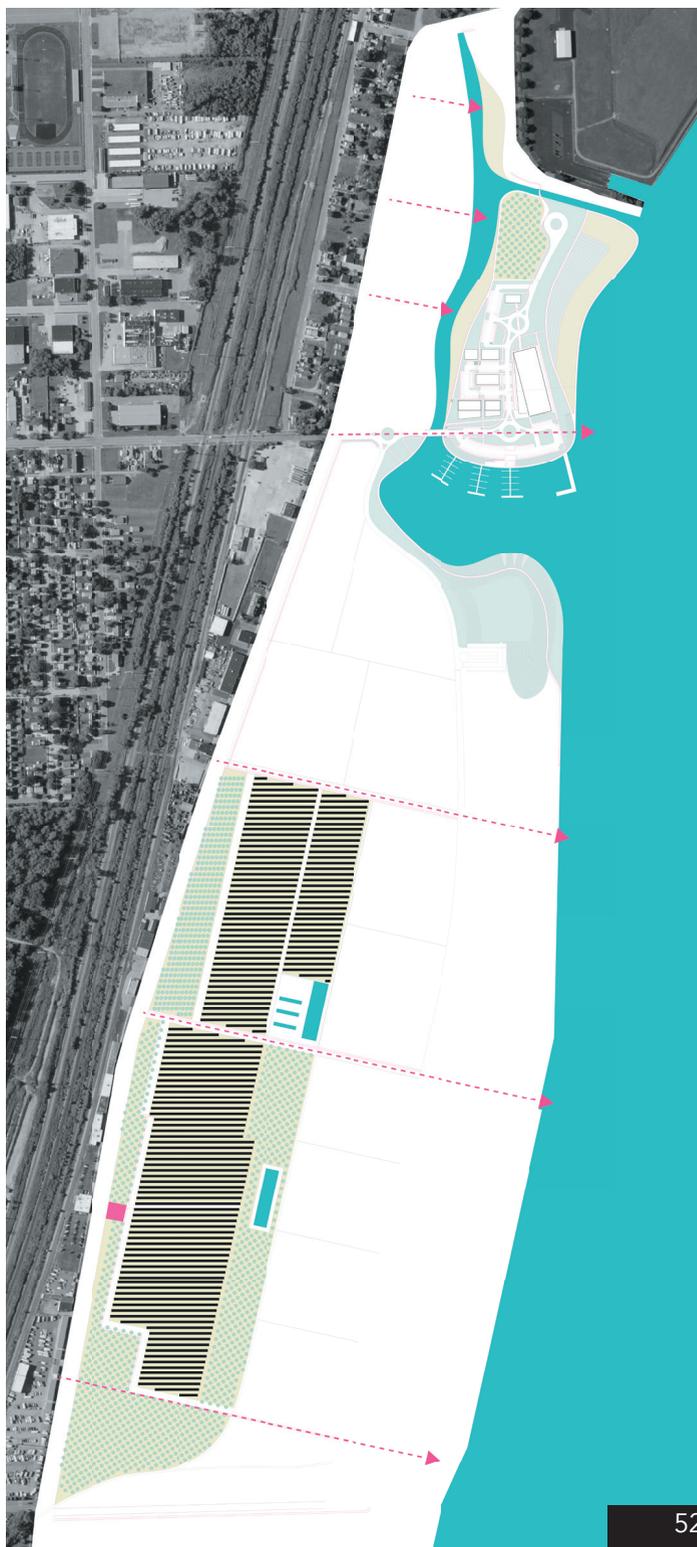


FIGURE 6.5 - PHASE 4

PHASE 5

Phase 5 begins construction in the year 2032, the goal is to restore a level of productivity to the site. An earth sheltered fulfillment center will be constructed, linking to the existing rail network and former docks of the McLouth steel factory. Although residents wish that no level of industrial use be implemented, the likelihood of the future not including industry is slim. Additionally, it is best to reinstate a level of production on former brownfields, as it will require less remediation and prevent future industrial development from going further into our undisturbed green landscapes (1).

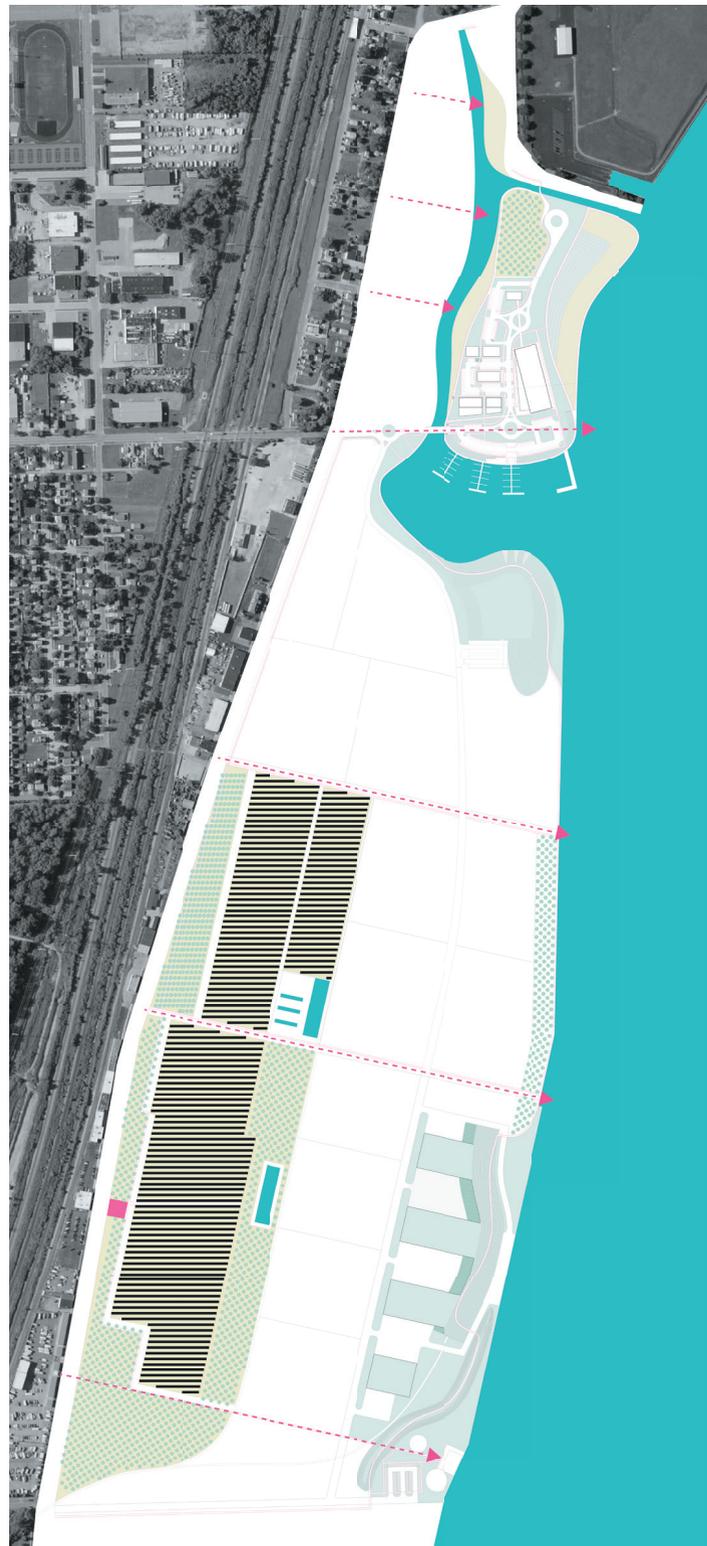


FIGURE 6.6 - PHASE 5

PHASE 6

Phase six attempts to restore long-term habitation of the site. It is anticipated that the former McLouth landscape will become a highly desirable area along the Detroit River. Having this in mind, residential development will be constructed on the northern portion of the site. The residences are strategically placed on the site, given the expected lower levels of contaminants and the existing residences directly adjacent.

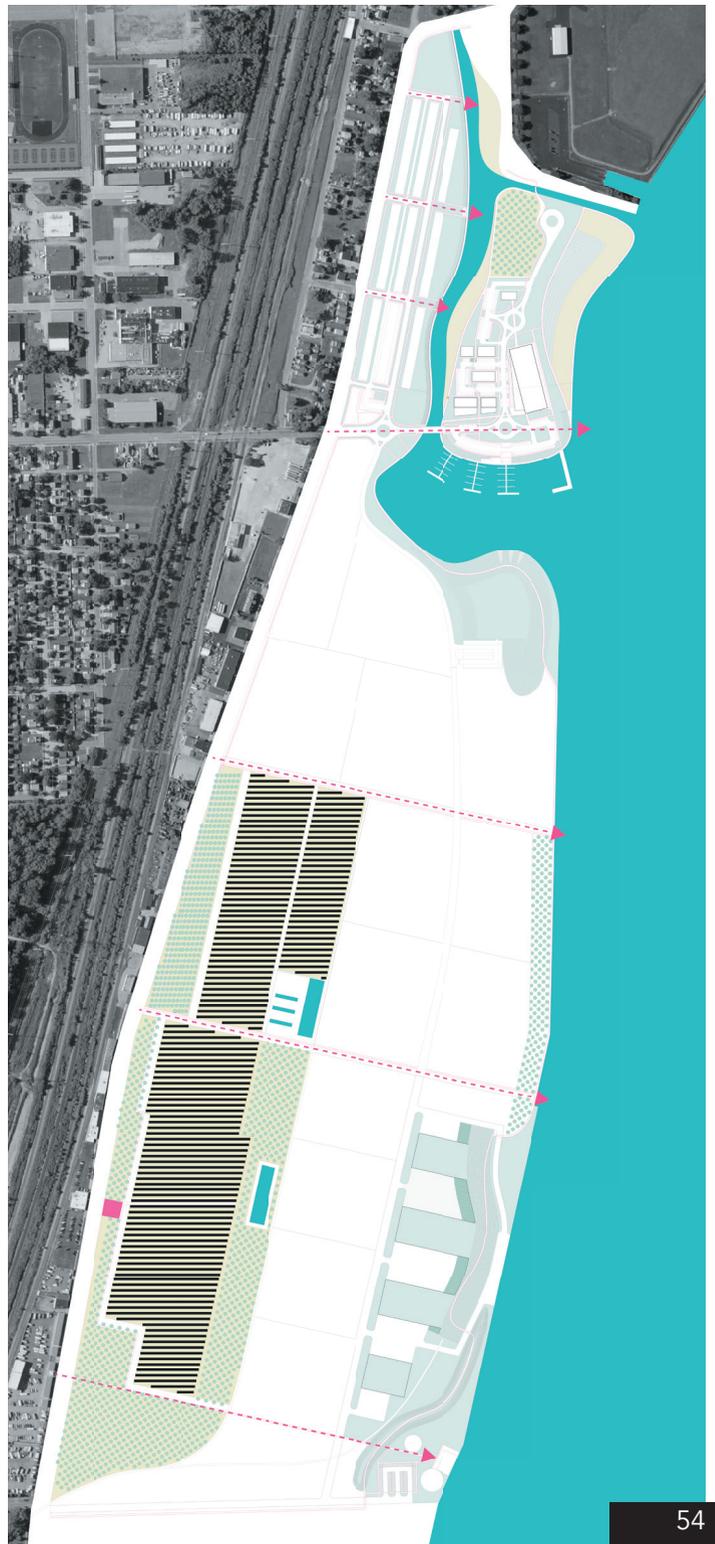


FIGURE 6.7 - PHASE 6

A LOOK AT INNOVATION ISLAND | PHASE 3

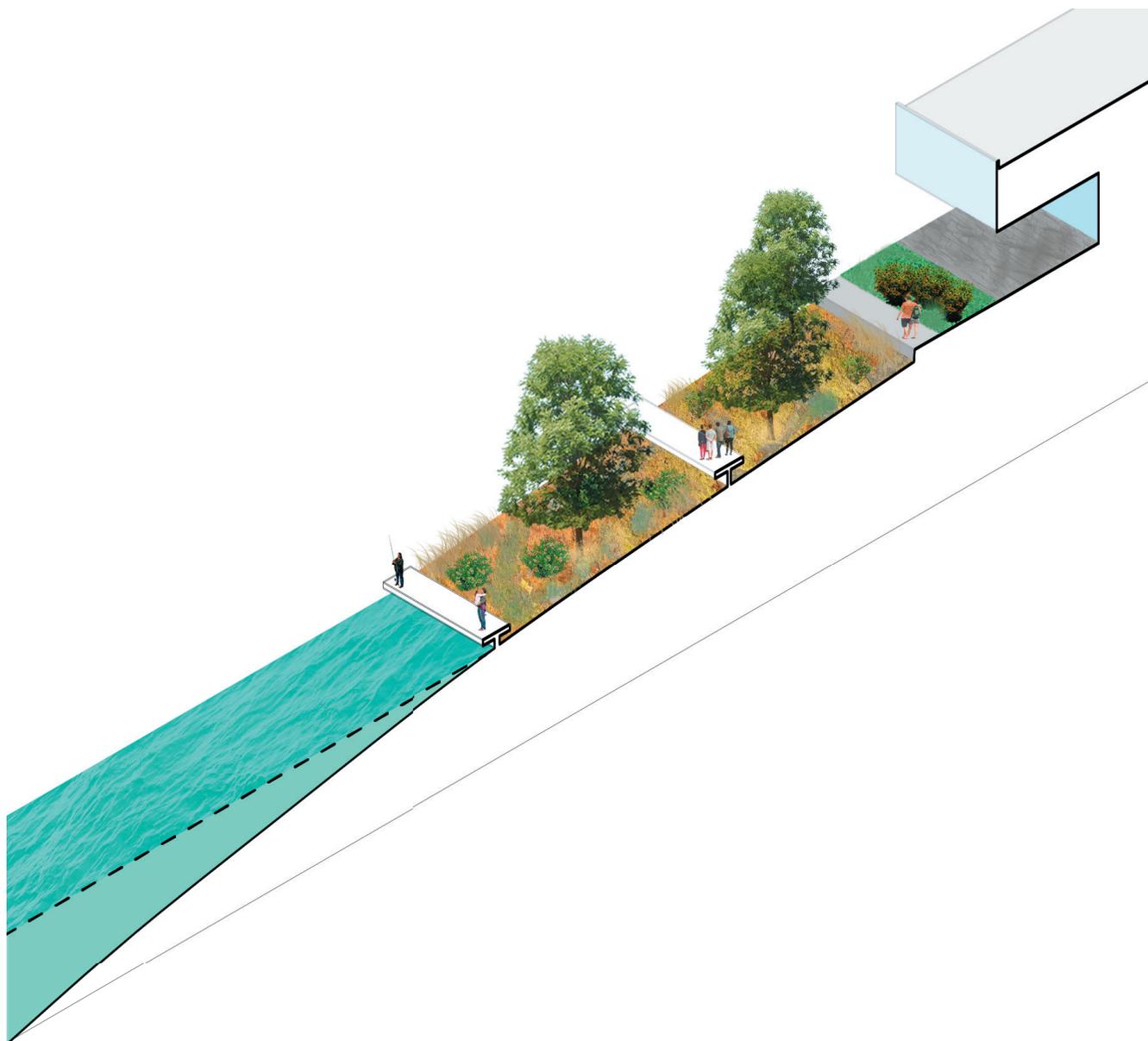


FIGURE 6.8 - INNOVATION ISLAND

A preview as to what an intervention within Phase 3 could look like. A path separates the river from the newly constructed landscape. The intervention acts as a buffer between varying flood levels and the Naval Innovation center located atop the hill. The innovation center acts as anchoring institution for the development as a whole.

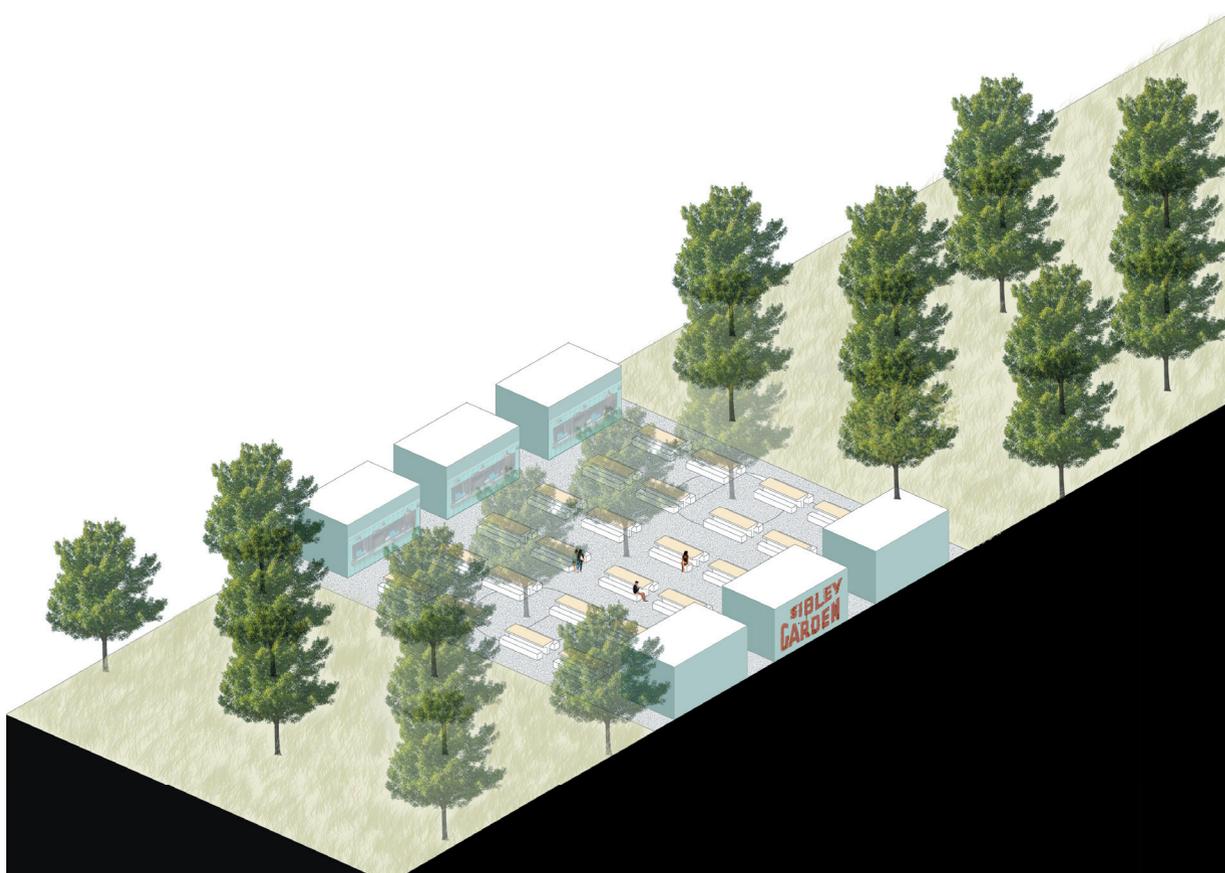


FIGURE 6.9 - SIBLEY'S GARDEN

The Sibley Garden intervention attempts to bring people into the McLouth landscape, allowing them to grow a connection to the place. The intervention also attempts to generate revenue for the redevelopment efforts of the McLouth site.

CENTER FOR NAVAL PRODUCTION | PHASE 4

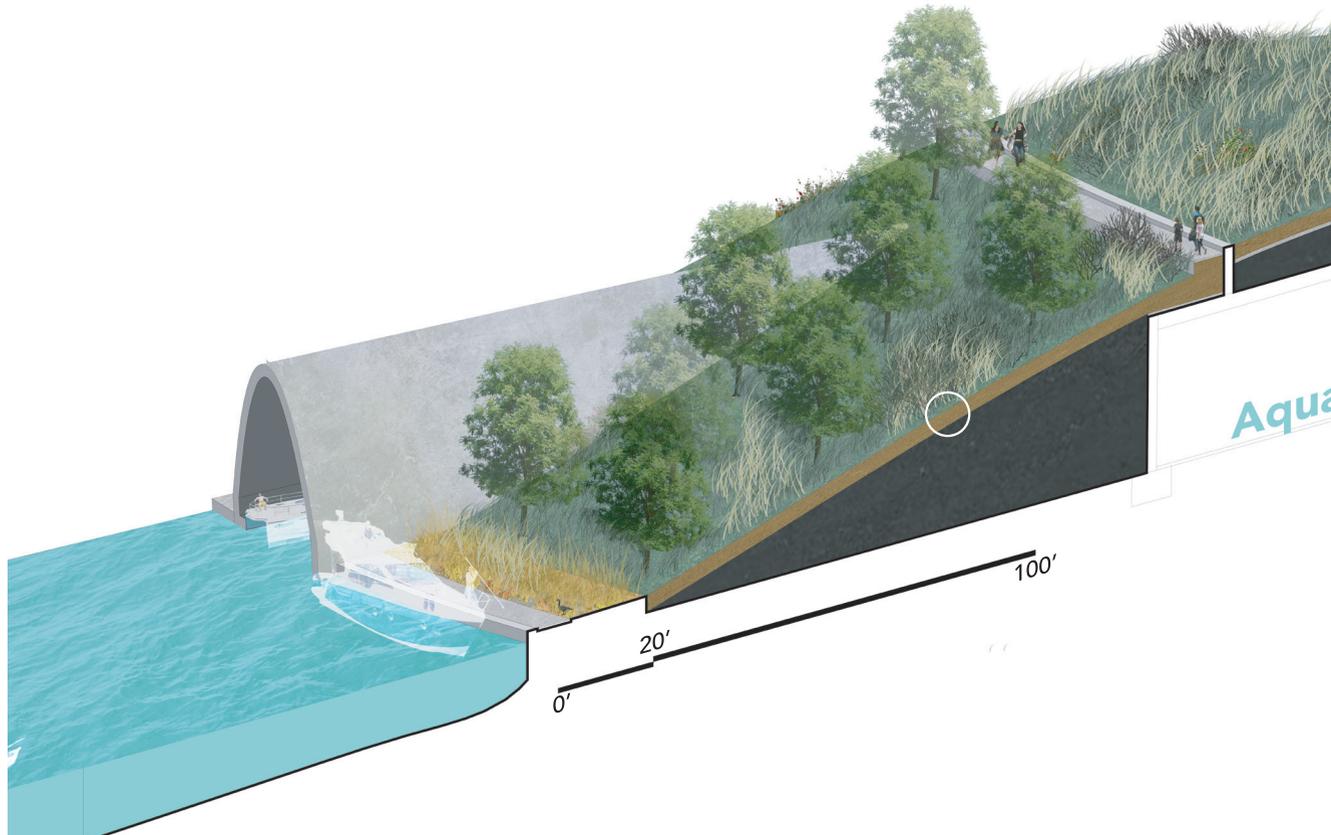


FIGURE 6.10- NAVAL INNOVATION

The center for naval production is the next step to an inhabited McLouth. The center is dedicated to manufacturing and realizing the research undertaken at the Naval Innovation Center. The facility is earth sheltered using recycled dredge material from the newly constructed bay.

EARTH SHELTERED FULFILLMENT | PHASE 5



FIGURE 6.11- FULFILLMENT

The fulfillment center is an earth-sheltered facility which makes use of recycled dredge material. Inhabitants can occupy a path atop the building, keeping the next generation of industrial activity accountable for their actions.

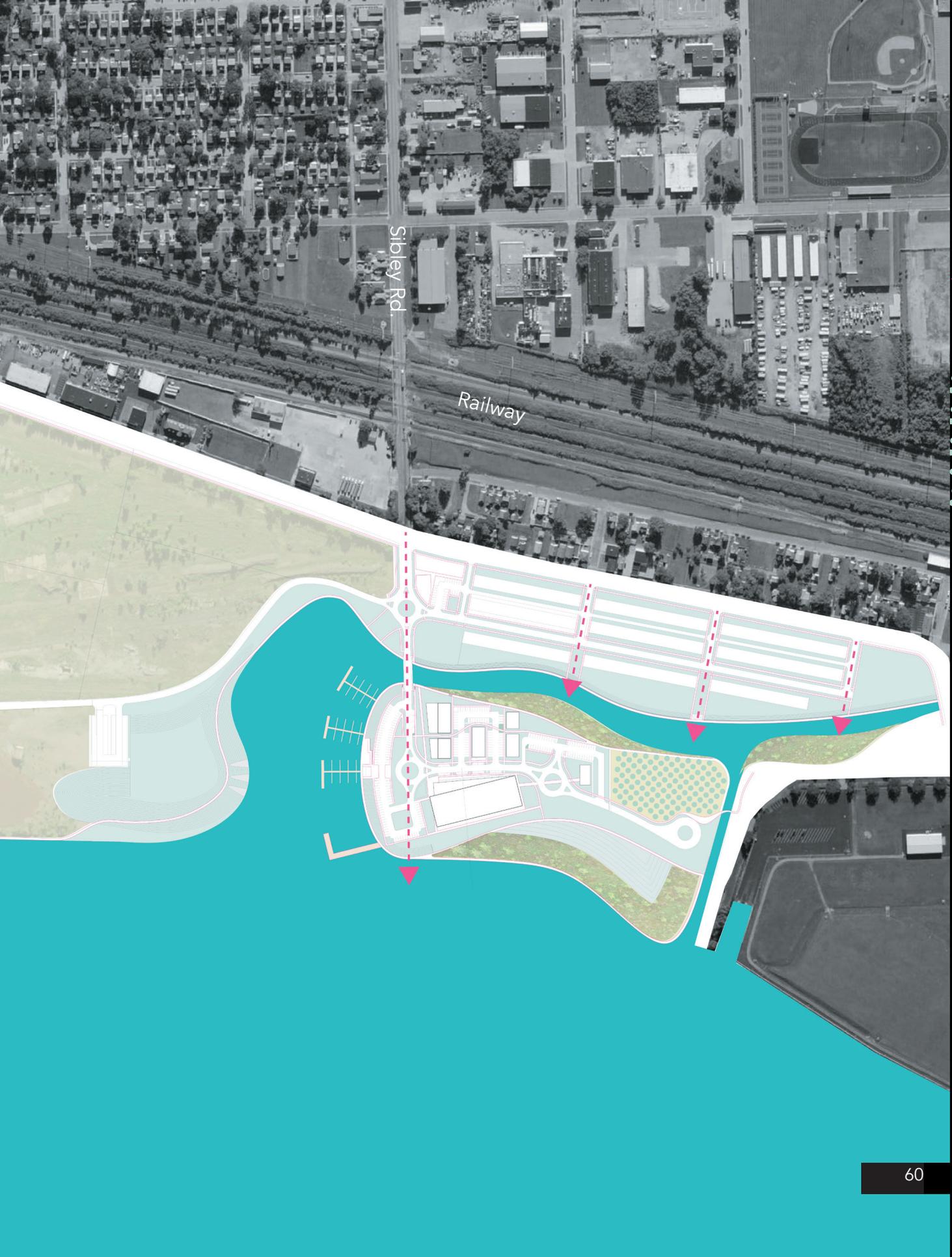


Jefferson Ave.

Detroit River, Trenton Channel



FIGURE 6.12 THE PLAN



KEY path public access band poplar remediation forest

CONCLUDING REMARKS 07

CONCLUSIONS

The sight of derelict and contaminated brownfield landscapes is one of familiarity in the context of south-eastern Michigan. To overcome the challenges of redeveloping these brownfields, it must be accepted that the process of redevelopment is constrained by many realities. Realities include high levels of contamination, economic constraints, local politics, and opposing landowner intent. A path to a redeveloped McLouth means collaborating with industry professionals to create a phased proposal which acknowledges the site's potential. The proposal set forth sought to integrate the history of place, remediation best practices, and creative activations to ensure the site is viable for human habitation and productivity.

SOURCES + FIGURES 08

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FIGURES

- 1.1- McLouth Location
created using ArcGis Map Data
- 2.1- Survey 1906
based on 1906 USGS Survey
- 2.2- Looking Toward McLouth
retrieved from Trenton Historical Society
- 2.3- Trenton's historic waterfront
retrieved from Trenton Historical Society
- 2.4- Sibley Quarry
retrieved from Trenton Historical Society
- 2.5- McLouth Constuction
retrieved from Trenton Historical Society
- 2.6- Survey 1952
based on 1952 USGS Survey
- 2.7-McLouth Production
composed by Travis Schroeder, base images retrieved at the Trenton Historical Society
- 2.8- Derelict McLouth
photo credit: retrieved at McLouth-steel.com, 11.13.21
- 2.9- McLouth Post Demo
photo credit Andy Morrison, retrieved at The Detroit News, 10.12.22
- 3.1- North South
composed by Travis Schroeder, data provided by ArcGis
- 3.2
- 3.3- McLouth Protest
based on photo: Daniel Mears, retrieved at The Detroit News, 12.20.21
- 4.1- Contamination Hypothesis
based on EPA Enforcement Action Memorandum
- 4.2- Arsenic
composed by Travis Schroeder, data from EPA Enforcement Action Memorandum
- 4.3- Cadmium
composed by Travis Schroeder, data from EPA Enforcement Action Memorandum
- 4.4- Chromium
composed by Travis Schroeder, data from EPA Enforcement Action Memorandu
- 4.5- Lead
composed by Travis Schroeder, data from EPA Enforcement Action Memorandum
- 4.6- Typical Contamination
- 4.7- Phyto-remediation
- 5.1- Gasometer
photo credit: Thomas Berns, retrieved at Landschaftspark.de, 03.15.2022
- 5.2- Duisburg Nord Event
photo credit: Jörg Schimmel, retrieved at Waz.de, 03.15.2022
- 5.3- Fresh Kills Park Plan
photo credit: Field Operation, retrieved at freshkillspark.org, 03.10.22
- 5.4- Grounded in Fresh Kills

photocredit: retrieved at nextcity.org, 03.10.22

5.5- In the Array

photocredit:

5.6- Industry Trail Map

composed by Travis Schroeder, map data provided by ArcGis

5.7- River

composed by Casey Nurnberger

5.8- Auto

composed by Casey Nurnberger

5.9- Salt

composed by Travis Schroeder

5.10- Steel

composed by Casey Nurnberger

5.11- Naval Artifact

composed by Travis Schroeder

6.1- Current State

created using ArcGis Map Data

6.2- Phase 1

composed by Travis Schroeder, base image provided by ArcGis

6.3- Phase 2

composed by Travis Schroeder, base image provided by ArcGis

6.4- Phase 3

composed by Travis Schroeder, base image provided by ArcGis

6.5- Phase 4

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6.6- Phase 5

composed by Travis Schroeder, base image provided by ArcGis

6.7- Phase 6

composed by Travis Schroeder, base image provided by ArcGis

6.8- Innovation Island

composed by Travis Schroeder, base image provided by ArcGis

6.9- Sibley's Garden

composed by Travis Schroeder, base image provided by ArcGis

6.10- Naval Innovation

composed by Travis Schroeder, base image provided by ArcGis

6.11- Fulfillment

composed by Travis Schroeder, base image provided by ArcGis

6.12- The Plan

composed by Travis Schroeder, base image provided by ArcGis