Continuing the Narrative of Silo No. 5

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of this thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Every modern city faces the challenge of how to engage the remains of its industrial past. Consciously or unconsciously, post-industrial cities have experienced a type of identity crisis after the decline of industries. Sites that once played a significant role in shaping their urban character are no longer economically productive. Some say these sites are akin to ancient ruins; however, the question of establishing an authentic connection between the contemporary city and its industrial past remains a cultural and architectural challenge.

The Lachine Canal in Montreal is a significant relic of Canadian industry. In the 19th century, industries were drawn to its edges to access water for both production and transportation of goods. Today, these obsolete machine-like structures lie dormant. Among them is Silo No. 5, which is located at the mouth of the Lachine Canal flow as it spills into the St. Lawrence River. Monumental in scale, the once productive structure has the magnitude of a great cathedral.

Admired by European modernist architects and historians, grain elevators like Silo No. 5 were identified as iconic structures of 20th Century architecture. This thesis seeks to re-invent and re-integrate Silo No. 5 into the contemporary city by reconciling its multiple identities.

The intent of this thesis is to understand not only the Lachine historic site, but also to celebrate the sublime atmosphere and the architectonic qualities of Silo No. 5. Two questions guide this exploration: "*is it possible to re-introduce something obsolete back into the city*?" and "*how can we maintain the sublime power of the iconic industrial structure while at the same time allow it to become animated*?"

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ZION

Introduction

Being a good designer involves being able to face the challenges of interpreting the past while also imagining potential futures of obsolescent sites.

The economic, social, cultural, and political settings of a city are often influenced by its industrial past. Montreal's Lachine Canal was once part of a global industry; grain was processed in the silos on its edges and transported as far as Europe and Asia. It had great national and regional importance, competing with grain elevator complexes in Buffalo and Chicago. Finally, from a local perspective, it was the city's industrial corridor, its production zone and a source of economic prosperity.

This perspective has changed over the years as industries have gradually relocated. The canal is now a place for leisure and many different types of traffic, and grain elevators like Silo No. 5 stand as giant solitary monuments. Is there a way to reinvent what made the site so famous in the past and restore its civic prominence once again?

In the case of the Lachine Canal, public access has gradually been introduced, and most contaminants in the water have been trapped on the bottom of the canal. By 1977, a bicycle path had already been implemented on the edges, and in 1978 the Canal was transferred to Parks Canada.

After the decline of its industry, the Canal area was gradually opened to leisure and recreation. The desire to be close to water had increased, and the obstacle to access this water resource was finally removed to reveal another part of the city. However, as industrial buildings along the Lachine start to get privatized and turned into luxury condos, the heritage aspect of these sites is often merely used as a marketing strategy while community spaces also decrease.

In the case of Silo No. 5 and the Pointe du Moulin site, the structural condition of the building is not so much an issue as its oppressive emptiness. The silos are especially difficult to adapt, as they served a very specific measurable purpose in the past and are configured to cater to that function very precisely.

The challenges brought by deindustrialization illustrate the fact that cities are in a constant state of change, and that adaptability of these sites is not an isolated occurence but a fact of city making:

"The urge to preserve certain cities, or certain buildings and streets within them, has something in it of the instinct to preserve family records...cities are live, changing things-not hard artifacts in need of prettification and calculated revisions. We need to respect their rhythms and to recognize that the life of the city form must lie loosely somewhere between total

control and total freedom of action."[1]

As Aldo Rossi also said, cities are enormous man-made objects which grow and evolve over time[2]. More questions arise from here: Should we just accept the gradual deterioration of these industrial relics as the destiny of the city and treat them as separate entities? Or do we try to integrate them? **What is the role of architecture in the healing and rehabilitation of these spaces?**

Another important question in this thesis arises from the issue of industrial and cultural obsolescence: "What is the value of things without purpose in the city?" Although Silo No. 5 lost its original purpose, its meaning does not end. The intention of this thesis is to discover how to understand and interact with these historic resources and re-introduce them within the context of the city, while keeping their inherently unique qualities. There needs to be a deeper understanding of these monuments historically, architecturally, and in the civic memory in order to propose any changes and reintroduce them to their ever-changing context. An ambition of the thesis is to simultaneously frame the site both as a ruin and a place-maker.

Figure 1.1: Image from the ground floor of the steel grain elevator in the Silo No. 5 complex

1 Spiro Kostof, "The Architect: Chapters in the History of the Profession" (New York: Oxford UP, 1977) XIV.

2 Aldo Rossi, "The Architecture of the City" (Cambridge, MA: MIT, 1982).

Thesis Structure

Part 1: Theories of the Changing City

The beginning of Part 1 is an investigation of deindustrialization and its physical effects, the concept of the resulting urban ruin and the fascination with it, and one of the identities of Silo No. 5 as a post-industrial ruin. It also examines the concept of monuments and the argument that Silo 5 is an important urban artifact for Montreal. The last sub-chapters of Part 1 contain the relevant literature review on the topics of deindustrialization, drosscape, and preservation.

Part 2: The Site in its Context

The first sub-chapter in Part 2 is an analysis of grain elevators, their historic implications and importance in both vernacular and modern architecture. The remaining sub-chapters explore the narratives of the Lachine Canal site and Silo No. 5, from past to present. It then illustrates the present condition of the Silo No. 5 site through a personal photo-narrative. The purpose of this narrative is to emphasize the site's inherent architecturally sublime character as a ruin as well as an overlooked yet significant urban artifact.

Part 3: Design Strategy

Part 3 starts with a set of precedents for post-industrial sites, different silo re-interpretations, and the argument for the chosen design intervention for Silo No. 5 and its Pointe du Moulin site. This part also presents the previous themes as inspiration for the concept of the intervention. The design strategy is presented, illustrating ways of framing the artifact while reconciling its multiple identities.

PART 1 – THEORIES OF THE CHANGING CITY

1.1 Deindustrialization and its Aftermath

Deindustrialization is defined as "the process of economic change resulting from the elimination of the industrial sufficiency in a particular area"[3]

Through industrialization, manual activities were replaced with mechanical operations, and society switched to the manufacturing of goods. It was hard to fathom that a large number of mega-machines around the world, which were designed for the prosperity of nations, would be left completely abandoned within a few decades. With this decline, a society was left without its industrial and economic foundation. After the 1980's, there was an obvious and drastic industrial decline which was most apparent in North America/United States, Western Europe, and Japan, along with a catastrophic decline of employment in manufacturing and primary industries.

The Rust Belt in the United States includes many once important cities such as Detroit, Buffalo, and Cleveland, which endured decades-long economic and social distress related to industrial decay and urban decline. For example, Detroit was once the centre of automobile production in the United States, which in turn promoted a high standard of living and a seemingly unlimited possibility of growth. Due to deindustrialization, the city has experienced bankruptcy and a decrease in population of over a million people within the past four decades. The loss of almost half of its population due to unemployment and the extent of its abandoned urban landscape are but two of its most physically noticeable results.

In Europe, industrialized regions such as the Ruhr Valley in Germany, the Midlands of Great Britain, parts of Northern France, shipbuilding cities around the Baltic and North Seas, as well as the industrial cities of the former Soviet Union, have also struggled to face post-industrial transformations. This collective struggle involves handling the negative social and economic changes that come with the failures of industry, while striving to encourage new prosperity to make up for the loss. The Ruhr was a heavily industrialised area in Germany and the centre of the country's iron, steel, chemical and textile industries. Due to drastic structural post-war changes, the 1970's brought job losses in these industries along with environmental degradation, a landscape of obsolete structures, and a cultural identity crisis.

The causes of this urban crisis include globalization, competition, technological change, reductions in the demand for manual labor, shifting trade, and changing consumer trends. The demise of industry was accompanied by a very slow transition toward a society focused on communication and knowledge. The affected industrial precincts have struggled to evolve to this post-industrial identity, and many of them have not yet recovered to this day.

3 Boundless Sociology, "Disinvestment and Deindustrialization." 26 May. 2016. <https://www.boundless.com/sociology/textbooks/boundless-sociology-textbook/population-and-urbanization-17/urban-problems-and-policy-125/disinvestment-and-deindustrialization-708-10414/>

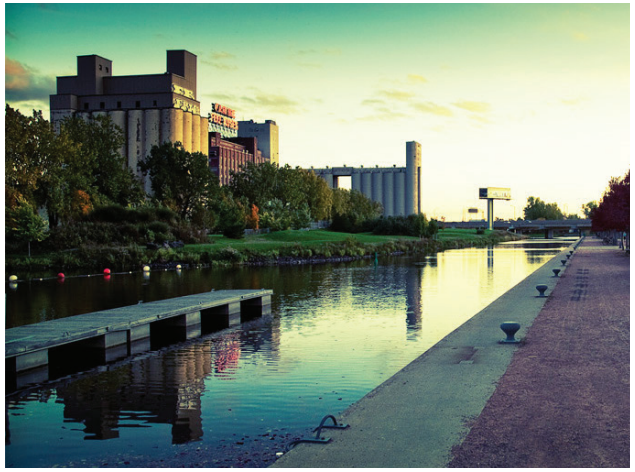

Figure 1.2: Decommissioned silos, Lachine Canal, Montreal

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The landscape resulting from the process of deindustrialization is often surreal: decaying building-machines, collapsing derelict homes due to population displacement, and even entire ghost towns lingering like tombstones of a once prosperous past. The post-industrial site also poses issues of environmental degradation, contaminated land, and toxic environments. The artifacts of our past degrade quietly, acting as reminders of a former time, of our visions, accomplishments and mistakes; ultimately reminders of our own mortality. The modern utopian ideal that was initially portrayed by the concept of industry had failed, and the physical remains of this failure are the post-industrial sites themselves. Although they demonstrate where the pressure of economic change has been unrelenting, these ruins also offer hope and opportunities to imagine their potential futures.

Most of the aforementioned examples include cities which depended on a single industry. However, Montreal's economy relied on several factors, including industrial and political. The drastic decrease in population after the 1970's was not only caused by the decline of industry, but also by significant political events such as the Quebec Independence Movement. Montreal was the center of industry in Canada for almost a century, and the Lachine Canal had the largest concentration of industrial buildings in the country. However, the 1970's brought about significant changes in the industrial sector, reshaping the city.

Water, Memory and the City – Post-Industrial Waterfronts

"By the mid-nineteenth century, the rise of capitalism and industrialization began to paint a cityscape that was beyond the traditional set of design configurations. The industrial landscape flatly rejected the notion of the city as a work of art." [4]

The industrialization along waterfronts resulted in the construction of a unique infrastructure needed for transportation of the various goods, along with massive structures to process and store these products. Together, these new constructions contributed to forming a "Wall" to the waterfront, restricting views or public access to these areas. This process formed a sense of detachment from the rest of the city, almost as if the waterfront area was physically separated. The concentration of industrial buildings ultimately shaped the water's edge and the relationship between the city and the waterfront. Furthermore, the dredging and pollution involved in industrial processes also altered the city's shores and the public perception of these areas as contaminated and hostile.

The advancement of rail transportation then made it possible for industries to move to the periphery of the city due to the increasing need of large amounts of land

4 Joel Warren Barna, "Reviewed Works: The City of Collective Memory" (Houston, TX : Rice University Press,1992) 68-75

for manufacturing. This displacement resulted in another transition of the waterfront into in a disused and stagnant condition.

With their deindustrialization, our views of waterfronts and their purposes have changed a great deal. Once, trade and access to water were the driving forces for a city's prosperity; now waterfronts are associated with places of public leisure and large property values. Starting to rediscover the waterfront, cities have strived to remove the restricting obstacles that they contained, making these spaces more public-oriented. In some cases, effort has been put into providing accessibility to these areas, implementing new traffic routes designated for pedestrians or cyclists, and improving the water and land quality. Conceptually, the "wall" to our shores has generally been removed, as public access has been gradually introduced in these spaces. Physically, the wall has been segmented and broken in certain areas with some of the industrial structures still remaining in the landscape.

Water also plays a part in the unconscious of the city, as it is usually diverted from everyday life and hidden in underground pipes. People seem to be drawn to waterfronts because they not only remind us of the stronger connection we once had to water, but also because water seems to provoke reflection and the flow of memories. During the second half of the 20th Century, the dynamics of waterfront industries changed as a result of the emerging container

Figure 1.8: The difference between an European waterfront (Barcelona above) and an American waterfront (Buffalo below) in terms of the location of industry.

shipping industry which forced their relocation to other parts of the city. This resulted in an abundance of deserted industrial waterfront areas all over the world. These artifacts have a strong and direct connection to the heritage of a city, as they once defined its importance.

Many societies had to address their obsolete waterfronts as cities gradually changed. The waterfront has always represented an essential resource, as numerous cities were strategically formed next to water bodies. Presently, it is a question of reinforcing our relationship with our shores and regaining the connection we used to have with this important urban resource. The public sees the Lachine Canal as a polluted environment, so there is little interaction. With it the task is to challenge the "wall" put in place in the industrial era and to seek new ways of connecting with an important part of the city which goes back to its origins.

1.2 Perceptions of Ruins and Obsolescence

"Obsolescence" is defined as "the process or condition of going out of date or being no longer in use."[5]

When a building is "obsolete", it loses its original purpose and any function whatsoever. There is a visible difference between the classical picturesque and romanticized ruin, which is associated with nostalgia, and today's obsolete industrial structures, which are usually associated with failures of our society and often toxic wastelands. They remind us of our failed ideals and unpredictable technologies. The classical ruin is generally maintained in a particular state and has a painterly appearance, while modern industrial ruins are grimy, rusty, and often inspire an urge to eliminate them. Industrial ruins challenge the order and control that we have tried to impose on our urban landscapes, and they do so by forcing a confrontation with decline and deterioration.

Ignasi de Solà-Morales developed the term *terrain vague* and defines it as *"the form of absence in the contemporary metropolis, abandoned areas, obsolete and unproductive spaces without specific limits and undefined."*[6] He states that since these spaces are no longer centres of activity within the city, they are greatly ignored in the discourse of

5 "Obsolescence", Merriam-Webster, 24 Apr. 2015 < http://www.merriam-webster.com/dictionary/obsolescence>

6 Ignasi de Solà-Morales, "Terrain Vague" (Cambridge, MA: MIT Press, 1995) 201.

design when they should instead present opportunity:

"From the economic point of view, industrial areas, railway stations, ports, unsafe residential neighborhoods, and contaminated places are where the city is no longer. Unincorporated margins, interior islands void of activity, oversights, these areas are simply un-inhabited, un-safe, un-productive. In short, they are foreign to the urban system, mentally exterior in the physical interior of the city, its negative image, as much a critque as a possible alternative."[7]

At the same time, he states that absence has a certain value in terms of providing a freedom that contrasts the planned order of the city and that architects should act in the terrain vague with a sensitivity and attention to this intrinsic characteristic.

Andrei Tarkovsky used the image of the architectural ruin extensively in his films as a symbol for the downfall of society. At the same time, one can also find solace and redemption within these ruins by establishing a connection to them and finding place within them. Although the symbol of ruin can be interpreted as a critique to modern progress and the idea of dystopia, it can also be about hope and rebirth. Perhaps this is also the best way of looking at obsolete sites: striving to look past their current condition and creating placemakers out of ruins. This is why ruins enrich the present through their history while also

7 7 Ignasi de Solà-Morales, "Terrain Vague" (Cambridge, MA: MIT Press, 1995) 120.

Figure 1.9: Image taken from Tarkovsky's *"Stalker"*

challenging the future.

In the past century, our society has been advancing and changing at such a rapid rate, that obsolescence and ruin are inevitable. We see physical evidence of this in almost all societies, with technologies, infrastructure, and buildings being decommissioned and becoming obsolete at a steady pace. We build more and abandon more quickly than ever before due to our advancements.

Ruin (noun) - *the remains of a building, city, etc., that has been destroyed or that is in disrepair or a state of decay*[8]

8 "Ruin", Merriam-Webster, 27 May, 2015 < http://www.merriam-webster.com/dictionary/ruin>

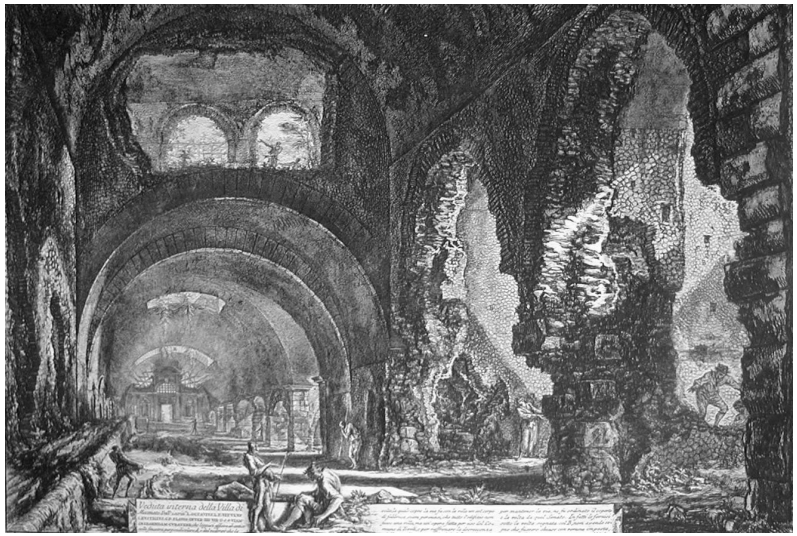


Figure 1.10: Etching by Giovanni Battista Piranesi

Figure 1.11: Painting by Caspar David Friedrich depicting ruins

"A city is built to resemble a conscious mind, a network that can calculate, administrate, manufacture. Ruins become the unconscious of a city, its memory, unknown, darkness, lost lands, and in this truly bring it to life." [9]

In the 18th Century, there was a growing interest in archeological sites, as architects began to study classical buildings anew and from a fresh perspective. Giovanni Battista Piranesi and a few other eighteenth-century architects and artists such as Filippo Juavarra, Robert Adam, and Charles-Louis Clérisseau were highly influenced and inspired by ruins and explored their full creative potential in their works. Piranesi combined his own dream-like worlds with existing ruins around Rome at that time to produce hybrid monumental spaces with exceptional atmospheres. His works have influenced modern archeology and played a crucial role in the visual representation of ancient architecture. What is most impressive about his work was the way in which he combined fantasy with the reality of ruins to produce a new ethereal world. Louis Kahn and Le Corbusier are only a few of the modern architects who were equally inspired by ruins and their monumental qualities. The aesthetic appeal of ruination has fascinated and inspired visitors for its sublimity.

The ruin is peculiar within the city context, as it is very difficult to place in a particular time frame: *"How does*

9 Rebecca Solnit, A Field Guide to Getting Lost (New York: Penguin, 2006) 14.

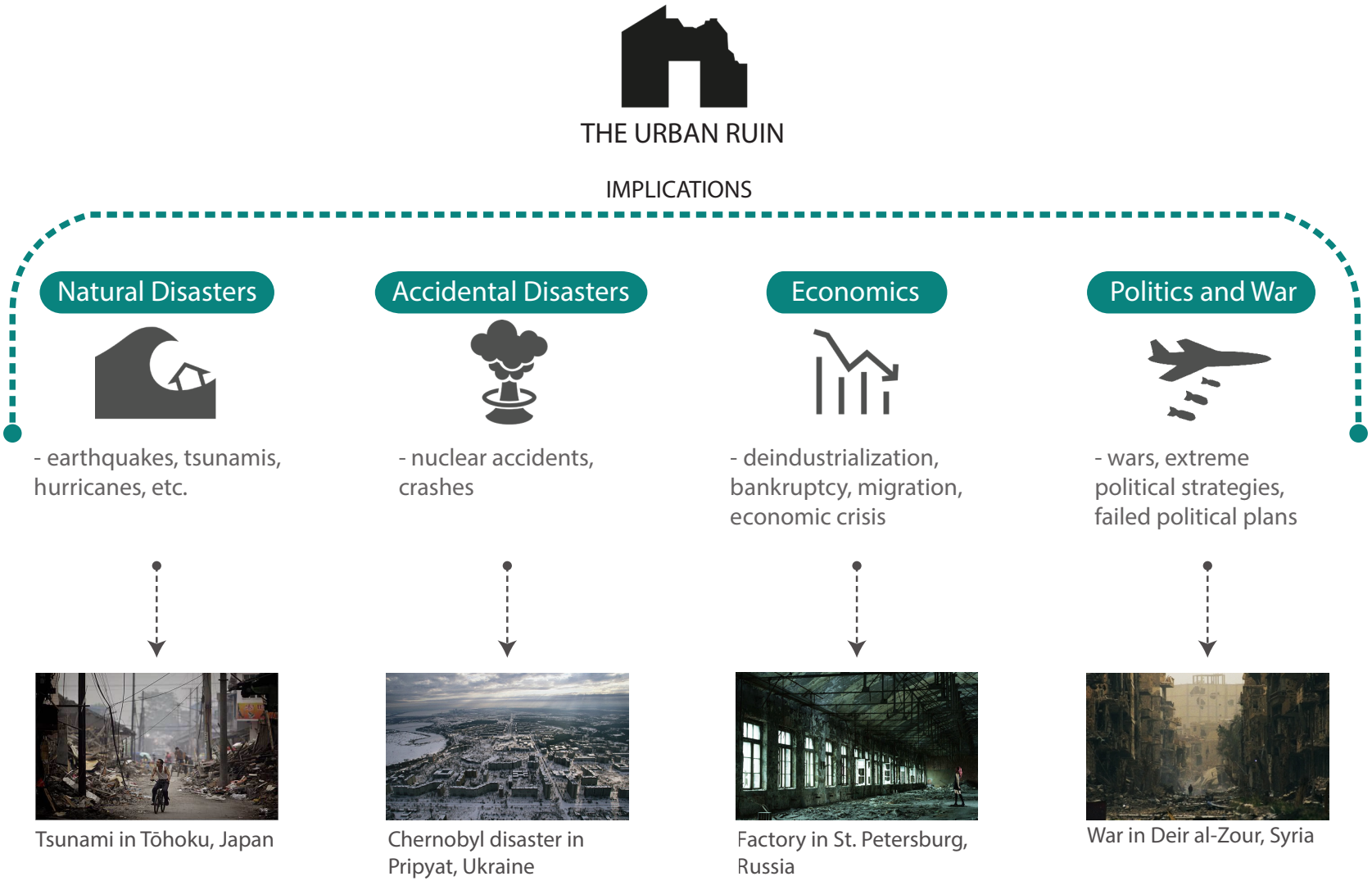


Figure 1.12: Diagram showing the implications of the urban ruin

a ruin — be it the remains of an industrial factory or the relic of an ancient civilization — fit into the landscape of a city? Beyond its warped mass of broken materiality, a ruin is also a disordering of time. The question is not where the ruin is located, but when?" [10]

The ruin implies the past of something which is not there anymore, acting as a carcass for what has been. The building slowly undergoes a long process of disintegration without any apparent reason. Upon departure of the people and activity within, incompleteness and fragmentation are the effects that remain; at the same time, these characteristics *"possess a special evocative power"* [11]. What these spaces tell us is that despite our dreams of advancement and profit, inevitably all is temporary due to the continuous transitions brought about by the processes of nature. They remind of our own temporary existence in the world and reveal the inconvenient truth about myths of uninterrupted progress.

Decommissioned buildings can act as exemplary spaces used to evaluate ways in which urban space is created. These spaces multiply the readings of the city, while acting as critiques on the past, present, and future:

"While ruins always constitute an allegorical embodiment of a past, while they perform a physical remembering of that which has vanished, they also gesture towards the present and the future as temporal frames which can be read as both dystopian and utopian, and they help to conjure up critiques of present arrangements and potential futures." [12]

Ruins are allegories of memory which provide opportunities to contemplate on the formation, organization, prosperity or failure of a city, as they can teach us many things about these factors. In *Industrial Ruins,* Tim Edensor contests the notion that ruins are spaces of waste that contain nothing of value; instead, his focus is to reveal the potential of these sites as spaces of transgressive play and freedom, while providing multiple interpretations of the city.

Exploring the Post-Industrial Ruin - Silo No. 5 as an Urban Ruin

Urban explorers are fascinated by deserted sites because they provide uncontrolled and unfamiliar environments which do not conform to the ordered and normative cityscape. There is a certain freedom that is present in these spaces, specifically due to their unregulated nature: *"Stepping into the space of marginality, the urban explorer moves out not only of his own territory, but of his own time as well. This traditionally subversive urban exploration,*

10 Dylan Triggs, "The Psychoanalysis of Ruins", 17 April 2015 < http://www.3ammagazine.com/3am/the-psychoanalysis-of-ruins/>

11 Marc Treib, "Spatial Recall: Memory in Architecture and Landscape (New York: Routledge, 2009) 17.

12 Tim Edensor, "Industrial Ruins: Spaces, Aesthetics, and Materiality" (Oxford: Berg, 2005) 15.

flâneurie or dérive, frustrates any authority's banal and structured city concept with its ironic and ambivalent idea of urbanity" [13]

In that sense, one could assume that ruins offer a place of "otherness" within the city, or an escape from the ordered and controlled singular purpose metropolis which is becoming so dominant. However, this is not so much about escaping the daily reality of the city, as it is more about establishing a deeper connection to its past and its history. Concurrently, the decay of buildings also exposes materiality in its raw state and the way in which things would have been put together.

Urban explorers visit the Silo No. 5 complex to experience an uncommon adventure that would not normally exist in any other part of the metropolis; however, while doing this, they also discover the physical remains of a former process that was once incredibly significant to Montreal. They witness the structure that supported an industry which ultimately had a global, regional, and local impact in its golden age. Once there, the visitors are engulfed in a rich part of the city's history, despite the fact that they might be looking for something else. Instead of experiencing something "outside of the city," they become even more immersed in its past.

Figure 1.13: Urban explorer on top of the Silo No. 5 tower

13 Levente Polyák, "Urban spaces of periphery, or the rediscovery of the edges of Budapest", December 6, 2015 <http://exindex.hu/index.php?l=en>

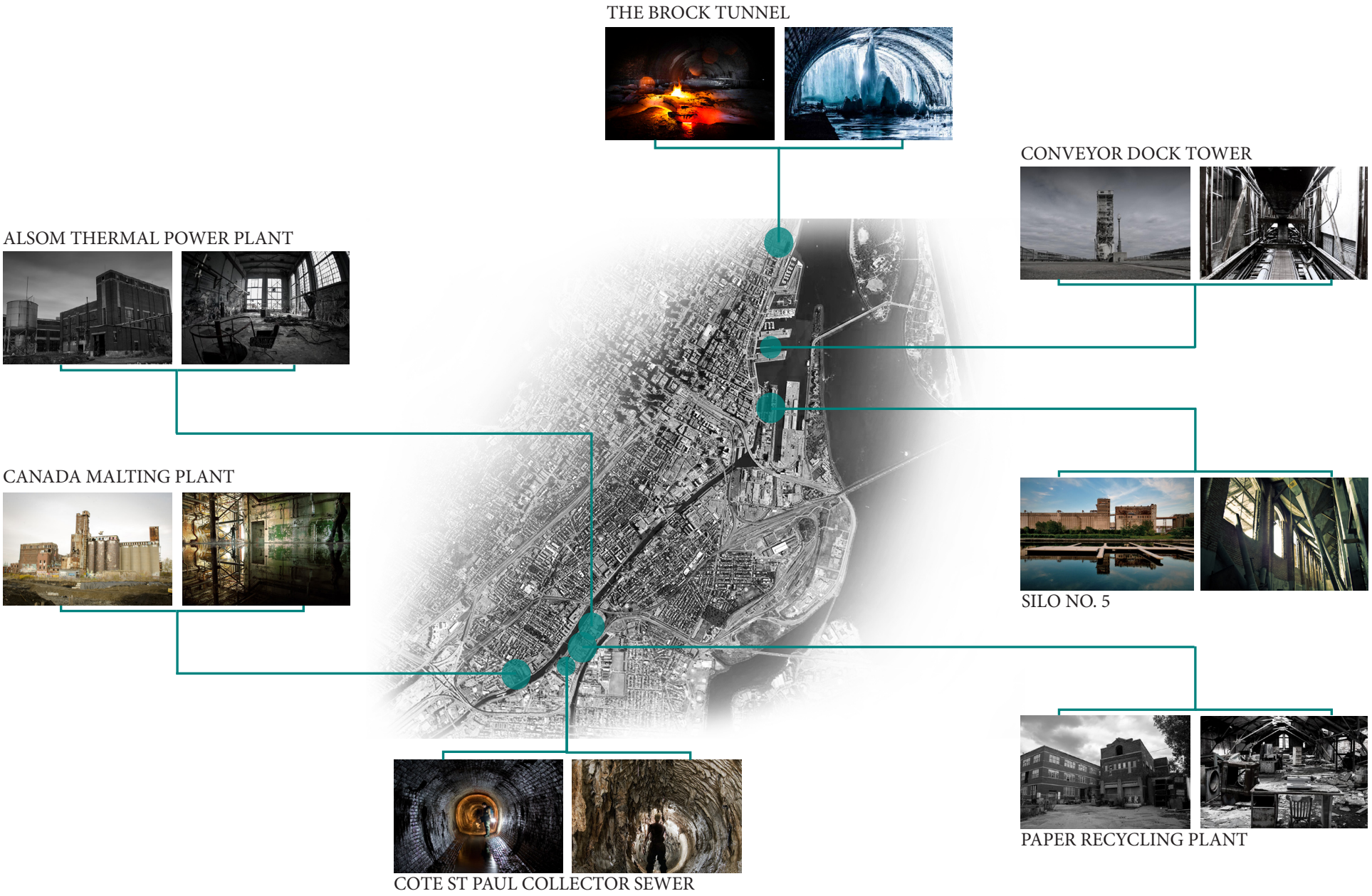


Figure 1.14: Diagram showing obsolete infrastructures and industrial buildings along the Lachine Canal and the Old Port

1.3 Critiques and Methodologies – Literature Review

Urban Memory and The Monument

"One can say that the city itself is the collective memory of its people, and like memory it is associated with objects and places. The city is the locus of the collective memory." [14]

Understanding the Silo No. 5 site and what it symbolizes for the city, the region and even a nation, one can say that its current importance as a monument cannot be disputed. The word "Monument" comes from the Latin "monumentum", which is defined as a *"type of structure (building, statue, tomb, written record) created to commemorate a person or important event as part of a social group's cultural heritage or remembrance of important times"*.[15]

In *The Architecture of the City*, Aldo Rossi describes historic buildings as primary urban artifacts and argues that despite the fact that their original purpose changes over time, their qualities as generators of the form of the city remain constant; hence the form is what ultimately defines these artifacts, rather than their ever-changing functions. Monuments are also included in this category of primary urban artifacts, as well as any elements involved in accelerating the urbanization process in the city and playing an important role in its evolution over time. Rossi also stated that monuments and other urban artifacts acquire different meanings over time, as the city evolves inevitably: *"Change is within the very destiny of things, for there is a singular inevitability about evolution ...The singular authority of the built object and the landscape is that of a permanence beyond people."* [16] Primary elements are able to "summarize the city" and reveal its evolution as they are physical evidence of a city's past.

The city is also a collective memory of its inhabitants, being associated with places and physical objects. The term "collective memory" originated from sociologist Maurice Halbwachs, who argued that memory bound groups of people together and formed an identity and collective experience for them. Rossi sees memory as urban artifacts which are permanent and withstand the test of time, eventually becoming monuments. He describes monuments as either propelling, surviving because of their form while their function changes over time, or pathological, which stand isolated from the city and do not contribute to it. Currently, Silo No. 5 can be described as a "pathological monument", as it sits dormant and isolated, with citizens wondering what its present role might be. Could it become a propeller and catalyst in the city once more?

The endurance and evolution of a city is expressed through its monuments, which are physical elements and evidence of its past. Rossi's argument is not a nostalgic response to the past, as it relates more to the natural evolution of the city than simply to the freezing in time of its

14 Aldo Rossi, "The Architecture of the City" (Cambridge, MA: MIT, 1982) 130.

15 "Monument", Merriam-Webster, 15 June 2015 < http://www.merriam-webster.com/dictionary/monument>

16 Aldo Rossi, "The Architecture of the City" (Cambridge, MA: MIT, 1982) 135.

artifacts. However, he argues that recovering the past in the present would contribute to the continuous and natural flow of the city's evolution.

An obvious example is the Colosseum in Rome. Its purpose has changed drastically throughout the centuries, starting as an amphitheater used for gladiatorial competitions, executions, dramatic spectacles, and other forms of entertainment. It underwent several renovations between 217 and 508 AD due to natural destruction. In the Medieval era, it was used for many purposes as housing, a religious shrine, a cemetery, workshops, a fortress, among others. Today, it functions as an iconic monument of the city serving the tourism industry, but it also maintains its stature as an important symbol for ancient Rome. Even though its purpose has changed numerous times since it was built, the Colosseum remains a propelling monument in the city; its form and symbolic value have contributed to its permanence and survival.

Figure 1.15: Mayan pyramid at Chichen-Itza

Figure 1.16: The Colosseum in Rome

Silo No. 5 as a Monument

Sites like Silo No. 5 and other significant industrial complexes along the Lachine Canal were responsible for the city's growth over time. At the important junction of the historic district of Old Montreal, the Old Port, and the Lachine Canal National historic site (see figure x.x), the Pointe du Moulin site (where Silo No. 5 is located) represents a physical and symbolic focal point. The meaning of Silo No. 5 has transformed over the course of the last century, from an economically productive machine with a global importance, to a monument symbolizing prosperity and the endurance of the city. Physically, the silo cannot escape its inherent monumentality, even if this was simply a result of practicality and demand. The artifact has had local, regional, and national importance, and its current value and iconic status directly relates to its past.

As a sublime reminder of the city's history and a container of memory, it can be argued that Silo No. 5 has become an important monument in the city, located at a crucial geographic point with historic significance. Another unique aspect of the silo complex as a monument is that it embodies the progress of architectural forms, techniques, and materials, as it provides the only example of grain elevator evolution within its three different structures. The grain elevator is also an emblem for food production and agriculture, which relate to some of the most basic human needs; hence, Silo No. 5 is not considered a monument solely because of its scale and physical qualities that make it seem so, but also because of what it symbolizes.

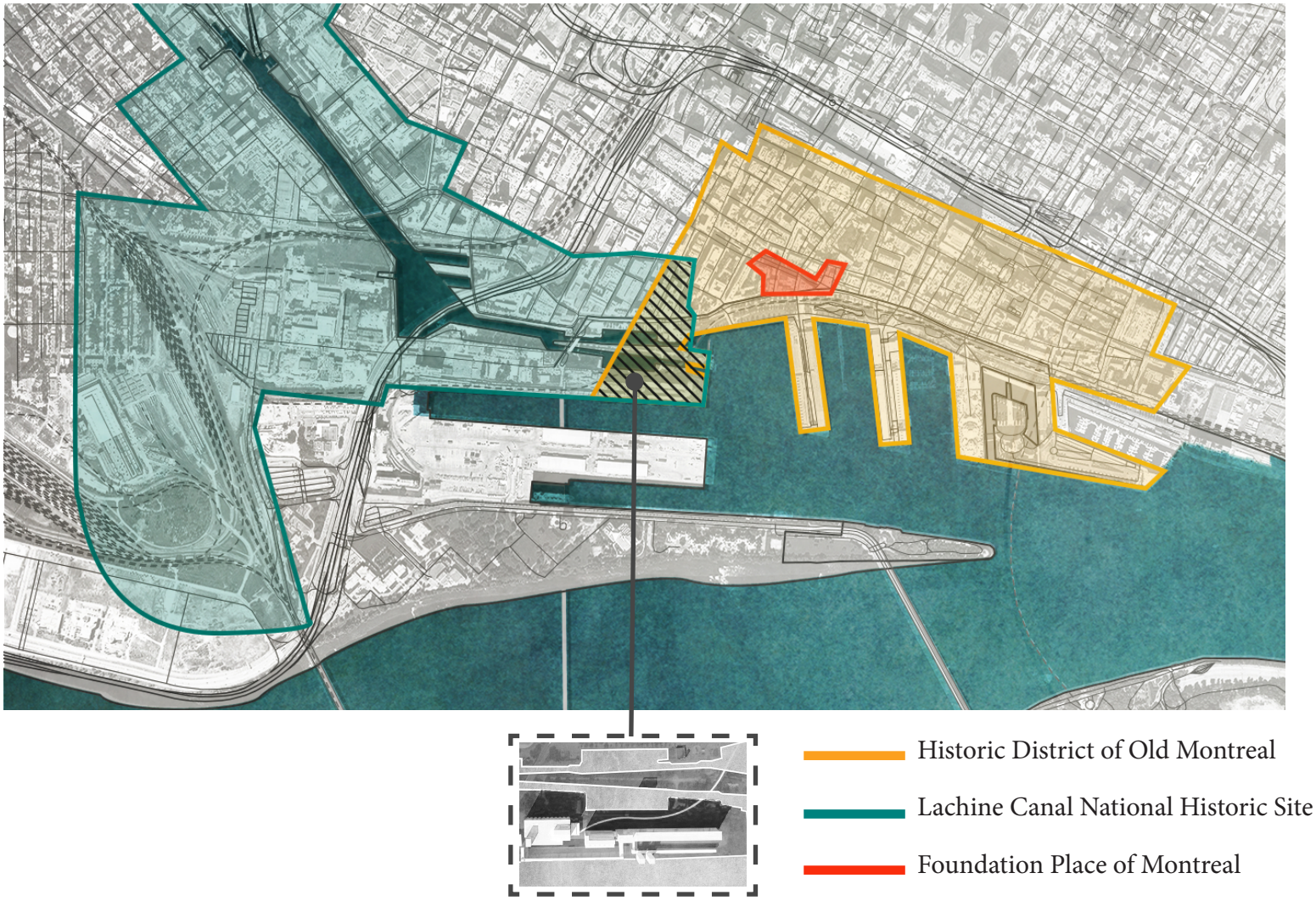


Figure 1.17: Silo No. 5 at the intersection of the historic district of Old Montreal and the Lachine Canal National historic site

The Meanings of Deindustrialization

In *The Meanings of Deindustrialization*, authors Jefferson Cowie and Joseph Heathcott argue that the decline of industry represented for working people the disintegration of their society and way of life, as well as drastic changes in employment and social fabric. They describe ruined industrial landscapes as representing an ephemeral quality of the world we take for granted and that converting them into retail and separating them from any meaning and reference to the past is disrespectful, while also contributing to a dominance of big-box stores in the American landscape.

The authors criticize the way in which post-industrial sites on North American waterfronts are now solely used as retail warehouses, as a means to "restructure" the land in a relevant way:

"While economists and business leaders often speak in neutral, even hopeful, terms such as "restructuring," "downsizing," or "creative destruction," metaphors of defeat and subjugation are more appropriate for the workers who banked on good-paying industrial jobs for the livelihoods of their families and their communities." [17]

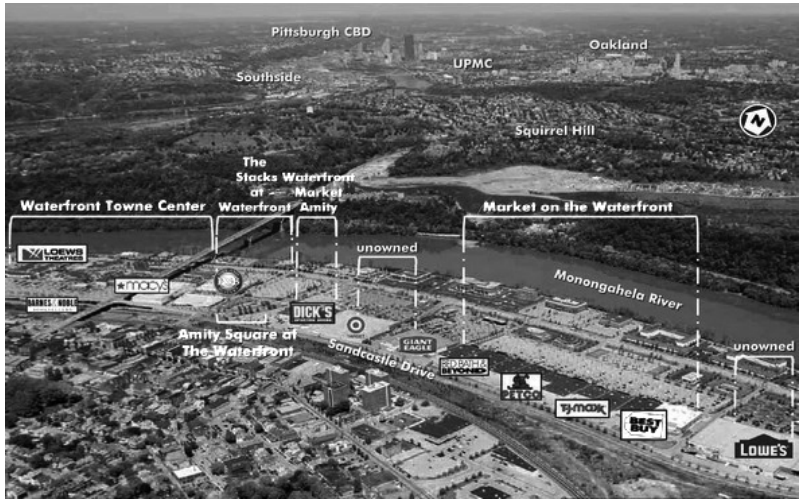


Figure 1.18: Cowie and Heathcott provide the example of Pennsylvania's Homestead Steel Works site, an important icon of the U.S. industrial history which had been converted to a large retail complex, losing any connection to its past identity.

17 Jefferson Cowie and Joseph Heathcott, "Beyond the ruins : The meanings of deindustrialization".(London: ILR Press, 2003) II.

Drosscape

Dross *- landscape leftovers/waste landscapes ignored/ undervalued for reasons of pollution, vacancy, natural conditions unsuitable for building, unprofitability, etc.*

In *Drosscape*, Alan Berger describes "dross" or waste landscapes in deindustrialized areas as natural components of every evolving city and an indicator of urban growth:

"Cities are not static objects, but active areas marked by continuous energy flows and transformations of which landscapes and buildings and other hard parts are not permanent structures but transitional manifestations." [18]

These transitional areas are often left untreated because architects and developers either do not possess the tools to make use of them or they do not care to.

Berger also argues that drosscapes require the designer to shift thinking from explicit knowledge to complex interactive processing, and that the designer should be able to integrate waste landscapes left over from any kind of development. A multi-disciplinary approach should be taken when tackling these sites as they involve a number of issues such as decontamination, health, safety, and reprogramming. As dross is inevitable and a healthy part of urban growth, Berger states that the challenge for designers is not to achieve dross-less cities, but to integrate this dross into more accommodating design approaches and take inspiration from the unique qualities of the deindustrial landscape.

Figure 1.19: Norfolk Southern's Inman Yard, Fulton County, Georgia, Atlanta; Undeveloped lands of railyards, idle tank cars

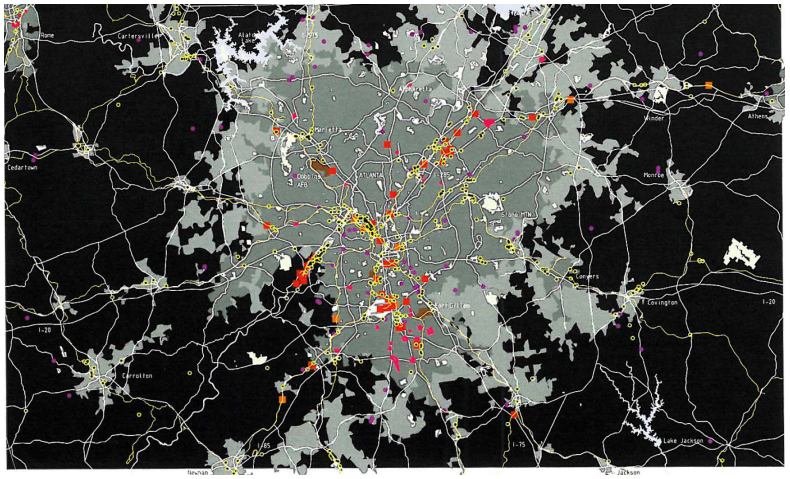


Figure 1.20: The majority of wasted deindustrialized land is found near the city centre.

18 Alan Berger, "Drosscape - Drosscape: wasting land in urban America (New York: Princeton Architectural, 2006) 44.

On Preservation and Existing Artifacts

"Identity is the sum of all the traces in the city but likewise if development sweeps buildings away then memory loss and identity crisis threaten and the city loses its typology (its memory forms), and can no longer act as a kind of guide or exemplar for the people living in it." [19]

to preserve (verb) - *to maintain (something) in its original or existing state; to maintain or keep alive (a memory or quality); to treat food in a particular way so that it can be kept for a long time without going bad.* [20]

By understanding the narrative and value of the site, the designer reveals a great inspiration and reverberation for the intervention. One must carefully assess the potentials of what is there, and the palimpsest of history contributing to the resulting synergies of the site. Ironically, modernist writers and thinkers such as Also Rossi focused on memory in the city, while *"modernism in architecture often seemed to erase memory from the city."* [21]. Architecture and preservation have thus been opposite fields for a long time, as one required new action and the other a certain amount of passivity. More recently, however, these two practices have begun to fuse and work in tandem as preservation was recognized as an act of design: *"The convergence of design and preservation opens up a new territory of architectural experimentation, in which we are designing the past and present simultaneously."* [22] What can influence the future fate of these decommissioned sites?

Gentrification is defined as "the process of renewal and rebuilding accompanying the influx of middle-class or affluent people into deteriorating areas that often displaces poorer residents." [23] Generally based on economic factors, this process usually targets deserted areas with an intention to increase property values while catering to higher-income groups and resulting in an elitist domain. In this case, the heritage value of a place is mostly used as marketing, with most meanings of the past removed. The new image of these developments is important as the intention is to remove a sites' unpleasant industrial filth. The result is usually comprised of tourist and consumer redevelopments and often unrecognizable neighbourhoods. What used to be a closely knit and integrated community in the industrial era becomes a sterile and disconnected environment. This phenomenon happens on the Lachine Canal through most of the new projects implemented, as once cohesive neighbourhoods are changed into elitist realms.

Silo No. 5 is a landmark in a crucial location, precisely at the heart of the city and at the mouth of the Lachine Canal, visible from many of the historic urban axes. Geographically, it sits at the intersection of the Historic District of Old Montreal and the Lachine Canal Historic Site. In addition, it is also a monument narrating the evolution of the grain silo

19 Mark Crinson, "Urban Memory: History and Amnesia in the Modern City" (London: Routledge, 2005) XIII.
20 "To preserve", Merriam-Webster, 15 June 2016 < http://www.merriam-webster.com/dictionary/preserve>
21 Mark Crinson, "Urban Memory: History and Amnesia in the Modern City" (London: Routledge, 2005) I.
22 Bryony Roberts, "Beyond the Querelle" (New York: Anyone Corporation) 16.
23 "Gentrification", Merriam-Webster, 24 May 2016 < http://www.merriam-webster.com/dictionary/gentrification>

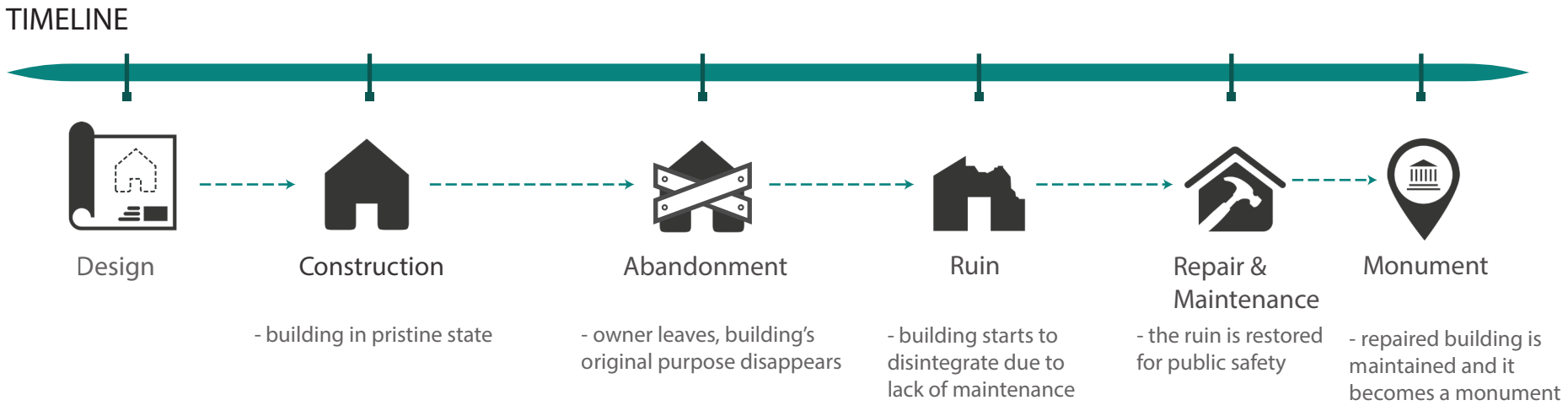


Figure 1.21: The timeline of a building's life

typology.

Obliterating this significant artifact from the life of the city would not be an appropriate solution; this way, the city would erase a valuable trace of its past as if it never physically existed and hinder the future potentials for this site. The architectural value of Silo No. 5 lies also in its accidental sublimity and the qualities of its spaces, which cannnot be replicated in a new construction. By erasing such a building from the urban landscape, information and value, which cannot be reproduced, are also removed.

The existing buildings are already charged with strong elements and characteristics; the challenge is to emphasize them and respectfully design in such way as to encourage immersion, reflection, and rejuvenation in order to create a meaningful experience of the site. Alan Berger proposed that instead of fighting against the unique challenges that these sites offer, designers should instead be inspired by them and utilize them as catalysts in their reuse. The role of the architect is to recognize the potentials of these sites and engage them as meaningful environments with a rich narrative. This task requires an attention to the *genius locus* or spirit of the place as the site's accumulated layers of history. Furthermore, the challenge also lies in removing any preconceived notions regarding derelict and obsolete spaces which suggest that they have no value. Approaches that do

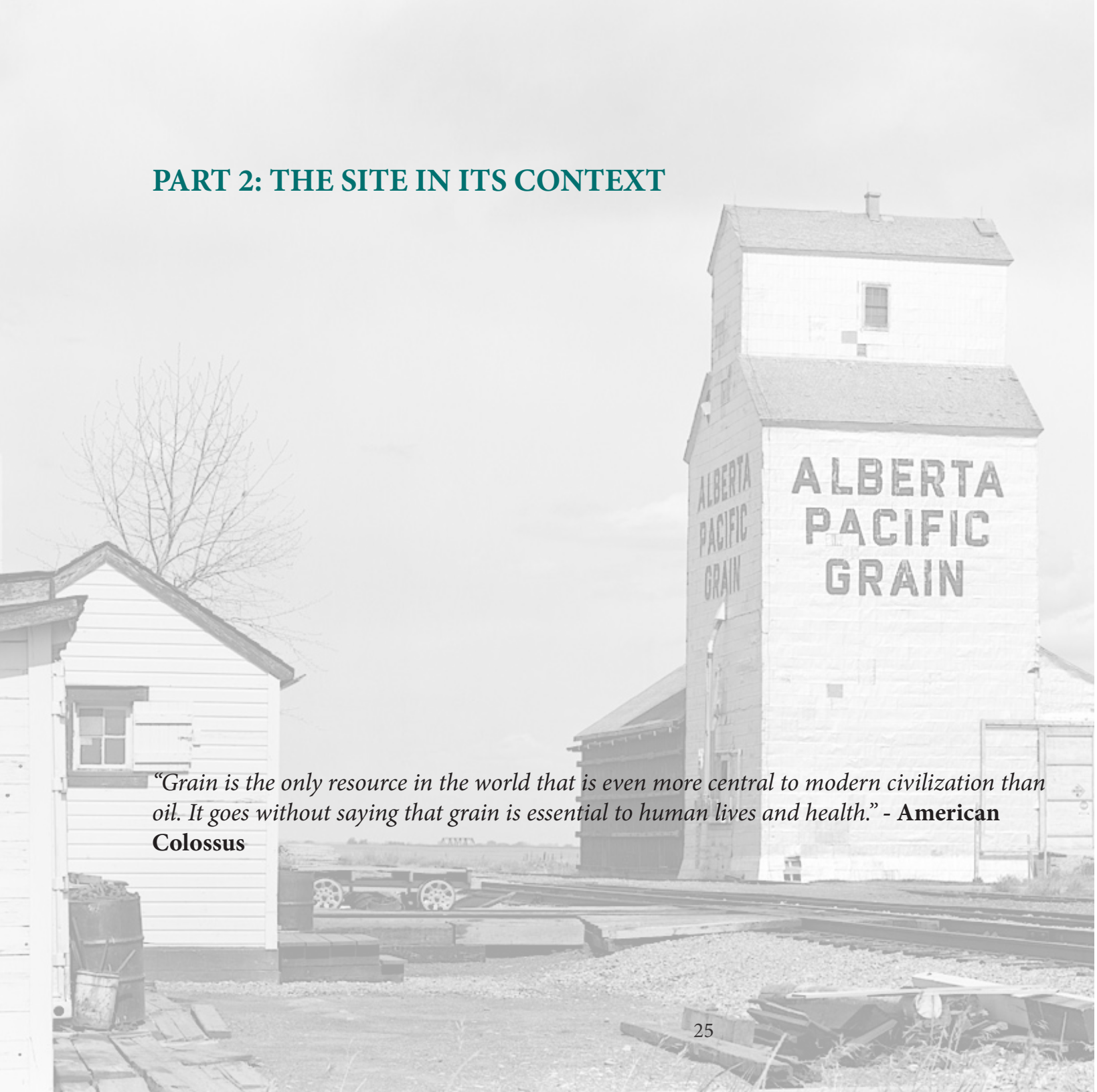
not engage with the identities of the site and provide no understanding of what it used to be tend to provide a more superficial solution. These approaches use the artifacts as mere objects, disconnected from their context through their obsolescence.

The value of sites like Silo No. 5, which were used for a mechanized purpose and served the industrial era, can be regained by their integration into the surrounding landscape. Instead of being treated as simple backdrops and ambiguous objects of the past, they can be used to provide an explorative yet productive role. By implementing an active landscape on the site and interacting with the structures and their intrinsic potentials, the place becomes energized and reactivated. The favourable approach would be to rescue the cultural identity and legacy of a place while regenerating the site and providing useful program with which citizens can identify, while also seeing the potential of what is already on the site. Places gain specific identities over time, and a loss of identity or placelessness implies a lack of identification with the said place. [24]

A palimpsest refers to the historic layers that have contributed to the formation of a city's structure. All these layers and identities have gone through forms of death and rebirth for the sustenance of a continuous narrative of society. The site represents a palimpsest of different layers accumulated throughout time, conveying its multiple identities which need to be reconciled in the end. The reinterpretation of the site will portray another chapter in its continuing evolution and will change its public perception, contributing to the dialogue of post-industrial society and identity. The purpose of this approach is to perpetuate the artifact by understanding its past and drawing upon the present in order to reach a meaningful future. The remedial projects should not try to replicate the past as they will be bound to fail for the second time; instead, aspects of the past should be incorporated, as they represent the layers that formed the spirit of the place.

24 Jennifer E. Cross, "What is Sense of Place?" (Colorado State University Department of Sociology, 2001) 1.

PART 2: THE SITE IN ITS CONTEXT



"Grain is the only resource in the world that is even more central to modern civilization than oil. It goes without saying that grain is essential to human lives and health." - **American Colossus**

2.1 Food Storage and Grain Elevators - A Historical Perspective

"The granary bin and cellar are village prototypes of the library, archive, museum and vault, and thus the city itself" [25]

In *The Ten Books on Architecture*, Vitruvius states some basic rules on grain storage: *"So it is with granaries: grain exposed to the sun's course soon loses its good quality, and provisions and fruit, unless stored in a place unexposed to the sun's course, do not keep long"* [26] and *"Those who do business in country produce must have stalls and shops in their entrance courts, with crypts, granaries, store-rooms, and so forth in their houses, constructed more for the purpose of keeping the produce in good condition than for ornamental beauty"* (Book VI, Chapter V). The importance of granaries was undisputed, as they were directly related to one of humanity's basic needs: food.

Food storage plays a role in the understanding of a culture's foundation, as well as its social and economic structure. It can provide information on the ways in which people gathered, how a city was organized, and how wealthy its people were. Founding large communities depended on being able to collect and store large quantities of food. The granary was traditionally a symbol of farmers' strength and wealth, showing that they could provide for their families. Granaries were highly valued and built to last for a long time.

The oldest granaries discovered date back to around 9,500 B.C. and were found in the Jordan Valley. The fact that the very first granaries preceded the appearance of fully domesticated plants, as well as large-scale sedentary communities by around 1,000 years, says a great deal about their importance.

Ever since ancient times, granaries had suspended floors that protected the grain and other consumables from rodents while also providing air circulation. They were first located between residential structures that contained the means for plant processing. By 7,500 B.C., however, storage occurred in separate spaces.

The first granaries were made of stone and mud with roofs of branches and reeds. They were cylindrical in shape and measured three metres in diameter. These structures were used for the storage of wild barley, as well as other foods, and grain processing. Grain could also be stored in pits for a long time due to the dry climate. Grain was valued for its capacity to nourish large populations within a city. Comparing vernacular granaries and grain silos from across the world, all offer a sense of ascent, of verticality. The grain never touches the ground, it is always elevated and in the case of the modern silos, it is constantly moved around to be weighed and processed.

The grain elevator is referred to as the most Canadian of architectural forms and a prominent artifact of the prairies. They were landmarks for townspeople and travelers alike, dominating the prairie landscape for more than a century.

25 Lewis Mumford, "The City in History: Its Origins, Its Transformations, and Its Prospects" (New York: Harcourt, Brace & World, 1961) 40.
26 Vitruvius Pollio, "The Ten Books on Architecture" (New York: Dover Publications, 1960)

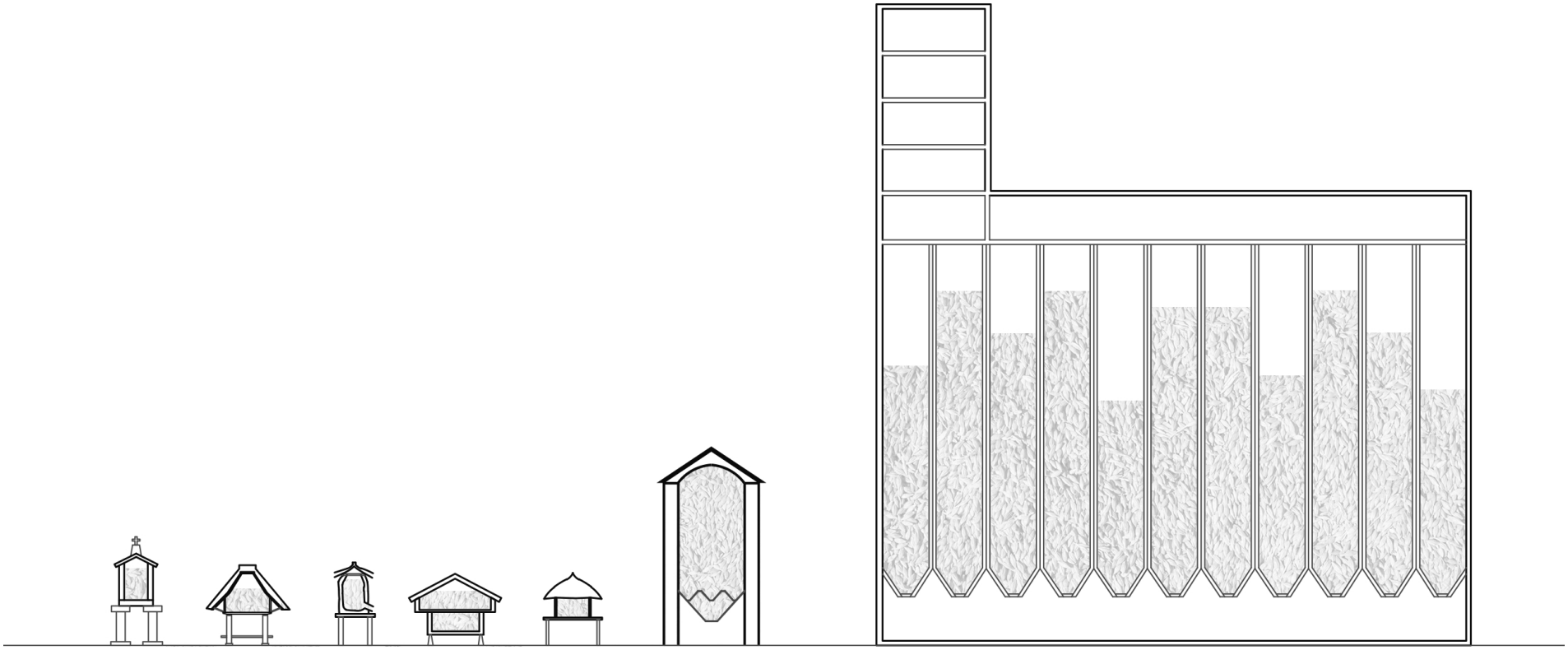


Figure 2.1: A comparison of vernacular food storage facilities and grain elevators from around the world

Horrea in Ancient Rome

Starting from 140 A.D., there were two kinds of warehouses or *horrea* in Rome: buildings in which goods such as money and valuables were deposited, and even more important buildings in which supplies of corn, grain, olive oil, and other consumables were stored at the expense of the state. In times of shortage, the corn was shared among the poor or sold at reasonable prices. These public granaries were well ventilated and raised above ground in order to keep the consumables cool and dry as well as keep vermin away.

The first great public Roman granary called *horrea publica populi Romani* was implemented by a nobleman near Monte Testaccio in Rome. There were two kinds of horrea: *horrea subterranea* which kept consumables cool underground, and *horrea pensilia* which were built above ground to keep them dry.

In terms of accomodating the needs of an entire empire, the Romans took ideas from older Egyptian and Greek storage layouts and developed them to a higher state. At first, these *horrea* were used for the storing of grain, but later also became warehouses for other necessary commodities. The structures were placed near ports, to easily facilitate the import and export of these goods.

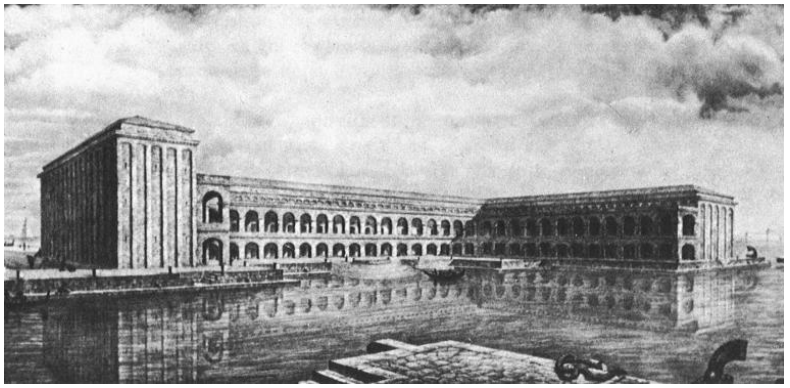


Figure 2.2: Image of the horrea

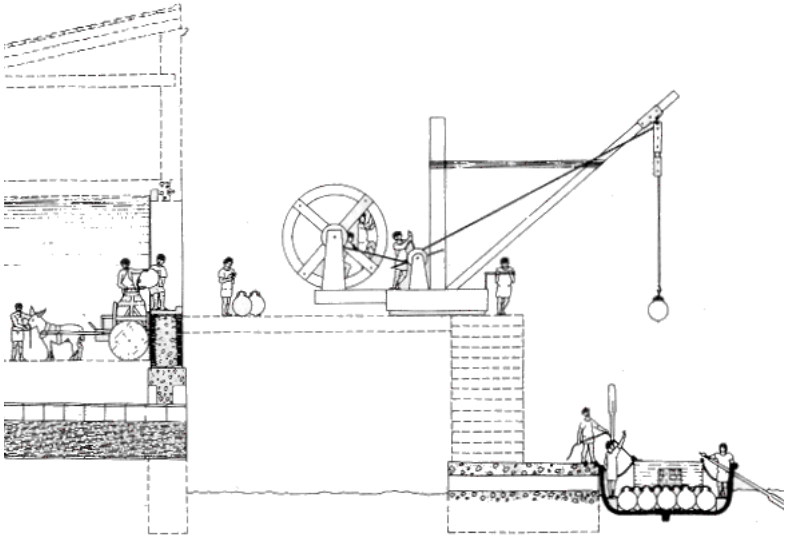


Figure 2.3: Section showing the maritime export of produce

The Grain Elevator

Symbol

"*The grain elevators of Canada and South America ... are almost as impressive in their monumental power as the buildings of ancient Egypt,*" [27] wrote Walter Gropius in his 1913 essay *The Development of Industrial Buildings*. His images of grain elevators then gained international curiosity, inspiring architects such as Le Corbusier, Erich Mendelsohn, and Italian futurist Antonio Sant'Elia.

In *Towards a New Architecture*, Le Corbusier also expressed his great admiration for North American grain elevators:

"*Thus we have the American grain elevators and factories, the magnificent first-fruits of the new age. The American Engineers overwhelm with their calculations our expiring architecture*." [28]

Here, he states that simple, abstract geometric forms represent a pure architecture which is implemented in the design of grain elevators and which is in fact directly related to the sublime. He further affirms that primary forms are so important because they can be clearly appreciated, the image of them being tangible without any ambiguity. The book contains various photographs of grain elevators, some of them from Montreal. Le Corbusier talks about the grain elevators in tandem with Egyptian, Greek, and Roman architecture, as they all shared the purity of mass and form which he valued so much.

In *A Concrete Atlantis*, Reyner Banham talks about the connections between North American industrial buildings and the classic modernist architecture of Europe. In the chapter on grain elevators, he makes an interesting remark on the peculiar quality of their interiors and their characteristics:

"*The conical bin bottoms, lofting legs, oblique chutes, and the legs of the chassis, seen together, seem like a gigantic surrealist architecture turned upside down or like the abandoned cathedral of some sect of iron men. Weird as this may sound, it is a highly impressive space, monumental in scale and in the quality of the work, and that is a rare experience in the world of grain elevators, which are not usually, nor need be, provided with anything like public spaces*." [29]

The engineers had unconsciously reinvented architecture according to the European Modernists who greatly admired their creations for their honest and liberating forms and progressive technology. Grain elevators managed to shape the development of 20th Century architecture. They were symbols of the industrial age, progress, and collective unity, as well as a national symbol:

"The grain elevator is a symbol to architects, to architectural theorists, and to architectural historians. Secondly, the grain elevator is symbolic to ordinary citizens and travellers. Finally, the image of the grain elevator has received national recognition in its use on stamps, on money, and at international exhibitions

27 Walter Gropius, "The Development of Industrial Buildings" (Jahrbuch des Deutschen Werkbundes, 1913) 3.
28 Le Corbusier, "Towards a New Architecture" (London: Architectural, 1946) 30.
29 Reyner Banham, "A Concrete Atlantis" (Cambridge, MA: MIT, 1986) 77.

to symbolize Canada." [30]

Grain silos are inevitably influenced by one of humanity's most fundamental structure, which is the storehouse. This structure was considered a necessity for societies to survive and defeat famine, and it was a symbol of a balanced society. Not only are grain elevators icons of Modernism and national architectural symbols of Canada, but they are also deeply connected with the land and emblematic of agriculture. Although a brand new and distinctly North American form in the 19th Century, the meaning of the grain elevator goes back to the origin of the storehouse and its significance.

"As part of Canada's economic and agricultural histories, as well as the country's architectural and cultural histories, grain elevators not only are tied to the special knowledge relevant to their use, but also generate shared meaning." [31]

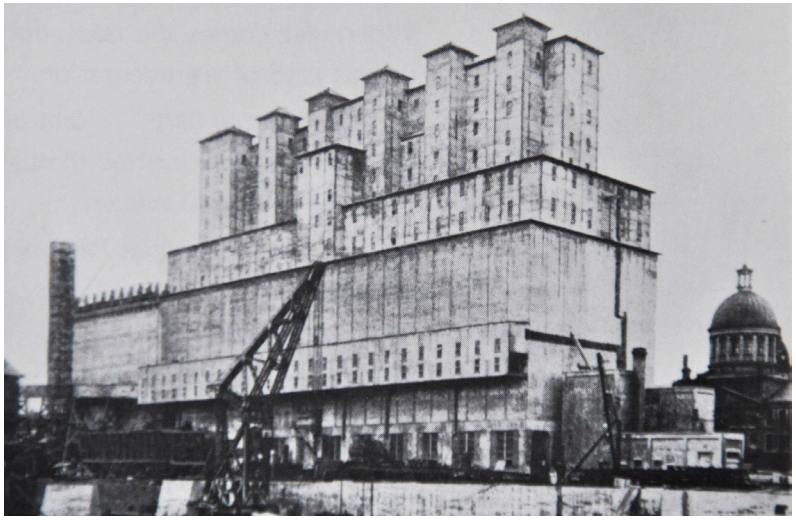


Figure 2.4: Photograph of Silo No. 2, taken by Walter Gropius

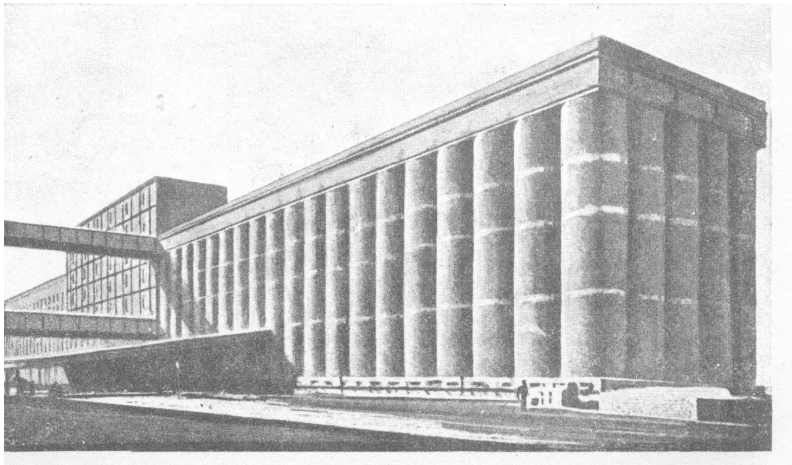


Figure 2.5: Photograph from Le Corbusier's *Towards a New Architecture*

Form and Function - Elevating the Grain

"The verb-form can mean five different things: to lift up or to raise above the ground; to raise the pitch or volume of

30 Patricia Veervoort, "Towers of Silence: The Rise and Fall of the Grain Elevator as a Canadian Symbol", 7 Jan. 2016 < http://hssh.journals.yorku.ca/index.php/hssh/article/viewFile/4216/3414>

31 Ibid.

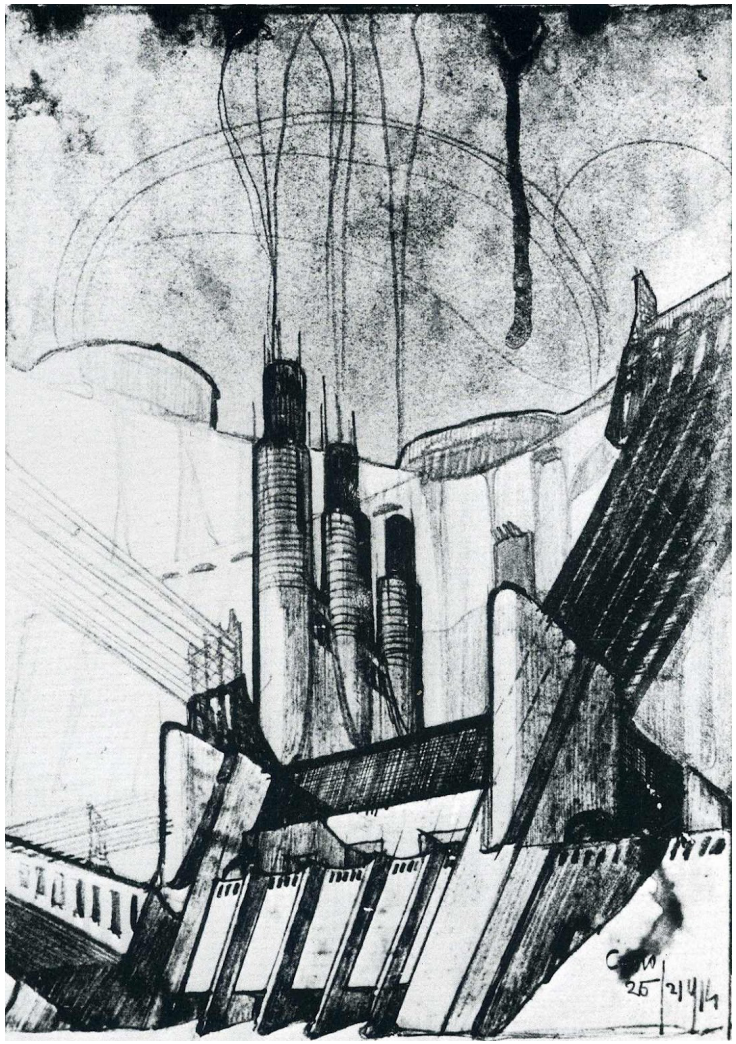
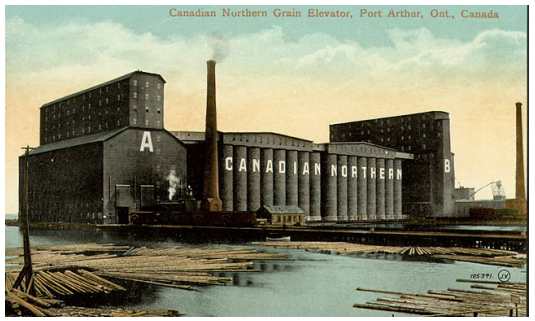


Figure 2.6: Antonio Sant'Elia's Industrial Building

Figure 2.7: Louis Lozowick's *Minneapolis*



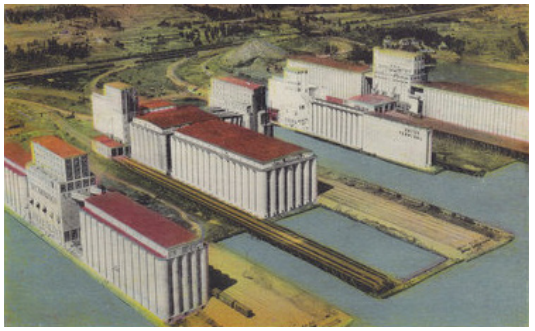


Figure 2.8: A collection of Canadian postcards and stamps depicting grain elevators

Figure 2.9: Soviet propaganda posters for the Five Year Plan featuring silos and other industrial structures

"In the propaganda of the plan, the grain silo features frequently, in posters, magazines and films, as an image of an achieved, or achievable, emancipatory modernity, unifying city and country: and as an authoritarian image of sheer power and vastness. Much of this hinges on the contradictory role of the silo as both rural and industrial, monumental and disposable, and also, in aesthetics, both ancient and modern." [32]

32 Owen Hatherley, "Silo dreams: metamorphoses of the grain elevator", Jan. 13, 2016 < http://www.tandfonline.com/doi/pdf/10.1080/13602365.2015.1045011>

a sound; to raise a person in rank or position, so such a person becomes exalted, dignified or 'lofty' ; to raise someone to a higher intellectual or moral level; or to raise someone's spirits, to elate or exhilarate. The value judgment is clear, and can be specified by examining the corresponding portrait drawn of the 'low', which is not just at ground - or sea-level, but also inaudible, undignified, stupid, immoral and depressed." [33]

sublime - uplifted, high, lofty; awe-inspiring, grandiose

The monolithic form of the grain elevator evolved according to necessities of the function, designed with the intention of storing, processing and shipping nourishment. Their height was decided purely on functional terms, making it almost an accident that they were usually taller than important buildings, which were intentionally designed to impress with their monumental size. When it was constructed in 1910, Silo No. 2 was Montreal's tallest building, with a height of 15 storeys.Height regulations did not apply to buildings such as grain elevators, and Silo No. 2 was the highest and largest concrete building in existence at the time of its construction. The scale of these structures as a characteristic of the sublime inevitably made them visual landmarks dominating the skyline. There is a sense of awe while experienceing the overwhelming scale of these structures.

Certain architectural typologies such as cathedrals deliberately use scale, materiality, acoustics, and light to experientially engage the occupant in distinctive ways.

33 William J. Brown, "American Colossus: The Grain Elevator, 1843 to 1943" (Cincinnati, OH: Colossal, 2009) 35.

Figure 2.10: Grain silos on a prairie farm

However, a similar effect can be observed in certain industrial structures, except this is achieved unintentionally as their design is strictly driven by necessity. The geometric purity of the form of grain elevators is directly related to their basic function.

In the prairie farms, the oldest silos resemble regional wooden cabins or barns, since wood was the original material used in their construction. One of the main issues with using wood was that it was combustible, and grain dust could easily cause explosions. Farmers then experimented with metal and tile containers, all of which were also implemented in the urban context. These types also came with bin size restrictions, structural instability, susceptibility to fire damage, and expensive construction costs.

In the early 20th century, the first reinforced concrete silos were built, using sliding formwork. This was the ideal material as it was resistant to mold, vermin, blights, is watertight and relatively fireproof, and it could be used in any climatic zone. [34]

Figure 2.11: Wood grain elevators in a rural context

Figure 2.12: Tile grain elevator in a rural context

34 Bernd & Hilla Becher, "Grain Elevators" (Cambridge, MA: MIT, 2006) II.

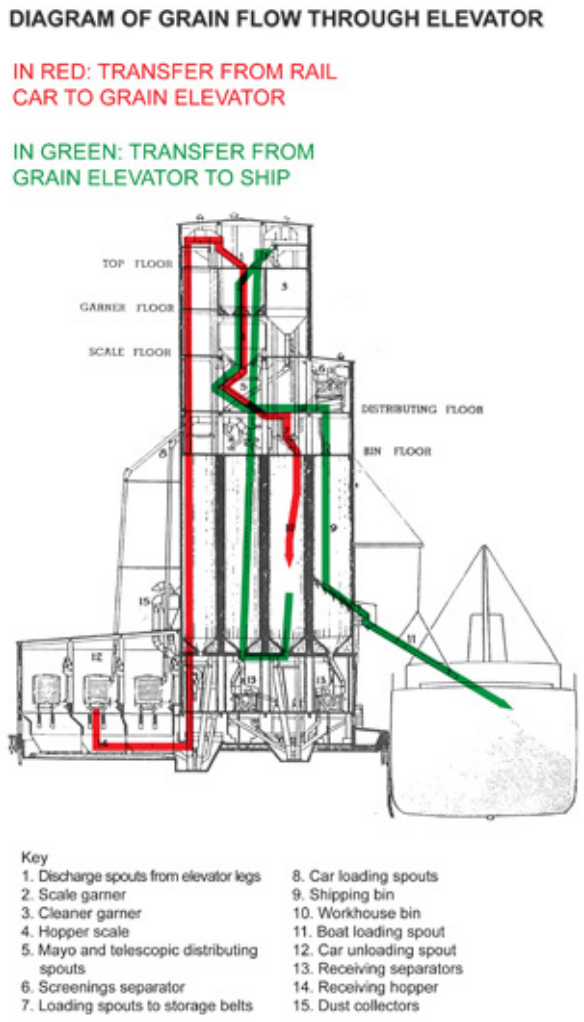


Figure 2.13: Sectional diagram showing the transfer of grain from freight train to barge

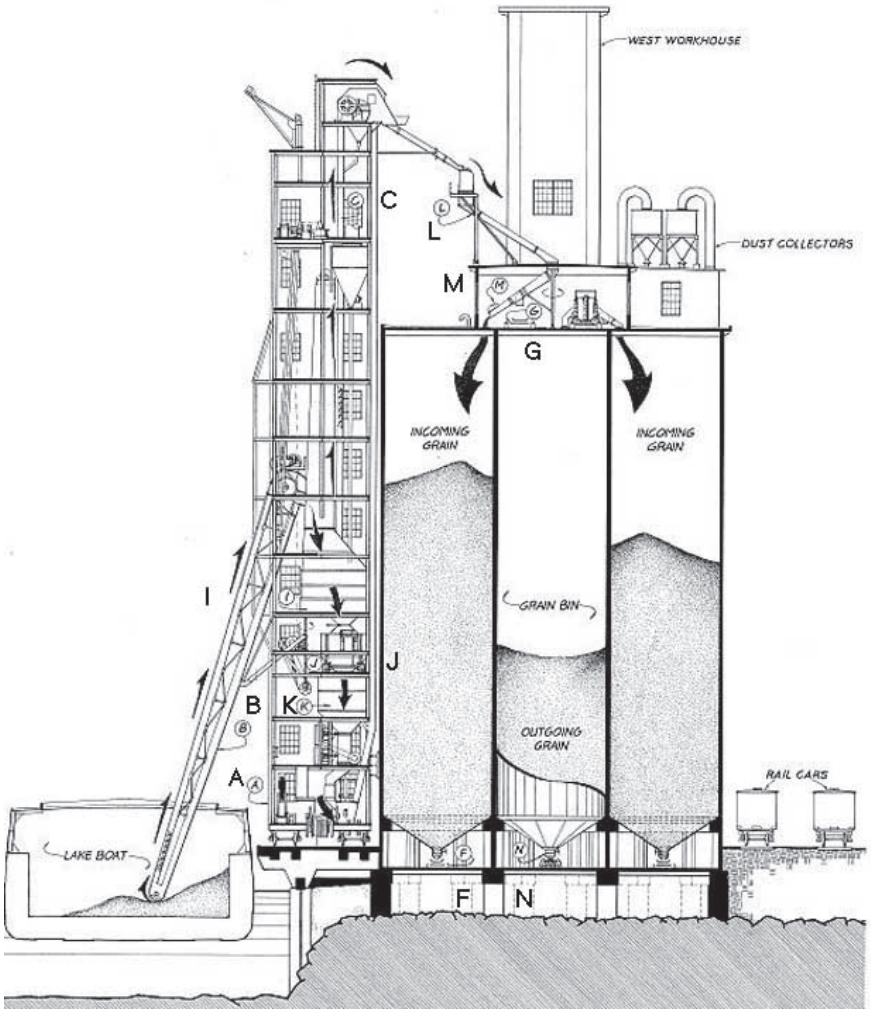


Figure 2.14: Section through grain elevator

The Levels of a Concrete Grain Elevator

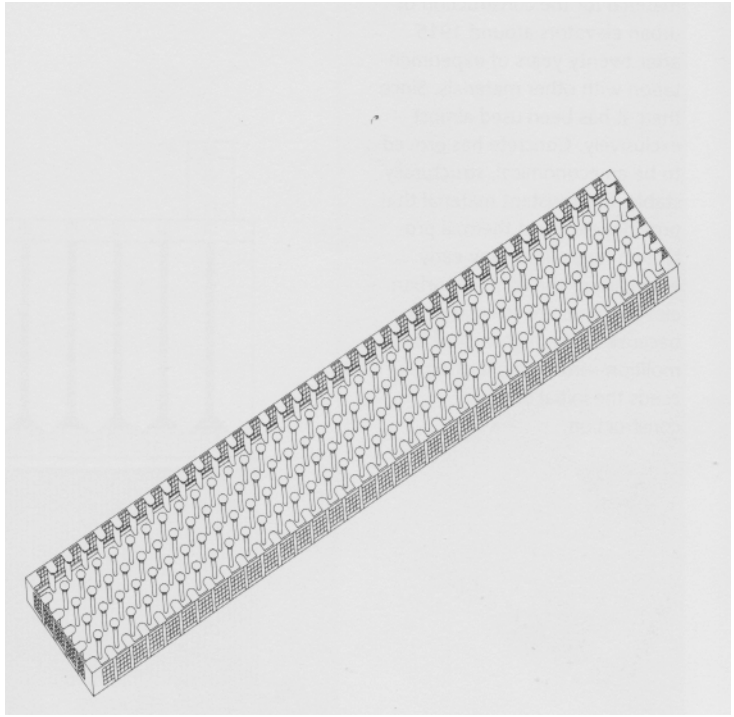


Figure 2.15: Axonometric diagram of the work floor level

1. Work Floor

On the ground floor, the grain is weighed, its moisture level is checked and its temperature is monitored. This level connects the elevator to the train, ship, and truck loading areas. It is usually an open space with windows on all sides and columns supporting the structure.

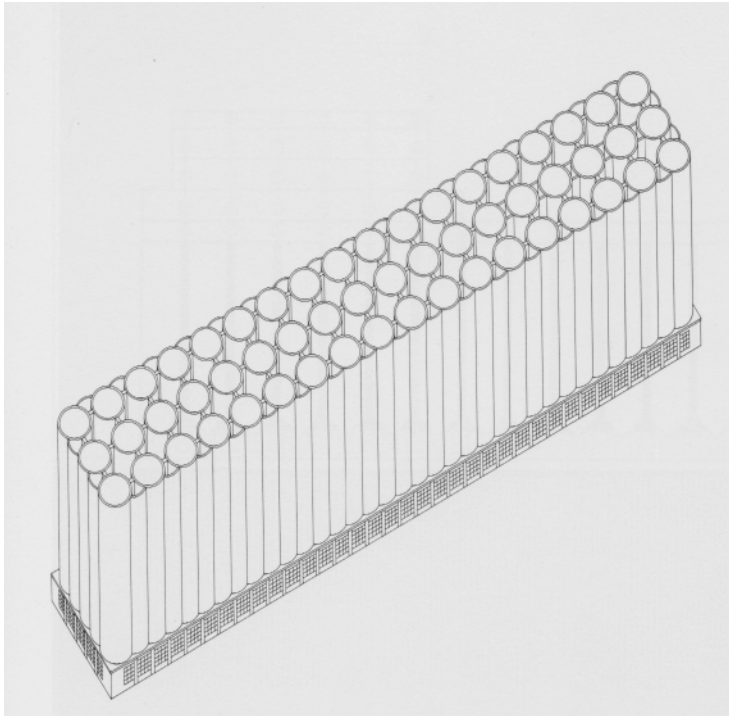


Figure 2.16: Axonometric diagram of the container zone

2. The Container Zone

From the work floor, the grain is moved upward to the container zone using suction tubes, bucket elevators, or screw conveyors. The storage part of the elevator is usually comprised of cylindrical bins, although other forms were also implemented. The spaces in between the cylinders can also be used for storing grain.

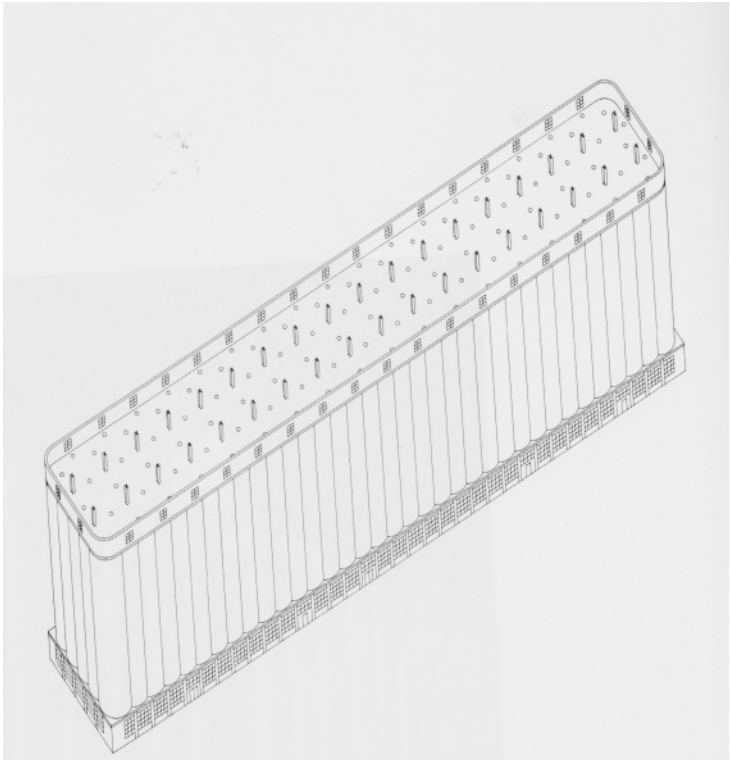


Figure 2.17: Axonometric diagram of the distributing floor

3. Distributing Floor

After the grain has been weighed and sorted, it is carried along the length of the gallery above the containers until it reaches the appropriate bin. In order to avoid grain dust explosions in this area, large windows span across its length to provide ventilation.

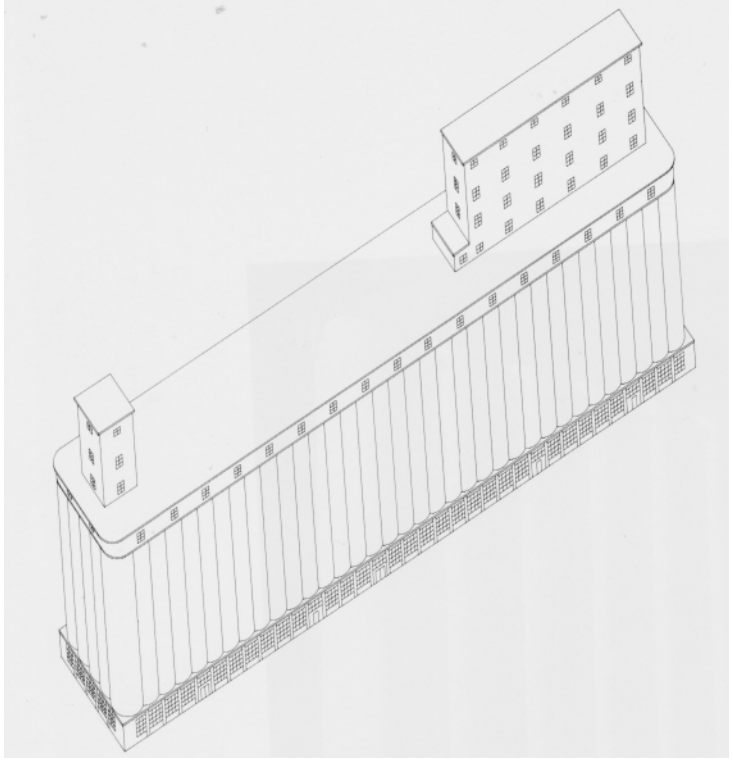


Figure 2.18: Axonometric diagram showing the headhouse

4. The Headhouse

The grain is weighed and sorted in the tower level called the headhouse or the working house. This area contains the drives and aggregates used to clean and dry the grain, extracting the dust.

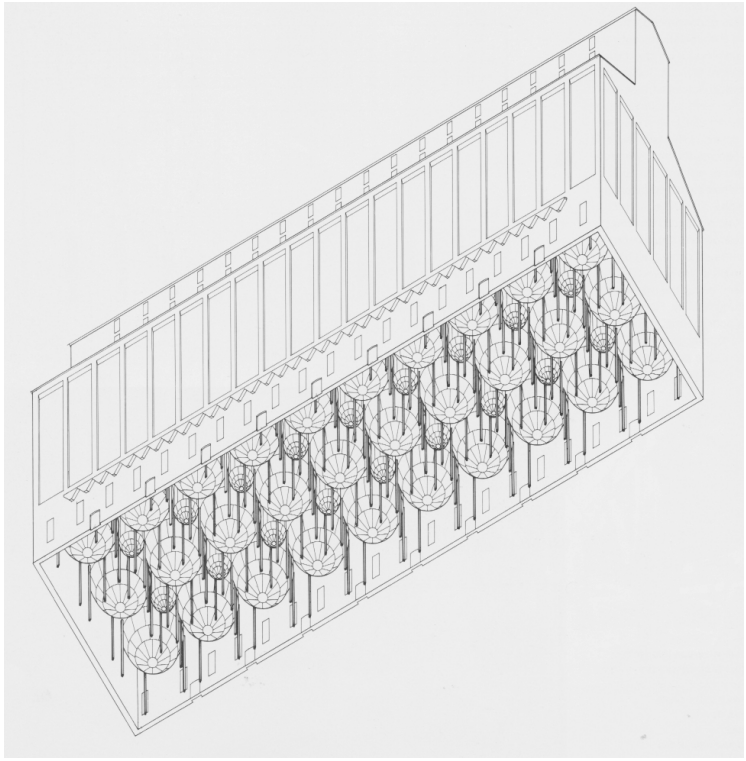


Figure 2.19: Axonometric drawing of a steel elevator

The Steel Elevator

At the end of the 19th Century, steel was a popular material for grain elevators. Several drawbacks led to its replacement with concrete: the high cost, the susceptibility to corrosion, wasted space between the circular bins, and poor thermal insulation.

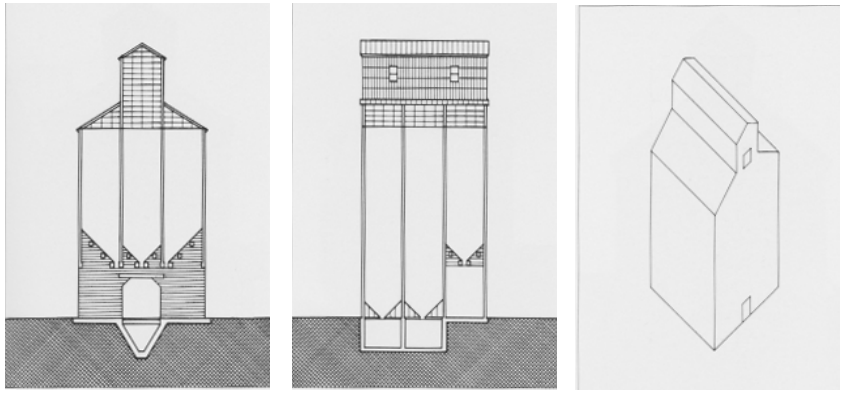


Figure 2.20: Sections and axonometric of a rural grain elevator

The Rural Elevator

Rural elevators are typically constructed of wood and they greatly differ from the urban elevators through scale. The concrete urban elevator usually reaches up to 200 feet, while the rural wood elevator can reach a maximum height of 100 feet. The rural elevator functions as a landmark towering above the rest of the town, with details borrowed from barn and log cabin construction.

"As a building type, the grain elevator is both rural and urban, as their context varies from rural farmland to urban industrial landscape." - Lisa Mahar Keplinger, Grain Elevators

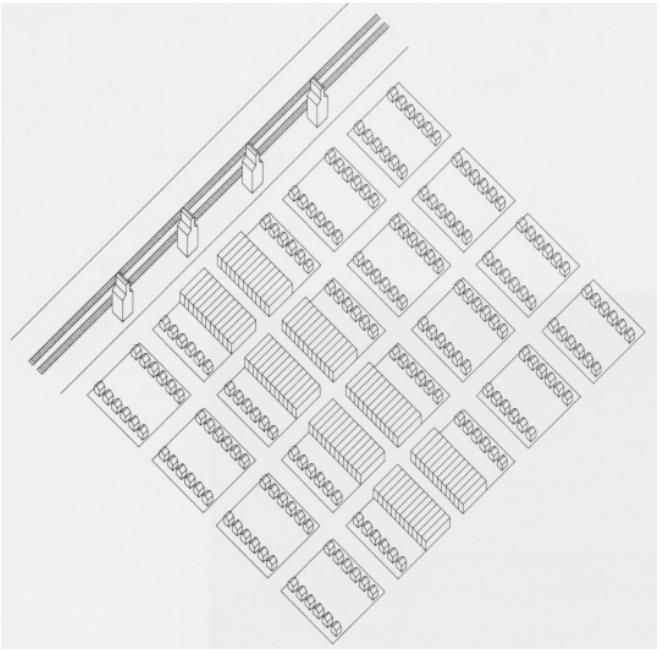


Figure 2.21: Town planning diagram showing the locations of the grain elevators

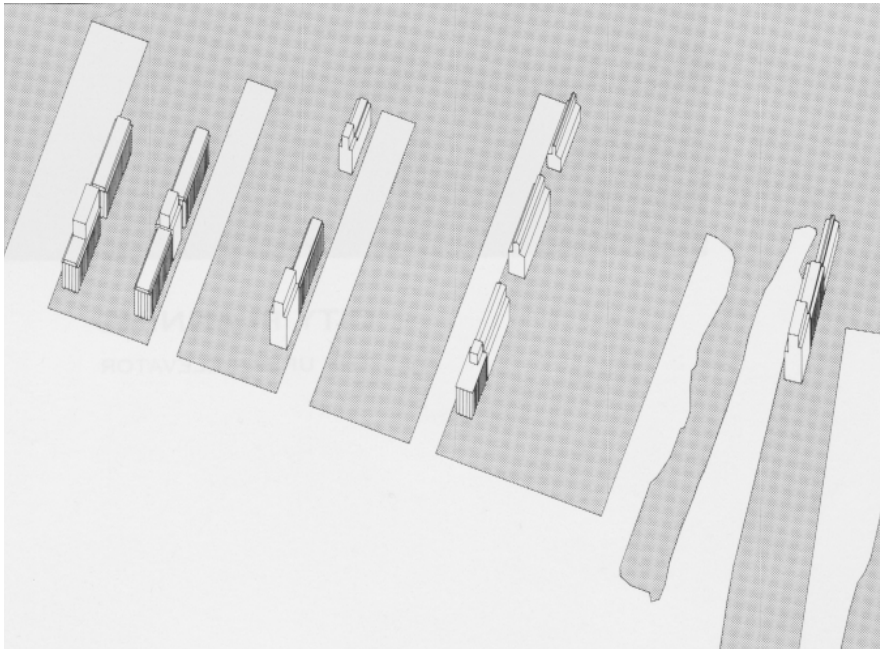


Figure 2.22: City planning diagram showing the locations of grain elevators

Town Planning

Grain elevators and railroad stations were the first structures in the town to be constructed, and the town was usually oriented along the axis of the railroad. The grain elevator was prominent because of its scale and location along the railroad for access to freight trains.

City Planning

The organization of the city is not as dependant on the location of the grain elevator. The urban grain elevator is usually placed along the water's edge, in order to facilitate access to ships for the export of grain.

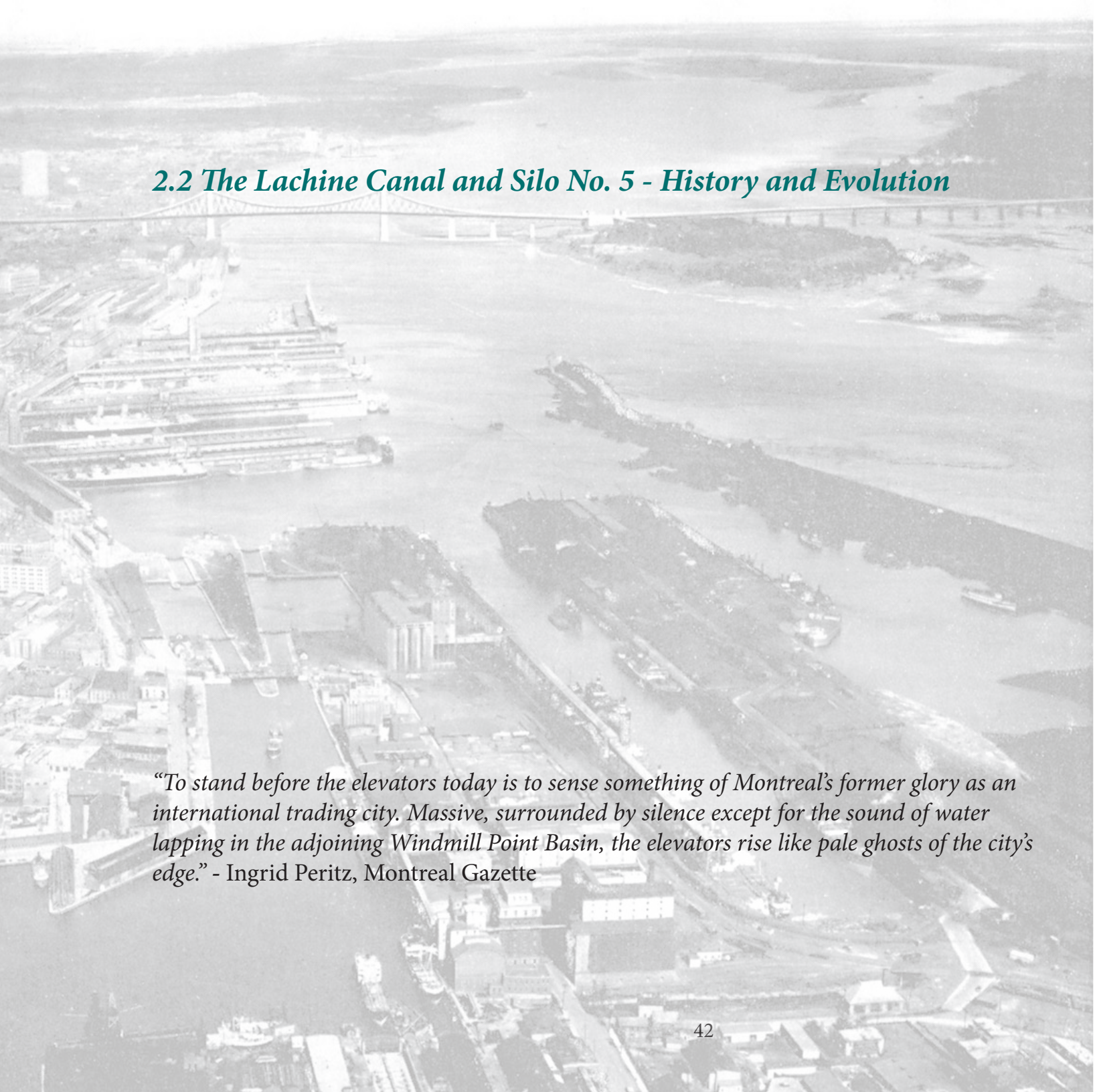
"The grain elevator is at once engineering wonder - a gritty machine, functionally determined; a complex embodiment of the realities of the American systems of farm production and transportation; and a symbol, be it for the passing of the family farm, the death of urban waterfronts, or a lost, naive modernism. The grain elevator is neither form, nor function, nor symbol. It is all three, arguably the most important lesson held in this enlightening book". [35]

The grain elevator is undisputedly charged with symbols of human sustenance and agriculture, but also of 20th Century modernism and an architectural influence. In responding to the scale and logistics of the storage and transfer of grain, an icon was created which seemed to be in tune with the modernist manifesto. Contrary to traditional ideals, the beauty of this building type did not lie in ornamentation, but it was created by dispassionately solving a functional problem.

Functional requirements and the need to optimally construct them ultimately resulted in their rigid solidity and form. However, these characteristics also make them considerably harder and more expensive to demolish. This is also the case with Silo No. 5: an important and enormous piece of infrastructure, too difficult to repurpose, and indeed very tough and expensive to demolish. Nevertheless, the potential repuspose project should respect and emphasize its identities, qualities, and meanings.

35 Lisa Mahar Keplinger, "Grain Elevators" (New York, NY: Princeton Architectural, 1993) 84.

2.2 The Lachine Canal and Silo No. 5 - History and Evolution



"To stand before the elevators today is to sense something of Montreal's former glory as an international trading city. Massive, surrounded by silence except for the sound of water lapping in the adjoining Windmill Point Basin, the elevators rise like pale ghosts of the city's edge." - Ingrid Peritz, Montreal Gazette

2.2 The Lachine Canal and Silo No. 5 - History and Evolution

"People seeking to understand the Point and the surrounding communities should know that the Lachine Canal was the way to enter America through to the Great Lakes. It provided employment for people who worked at the Montreal harbour. It permitted the transport of manufactured goods to and from all kinds of industries. It made Montreal Canada's industrial and commercial center at the time." [36]

In 1610, Samuel de Champlain established permanent settlement of the Island of Montreal, in an area where a creek spilled into the St Lawrence River and fairly close to what is now the site of Silo No. 5.

The Lachine Canal is a 14.5-km-long constructed waterway and one of the important artifacts that contributed to Montreal's evolution into an industrial metropolis. Like Silo No. 5, it represents an era when the city was an industrial, transportation, and financial hub of national significance.

Constructed in 1825, the canal separates the port of Montréal from Lake Saint-Louis, and it was the gateway to the Great Lakes until 1959, as vessels had to pass through it on their way to/back from Toronto, Cleveland, Detroit, Chicago, and Thunder Bay. It was built by the Irish who were forced out of their country due to the potato famine, almost

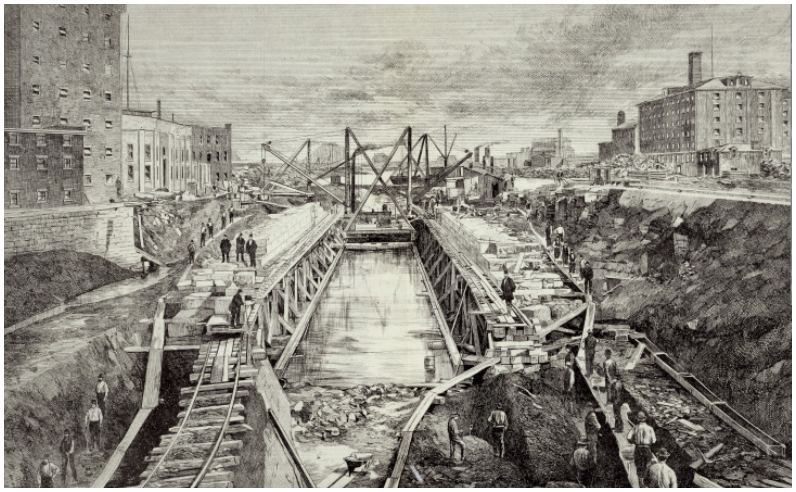


Figure 2.23: Drawing depicting the construction of the Lachine Canal

Figure 2.24: Photograph of the Lachine Canal in its early days

36 Dave Flavell, "Community and the Human Spirit: Oral Histories from Montreal's Point St. Charles, Griffintown and Goose Village" (Montreal: Petra Books, 2014) 310.

entirely by man-power and with basic equipment. Industries were formed on the edges of the canal, attracted by its hydraulic potential and access to water for shipping goods.

From 1847 to 1945, South-West Montréal had the most highly diversified concentration of industrial establishments in Canada, making it "the cradle of Canadian industry":

"Not only was the canal used as a shipping lane and energy source, it was also a supplier of water to industries. Owing to this threefold use, between 1846 and 1945 the canal attracted more than 600 different firms covering the entire gamut of industrial manufacturing, whether light or heavy...In the process, the canal corridor became the epicenter of Canada's manufacturing sector, and Montreal the nation's leading metropolis." [37]

Water power was very important for businesses and industries along the canal, as they depended on this type of energy production. Thirteen flour mills and grain elevators, twenty-three nail factories, fourteen edge tool industries, and eighteen sawmills and wood shops were using the hydraulic power available and consumed a large amount of energy. In response to the growth and needs of these industries, construction started in 1843 to widen and increase the depth of the canal, as well as reduce the number of locks from seven to five to accommodate larger ships. The widening of the canal contributed to the creation of a very effective hydraulic

37 Yvon Desloges and Alain Gelly, "Le Canal de Lachine: riding the waves of industrial and urban development" (Sillery: Septentrion, 2002) 14.

Figure 2.25: Map showing Montreal's early development and the Lachine Canal

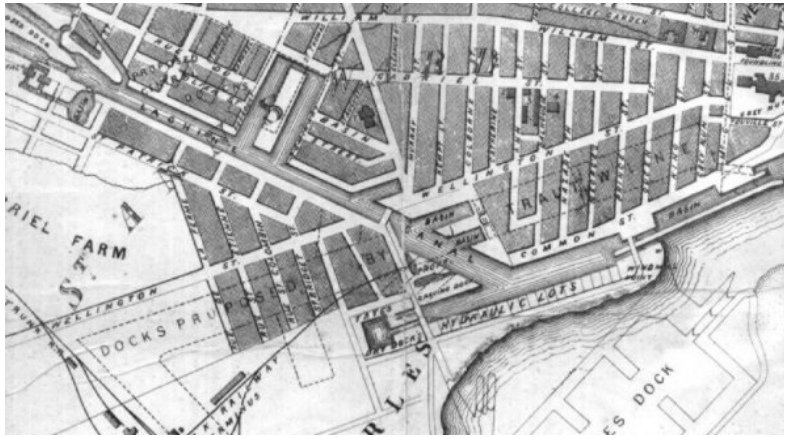


Figure 2.26: Map showing the mouth of the Canal and the Pointe-du-Moulin site in 1859

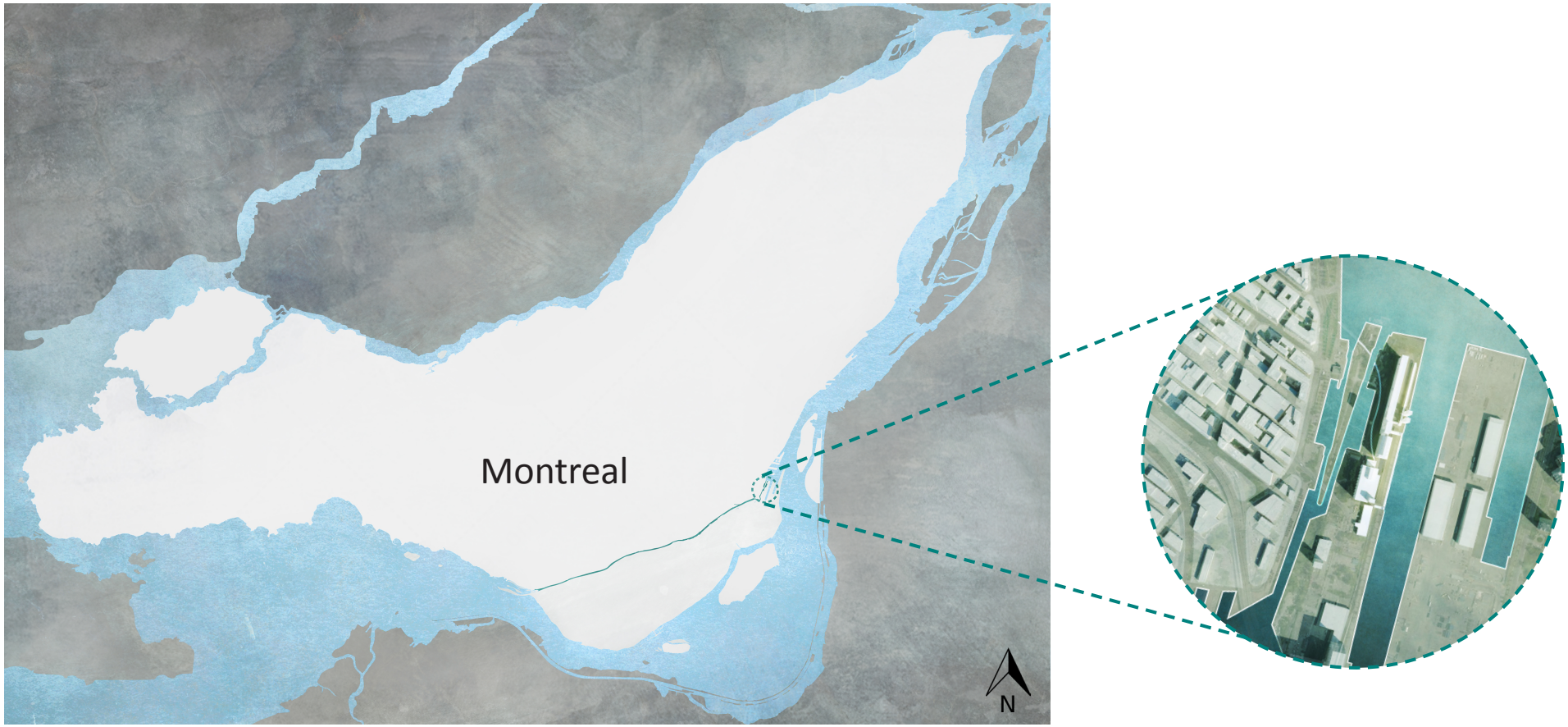


Figure 2.27: The site of Silo No. 5 in its greater context

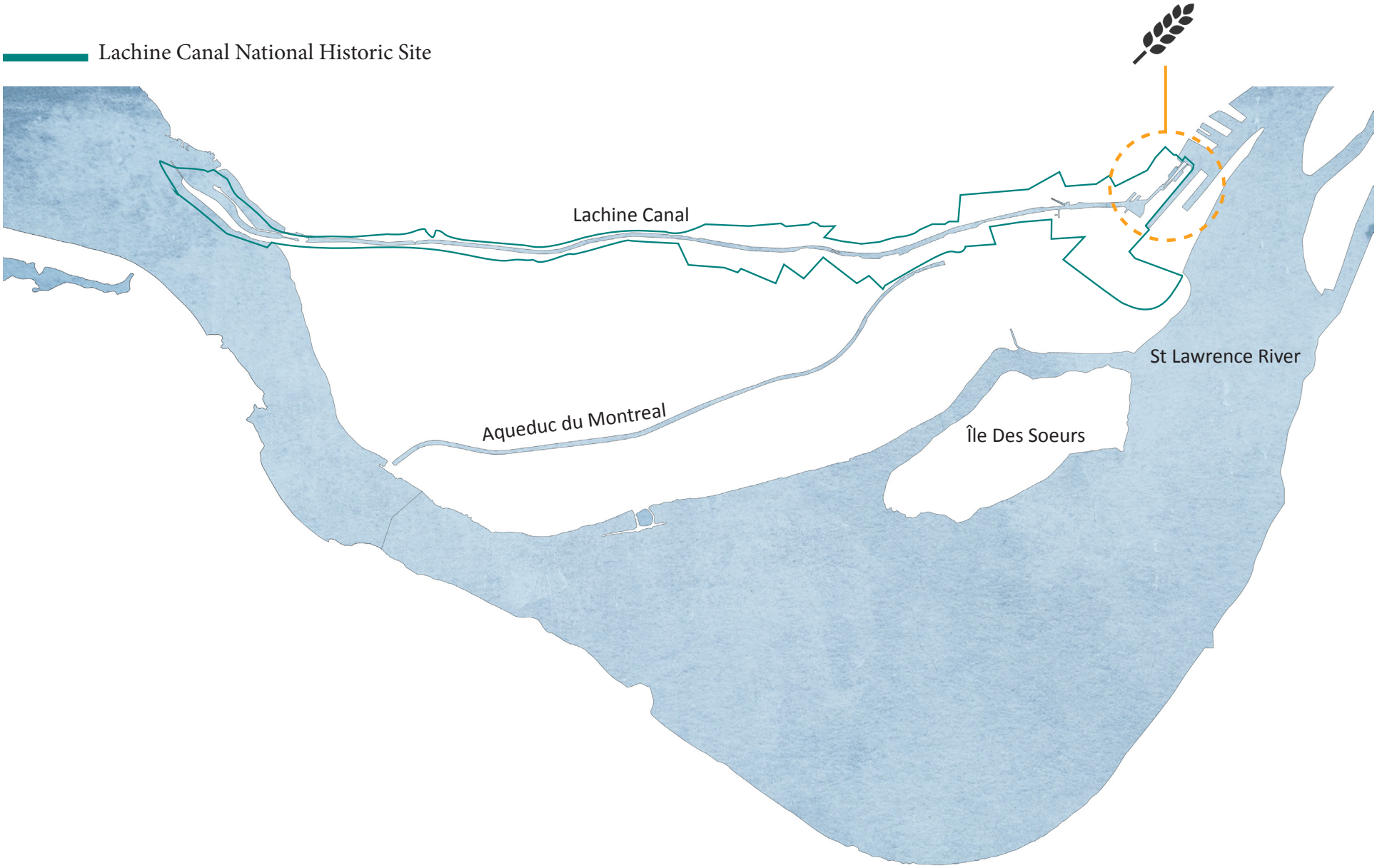


Figure 2.28: Map diagram showing the Lachine Canal in relationship to the St. Lawrence River

complex, as it improved its flow. More industries were attracted to its shores due to the ingenious engineering that went into creating this powerful system.

There were three hydraulic sites along the canal, each with its industrial specialization. Reach No. 2, including the Silo No. 5 site, specialized in the iron and flour industries. Sixty-five percent of the flour produced in Eastern Canada was located here, and the Grand Trunk Railway played an important part in transporting grain which arrived by rail before being transferred into vessels. The hydraulic complexes were beginning to bring conflict as the canal's navigators were criticizing the high current speed, and industry owners wanted more water and faster current. Due to this issue, the canal was widened again in 1885, and many industries turned to steam as the energy source. More improvements had been made to the canal after this, including the replacement of the locks to allow for larger ships as a reflection of the demand related to the industries.

Figure 2.29: Infographic depicting the main industries on the Canal

were not subject to the city's limitations on building height, as they were outside municipal jurisdiction. They became Montreal's tallest structures and impossible to ignore. In 1902, the Harbour Commissioners signed a contract with the Grand Trunk Railway for the construction of a grain elevator on Pointe-du-Moulin. The construction was done by the John S. Metcalf Co., specialists in steel grain elevators. It was built on piles and was able to hold about a million bushels of grain. During this period, steel was praised as the ideal material for grain elevators, and Elevator B was a brilliant prototype.

The ground floor, built in brick, was designed to receive railcars carrying grains for unloading. The silos themselves were made entirely of steel panels forming a rectangular shape, and the three-storey cupola housed the mechanical equipment for weighing and distributing the grain into the silos. The mechanics involved in this process was rather ingenious at the time, making the elevator able to move 100,000 bushels per hour.

Annex 1 (1913)

The grain boom in the Prairies had demanded an increase in production and storage for grain. In order to keep up with Buffalo, which was Montreal's competitor in grain shipment, another elevator was constructed on Pointe-du-Moulin. Prior to its construction, the port in Buffalo was shipping 100 million bushels of grain, and Montreal's port was shipping 60 million.

John S. Metcalf was responsible for this construction as well; however, the material had changed from steel to reinforced concrete as the techniques evolved. The annex had the capacity of 1 million bushels and comprised 28 silos. Overhead conveyor galleries were used to transfer grain to Elevator B. The two elevators together had a capacity of two million bushels and formed the second largest elevator complex owned by the Grand Trunk Railway.

In 1928, the Port had become the world's leading grain exporting location, with a record of 30,000 tons delivered every business day.

Figure 2.30: Infographic showing grain import from the Prairies and export internationally to Europe and Asia

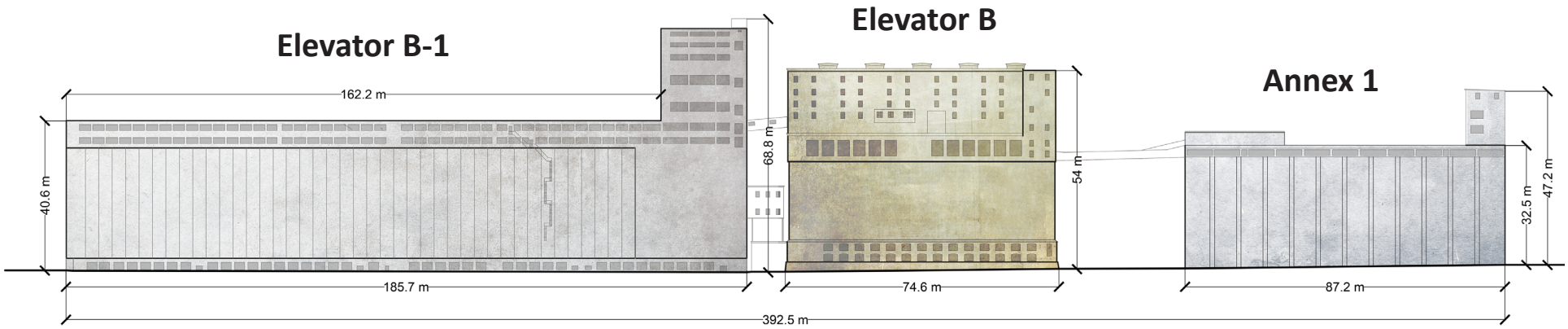


Figure 2.31: Silo No. 5 elevation

Elevator B-1 (1959)

The St Lawrence Seaway was planned in the early 1950's and was built in 1959. The main purpose of this infrastructure was to enhance inland river navigation from the port, as well as accomodate ocean shipping from the Atlantic to the Great Lakes. In order to compete with this new infrastructure, the last component of Silo No. 5 was constructed in 1959 by the renown firm C.D. Howe.

By this time, construction techniques had evolved further, and thus Elevator B-1 included the most advanced technology in its category. The quality of the concrete and foundations were greatly improved, as well as the dust evacuation system. The form of the structure was also different, as it included a smooth, wavy facade rather than the typical cylindrical form. This shape was given by the quarter-circle walls that were placed in between the cylinders, allowing for more storage without an increase in the structure's volume.

The ground floor contained the lower hoppers and spouts; the top floors, the conveyors and scales.This elevator held 1.5 million bushels, which brought the entire complex to 5 million in total. This amount is the equivalent of 30 Olympic-size swimming pools or over 210 million loaves of bread. All of the elevators were connected by elevated galleries, and their dust removal systems were greatly improved.

Figure 2.32: Photograph of the site in 1945

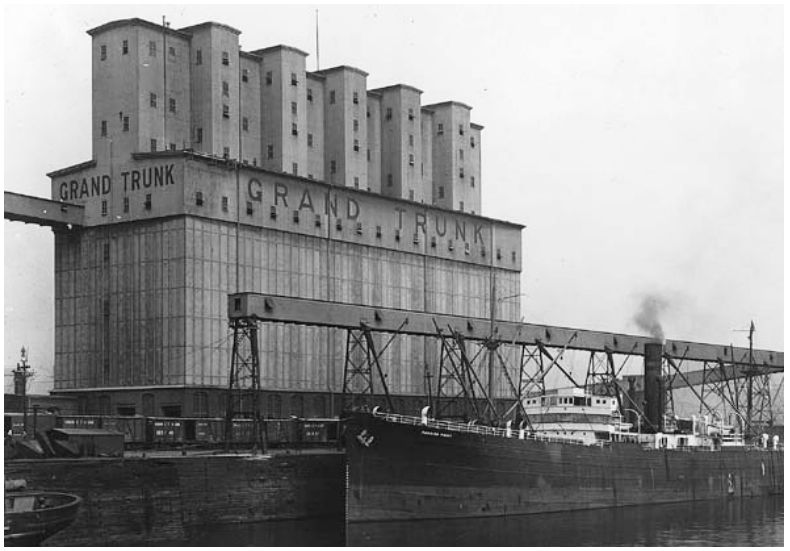


Figure 2.33: Photograph of Elevator B in its early days

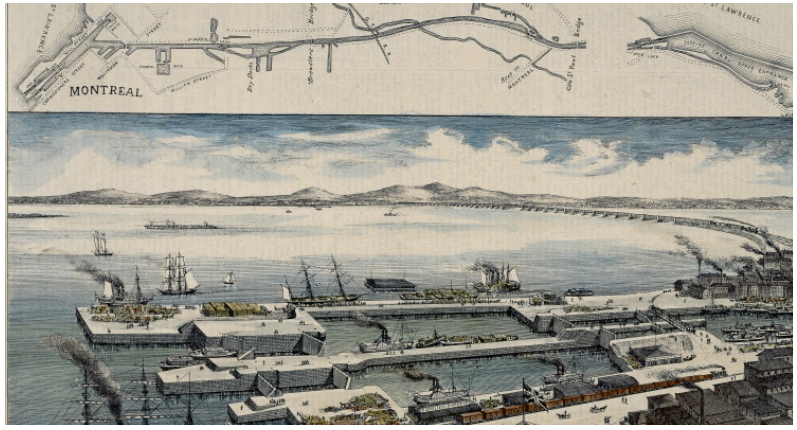
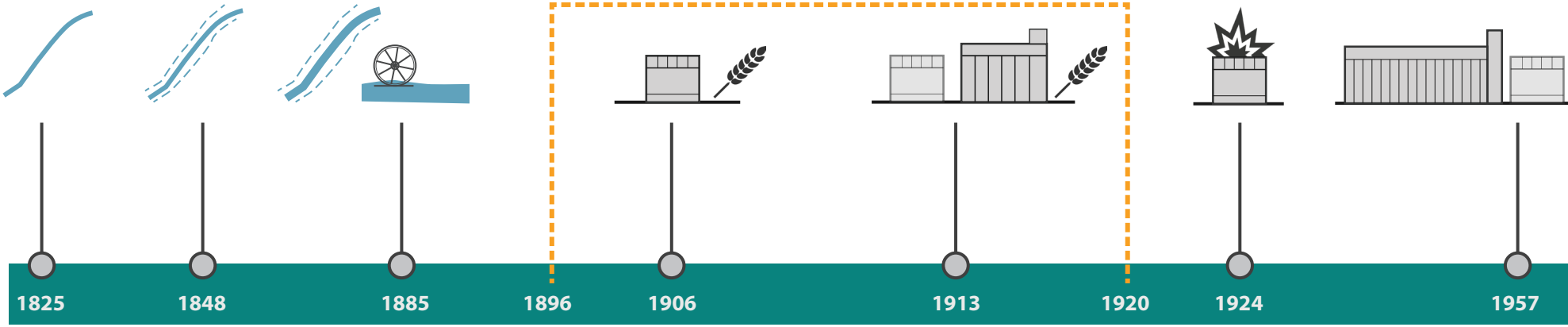


Figure 2.34: Drawing depicting Pointe-du-Moulin and its 2 basins

Figure 2.35: The Lachine Canal as see from the offices of the Grand Trunk Railroad

Golden Age of Industrial Development

- coincided with the development of the prairies, the grain boom and the rapid development of the Port of Montreal



Completion of Lachine Canal

Canal is widened

- the width and depth of the canal were increased as response to the traffic growth

Hydraulic complex created

- canal was used for hydraulic energy to attract industries along its edges

Elevator B constructed

- constructed by John S. Metcalf, renowned specialists in steel grain elevators
- engineering marvel of its time, steel silos, non-combustible materials

Annex 1 constructed

- driven by the boom in grain production on the prairies
- 60M bushels shipped from Montreal, 100M shipped from Buffalo
- reinforced concrete replaced steel in the construction

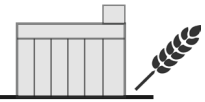
Elevator B Dust Explosion

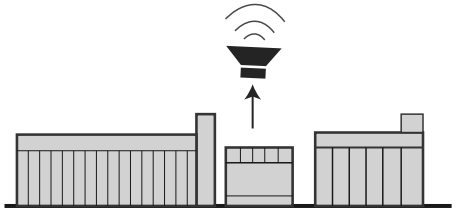
- explosion caused by dust resulting in 1 death and 4 injuries
- prompted development of new dust removal systems

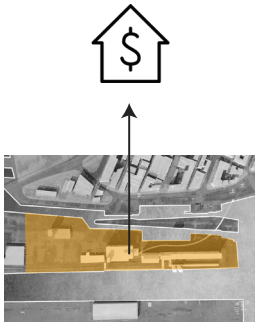
Elevator B-1 const

- using the most adva technologies, everyth improved
- St. Lawrence Seaway constructed to impro handling

Figure 2.36: Timeline of Silo No. 5 and the Lachine Canal







1970

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ve grain

Canal is closed to shipping

- container traffic was now the principal source of activity at the Port
- 1977 - bike path was created along the canal

1995

All subsidies for grain movements were abolished under the Canadian Transportation Act

- Silo No. 5 was completely abandoned
- Lachine Canal is declared a National Historic Site

2001

Silo No.5 becomes part of an audio installation

- Project called "Silophone" treats the structure as a giant musical instrument with a long reverberation time
- 2002 - Lachine Canal is reopened as a leisure area for boating

2011

Canada Lands Company purchases land

- federal company buys Silo and Point de Moulin with other properties along the canal

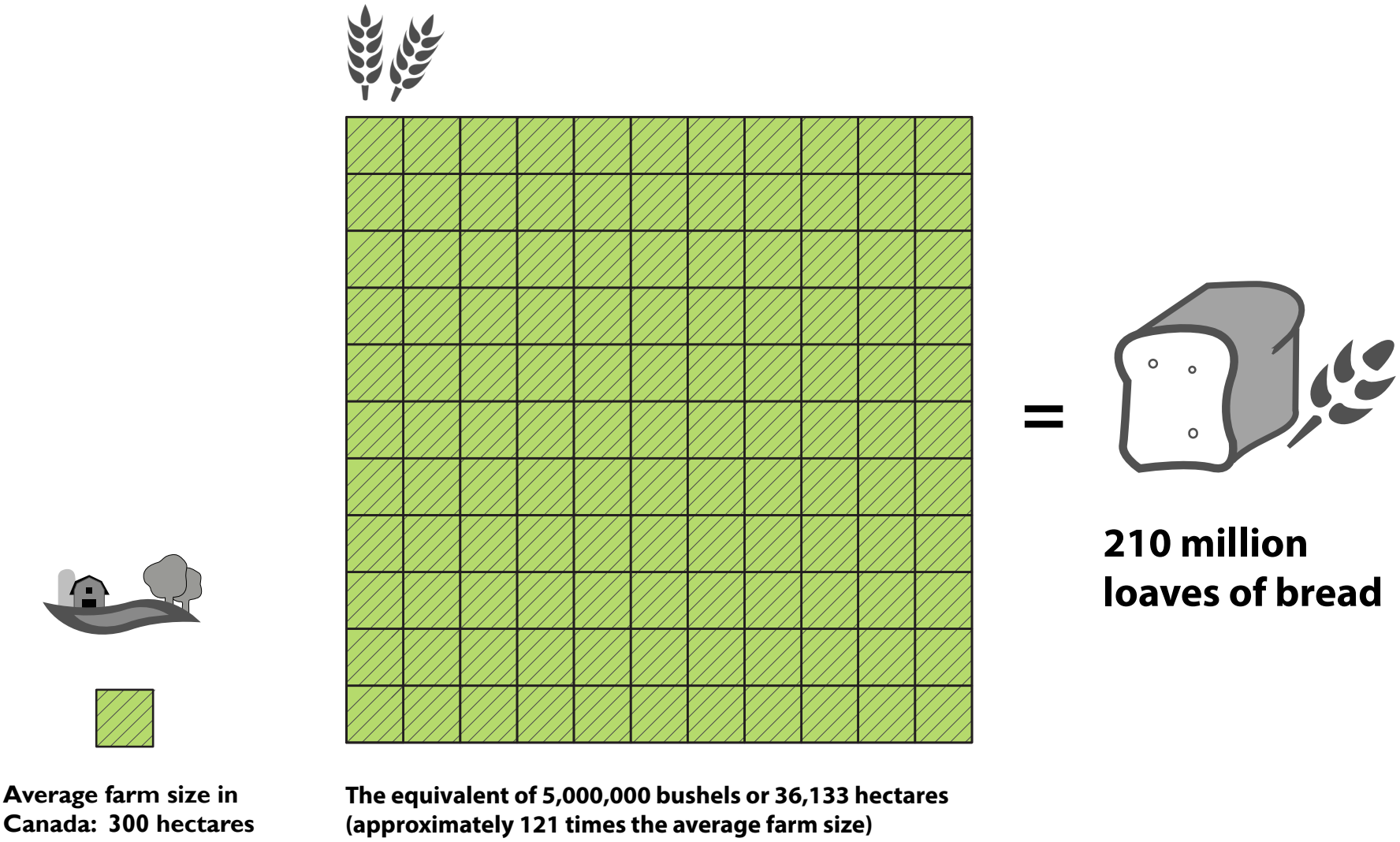


Figure 2.37: Infographic showing the equivalent of 5 million bushels of grain

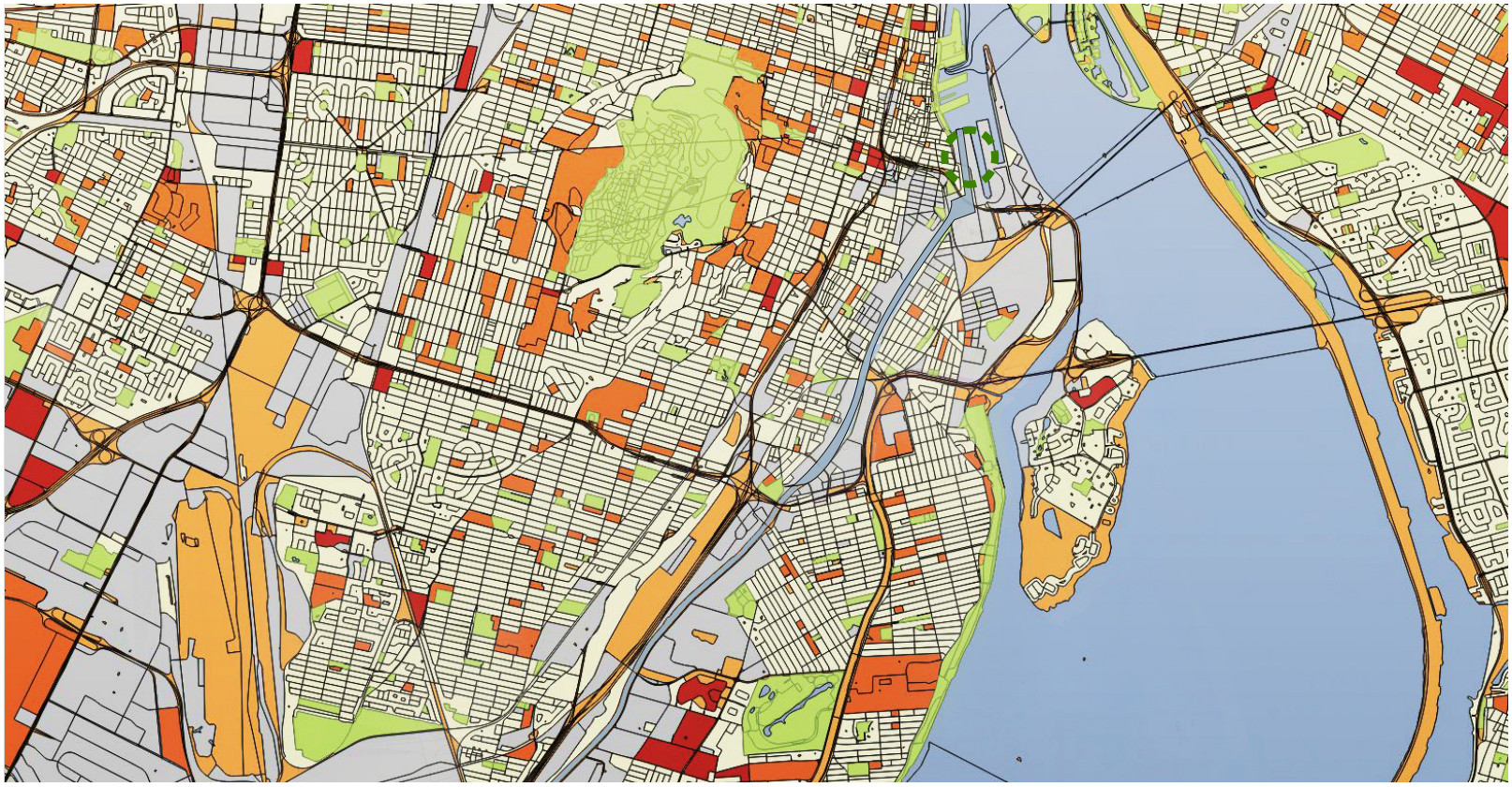


Figure 2.38: Land use map showing the resource/industrial areas along the Lachine

Abandoning the Lachine

"In the end, what may be most troubling about these ruined industrial landscapes is not that they refer to some once stable era, but rather that they remind us of the ephemeral quality of the world we take for granted." [38]

The impact of the Lachine Canal on the city was felt in the emergence of the working-class neighbourhoods along the canal as well as in the population of Montreal, which grew over four times between mid-1800's and early 1900's. Events such as The Great Depression of the 1930's and World War II greatly stalled the flow of grain. However, Canada and the U.S. became the main suppliers of grain to Europe, the U.S.S.R., and China after these events had passed. Canada was known as the "Empire's granary" and Montreal as the "spout of the granary." [39]

Between 1846 and 1945, over 600 industries had settled along the canal. After World War II, Canada and the U.S. were the main suppliers of grain for a Europe affected by war. As of the 1950's, the Lachine could not be expanded further to accomodate larger ships, as many industries were already settled on its edges. The switch to steam power from hydraulic power had also made it possible for industries to be built further away from the canal. The railway was also a more efficient transportation system, as the canal was closed in the winter due to freezing.

In 1959, the St Lawrence Seaway was constructed and ranked as one of the greatest ship canals systems in the world, stretching from Lake Ontario to the Atlantic Ocean. The construction of the Seaway also represented a threat, since ocean ships did not have to stop in Montreal on their way to the Great Lakes.

In the 1960's, Montreal was Canada's business capital with a thriving financial industry. Factories were also still thriving, and the city was the headquarters of both the Canadian National and Canadian Pacific Railways. The surrounding landscape and urban fabric was further altered, as Île Sainte-Hélène, the island formed by many years of canal dredging, became the site of the Expo 67. As preparation for this important event, Victoriatown, or Goose Village, an industrial working-class community at the mouth of the Lachine, was demolished in order to remove any undesired aspect from that area. The industrial corridor began to diminish, as new infrastructure started to replace it.

In the 1970's, container traffic had started to replace the movement of grain as the most important Port activity, and road transportation had replaced rail infrastructure use. The industrial lands along the Lachine were starting to lose their value and relevance because they could not compete with the insatiable demand any longer. In 1977, Parks Canada had declared the canal a National Heritage Zone, recognizing its national and regional impact and historic significance. In 1982, however, it was closed down due to contamination

38 Jefferson Cowie and Joseph Heathcott, "Beyond the ruins : The meanings of deindustrialization".(London: ILR Press, 2003) 4.
39 Ernest J. Chambers, "The Book of Montreal" (Montreal: Book of Montreal, 1903) 27

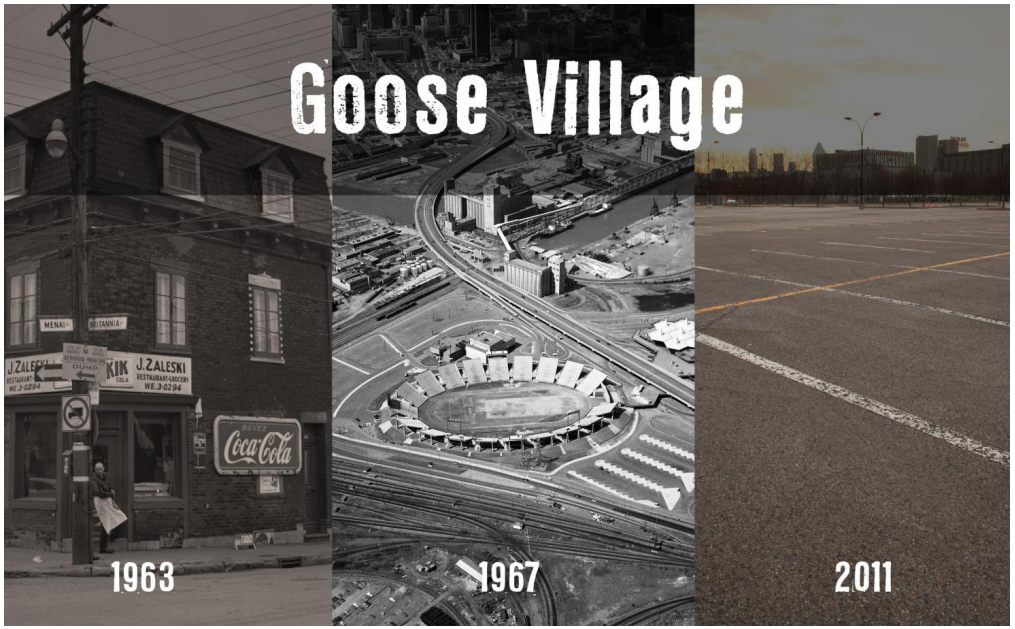


Figure 2.39: The transformations of the Goose Village neighbourhood throughout the last decades

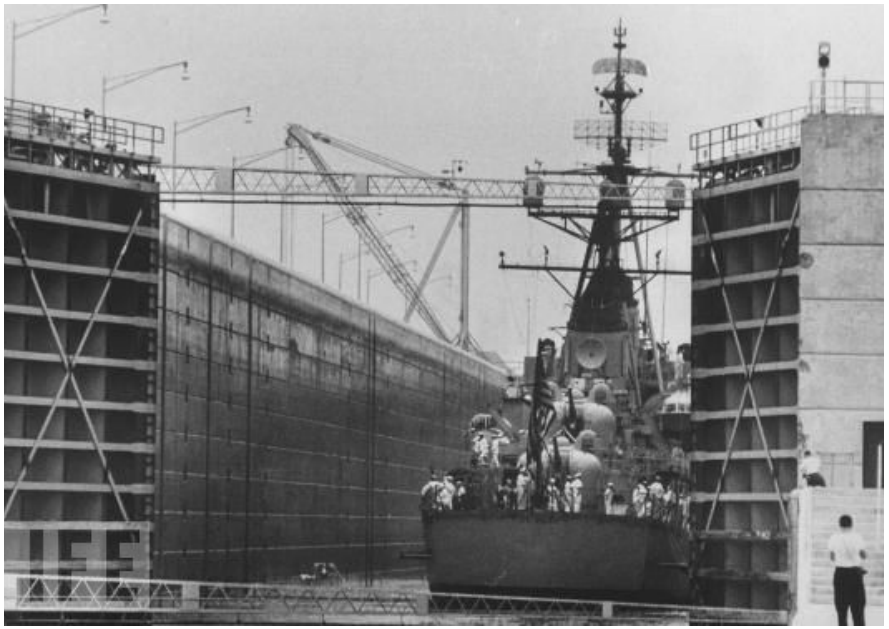


Figure 2.40: The St Lambert Lock on the St Lawrence Seaway

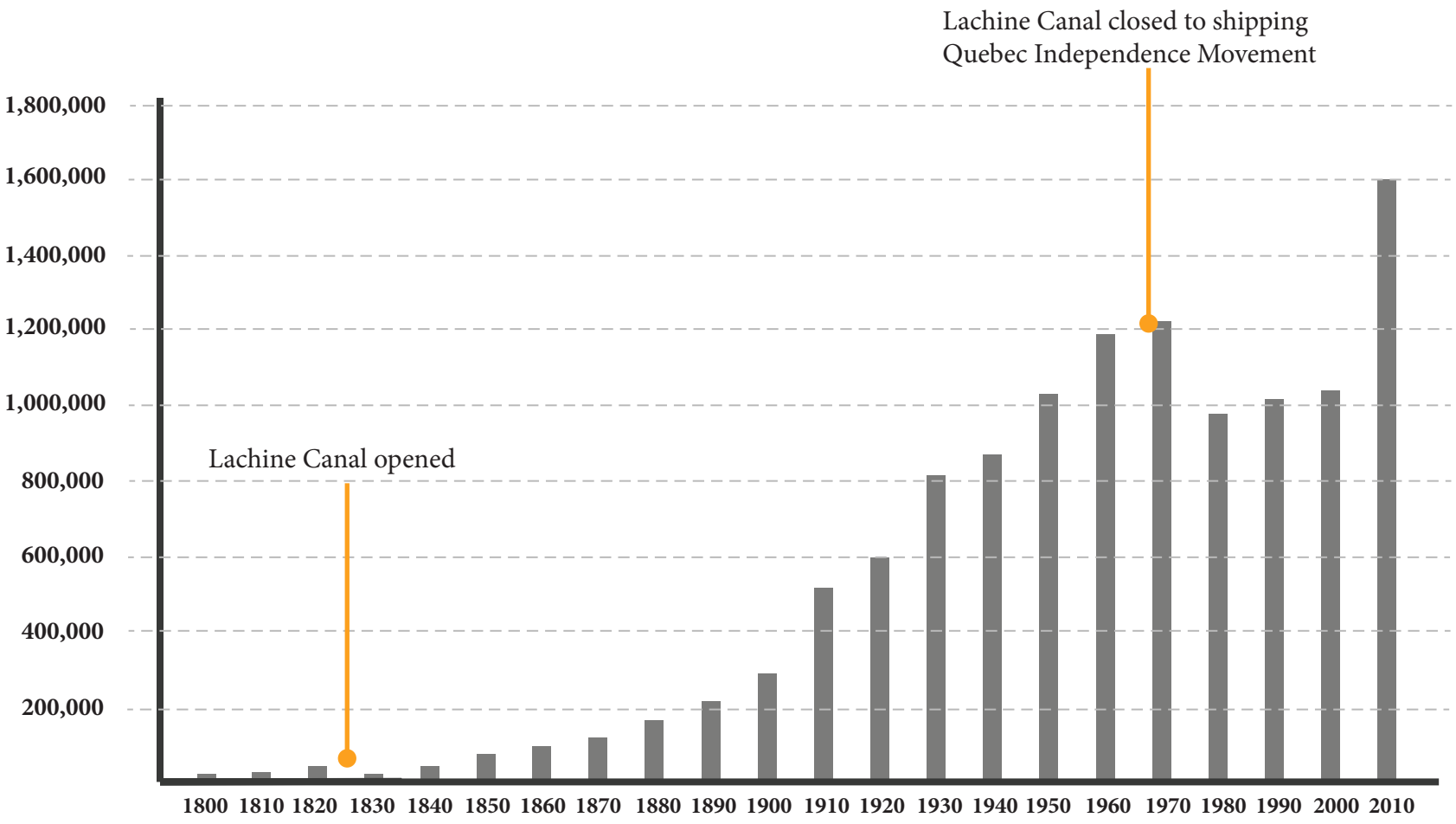


Figure 2.41: Montreal's population growth since 1800

from the former industrial uses, making fishing and swimming forbidden.

In 1984, the Western Grain Transportation Act allowed the railways to increase their rates, while providing farmers with a subsidy for grain transportation. In 1995, however, the Canadian Transportation Act abolished all subsidies for grain movement, rendering sites like Silo No. 5 completely obsolete. Later on, Vancouver replaced Montreal as the main exporter of grain.

In 2001, Silo No. 5 became part of an audio installation called *Silophone,* which took advantage of its astounding acoustical qualities and turned the structure into a musical instrument. People all around the world could "play" the silophone online. This project stirred local and international attention toward the silo, as it made the public more aware of its presence and challenged them to imagine its potential future.

In 2002, the canal was opened for leisure boating as the real-estate values of the lands around it started to increase along with residential and commercial development. Old industrial warehouses and factories like Dominion Textiles were turned into high-end loft buildings, as waterfront sites were now very desirable and expensive. Gentrification had started to be implemented on sites along the canal, since house values skyrocketed here. The historic heritage and appeal of the industrial corridor was used to attract new residents for the luxurious condos, although many artifacts had been destroyed in favour of new construction.

In 2011, Canada Lands Company, a federal corporation specializing in real estate, development, and attractions management, purchased the Silo No. 5 site. Shortly after this, they started a public consultation process by which proposals were laid out for the site's redevelopment. Despite the public involvement, no decisions have been made because it is a difficult project open to many debates about what should be done. Canada Lands Company hopes to reveal a final proposal by 2017, on Montreal's 375th anniversary.

Although many cities were drastically affected by deindustrialization, those with larger populations such as Montreal were able to undergo a more fluid transition.

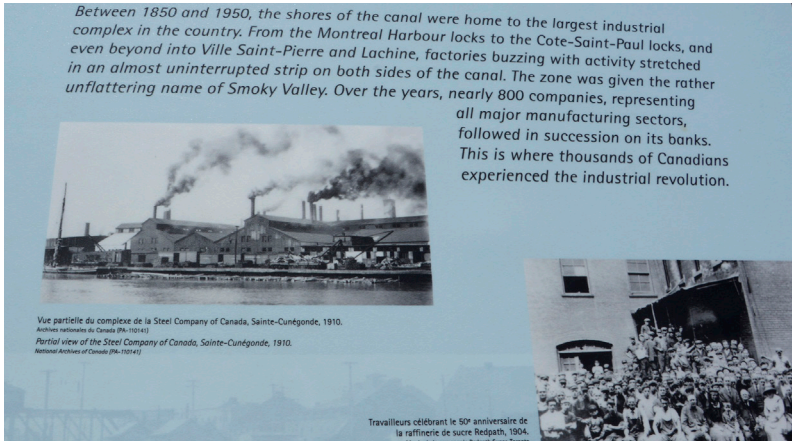


Figure 2.42: Historic signs implemented by Parks Canada along the Lachine

However, the Quebec Independence Movement also caused a decrease in the city's population. In the 1970's, the financial head office operations of many companies moved to Toronto, as that city was growing as a major financial centre. The political tensions over language and issue of Quebec separation also drove people out of the province and hurt private investment. The city's industrial base was greatly affected by the results of globalization, as imports from Asia increased. Industrial plants began to shut down, as companies sent work to China, India, and Mexico at less cost. The concept of deindustrialization was complex, since it involved more than just the decline of local industry, with issues ranging from politics to socioeconomic conflicts. These issues brought about drastic changes in employment and the social fabric, as well as transformations in the urban landscape.

Looking back at the history of the Lachine Canal and Silo No. 5, many questions regarding the future of these sites remain. The current ways in which these post-industrial sites are being treated disregard any consideration for the canal's history, merely masking the undesired derelict territories. The new projects offer no interaction with the leftover structures which contributed so much to the growth of the city, and the physical artifacts are not addressed enough. As Alan Berger said, these "no-man's-lands" are unavoidable, as they are a healthy part of the city's evolution over time. After all, the city is a changing organism with unpredictable and dynamic characteristics. Because these sites are unique in their own ways, they require more consideration and a different approach. The main question remains, *"how can we reinterpret sites like Silo No. 5 such that they are again meaningful and productive?"* On top of this reinterpretation, we must ask ourselves how we can have a better and more involving interaction with these silent monuments.

Parks Canada has provided paths along the historic artifacts with some written information about them, but that is all there is so far. *What kind of intervention would respect the site's history while providing the necessary changes to make it a better and more productive space within the city?*

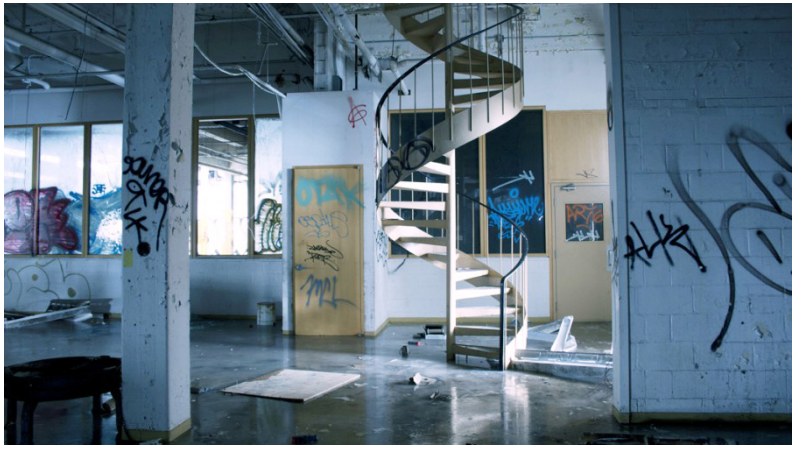


Figure 2.43: Decommissioned factory on the Lachine

The Lachine Canal in the Present

Figure 2.44: Cycling, pedestrian, and railway infrastructures

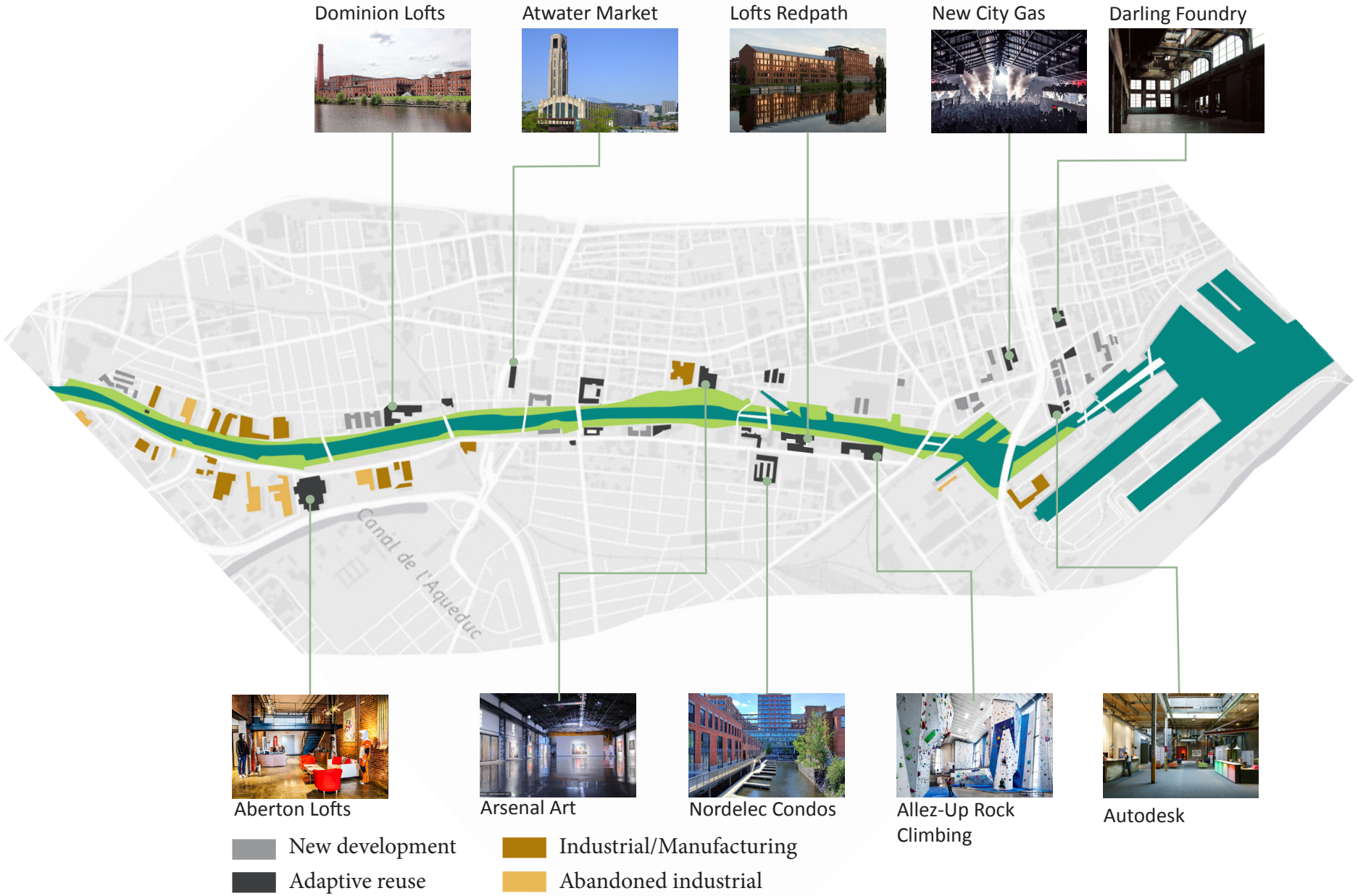


Figure 2.45: Mapping of the new developments, adaptive reuse projects, industrial and decommissioned buildings along the canal's edges

The Transformations of Heritage Buildings Along the Lachine Canal

"Adaptive reuse projects are reminders of the fact that buildings are some of the most enduring artifacts of our past—while, paradoxically, drawing attention to the cyclical reality of urban growth and decay." [40]

Over the past two decades, the urban fabric on the edges of the Lachine Canal has gone through a number of large transformations that reflect the socioeconomic shifts experienced by the city. The change from a manufacturing/ industrial to a service-based economy became apparent in the new make-up of the city, with the displacement of industry and workers to the cultural periphery and the demolition of decommissioned industrial buildings. The waterfront also became very desirable as prime real estate after it was finally liberated from the bustling industrial activity. People had the chance to reconnect to their waterfront after a long period in which it was almost blocked by the obstacle created by the industry sector.

Most of the industrial buildings that remained had potential for adaptive reuse, as they displayed great structural spans, substantial height, and a favourable frame for residential or office uses. These advantages have made it practical for former industrial buildings to be refurbished.

40 Vivien Leung, "Renewing Heritage Buildings", 13 Jun. 2016 < http://thelinknewspaper.ca/space/renew.html>

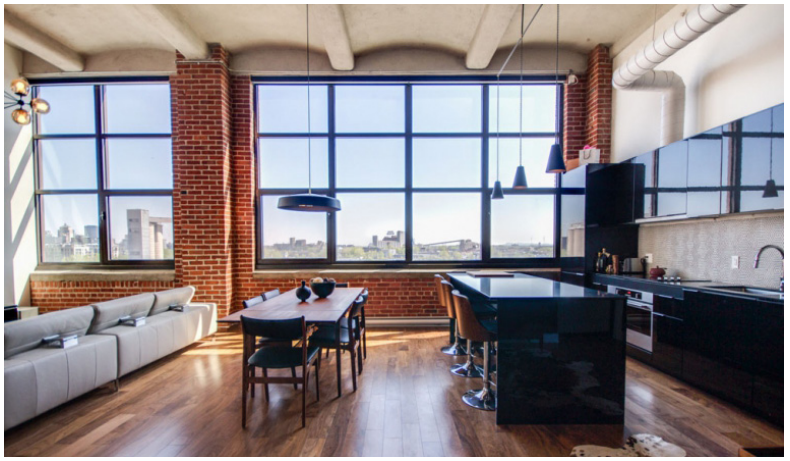


Figure 2.46: Nordelec Condos

Figure 2.47: The Darling Foundry

However, the challenge lays in achieving the balance between what is conserved and what is new, and there will always be the discourse regarding the right way to go about these projects. The main driver for these adaptive reuse programs in Montreal is the appreciation for historical value. Economical advantages can also play a part in this, although, in some cases, it can be more cost-effective to build anew when the existing building is extremely damaged.

There are many examples of renewed heritage buildings along the Lachine, repurposed to programs ranging from residential to art exhibition space and night clubs. These particular buildings were easy to adapt to the new programs precisely because of their flexible, large open spaces and abundance of natural light. The Darling Foundry is one good example of such project, in which a former metal-works facility was converted into a space for exhibiting art. The building itself was not the only thing that was transformed, as the entire neighbourhood was rejuvenated as a result of this change.

Other examples include Entrepôts Dominion, a large textile warehouse turned into lofts and event spaces, the Redpath sugar mill, which was turned into a rock-climbing gym, and the Northern Electric wiring factory, which had been privatized and turned into luxurious condos. Those existing buildings had significant heritage value and contributed to the city's industrial and economic growth in their heyday, but they also presented the aforementioned advantages for their repurpose.

However, not all former industrial buildings have the inherent advantages of these easily adaptable, flexible spaces. Grain elevators are among these examples; they are especially difficult to adapt because they served a very specific functional purpose in the past and hence are configured to cater to that function very precisely. Attempts to preserve steel mills and grain elevators are met with considerable difficulty in terms of public support and overcoming the economic obstacles. [41] Constructed as large-scale machines, grain elevators stand mainly as densely packed vertical tubes which contain no large open spaces

Figure 2.48: Silo No. 5 concrete facade

41 Steven High & David W. Lewis, "Corporate Wasteland: The Landscape and Memory of Deindustrialization" (Ithaca: IRL, 2007) 46.

between them. Unless drastically modified, the silos are very difficult to convert to other purposes, and heavy alterations may lead to an obliteration of the building's heritage value and structural integrity. The gallery spaces above the silos and the areas beneath them would be easier to re-adapt as they present more open expanses. Realizing the difficulty of repurposing grand structures like Silo No. 5, one may ask whether their inherent physical attributes could present new potentials rather than challenging limitations. Their unique characteristics should be celebrated in the new designs, while respecting their bold ingenuity.

New Developments along the Lachine

Living near the waterfront is considered valuable and is also used as a marketing scheme for new constructions along the canal. Many factories and warehouses were demolished in favour of new and luxurious residential developments, which were built with no consideration to the past of the sites, but using the historic value as advertising. The sterility of these developments speaks nothing of the former industrial sites that they occupied and that ultimately shaped a city. These new condominiums are privatized and only cater to a specific group of people who are financially privileged, much in contrast to the working class industrial neighbourhoods that they replaced. This is also the reason why many citizens protested these projects, as they did not address their own concerns for their neighbourhoods.

There are very few community spaces along the canal as sites become privatized. At the same time, the public cycling infrastructure running along its edges has proven to be very successful, to the point of causing traffic jams on a regular basis. Leisure boating on the Lachine is also flourishing, and it offers an enjoyable way of experiencing the canal with its surroundings.

Public Consultations

Ever since the decomissioning of the Silo, many public discussions have been taking place over what to do with it, with proposals ranging from a condominium tower to a hotel and a centre for network servers. However, no clear resolution has been reached so far, despite the city's initial intention of completing the project by Montreal's 375th anniversary in 2017. Canada Lands Company held a competition in 2012 encouraging public participation in the project, yet none of the proposals have been chosen and no decision has been taken. Dealing with such a conspicuous and monumental structure in a strategic location at the heart of Montreal can be rather challenging, especially taking into account the difficulty of repurposing this type of industrial building. For these reasons, the city is still unsure about its fate.

Present-day Lachine Canal

Figure 2.49: The decommissioned Canada Malting Plant

Figure 2.50: A picturesque view of the Canal

Figure 2.51: Recreational kayaking on the Canal

Figure 2.52: Cycling path along the Lachine

Recent and Future Developments along the Canal

Figure 2.53: New development on Rue Smith

Figure 2.54: New condo building on Rue Wellington

Figure 2.55: The proposed real estate development, “District Griffin”

Figure 2.56: Proposed condo project, “Lowney sur Ville”

Silo No. 5 possesses a charged symbolic presence, and reprogramming the site should be meaningful enough to complement this. There are conflicting opinions, as the residents of the new condos have expressed their desire to have Silo No. 5 demolished so they could have a better view of the water. However, it would cost as much to demolish the grain elevator as to restore it, and the only view to be gained would be towards Bickerdike warehousing pier. Other citizens simply see the silos as "towers of urban blight" associated with failure. The architectural qualities of the buildings supporting local industries had an aura of permanence and solidity. For this reason, it was difficult to predict their eventual failure. The trauma caused by the fall of these industries has resulted in a fear of uncertainty for the future, and the new projects implemented on these sites purposely avoid having anything to do with their past or present state.

Figure 2.57: Silo No. 5: "Quel avenir?" (which future?)

The grain elevator sets itself apart from its gentrified context and seems to challenge it. The federal government has already acknowledged its heritage value, as Silo No. 5 is now recognized by the Federal Heritage Building Review Office (see Fig. 2.63). This status implies that changes to the structure should respect its heritage value, but the building is not protected from demolition. This thesis suggests that demolishing Silo No. 5 would mean razing important traces of Montreal's past, as it represented an important chapter in the evolution of the city and played a part in shaping its identity.

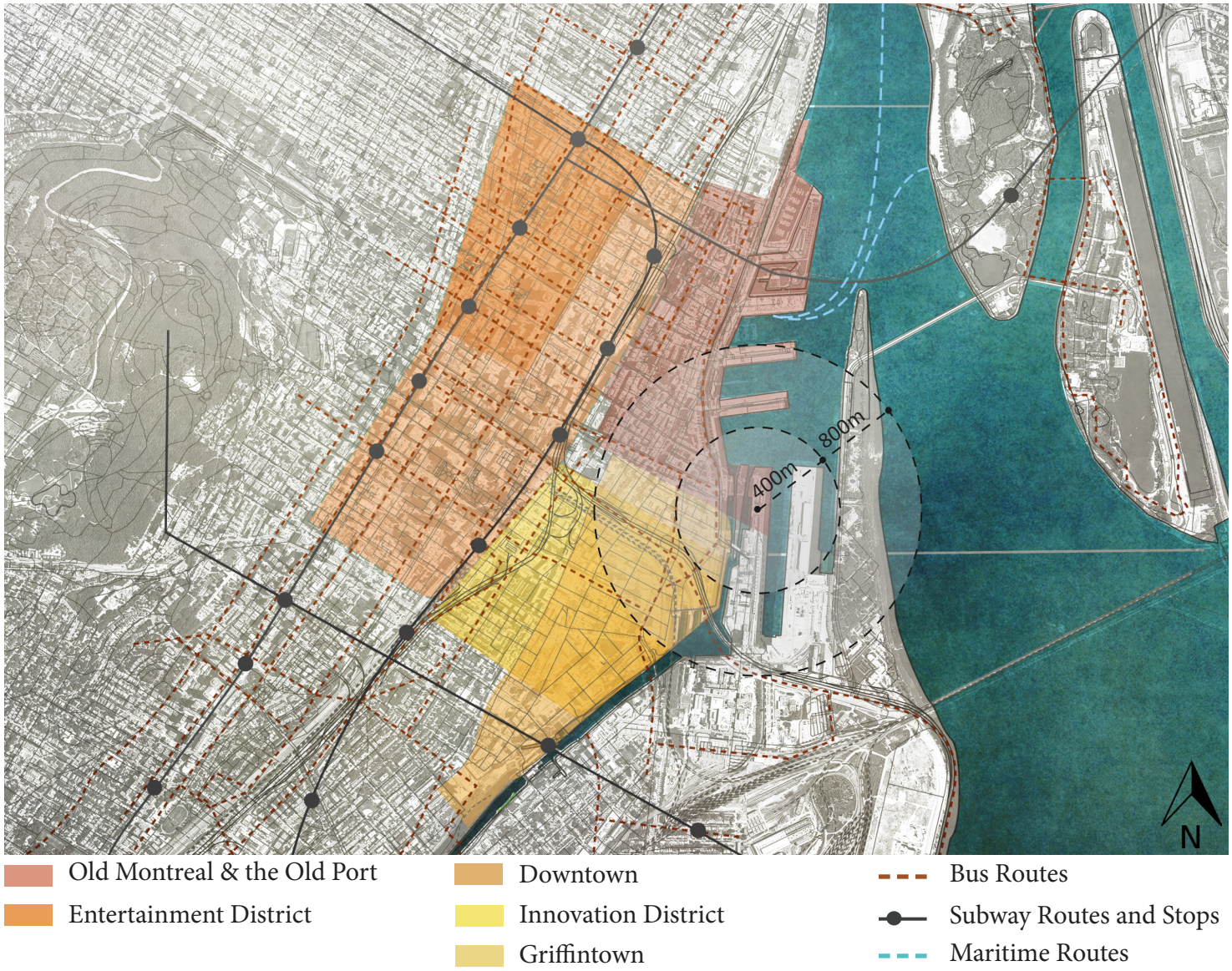


Figure 2.58: Mapping of the neighbourhoods and infrastructure in close proximity to the site

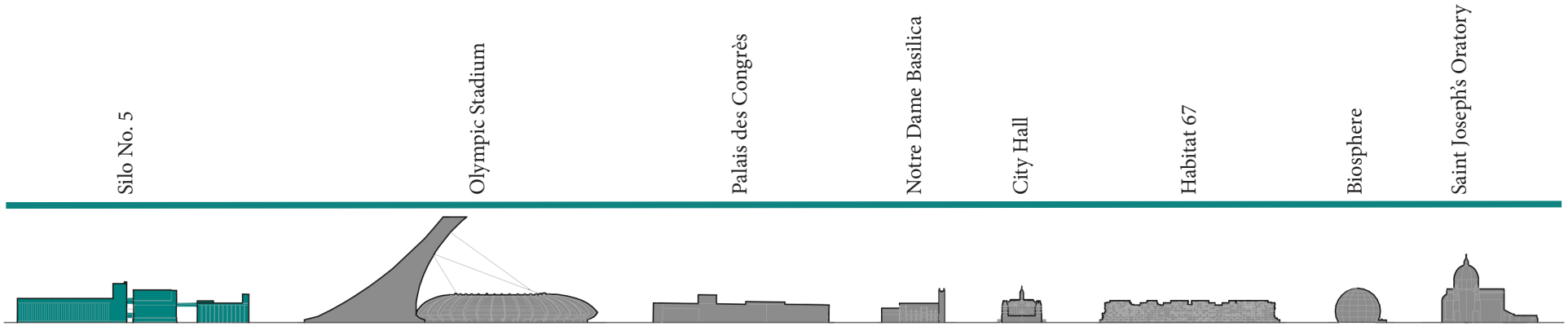


Figure 2.59: A comparison of Silo No. 5 with other architectural icons of Montreal

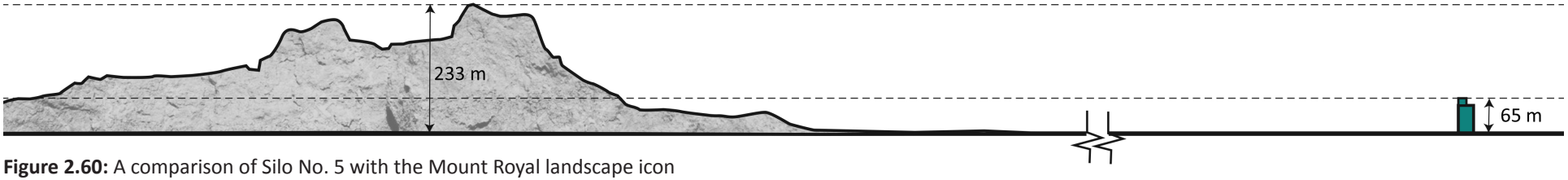


Figure 2.60: A comparison of Silo No. 5 with the Mount Royal landscape icon

City Studies for the Old Port /Lachine Areas

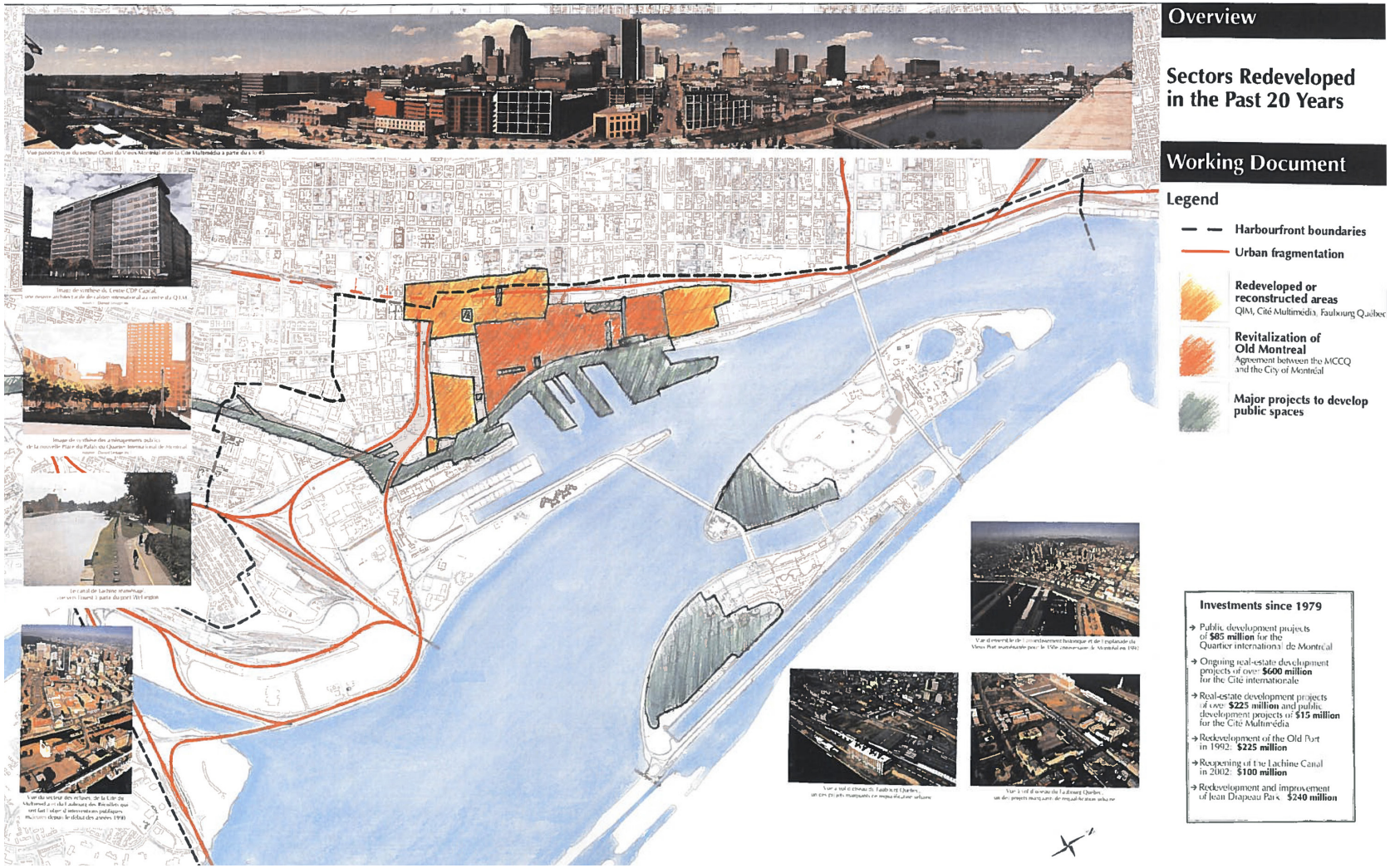


Figure 2.61: Study done by the city depicting the sectors redeveloped in the past 20 years

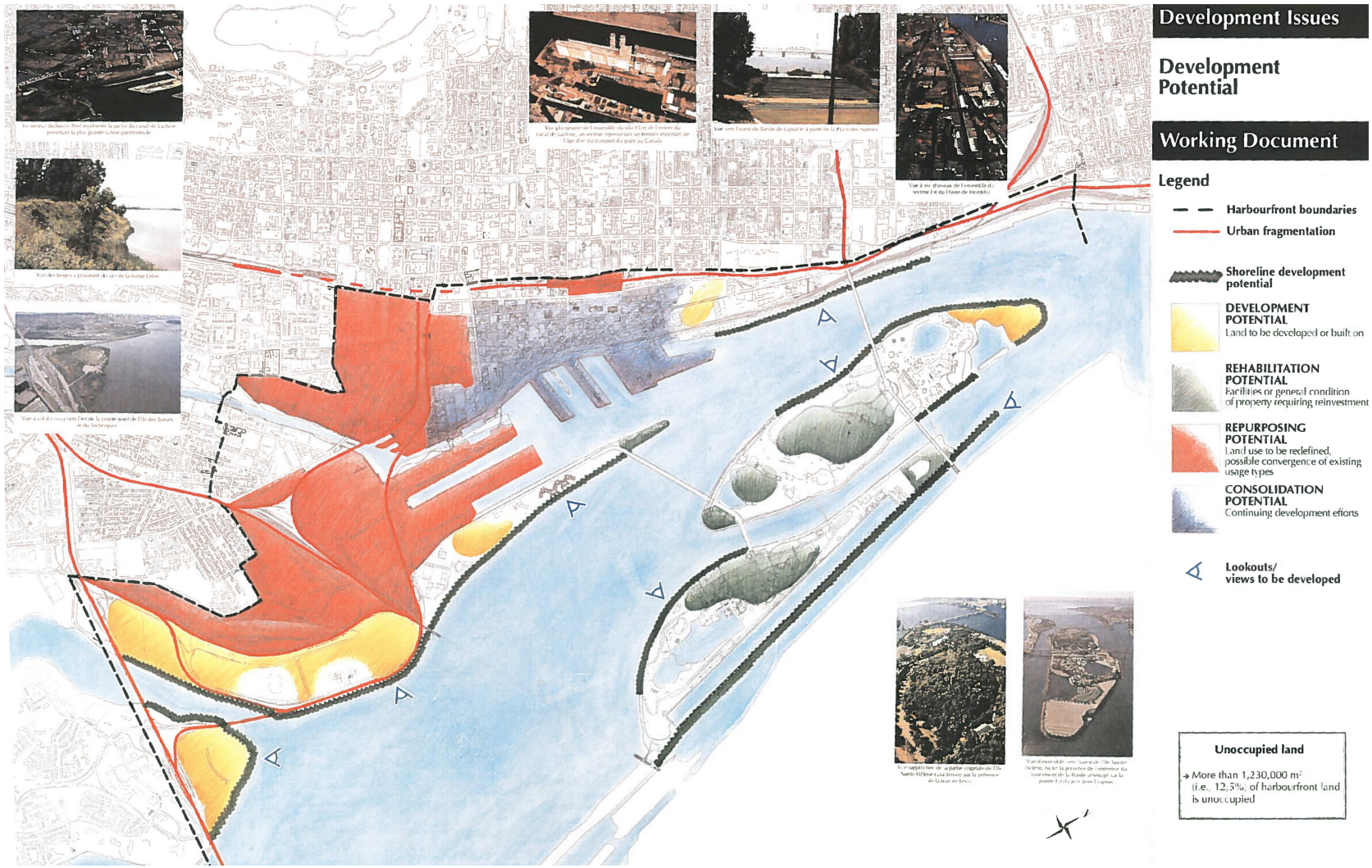


Figure 2.62: Study done by the city depicting the development potential of waterfront sites

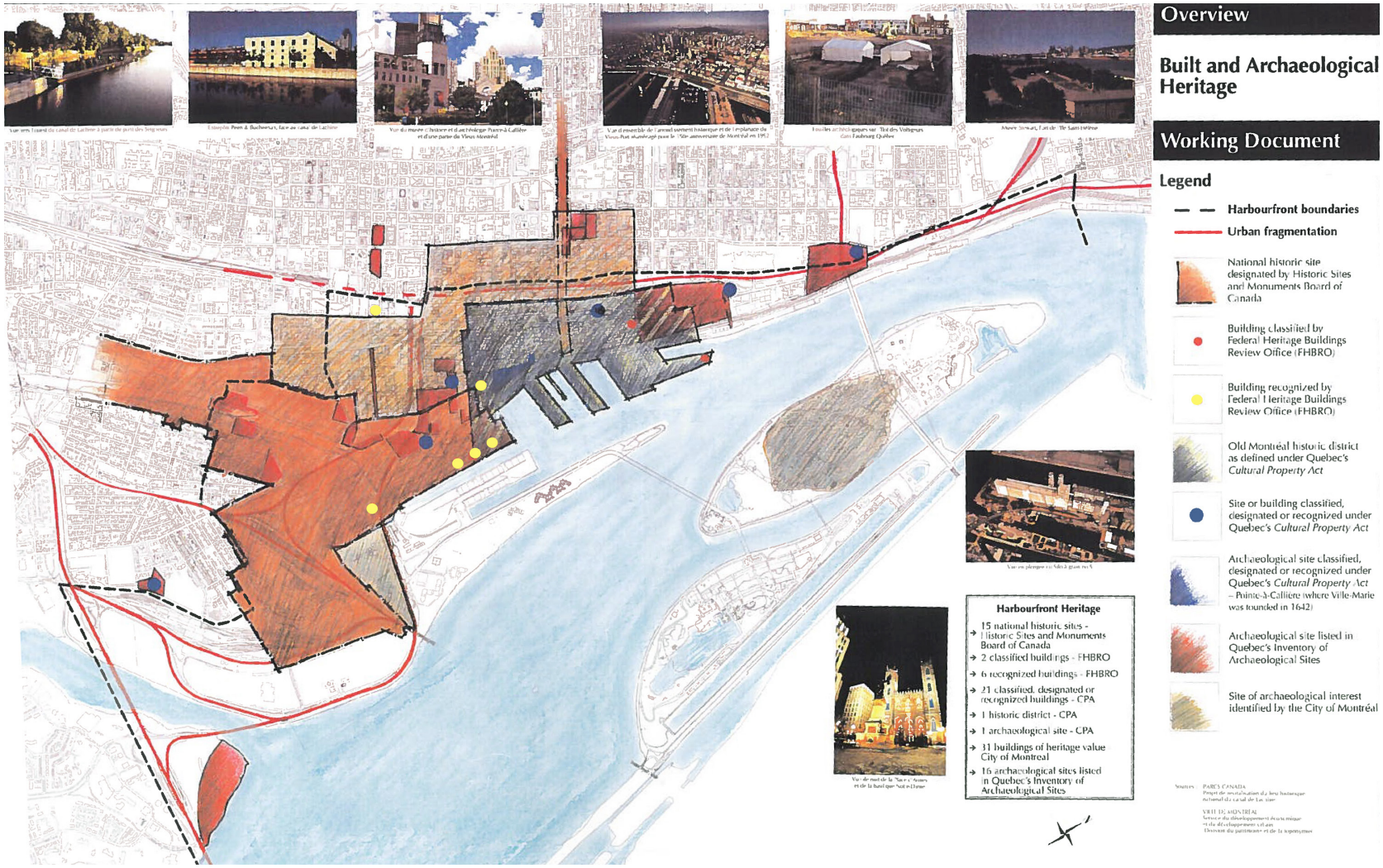
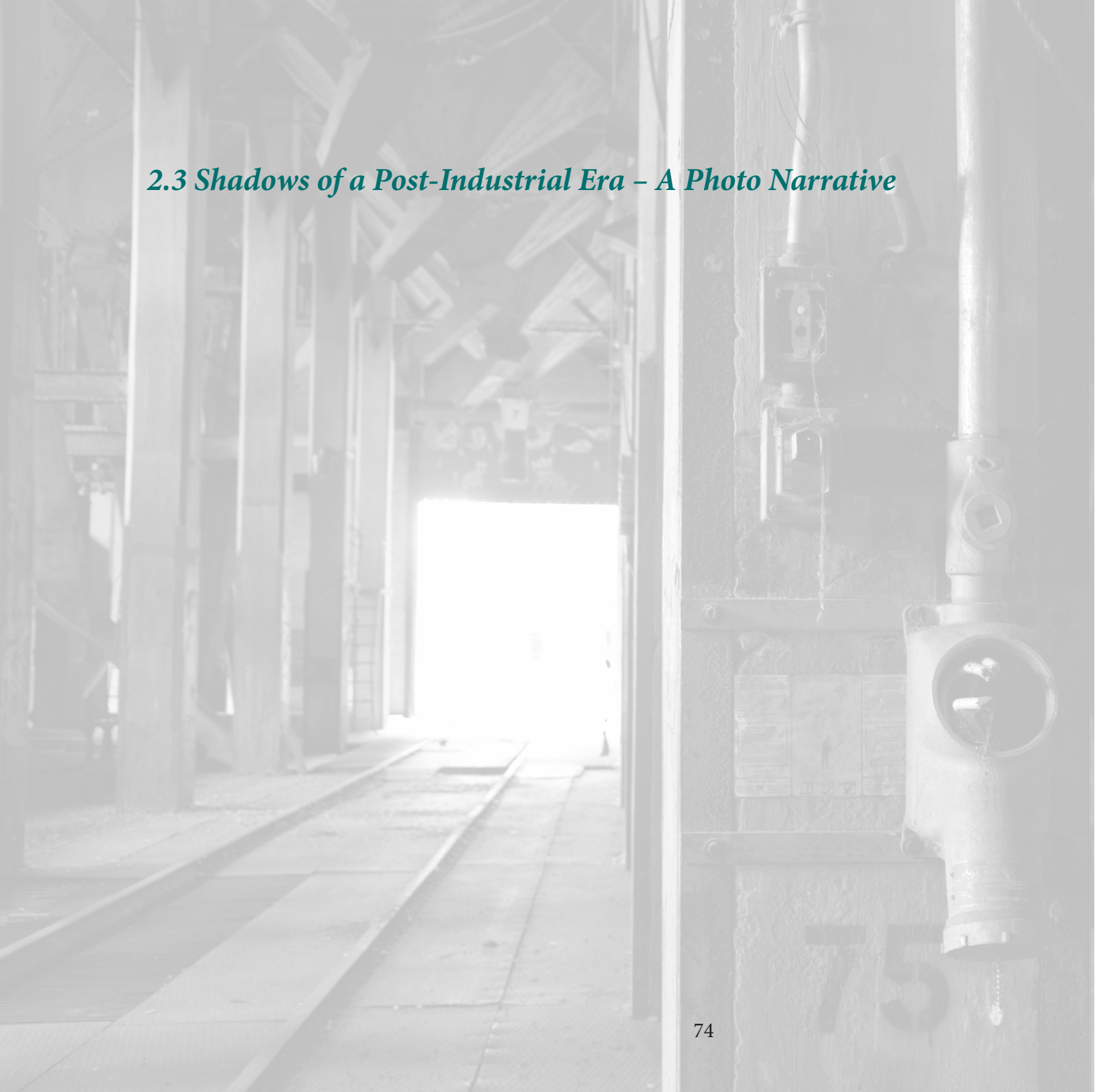


Figure 2.63: Study done by the city depicting built and archaeological heritage

2.3 Shadows of a Post-Industrial Era – A Photo Narrative



The Old Port

I approached the Old Port from the Berri subway station. It was notably lively and full of people and shops as it was the weekend, and several events were happening in the city including the Formula One competition. This area is populated year-round, as there is always something happening here, be it festivals, outdoor markets, or winter activities.

One could notice subtle glimpses of the tall silos in the background while walking towards the site. Their monumental size already starts to create an intimidating, striking effect.

Walking closer to the site, the decrease in population becomes more and more noticeable.

Figure 2.64: The Old Port during the weekend

Figure 2.65: Walking towards the grain elevators

Approaching the Site

Despite the rich activity around the Old Port and Canal, the Pointe du Moullin area seems completely isolated from the public life of its surroundings. Upon walking from the port towards the bridge to the peninsula, the noise of the activities gradually fades away, revealing a much somber and empty environment framed by a monolithic concrete and steel relic.

It is only when walking along the structure that one finally starts to fathom how incredibly large it is; the experience feels like walking next to a mountainous boundary which blatantly separates a civilized part of the city from no-man's-land.

Figure 2.66: Panorama of Silo No. 5 and its surroundings

Figure 2.67: Walking along the train tracks towards the site

Figure 2.68: Daniel McAllister tugboat dating from 1907 with the silo in the background

Inside the Complex

The further away I got to the Old Port, the emptier and lifeless the surrounding environment became. I crossed the Rue Mill bridge, which got its name from the mills that occupied the street in the 19th century, and finally got close to the structures. Noticing a hole in the fence surrounding them, I managed to get inside the complex; the Formula One sounds from the nearby island were noticeable, creating a peculiar environment.

Above me were elevated conveyor galleries in which a few urban explorers walked and then desperately tore at the doors leading to the silos, trying to get in. Walking from one end of the site to another seemed to last a long time.

"Even in their abandonment they still evoked the majesties of a departed civilization". [42]

42 Reyner Banham, "A Concrete Atlantis: U.S. Industrial Building and European Modern Architecture, 1900-1925" (Cambridge, MA: MIT, 1986) 87.

Figure 2.69: The facade of the grain elevator's tallest tower (65m)

Figure 2.70: View from inside the complex

Figure 2.71: View from inside the complex, walking along the elevated conveyor galleries

Figure 2.72: View from inside the complex, looking the opposite way

Timeless Cathedrals

"To those who travel the great highways of the Midwest, silos appear like cathedrals, and in fact they are the cathedrals of our times. Their materials impose the rhythms of this book - wood, brick, tile, steel, concrete - and they mark the passage of time, the slow evolution of a collective work.

Over time the silos rose with ever greater assurance and created the landscape of the New World. In abandoning the problem of form, they rediscovered architecture."

- Aldo Rossi, foreword for *Grain Elevators* by Lisa Mahar-Keplinger

Inside the spaces, one could make the comparison to a cathedral in terms of their character and atmosphere: dramatic natural lighting, intricate colour and patterns given by the materials' state of decay, repetitive elements, monumental scale, and outstanding acoustic qualities.

Inside these structures, visitors feels like they have crossed a portal to another part of the city, as we are accustomed to the noise of everyday life and this kind of space had a certain solitude and silence to it. Its dormant machine-like character almost suggests that these structures once had a life of their own, that they were in constant motion.

What was once so necessary and trivial to daily life could seem so alien to us in the present, but so familiar at the same time.

Figure 2.73: Interior of the steel grain elevator

Figure 2.74: Interior of the steel grain elevator

Figure 2.75: The interior of the elevated conveyor galleries

Figure 2.76: Stair leading to the top of the tower

Figure 2.77: Interior of the tower

Figure 2.78: Interior of the upper galleries

Figure 2.79: Equipment used in the grain processing, in the upper galleries

Figure 2.80: The interior of the upper galleries in Elevator B

Figure 2.81: The interior of the upper galleries in Elevator B

The View

It's not very well known that one of the most striking views back to the city is from the top gallery floors and tower of the silo. The entire evolution of the city can be viewed from here, with its easily discernible old and new burroughs and its hectic daily activity. Montreal's most iconic artifacts can also be seen from here, from Mont Royal to Habitat 67 and the islands.

The view from a broken window reveals skyscrapers and McGill Street, an important connection between strategic sectors of the city such as the Old Port, Old Montreal, Cité Multimedia, and the Quartier International.

Looking back to the Lachine Canal from the top of the tower, former industrial areas are juxtaposed against new condominium buildings on the edge of the canal.

Figure 2.82: View to Habitat 67 from the top of the tower

Figure 2.83: View to the city from the upper galleries

Figure 2.84: View to the Lachine Canal from the top of the tower

Leaving the Site

Looking back towards the complex as I left, I realized that the monumental presence of the strutures was still visible from different parts of the city, as if the streets were specifically framing certain fragments of the silos. Important links such as McGill Street, Rue des Soeurs Grises, King Street, Queen Street, and Prince Street all delineate the three structures in unique ways as one looks towards the site.

Figure 2.85: View to the site

Figure 2.86: View to the silos from Rue de Youville

Figure 2.87: Comparison of Silo No. 5 with a cathedral interior

"The sublime touches, the beautiful charms…the sublime must always be large, the beautiful can be small. The sublime must be simple, the beautiful can be decorated and ornamented" - Immanuel Kant

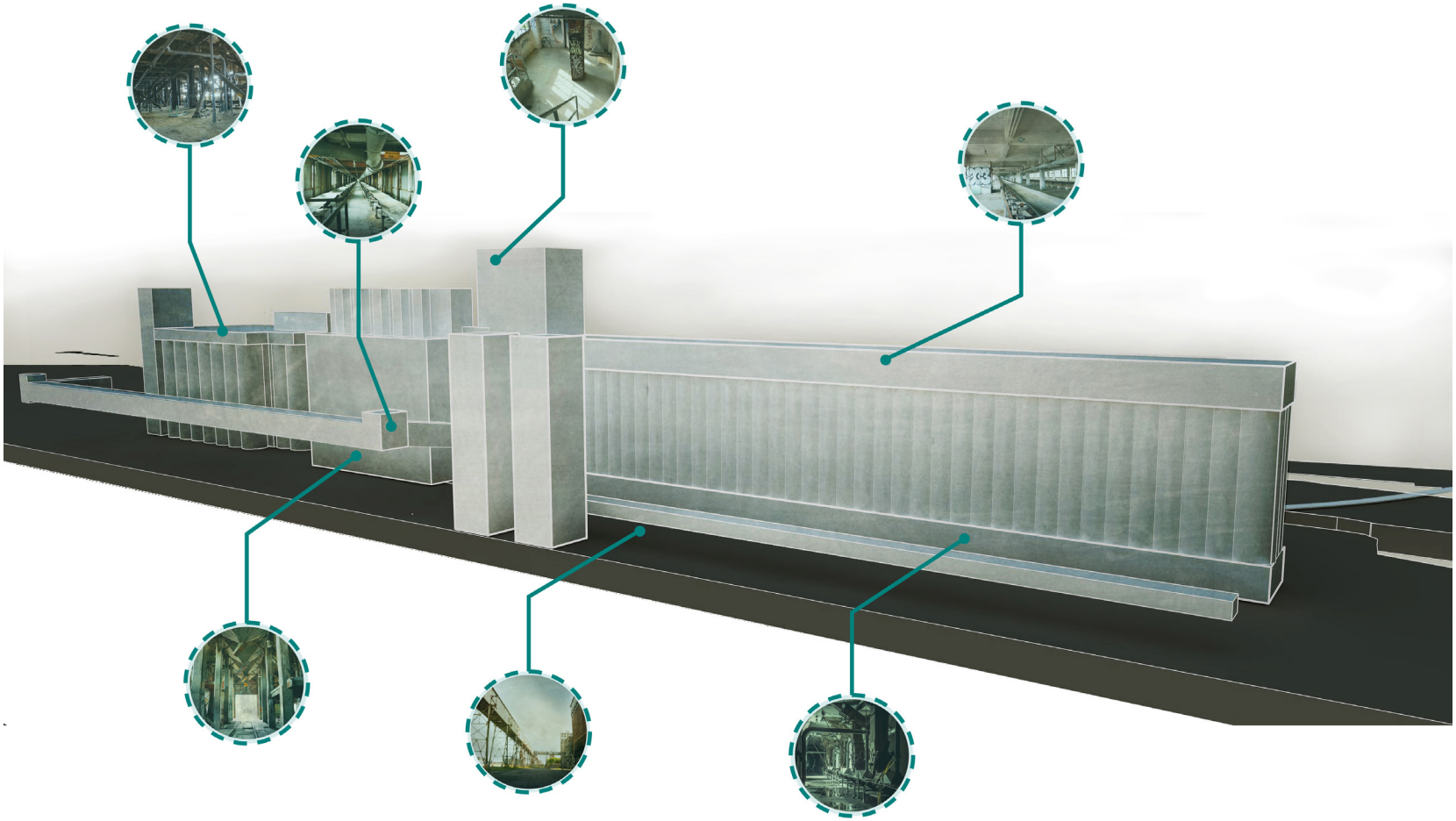


Figure 2.88: Diagram showing the locations of each space photographed

PART 3 - DESIGN STRATEGY

3.1 Precedents: The Post-Industrial Site
Landschaftspark Duisburg-Nord by Latz + Partner

This project deals with the question of what to do with the obsolete physical remnants of our toxic behaviour, and it helped change the way in which the public view and value deindustrial landscapes.The site comprises the largest, former steel and iron producer in Germany and was highly contaminated. The project was successful in eliminating the stigma and fear attached to sites like these and replacing it with acknowledgement and understanding of the industrial past and of the existing structures.

Some interesting remediation methods were implemented to integrate existing structures. The water in the canal is cleansed through the round clarifying tanks which were originally used for cooling water. The large, flexible interior spaces are open to an array of mixed programs with limitless possibilities. The acts of cleansing the site, re-adapting new public programs, and creating a new landscape have managed to tackle the crisis of a post-industrial region and to redefine the region's identity.

Figure 3.1: Site plan of Landschaftspark

Figure 3.2: "Piazza Metallica"

Figure 3.3: One of the gardens

Figure 3.4: Landschaftspark at night

Figure 3.5: Phytoremediation gardens

1. Program: New programs have been added to each space, accomodating hiking, cycling, sports, guided tours, concerts/ events, outdoor cinema, exhibitions, scuba diving, wall climbing, etc.

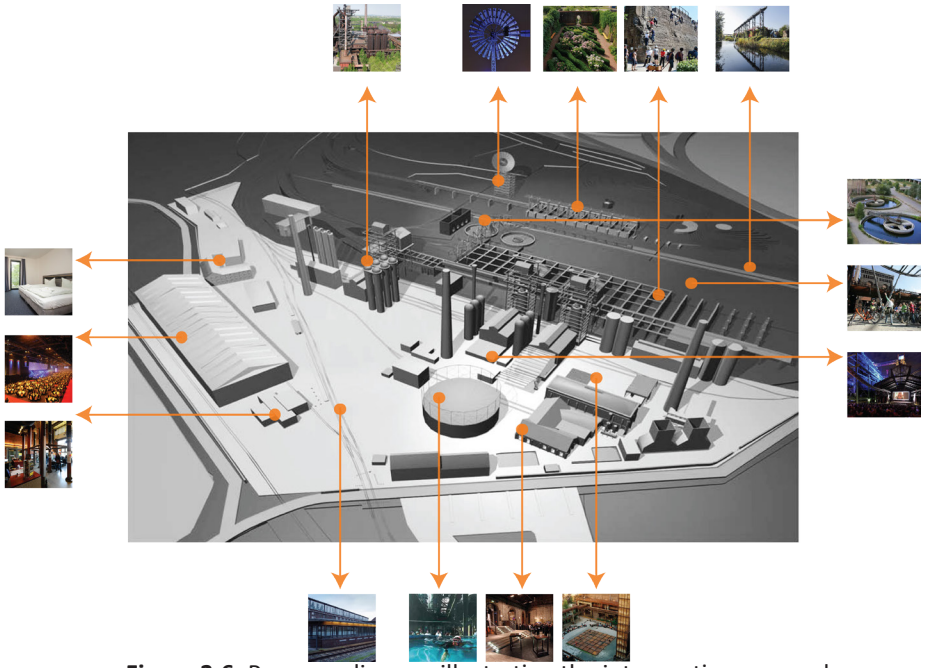


Figure 3.6: Program diagram illustrating the interventions on each space

2. Phytomediation - Implementation of soil-detoxifying plants. The polluted soil was left in place, and vegetation was used to slowly absorb the toxic chemicals.

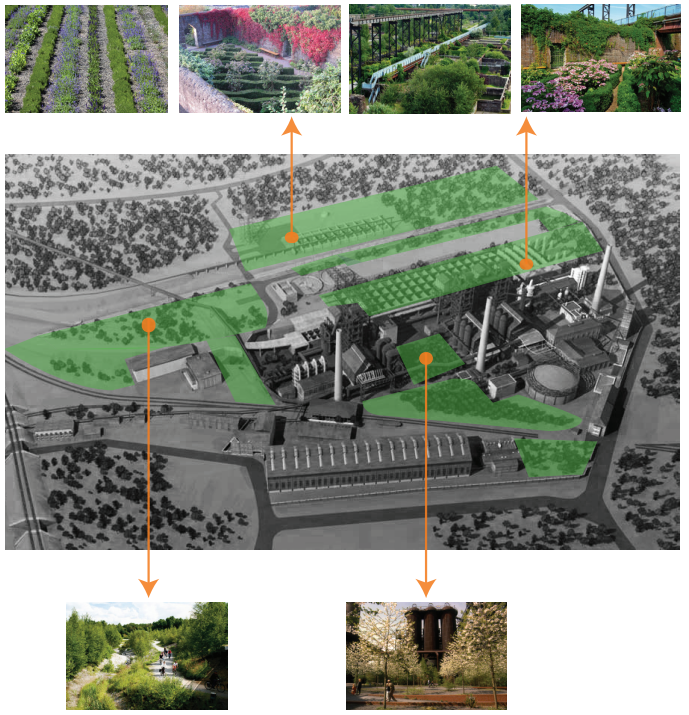


Figure 3.7: Diagram showing the phytoremediation gardens

3. Water Purification
For a long time, the Old Emscher, as an above-ground waste disposer with a very straight course, took away the domestic and industrial wastewater in the whole of the Ruhr District.

Today, the wastewater flows through an underground pipe and the channel of the Old Emscher, which eventually spills into the Rhine River. The Clear Water Canal, has since been filled exclusively with rain water.

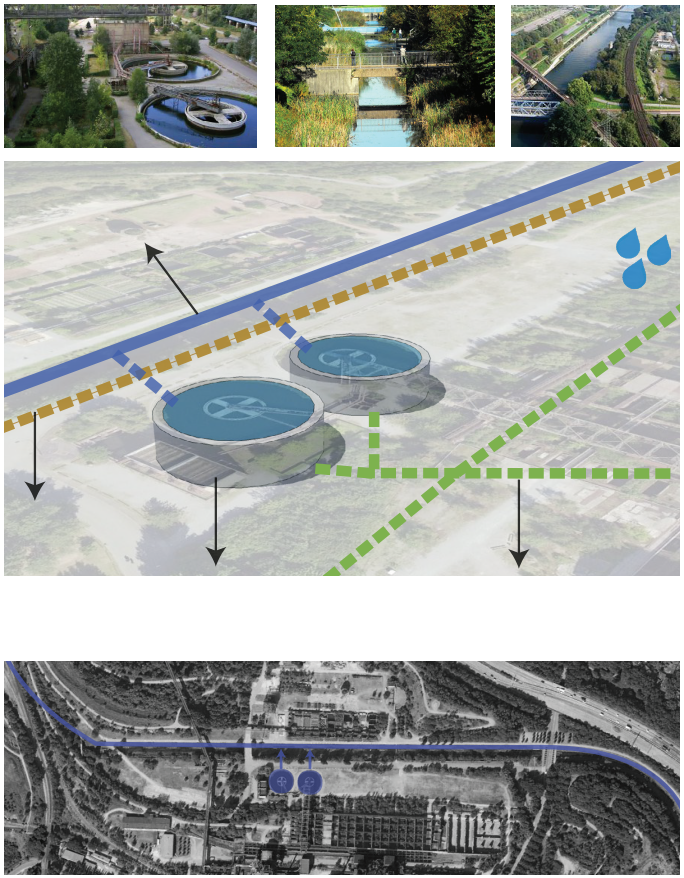


Figure 3.8: Diagram of the water purification system

Evergreen Brickworks
by ERA Architects

The Don Valley Brick Works was one of Canada's leading brick factories from 1889 to 1984. The 12-acre brownfield site was transformed into an environmental education centre by a multi-disciplinary design team, including architects, engineers, landscape architects, ecologists, and artists.

Minor interventions were implemented, including repairs, stabilizations, and installation of water management features. The project successfully amalgamates the conservation of heritage with intelligent sustainable processes.

The raw industrial aspect of the building was maintained, as it is part of its character. The new programs implemented in the masterplan include vibrant public spaces such as a farmers' market, an ecologic innovation centre, a winter village, gardens, and others.

Figure 3.9: Project site plan

Figure 3.10: Courtyard

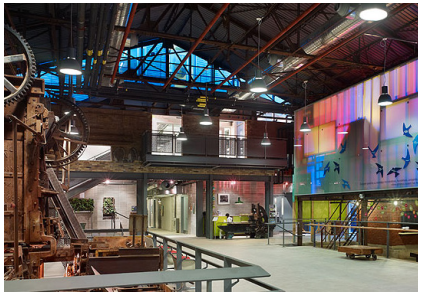


Figure 3.11: Interior of the structure

Figure 3.12: Space turned into skating rink

Figure 3.13: 3D diagram of the site

Zeitz MOCAA

by Heatherwick Studio

The most notable challenge for this project was turning 42 vertical concrete silos into a space for experiencing contemporary culture. Originally designed for something so specific, the structure did not contain any large open spaces within the tubes; therefore, these had to be created. The intention was to celebrate the building's industrial origins; instead of fighting against the structure's restrictions, the architects chose to work with them.

Creating new spaces within the silos meant carving through the walls of the vertical tubes to open them up. The results include several galleries and a monumental central atrium, which is filled with natural light from new skylights.

The new museum will be an important, not-for-profit institution displaying significant collections of contemporary art. Features include gallery spaces, education areas, a rooftop sculpture garden, storage and conservation areas, and various public amenities. The old underground tunnels will be rehabilitated into site-specific spaces for education, to create a dialogue with the original structure.

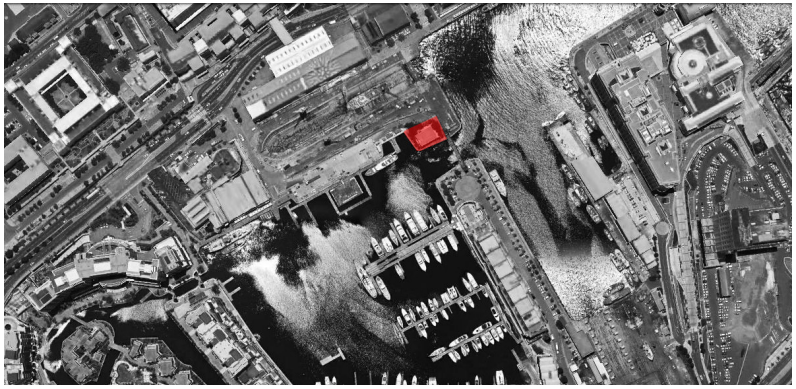


Figure 3.14: Site plan

Figure 3.15: Exterior rendering

Figure 3.16: Space created by cutting through silos

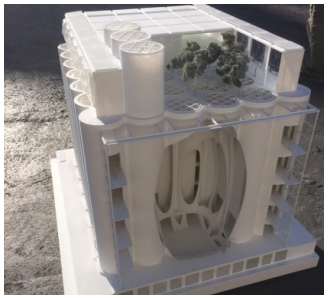


Figure 3.17: 3D model

Figure 3.18: Section showing interior spaces

Thermarium

by Daniel Rabin & Annie Ritz

Thermarium addresses the issue of the lack of swimming on Toronto's urban beaches due to sewage overflow being untreated, dumped into Lake Ontario, causing high levels of pollutants and E.Coli. The issue is being addressed by re-adapting the existing silo structure on the waterfront into a water processor treating the dirty water.

Water processing is paired with an industrial structure as it is treated within the silos. Water overflow collected from the city is diverted away from Lake Ontario to the reprogrammed silo. The sediment extracted from this overflow is used to create a variety of environments housing a series of public pools.

The system as a whole provides clean water, different spa environments, and natural habitat near the lake.

Figure 3.19: Site plan

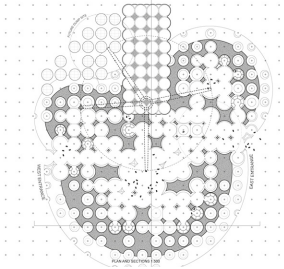


Figure 3.20: Plan

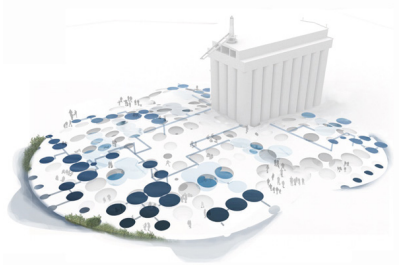


Figure 3.21: 3D model showing spaces created

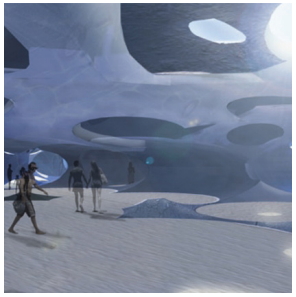


Figure 3.22: Interior of public pool areas

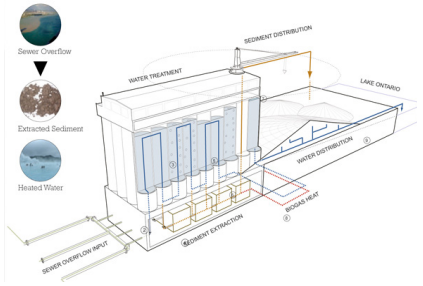


Figure 3.23: Diagram showing process

3.2 Landscape Influences

Community Urban Agriculture and Food Production in Montreal

Urban agriculture is defined as "*the practice of cultivating fruits, vegetables and herbs within cities while also engaging in complementary activities such as distributing and processing food, collecting and reusing food waste and rainwater, and educating, organizing, and employing local residents.*" [43] Montreal is currently known as one of the key industry centres in the agri-food sector, with its diverse activities and strong community-based initiatives.

Montreal has a rich agricultural past, dating back as far as the 1700's when Mont Royal was used as ideal farmland and the 1800's when the city was covered in orchards and market gardens. Due to the harsh winters, Montreal was periodically isolated from the rest of New France. The new city thus needed to develop a form of self-sufficiency in order to ensure the settlement's survival; hence, inhabitants cultivated their own lots of land. Residents and the religious communities cultivated large vegetable gardens, orchards, and even ornamental gardens; these remained characteristics of the city well into the 18th Century. Agriculture in the city was fairly common until cities started to grow and land shortage became an issue, driving farms outside of the urban areas. Urban agriculture is not something new, but rather

Figure 3.24: Montreal in 1878

something that we've lost connection with over time.

The transition from the rural city to the industrial one has been drastic, with the development in transportation as a contributor to this change. Over the years, agricultural production has been driven further away from cities, with food being produced far away from consumers and imported globally. The development of cities and urban areas has resulted in a drastic decrease of arable land as well as an insecurity in food sources.

43 "MUSE - Montreal's Urban Sustainability Experience", Feb. 13, 2016 <https://musemcgill.wordpress.com/research/urban-agriculture/>

Rue de la Commune follows the original shore of the St Lawrence River and is the main street going through the Old Port and home to the significant Pointe-à-Callière Museum. The name of the street comes from "the commons," which was a strip of land granted by the governor of Montréal in 1651 to be used as public grazing land. Although it was owned by one individual in this case, all citizens had the right to use this land to pasture their livestock. The commons land was about 60 metres wide and stretched for over two km along the St Lawrence shoreline. The transition from rural to urban and industrial saw drastic changes in this landscape, which eventually became a main road lined with grain elevators and warehouses.

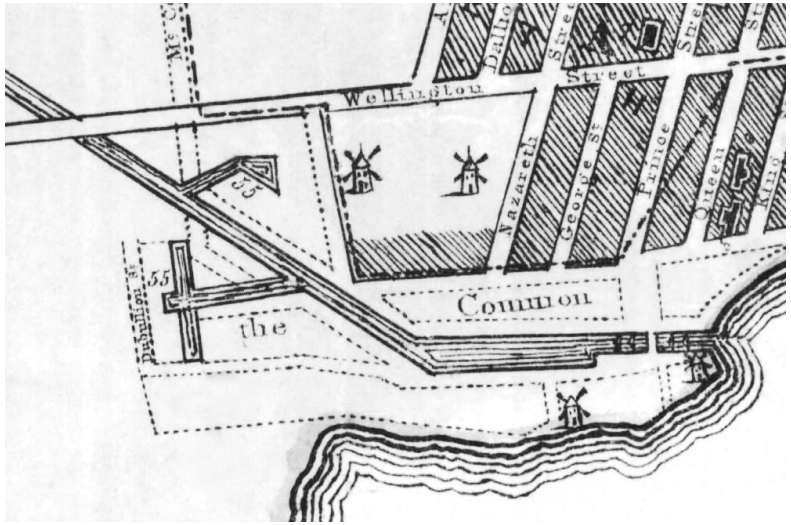


Figure 3.25: "The Common" shown on a map from 1834

Local Contemporary Initiatives

The city is currently renowned for its community garden program, with a strong reputation of public participation in urban agriculture. There are already a few local initiatives that are breaking new ground in terms of productive urban landscapes, with Lufa Farms as one of the best examples. Their goals are not only to encourage the citizens to grow their own food, but also to provide a better connection to their food and environment, decrease carbon footprint by growing food locally, and advance community revitalization.

Figure 3.26: Interior of Lufa Farms

Figure 3.27: Garden at Edible Campus

Lufa Farms is the very first commercial rooftop greenhouse, established in 2011 in Montreal. There are currently two facilities which are located on the rooftops of two different commercial buildings. They specialize in new agricultural technologies and produce vegetables for more than 3,000 people per year. The produce is brought to consumers at over 100 drop-off points within the city, a solution which is both economical and sustainable.

Lufa Farms is an important and innovative concept, as it addresses viable possibilities of growing local food in an urban environment where there is a continuous shortage of open fields.

Edible Campus at McGill University is a collaborative project between the School of Architecture Minimum Cost Housing Group and Santropol Roulant. The purpose of this project is to demonstrate how productive planting can efficiently work in an urban environment while also revitalizing the community. The project aims to include a full sustainable food cycle revolving around food production, preparation, delivery, and composting.

The Edible Campus project makes use of an underutilized urban space in order to transform it into a productive oasis within the city while providing food for citizens in need.

Figure 3.28: Santropol Roulant roof garden

Santropol Roulant is a community food hub where food is grown, prepared, and delivered. It incorporates daily activities, educational workshops, and markets to create community engagement and provide the public with opportunities to develop skills and knowledge of local food production and preparation.

The organization's produce is provided by their farm in West Montreal, the McGill Gardens, and the rooftop garden near Mont Royal. Their Meals-on-Wheels program responds to the need for food security among the elderly and is a large part of their ideology.

Figure 3.29: Garden planted by Urban Seedling

Urban Seedling is a business specializing in creating vegetable gardens in Montreal's urban areas. Deemed as the company with the city's first vegetable gardeners for hire, it focuses on everything from offering gardening workshops, building high-density gardens from scratch, and providing support and site maintenance. The company has various projects in schools, condos, and offices, all of which encourage the concept of community building.

Urban Seedling encourages people to think beyond space challenges for urban agriculture and provides all the resources needed for starting an urban garden.

Montreal hosts the largest food-truck gathering in Canada, with 90,000 visitors each year and over 40 different trucks. The food-truck season lasts from May to October, but the city has even managed to incorporate food events during the winter. SnowFood, which is a winter food-truck festival that operates in tandem with Nuit Blanche in February, also takes over the Olympic Park.

The Omnivore Food Festival is another well-known local event with international participants. It is a four-day event of cooking demonstrations and dinners, offering unique foods by local and international chefs. This event is hosted by the Society of Arts and Technology

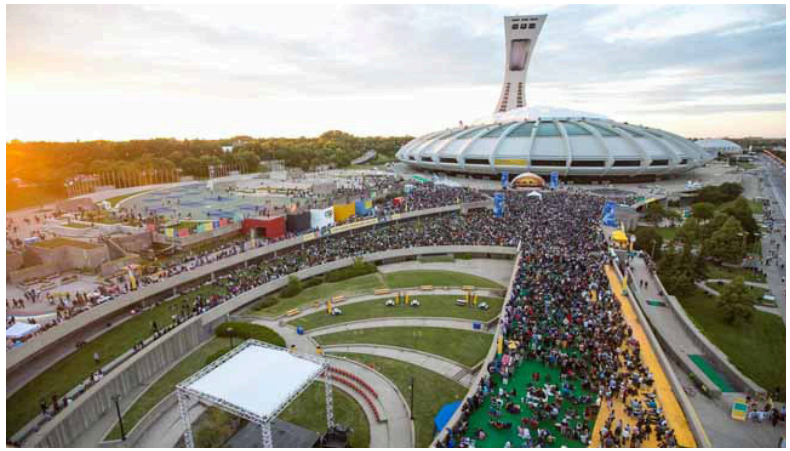


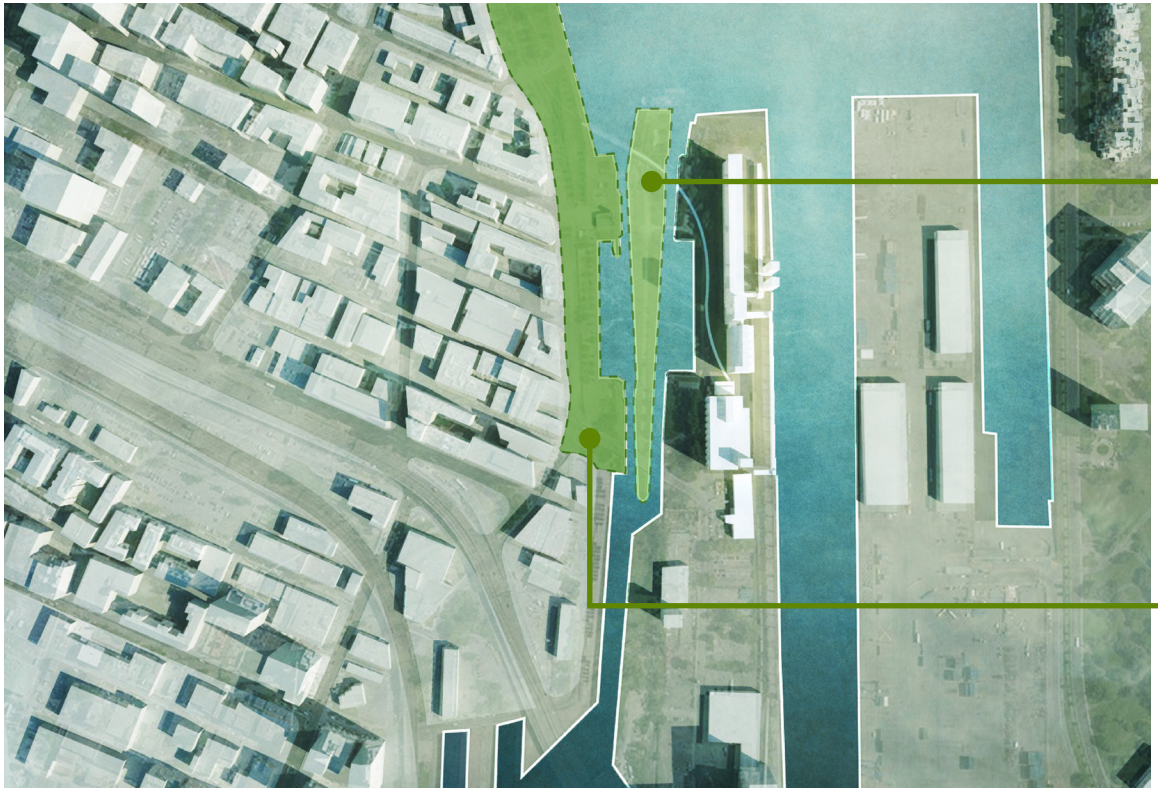
Figure 3.30: Montreal Food Festival at Olympic Park, 2015

Figure 3.31: Lineups at Montreal Food Truck Festival, 2015

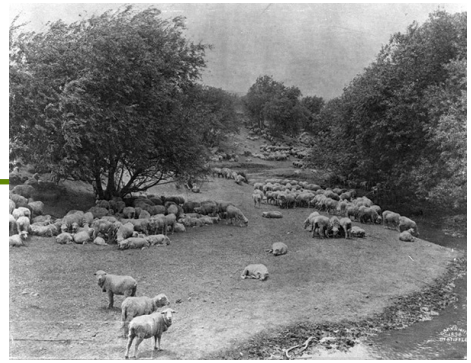
Mosaïcultures Internationales de Montréal was founded in 1998, and it is an international horticultural exhibition promoting garden art and landscape architecture as a vital component of the urban fabric. It is described as the world's most prestigious competition of horticultural art, combining sculpture, gardening, and environmental knowledge. The exhibition takes place every three years at Montréal's botanical garden and on the small island adjacent to Silo No. 5, the Quais du Vieux-Port. The works exhibited here are nothing short of surreal and highly sculptural, displaying great attention to detail, with the land functioning as an outdoor art studio. The horticultural sculptures act as temporary monuments integrated into the landscape, contrasting with the permanent monument of Silo No. 5 in the background.

Figure 3.32: Mosaicultures event adjacent to Silo No. 5

Figure 3.33: Mosaicultures horticultural installation with Silo No. 5 in the background



Mosaicultures Site



The Common

Figure 3.34: Mapping of “The Common” and Mosaicultures horticultural site

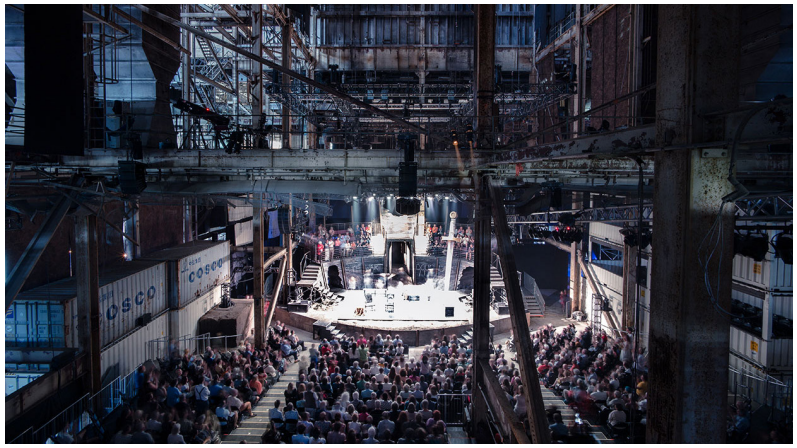


Figure 3.35: The Hearn auditorium

Figure 3.36: Interior arches

Figure 3.37: Exterior of the Power Plant

Figure 3.38: Rendering of the Hearn stage

3.3 Program Influences

R.L.Hearn Generating Station - Luminato Festival

by PARTISANS Architects, Charcoalblue

The Hearn Generating Station opened in 1951 to provide power to a fast-growing Toronto. Originally fired by coal, it was then converted to burn natural gas. In 1983, the plant was decommissioned since nuclear power offered a greater alternative. The building's "Pharaonic" scale and its exceptional interiors have made it a unique and iconic industrial landmark.

In 2016, the Power Station was transformed into the world's largest temporary multi-arts centre for the Luminato Festival. The main strategy for this repurposing was to create a combination of diverse, constantly changing audiences using the existing structure as a backdrop for this "cross-pollination." The result was a strong synergy of different temporary events combined with the distinctive experience of the structure's interior. Although the events varied from performance art to classical and electronic music concerts and other art forms, the space itself was experienced as a cohesive entity. The multiplicity of the program was also made possible by the flexibility and scale of the space. The solidity and permanence of the building contrasted with the ephemeral quality of the constantly-changing events around it.

The project is successful in continuing the on-going dialogue about reactivating former industrial structures and how they can be used as cultural spaces that are compatible with the eclectic, contemporary city. The first crucial step in this approach is providing public access to the vacant, inaccessible yet historically significant spaces. This move in itself is a big part of the manifesto, opening up countless opportunities of experiencing a different part of the city.

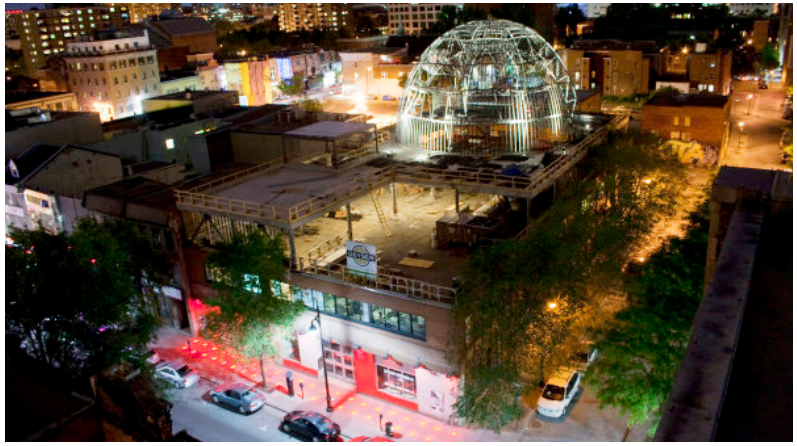


Figure 3.39: SAT building exterior

Figure 3.40: Outdoor viewing of a film on the SAT site

Figure 3.41: Culinary creation laboratory at the SAT

Figure 3.42: The Satosphere, or the immersive environment dome

SAT - Society for Arts and Technology

The Society for Arts and Technology is a non-profit organization and centre for the arts and research, highly recognized for its development of immersive technologies and augmented reality. The organization works as a gathering space and creative laboratory for diverse knowledge, learning, and innovation.

The SAT includes artist residences, a Metalab dedicated to scientific research and development of software, a technological arts training centre, workshop spaces, artist residences, a culinary creation laboratory, and a dome used as the first permanent immersive environment for art visualization.

Like the Luminato Festival at the Hearn Power Station, the SAT challenges the public to question how we experience art and culture in the contemporary city. Furthermore, it is also focused on temporary, experiential, and diverse events, and it successfully creates a sense of community among the users and audiences. The flexible space is successfully used as an incubator for learning, as well as a setting for constantly-changing events.

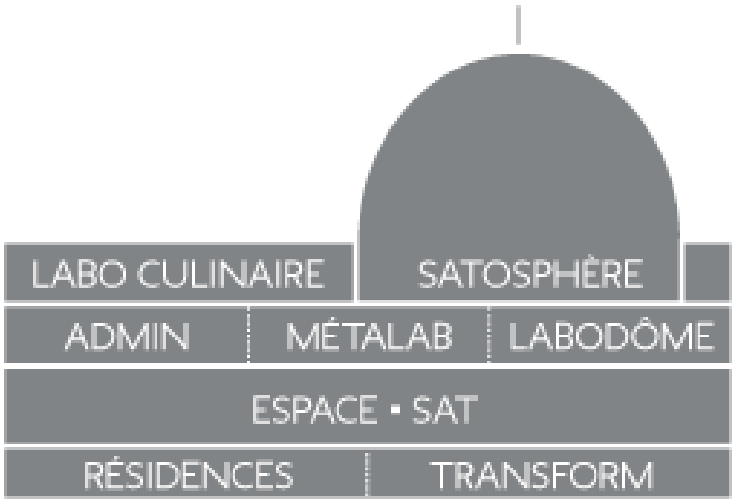


Figure 3.43: Section diagram showing programs

3.4 The Design Proposal –Continuing the Narrative of the Site

A palimpsest refers to the multiple layers of the past that have formed the city's shape. In this design proposal, the Silo No. 5 site is treated as a palimpsest of history, as it retains and emphasizes certain allegories and fragments of the city's past. At the same time, it is imbued with new meaning and reshaped such that its relevance continues into the future.

"Architecture has a cyclical capacity to be born and reborn into multiple contexts. An intrinsic challenge of adaptive reuse is exploring what happens to meanings as these contexts shift." [44]

In the case of Silo No. 5, the artifact is already present, exuding a certain permanence and solidity along with its historic significance; the intention is to have everything evolve around the artifact, contrasting with its stability. Major modifications to the structure itself would undermine its inherent qualities and strongly charged character of its interiors, thus most physical interventions are implemented outside of the structure itself. One of the prime challenges then becomes bringing people to the site and transforming a former industrially productive zone into a place for human occupation. Industrial buildings with unusual structural features tailored to very specific roles have proved more difficult to convert. By implementing ephemeral, constantly-changing events, the site not only provides an open invitation to the public, but this approach also prevents eventual future obsolescence associated with very specific, rigid program.

Two different elements are addressed in this project: the landscape around the grain elevator, and the structure itself. The landscape design approach engages with the fundamental identities of the site and its layers of history. The industrial landscape has a symbolic presence given by its former productivity and prosperity. The site was once a productive zone with a local and global importance. Grain was constantly moving through the site, as it was processed in the silos and transferred from one vessel to another. The design threads a story of elevation and circulating through the space, except the movement of grain is now replaced with the movement of people.

The productive landscape implemented on the site is influenced by three different layers of history of the surroundings and the city: the area's agriculture-related past as "the commons", which dates back to the pre-industrial times; the agricultural symbolism of the grain elevator; and the city's compelling, present-day initiatives in community urban agriculture and unique food culture. The addition of productive landscape on the site also plays a part in the ephemeral events strategy, as these will be dictated by the

44 Markus Berger, " Interventions, Adaptive Reuse.", (Providence: Rhode Island School of Design, Dept. of Interior Architecture, 2011) p.41.

changing seasons. This approach creates an environment in which the users feel involved in the transformation process, as they can choose to participate in different planting and harvest events.

The proposal also emphasizes the strong relationship between the industrial site and the city by providing access to views from the former grain elevators to the rest of Montreal and its important icons. This relationship was already present, but it was not directly encountered by the general public before. The role of architecture in this case is to provide the means of experiencing this connection while encouraging the public to do so. Due to the colossal size of the existing structures, elements such as market pavilions, pathways, gathering and seating spaces are added in order to provide a more human scale to the site, contrasting with the grain elevators.

While tapping into the site's history and relationships to its past, the proposal also ingrains it with a new purpose. Instead of imposing rigid, unchanging program onto the building's spaces, they will instead be occupied seasonally by various users. As an example, the building could tie into Montreal's Society for Arts and Technology and function as an incubator for learning and ephemeral events generated by the users. The grain elevator tower can provide temporary residences for emerging artists involved; the upper galleries could act as workshop and research spaces and short-term community kitchens, and the ground floor spaces could be used for multimedia performances. These are but a few examples of the short term occupancies that can take place, as the settings are open to a wide array of contemporary uses.

"The dynamic between these two components, the ephemeral and the solid, are intimately bound and continuously in flux. The ephemeral part is the people, how they use, interpret and transform the space over time. The solid is the man made landscapes they create and its means of construction. The play between the ephemeral and the solid is an often unrecognized potential in the shaping of space." [45]

45 Julia Mandle, "Variable City", Jan. 12, 2016 < http://juliamandle.com/projects/variable-city>

Existing Conditions

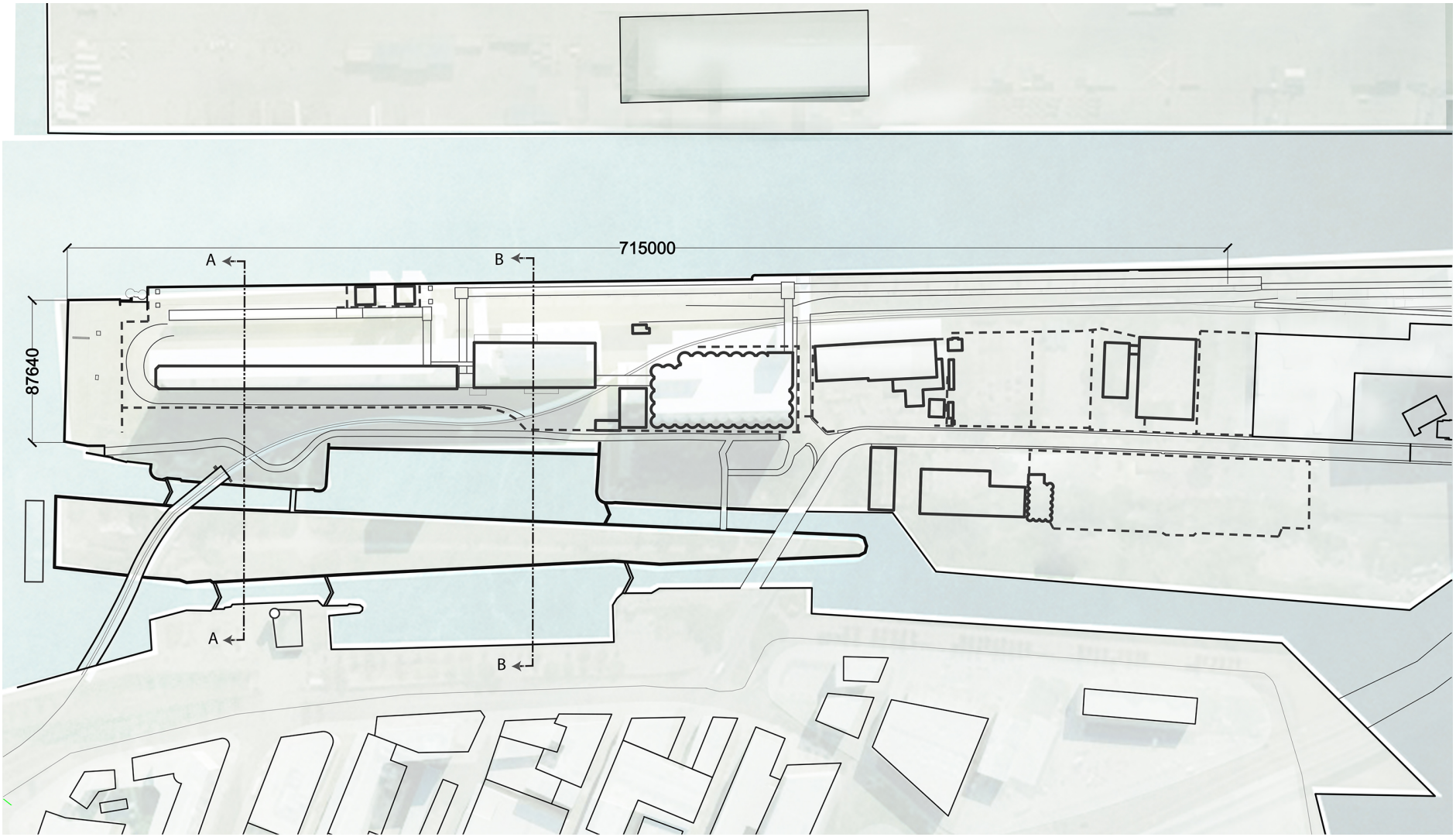


Figure 3.44: Existing site plan

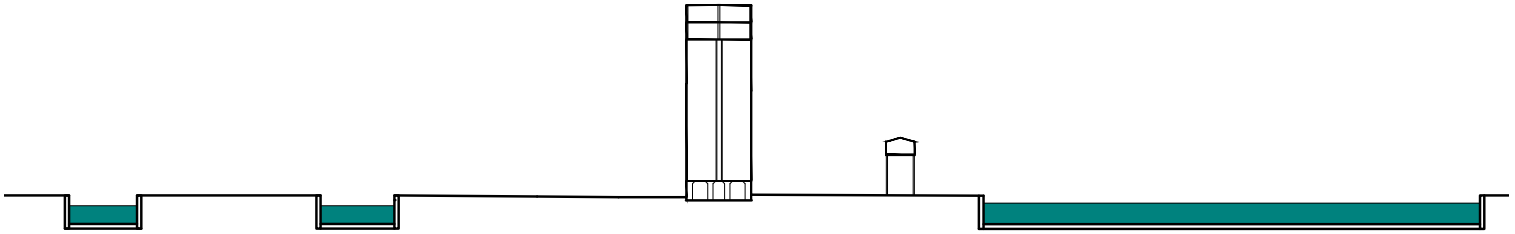


Figure 3.45: Section A

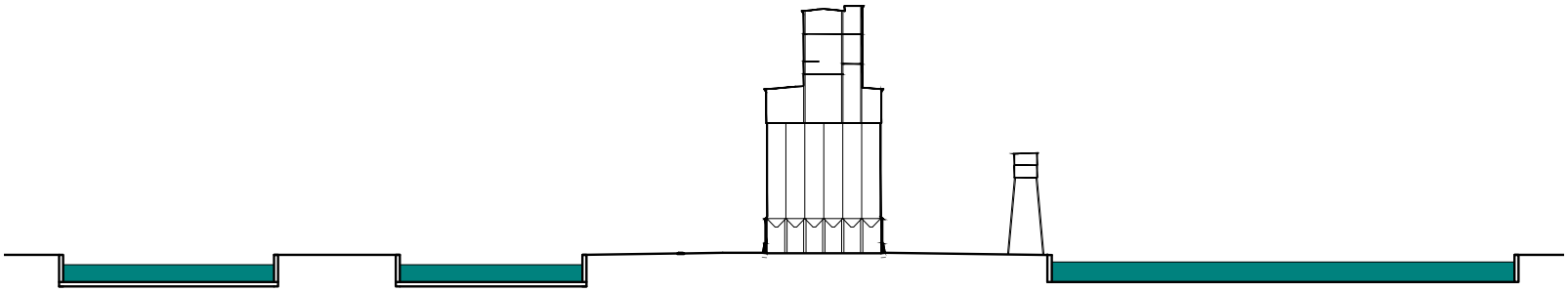


Figure 3.46: Section B

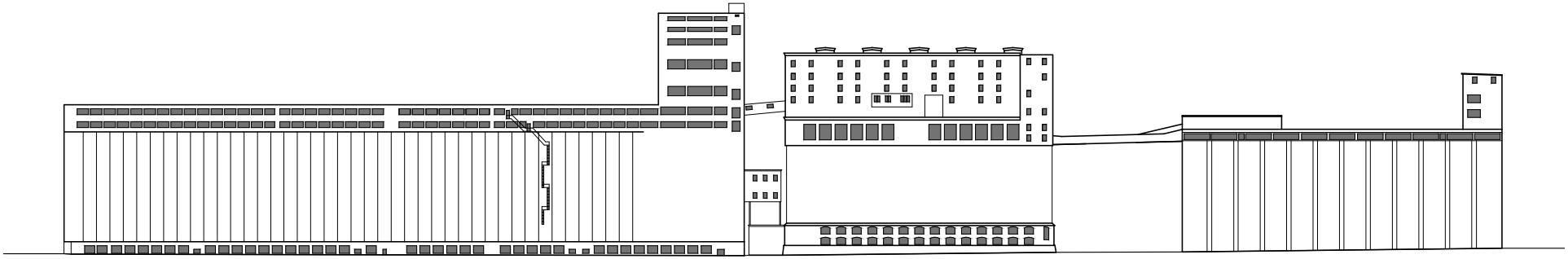


Figure 3.47: Elevation 1

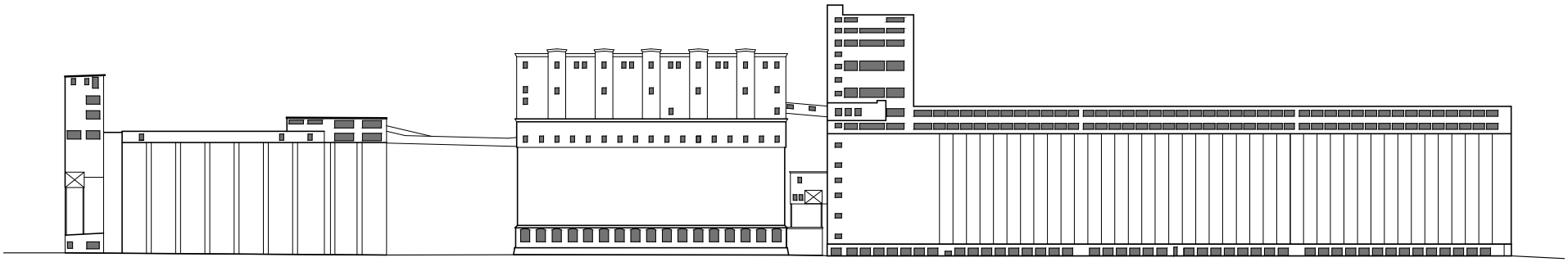


Figure 3.48: Elevation 2

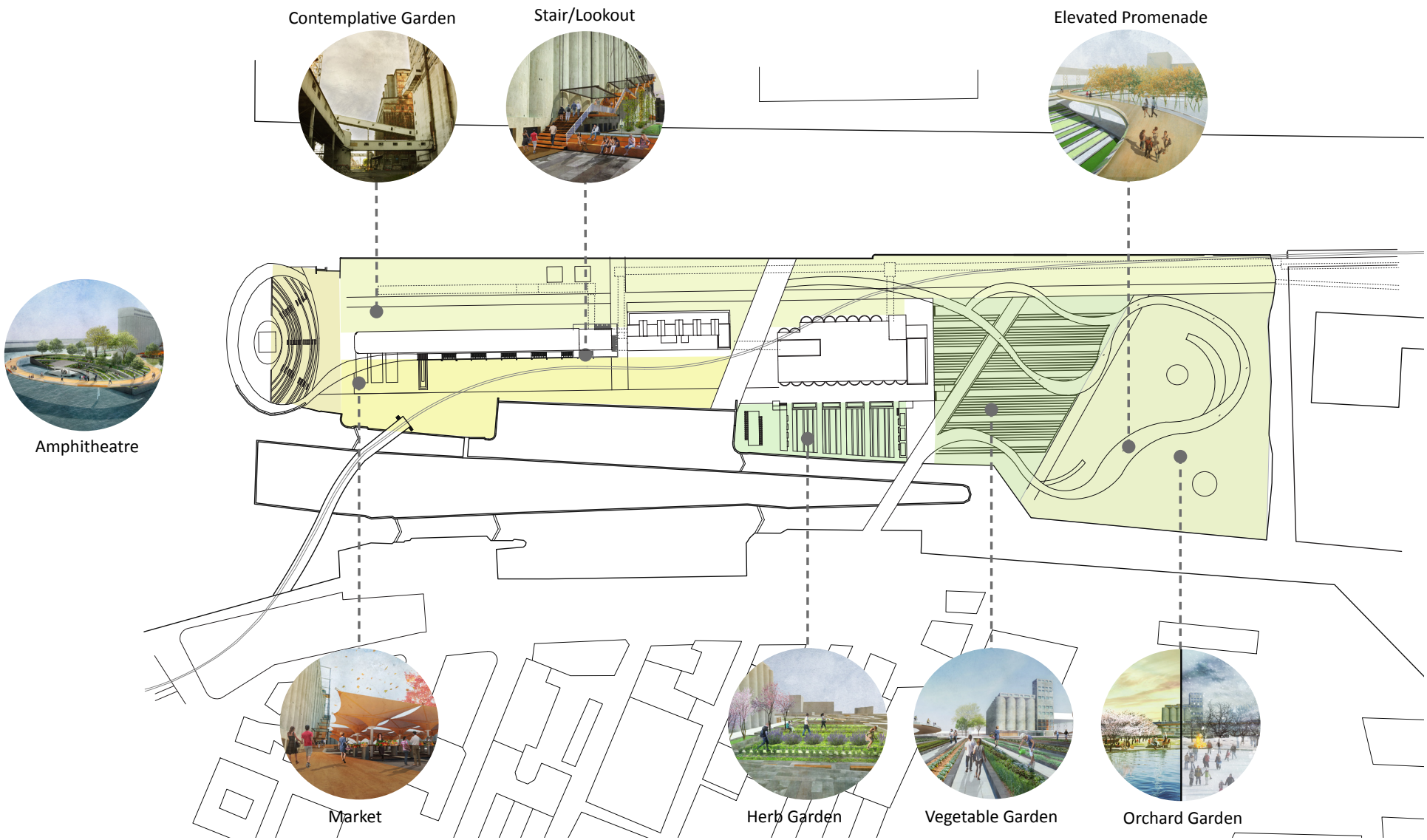


Figure 3.49: Program diagram illustrating the landscape/outdoor activity strategy

The Grain Elevators

This thesis views Silo No. 5 and its Pointe-du-Moulin site both through a lens of evolution and through a perspective of memory and symbolism. A sense of permanence and solidity is generated by the remaining structures, which are framed by the events that happen around them. Ephemeral uses will encourage the persistent transformation of the site, whilst advocating minimal, temporary interventions on the structures themselves. This way, the buildings can also maintain their character and identity without being compromised.

The ephemeral events happening inside the buildings can also be linked to the Society for Arts and Technology. The top gallery floors and the ground floors are the most usable of the existing spaces, and they will be used as community kitchens, research centres, lecture rooms, and art education centres and workshops, artist residences and offices, etc. The temporary occupation of the interiors also provides a more realistic solution, as the spaces will not have to be heated in the winter.

The Landscape

Two very distinctive conditions exist on the site: one in which the city is visible, and a contrasting one in which the existing silo structures act as a giant wall to the city. These very different conditions are to be maintained and celebrated.

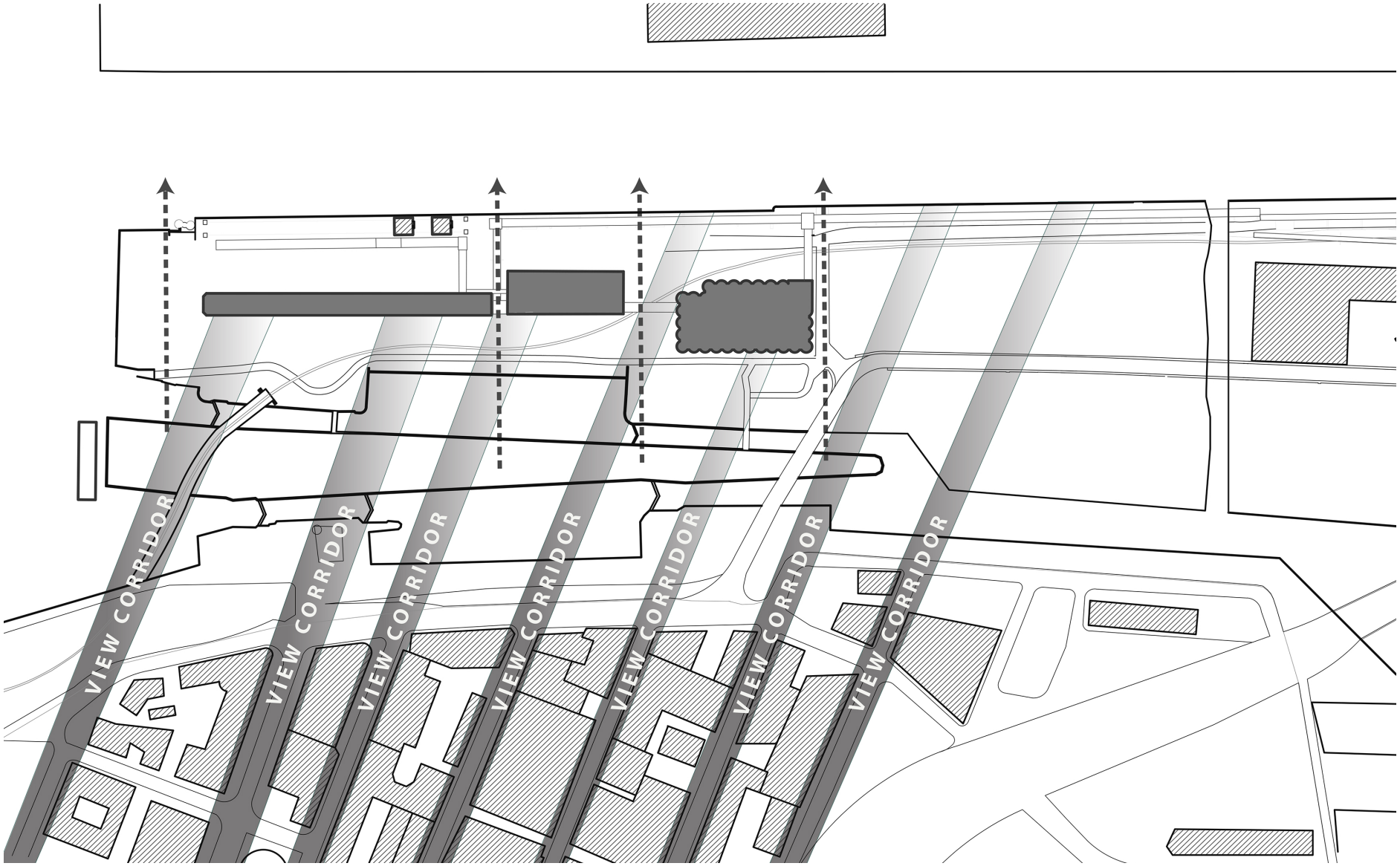


Figure 3.50: View Corridors and visual extensions of existing historic urban axes

Figure 3.51: View to the silo complex from Rue McGill

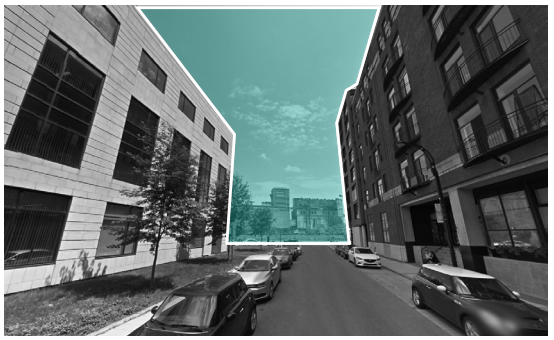


Figure 3.52: View to the silo complex from Rue des Soeurs Grises

Figure 3.53: View to the silo complex from Rue King

Figure 3.54: View to the silo complex from Rue Queen

Figure 3.55: View to the silo complex from Rue Prince

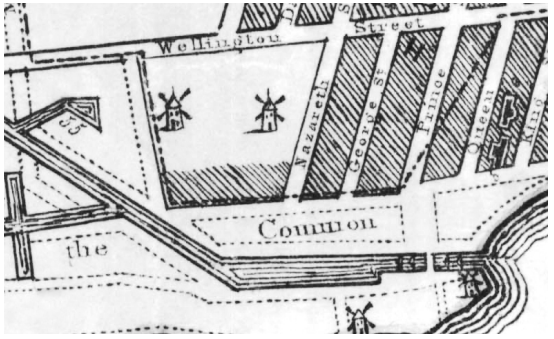


Figure 3.56: Historic streets adjacent to the site

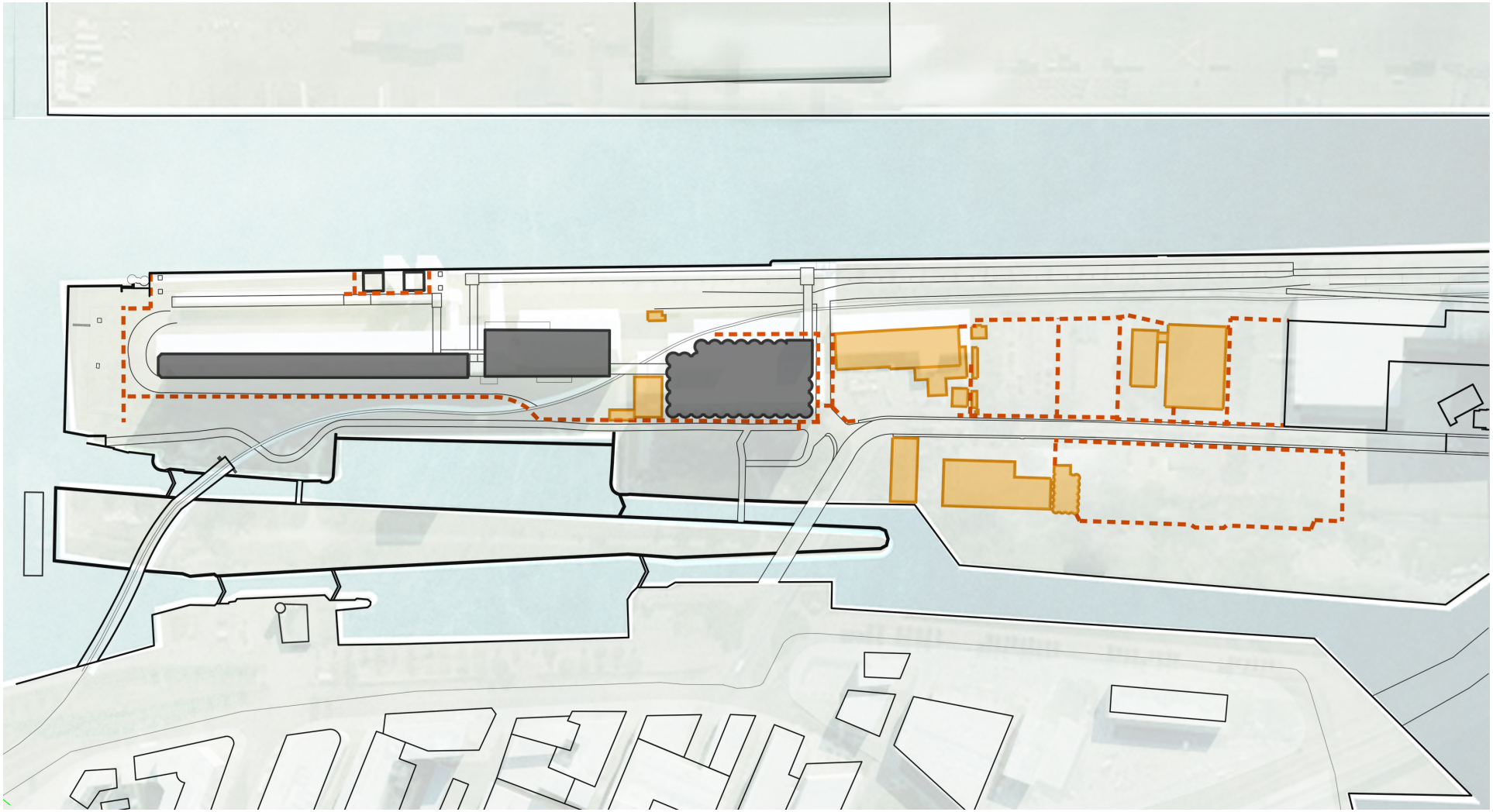


Figure 3.57: Demolition Plan

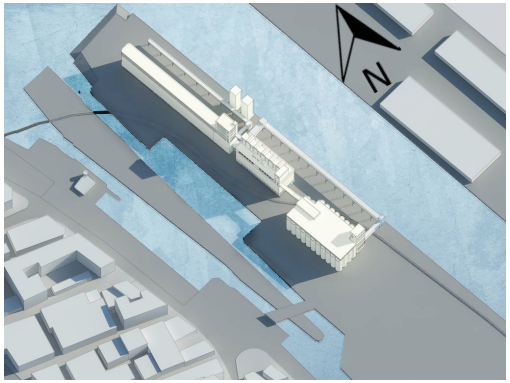
All the fences and small structures on the site are removed

LEGEND

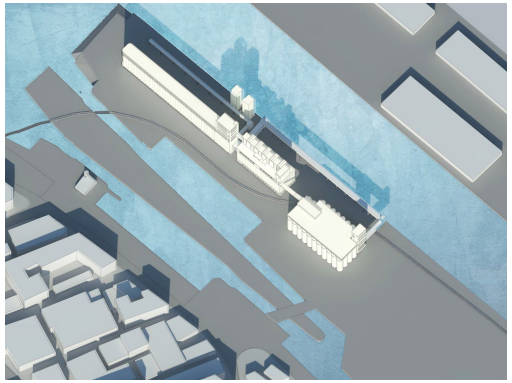
Demolished buildings

Demolished chainlink fence

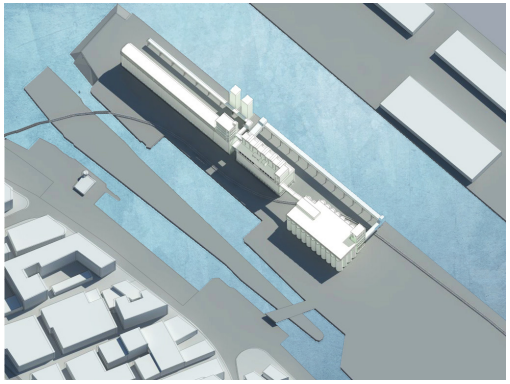
Shadow Study



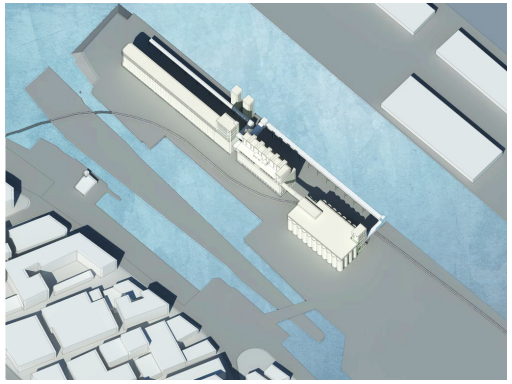
March 20, 9am



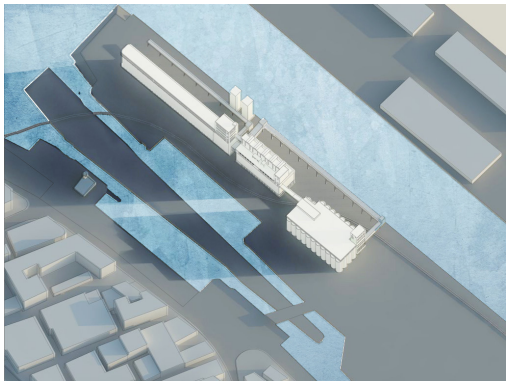
March 20, 3pm



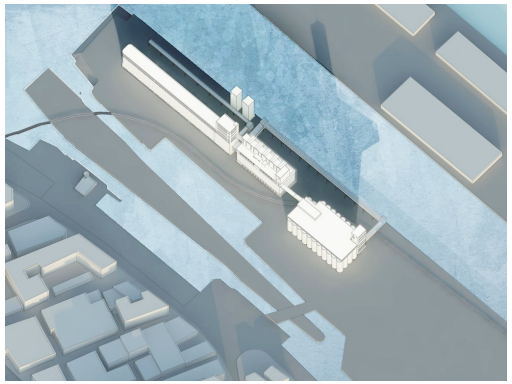
June 21, 9am



June 21, 3pm



December 21, 9am



December 21, 3pm

Figure 3.58: Shadow Study

The shadow study concludes that despite the structure's monumental scale, the South side of the site will not receive much shade due to the buildings' orientation. This creates the ideal condition for a productive garden that thrives in sunlight.

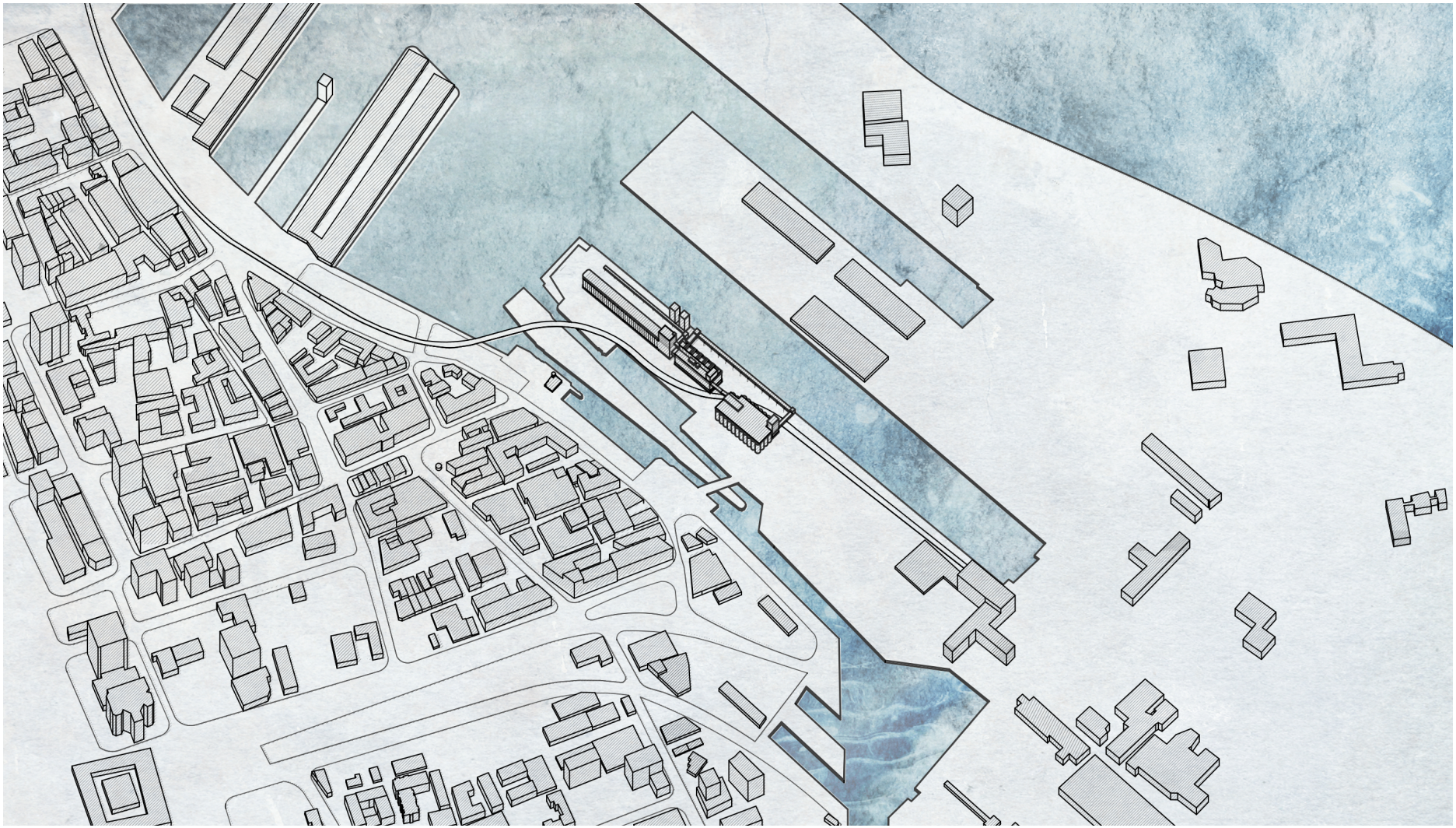


Figure 3.59: View of the site in its greater context

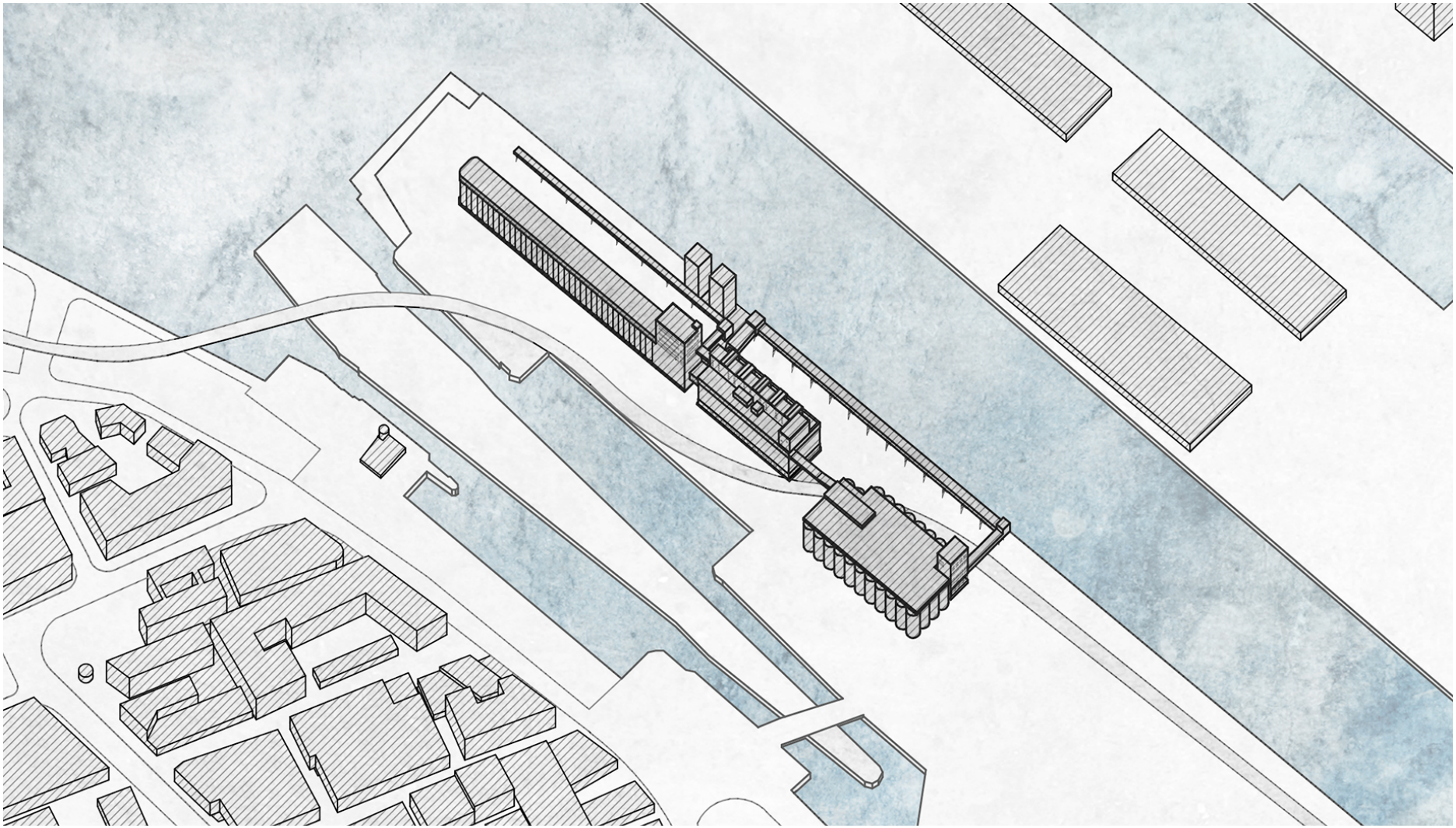


Figure 3.60: Close-up axonometric of the site

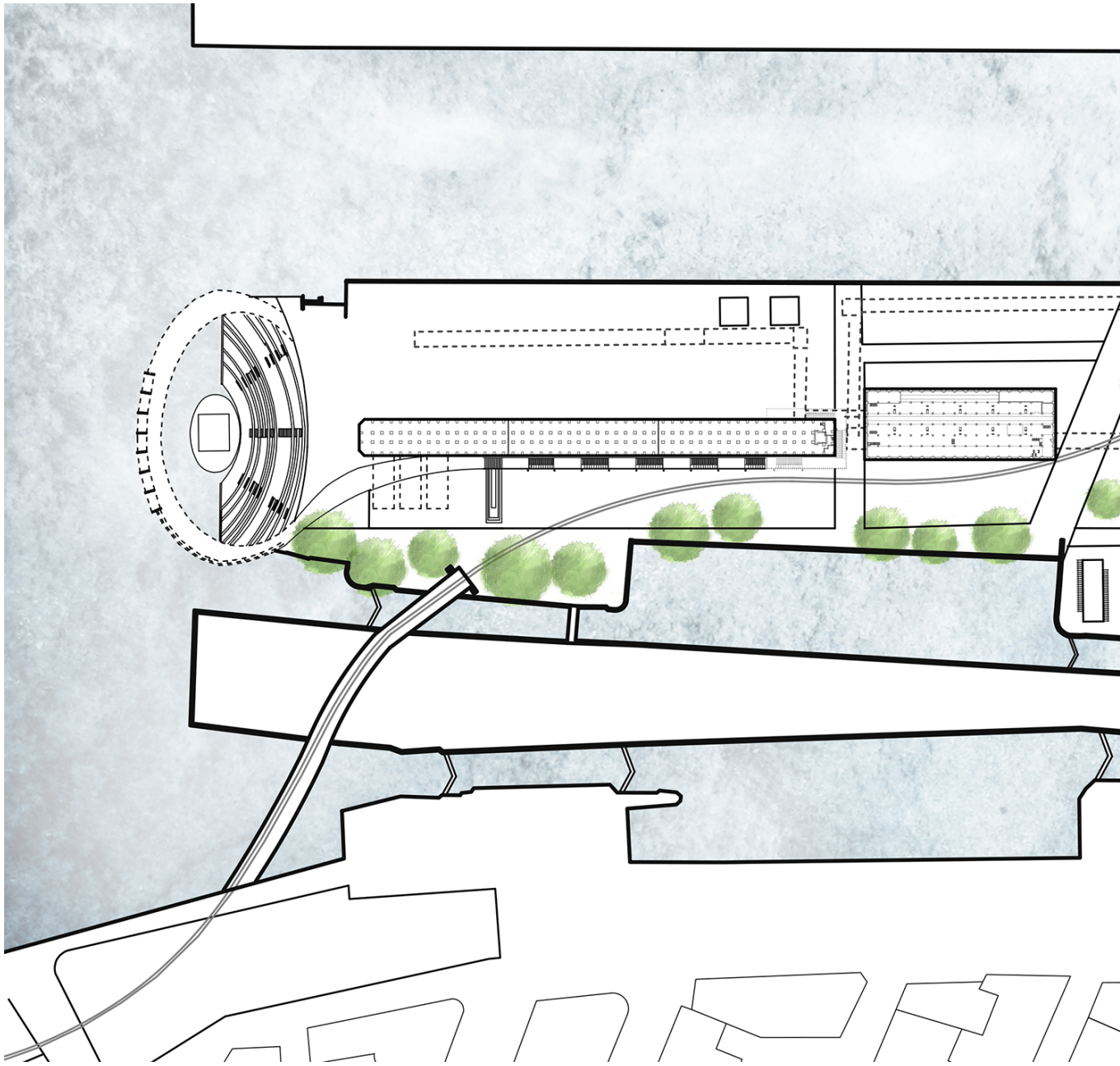


Figure 3.61: Proposed plan

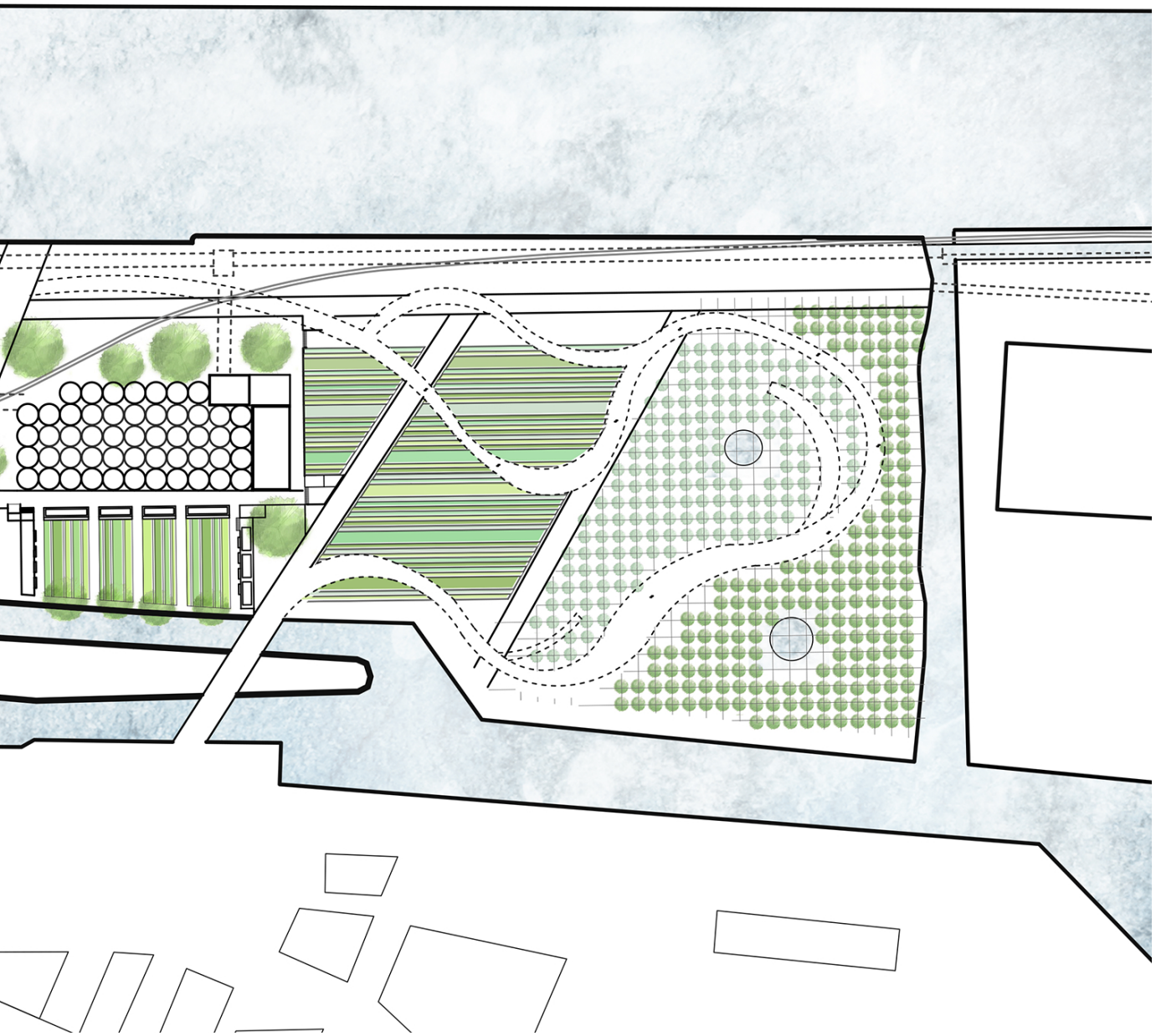


Figure 3.62: View of the elevated belvedere and the amphitheatre at the North end of the Point

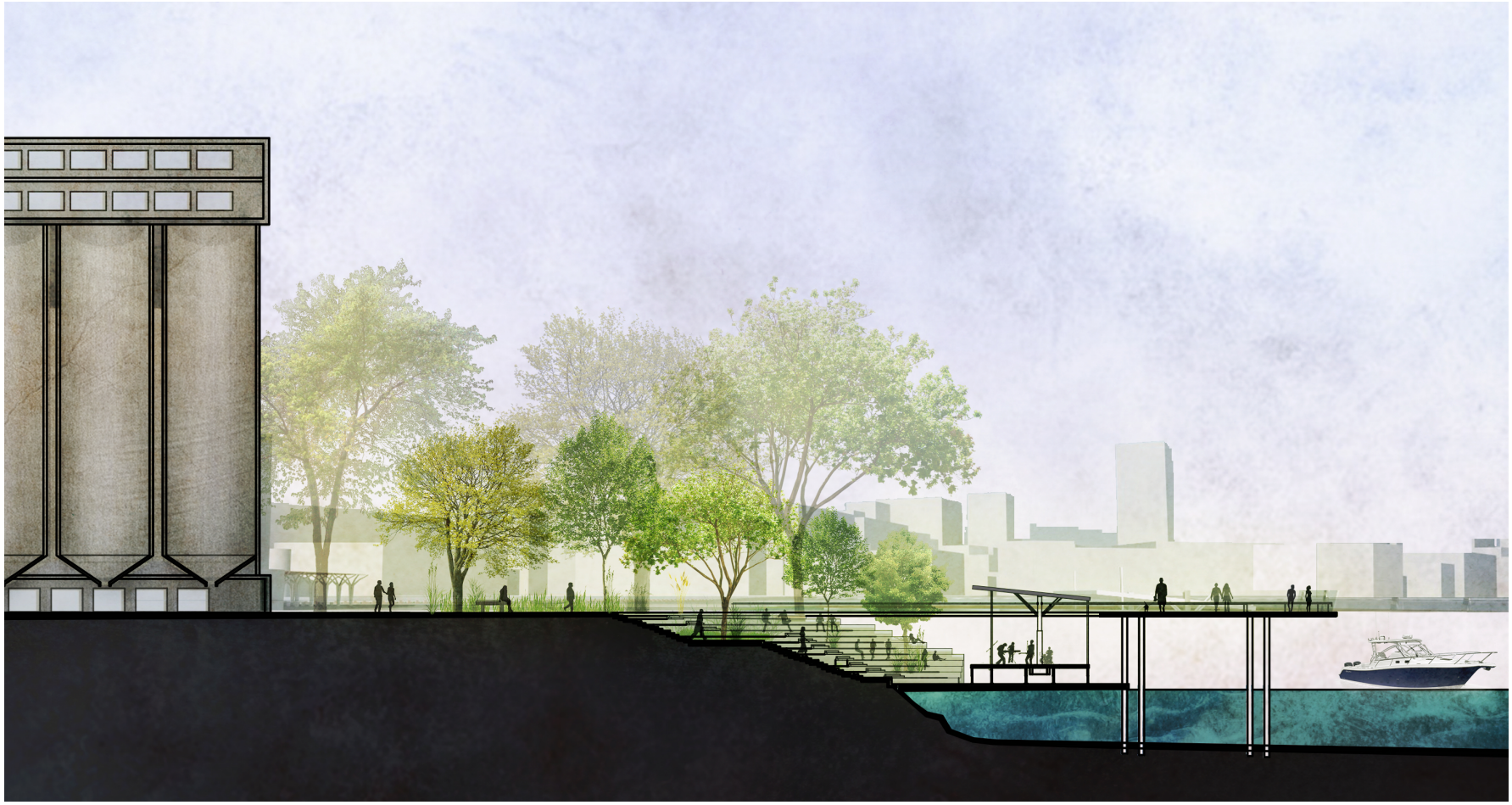


Figure 3.63: Section through the silos and amphitheatre area

The Waterfront

Two different waterfront edge conditions are created: the North one, which provides a view back to the city along with an amphitheater dedicated to various temporary events and performances; and the South edge, which is softer and provides a view to the industrial sites in the vicinity. These conditions also provide a close relationship to the waterfront and a celebration of the canal.

On the North edge, the elevated path is extended over the water to form an uninterrupted belvedere and viewing point to the Old Port and its surrounding context. The ground is carved to form the amphitheatre space composed of different steps as seating. Trees are then added in this space to provide shade for the spectators, while removing the need to add extra structures for shading.

The South end of the site overlooks the adjacent Farine Five Roses silos and a few other industrial areas. This is also where the orchard garden ends, hence the character of this condition differs.

Figure 3.64: View of the covered outdoor market in the fall

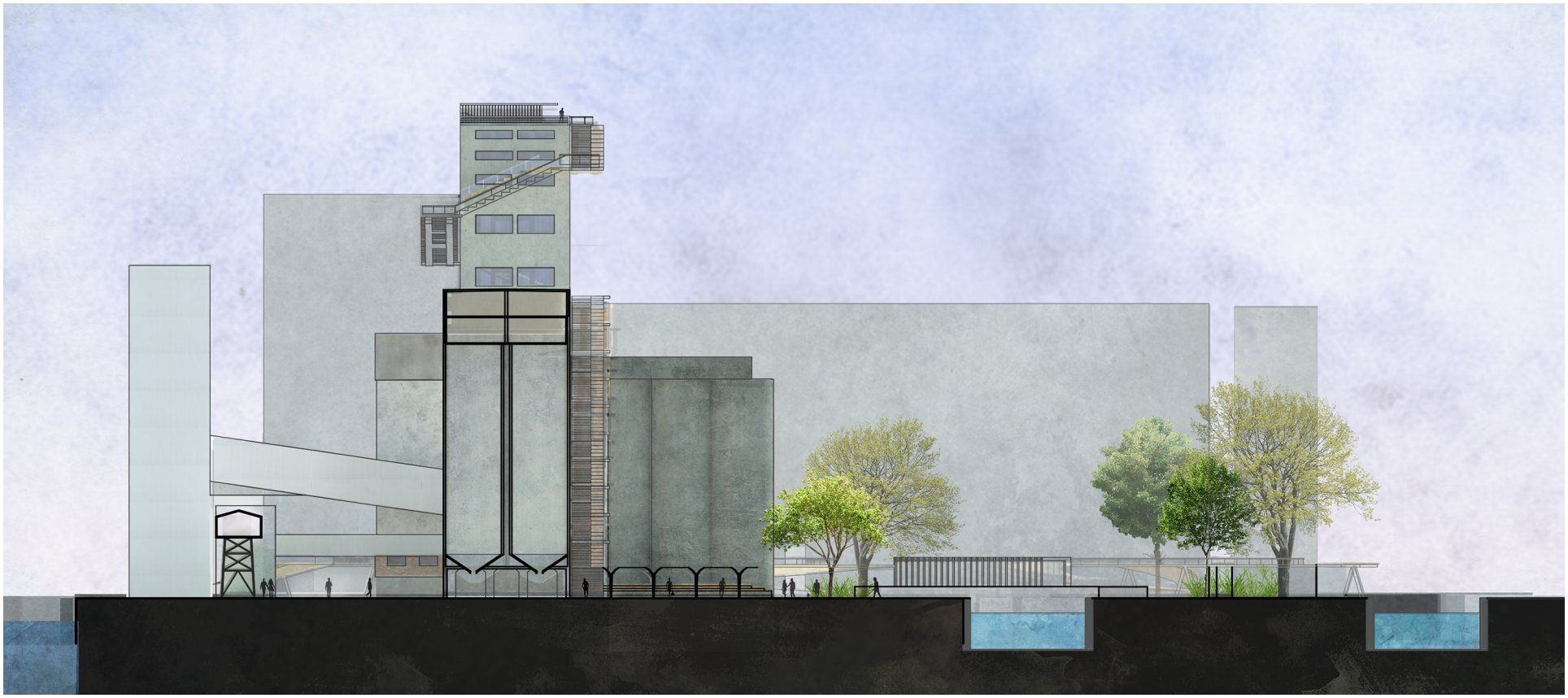


Figure 3.65: Cross section through silos, market space and basins

The Outdoor Market

A covered outdoor market will also be added on the West side of Elevator B-1, beginning a sequence which continues with the exterior stair, and ends at the greenhouse restaurant and belvedere on the top of the tower. The seasonal market will contain produce from the gardens after harvest, as well as other local goods specific to Montreal. Food festivals can then tie into the site, animating the surroundings and creating a community-based environment.

Temporary, light-weight structures act as shelters for the market; their dimensions and the spaces that they create are derived from the underside area of the silos on the ground level, resulting in an “inverse cathedral” look. The lightness of the materials used will also contrast with the heaviness of the concrete.

Figure 3.66: View of the stair leading to the top of the grain elevator tower

The Ascent

An exterior grand stair is also added on the same side of Elevator B-1. The purpose of this stair is to emphasize the visual relationship between the site and the rest of the city, as the user will be able to ascend to the top of the elevator tower while viewing the greater surroundings. The stair spirals around the tower, and landings for seating are also included as spaces of repose. An elevator is also provided on the interior of a silo as an alternative way of reaching the tower.

Figure 3.67: View of the greenhouse restaurant at the top of the tower

The Beacon

The top of the elevator's highest tower represents the beacon of the building. Here, the visitors are rewarded with an all-encompassing view of large portions of their city, including the Old Port, the Islands, Mount Royal, the Historic City Centre, and the rest of the Lachine Canal. This significant view has only been experienced by brave urban explorers and occasional site visitors.
The added greenhouse restaurant is mostly glazed, to provide the effect of a lighthouse or beacon during the evening.

Figure 3.68: Interventions on the interior of a concrete silo

Experiencing the Silo

The silos are arguably some of the most fascinating elements of the site. Reaching a maximum height of 30 metres, they possess an impressive acoustic quality with a 20-second reverberation time. This phenomenon was demonstrated in the Silophone audio project conducted inside the grain elevators in 2001.

The imposing nature and physical magnitude of the silos bring about peaked public interest and curiosity. Their verticality, cylindrical form, and cavernous interior devoid of light also generate a very distinct and uncanny environment. Some of the silos could be opened to the public, either for various performances or for simple exploration. Viewing platforms can be added, as well as spiral stairs for vertical circulation.

Figure 3.69: View of the productive landscape during a harvest event

Temporary Events - The Harvest

Seasonal functions such as planting and harvest of the productive landscape can be turned into temporary collective events in which visitors can participate. This will enforce a sense of community within the area, while encouraging the public to take part in an urban agriculture initiative.

The elevated cycling and pedestrian path is placed above the gardens so as to provide a meandering experience of the site while also protecting the landscape.

Figure 3.70: View of the orchard garden during summer and winter

The Landscape and Seasonal Changes

The orchard trees will be arranged on the same axis as the structures, as they are both intrinsically rigid in their sequential organization for practical reasons. The urban axes are maintained by the separations and paths between productive vegetation types, as they are extensions of the existing historic streets adjacent to the site. At the same time, the landscape is a focus but also a background for the programs, framing the existing structures.

Irrigation ponds can be used as reflecting pools in the summer and as skating rinks in the winter. The niche spaces formed in the landscape can be used for temporary performances, outdoor exhibitions, or public dinners in the orchard.

Figure 3.71: Aerial view of site

Access and Pathways

The promenade for walking and cycling creates a continual link on the site, tying into the existing infrastructure for jogging and biking on the Lachine Canal.The pedestrian is weaved through the site, which can be experienced in a few different ways.

The raised pathway works to surround and frame the existing grain elevators, while also embracing the metaphor of “elevation” on the site. In most vernacular granaries and silos, the structure is also lifted off the ground to suggest that the contents are valuable and need to be protected. By taking this pathway, the visitor can experience the site from a different, elevated perspective, from North to South and vice-versa. This pathway will be “floating over” the productive landscape. The ribbon-like, organic aspect of the pathway also contrasts with the monumental, grounded, and rigid look of the existing structures, while emphasizing them.

The pathway is made of wood in order to contrast with the stark concrete of the silos and to recall the numerous ships and boats that were continuously circulating on the Lachine Canal in its heyday.

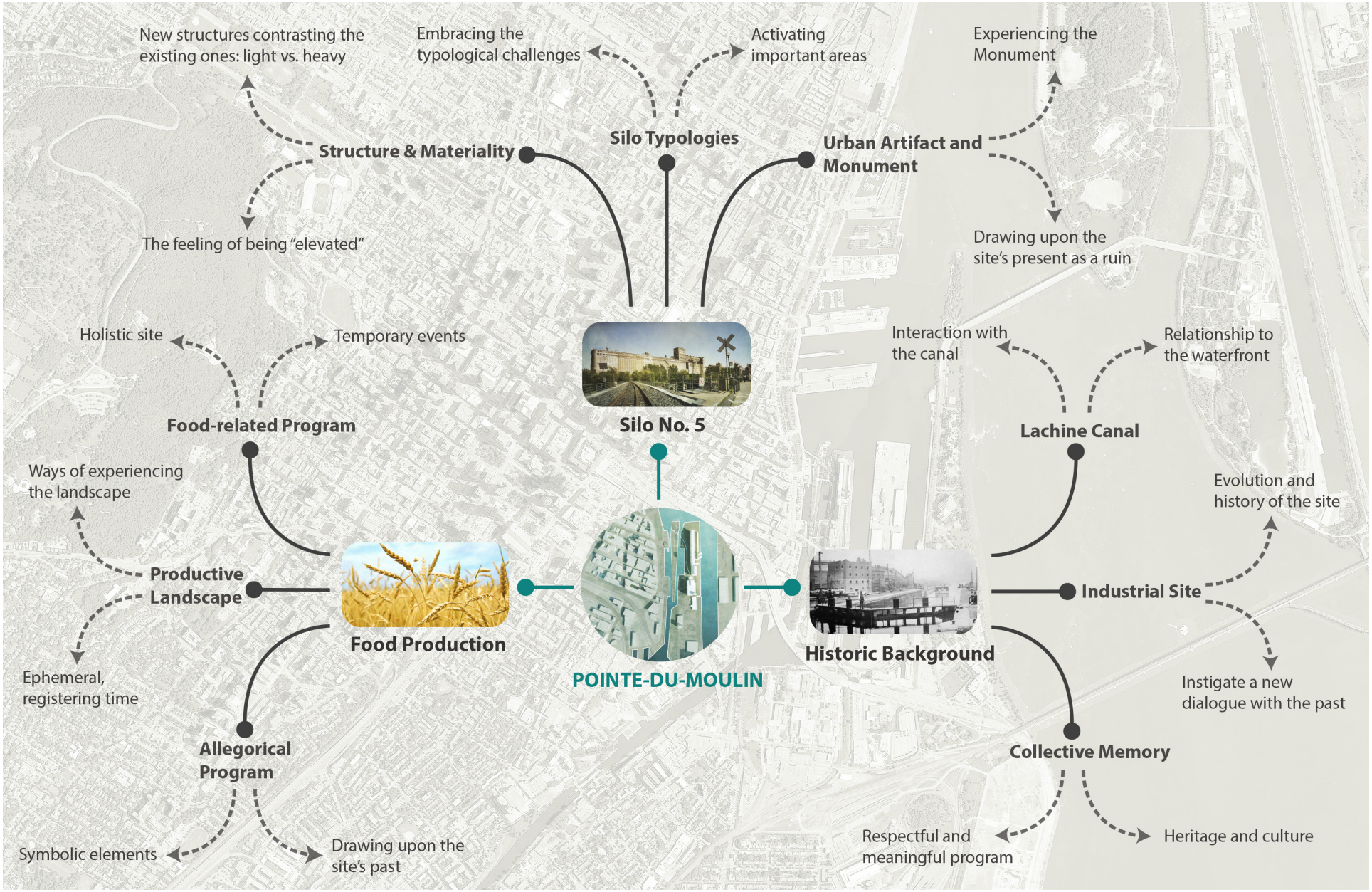


Figure 3.72: Diagram of the implications and identities of Silo No. 5

Conclusion

Our society is evolving faster than ever before, leaving behind outdated technologies and infrastructures in the fabric of our cities. The physical artifacts that have contributed to the shaping of our contemporary environments are found in ruin, although their significance persists. In the past few decades, addressing cities' obsolete remains of their industrial past has been a cultural and architectural challenge. This thesis questions how we interact with these remaining monuments and ruins, and what kind of program would be meaningful enough to implement on a site like Silo No. 5. It is asking questions such as: "*Can the sublimity inherent to this vast structure help reintegrate it and the surrounding landscape within the urban fabric and relevance*?" and "*How can it remain a monument for the city through its inherent characteristics and also play a productive role?*"

Too often the remedial approach for post-industrial sites is driven mostly by economics and superficial motives rather than consideration for the site's charged history, culture, and frameworks for place-making. These approaches are mostly based on monetary gain and attracting more new developments and often result in projects with no relationship to the city's past or present context. In this case, the sites' historic aspects are merely used as marketing strategies.

The purpose of the design project is to strengthen the site's ingrained qualities without changing its main character. The existing structures are already charged with a strong history and possess distinctive characteristics which could never be recreated. Alan Berger proposed that instead of fighting against the unique challenges that these sites offer, designers should instead be inspired by them and utilize them as catalysts in their reuse. The design approach should find ways of engaging these characteristics and potentials while understanding the site's rich narrative and greater context. These post-industrial landscapes challenge our roles as architects and designers and encourage us to examine the multiple identities and layers of the sites in order to uncover their narratives and future opportunities.

The architect should take on the role of the observer in order to understand the site's rich past, the urban explorer in order to appreciate its intrinsic atmosphere and qualities, and the speculator to propose a meaningful future based on the aforementioned characteristics. This creates a collage and synergy of different identities for the site, which need to be reconciled in the end. The new design should complement the history of the site as part of its on-going narrative, while the city can also benefit from the new experience created. The design should encourage immersion into the place, while respecting Silo No. 5 as a monument and an important object in the history of Montreal.

The site is designed as a rich experiential yet productive place with a program which connects with the community and adds impact and significance on a site with overlooked value. People will have the chance to be active participants in several aspects of the food production and will thus take part in the continuous narrative of the place.

Once the site had been abandoned and rendered obsolete, the identity of the place was undermined and it reached an apparent state of stagnation. The intention is not to modify the artifact but frame it instead through productive landscape, ephemeral events, water, and new pedestrian and cycling infrastructure which will tie into the existing one. This is also done in an attempt to restore the dignity of an important monument in the city and draw attention to what already exists and has value but at the same time is overlooked.

Like the ruin, landscape also has the ability of registering time in a unique way and has a constantly changing, seasonal aspect. When visiting ruins, the explorer feels that they are somewhere outside of the ordered city, while also being more engulfed in its history. This concept also applies to the productive landscape, which is not something new but rather something that we've lost connection with over time.

The placement of productive landscape on the site is first of all symbolic, referring back to its original purpose of working in tandem with agriculture and the ultimate designation of silos as machines for processing and distributing food. It is also emblematic to the history of food storage and granaries and to the origin of the city, which has a rich agricultural past. Building on the existing initiatives of urban agriculture and food production in Montreal, the proposal also aims to complement its promising agri-food industry, while engaging a wider public with an important existing urban artifact once related to food and agriculture. This type of program will help the visitor to understand the site's continuous narrative as well, by also being part of it. Just like the existing building, the landscape is also used as a tool for memory. The program is mostly dictated by the seasons and by the landscape itself, as visitors can participate in planting or harvest and interact with local food production models while exploring the historic complex.

Imposing very specific, permanent program on the site would eventually contribute to its second destruction, since our society is continually evolving at a rapid and unpredictable pace. Hence, a solution to this issue is to provide the means for temporary events on the site as an invitation to occupy it. The Society of Arts and Technology could tie into the existing building, transforming it into a vault for knowledge, education, and experimentation. By leaving the building open to these temporary and seasonal occupations, the interiors and their distinctive sensory

wonders will remain unchanged while being ingrained with a new meaning. The crucial location of Silo No. 5 at the heart of the city makes it part of a great strategy for celebrating several elements of the Montreal's past and how it came to be. Integrating this important site into its urban context would contribute to continuing the great narrative of the city.

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