

A Museum of Movement:
Reinterpreting the Industrial Landscape

by

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George Francis Wilson III

Submitted to the Department of Architecture on May 12, 1995 in partial fulfillment of the requirements for
the Degree of Master of Science in Architecture Studies, Architecture and Urbanism. _____

A B S T R A C T

This thesis proposes an investigation of fragmented urban spaces between traditionally dense, urban fabric. I have termed such places in the city “gap-spaces.” With the selection and documentation of a particular gap-space in the city of Boston, I found that this space was created and maintained by continuing industrial and infrastructural concern. The physical site, all of the industrial residue, and the large-scale infrastructure has been built in the past—and is being built in the present—to support the metropolis of Boston.

The architectural constructs on this site, built for pragmatic concern in an industrial era, now sit disused, or underutilized in a post-industrial society. The intention is to use this site and the existing structures, assuming a non-*tabula-rasa* condition. Reclaiming this zone for human use, and celebrating the manifests of history, has led to a design proposal and investigation. In order to stimulate concern for the important industrial history of Boston, and the larger New England region, buildings and structures on the ‘Miller’s River’ site provide a framework for the new image and architectural design proposal.

This new image and place is legitimized by a Museum of Movement, and a formal Science Park. The Museum of Movement is comprised of two primary exhibition units: Technological Progress (the manifestations of man’s applied sciences), and Man and the Environment (decisions and consequences of technological progress; effects on the natural environment). Well-over two-million visitors a year are anticipated to come to this now disparate site. Current and future technologies will be employed throughout the structures to make for a highly interactive learning environment.

Three issues are of primary concern in the design process: 1) using and celebrating—both first-hand and passively—the wide variety of historical, industrial, constructs on the site, 2) investigating a viable site-specific plan which links the Charles River Esplanade to Boston Harbor (and East Cambridge to Charlestown) while creating a new place *for people*, 3) utilizing the space between the usable buildings as an opportunity for new architectural form and language.

Thesis Supervisor: Michael Dennis
Title: Professor of Architecture

A MUSEUM OF
REINTERPRETING THE INDUSTRIAL

MOVEMENT
LANDSCAPE

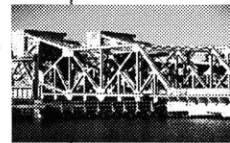
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THIS MASTER'S THESIS IS DEDICATED TO:

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George F. Wilson, and G.F. Wilson Jr....for having indubitable faith in a young man pursuing a dream.

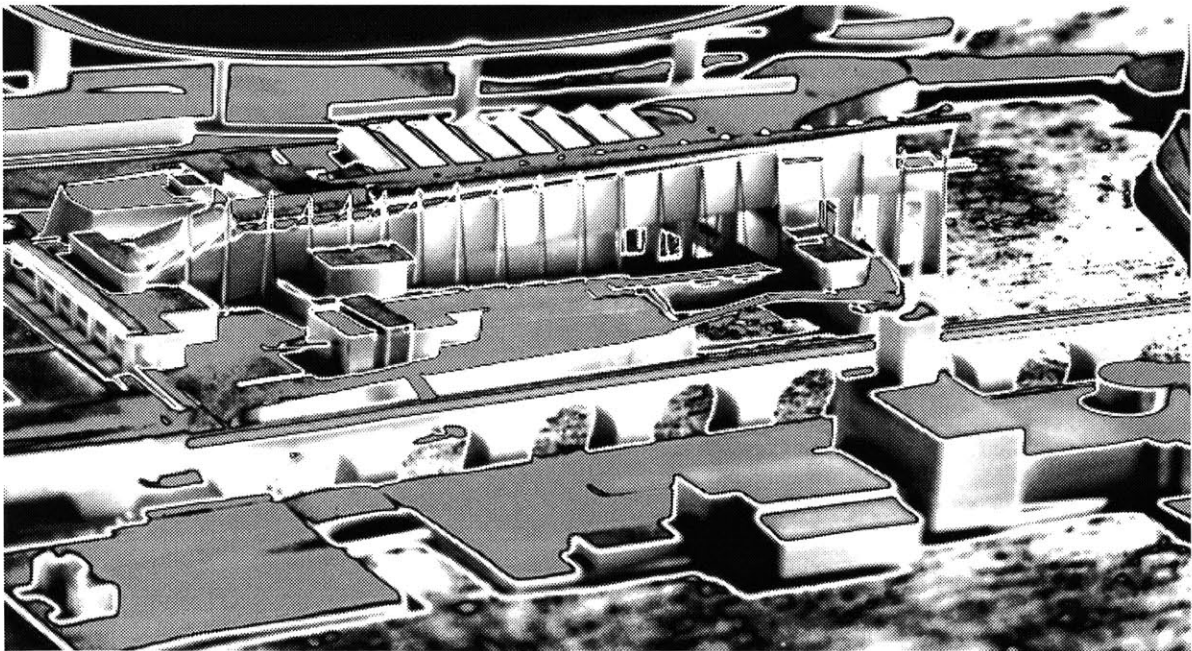
My Mother, E.B., Laura, Danielle...for your unconditional love and support.

My friends; without your refreshing spirit, I could have *never* survived seven-years of intense work and study.

It is now *my* chance to give-back.

A Museum of Movement
REINTERPRETING THE INDUSTRIAL LANDSCAPE

— 5



Introduction

Within the professional and academic fields of architecture and urban design, the ability to ‘read’ a figure-ground drawing may be likened to fluency in another written language. The reading of black masses against a white ‘field’ illustrates building juxtapositions and the ‘gap-spaces’ created between individual buildings. These ‘gap-spaces’ are fundamental to the reading of urban space within the larger urban fabric of any city. Within the past many years of urban and architectural discourse, critical texts have used readings of figure-ground as basis to either expound a position or negate the position of another.

Perhaps one of the most influential (recent) texts utilizing figure-ground as a means of explicating the benefits of a particular way of designing the city is *Collage City*, by Colin Rowe and Fred Koetter. In *Collage City*, the authors use the abstract ‘language’ of figure-ground to illustrate their written argument—in which they market and augment their own opinions through negation of another set of prior urban (utopian) design trends—with an emphasis on, but not limited to, modernism. For this thesis, however, the polemicising nature of *Collage City* is less important than the use of figure-ground as abstract explanation of urban space.

Why I begin this document with figure-ground is to mark the first ‘seeds-of-thought’ beginning four years ago as an undergraduate at USC Architecture. These thoughts grew with an undergraduate thesis investigating an edge condition between a modern housing project in New York City—Stuyvescent Town, built by Robert Moses—and the traditional urban scale and block structure of the lower East Side of Manhattan.

It was with this thesis that I became excited about the simple and abstract reading of figure-ground drawings, and became even more excited about the possibilities of designing the ‘gap-space’ left by the ‘modern’ urban design polemic. This is not to say I was looking to fill these gap-spaces with an architecture mimetic of yesteryear. Rather it was a look into how contemporary designers could ‘add another layer’ to an ongoing experiment.

Cities are created by a multitude of varying opinions and beliefs. The *modernist* doctrine, and vision, that a city can be designed or re-designed by one man or woman—is simply preposterous.

Equally preposterous is the post-modern view that built works according to modernist doctrine, and not performing to standards originally set out (such as many deteriorating housing projects), must be torn down. Once again, the all-mighty architect has proclaimed



Fig. 1.1
Stuyvescent Town, New York City. The edge between traditional American urban fabric and a modern, post-World War II, housing project.

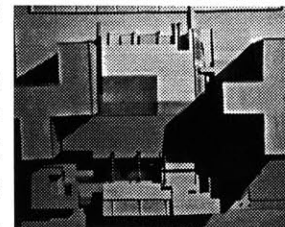


Fig. 1.2
Revitalization of Modern Housing Projects: A Community Center in New York.

negation of the past to outdo his predecessors. And, in order to do so, *they* typically say a 'tabula-rasa' situation must be achieved through total destruction of the physical manifests—the constructed works—of that generation prior.

Embedded within this thesis, then, is a personal manifesto. This manifesto is based on at least three points: we should consider 'gap-spaces' in the city as possibilities rather than hindrances; we should understand the heritage and history which created such spaces using background knowledge to make the place better—and not obliterate for the sake of a new argument; we should use and re-use the physical, constructed residue—finding value in our past and present while envisioning the future.

Thus, the following document; a continuation of thought which is much more an investigation of a larger hypothesis than a conclusive study in itself. Rather, I am intrigued with continuing and furthering understanding—posing design possibilities—for interesting, non-glamorous, gap-sites in our city.

The idea of 'gap-space' in the city is loose and general unless specifically focused. Enlightenment toward focused study came after choosing a *particular* 'gap-space' in the city of Boston. This space, one of a handful noticeable when looking at a map or figure ground of Boston, is quite massive but engaging as a place of 'other' in a city of neighborhoods. Past a macro—theoretical—reading of this gap-space came cognizance of what formed this space through time.

Embodied within this site are typical pragmatic infrastructures of modern human technological development: canal locks, train yards and track, highways and overpasses, trolley viaducts and bascule bridges, etc.. It was in these relics—this physical residue—that the gap-space in question began taking on a very specific dimension of its own, and where this thesis on 'gap-spaces' became more powerfully accentuated. At the so-called end of this project, beneath the larger hypothesis, lies a very site-specific design study.



Fig. 1.3
North Point, "Miller's River"
site.

In general, one could study 'gap-spaces' as any open-space in the city, or at least any significant open-space (white space on the figure ground) in the city. Realizing that the gap-space chosen for further research was imbedded with the history of New England's vibrant industrial history, began the process of understanding how I could make that space 'better.' The premise of 'gap-space' became overwhelmingly site-specific at that point, and allowed me to further constrain the study into a logical building program for design processes.

The design proposal (informed by the hypothetical points sketched above) calls for the acknowledgment of the industrial buildings, infrastructure, and residue on the site and offered a program for design development. The program states that a new museum of industry should be designed for this now post-industrial *wasteland*. Exhibition should include both new installations within the building as well as passive exhibit of the still-used physical constructs of

industry. A formal Science Park to link the larger metropolitan, and the adjacent Boston Museum of Science, also seemed appropriate for this pivotal site.

The logical progression of the project continued to stress the design of the new museum—The Boston Museum of Movement. Study became man's technological progression from the non-mechanical, to the mechanical, to the artificially intelligent, to virtual reality, to future visions and extensions. The form, and design of the museum signifies the difference between these technologies and how man has been effected by them.

The museum program and architectural form intends to heighten awareness for visitors about man's position with his technological creations. There are continuing discourses regarding the technological sciences, and the cognitive sciences in creation by human minds and hands to make a more efficient lifestyle. And, these texts have become a pertinent avenue of pursuit in order to advise the actual building and park program and form.

The general partii and organization of the Museum recognizes larger issues about technological progression; that man has created physical, mechanical devices to further progress, and now is placing mental (cognitive) capabilities within these mechanical and electrical devices to further capabilities:

“There must be a compulsion within mankind to attempt the evolution of objects as if life itself were being given to them.”¹

It (the new Museum of Movement), while recognizing the larger abstract issue of ‘gap-space,’ makes effort to inform the visitor through the use of remaining residues. In fact, the new architecture actually utilizes the in-between spaces between existing industrial warehouses. The new forms invade and hug the existing structures—information of a day-gone-by; structures becoming increasingly more obsolete in a world of artificial intelligence and electronic networks. The larger hypothetical issue of ‘gap-spaces’ caused by industry over the past two hundred years should be a part of the overall experience of the place created. The “Age of Image and Information”—the age we have decidedly built for ourselves—is manifest in the Museum of Movement. For, this new *place* in Boston created from a now derelict zone, is embed with information and learning through its history:

“We are drowning in information but starved for knowledge.”²

As Peter Stott introduces in his Guide to the Industrial Archeology of Boston Proper:

The terrain of the nation's industrial history is comprised of a large number of greater or lesser features scattered over a broad landscape...Every community has a unique and characteristic

economic history, the landmarks of which are important to the construction of a complete record of technological innovation. The intangible landmarks of economic history are mirrored in the physical world by the surviving objects and structures associated with them...Today most of the surviving physical evidence of 19th century economic history is as invisible as the intangible history it represents...A new appreciation for the varied structures of each community will make them stand out in relief against the background of our built environment and illuminate the common threads that bind them.”³

These ‘common threads’ verge to one common denominator: man. It is man that is at the center of all the past, present, and future technological innovation and discovery. It is our responsibility as designers to add the next layer of architectural palimpsest to these historical ‘gap-spaces.’ We have the possibility to do so with contemporary vigor and excitement.

Section I

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Gap-Spaces in the City

Industrial Gap-Spaces; Important History and Constructs to be preserved

Creating Good from Bad

Hypothesis (Hī poth' i sis), n., pl. -ses. an unproved or unverified assumption that can either be used or accepted as probable in the light of established facts.

Hypothesis

HYPOTHESIS

In order to engage in a design process, I will briefly set-forth a framework for architectural and urban thought. The following issues are more complex, and extend much further than, the succinct points made in this hypothesis. In order to provide a basic stage for design, however, I think it is important to limit the primary points of the manifesto.

The larger concepts, or premise(s), for this design thesis stem from three assumptions; three hypothetical points:

“Gap-Spaces” exist in our contemporary city fabric. An understanding, and definition, of such spaces should ensue in an educated design investigation.

Industrial gap-spaces have been created through history by human technological progress. The residue, structures, and other manifests of a time-past should be studied and edited in new development.

Architects and planners have the ultimate responsibility to tackle these problem spaces in our built environment. It is our responsibility to create ‘good-from-bad.’

“Gap-Spaces” exist in our contemporary city fabric. An understanding, and definition, of such spaces should ensue in an educated design investigation.

The term ‘gap-space’ must be defined before any design investigation might ensue. Gap-space is an abstract term pertaining to certain conditions in our contemporary city fabric. These spaces have been created over time, for a number of reasons and by numerous causes. However, to constrain the hypothesis of this thesis, I will limit the illustration of gap-space to two specific instances: those caused by the industry and infrastructure of an ever-mechanized society, and those created by the *modernist* urban design polemic which typically created ‘garden cities’ with autonomous buildings denying the context of a traditional city pattern.

My definition of gap-space begins with the reading of a figure-ground drawing of Boston, Massachusetts. The gap-spaces are the areas of a figure-ground which are predominantly white, rather than black; more ‘field’ than ‘figure.’ Ultimately, this reading would presume that the gap-spaces are less-dense at the ground plane than the tradition/black city pattern.

The Industrial-era created such spaces for pragmatic concern; the dense, traditional, city pattern was built for the human-scale. Roads and buildings were developed around transportation by foot, and cart. The Industrial Revolution caused the need for buildings and spaces designed primarily for a mechanical world; a much larger-than-human scale. Roads, bridges, viaducts, canals were created at the edge of the traditional city. The waterfront (water as a primary means of transportation and circulation of goods) became the realm of the machine and industry. As the automobile became ever-popular in twentieth century America, swathes of traditional city fabric were removed for highways and large transportation infrastructure.



*Fig. 2.1
Juxtaposition of Beacon Hill's traditional urban fabric, next to the West End Redevelopment area which employed modernist principles of urban planning.*

The *modernist* pedagogy taught the 'city as a machine.' Traditional city fabric was negated as obsolete in an increasingly automated world. Entire neighborhoods (such as the West End in Boston) were torn out of the heart of traditional cities due to the governmental Urban Renewal programs. In the place of traditional, contextual, city fabric, projects with autonomous buildings floating in a white field were created; 'towers in a park.' With this polemic came a problematical adjacency between the traditional urban fabric and the proposed *modern* urban fabric.

In our now post-modern society, these spaces have become disparate, either because of a lack of programming, or because of the inhuman architecture and the spaces that a modern, mechanical, society created. My proposition is that these spaces, and the constructs enclosing space, can be re-knit to traditional city fabric and re-adapted. Thereby adding another layer of information; rather than obliterating and starting again.

The 'white-space' is in place in these modernist gap-spaces. We need not tear down, whole-heartedly, what was built. Rather we should 'edit' the built environment—adding to and subtracting from.



Fig. 2.2
Swathes of traditional city fabric were removed for an ever-increasing mechanical/automated world. Here, the Central Artery ripped through acres of Boston, creating a sweeping 'gap-space' on the figure ground, splitting neighborhoods of traditional urban development.

Industrial gap-spaces have been created through history by human technological progress. The residue, structures, and other manifests of a time-past should be studied and edited in new development.

As found in the specific site chosen for the design portion of this thesis, many gap-spaces were created by industry, and the buildings of an industrial landscape. In a post-industrial, information-hungry, society, these spaces are left disused in many cases, and are disregarded as places where the human scale is not welcome.

Architectural value can be found in these now-disparate sites. Typically these places are embedded with a rich architectural, as well as infrastructural, history. As Spiro Kostof explicates about the building of an industrial era in England:



*Fig. 2.3
Industrial 'gap-space' along the waterfront, with Charlestown on the upper-right, Boston on the bottom, and West-End modernist development on the left.*

The battle of styles engaged elevated minds. Ironmasters, millwrights and miners, construction crews of industrial companies, roadbuilders and jerry-builders were in the thick of another kind of environmental drama. This was a frenzied new time, buoyant, brisk, and frightening, and they were giving it shape. The countryside was under siege. An army of tens of thousand spread out over it, cutting raw swathes through ancient rolling hills, fording, tunneling, lifting monstrous towers of prehistoric force where rural churches and princely country houses had brooded over the productive land for centuries. slag and soil heaps and the refuse of mines were everywhere in evidence like giant stains. Canals were being raised intrepidly above valleys and townships on aqueducts and sent on an uninhibited course laced with locks, wharves, boatyards, limekilns, and warehouses.¹

In a rapidly disappearing industrial society, it is easy to negate the structures of the past in lieu of progress to a new era of 'soft' information. But, as designers we should incorporate pieces of the 'hardware' of the past with our new visions of the future. Industrial building and various residues, has a place in the layering of our cities, and certainly a sublime place in American life. Reyner Banham begins *Concrete Atlantis* with a quote from John Steinbeck's *Cannery Row*, to exemplify how the landscape of industry has earned such a valuable place in the American heart. In a picturesque novel, Steinbeck takes the time to paint an honest picture of our industrial heritage:

In April 1932 the boiler at the Hediondo Cannery blew a tube for the third time in two weeks and the board of directors consisting of Mr. Randolph and the stenographer decided that it would be cheaper to buy a new boiler than to have to shut down so often. In time the new boiler arrived and the old one was moved to a vacant lot be-

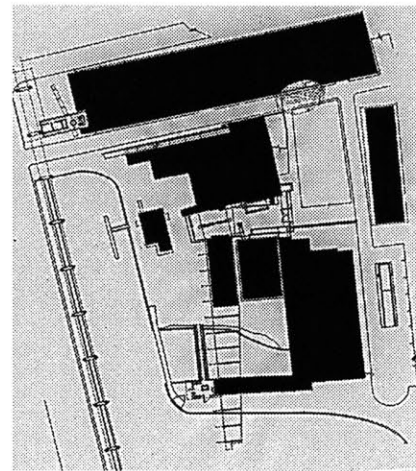


Fig. 2.4
*Nolli Plan of Museum of Movement
and new Science Park along the
Charles River*

tween Lee Chong's and the Bear Flag Restaurant, where it was set-up on blocks...The boiler looked like an old-fashioned locomotive on wheels. It had a big door in the center of its nose, and a low fire-door...Below the boiler on the hill there were a number of large pipes also abandoned by the Hediondo.²

In this thesis, the reinterpretation of the industrial landscape does not assume the addition of mimetic architecture, or necessarily the simple cosmetic preservation of building structures. Value should be researched and found; the industrial landscape within a 'gap-space' should be edited. Vision should be added to the industrial gap-space as a continued piece of urban fabric. By doing such, we might preserve a more important progression: the buildings of every era become important historic markers, and undeniable parts of the city's built environment.

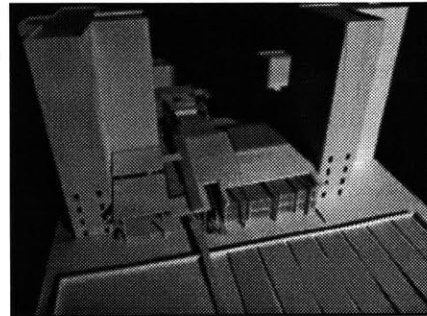
The "postindustrial" economy has led to the growth of tourism as an industry and to a new appreciation for industrial archeology, manifested in the establishment of federal and state urban cultural parks focused on the workplaces that half a century ago frequently were viewed as dreary prisons of economic necessity.³

Architects and planners have the ultimate responsibility to tackle these problem spaces in our built environment. It is our responsibility to create ‘good-from-bad.’

As problem-solvers, it is important that we respond to the problem-spaces in our built environment. We must grapple with insecure times of societal change. As we progress further into a ‘cyber-realm’ from a now primarily material world, it is important to change and adapt as willfully as our predecessors did with prior changes. In my mind, this time is no different than previous eras i.e. the shift from an agricultural society to an industrial society. As William Morris spoke of architecture in the shifting society of an increasingly more mechanical, automated world:

The enthusiasm of the Gothic revivalists died out when they were confronted by the fact that they form part of a society which will not and cannot have a living style, because it is an economic necessity for its existence that the ordinary everyday work of its population shall be mechanical drudgery; and because it is the harmony of the ordinary everyday work of the population which produces Gothic, that a living architectural art, and mechanical drudgery cannot be harmonized into art. The hope of our ignorance has passed away, but it has given place to the hope of fresh knowledge. History taught us the evolution of architecture, it is now teaching us the evolution of society; and it is clear to us, and even to many who refuse to acknowledge it, that...the new society will not be hag-ridden as we are by the necessity for producing ever more and more market-wares for a profit, whether any one needs them or not; that it will produce to live and not live to produce, as we do.⁴

Spaces in the city left by historical, that is prior, concern may be readapted to real-use in the present and



*Fig. 2.4
Re-adapting a Modern Housing
Project; grappling with obscure spaces
and inhuman architecture.*

future. Architects as visionaries must have the vigor to continue producing valuable spaces; spaces that respond to ever-changing need.

In order to raise our culture to a higher level, we are forced, whether we like it or not, to change our architecture.⁵

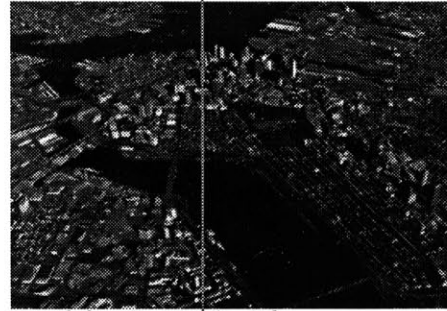
The design segment of this thesis responds to these hypothetical suggestions by creating a 'good,' readapted environment, from a considered 'bad' industrial wasteland.

Reconnection of larger urban moves, such as the metropolitan park system, traditional neighborhoods, and the introduction of a present-day program, will help to revitalize a now disused area of the city. The relics of the past can be saved and used as markers of a history, and packaged as information for data-starved present day citizens. The new building structures will provide all current technologies, and will have the capabilities to adapt to progressive technologies.



Fig. 2.5
Assuming tabula-rasa, again...Modern housing projects are destroyed in the background as new town-homes are built in the foreground. (New York Times, April, 1995).

Section II



— 19

SITE HISTORY

Introduction to Miller's River

Summary

Settlement In Nature: Pre-Industry at Miller's River

Subordination of Nature to Industry: The Eventual Demise of Miller's River

High Industrial Society: Auto-ever-powerful and Post-Industrial Visions

Conclusions: Visions and Opinions of Future Development at Miller's River

BUILDING PROGRAM

Science Park

Museum of Movement

PRECEDENT ANALYSIS

Site History

Site History

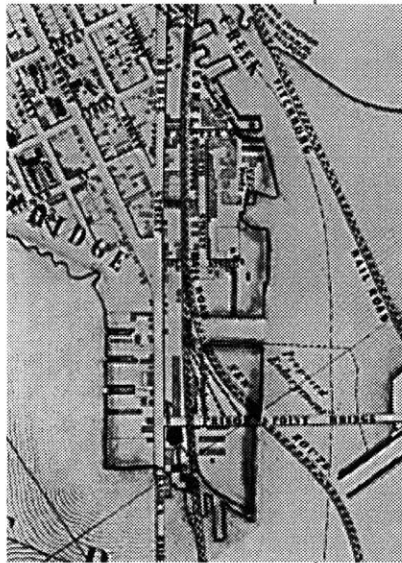


Fig. 3.1 Development around Craigie's Canal Bridge, 1854. East Cambridge is on the upper left, with Miller's River and burgeoning industry on the right.

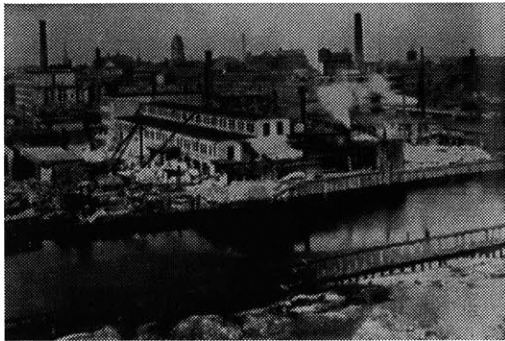


Fig. 3.2 Lechmere Canal in 1925. Industrial building typologies, pollution, and immigrant workers 'progressed' America into a more efficient future.

Where The Great City Stands...

The place where a great city stands is not the place of
 stretch'd wharves, docks, manufacturers, deposits
 or produce mere,
 Nor the place of ceaseless salutes of new-comers or the
 anchor-lifters of the departing,
 Nor the place of the tallest and costliest buildings of shops
 selling goods from the rest of the earth,
 Nor the place of the best libraries and schools, nor the place
 where money in plentiest,
 Nor the place of the most numerous population.

— 21

Where the city stands with the brawniest heed of orators
 and bards,
 Where the city stands that is belov'd by these, and loves
 them in return and understands them,
 Where no monuments exist to heroes but in the common
 words and deeds,
 Where thrift is in its place, and prudence is in its place,
 Where the men and women think lightly of the laws,
 Where the slave ceases, and the master of slaves ceases,
 Where fierce men and women pour forth as the sea to the
 whistle of death pours its sweeping and unript
 waves,
 Where outside authority enters always after the precedence
 of inside authority,
 Where the citizen is always the head and ideal, and
 President, Mayor, Governor, and what not, are
 agents for pay,
 Where children are taught to be laws themselves, and to
 depend on themselves,
 Where equanimity is illustrated in affairs,
 Where speculations on the soul are encouraged,
 Where the women walk in public processions in the streets
 same as men,
 Where they enter the public assembly and take places the
 same as men;
 Where the city of the faithfulest friends stands,
 Where the city of the cleanliest sexes stands,
 Where the city of the healthiest father stands,
 Where the city of the best-bodied mother stands,

There the great city stands.

Walt Whitman, Leaves of Grass

Introduction to the Miller's River Site

Sandwiched between Charlestown and East Cambridge—a stone's throw from the peninsula of Boston—lies an urban site of remarkable physical palimpsest. Paradoxically, two hundred years ago this site—which today is a wasteland of industrial uses—was not an earthen site at all. Rather, the Miller's River/Charles River Basin fits the paradigm of much of the surrounding Boston area. That is to say, this site was actually the mouth of the Charles River; the waterway between Boston, Charlestown, and Cambridge. Since the earliest settlement in New England, the Miller's River has been manipulated and filled to create more usable space for man's technological needs—mostly for the booming society of industry in the nineteenth and twentieth century.

Today the Charles River Basin stands in continuing civic development: once used as a pertinent space for growing industrial concern such as shipping ports, warehouses, railroad junctions, and river locks, the site now continues its ties to civic transportation through the massive highway on/off ramps, connectors, bridges, viaducts, surface streets, tunnels, and mass-transit rail. Study of this site makes transportation authorities proud with accomplishment, but environmentalists red with anger. It makes traditional urbanists scoff with pity, and progressive architects hot with intrigue. Even a southern Californian could feel subordinated here—the opposing size and form of the highway interchange, and obliterated ground plane below make massive Los Angeles interchanges, landscaped with Queen Palms and Jade plant, look like bucolic settings in comparison.

Indeed this site is filled with pragmatic stern, and romantic intrigue, all at the same instant. It is a layering of historical and ever-changing present information. An archive of industrial foundations, warehouses, and embankments showcase a rich history of pragmatic uses. Dams, docks, and drawbridges from prior generations still work with present daily need. High overhead, tens of thousand of automobiles zoom through the air space unconcerned with the indistinguishable landscape below. Or speed underground through tunnels, not caring of the physical stuff above; safe in the introverted world of the automobile. Railroad tracks cover many acres of the land with archaic locomotives pushing steadily forward—or backward—with no end or beginning in sight. In fact this is what this industrial site is all about: it is the kinetic energy needed to support and end a beginning. It is between 'this' and 'that'. It is a 'neither' world; whether by train, auto, or even water vessel. It has been decidedly planned for nonhuman—mechanical and industrial—inhabitants. As its history tells, this site has been an important umbilical cord connecting Boston to the larger region for hundreds of years.

Ironically the Charles River Basin, with all of its infrastructure in place, is difficult to access or approach. The few entry roads form thresholds from one culture to another. Even persons aboard boats moving from Boston Harbor to the Charles River pass through the River Basin with surreal intuition. From the west one may enter the site underneath the Green Line Trolley viaduct, acting as a literal gateway. Once through this gateway, time and space change

*Fig. 3.3
Planned complexity at
Miller's River.*

drastically. There is no human scale, nor concern for personal interaction, nor for auto interaction (at least not on the ground plane). This all comes as second thought on this site: road edges and markers disappear into dirt; parking and road meld together. Train track and gravel piles live harmoniously together. A train yard attendant, or a group of yard workers, walk amidst this setting. A surreal picture enacted in real time.

Through this 'planned complexity,' glimpses of the Charles River, the stoic '70's and '80's Boston skyline, and Bunker Hill Monument, help one to mark this place. These three markers give a semblance of relevant information to an otherwise demilitarized zone of mechanization and the physical manifests of such mechanized industries; man-made dinosaurs still allowed to inhabit their own space on earth.

The evolution of Miller's River and Charles River Basin is a compelling study. What follows is a brief window into the history and development of this site; the demise of a natural river to man's industry. What is so provocative for urban designers and architects today is the possibilities for this site. Today, as we try to design for a post-industrial society, spaces such as the Charles River Basin will be sites of renaissance. And, through the understanding of the history which slowly created and transformed such sites, designs from visionaries will be more powerfully informed. Relics and formal structures can be used to create an engaging new formalism and urban space.

The framework of industrial society has made the most pertinent physical impacts upon this once pristine site. It is now our opportunity to create a place which emphasizes and acknowledges an important history. All-the-while allowing citizens of the city to enjoy this important place and learn about their industrial ancestry within a larger technological progress.

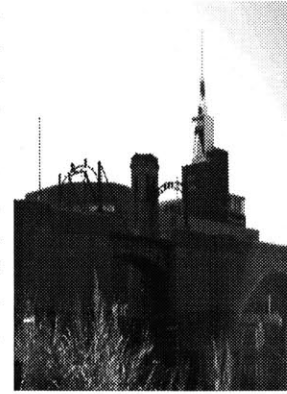


Fig. 3.4
Drawbridge and Green Line Trolley Viaduct. The Museum of Science sits in the background. The Museum draws nearly 2 million visitors a year.



Fig. 3.5
Charles River Basin from Trolley stop. "Not a 'here' nor 'there':" the once Miller's River has given way to man's industrial infrastructure--leftover relics abound.

Summary

For architects, planners, urbanists, and landscape designers, the Miller's River/Charles River Basin area is an enigmatic piece of Boston's urban fabric. Although seemingly lost to industrial concern i.e. railroad yards, train track junctions, truck depots, cargo warehousing, highway infrastructure, and leftover physical manifests of a day-gone-by, this site actually has a compelling history to be discovered and told.

The site today is an in-between 'demilitarized zone' of differing uses, all of which are manifested in structures developed for a mechanical world, rather than for human habitation and leisure. Physically, it lies between active, and vital, metropolitan Boston neighborhoods: Charlestown, East Cambridge, Somerville, and North End.

Beginning from the earliest settlement of the Massachusetts Bay area, it has been transformed drastically. At the beginning, the site was a marshy waterway. Later used for water transport, with industrial concern and architecture lining its shores—it slowly lost a battle to the railroad as a place of entry into Boston's northern railport (North Station) and vibrant commercial trade industries on the peninsula. Control of the natural environment was lost to the 'progressive' development. Because of such industry, and the pollution from such industry, Miller's River was slowly filled-in for both public and private reasons.

By the end of the nineteenth century, little remnant of water or a river, was to be found; train tracks enveloped the site in a seemingly haphazard (although carefully decided, and useful) physical exhibition. Because of its industrial 'wasteland' presence in the city the Charles River Basin area has been continually developed as a place of 'other.' That is, it became not a 'here' nor 'there.' It was, and still is, the place in-between human habitation. Above the train-tracked landscape, huge infrastructure for the automobile was built, encompassing yet another resource of the site: air space.

To this day, one may look at a map of Boston and acknowledge



Fig. 3.6
By 1920, Miller's River was nothing more than a wasteland of railroad track, stagnant pools, and man-made land.

this site as a missing piece in the macro-puzzle of the city. Although visions of the waterfront have been professed, no solid resolve has been made to reconcile surrounding neighborhoods to this harsh neighbor. The flux of contemporary society--from industrial to post-industrial—has left this site as one of the very last to pursue. It is a place of connections: it connects the mainland to the peninsula, and it connects the Charles River to Boston Harbor. Built architecture and infrastructure stress this important theme.

The following research documents the site through time, from 1630 to 1995. Significant physical change, and societal changes, have effected the site; each society developing the site for capital 'worth.' Today we dream of a future for the Charles River Basin—the once Miller's River.

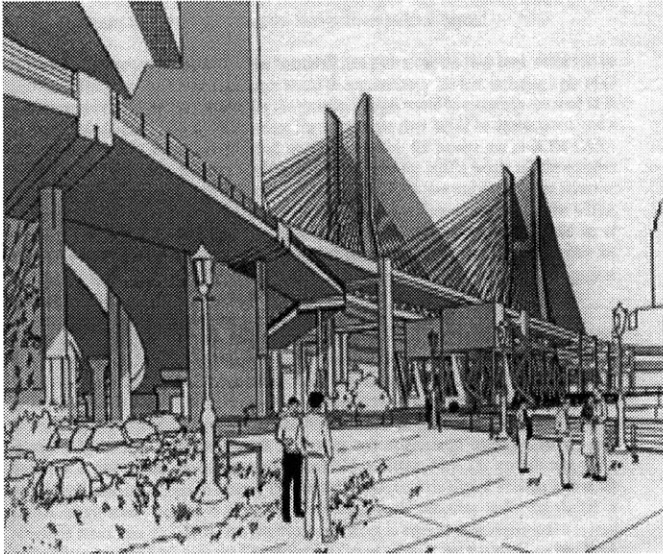


Fig. 3.7
Karr, Lynch, Hack and Sandell have proposed a mixed-use scheme for this site which acknowledges the important industrial history of the Charles River Basin.



Fig. 3.8
'Scheme Z' is a part of the larger Central Artery Project currently under construction in Boston. These massive ramps continue the historical use of this site: infrastructure for transportation and industry.

Settlement In Nature: Pre-Industry at Miller's River

Miller's River has not seen solace from man's 'progressive' development since the first settlers arrived in the Massachusetts Bay Colony circa 1630. At that time, the Shawmut Peninsula was an island—at high tide—surrounded by harbor, marshland, mud flats, and salt marshes. To the north of the peninsula, three bodies of land were prominent, each of which were characterized by high-points or topographical 'drumlins.'¹ The easternmost drumlin was Noodles Island, now considered East Boston. West of Noodles Island was Charlestown, which became home to some of the areas first settlers. Lastly was Cambridge, which was mostly wetlands on the northern bank of the Charles River. As a piece of the latter landscape, East Cambridge occupied the point nearest the Shawmut peninsula, and was surrounded on three sides by the Charles River, and Miller's River.

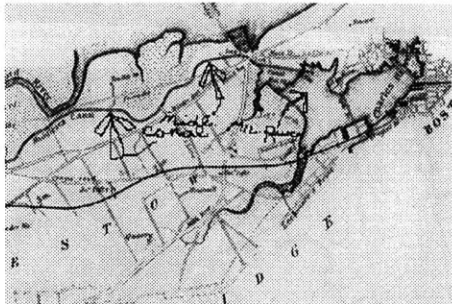
Miller's River, then also called Gibbon's River and/or North River, was a substantial inlet from the larger 'Charles Bay' (we know today as the Charles River Basin). Paradigmatic to the surrounding area, the banks of Miller's River were marshy mud flats at low-tide. Two navigable channels were used however, one on the Charlestown side, and one on the East Cambridge side. Lechmere Point was the prominent point at the elbow of the Charles Bay and Miller's River. During the American Revolution, Lechmere Point was used as one of the Army's most revered military battlements, Fort Putnum. In fact, the first settlers avoided using Charlestown and Shawmut peninsula as development sites because of the proximity and openness to Boston Harbor, and attack from the English Crown.

Miller's River was virtually unchanged during these early years. However, from the beginning attempts were made to control the watery landscape.² The River was considered an asset to both Charlestown and Cambridge as it was the best water to launch boats over to Boston. The Cambridge side of the Charles Bay being the "Great Marsh;" boats were difficult to maneuver in and out of the mud flats.

Large plots of land were held by a handful of settlers. On each plot was typically one farm house and agricultural land. The

*Fig 3.9
Original shorelines of the Boston region, ca. 1630. Miller's River was known as Gibbon's Creek. 'Graves Neck' is Lechmere Point. During the Revolution, Fort Putnum was built upon this high point. The drumlin shown in this map, between Cambridge and Charlestown, would later be torn down by the railroad companies to fill in Miller's River*

*Fig. 3.10
Middlesex Canal emptying into Miller's River.*



remoteness, due to the water channels, of East Cambridge and Charlestown from Boston, kept these regions sparsely developed in the early years. It was not until the bridges connecting the two sides were built that either community across from Boston became more useful to settlement. Until that time, Miller's river enjoyed light use, and not much environmental change.

Although cataclysmic physical change did not take place until the onset of the Industrial Revolution hit Miller's River—around the turn of the eighteenth century the banks of Miller's River saw substantial change. As a navigable port from Boston Harbor, Boston's land speculators became aware and interested in East Cambridge and Charlestown. When Andrew Craigie, an early real estate speculator began amassing hundreds of acres—including Lechmere Point—in East Cambridge, the ever-increasing need for a bridge to connect Boston to Cambridge became apparent.

Prominent 'proper' Bostonians, such as Harrison Gray Otis, were also involved in the speculation of the sites around Miller's River. With the completion of the Merrimack canal, which emptied into Miller's River, speculators were wild with visions for the banks of the River. It became evident that this site was ideal for industry and trade: there was direct access for boats to the Harbor, and now with the Merrimack Canal complete, the natural resources from northern regions of New England could be accessible to the ever-building 'Hub-city' and the rest of the world.

One of Craigie's visions (always toward financial gain) was a bridge to connect Boston to East Cambridge at Lechmere Point:

I rode to Mr. Craigie's New Toll Bridge. This is a very beautiful piece of architecture, lately built by Mr. Craigie of Cambridge at his own expense, over the Charles River, in sight of West Boston Bridge (approximately where Longfellow Bridge is today), and about the same length and plan, by which the road to Cambridge is much shortened.³

Craigie's Canal Bridge, as it was called, stood on the site where the Charles River Dam and the Science Museum stand today.

The bridge brought ease of access from and to the thriving city of Boston. Simultaneously, the Industrial Revolution was in nascent state. Soon the position of Craigie's Canal Bridge proved to be of importance to the continued development, and ultimate closure of Miller's River.

The roads and infrastructure of East Cambridge took into decided account this vital bridge which acted as, not only a link to Boston, but also the route from Boston to Harvard Square, the then center of Cambridge. Commercial docks were built by the developers of East Cambridge at the head of this bridge on the mud flats of Miller's River. Development plans of East Cambridge show roads 'ghosted' into these mud flats as future expansion possibility. This would be the beginning of the ultimate demise of Miller's River a century later.

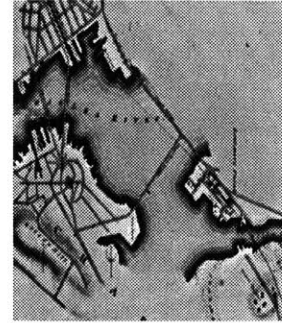


Fig. 3.11
1832. Junction of Miller's River and Charles River. Notice Charlestown development on the lower left, East Cambridge on the right, and Shawmut Peninsula on top. Craigie's Bridge and Prison Point Bridge connected these three prominent sites of habitation in the Massachusetts Bay Area.

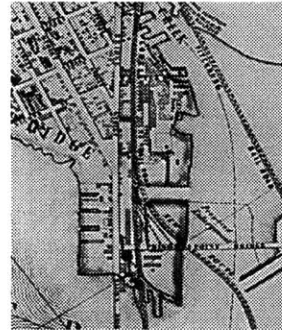


Fig. 3.12
1854. Development around Craigie's Bridge with industrial campuses and railroad track filling in the Miller's River on the right. Burgeoning East Cambridge development on the left.

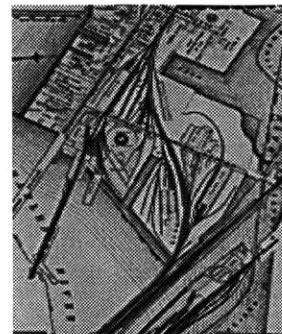


Fig. 3.13
1886. Intense filling and railroad superiority transformed Miller's quickly

Subordination of Nature to Industry: The Eventual Demise of Miller's River

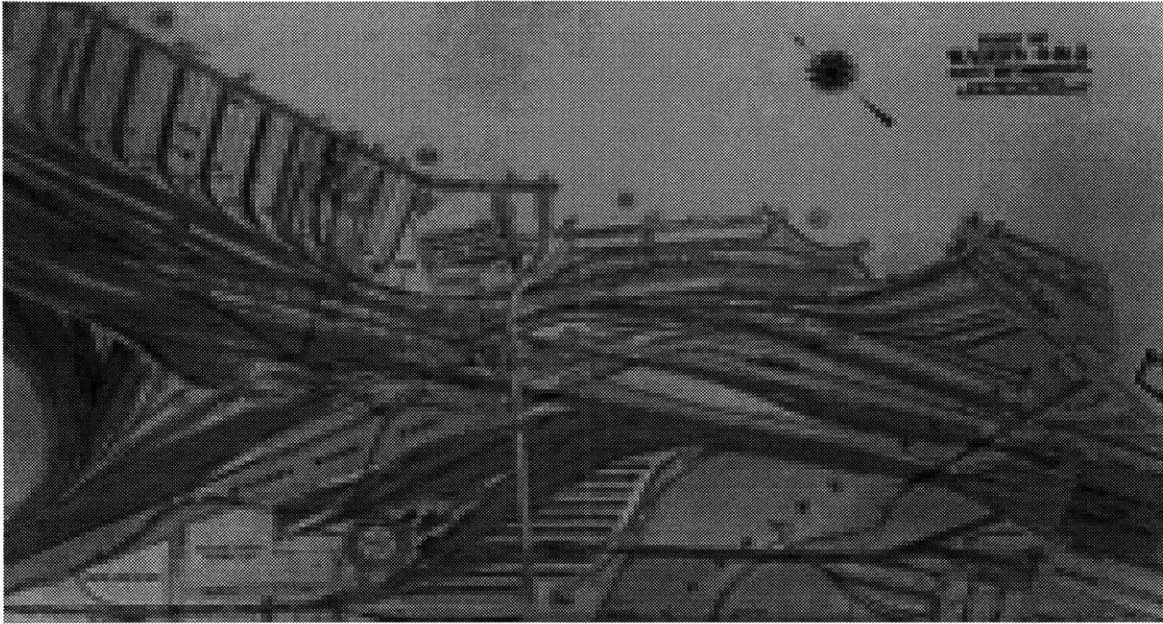


Fig. 3.14

By 1912, Miller's River was no longer a shipping port, but rather a maze of railroad track, and the northern umbilical cord for Boston.

Miller's River once occupied an extensive tidal basin shared by Charlestown, Cambridge, and Somerville. The deepest channel lay along the Charlestown shore, close to the state prison, and was used by the Middlesex Canal to reach Boston. At the head of the Basin in what is now Somerville, the Joseph Barrell mansion sat atop Cobble Hill, with an unobstructed view of Boston. The Barrel Mansion was to later become an insane asylum built by Massachusetts General Hospital. The site was ideal because of the water access via Miller's River to Massachusetts General's main Hospital in Boston.⁴

From the Craigie-built Canal bridge, the state built another bridge called the Prison Point Bridge. Prison Point Bridge connected the Canal Bridge to a state penitentiary built in Charlestown. The bridge was built on pilings over the mud flats of Miller's River.

Beginning in 1832, the River changed drastically. Four main railroad lines transversed Miller's River with no orderly form. The lines came from northern territories in New England and western regions of the United States. Built on pilings over the river, these tracks brought much-wanted materials of commerce into the city of Boston. Different sites throughout Boston were terminals for these rail lines, however the Causeway and Haymarket areas of Boston (now North Station) were the most widely used by the rail companies. By 1894, the Boston & Main, the Boston & Lowell, and the Eastern & Fitchburg rail lines were consolidated into Union Station, thus forming the largest railroad station in the country, serving 500 trains daily.⁵

In 1832, the Boston & Lowell Railroad surveyed a route into Boston, through East Cambridge and across Miller's River. A terminal was built at the intersection of Prison Point Bridge and Craigie's

Canal Bridge. A short while later, a bridge connecting this site with a new terminal in Boston was put in place, however its roundhouse, shops, and yards remained at Prison Point Bridge. The only way Boston & Lowell could expand was either through filling Miller's River, or buying more land. Needless to say, Miller's River was filled with fury from this point on. In the 1860's, Boston & Lowell Railroad exercised its right to fill upland along Miller's River. The Company filled one acre for cargo storage—lumber and bulk-goods headed for Boston—using pilings, bulkheads, and fill from resources along their northern rail line. As the Railroad(s) continued to prosper, Miller's River was filled for valuable rail, dock, and cargo space.

Once the Middlesex Canal ceased operation—due to rail competition—the north side of the basin could be completely filled. However, the main channel of the Miller's river was maintained until 1920 so ships could reach industries along the East Cambridge shore.

Judicial action *did* occur after the larger portion of the river was filled in 1866. Somerville and East Cambridge sued the Railroad for filling the flats without permission. However, it was found that the state had authorized the adjacent cities to abate the 'nuisance' of Miller's River anyway; the railroads were actually doing the named cities a favor by filling. When the Boston & Maine Railroad leased the Boston & Lowell Railroad for ninety years, they exercised their right to fill-in the Miller's River. By this time much of the water under and around Prison Point Bridge had been reclaimed from water. But the Railroads progressed and bought more land North of Craigie's Bridge, and adjacent areas for their concern. The Boston & Maine ultimately bought the Insane Asylum in Somerville, tore down the structures, and leveled the drumlin in order to fill Miller's River for more track and cargo space.

Industry around Miller's River was intense by the later half of the nineteenth century. Slaughterhouses, glassworks, railroad, meat packers, coupled with sewage from Somerville, Charlestown, and East Cambridge made Miller's River one of the most fouled bodies of water in the Boston region. The State Board of Health, which was brought in to solve the pollution problem, recommended that Miller's River be filled:

We know of no territory of equal extent within the borders of Massachusetts in so fowls and so dangerous condition, and none in which so virulent forms of epidemic disease, if ever introduced would be likely to commit such ravages as in the Miller's River District and its immediate surroundings.

It was feared by the Commonwealth of Massachusetts however, that filling the flats of Miller's River would open more land for building tenement houses. Typical of this area during High Industrial society, these tenements were filled with immigrant workers who worked in the mill and plants along the river. A heated battle ensued: 'to fill, or not to fill?'

Simultaneously, north of Craigie's Bridge, East Cambridge developers encouraged industrial companies to move to this 'ideal' commercial site. The mud flats continued to be filled; the buildable land of both Charlestown and East Cambridge continued to compress Miller's River. Wharves, docks and warehouses were the architectural

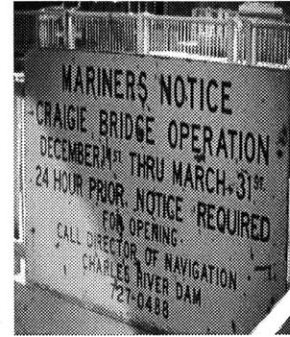


Fig. 3.15
Remnants of a past unknown--this sign still hangs on the boat locks at the old Charles River Dam, signifying Craigie's Bridge as one of the first layers of development on this site.



Fig. 3.16
Bulkhead construction along the Charles River.

typologies and infrastructure form needed by this society of industry. New England Glass Company was a major landholder in this region of East Cambridge. A massive glassworks was created on the Miller's River fill, only to be bought and demolished by the Railroad Company later. Another great industrial campus was the Revere Sugar Refinery, which moved to Charlestown in 1918—again, selling its interest along Miller's River to the Railroad Company.

When the new terminal at North Station was to replace the existing four termini, and eight story concrete building was built along Bridge Street (Msgr. O'Brien Highway) to house the railroad offices. This building remains and is one of the only buildings reminiscent of yesteryear. The street patterns and industrial architecture have all but vanished underneath many acres of train track. Industry, transportation, and technological 'progress' had finally transformed a bucolic Miller's River into a desolate 'no-man's land.'

In the 1950's and 1960's, rail traffic actually declined, and railroad track in the area was contracted. Land was sold to other interests who created warehouse space for other, more contemporaneous industries. The Boston & Maine line (and track) is now owned by the Metropolitan Bay Transportation Authority (MBTA). Persons envisioning a future for this site believe that the need for rail will continue to contract.



*Fig. 3.17
1930's aerial. Green Line Viaduct and completed bulkheads. The slow demise of heavy industry in the site.*



*Fig. 3.18
1950's aerial. Charles River development with a portion of the now massive Science Museum built on top of the earthen dam.*

High Industrial Society: Auto-ever-powerful and Post-industrial Visions

By 1900, it was clear that Miller's River was fighting a losing battle against industrial concern, namely the railroad and manufacturing companies. During the first decade of the twentieth century, Charles River Basin was drastically changed. The Charles River Dam was built to contain and create the recreational water-park we know today as Boston's Charles River. Craigie's original bridge connecting Boston to Cambridge was the location for the new dam. An earthen structure with a park on top; locks and drawbridges were provided for boats and barges still needing to deliver goods to East Cambridge (Lechmere Canal and Broad Canal). The flat park atop the dam allowed views into the rail yards, and industrial zone, of what was once the Miller's River.

At this time, Boston's Green Line Trolley extended out to East Cambridge and Metropolitan Transportation Authority chose the Charles River Dam as its crossing. The Transportation Authority decidedly blocked the unwanted view of the rail yards with an impressive bridge structure: the Charles River Viaduct. An articulate piece of civic architecture, it helped to frame, and end, views from the Longfellow Bridge and Charles River Park. By this time, the waterway between the Charles River Dam, Boston Inner Harbor, and what was left of Miller's River, was cluttered with eight bridges and a maze of railroad track. The decline of water-based industry—due to railroad—is evident in the continued physical change of the Miller's River region. By 1912, the rail yards had choked-off any water connection between Boston Harbor and northern waterways.

The railroad had dismantled most structures from the site, excepting their own roundhouses and cargo buildings. It was not until mass-transportation viz., the automobile, that the next level of development occurred. When the railroad finally began contracting in the mid-twentieth century, other industries moved into the site. Warehouses and distribution centers were built by varying corporations as truck depots. The Boston Sand and Gravel Company

*Fig. 3.19
Charles River Basin connected Boston to the North (left of dam). Railroad companies were gaining rent-free track space over the Charles River.*



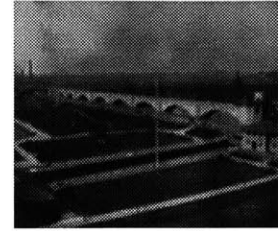
used the remaining spit of Miller's River as a port for sand.

Second only to the railroad, the most profound changes to the Miller's River site was Boston's Central Artery interchange. The rise of the automobile as the primary source of individual transport began to gain momentum in America in the 1940's. Urban areas, typically those that were in economic decline and/or physical blight, were slated for removal. In the place of older city fabric, came massive highway structures.

Perhaps one of the most astonishing projects of that era occurred in Boston with the Central Artery implementation. Dense urban fabric was torn away to make way for the auto-culture.

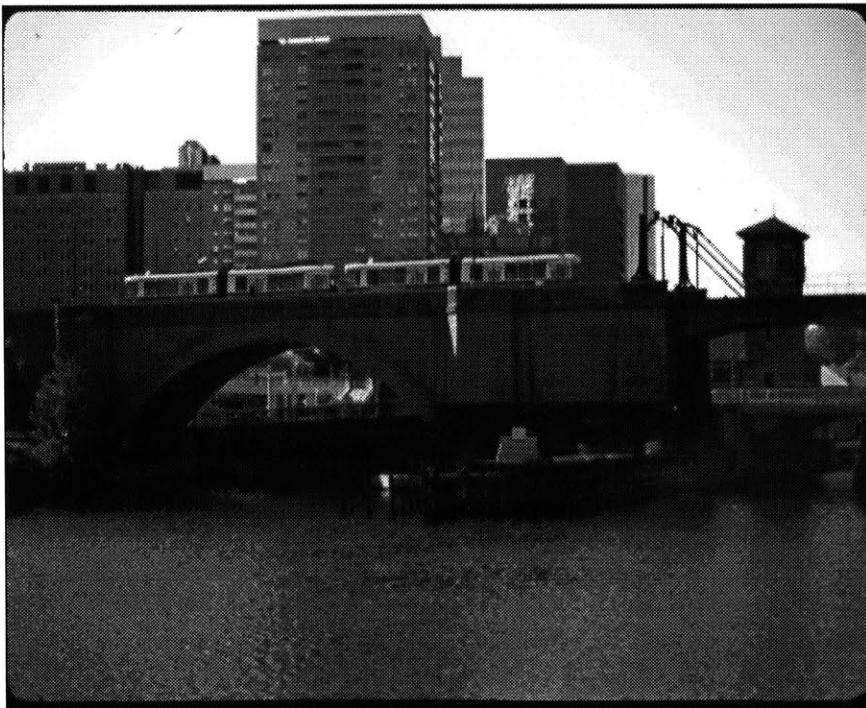
Miller's River—now a vast plain of jumbled railroad track—offered a perfect opportunity for the Boston Transportation Authorities to create a gigantic interchange. The interchange moves thousands of cars and trucks daily, and spills them from Boston in all directions at this juncture. Again, Miller's River was profoundly changed; not only was the ground plane entirely dehumanized for mechanical need, but now the air-space was used for a similar, although more contemporaneous, mechanical need. Noise, air, and sight pollution from the new highway structures intensified an already overbearing condition. The remaining fragment of Miller's River was left as a stagnant pool underneath the curving, concrete and steel, fabricated behemoth.

The coffin of Miller's River was sealed when Boston's 'Scheme Z' was implemented in the 1990's, Scheme 'Z' slated this region with further infrastructure 'improvements.' These improvements included more ramping structures overhead, a maze of tunnels below grade, and new bridges connecting Boston to Charlestown. Trains moving slowly along track into North Station and diesel trucks swiftly moving above at rapid speed are the only inhabitants of this large, lost space in urban Boston.



*Fig. 3.20
The Green Line Trolley Viaduct, 1910. This impressive piece of civic architecture was built to block views from the newly-created Charles River Esplanade and Longfellow Bridge into the 'undesireable' railyards.*

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*Fig. 3.21
The Green Line Trolley still runs along the viaduct built in 1910. These kinds of historical elements will enhance this Basin area when a new master plan is implemented.*

Visions and Opinions of Future Development at Miller's River

Post-Industrial society has ushered some interesting proposals for Charles River Basin, and the once Miller's River. In recent years architects and planners have come together to envision a more upscale future for this prominent space in the city. With current decisions to depress the Central Artery through Boston, the Charles River Basin will be affected.

Two visionary—and hypothetical at this point—schemes I would like to briefly focus on have been submitted to the city during the past fifteen years. The third scheme is what is slated for development on the site by the Metropolitan District Commission, and Carr, Lynch, Hack and Sandell. The first hypothetical proposal is a plan for the North Station District by Moshe Safdie which naturally effects the Miller's River site across the Charles. The second hypothetical scheme was developed in a competition posed by the Boston Architectural Center (BAC) in the late 1980's: a proposal by Paul Mortensen named "A New Vision for Boston." Dealing with the Charles River Basin and the industrial site of Miller's River, Mortensen's design is a neo-traditional plan which in many ways simulates Boston's Back Bay.

Moshe Safdie created an island between North Station and the Charles River Basin. Planning mega-structures atop the railroad connectors still used by North Station, Safdie's team softens the scheme through the creation of canals and waterscape. He 'reconnects' the traditional city fabric with this site. As his proposal states, "the North Station District has been isolated from the surrounding city for many years."⁶ The scheme showcases a high-capital, economic-boom, professional developers' society; millions of dollars spent on massive buildings, with millions of square feet of office space. Critically, the project does not address the Miller's site across the river, and certainly does not care to understand the complexities of such a site. Rather—quite contrary from the proposed thesis—a typical *modern* attitude is exhibited in this scheme namely, tear everything down and begin *tabula-rasa*.



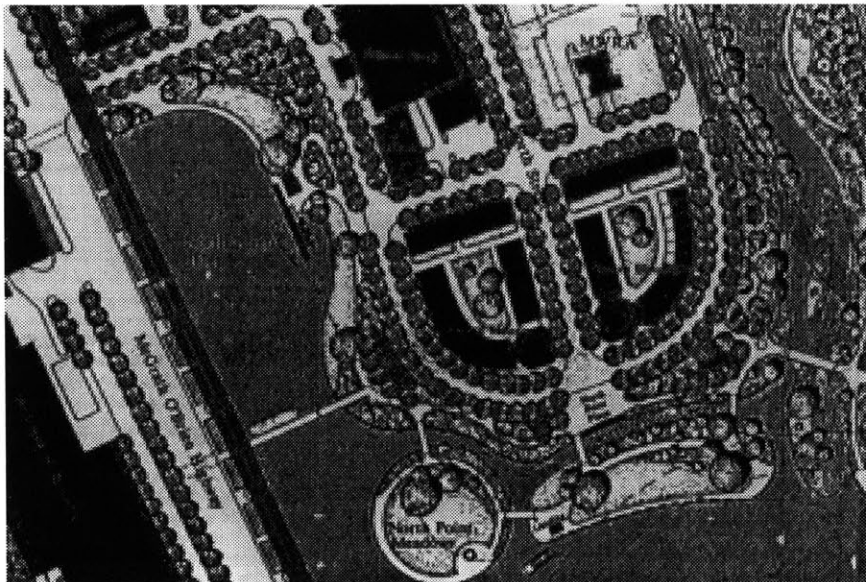
Fig. 3.21
Paul Mortensen's scheme for the Miller's River area, as a part of the Boston Visions competition. This scheme assumes a 'tabula-rasa' condition. That is to say, it has no concern for the industrial relics currently in place on the

Mortensen's "A New Vision for Boston" is a large-scale, traditional urban plan. It is successful in the 're-connection' of both sides of the Charles River Basin. Reminiscent of other successful Boston developments (Back Bay, Beacon Hill), the scheme is sensitive to the surrounding cities. If ever implemented, this vision could be realized with nice groups of neighborhoods for *people* to live work and play. Again, the industrial relics and architecture are of no concern to this scheme. Mortensen assumes a clean-slate, just as Safdie did. The scheme uses hypothetical license, however, as it was never intended to be built. The train-tracks and industrial uses in place today are disregarded. The designer assumes all of this leftover industry would be torn-away or simply not of importance or use in contemporary society. The irony is that the urban plan looks like it is straight out of the nineteenth century/railroad/high industry era!

The plan which is slated for development along with the Central Artery is called the "New Charles River Basin." This scheme, coincidentally, is most similar in concept to this thesis as it attempts to celebrate the industrial architecture and large infrastructure on the site. The concept includes the magnificent industrial history of this site.

The planners, Carr, Lynch, Hack and Sandell, along with the Metropolitan District Commission have defined two important strategies: the linking of the Charles River Esplanades with the Boston Harborpark, and Charlestown (Freedom Trail), and the celebration and cohesion of some of the industrial architecture still in use on the site.⁷

Furthering the study, this thesis will propose another hypothetical vision for the future.



*Fig. 3-22
North Point as designed
by Carr, Lynch, Hack and
Sandell.*

“The modern utopic vision is found within the metaphor of the machine, whose motor is the aspiration to mechanical order. What motivates postmodernity is the model of the automaton: the aspiration to imbue material reality with a ‘nervous’ system that would render it ‘intelligent.’ While the first vision left a monstrous harvest of goods’ (and refuse) on the field, the second adds immaterial goods (and refuse), as well as the bombardment of messages and virtual images that now invade the human psyche and the soul of the world.”

Frederico Bucci

Building Program

Building Program

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Fig. 4.1 The Charles River Basin Site connects three cities: Boston, Charlestown, and East Cambridge. It will reconnect the River to the Harbor, and provide multiple acres of Science Park for citizens of Boston--and visitors--to enjoy.

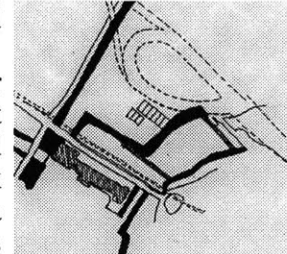
A New Place In Boston

The following program advises the design process. The program acknowledges the premise of the thesis and applies function and use. 'Gap spaces' in the city, such as the site chosen, have certain specificity. This site is adjacent to the Museum of Science, therefore is a cultural center within the city of Boston drawing millions of visitors a year. It is also considered the 'lost mile' between Boston, Charlestown, and East Cambridge. Boston's urban sequences and park linkages terminate at this site.

Thus, two design programs have been assigned for investigation. These programs will help illustrate the premise that industrial constructs within the built environment may be preserved and used in an interesting way. The first program is a Science Park for Boston. The park designates a formal space within the city as a cultural and passive recreation area which teaches and informs visitors of the profound industrial and technological history of New England. The second program details a new Museum of Movement. The Museum of Movement will exhibit applied science/technology and the intense industrial history of this region. The history of the site, the backdrop of industrial constructs—and still utilized infrastructure—will heighten awareness and act as passive exhibits for the Museum of Movement and the Science Park.

One of the premises of this thesis is that industrial constructs built through history have worth, can be used within our future development, and should be saved. Therefore, the program for the Science Park and Museum of Movement will pinpoint which infrastructure and buildings shall be saved and re-used as a part of the program.

What follows is a qualitative and quantitative program for both the Science Park and the Museum of Movement. Reinterpretation of this site shall be informed by these programs, while administrating the premise of utilizing 'gap spaces' in the city and the industrial constructs within them.



*Fig.4.2
The Charles River Esplanade will be connected to Charlestown, the Basin's waterfront, and the Harbor. This analysis shows new park and bridge linkages.*

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*Fig.4.3
Warehouses and train-spurs on the site. The new Museum of Industry and Science Park will reinterpret these left-over constructs, celebrate them, all-the-while teaching visitors of an important New England history.*

Science Park

The designed area of the larger site will include approximately eleven acres of space used currently for industry and transportation. The Science Park design is bound on all sides by the following landmarks: the Museum of Science on the west, the Prison Point Bridge on the north, the rail yards on the east, and Charles River on the south.

This park will have two primary functions: to link the park space currently active along the Charles River (ending at the Museum of Science) with Charlestown and Boston Harbor, and will help to exhibit the man-made constructs in place on the site. These constructs will heighten awareness of industry and its importance in technological development.

There will be designated zones within the park used publicly; certain zones will be private and exclusive to the visitors of the new Museum of Movement and the Museum of Science. The latter spaces within the park will be designed with history and learning in mind. The theme of this park will continuously teach users about technology and industry. There may be installations within the park that extend the Museum exhibitions into the landscape.

The current Museum of Science and new Museum of Movement will provide reason for regional visitors to come to this site. While visiting the museum, the park will be a quality portion of the entire learning experience. Waterfront paths and bridges will continue the constant use of the Charles River waterfront for inhabitants of Boston, Cambridge, and Charlestown. There will be areas of high activity and retail establishments as well as areas of contemplation.

Placards and built pavilions will explain the history of the place. Prison Point Bridge, the bulkheads, the green line Viaduct, the railroad bascule bridge, etc... have an interesting history and help to animate the role of industry in the development of Boston. All of these industrial constructs will be explained along the pedestrian paths and bridges.

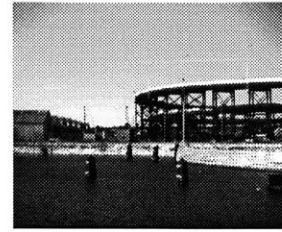


Fig. 4.4
Charles River Basin with historic bulkheads, typical industrial warehouses, and the Scheme 'Z' temporary highway ramps.



Fig. 4.5
The old Charles River Dam support buildings contain massive engine-powered, sliding water-lock doors. These structures should be preserved and celebrated as a part of the Science Park.



Fig. 4.6
Bunker Hill Monument is a distant visual marker from the Charles River Basin site.

Fig 4.7
The Railroad Bascule Bridge is one mechanical device--still working--that exonerates the massiveness of man's technological development.

Science Park Program Quantified

Site Area Approx. 13 acres

Public Space:

Green Space and Pedestrian Linkage 5 acres

Water and outside exhibition 1 acre

Private Space:

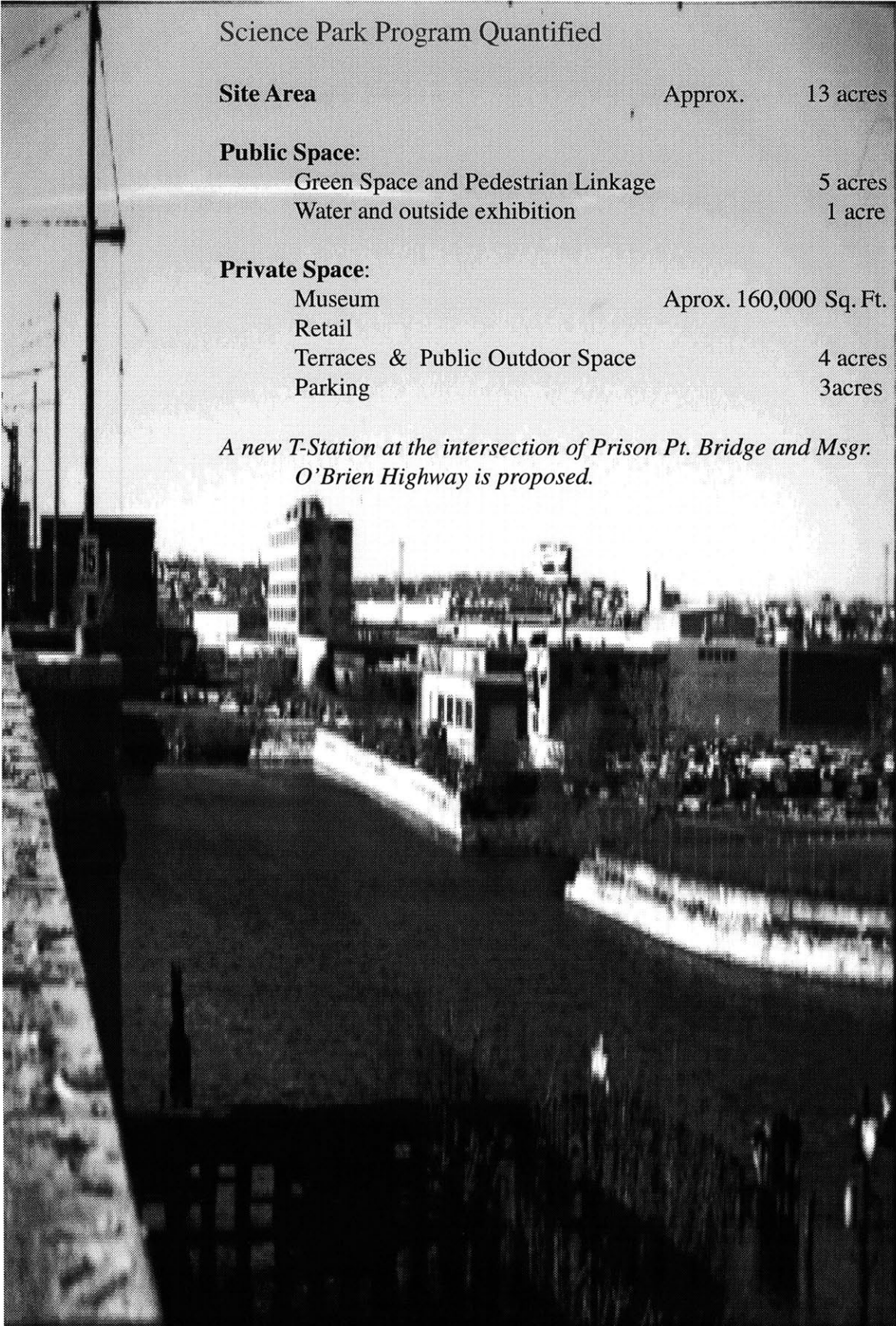
Museum Approx. 160,000 Sq. Ft.

Retail

Terraces & Public Outdoor Space 4 acres

Parking 3 acres

A new T-Station at the intersection of Prison Pt. Bridge and Msgr. O'Brien Highway is proposed.



Museum of Movement

The Museum of Movement will be an extension to the Museum of Science. However, the new building will be programmatically self-sufficient. Certain programmatic uses will overlap such as the parking facility, which will be sited in a location where both museums and the Science Park may utilize the structure. An interior bridge will be designed to link the two museums, the parking, and the Science Park.

Warehouses will be saved and used as a part of the new museum. The stone bulkheads along the river will be revealed and become a vital piece of the new museum design.

The museum will include, but not be limited to, the following spaces. There shall be a certain amount of flexibility designed into the exhibition spaces so that future modifications can be made. Also, the progressive timeline organization shall be designed so that large, heavy, equipment may be driven or moved into the interior spaces as a part of the exhibition.

The partii of the museum will be organized around industry in the New England region. The exhibit will begin with an introduction to this prominent industrial site—its history and relation to the theme of industry and technology. The organizing elements will be based on transportation and how transportation (later communication) has propelled humans into an easier existence. Of course, a Museum of Movement will exhibit more than just transportation, and this program should not be interpreted as a museum of transportation because a major organizing element in transportation. Between the major 'eras' permanent and temporary exhibits of products and production, factories, mechanical devices, etc.. will be installed. These secondary exhibits will either be between or alongside the primary exhibits.

The design of the museum shall strive to include the Science Park. In fact the theme of the Science Park and the Museum should be considered an interactive exhibition. Retail establishments, and many installations, should pose for both park and museum use.

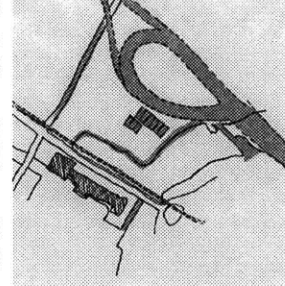


Fig.4.8
Passive exhibits of industry and technology (gray in this analytical sketch): Highway ramps, stone bulkheads, Green Line Viaduct, boat locks and canals, warehouses.

— 40



Fig. 4.9

Warehouses shall be used in the design of the new museum. Pragmatic details such as this truck-dock shall not be obliterated, but rather celebrated in response to the larger theme of both the Museum of Industry and Science Park.

Museum of Movement: Quantified

Permanent Exhibit

Industrial Progress and History

Physical and Mechanical vs. Electronic and Intelligent

	Sq.Ft.
Canal Era/Boat	10,000
Railroad Era/Train	15,000
Automobile/Car	15,000
Communications/Telephone, Radio, etc...	15,000
Artificial Intelligence, Cyberspace, Virtual Reality	10,000
Misc. and changing exhibits between major eras	15,000
People and Power: inventors, etc...	
Subtotal	80,000
Man and the Environment/ including existing warehouse	
Control of Nature/Site and Regional history	10,000
Decisions and Consequences of Industry through history	40,000
Subtotal	50,000
Retail	
Two Bookstores/Sundries (Park and Museum)	7,000
Souvenirs	
CyberCafe	8,000
Foo Court	10,000
Restaurant	5,000
Imax Theater	25,000
Exploratorium: Childrens Interactive Workshop	10,000
Classrooms: Part of the larger Science Network	10,000
Subtotal	75,000
Support: including lobbies	20% of total
	36,000
Subtotal	36,000
Total	241,000
Parking	Approx. 1200 cars

“If we divert from what we call our life everything we have considered as replaceable—if its organs, forms, functions are replaced by artificial devices and so related to the rank of useless accessories (we are reminded of cases of atrophy that have occurred in the course of evolution) life is reduced to nothing or next to nothing. Then sensation, feeling, thought, are not essential to it but mere accidents.”

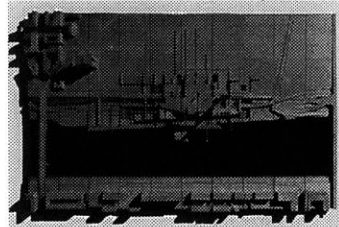
Paul Valery

Precedent

Precedent Analysis



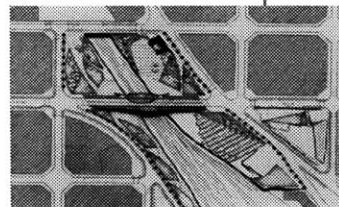
Progeto Bicocca



*Paris Architecture et Utopie
Competition, Morphosis*



Parc de la Villette



Santiago Calatrava, Barcelona

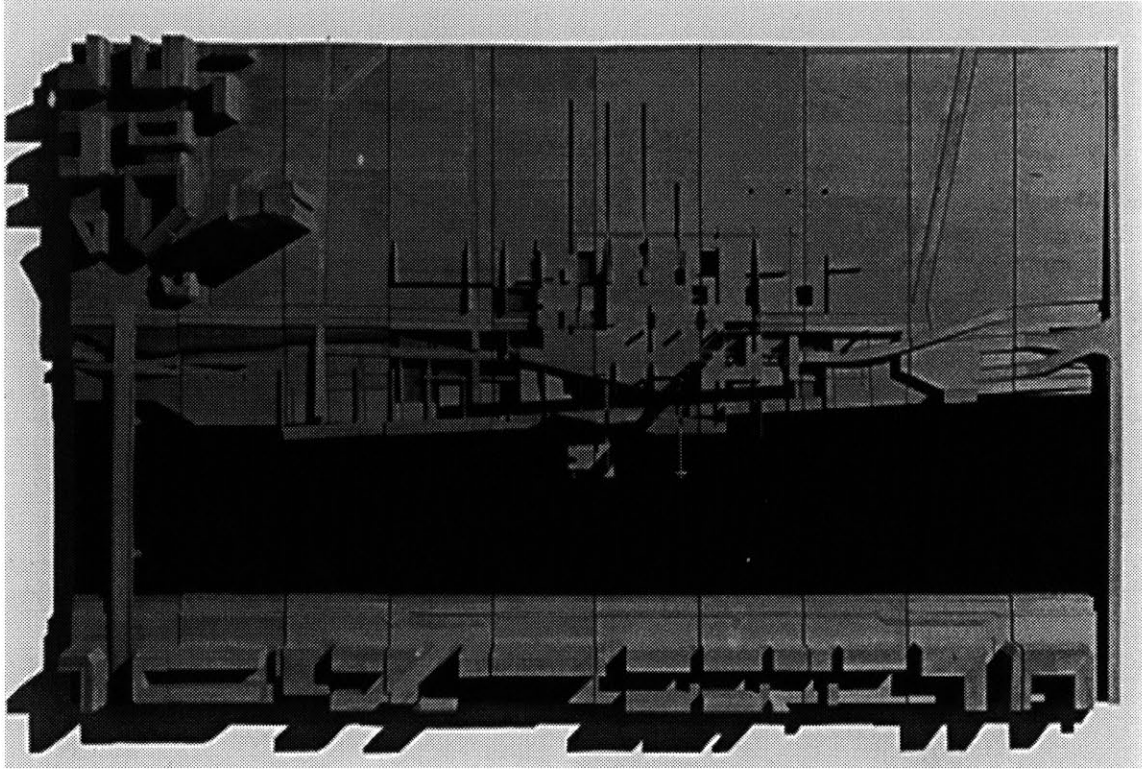


Albert Kahn, Industrial Typology



Fig. 5.1
Aerial of Progetto Bicocca site in Milan, Italy. Although a much larger site and program than this thesis, a similar premise--'re-thinking dis-used industrial sites'--is prevalent.

Project	Progetto Bicocca competition.
Location	Milan, Italy
Site	Outskirts of Milan. The site is the highly industrial Pirelli Tire factory campus which is being phased out of use
Date	1986-1998
Architect	Winner of Competition: Gregotti Associati
Program	Conversion of an industrial area and factory campus into a cultural/education resource for the city of Milan.
Relevance to thesis	This project exhibits a growing trend in the re-use of industrial spaces within our contemporary city. The team of jurors, and the Pirelli Company, were interested in incorporating pieces of historical industrial architecture into the new project.
Personal Criticism	Progetto Bicocca is a worthwhile project for Italy, the world of architecture, and urban development. It exhibits a desire to save our architectural monuments of industry and high capitalism. The project memorializes an architecture which, until this point, has been doomed to demolition. The spirit of the competition is positive. That is, the premise is that worthwhile space can be made of a now disused industrial area; that value can be placed on industrial architecture and infrastructure.



*Fig. 5.2
Morphosis' riverfront development including program and existing transportation infrastructure.*

Project	Paris Architecture et Utopie Competition
Location	Paris, France
Site	Kilometer-long quay parallel to, and between, the Seine and a major highway.
Date	1989-1992
Architect	Morphosis
Program	Ideas were sought for specific areas of Paris, to define issues and develop strategies to transform context and revitalize use.
Relevance to thesis	The project acts as mediator between the waterfront, the city, and the infrastructural necessities for both the train and the automobile. The re-use and revitalization of a previously industrial area, maintaining and heightening the importance of the infrastructure through manipulation of the ground plane.
Personal Criticism	Morphosis creates an interesting and unprecedented urban space along the Seine. The ground plane has been carved and manipulated heightening awareness of the infrastructure built through the site. Although the program is unclear, the forms and spaces could be both exciting and worthwhile for the entire city. There is a strong desire in this scheme to subordinate the natural into a highly articulated architectural piece. Juxtaposed to the powerful form of the natural Seine river, this architectural construct would be quite wonderful.



Fig. 5.3 Bernard Tschumi's Parc de la Villette.

Project	Parc de la Villette
Location	Paris, France
Site	Northern Paris; an area slated as a city meat market, built and never used.
Date	1983
Architect	Bernard Tschumi
Program	A park utilizing existing canals, warehouses, new museums and cultural centers. Tschumi was responsible for the park.
Relevance to thesis	The adaptation of an “in-between” site in the urban fabric of Paris—utilized as a recreation park in coordination with a museum of science and industry.
Personal Criticism	Tschumi’s design segregates the park and its constructs into three simple categories: point (the buildings and follies), line (the grid and curving lines of movement), and surfaces (expanses for games and activities, existing canal, etc...). Analytically the park is quite simple. Architecturally the pavilions and park surfaces are complex and interesting. The design uses the existing canal, and warehouse as if they were willfully built for this new park, illustrating that less memorable architectural constructs can be re-created and re-utilized in our contemporaneous society.

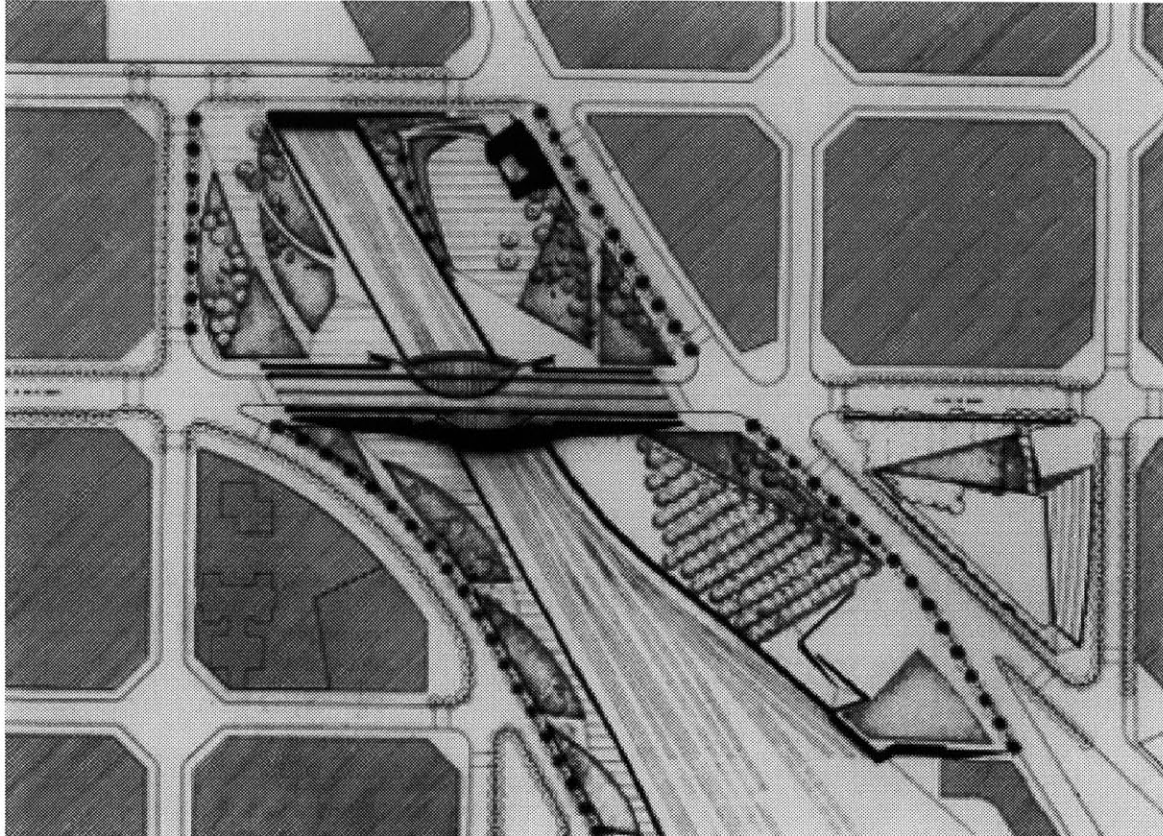


Fig 5.4
Santiago Calatrava's bridge and park leaping and enveloping a rail line which dissects Barcelona's Cerda blocks.

Project	Bac de Roda-Felip II Bridge
Location	Barcelona, Spain
Site	Integral part of the scheme for remodeling an extensive area of Barcelona situated in a zone bordering on the Cerda grid.
Date	1984-1987
Architect	Santiago Calatrava
Program	Two main interventions: the creation of a large park on either side of the railway line, and the connecting of two streets--Felip II and Bac de Roda--while facilitating direct access to the sea.
Relevance to thesis	The connection of two sides of an urban gap space. Industrial uses juxtaposed to housing and traditional urban blocks.
Personal Criticism	

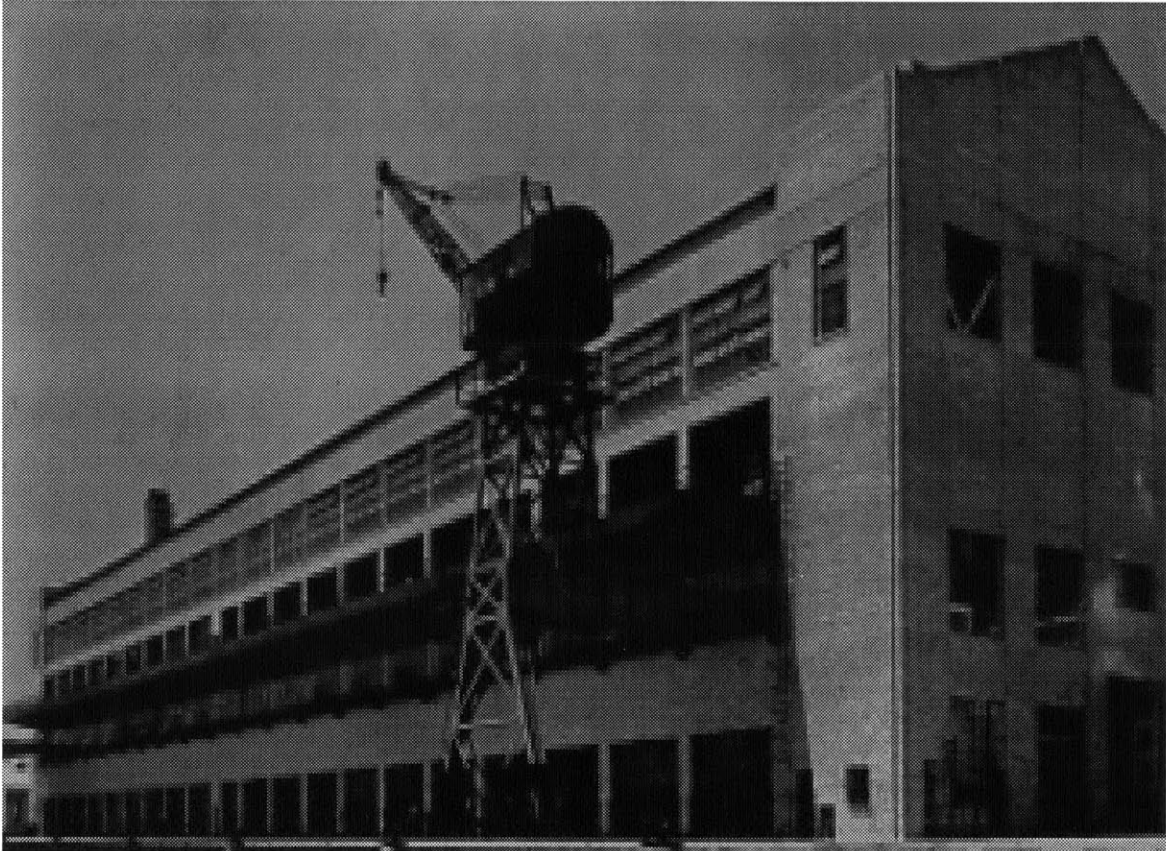
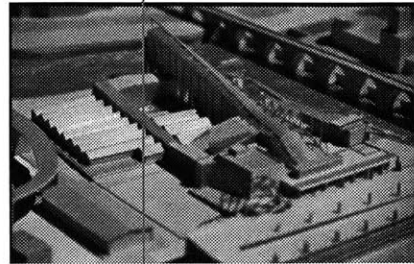


Fig. 5.5
Albert Kahn. The pragmatic industrial typology engulfed a highly productive America throughout the nineteenth and twentieth centuries.

Project	Numerous industrial warehouses throughout the century.
Location	North America
Site	Varying. Many works for the automotive industry in Detroit, Michigan.
Date	1890-1970
Architect	Albert Kahn
Program	Pragmatic concerns geared entirely toward production and the economics of business and industry.
Relevance to thesis	Form created by the pragmatism of industry. These structures, while intellectualized by modern architects, were being built by numerous architects and engineers in the United States. New England (Cambridge in particular) is riddled with many interesting buildings which apidemize this period in American history.
Personal Criticism	Often the ubiquitous industrial building goes un-noticed in our culture. These buildings are worthwhile constructs to save and re-use as we progress into a postindustrial society. Buildings such as Albert Kahn's are refreshingly inventive, especially when compared to Beoux-Artsian buildings of the time. They are the manifest of the industrial vision namely, "machine for living." It is time now to reintroduce these buildings to the larger public and strike concern for their continuing use.

Section III



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SKETCHES & DESIGN DEVELOPMENT

PROJECT DRAWINGS AND MODELS

Site Analysis

Site Plan

Building Design

Site & Building Model

Synthesis



Fig. 6.1
Existing conditions on North Point: warehouses and infrastructure.

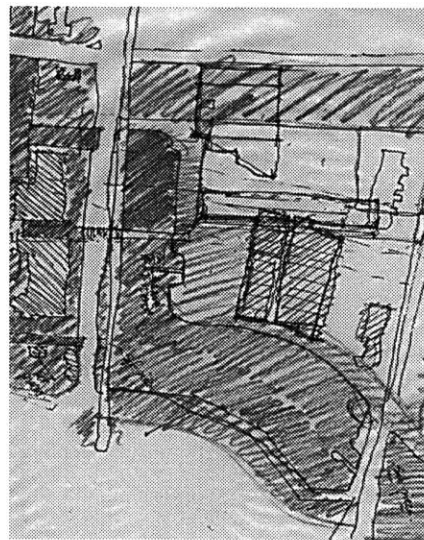


Fig. 6.2
Early site strategy sketch pin-pointing some of the structures to be saved, and used, in new development.

SCHEME I

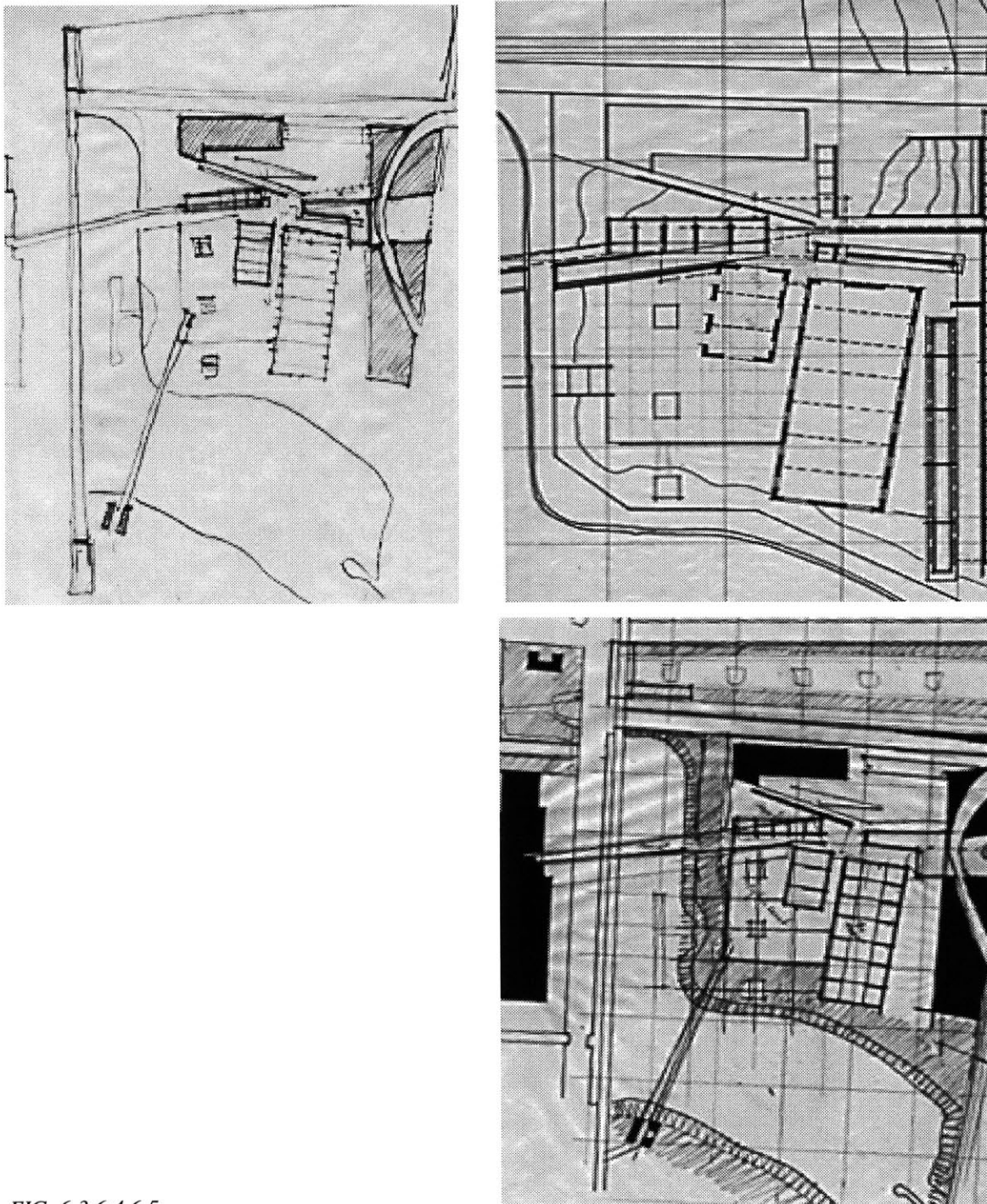


FIG. 6.3,6.4,6.5
Scheme I focused on utilizing existing structures and reconnecting the larger metropolitan park esplanade along the waterfront. The composition placed a parking structure within the curving ramps of Schem 'Z,' and connected the Museum of Science with a bridge across the Charles River Basin. A band of green-space was proposed along the Prison Point Bridge, which was finally discarded in the actual design proposal.

SCHEME II

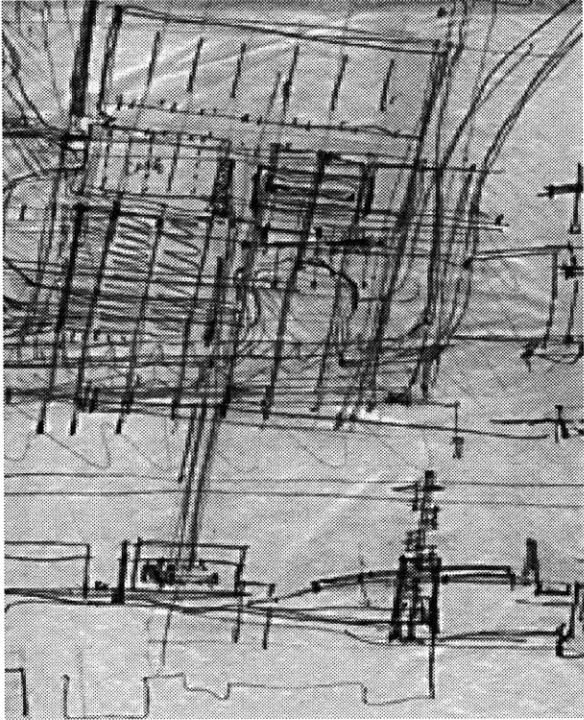
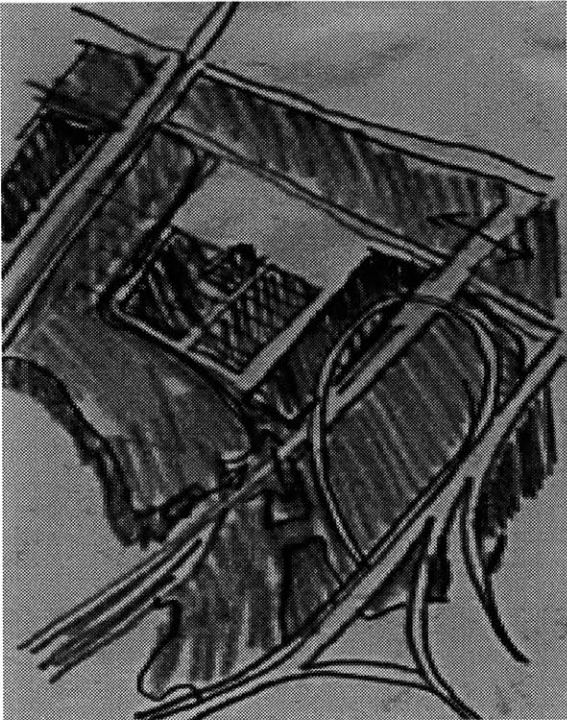
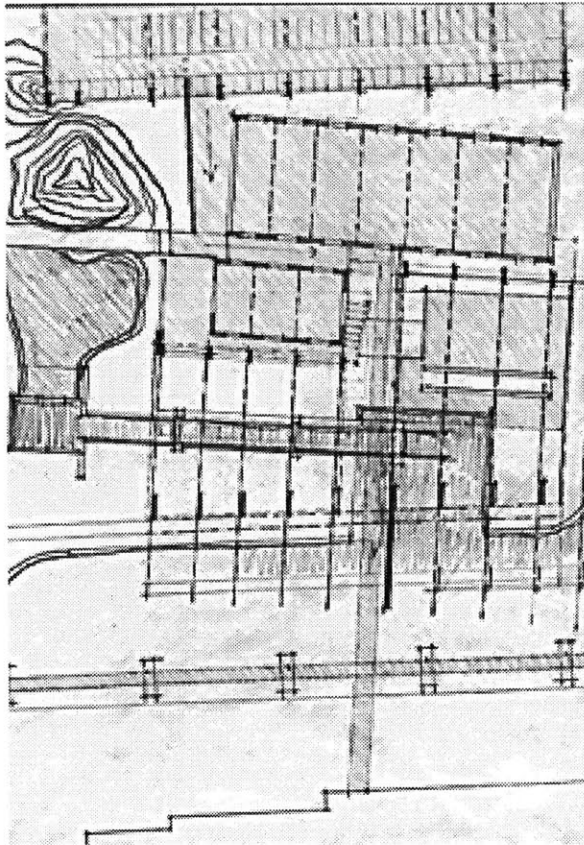


Fig. 6.6, 6.7, 6.8
A similar site-strategy to Scheme I, however places the new building at the point of the land, digging into the ground to house a museum within the existing bulkheads.



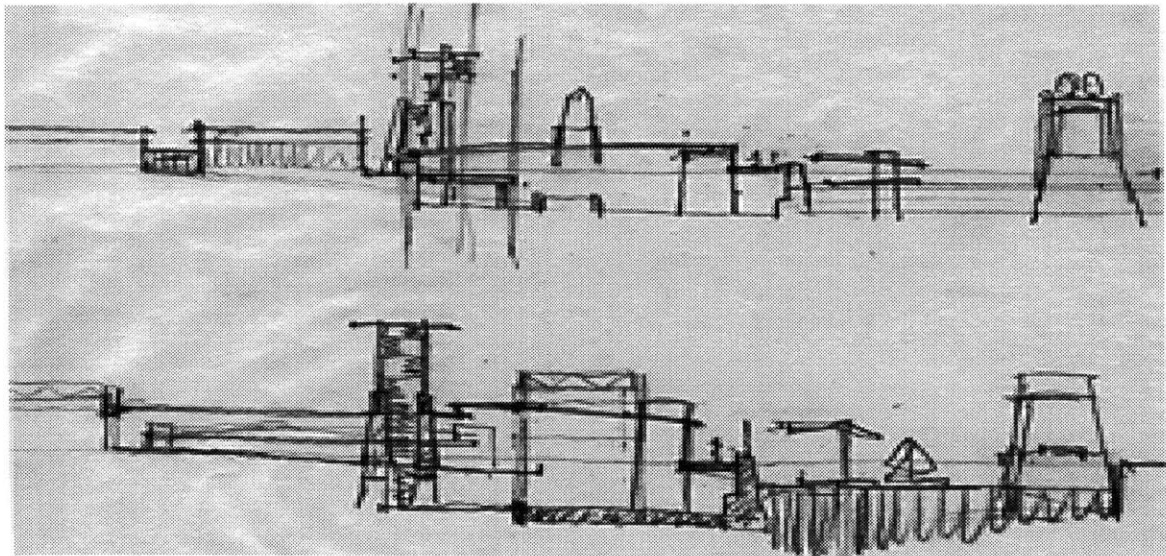
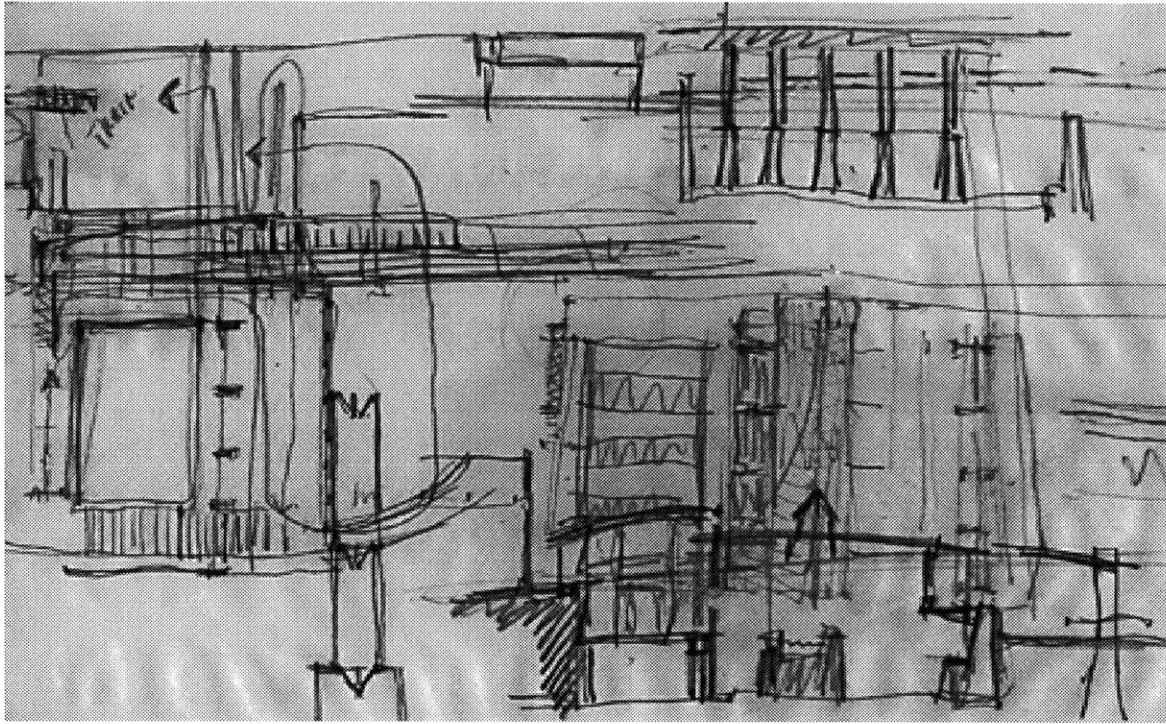
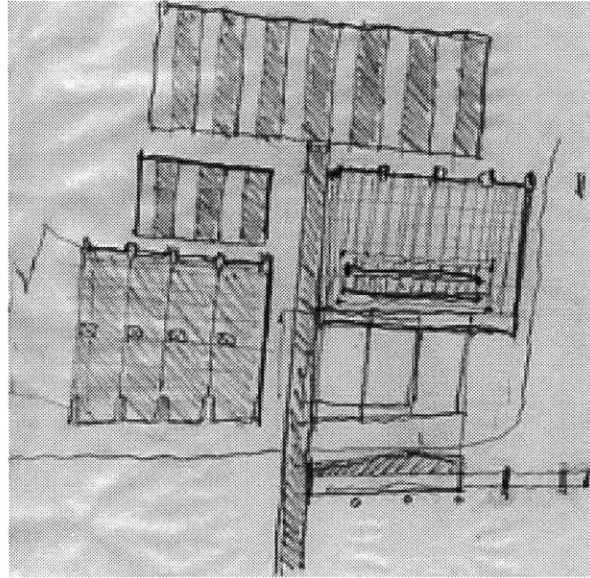
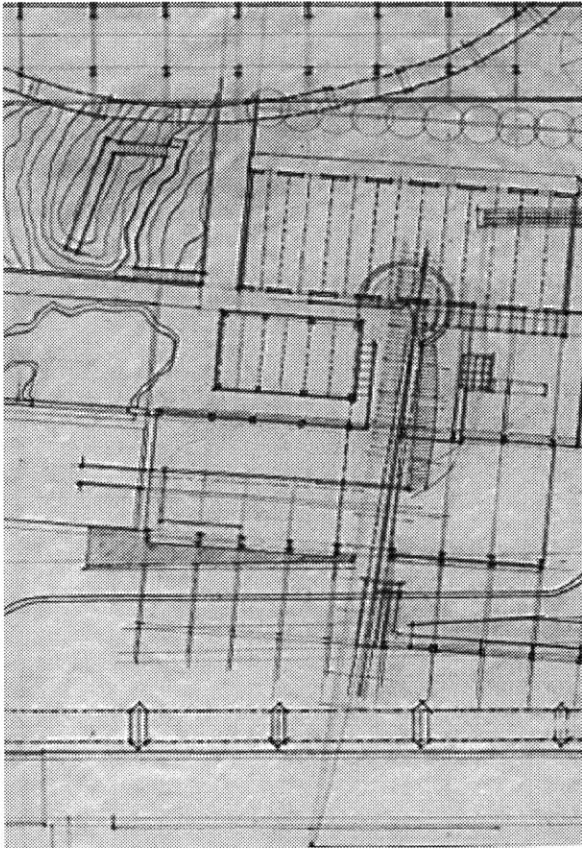


Fig. 6.9, 6.10
Section studies for Scheme II. Roofscape at ground level, building program at minus 20 feet.



*Fig. 6.11, 6.12.
Structure and roof plan. Structural bays were extended from the existing structural pattern of warehouses existing on the site.*

SCHEME III (FINAL SCHEME)

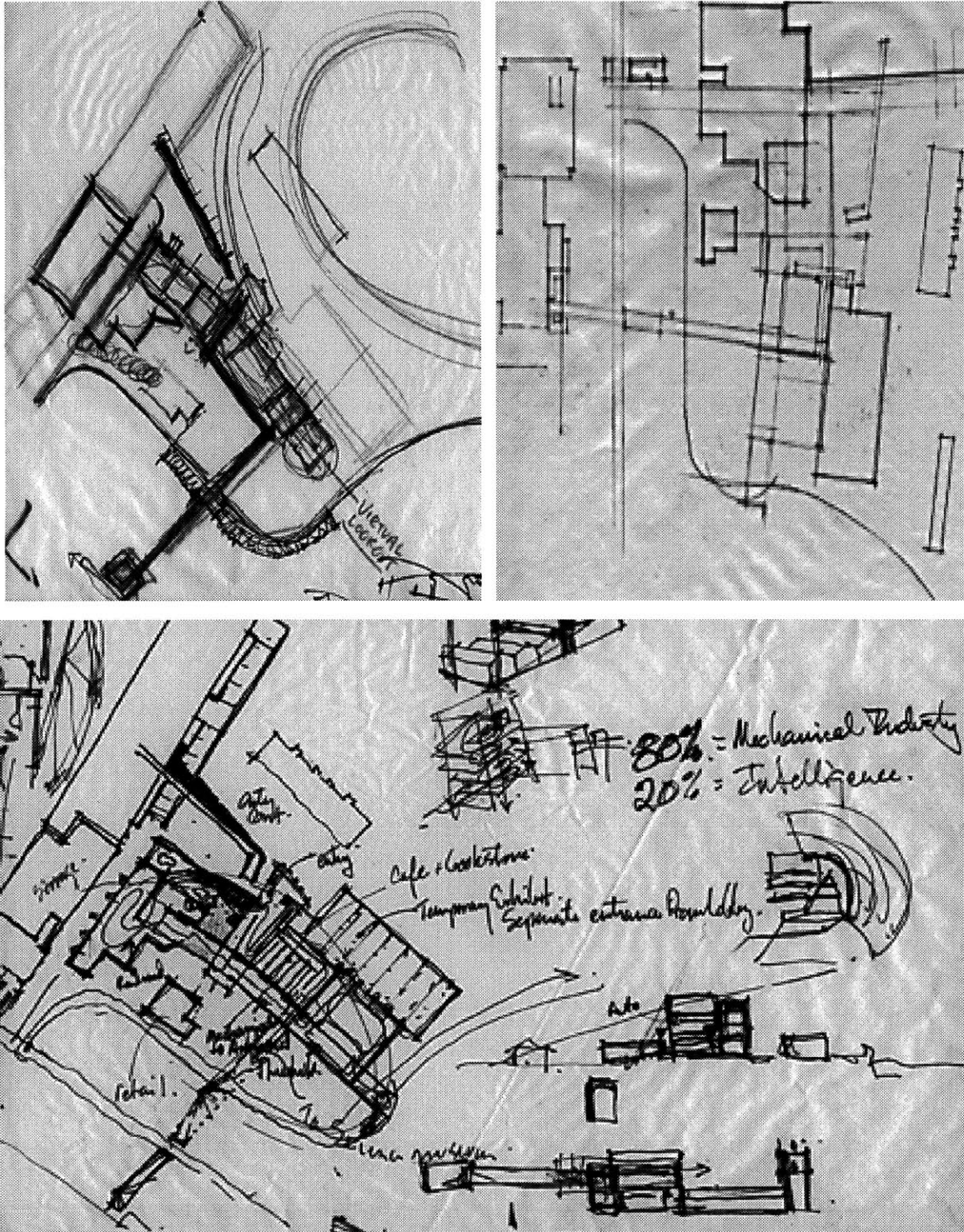


FIG. 6.13, 6.14, 6.15
DEVELOPMENT OF FINAL SCHEME WHICH UTILIZES ALMOST ALL EXISTING BUILDINGS ON THE SITE, CREATES A LARGE PLAZA AT THE WATERFRONT, WITH VIEWS TO THE GREEN-LINE VIADUCT.

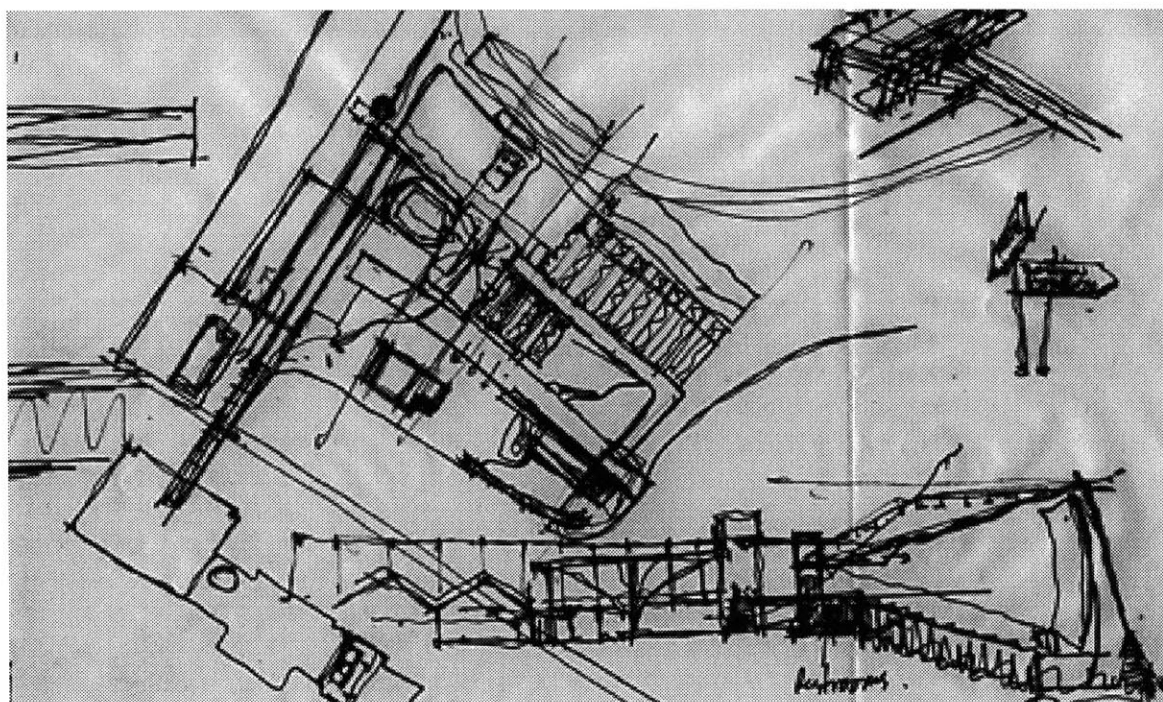
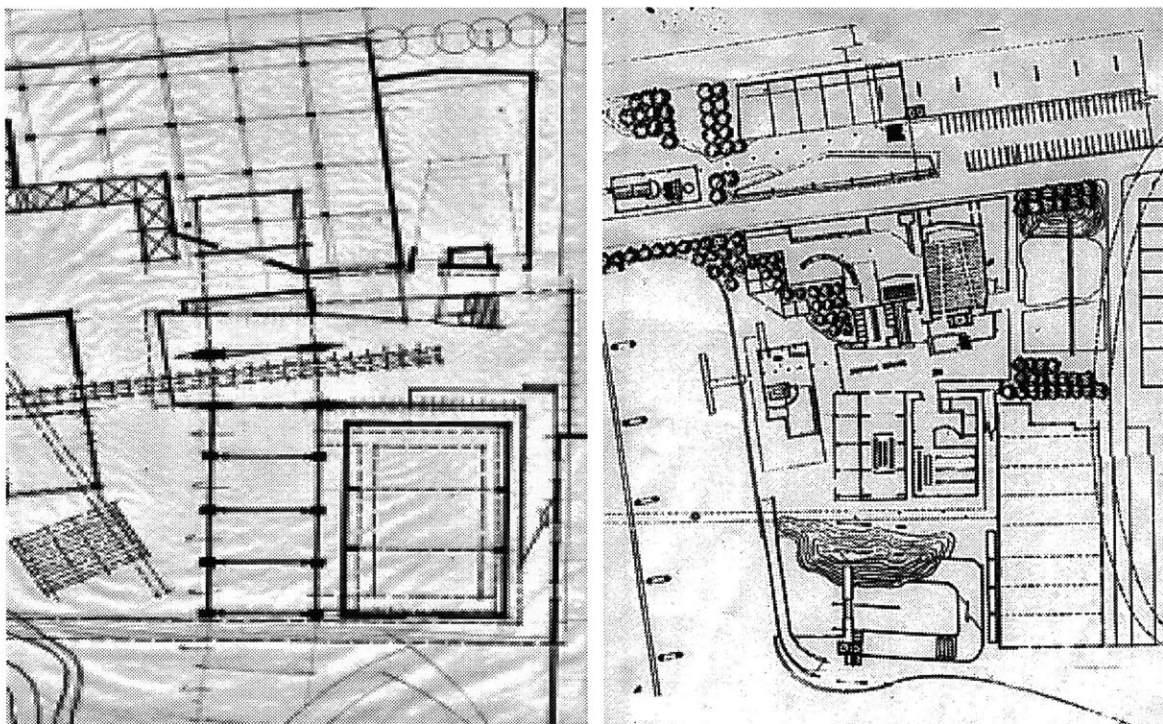


Fig. 6.16, 6.17, 6.18
The 'filling-in' of gaps between existing buildings, and midterm plan.

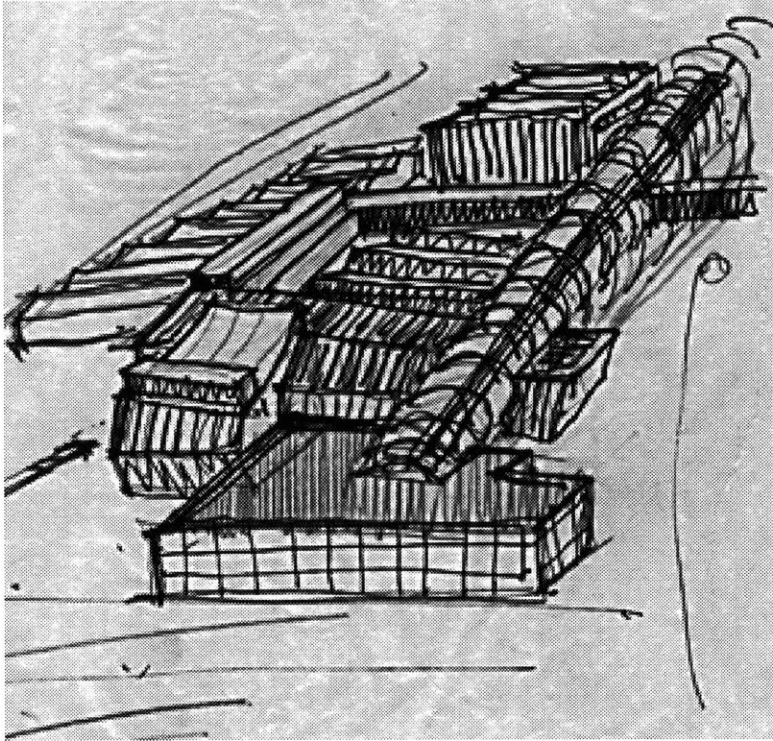


Fig. 6.19
 Early sketch of building concept and massing. Envisioning the landscape of industrial architecture.

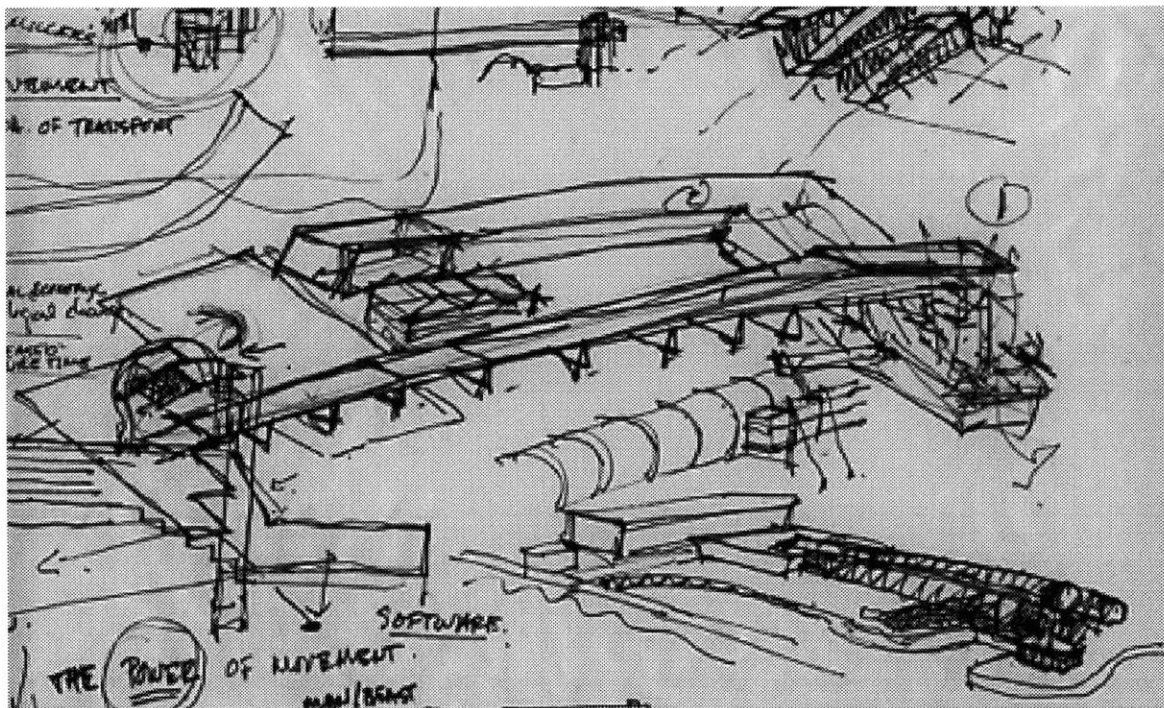


Fig. 6.20
 Concept of Museum exhibits. Museum of Technological Progress, and Man and the Environment. The first being a ramp that is based on a time-line of progress, and stresses the importance of the human body, and the physical versus the mechanical/artificially intelligent.

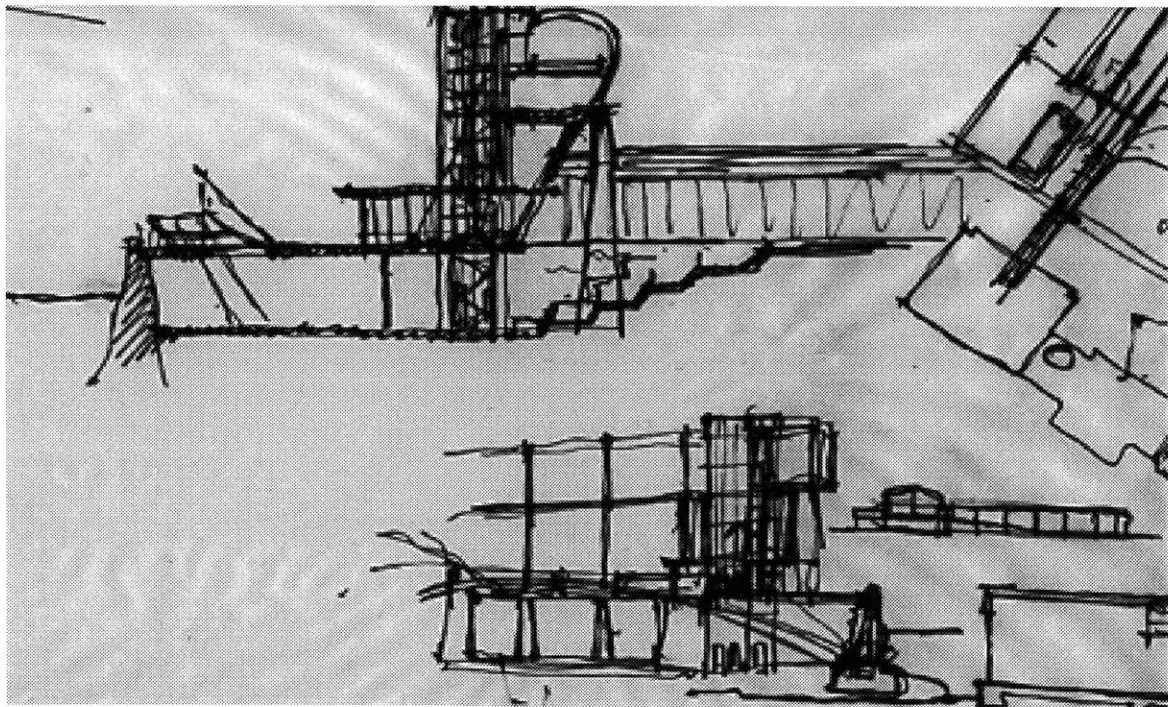


Fig. 6.21, 6.22.
 Section development of large exhibition hall where mechanical objects could be placed and exhibited.

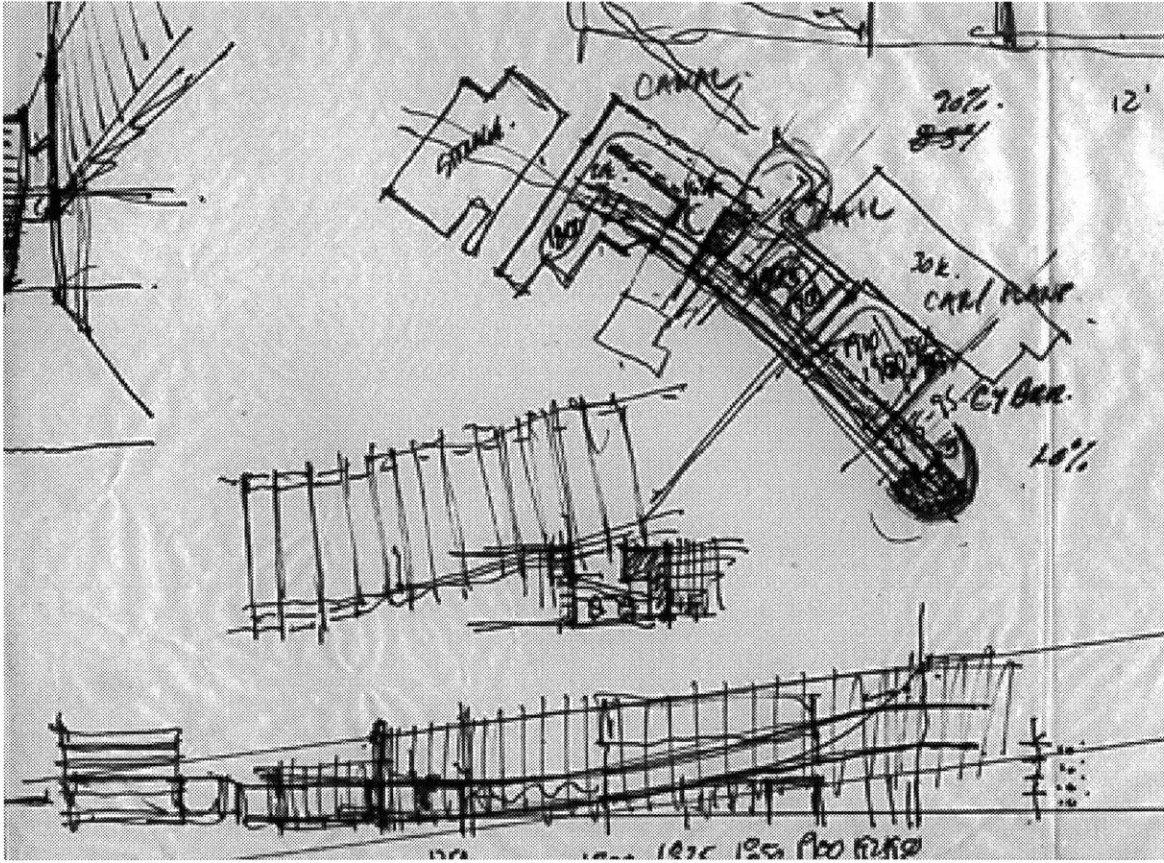
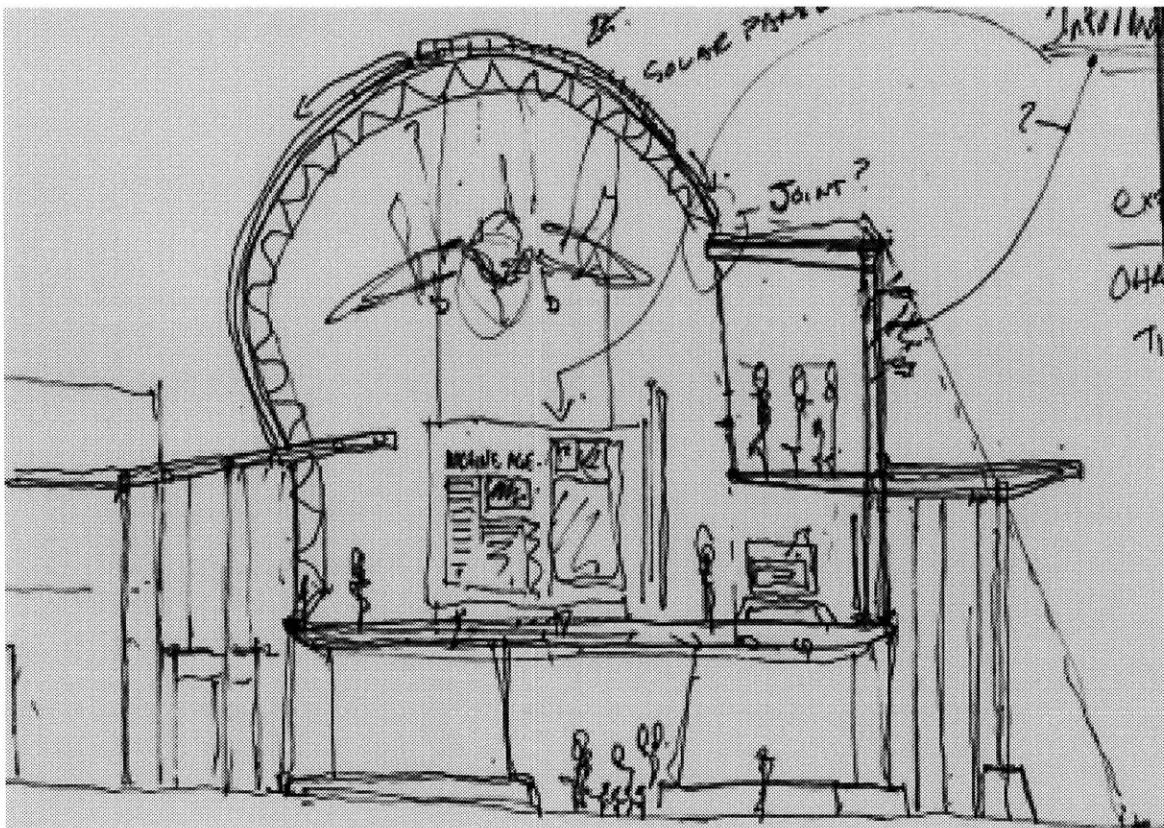
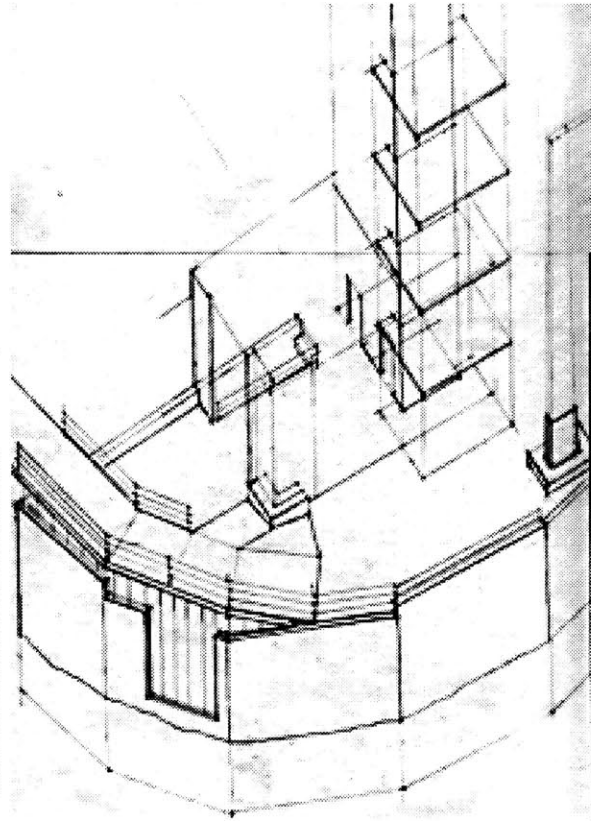
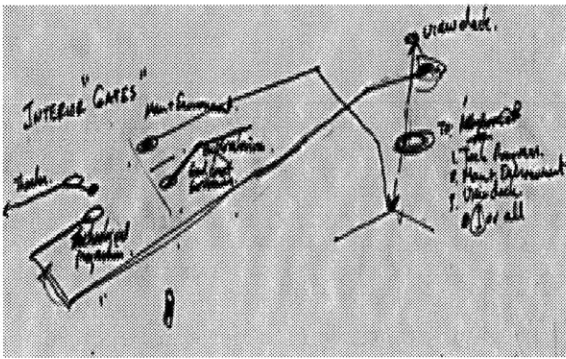


Fig. 6.23, 6.24.
 Development of exhibition hall, and vertical tower
 which links the two museum units at the point of the
 land.



Fig. 6.25, 6.26, 6.27
 Schematics of Museum: circulation and 'gates' of exit and entry. Vertical tower study, and exhibition possibilities in the large exhibition hall.



BUILDING ANALYSIS

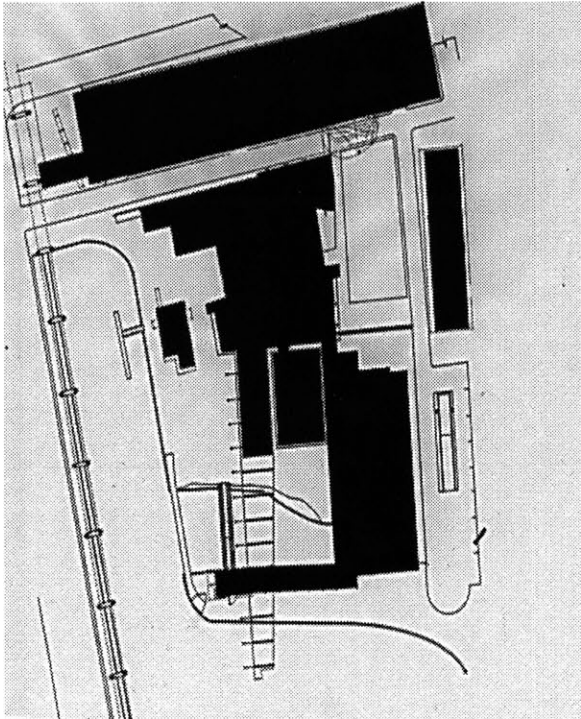
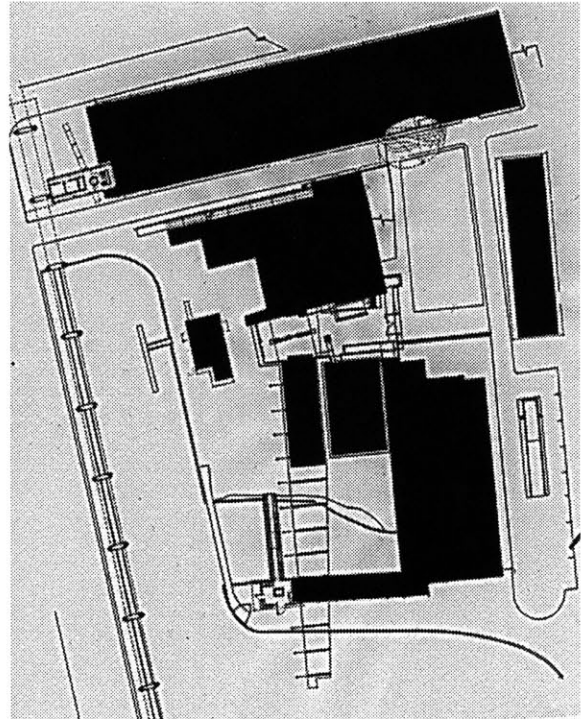
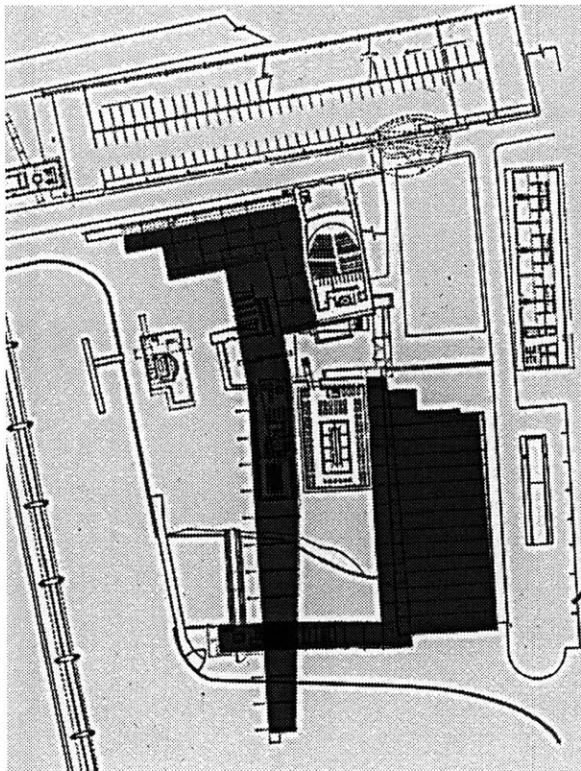


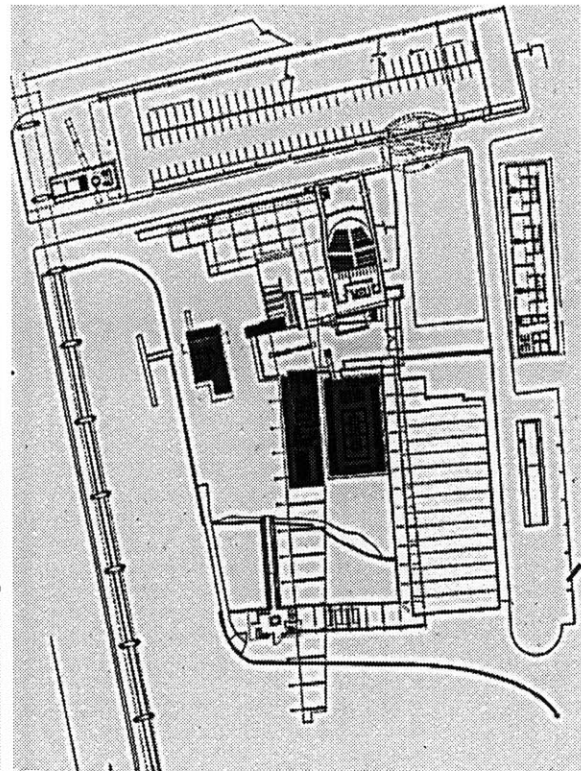
FIGURE GROUND



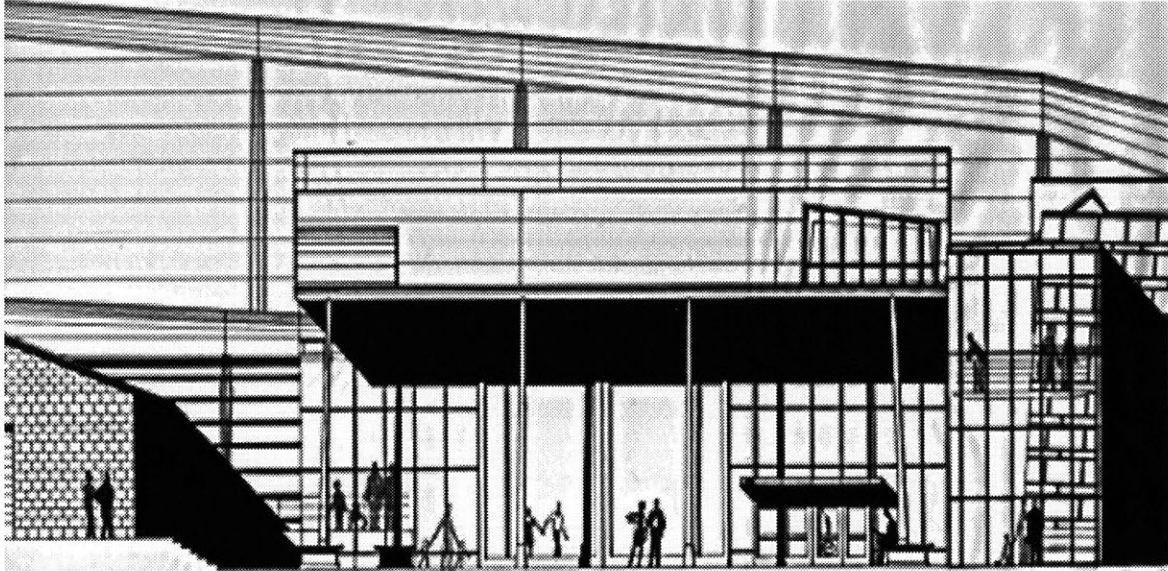
NOLLI PLAN



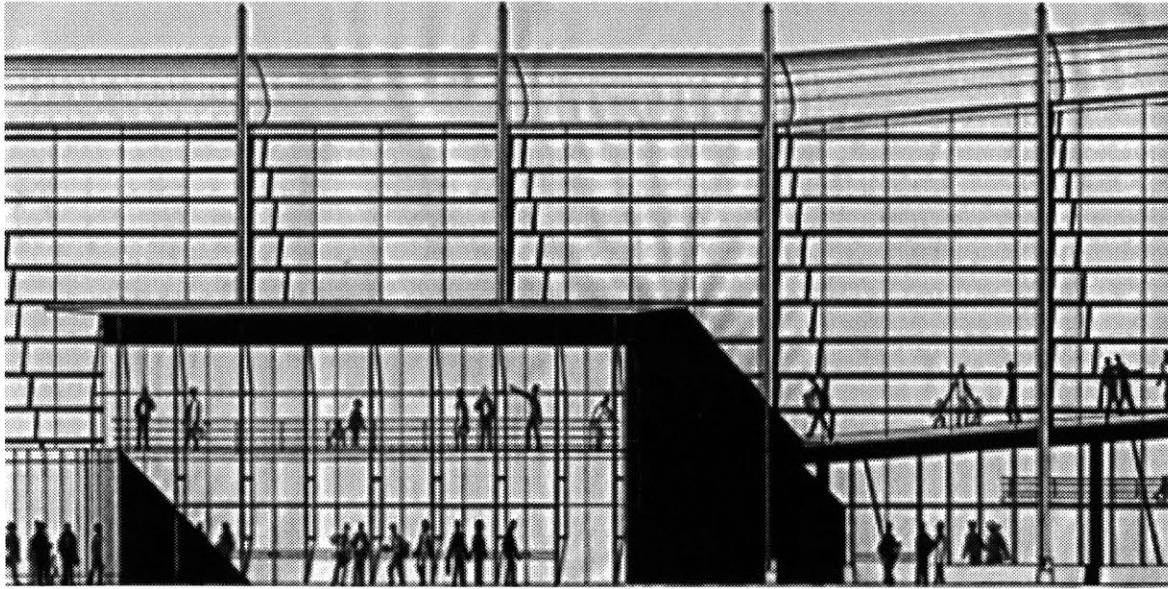
MUSEUM SEQUENCES



RESTAURANT AND RETAIL.



Entry Elevation



Entry Elevation from plaza.



Perspective inside 'man and the environment' museum.



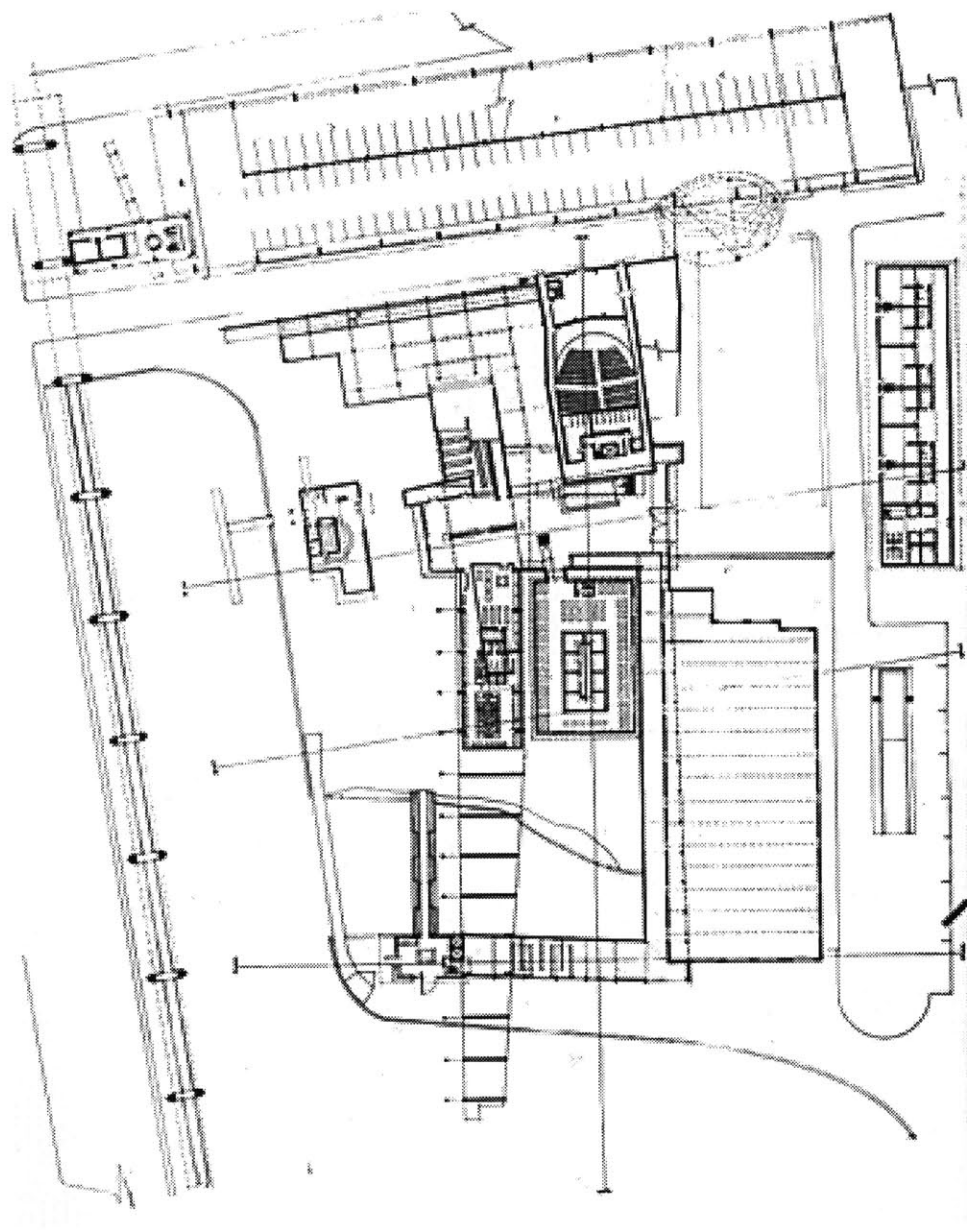
Perspective showing re-use of warehouse elevations within mega-museum.



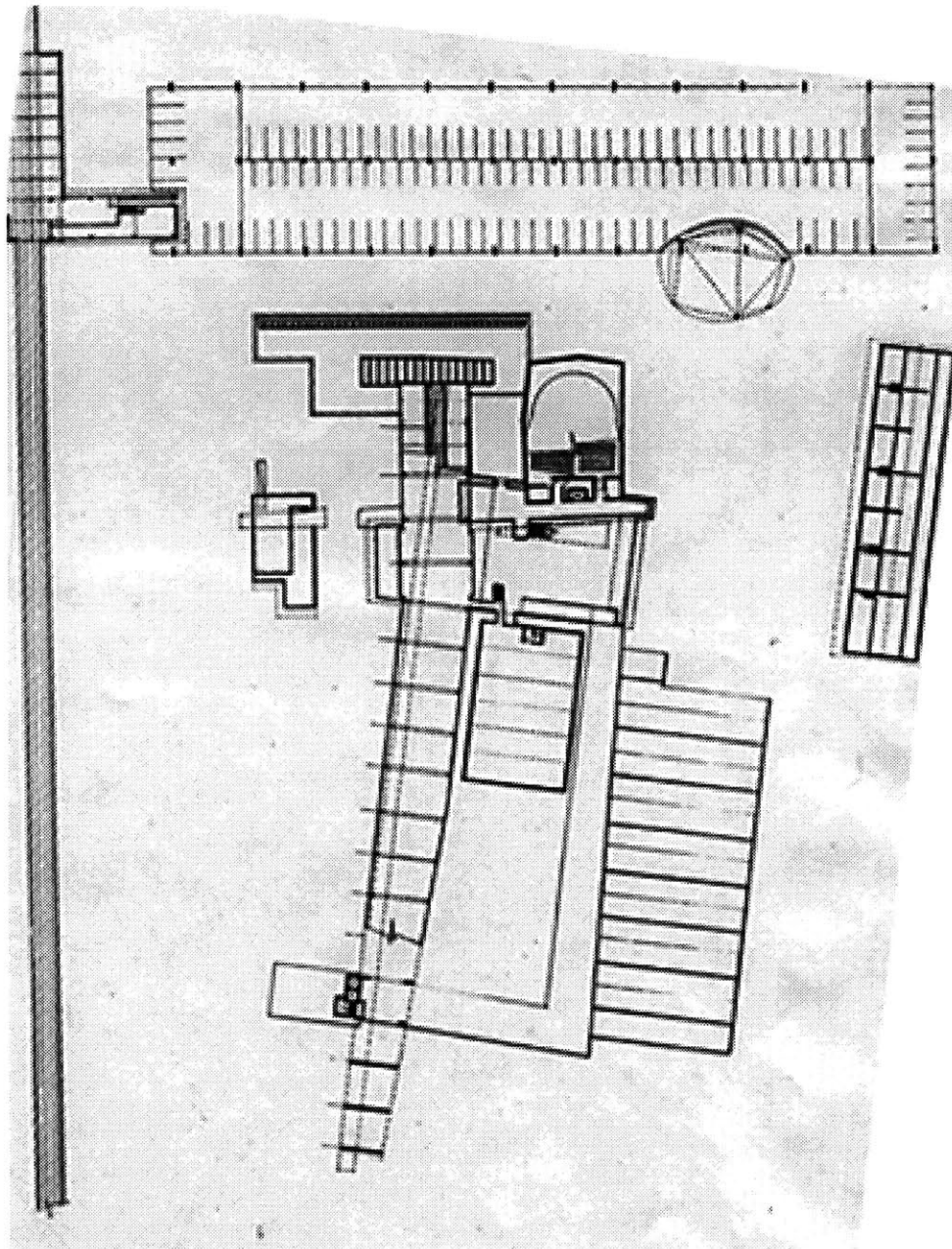
SITE



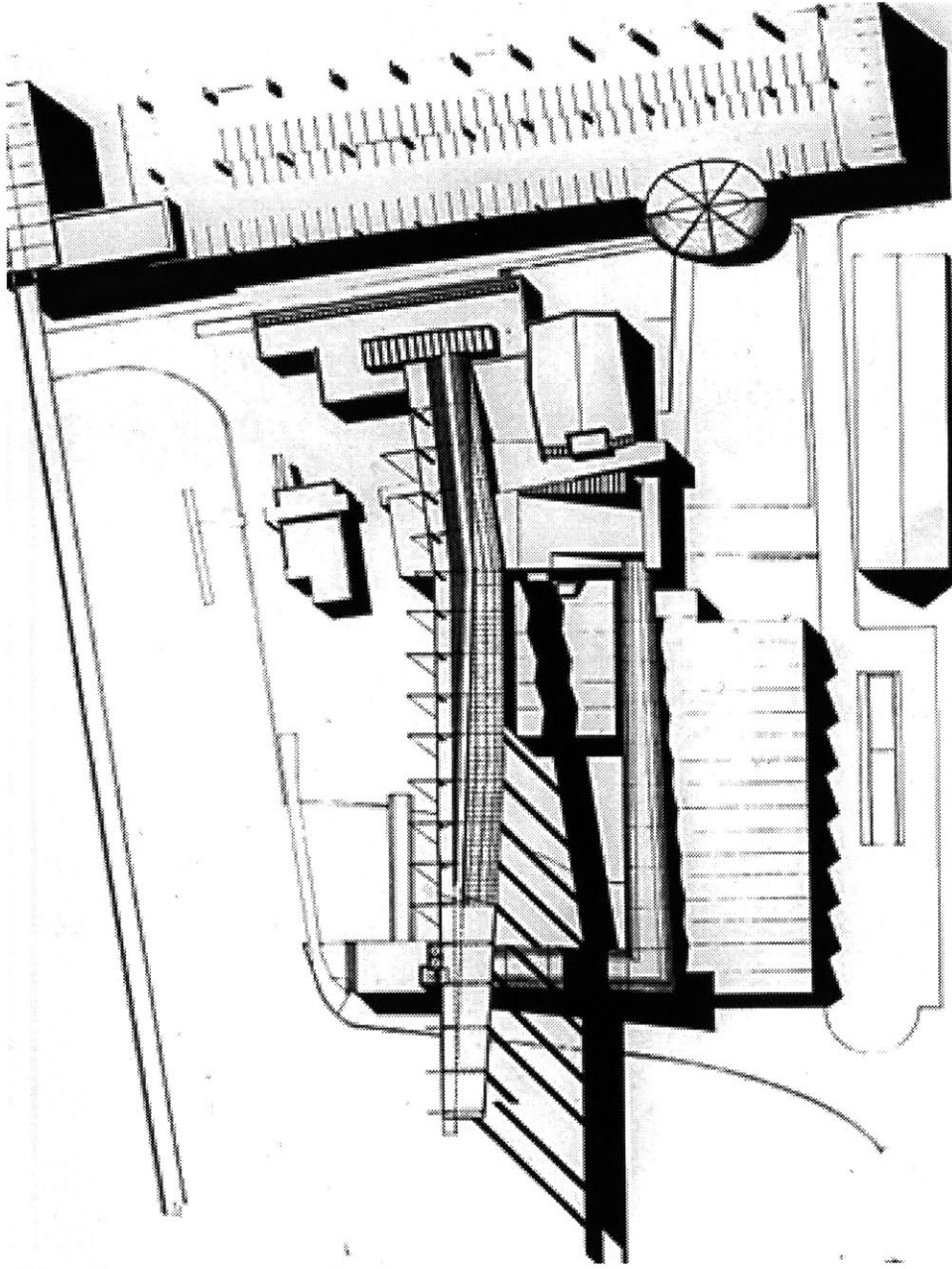
FIGURE. GROUND



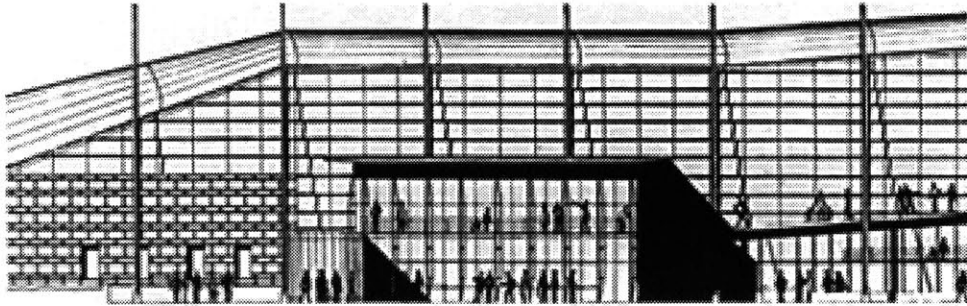
FIRST FLOOR PLAN



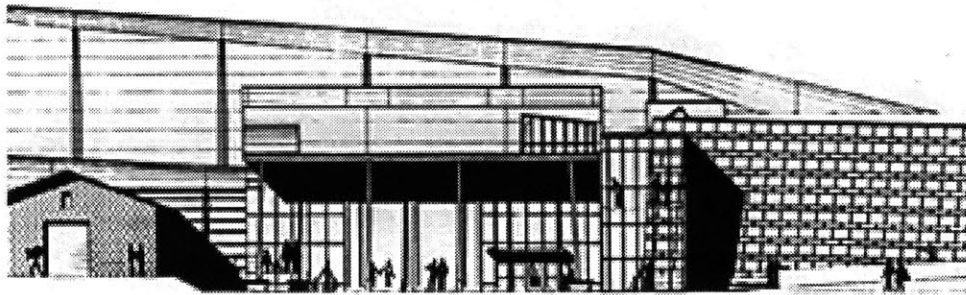
MEZZANINE LEVEL



ROOF + THIRD FLOOR PLAN



M20 Elevation: Entry Pavilion

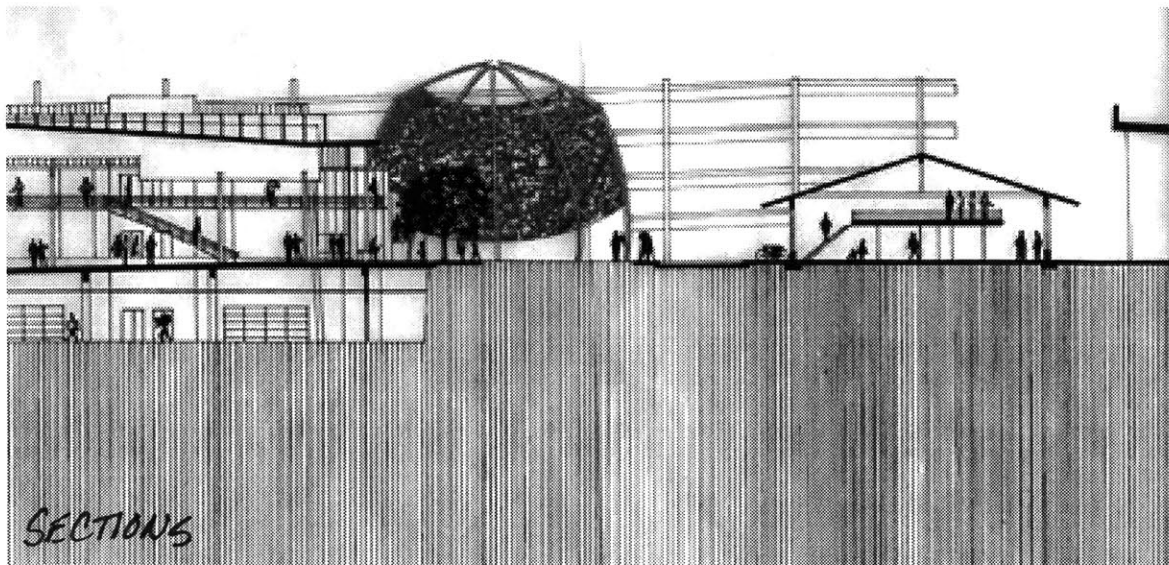
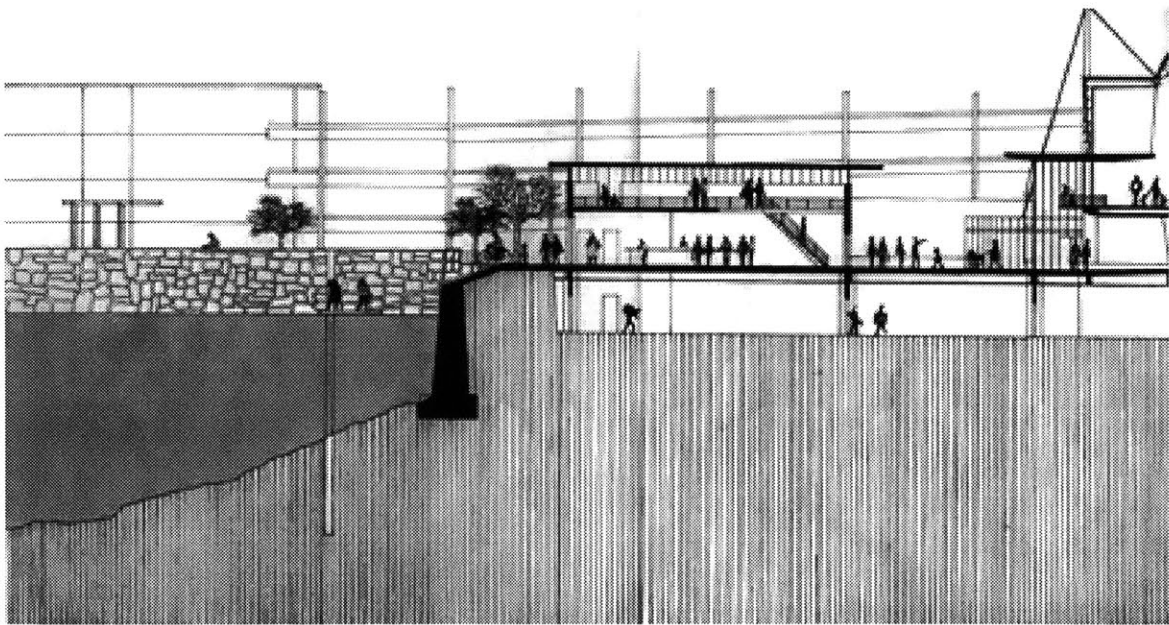
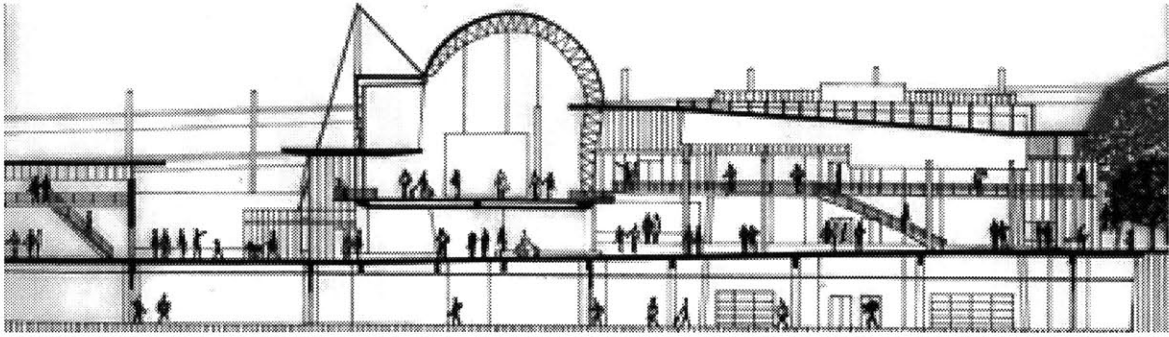


M21 Elevation: Entry Pavilion

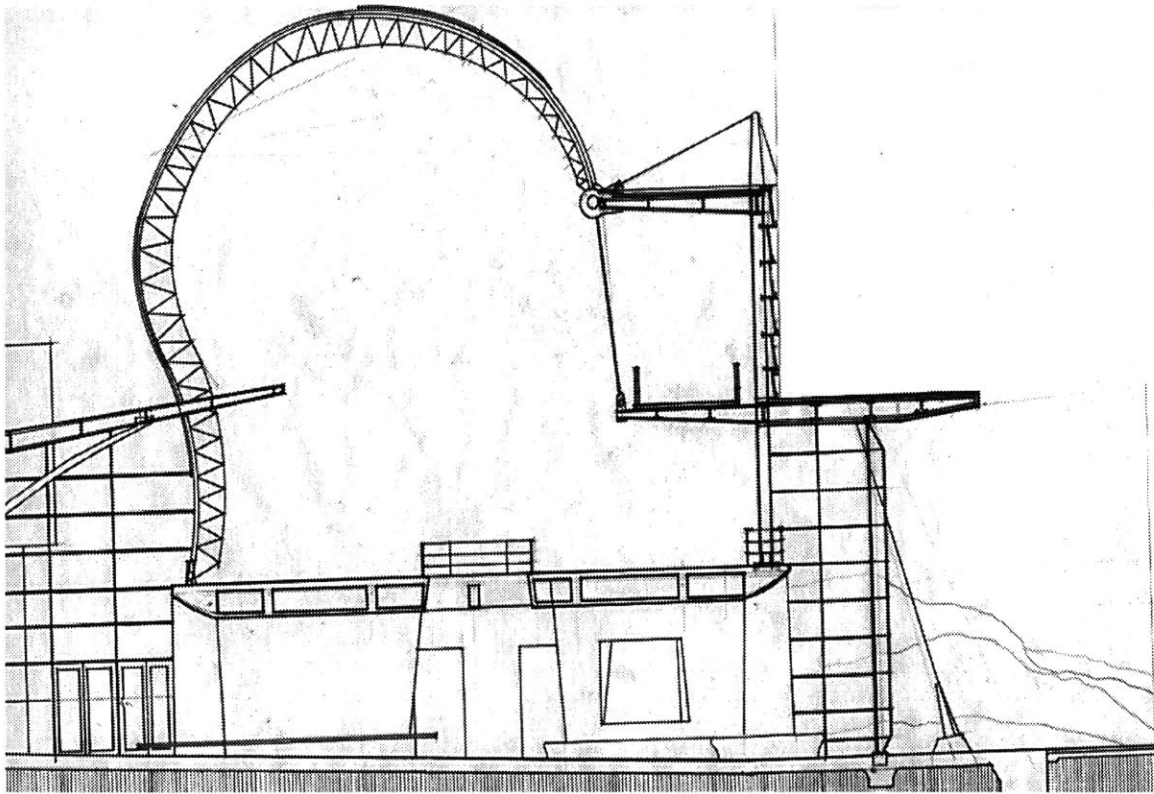
Aligning Architecture
Reconnecting the Industrial Landscape

Scale: 1/8"

ELEVATIONS

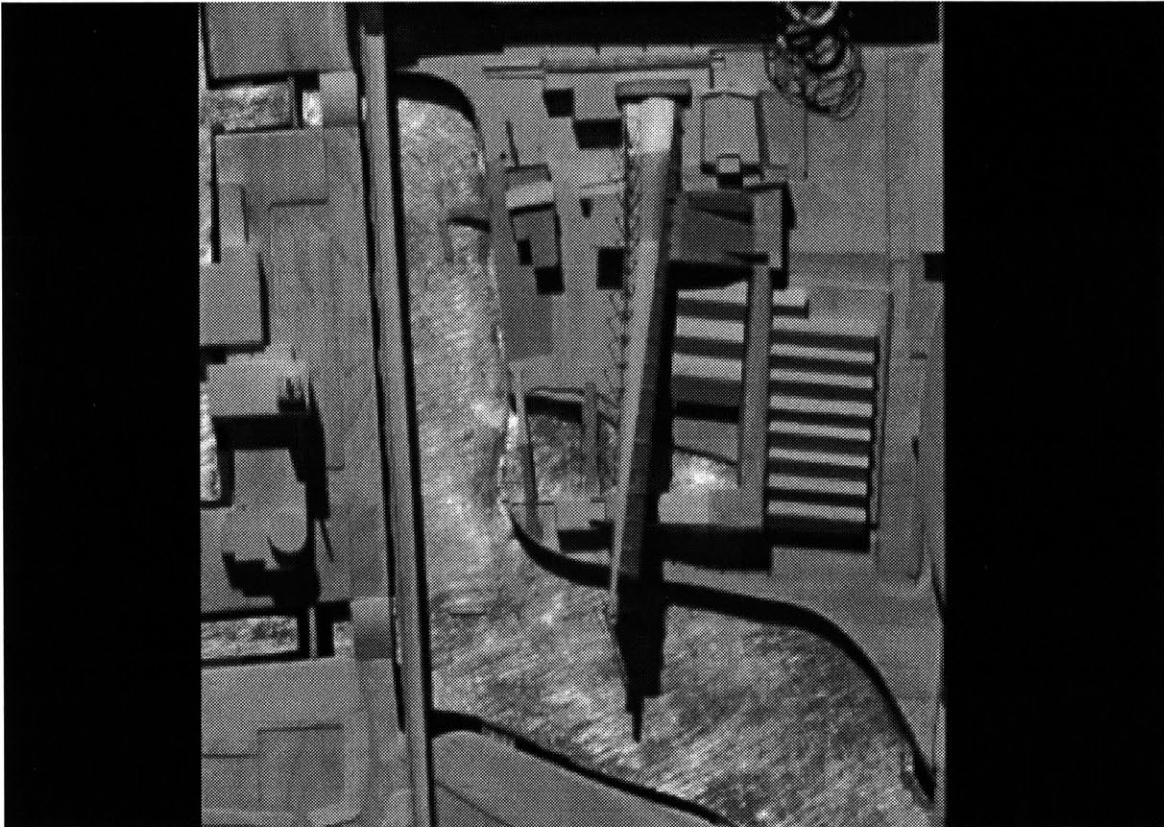
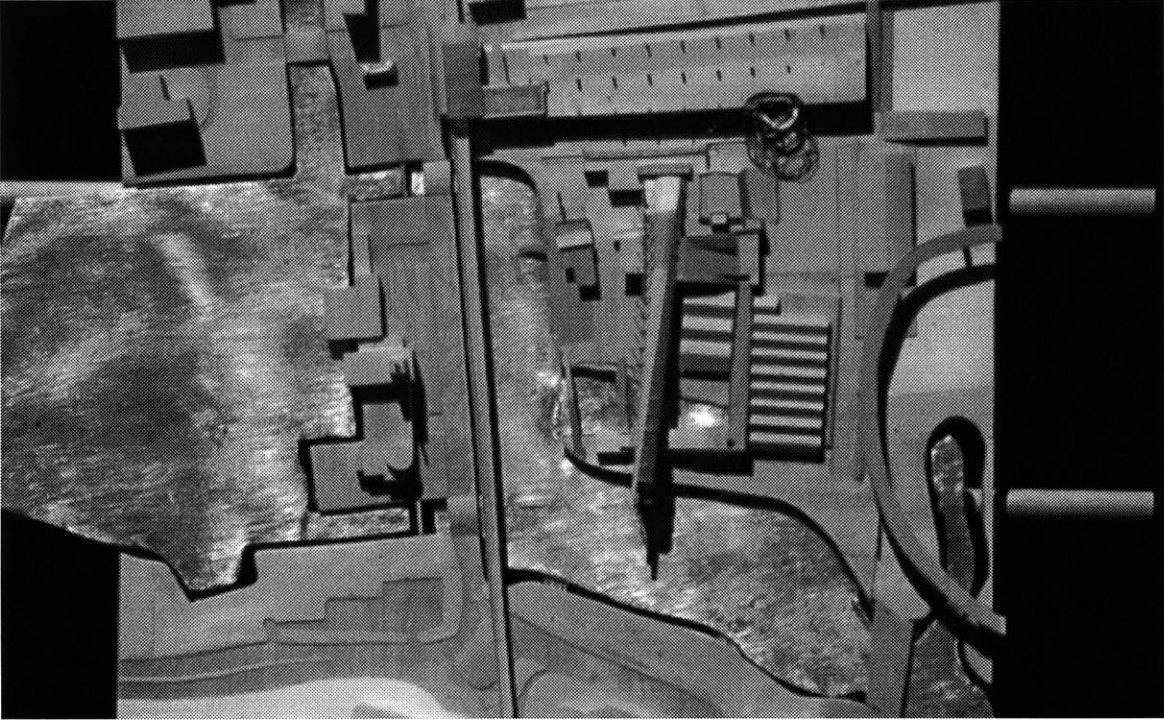


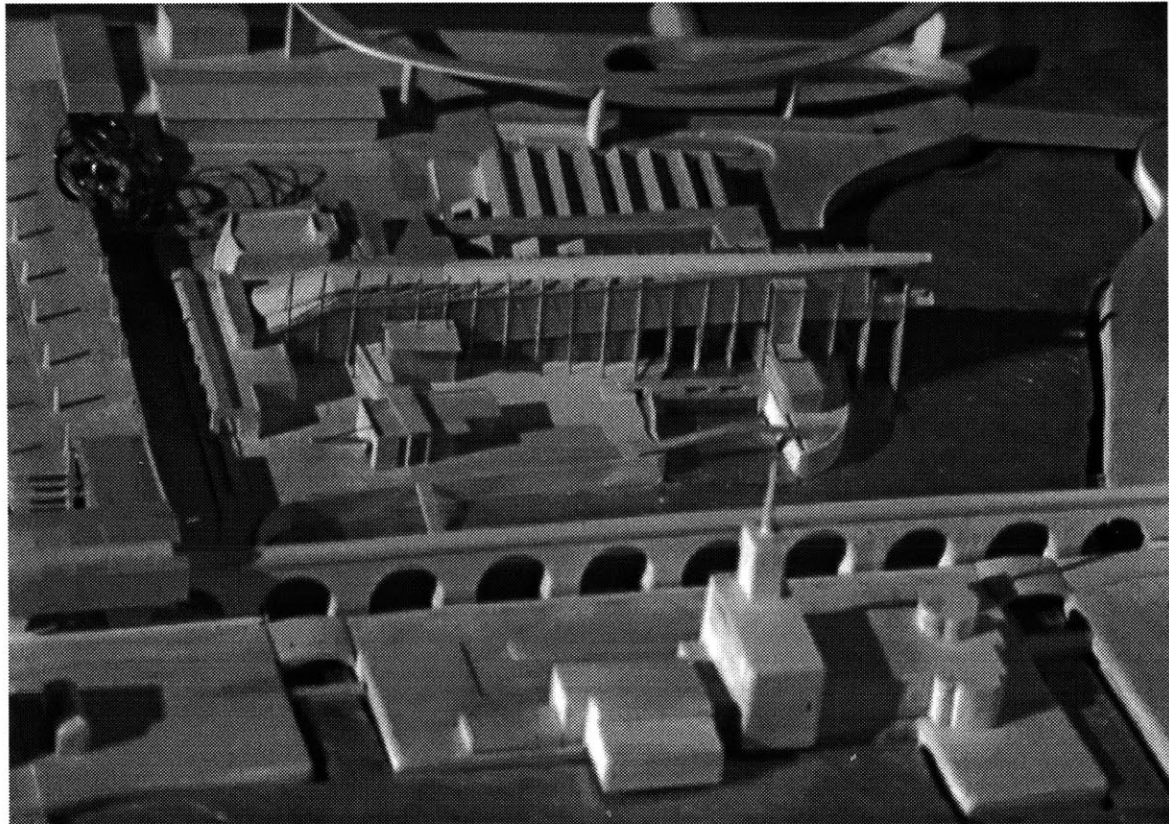
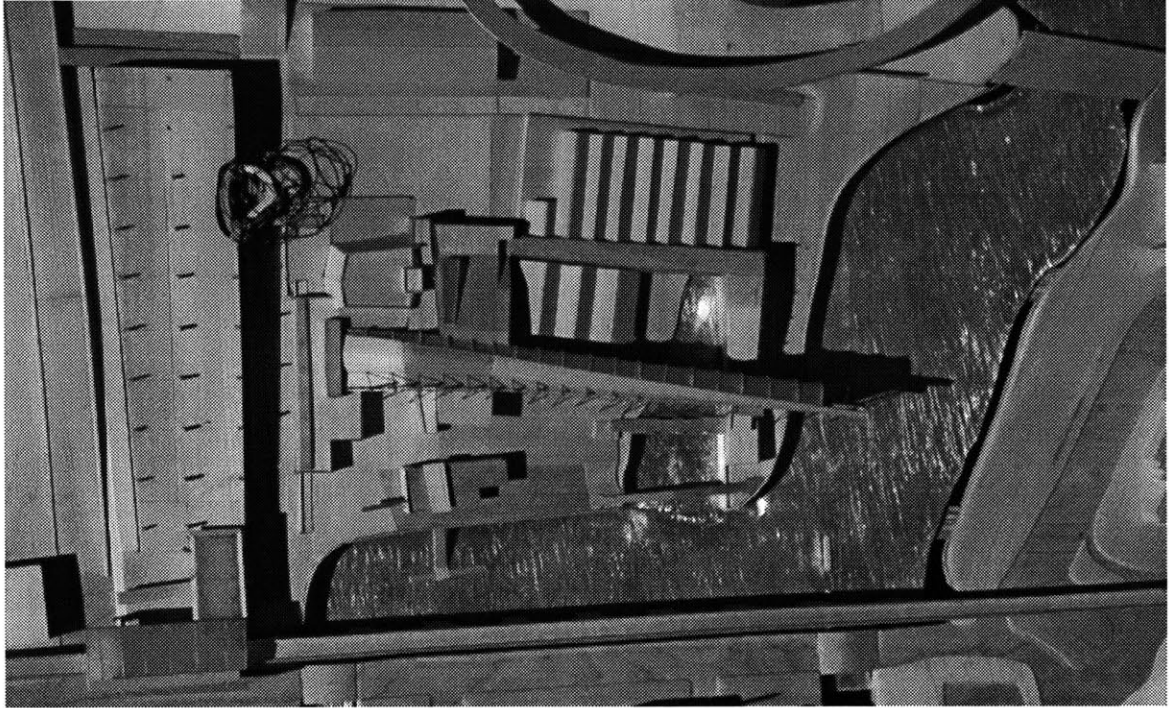
SECTIONS

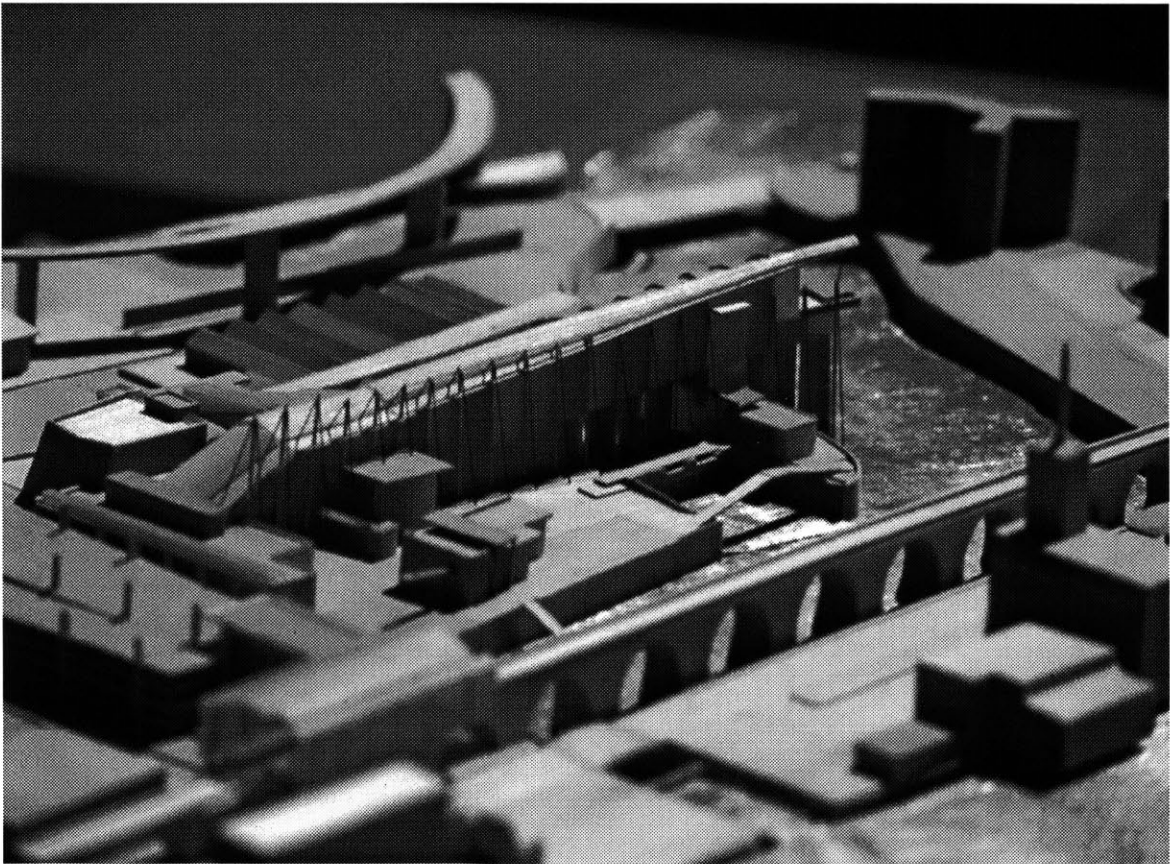
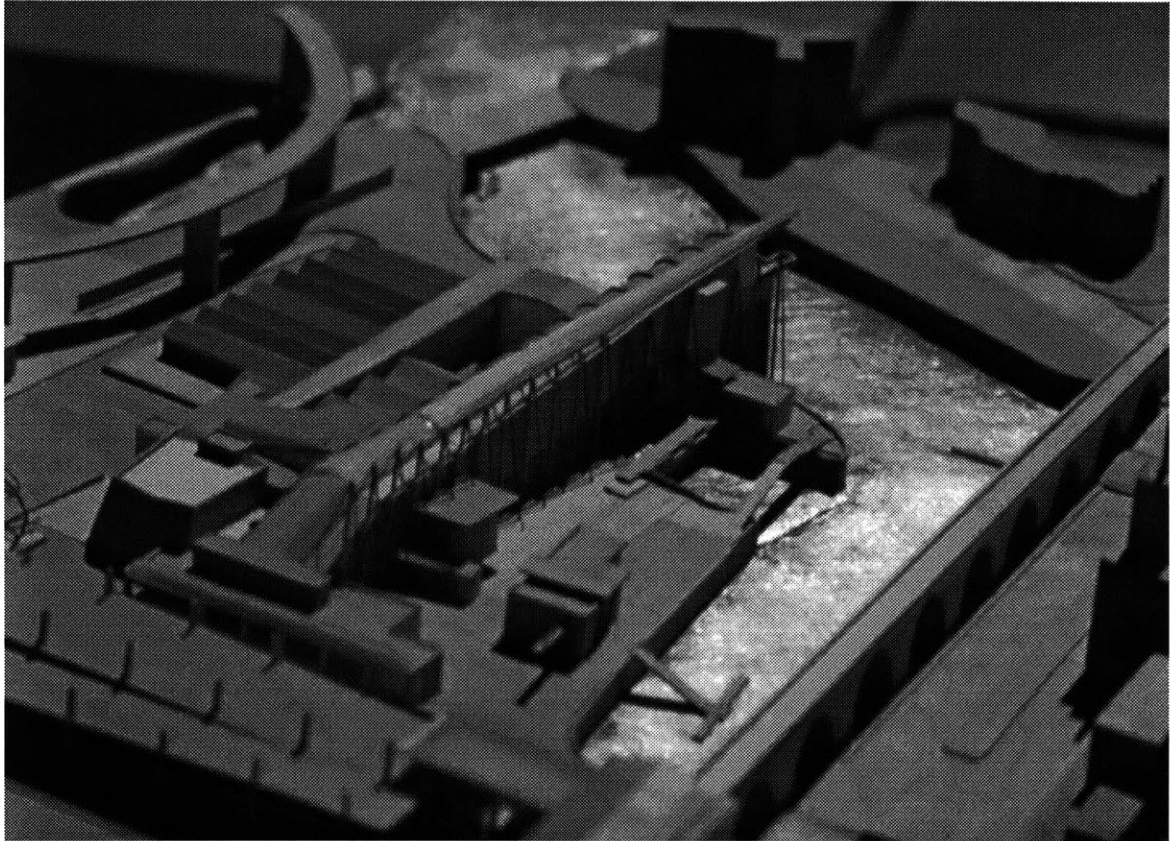


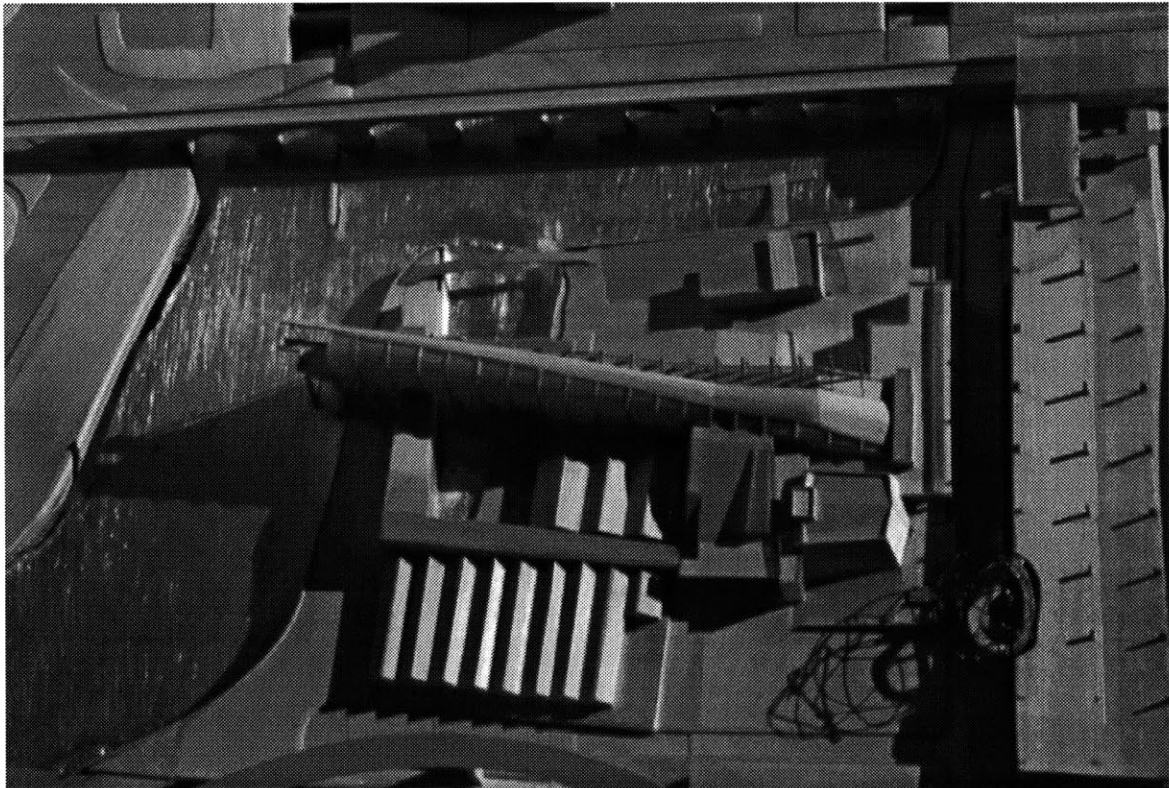
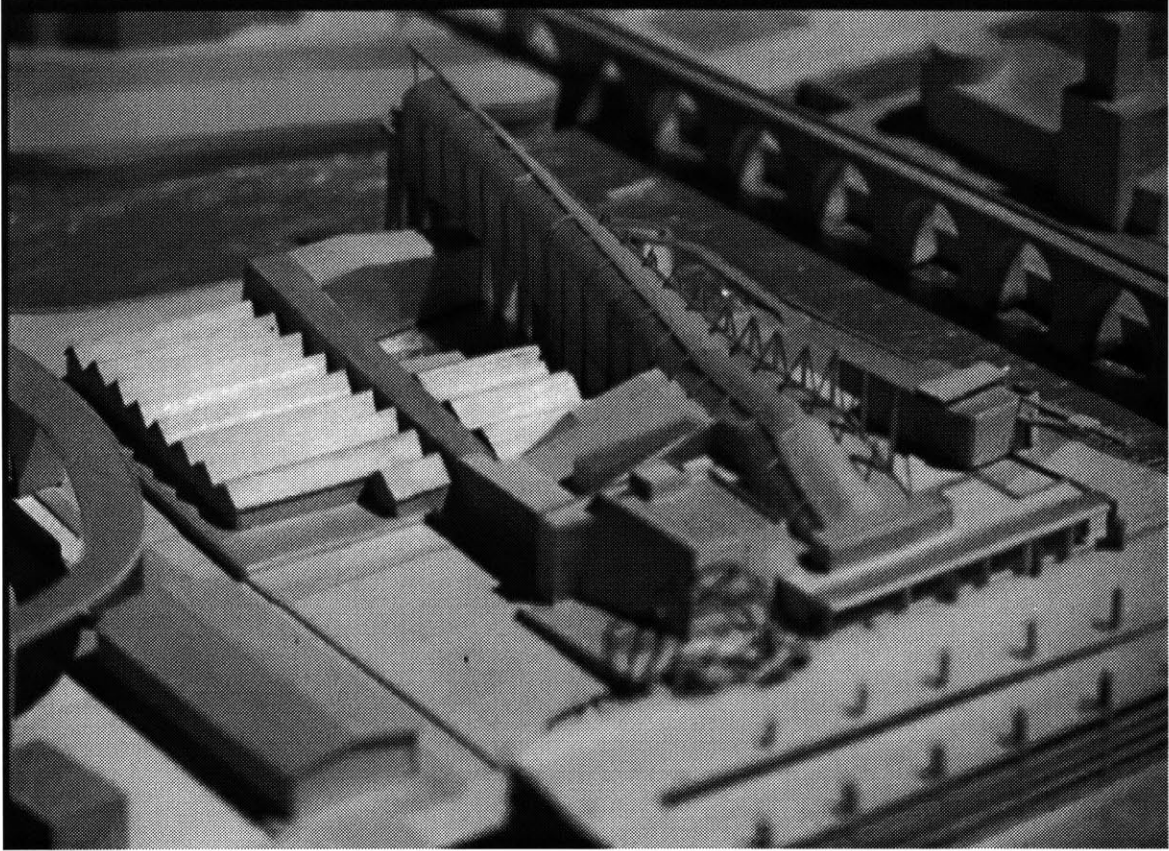
SECTION THRU MAIN EXHIBITION HALL

SITE AND BUILDING MODEL









End-Notes

N O T E S

I N T R O D U C T I O N

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(a quote by Alex Moulton, 1981)

² Naisbitt, John. Megatrends. (New York) Warner, Pub., 1982.

³ Stott, Peter. Industrial Archeology of Boston Proper. (Cambridge) MIT Press,

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² Banham, Reyner. A Concrete Atlantis. (Cambridge) MIT Press, 1986.

³ Stott, Peter. Industrial Archeology of Boston Proper. (Cambridge) MIT Press, 1984. pxi.

⁴ Frampton, Kenneth. Modern Architecture: A Critical History (quote by William Morris). (New York) Thames and Hudson, 1980. p42.

⁵ Frampton, Kenneth. Modern Architecture: A Critical History (quote by Paul Scheerbart). (New York) Thames and Hudson, 1980. p116.

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¹ Maycock, Susan E. East Cambridge. (Cambridge) MIT Press, 1988. p7.

² Maycock, Susan E. East Cambridge. (Cambridge) MIT Press, 1988. p10.

³ Boudinot, Elias. Journey to Boston in 1809. p73.

⁴ Maycock, Susan E. East Cambridge. (Cambridge) MIT Press, 1988. p45.

⁵ Boston Redevelopment Authority. A Development Plan for North Station District (Boston) BRA, 1978.

⁶ Somerville Journal. Hill Rapidly Being Leveled. (Somerville) Somerville Journal, September 25, 1931.

⁷ Fifth Annual Report of the Massachusetts State Board of Health

⁸ Boston Redevelopment Authority. A Development Plan for North Station District (Boston) BRA, 1978.

⁹ Metropolitan District Commission. New Charles River Basin (Brief). (Boston) MDC, 1995.

Figure Credits

F I G U R E C R E D I T S

Unless otherwise noted, all images, photos, and drawings have been produced by George Francis Wilson III, the author.

2.1-2.3: Michael Dennis Urban Form Workshop, MIT Fall, 1994.

2.5: New York Times, April, 1994.

3.0: Kanda

3.1: Maycock

3.2: Maycock

3.6: Maycock

3.7: Carr, Lynch, Hack, Sandell, Draft Proposal for Charles River Basin.

3.8: Transportation Planning Staff.

3.9-3.14: Maycock

3.16-3.20: Maycock

3.21: Kanda

3.22: Carr, Lynch, Hack, Sandell

4.1: Metropolitan District Commission.

5.1: Pirelli

5.2: Morphosis

7.4: Bohigas

7.5: Hildebrand

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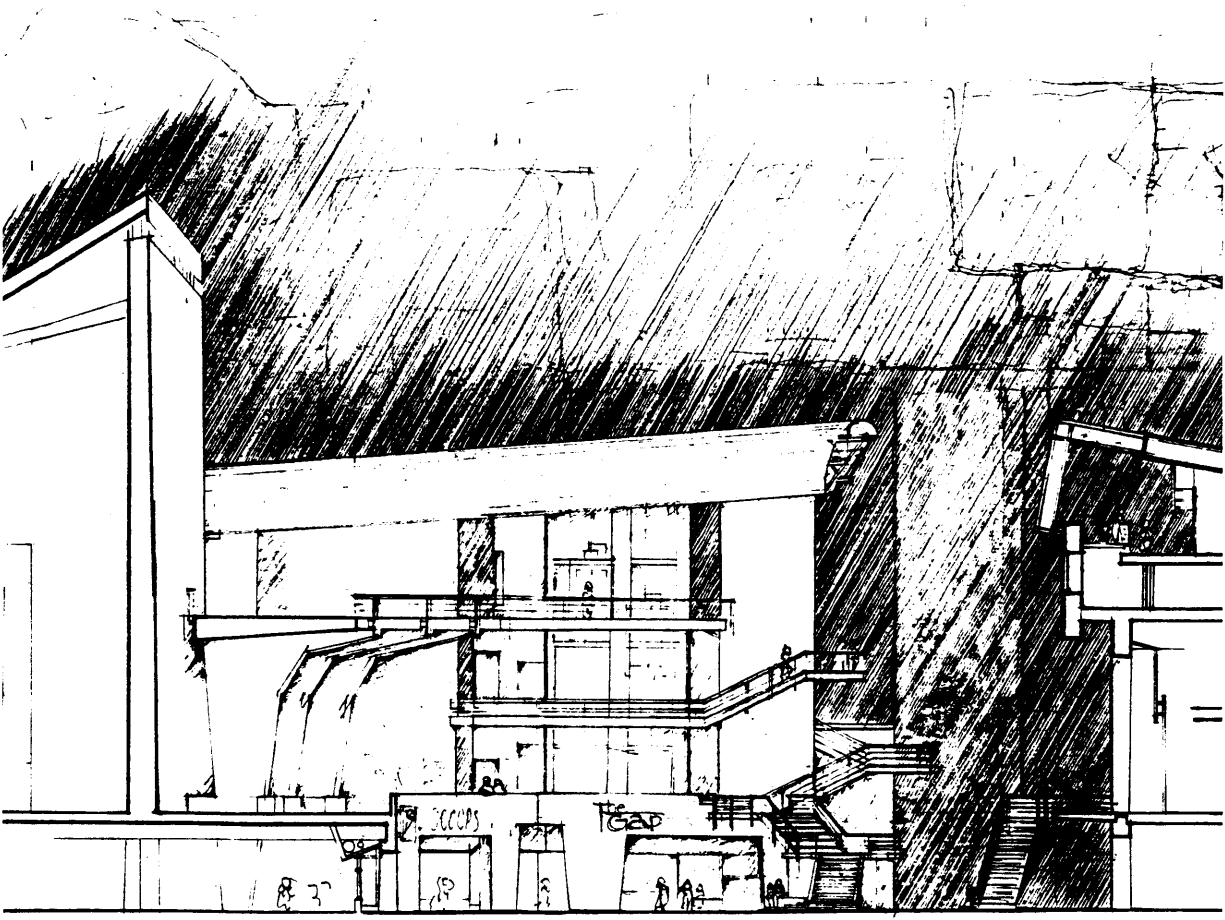
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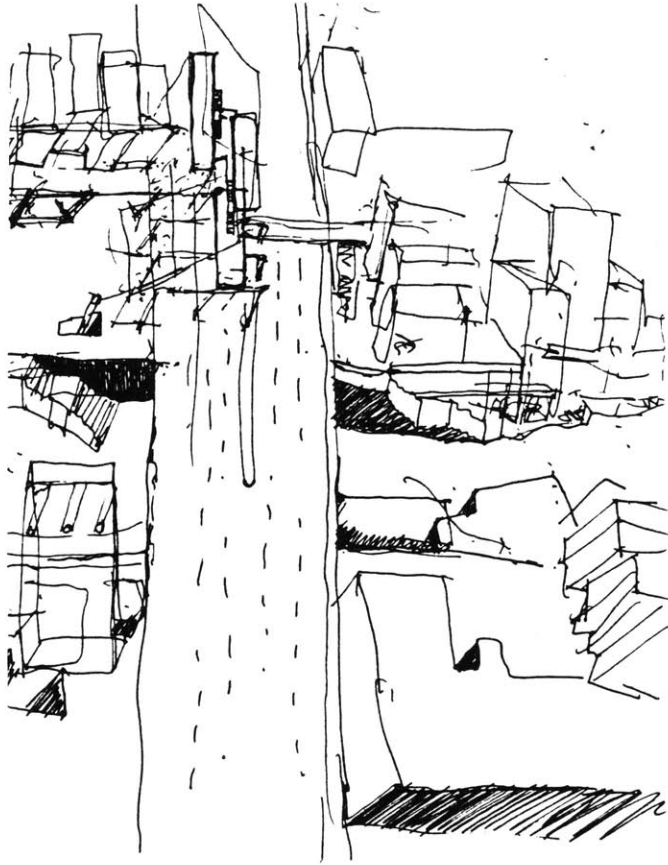
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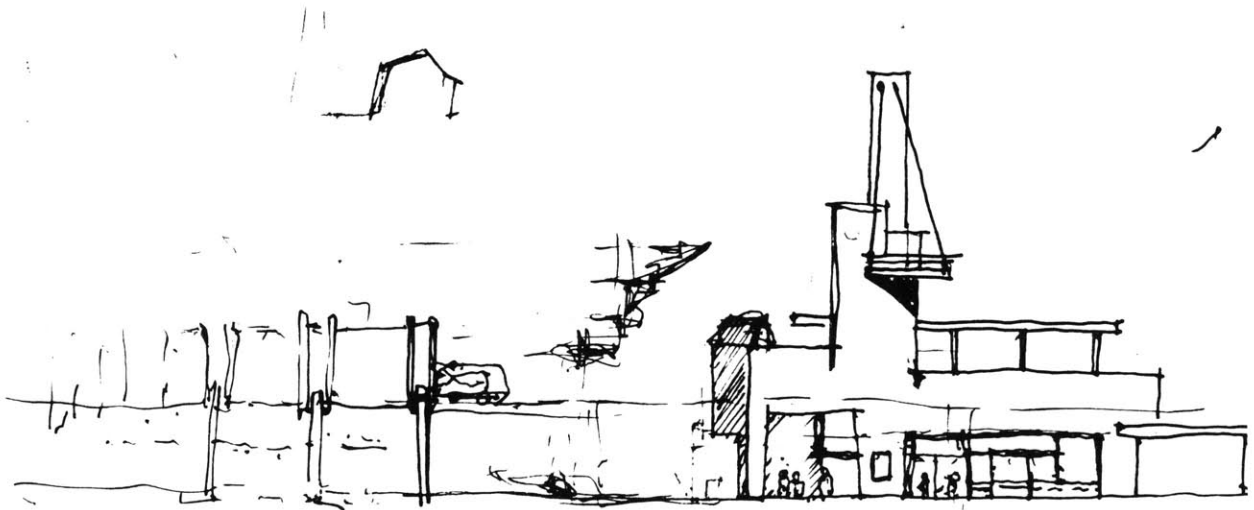
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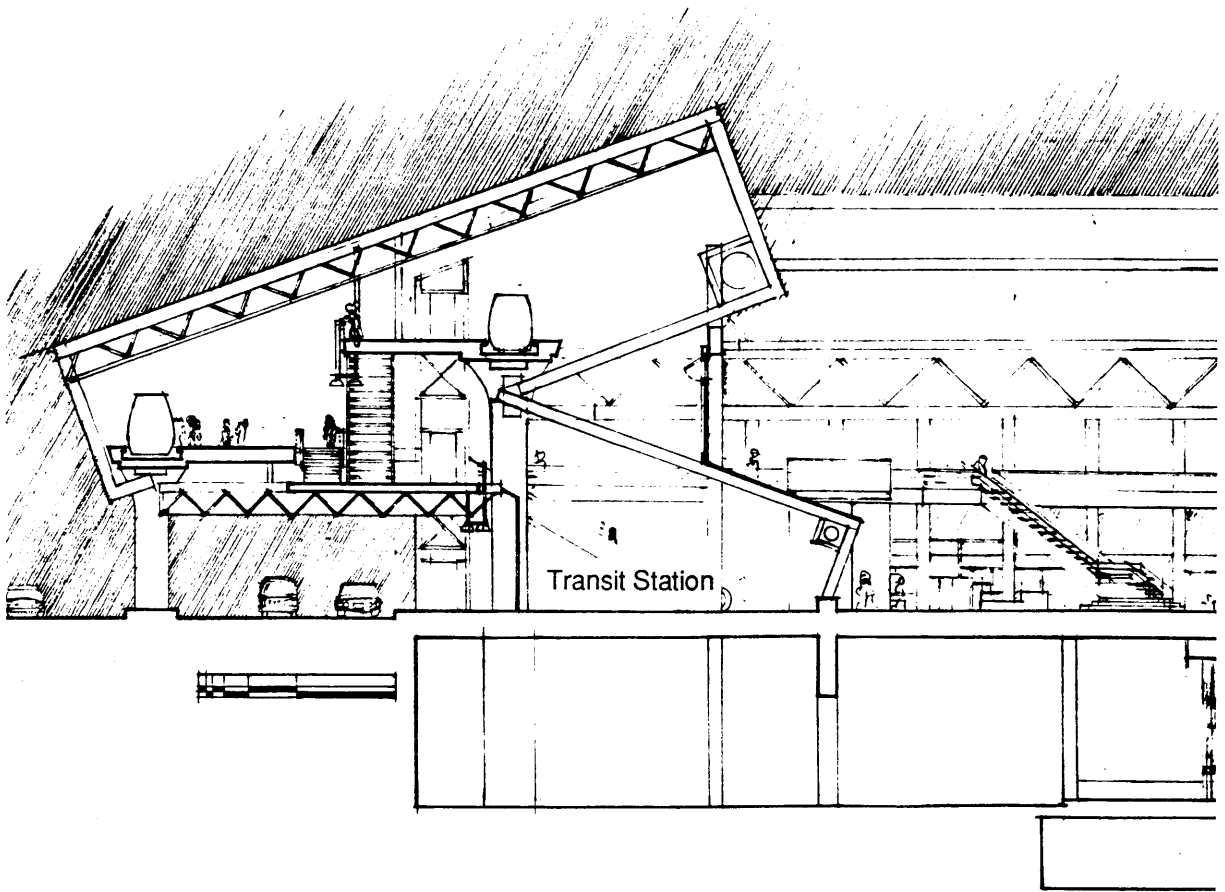
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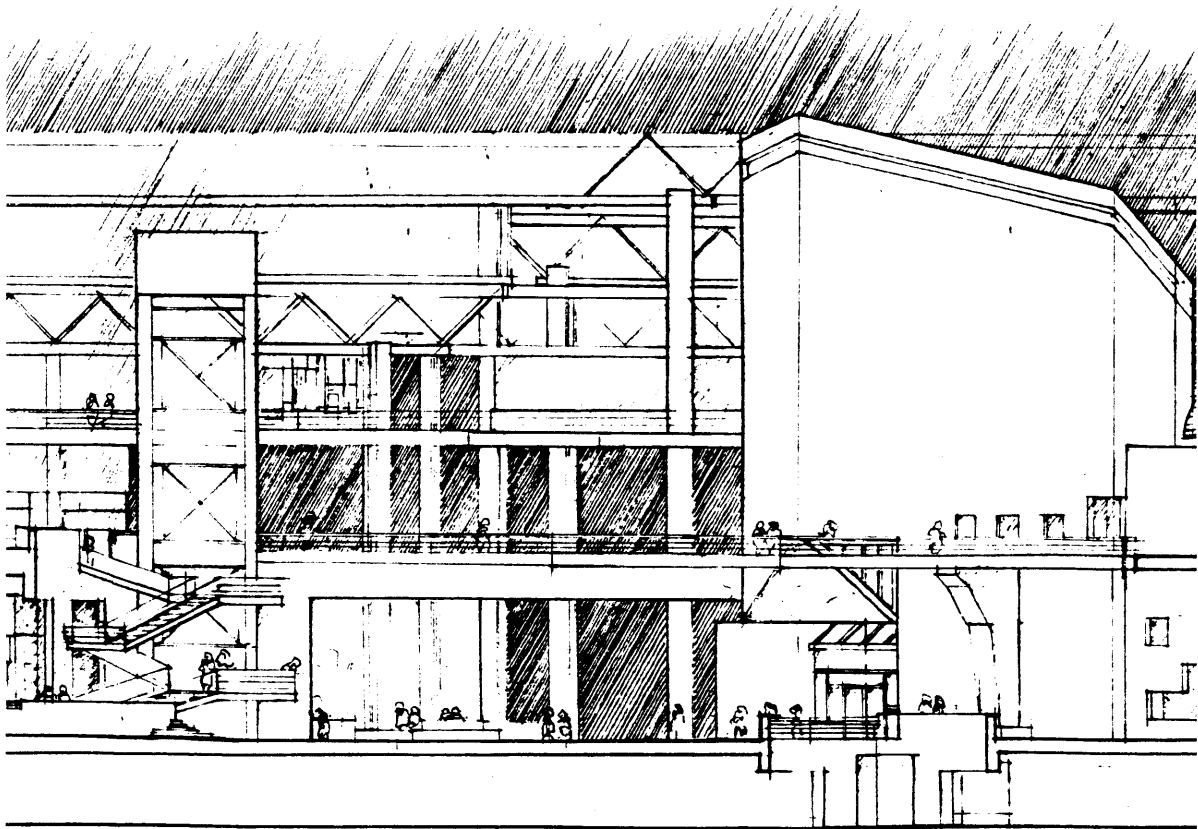
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" The problem of place in America manifests itself in a sorely deficient informal public life. The structure of shared experience beyond that offered by family, job, and passive consumerism is small and dwindling. The essential group experience is being replaced by the exaggerated self-consciousness of individuals. American lifestyles, for all the material acquisition, and the seeking after comforts and pleasures, are plagued by boredom, loneliness, alienation, and a high price tag. America can point to many areas where she has made progress, but in the area of informal public life she has lost ground and continues to lose it."

*-Ray Oldenburg, **The Great Good Place**, p.13*

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