

HAVERHILL, MASSACHUSETTS:  
RE-ESTABLISHING A HABITABLE, PHYSICAL FRAMEWORK  
FOR THE CENTRAL BUSINESS DISTRICT

by Christos Coios

A.B., Harvard College, 1972

Submitted in partial fulfillment of  
the requirements for the degree of  
MASTER OF ARCHITECTURE  
at the  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
June, 1976

Signature of Author.....  
Department of Architecture

Certified by.....  
Michael Underhill, Thesis Supervisor,  
Assistant Professor of Architecture

Accepted by.....  
Michael Underhill, Chairman,  
Departmental Committee on  
Graduate Students



Abstract

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Submitted to the Department of Architecture on May 7, 1976  
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This thesis is an architectural design exercise directed primarily at the issue of generating an additive network of distribution--pedestrian and vehicular--within an existing physical context. This network projection is the organizational diagram for a built framework of partial ground, wall, and linear definitions capable of accomodating a diverse range of human use.

In order to explore this issue of an additive network, the thesis addresses certain physical needs and problems of a small shoe manufacturing community of Northeast Massachusetts, the City of Haverhill.

Thesis Supervisor: Michael Underhill  
Assistant Professor of Architecture

## Acknowledgements

First and most importantly, I must thank my parents and family for their continuing and unending support, encouragement and patience throughout this endeavor and throughout my education.

I also wish to express my sincere appreciation to the following people for their guidance and assistance, and for the knowledge of architecture that they have so unselfishly imparted during these years at M.I.T.:

Mike Underhill, my thesis advisor

Maurice Smith  
Richard Tremaglio  
Imre Halasz

Special thanks to all my fellow students for sharing with me their knowledge, companionship and, most of all, their friendship.

A special note of appreciation to AR663957.

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## Haverhill, Massachusetts: The Problem

The City of Haverhill, like many of the mill cities characteristic of the northeast corner of Massachusetts, has been suffering from the continual economic decline during the past decade of its principal industry--shoe manufacturing. Typically, this traditional industry is located adjacent to the central business and shopping district of the city. Consequently, the industry has considerable influence on the life, vitality and occupancy of this central district. The chronic decline of this industry and the subsequent abandonment and deterioration of its physical plants is largely responsible for the parallel decline of the central shopping district. The district, once characterized by continuous blocks of fully-rented retail and office space along the main shopping street (Merrimack Street) is now a fabric of underutilized, deteriorating buildings and empty lots.

In light of these tendencies, various Haverhill groups over the past ten years have attempted to affect urban renewal within this central district. Unfortunately, these attempts up to now have been misdirected and appear to have accelerated the decline. The central district carries on tenuously in the aftermath of the programmed demolition of a number of its buildings in anticipation of renewal projects which, to date, remain unaccomplished.

The result of the overall effort at organizing new retail and office development in the city is a series of decentralized,

singular shopping centers and professional buildings scattered throughout the city. The impact of such decentralization is clearly negative, especially in view of the fragmented state of the central business area. ✓

In addition to the fragmentation resulting from the dispersion of shopping and office activity, the physical quality of the central district has been directly impacted by the partial execution of a plan to construct a four-lane, divided connector road through Haverhill. The road was planned to go from Route 97 in the east, past the edge of the business district, and on to Route 495, a major highway skirting the city. Due to environmental factors, the connector plan will not be further implemented; unfortunately, however, two major segments of road already exist, one of which borders the immediate business district.

The road segments were built with complete disregard for the existing land topography, physical context and local street networks. A major hill was severed and razed to accommodate the road. Both the scale and high speed nature of the road are inappropriate; the quality of its edges are disassociative. The most glaring deficiency of the road, however, is that it leads only to a maze of narrow streets in the factory district.

The original purpose of the connector was to direct traffic quickly through the city center and to provide a high-capacity traffic link from Route 495 to the business district. The con-

necter was a critical factor in proposals to revitalize the business district by featuring high accessibility as an incentive to attract a large department store. The acquisition of such a store, in turn, was to act as an incentive for smaller retail stores. The supporters of this proposal failed to recognize the destructive nature of a major traffic artery running through the heart of the city's most densely built fabric.

The recent construction of a major regional shopping center in the neighboring town of Methuen has further crippled efforts to re-establish Haverhill as a retail trade center. ✓

Despite these discouraging trends, there is economic evidence that continued--indeed expanded--retail trade facilities are viable and necessary for the center of Haverhill, whose population is over 40,000. Although the shoe manufacturing and leather goods industries are struggling for survival, new industrial groups are occupying other industrially-zoned areas at the city outskirts, providing fresh economic stimulus. More significantly, a study of downtown Haverhill, Retail Potentials 1975-1980, prepared by Gladstone Associates (economic consultants, Washington, D. C.) provides quantitative indication of the need for new and improved retail trade facilities. There is also an ever present need for adequate housing in the city, as well as for cultural, recreational and entertainment facilities to serve the city population.



## The Physical Context

Given the need for new retail and housing facilities in the central business district, past renewal efforts have been insensitive to the physical context of this New England manufacturing city. The design and planning attitude for the central business district, typical of the 1960's, emphasizes short-term considerations and proposals of convenience. This attitude places no value on continuity with the existing physical context. Overlooking this context is a mistake, since Haverhill's factory district is a richly-defined region of physical form. Only by observing and understanding the positive qualities of the existing fabric is it possible for a new physical framework to establish any real continuity with the old.

The factory district is a source of strong imageability for the city, a vast reference of scale, materials, details and color. The buildings, which are four to five stories in height, are characterized by varied red brick facades whose material and dimensional qualities are additive and associative. ✓

The factory buildings add up to define a comprehensible physical fabric. The streets and alleys of the district suggest a strong network reference. The diagram of spaces defined by the buildings is characterized by a simple hierarchy of directions related to the street and river edges. Though the diagram is simple, the spaces themselves vary to give a rich range of

size and form.

These positive qualities of the old city fabric must influence any responsible plan to revitalize Haverhill's central business district. A recognizable, associative, physical link must be maintained between Haverhill's past, present and future if the center city's image is to be reinforced.

Most renewal proposals to date, however, have ignored the old city fabric. These proposals have been based on the themes of "drive'to" shopping centers or fully-enclosed, space-conditioned shopping malls surrounded with parking facilities.

Such complexes have no association with the surrounding context; their form is internal and isolated. The vital edges--the sidewalks--become minimal walkways around vast, paved areas for parked automobiles, and their potential as the active zone of interchange between the built and unbuilt is wasted. A center-city fabric whose edge texture is automobiles clearly cannot sustain a rich, varied quality of life based on human use and interaction. It is the edge--the built edge/the street edge/the natural edge--which is the most inhabitable; it must be retained for human use. An understanding of the habitable quality of a built edge is the key to the revitalization of the center of Haverhill.

Fortunately, a more reasonable planning attitude encouraging a strict program of renovation is presently gaining support among responsible community members. Such an attitude acknowledges and addresses directly the qualities of the existing physical fabric. It must be cautioned, however, that valuable potentialities exist beyond simple renovation. I refer specifically to the potential in the city's principal natural resource--the Merrimack River. Sadly, this rich edge has been ignored.

The river, which is paralleled by the main shopping street (Merrimack Street), defines the southern edge of both the central business district and the factory district. The riverbank on this side now functions as a serviceway for the retail outlets fronting Merrimack Street--a clear example of a rich, habitable edge given away to vehicular traffic. This open serviceway reflects the existing continuity of the edge. It is this continuity which retains the associative, inhabitable potential of the edge; the potential needs to be tapped.

## The Thesis and The Program

Thus, the problem for this architecture thesis is to generate a built alternative to existing proposals for the revitalization of the central business district of Haverhill. A model for the re-establishment of a usable/inhabitable physical fabric and a local projected pedestrian/vehicle network is developed around a mixed-use program of commercial, office and housing requirements. A section of Merrimack Street, along the Merrimack River edge, will be the focus for this design exploration.

The program for this thesis is taken partially from the study titled Retail Potentials, Downtown Urban Renewal Site, Haverhill, Massachusetts 1975-1980, prepared by Gladstone Associates, Economic Consultants, Washington, D. C. The report, dated January 15, 1974, was prepared for the Family Mutual Savings Bank. An additional source of program and background information is the study Land Utilization and Marketability, Merrimack Urban Renewal Project, Haverhill, Massachusetts, also prepared by Gladstone and Associates for the Haverhill Housing Authority in February of 1968. The Gladstone figures are used only as a very general guide to the space requirements of the renewal area.

Though no specific program exists yet for a cultural arts center, a community group (the Northeast Cultural Arts Society) is presently undertaking the planning for such a facility. A schematic program of requirements is included.

Similarly, a current, specific housing study was unavailable, but housing is included in the program in principle.

Square-footage Guidelines for Program

APPAREL, ACCESSORY & OTHER RETAIL DEMAND.....33,000--38,000 s.f.

includes the following store types: antique & second-hand, book & stationery, sporting goods, jewelry, camera, gift, optical, luggage & leather, hobby & toy, and pet.

CONVENIENCE & PERSONAL SERVICE.....17,900--21,300 s.f.

includes the following establishment types: hardware, small food & variety, eating & drinking, pharmaceutical, floral, liquor & tobacco, laundry & cleaning, beauty & barber, photographic, and shoe repair.

RELOCATION DEMAND FOR COMMERCIAL SPACE.....28,000 s.f.

includes the following:

women's apparel.....	8000	s.f.
shoe store.....	3000	"
jewelry stores (2).....	3000	"
book store.....	1500	"
pet shop.....	1200	"
optician.....	1200	"
convenience food store...	2000	"
bakery.....	1000	"
drug store.....	1500	"
restaurant.....	200	"
banks (2).....	4000	"

CULTURAL ARTS & ENTERTAINMENT.....1000-seat auditorium

with supporting facilities: gallery & exhibition, museum, work shops & studios for production, office & meeting, etc.

HOUSING.....Unit type, number, and density explored in the actual framework design.

Networks and Organizational Models: Intentions,  
Attitude and Process

Initially, I must define my intended meanings of the terms distribution and network. Distribution implies the physical movement of people, vehicles, goods and/or activities. When used as a noun, distribution is the physical entity in which movement may occur. A network is the pattern of distribution.

I directed my efforts to generate a usable pedestrian/vehicle network at the re-establishment of physical and virtual continuities between the immediate shopping district and the surrounding context. Continuity is achieved by first recognizing the existing and potential nodes of public activity and linking these nodes together to establish an extended network.

It is necessary to re-establish pedestrian continuity--visual as well as physical--between the business district's main street (Merrimack Street) and the city's public institutions--the city hall, the public library and the courthouse. Similarly, integration of the covered walkway at the shopping center at the corner of Main and Water Streets with the overall pedestrian network of the area is vital. The isolated, internalized nature of this center must be altered.

Considering the above issues, I endeavored to reinforce the nodal quality of the major intersection of Merrimack, Main, Bridge and Water Streets by locating a significant, active public

landmark--the cultural arts center--at the junction. The directions and orientations generated by the form and use of the arts center framework, together with the diagonals of the extended pedestrian distribution network, are intended to establish the previously-mentioned continuities.

The continuity between the heart of the business district and the public institutions is further reinforced by the diagonal street of the extended vehicle network which overlaps the pedestrian network.

A virtual continuity is established between the vehicle network and the shopping center roadway. The diagonal street of the new street layout curves to line up with the shopping center road. Due to the potential traffic congestion, vehicles would not be allowed across; however, there would be continuity in principle. The intention is to unite the shopping center with the surrounding city fabric.

Additionally, I sought to reconnect the residential area north of Bailey Boulevard with the business district. The area, severed off by the construction of the Route 97 connector (Bailey Boulevard), is linked to the extended network by a pair of pedestrian bridges.

Before any effective integration can be realized, however, it is essential to reclaim the parking lot edge for human use.



The sidewalk at the edge must associate directly with places that people can inhabit, which will sustain active street life and interaction.

To this end, I diagrammed a commercial and retail facility which builds the sidewalk edge, while simultaneously relating to the shopping center activity from the parking side. Although a small amount of parking is surrendered, the remaining parking directly serves a greater square footage and density of commercial space.

It was not within the time scope of this thesis to do a comprehensive study of parking in the district, but I shall briefly note here my observations and attitude toward the problem. Presently, parking is handled by street-side spaces and a series of empty lots which are sprinkled throughout the district. Many of the lots are the aftermath of building demolition. Unfortunately, the empty lots occupy valuable street frontage on Merrimack Street and other streets, again giving away the best usable edge to vehicle storage. The field-like distribution of concentrated areas of parking in itself is not unreasonable, but the form and diagram of such parking must allow the street edge to be built and inhabited.

The extended distribution network at the river edge along Merrimack Street is explored in greater detail. I use a section of this network as the basis for testing and exploring the built

framework.

In order to develop a generic, organizational diagram at the river, it is logical to observe the existing network of that region of the factory district which also shares the river edge. I diagrammed the external network of this region and used aspects of it to establish the hierarchy and patterns of the new framework along the riverside of Merrimack Street. My attitude toward the organization of this specific area of the business district is reflected in several important characteristics of the framework diagram.

Merrimack Street is maintained as the traditional spine of the district. If retail activity of the district is to continue and intensify, then the existing commercial organization must be supported. Proposals which compete with this organization and dilute activity on Merrimack Street will only hinder recovery.

The service road ( Wall Street) is pulled back from the river toward the center of the dimension between the river and Merrimack Street. This reclaims the edge for human association with the river and allows for a continuous public pedestrian way, accessible from Merrimack Street. The sea wall is eliminated to enable citizens to get down to the immediate water level. Flood control is maintained, however, by retaining the height dimension of the sea wall as the reference for the lowest level allowable for a built habitable zone.

The entry and exit alleys for the new service road closely follow the existing alley arrangement. Each alley for the new service network is related directly to an opposite secondary street off Merrimack Street. Entry and exit from the service road is only allowed directly to and from these secondary streets. In general, this eliminates truck traffic from Merrimack Street.

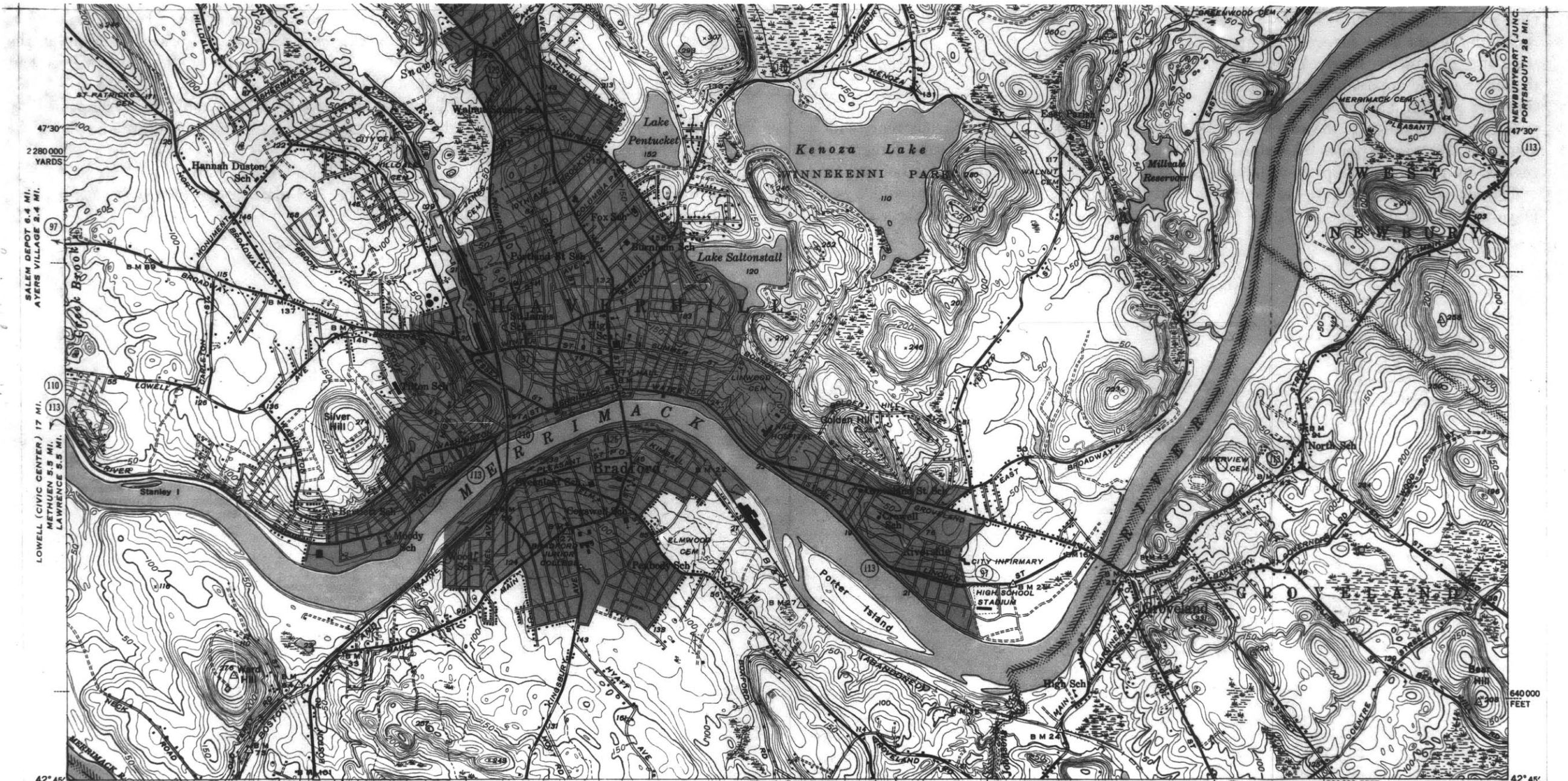
The existing alley arrangement serves as a basis for phasing the reconstruction of Merrimack Street. The rebuilding process for the district is to coincide with the living process of the district. Rebuilding must take place with minimal disruption of the daily activity and functioning of the area. Therefore, the new distribution and service network at the river edge is designed to be implemented in sections corresponding to existing alleys. The new network is additive and allows for growth. Additionally, it can function together with the existing network.

The design process for organizing the new city fabric has its roots in the context. The same process must be used to test the organization with a built framework.

## The Physical Framework

The building method for the new physical framework is to be sympathetic to the strong associative building tradition of the existing factories. Again, I am addressing the need for continuity with the context. To this end, I chose a structural system of masonry bearing walls, concrete posts and beams, and concrete planks. Closure is to be done with a secondary building method. I selected a 16' x 16' structural bay as the basic dimensional reference.

Documentation of this framework is provided in the figures following this text.



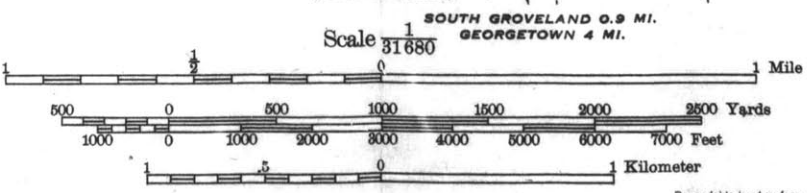
SALEM DEPOT 6.4 MI.  
 AYERS VILLAGE 2.4 MI.  
 2280 000 YARDS  
 97  
 110  
 113  
 LOWELL (CIVIC CENTER) 17 MI.  
 METHUEN 5.5 MI.  
 LAWRENCE 5.5 MI.

NEWBURYPORT (JUNC.  
 PORTSMOUTH 28 MI.  
 47°30'  
 113

42°45' 71°07'30" 1170 000 YARDS (South Groveland) 2'30" 730 000 FEET 42°45' 71°00' (Georgetown)

Topography by Frank Lerner, D. L. Hart,  
 and F. W. Tuley  
 Surveyed in 1942  
 Gray tint indicates areas in which only  
 landmark buildings are shown

NORTH ANDOVER 3.7 MI.  
 LAWRENCE 5.5 MI.



Contour interval 10 feet  
 Datum is mean sea level

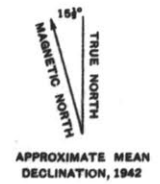
ROAD CLASSIFICATION 1943

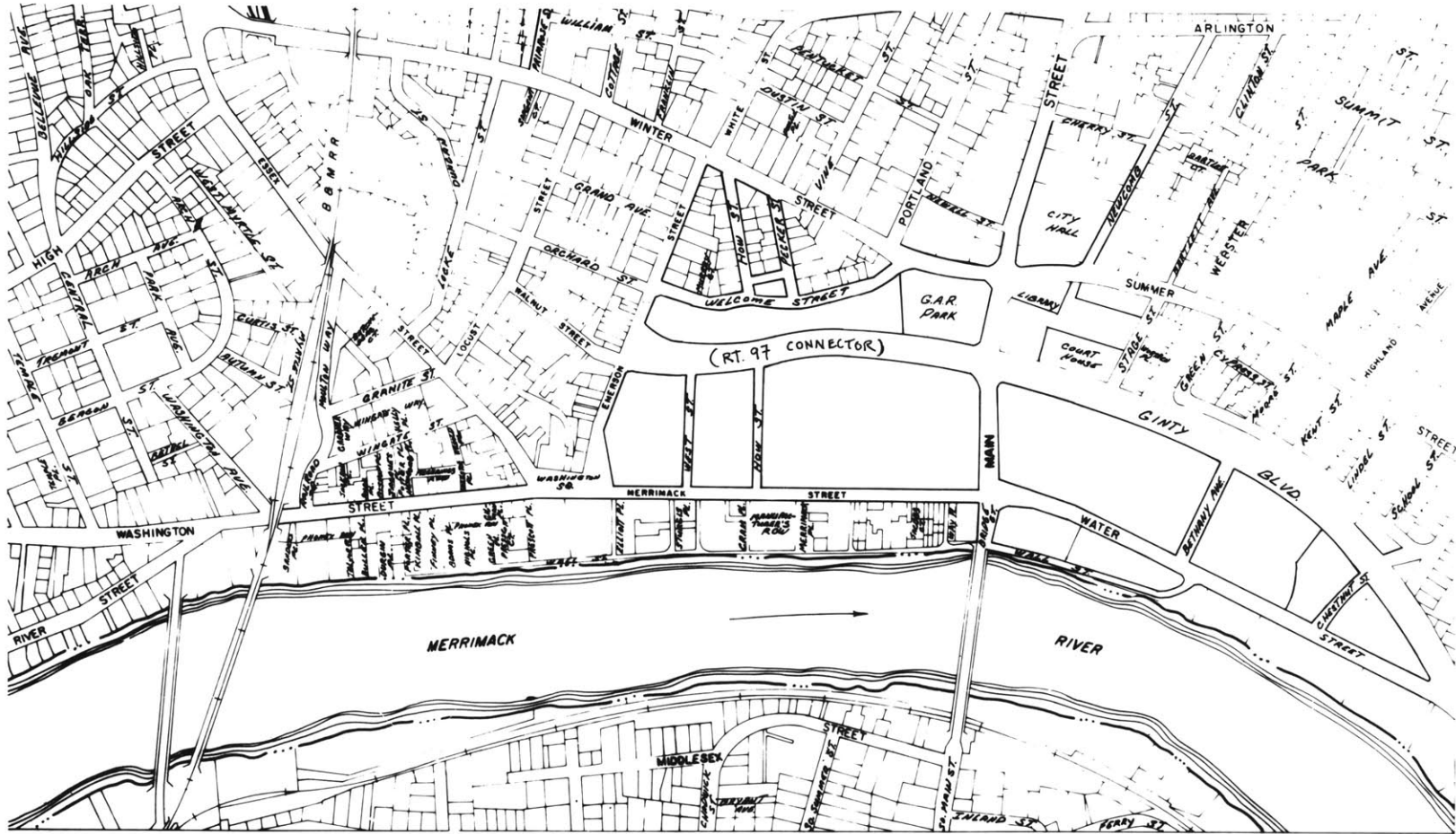
Dependable hard-surface heavy-duty road	Loose-surface, graded	U. S. Route 15
Secondary hard-surface all-weather road	Unsurfaced, graded dry weather roads	State Route 28
	Dirt road	

More than two lanes indicated along road with tick at point of change 2 LANE 1 1/2 LANE

Polyconic projection. 1927 North American datum  
 5000 yard grid based on U. S. zone system, A  
 10000 foot grid based on Massachusetts (Mainland)  
 rectangular coordinate system

**HAVERRILL, MASS.-N. H.**  
 Edition of 1943  
 N4245-W7100/7.5



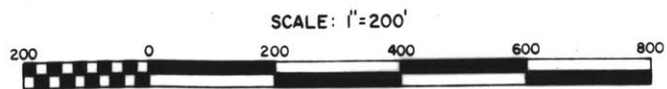


CENTRAL BUSINESS DISTRICT  
 CITY OF HAVERHILL, MASS.  
 EXISTING STREET NETWORK



COMPILED BY  
COL-EAST INC.  
BOSTON & PITTSFIELD

FROM PHOTOGRAPHY  
APR. 25, 1965 &  
APR. 30, 1967



CONTOUR INTERVAL=5'

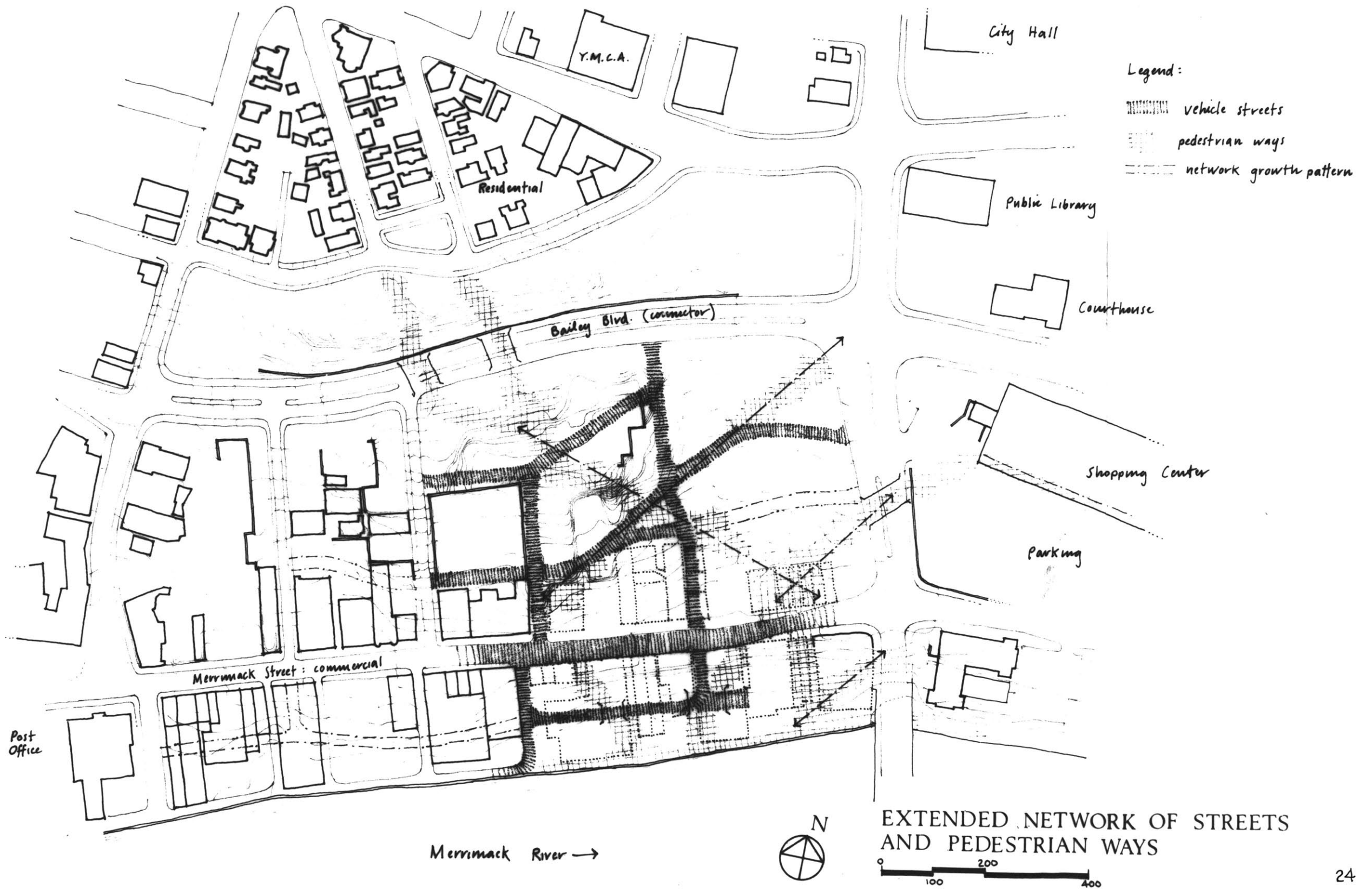
TOPO RECOMPILED AND REDRAFTED JAN. 1970



VERT. DATUM USGS  
MASS. COORD. SYSTEM

# CITY OF HAVERHILL, MASS.

MAP OF CONTEXT PRIOR TO RENEWAL DEMOLITION AND RTE.97 CONNECTOR

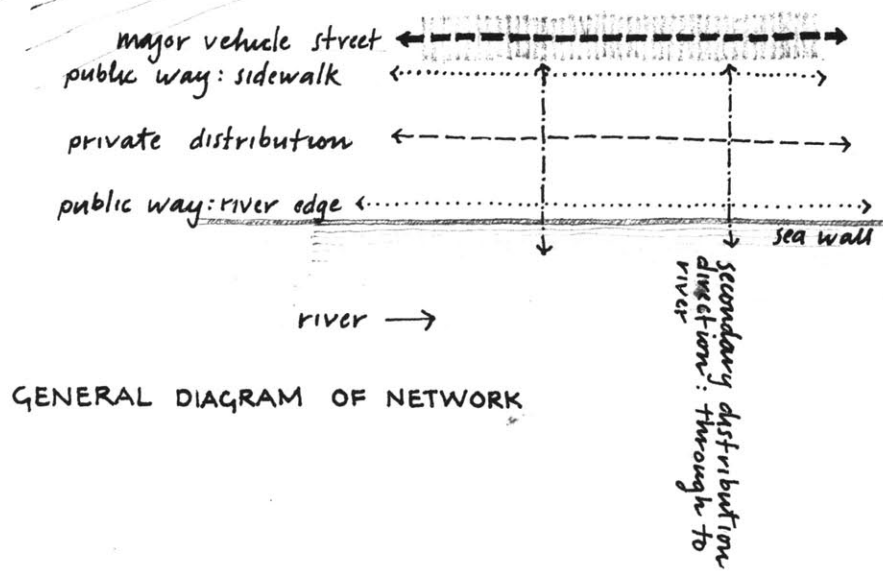
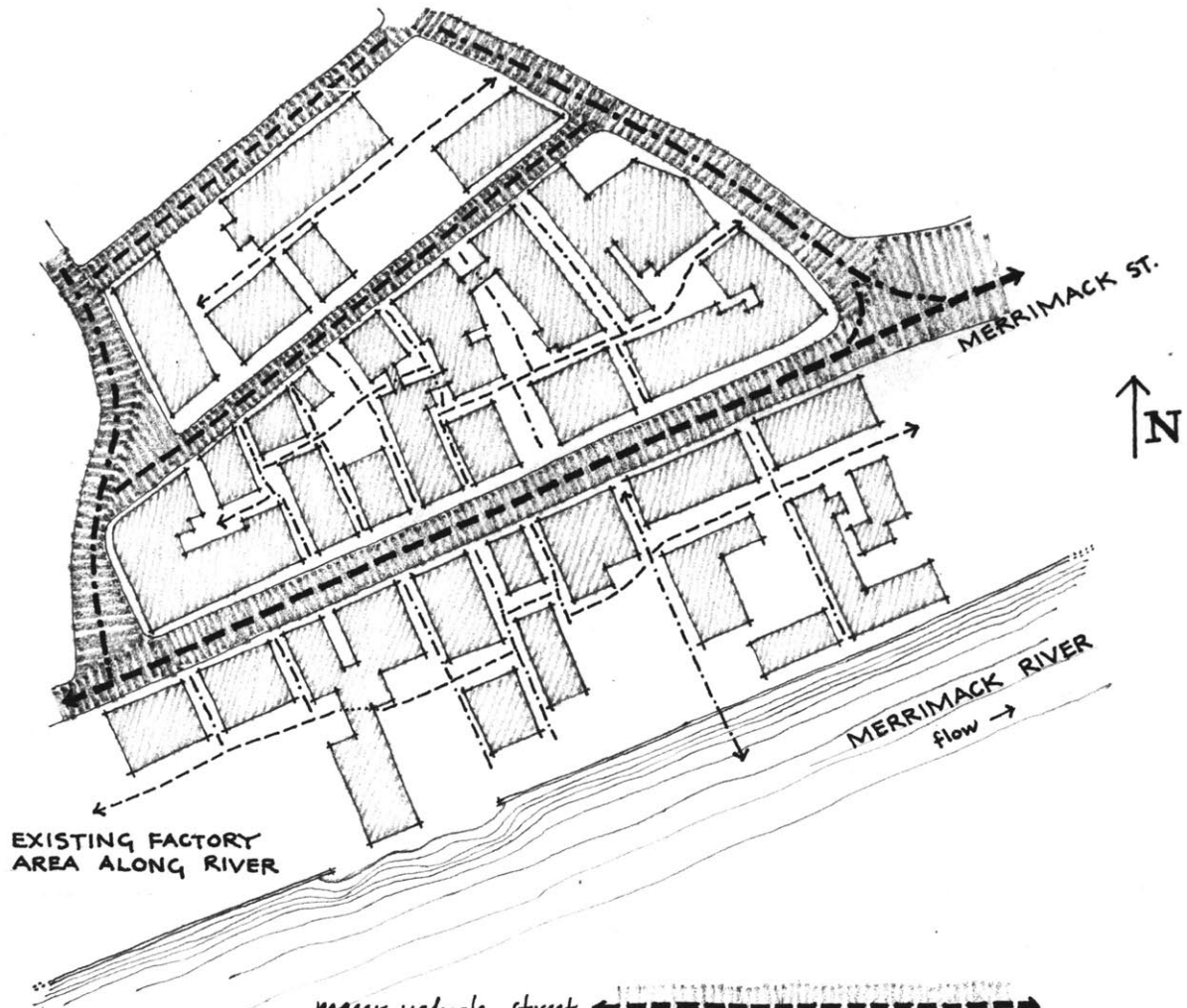


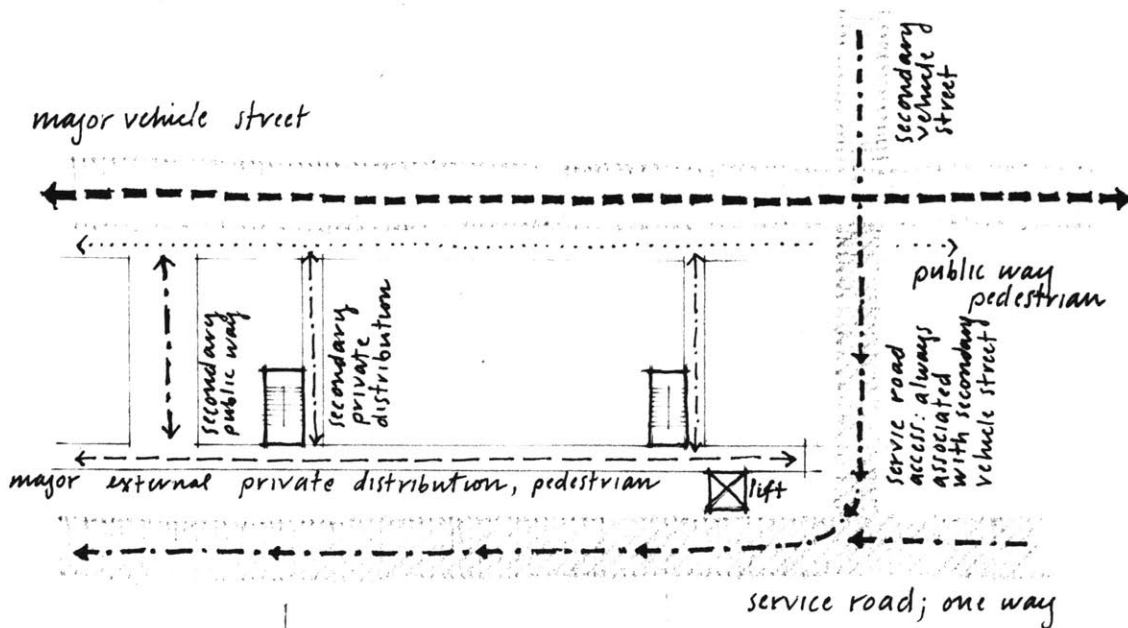
EXTENDED NETWORK OF STREETS AND PEDESTRIAN WAYS





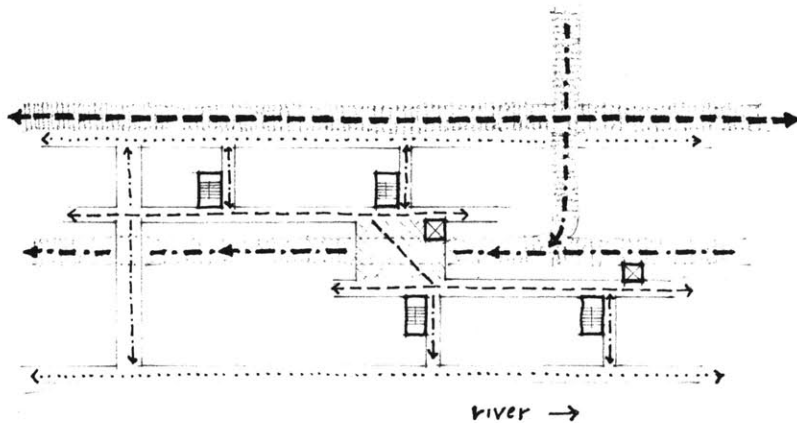
OBSERVATIONS OF EXISTING PHYSICAL FABRIC AT THE RIVER EDGE: DISTRIBUTION NETWORK OF FACTORY DISTRICT





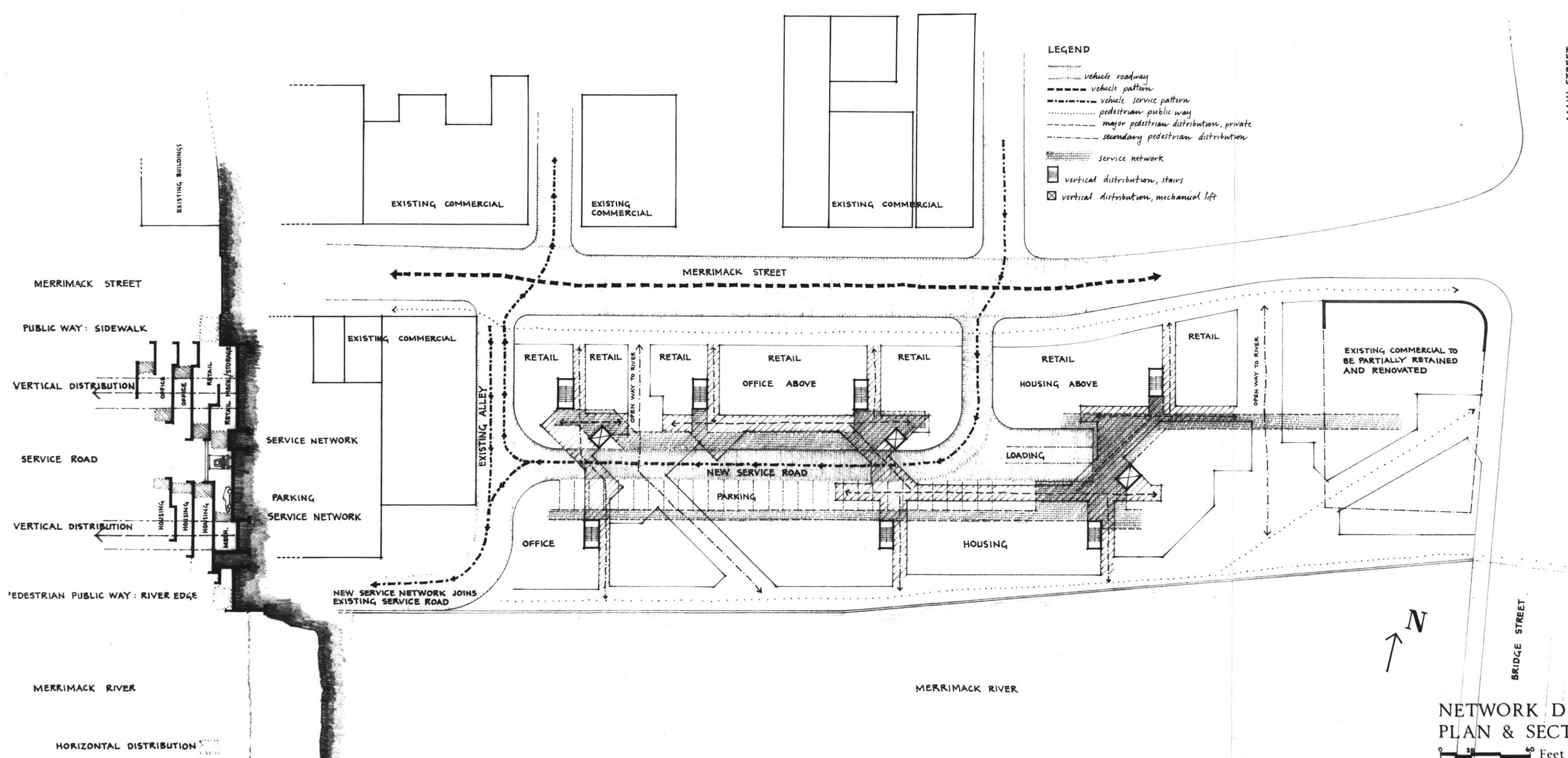
100' - 150'  
egress dimension  
between vertical  
distributions: fire stairs

DIAGRAM OF NETWORK HIERARCHY ALONG  
MAJOR VEHICLE STREET PARALLEL TO RIVER



displacement generates  
collective zone which is  
built or unbuilt depending  
on continuity or discontinuity  
of use across the zone

BUILD-UP OF NETWORK FABRIC BY BASIC ADDITION / DISPLACEMENT OF  
NETWORK GROUPINGS



NETWORK DI  
PLAN & SECT



MERRIMACK STREET

Service road below

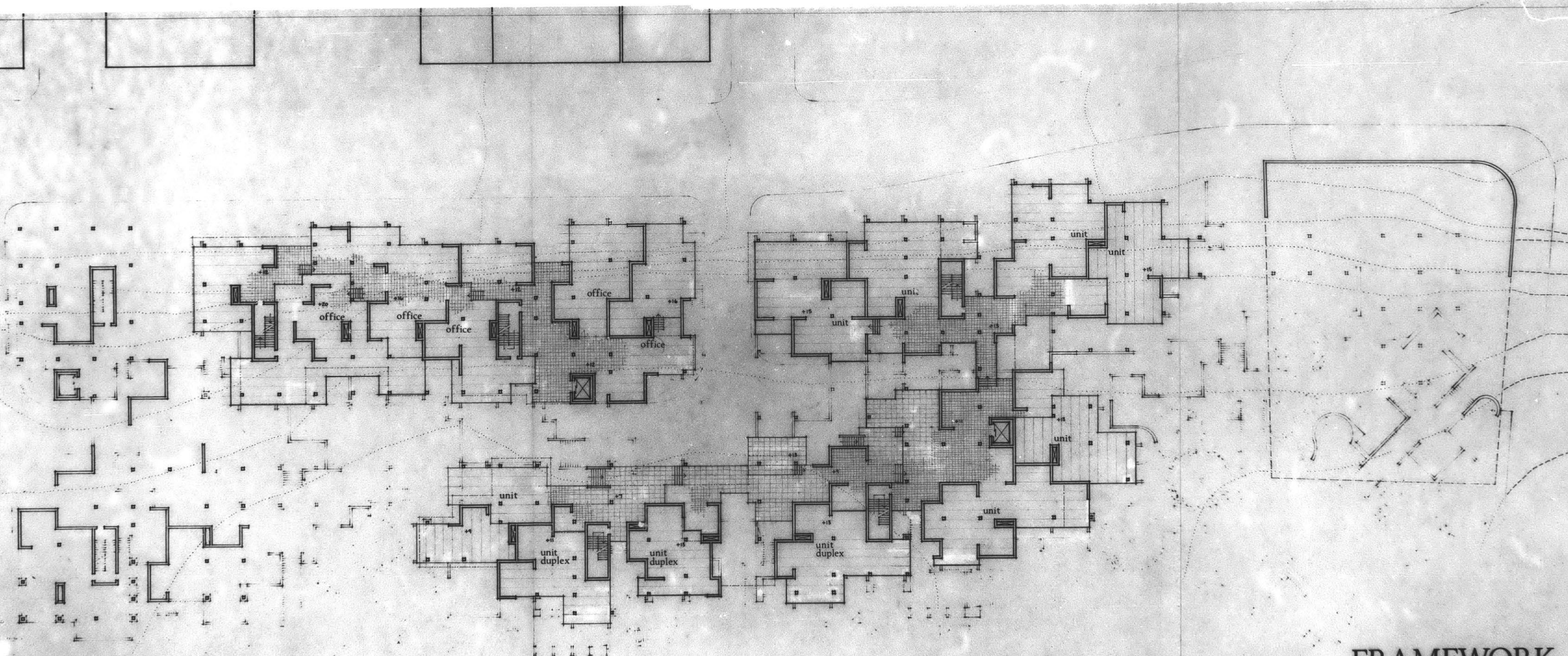
MERRIMACK RIVER



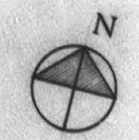
# FRAMEWORK STREET LEVEL

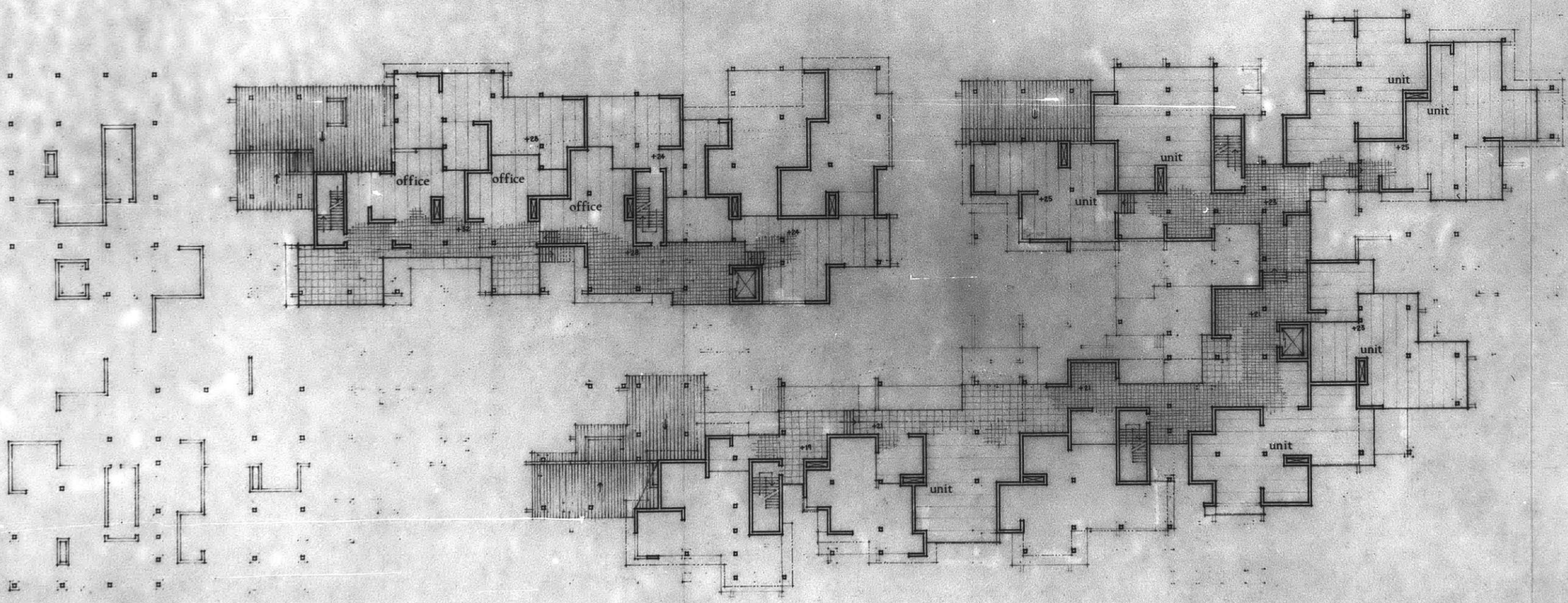
- EXTERNAL & OPEN DISTRIBUTION
- ENCLOSED DISTRIBUTION



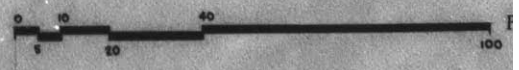


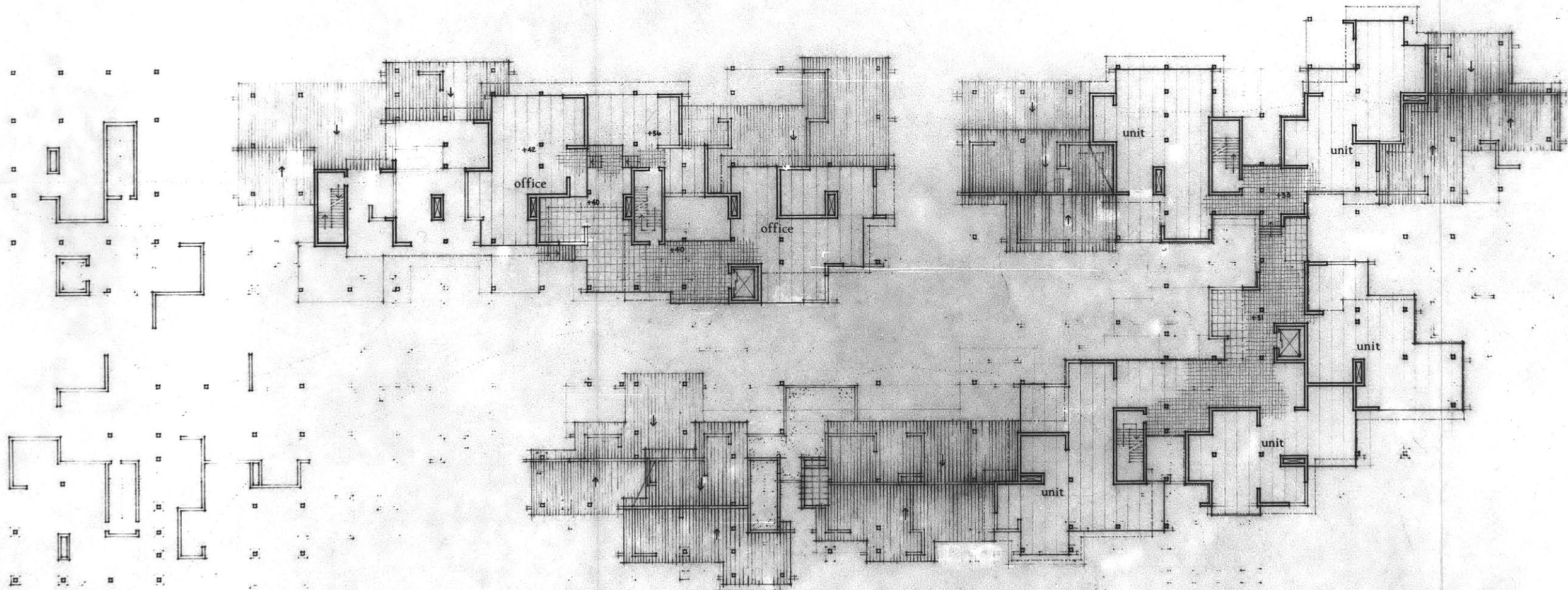
FRAMEWORK  
AT ~ +12



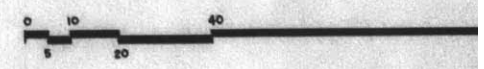
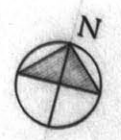


FRAMEWORK  
AT ~ +28

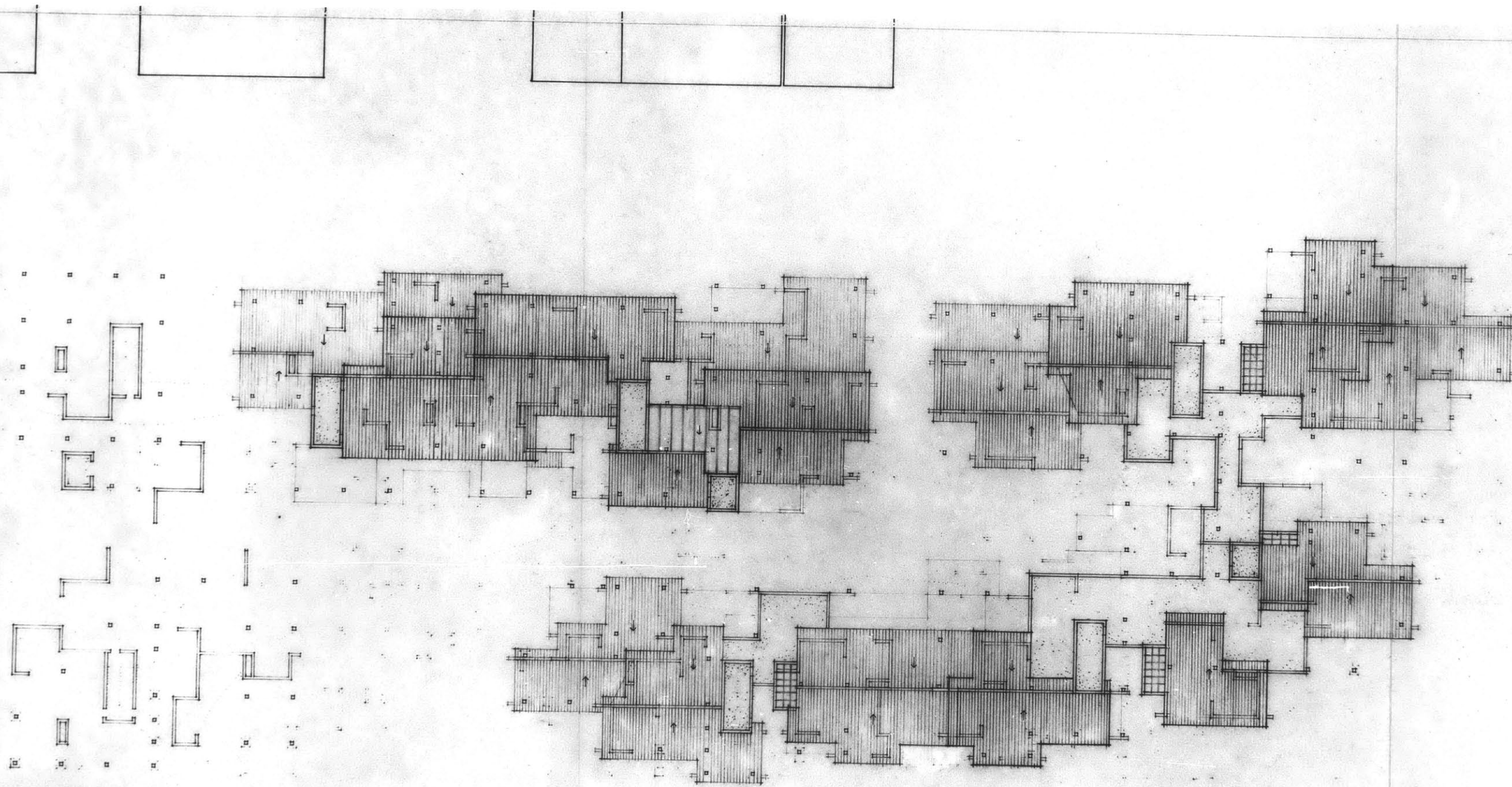




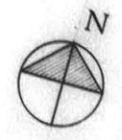
FRAMEWORK  
AT ~ +40



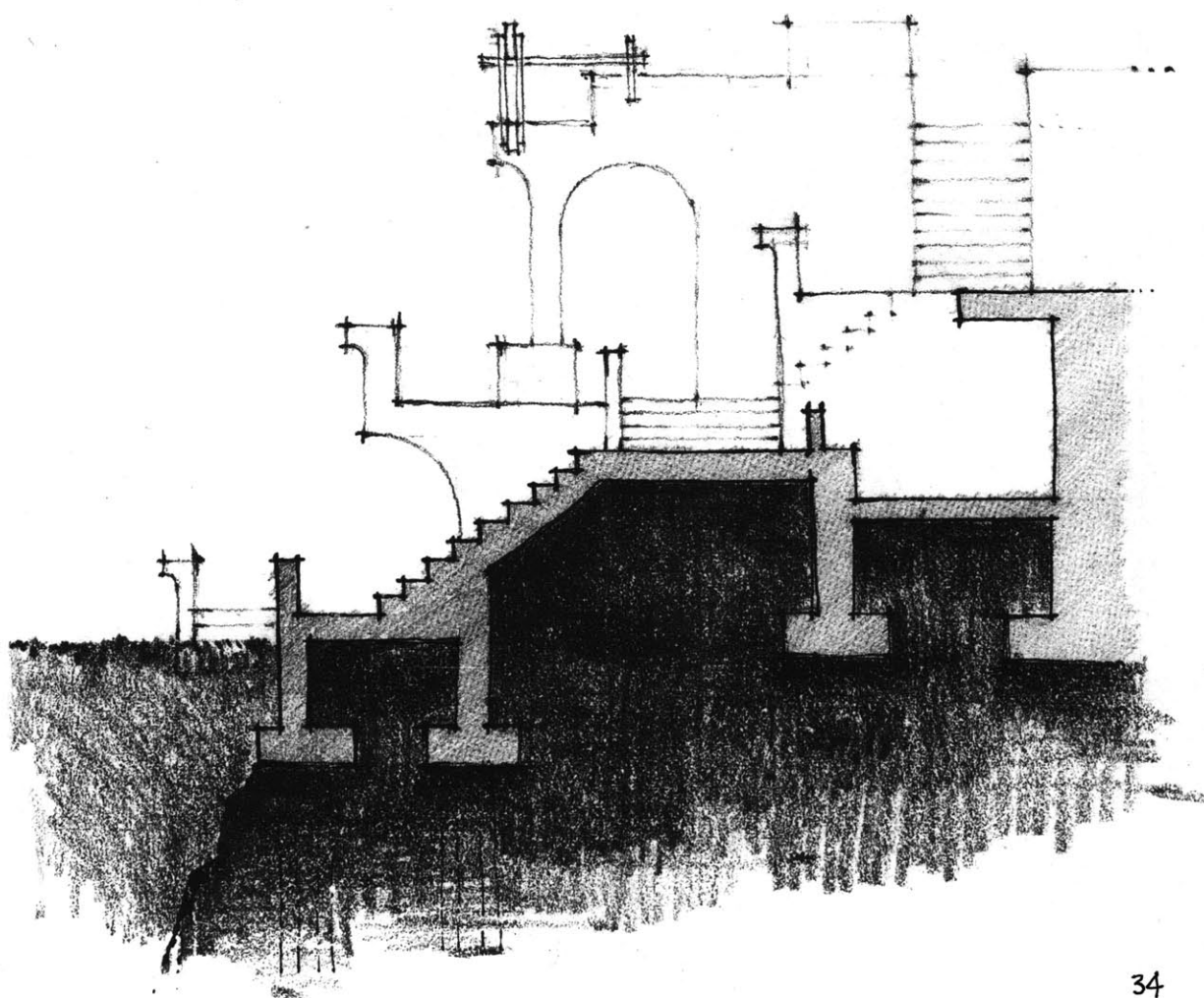


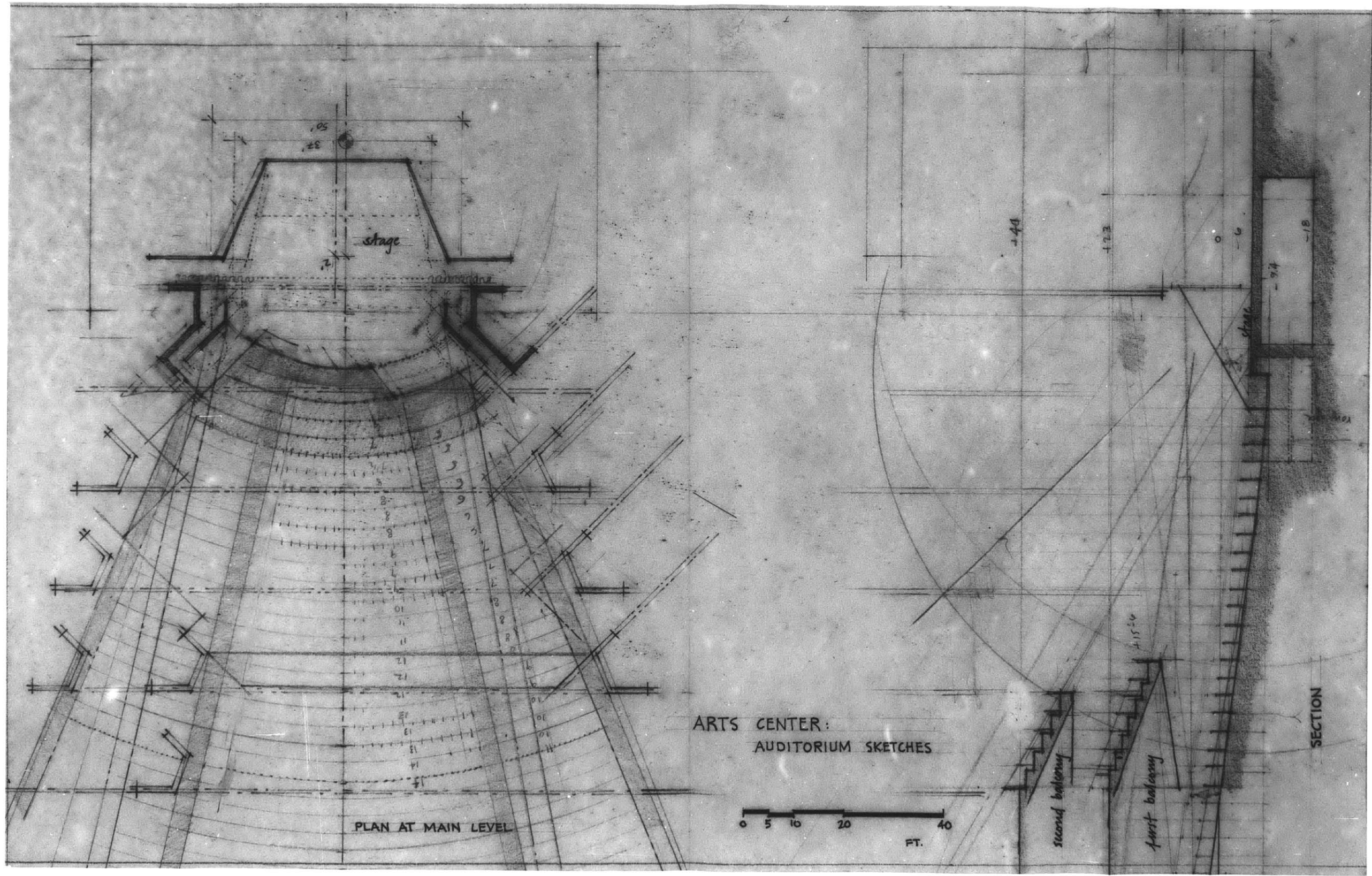


# ROOF PLAN



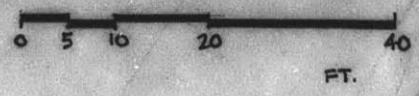
RIVER EDGE : IMAGE



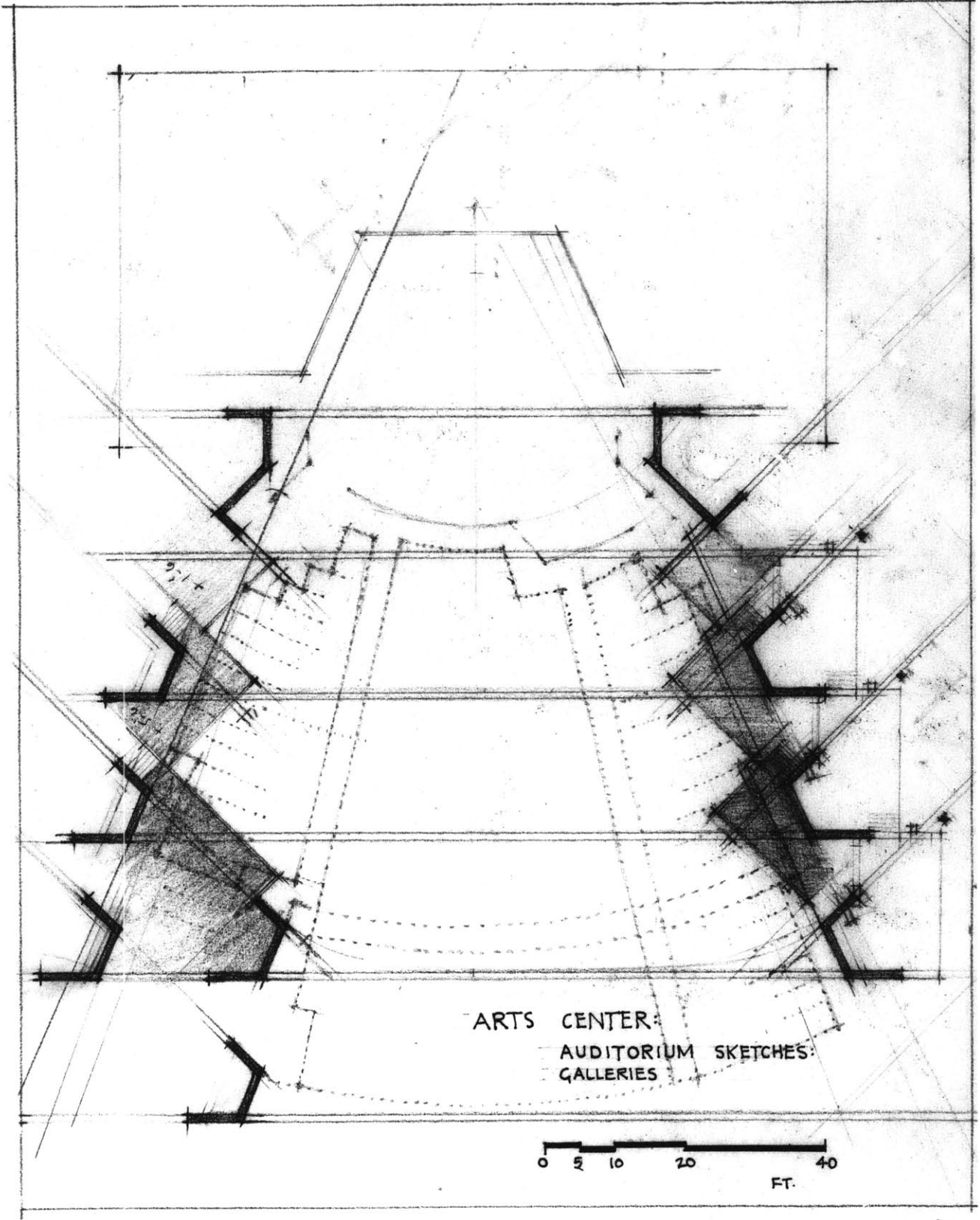


PLAN AT MAIN LEVEL

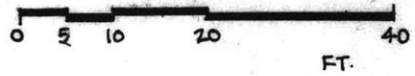
ARTS CENTER:  
AUDITORIUM SKETCHES



SECTION

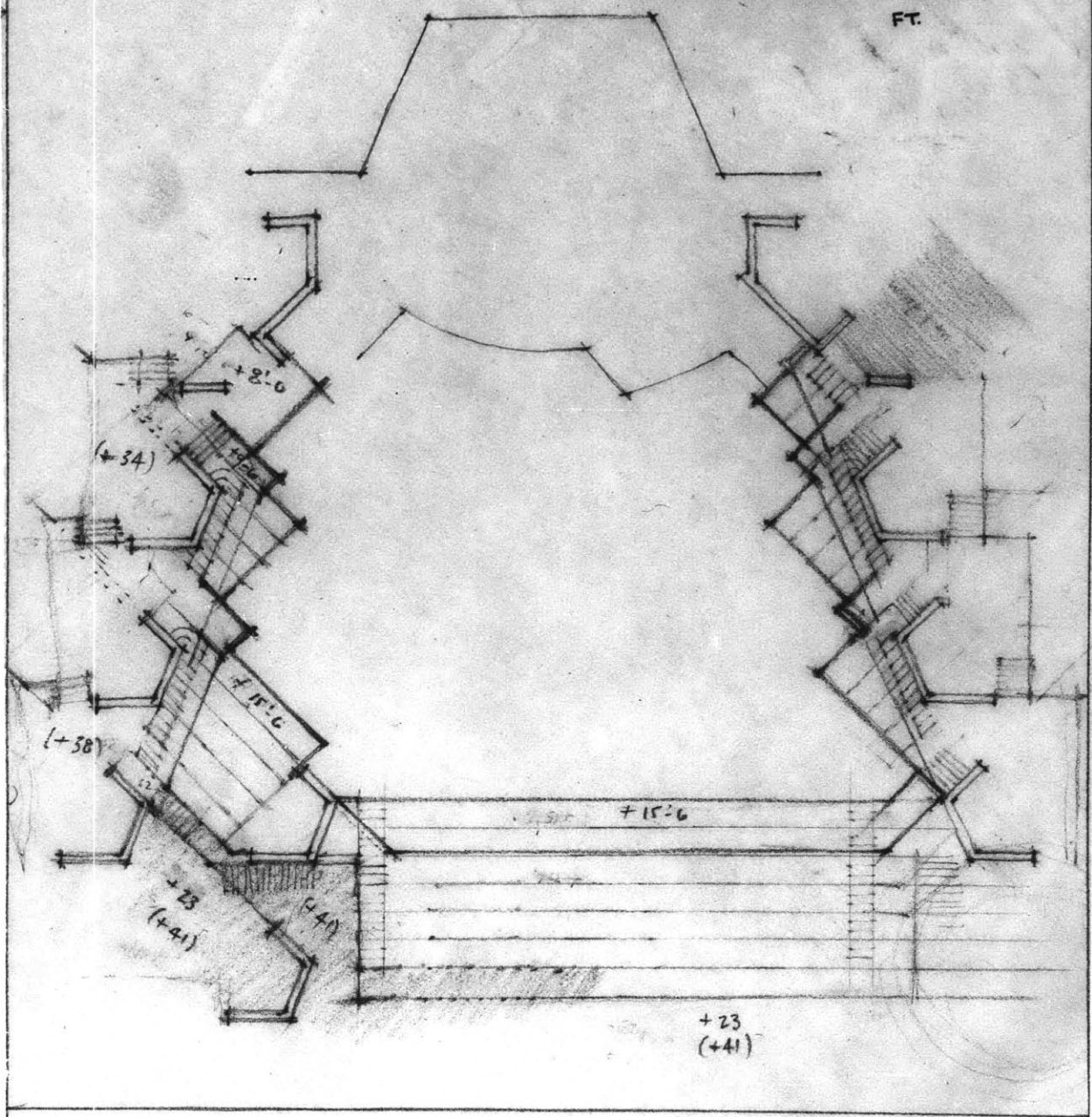
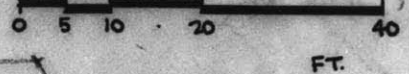


ARTS CENTER:  
AUDITORIUM SKETCHES:  
GALLERIES



ARTS CENTER:

AUDITORIUM SKETCHES:  
BALCONY AND GALLERY STEPS



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