



5-1999

Morristown Montessori preschool

Yvonne Caroline Tompkins Miller

Follow this and additional works at: https://trace.tennessee.edu/utk_gradthes

Recommended Citation

Miller, Yvonne Caroline Tompkins, "Morristown Montessori preschool. " Master's Thesis, University of Tennessee, 1999.

https://trace.tennessee.edu/utk_gradthes/9917

This Thesis is brought to you for free and open access by the Graduate School at TRACE: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Masters Theses by an authorized administrator of TRACE: Tennessee Research and Creative Exchange. For more information, please contact trace@utk.edu.

To the Graduate Council:

I am submitting herewith a thesis written by Yvonne Caroline Tompkins Miller entitled "Morristown Montessori preschool." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Architecture, with a major in Architecture.

Tracy Moir-McClean, Major Professor

We have read this thesis and recommend its acceptance:

Max Robinson, William Rudd, Teresa R. Shupp

Accepted for the Council:

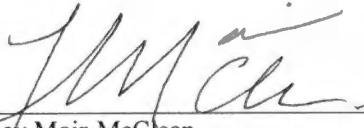
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)


To the Graduate Council:

I am submitting herewith a thesis written by Yvonne Caroline Tompkins Miller entitled "Morristown Montessori Preschool." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Architecture, with a major in Architecture.



Tracy Moir-McClearn
Major Professor

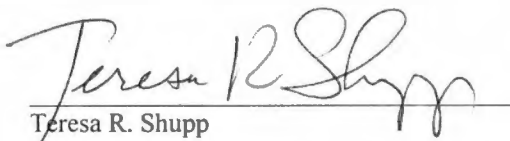
We have read this thesis
and recommend its acceptance:



Max Robinson



William Rudd



Teresa R. Shupp

Accepted for the Council:



Associate Vice Chancellor
and Dean of The Graduate School

MORRISTOWN MONTESSORI PRESCHOOL

A Thesis
Presented for the
Master of Architecture
Degree
The University of Tennessee, Knoxville

Yvonne Caroline Tompkins Miller
May 1999

DEDICATION

This thesis is dedicated to my parents, Steve and Gennell Tompkins, and to my son, Robert Allen Miller, who helped me to see and understand a child's world!

ACKNOWLEDGMENTS

I would like to thank my thesis committee, Tracy Moir-McClean, Max Robinson, Bill Rudd, and Terry Shupp for the enormous amount of time and energy they have spent helping me develop this thesis project. I would like to also thank the faculty and staff of the School of Architecture and Planning for helping me through this project.

Special thanks go to Bobby Lowe for helping me get all of the graphic information on the computer, to Bill Thompson, Morristown City Planner, for getting all the maps I have needed, and to the Morristown City Planning and Engineering Office for all their time helping with the site information.

ABSTRACT

In many cases, a child's first real contact with the built environment beyond the home is the preschool. This building type has been too often ignored in recent years. This thesis will explore how the built environment can engage a child and support his/her early education.

I have chosen to explore these issues through the design investigation of a Montessori approach to early childhood education. I have investigated the design for this curricular approach because Montessori educational objectives, pedagogy, and focus are on nurturing and engaging the development of the child through active and independent involvement with his/her environment and are thus compatible with this thesis investigation.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION: THESIS INVESTIGATION	1
A. TYPOLOGY: MONTESSORI SCHOOL	4
B. ARCHITECTURAL ISSUES	7
C. SITE INVESTIGATION	11
II. THE PRESENTATION OF THE DESIGN INVESTIGATION	13
A. PROGRAM	14
B. DRAWINGS	21
C. THE DESIGN	41
BIBLIOGRAPHY	47
APPENDIX A: SITE ANALYSIS	51
APPENDIX B: CLIMATE CONDITIONS ANALYSIS	67
APPENDIX C: EXISTING NEIGHBORHOOD FABRIC	76
APPENDIX D: HERMAN HERTZBERGER'S MONTESSORI SCHOOL IN DELFT	90
APPENDIX E: GAMES	118
VITA	122
DRAWING: REPRODUCTIONS	

INTRODUCTION: THESIS INVESTIGATION

Thesis Statement

In many cases, a child's first real contact with the built environment beyond the home is the preschool. This building type has been too often ignored in recent years. This thesis will explore how the built environment can engage a child and support his/her early education.

Introduction

Contemporary preschools too often occupy places that were not designed and built with the function of preschool learning or the educational needs of children in mind. Frequently preschools occupy generic commercial structures that could house any number of uses. Nothing about such a structure nurtures or engages a child in learning, comfort, or "belonging." Nothing distinguishes this structure as a place that facilitates learning during the preschool years of a child's education, years of intense social, physical, emotional, and creative development. Such distinction is very important in creating a learning environment that engages, nourishes, and delights young children. "Three Slide Shows for Parents" explains:

Preschool-aged children do not need direct teaching in order to learn. The Montessori preschool classroom therefore allows them to move, touch, manipulate, and explore. (The NAMTA Journal 1996, 22)

It is said that children learn more through play than from instructional lessons.

Children are filled with senses that will help them learn. This article also says, "children live in a world of senses." (The NAMTA Journal 1996, 25) Therefore, as a parent and designer with a vested interest in the next generation, I feel a responsibility to provide a nurturing environment in which the children can engage in learning and exploring through their senses. Exploration and discovery, interaction with and mastery of environment, and environmental stimulus are a large part of the "serious fun" of children's play activities. Both the building and activities can nurture and engage the children personally and socially in educational exploration and experiences. Child's play is really a very serious self-directed learning activity based on direct sensual experience, observation, and experimentation. Self-directed learning allows children more independence. They use their senses to learn more about the real world. Children also learn via experimentation through a variety of learning materials provided in the classroom.

Children learn about their environment and space by gathering information as they live and play. Many adults would not think about children learning about the environment or the space that they play in at ages as young as, one and one-half to five. Since children are curious about things, questioning is a way in which they learn more about their surroundings. They will want to know how, what, why, and what for. Children observe and learn more each day about their environment which frequently changes and offers a variety of stimuli to provide the greatest opportunity for learning. From my own observation of preschool classrooms, I learned that the classroom teachers have a system in which they introduce new materials to the class. Materials are changed weekly and/or by seasons or holidays so that the children remain sensually stimulated and do not become bored. When a child shies away from an activity or a new material, the teacher should help and encourage the child to see what this new material is all about and how to use it.

Direct experience with materials is a source of learning; therefore, children need to be engaged by and interactive with both the changing educational materials in the classroom and the more stable materials of the building. The building itself is a learning tool for the children. Learning space for children should relate to the scale of a child. The horizontal planes of the walls, the floor, and the tables scaled to a child are the most active learning platforms in the classroom. Within each room of the building, there should be different levels of horizontal and vertical planes so that the children can experience a different type of learning. Passantino explains, "the floor becomes the teaching platform rather than the desktop surfaces or the chalkboard." (Passantino 1994, 26) The floor is the horizontal plane where children are comfortable; it is a place where they know that they can play. The floor is fashioned more to a child's scale than is a desk or a table, which makes the child feel more comfortable. The materials used on the floor should be small to relate to the scale of the child. When a child is playing on the floor, the child's senses are aware of the surroundings which, in turn, allows the child to be imaginative and creative.

It is very important to encourage young children to become independent, to do things for themselves and to explore new things; yet, it is also important for children to have both a space they can call their own and a space to share with groups. The building should permit children to learn to meet their own needs and to satisfy their own curiosity. The teacher will provide spontaneous guidance, as it is needed through the built environment.

When children are ready to show something that they have discovered, they will share it. Children may be observed intensely engrossed in their environment, totally absorbed in their discoveries about the materials of the building or something they have created themselves. As a designer entering into the space of a child, I see places and experience things from a child's point of view. This sharing of discoveries can renew an adult's pleasure in an environment.

Parents should be involved in their children's education and encourage them to engage in different activities and to do things on their own. As a parent, I have learned much from my son because he is very independent. However, his independence is balanced between those times that he wants me to do things and explore new things with him, and the times that he wants to do things by himself, so it is also important for learning environments to contain spaces that welcome adults.

This thesis will explore each learning space and its complements that nurture the child's sensual exploration of space. The preschool facility should focus on nurturing and engaging young children as they learn and explore the environment around them. A physical environment should support a child's need for a sense of belonging and security and should provide an opportunity for the adventurous sensual exploration of space and environment. Materials, shapes, colors, floor levels, progression, space, and light are the basic building blocks of architectural experience necessary to enhance the children's abilities to teach themselves and to become sensually enriched. Exploration of space can enhance the experience of our children's lives. The building itself should be designed to reinforce such experience and to become a tool for learning.

TYOLOGY: MONTESSORI SCHOOL

Maria Montessori was the first woman physician in Italy. She went on to study educational philosophy, psychology, and anthropology. In 1907, an opportunity came to Maria Montessori to work with ordinary children in San Lorenzo, Rome. The housing authority built a child's day nursery and needed a director. Montessori called the children's nursery her 'Casa dei Bambini,' or Children's House. It was a place of great discovery for the impoverished children of the area. She found that the children liked to work independently without her help. She introduced new materials as gifts to be taken up by an interested child. She noticed that some materials were inspected while others remained untouched.

Montessori noticed that the children "quickly absorbed complex skills and sophisticated knowledge, they also developed a self-discipline which relieved any need for external authority. In their dealing with adults and other children, they began to show great thoughtfulness, compassion, and understanding." (Gettman 1987, 2-3) She continued to introduce new self-teaching materials to the children based on the same principles that she had used earlier with other children. She observed the children as they worked with the new materials, and as she observed that the children were not drawn to the material, she would remove it from the class.

A child's mind is much different than the mind of an adult. Gettman says, "the most basic principle in Montessori's theory of education is that the learning capacity of a young child is fundamentally different from that of an adult." (Gettman 1987, 3) The difference between the adult and the young child is not merely in the quantity that can be learned; unlike the adult, the child is able to absorb, through activity, but without effort, certain complete and precise abilities and skills with a completeness and preciseness that an adult cannot even conceive of. Montessori called this unique early learning capacity the young child's "absorbent mind." According to Montessori's observations, a young child's "absorbent mind" only lasts about six years, a period which she observed to be divided into three-year phases. The first phase last from birth to three years of age, and the second phase lasts from three to six years of age. A number of changes occur between the first phase and the second phase. The first phase of the "absorbent mind" activity is the most formative because the child absorbs almost all available impressions in full detail. These impressions are instantly engraved into the brain and superimposed on all previous ones. The "absorbent mind"

acquires almost any impression, whether it is simple or complex, with equal ease and accuracy. Gettman says: "it primarily responds to human stimuli, especially the human voice, but within the full range of human activity it is impartial and non-selective, using every sense to perceive the child's entire emotional as well as behavioral and cultural environment." (Gettman 1987, 4-5)

In the second phase of the "absorbent mind," the young child's development continues to function; however, it appears more specifically focused on certain impressions. These impressions are gained through intentional interaction with the Montessori materials as well as the built environment. Each new experience further develops skills learned through previous activities. According to Gettman:

While the first phase of the absorbent mind consisted mostly of a quiet inner development that occasionally surfaced in surprising gains, the second phase appears busy and the maturation of skills is open and continuous. Also, where as previous activity in the environment had been largely unconscious and spontaneous, the three-to-six year old interacts with the environment consciously and intentionally, strongly preferring certain experiences to others. These special impressions pursued and captured by the three-to-six year old, like the largely accidental experiences of the nought-to-three year old, continue to be acquired by the absorbent mind without effort or strain, no matter how complex they appear to us. (Gettman 1987, 5)

The Montessori Preschool is a different approach to early childhood education. The idea allows the children to learn on their own through independent exploration and active engagement with the environment. This approach helps children to develop personal, social, and community skills, responsibility, and basic language/ordering/organizational strategies and principles that form the basis for formal education.

The Montessori curriculum/education approach focuses on nourishing early childhood. The number one approach is through independence. "Three Slide Shows for Parents" explains:

As a child grows older, the natural urge toward independence can be supported by a well designed environment. Independence refers not to separation from the parent but to the child's need to learn by doing things independently, often with the parent close by. (The NAMTA Journal 1996, 18)

This independence comes from self-education and independent exploration. Children should develop independence as early a possible. According to Rasmussen children start learning at a very early age:

In his [the child's] helplessness, the baby begins by tasting things, touching them, handling them, crawling on them, toddling over them, to find out what they are like, whether friendly or hostile. But he quickly learns to use all sorts of contrivances and thereby avoids some of the more unpleasant experiences. (The NAMTA Journal 1996, 15)

The Montessori curriculum teaches about personal, social, and community responsibility skills. "Three Slide Shows for Parents" explains:

Because of their constant interaction, the children learn to take responsibility for themselves and for each other. They also learn to get along with children of different ages and abilities, to respect each other's work and work space, and to treat each other with courtesy. (The NAMTA Journal 1996, 23)

At this very early age children can have responsibility for both their environment and those environments that humans share with animals, plants, and other humans. "Three Slide Shows for Parents" explains: "the harvest of the garden's produce, for example, becomes a living lesson about food and the parts of the plant, bringing personal satisfaction and a sense of accomplishment." (The NAMTA Journal 1996, 19) Children learn by taking part in the planting, working, and harvesting of the garden.

The Montessori education has basic language/ordering/organizational strategies and principles that form the basis for formal education (language/mathematics/art) and also the architecture 'language.' "Three Slide Shows for Parents" explains:

The Montessori approach to language emphasizes spoken language as the foundation for all linguistic expression. Throughout the entire Montessori environment, the child hears and uses precise vocabulary for all the activities, learning the names of textures, geometric shapes, composers, plants, mathematical operations, and so on. (The NAMTA Journal 1996, 26)

Children can learn basic mathematics skills through manipulation, experimentation, and invention. The children can relate their size to the proportion of the classroom. The visual language of the building is important in the education of the child. The children can learn about the materials that it takes to make up the building in which they spend most of the time.

ARCHITECTURAL ISSUES

This thesis will focus on the investigation of architectural issues/aspects that can support the objectives of Montessori education. The Montessori education offers potential self-educational opportunities at the scale and scope of the developing child's "absorbent mind."

The spatial experience and organization of the building emphasizes the scale and scope of the developing child. One of the best ways to show the child the difference between the child and the adult scale is through the proportion of materials. The building is designed for both children and adults, but the classroom focuses more on the needs of the child. Furniture, windows, doors, cabinets, and storage spaces in the classroom are scaled to make the children feel that they belong in the environment. Children can relate better to the home than the traditional institutional building type, so more home like forms and materials should be used. Similarly a residential neighborhood is an appropriate location. The scale of an institution is larger than that of the child. The idea of the classroom as a "living room for children" is accomplished by sizing elements to the scale of the child.

In the classroom, clear visual connection/relationship/ordering of space and the environment should exist, so that the children can have a clear understanding of what is taking place around them in the world. The classrooms are designed so that the children will have a visual connection to what is taking place in each area. The cabinets, easy clean floor, tables, and chairs indicate to the children that this area should be used for eating and other messy activities. The children will also see the relationships between activities and the area in which they take place. The architecture of the building reflects the ordering system that takes place in Montessori education. The building is designed to be a learning tool for the children.

The building provides public/private spaces for all children. The public spaces such as the Communal Space and the halls allow the whole school and whole community to come together. The classroom is a semi-private space, a neighborhood or family, because it is a place where only the children in that class go. Children do not go into a classroom without being invited. Within the classroom, there are some private spaces, or the children may create their own private spaces. Ramussen says that children will create their own private space by draping a sheet over two chairs to make a tent. (Ramussen 1962, 34) Providing counters, moveable furniture, and the floor platform help a child "create" in a land of learning play.

The building and site need to provide a variety of both indoor and outdoor spaces for the children as they develop social and communal skills in the Montessori education. The children will gain social and communal skills by taking part in the large and small group activities. They can use these skills that they have gained in other outside community activities. Providing spaces in the classrooms let the children take part in preparing meals, setting the table, and clearing and washing the dishes. By taking part in family life activities, children may begin to see how they belong and play an important role in the family. This can then be reinforced at home. Certain areas in the classroom can be stimulating spaces for greater learning or serve as a quiet refuge for the children that need to concentrate on an activity. The library corner and the quiet corners of the nap space provide places where a child can get away from the other children in the classroom.

The sensual experiences of the spatial environments are constructed to relate to the scale and scope of the developing child. These experiences increase the opportunity for the child's tactile experience and manipulation of architectural surfaces and materials. Children experience a variety of surfaces and materials throughout the building. The building is designed so that the children are able to see and to touch the different surfaces and materials. The long exterior walls are made of split face concrete blocks. The inside of the block walls is smooth. The other walls also have a smooth surface. The children can physically touch the surfaces to see if they have a smooth or rough texture. A "touchable building" has opportunities for the child to experiment, change, and manipulate the sensual aspects of his/her environment in a safe manner. "Three Slide Shows for Parents" says:

In order to continue their creative task of development, children need to classify and express the impressions they have already received. Through sight, touch, sound, taste, and smell, the Montessori materials of the sensorial area enable them to clarify, classify, and comprehend their world. (The NAMTA Journal 1996, 26)

The necessary variety and contrast of sensual experiences can be the context of the indoor/outdoor. The natural world provides sensual stimulation and many experiences that enrich, and may be necessary, to a developing child's growth. The children are allowed to experience the built environment from an indoor/outdoor view. The street/park has a different sensual experience than the indoor/outdoor. The street is the hard side of the environment whereas the park is the soft side.

Each classroom has been designed with a mechanically controlled lighting system in addition to the natural lighting it receives throughout the day. The nap space is designed with dimmable light so when the children are napping the lights can be turned down so they can go to sleep.

The visual order and language of the didactic ornament and organization uses the ornamentation and organization of architectural elements (visual order) to reinforce cultural concepts of order that form the basis of English language, math, and aesthetic skills taught in the Montessori curriculum. Lessons can be reinforced through the plan and surface ornamentation. While these 'lessons' may not be used or understood at all times or by all children, providing potential opportunities for the building to be used as a teaching aid or for self-directed learning by the children creates a richer environment and supports the Montessori philosophy of self-directed exploration and learning. The children can use the building to develop grouping, hierarchy, and classification skills. The classrooms are in one group and the shared spaces are in another group.

The building also has a rhythm, pattern, and progression (sequencing skills) as a part of the design. A continuous rhythm/pattern of the classroom spacing corresponds to the location of the houses in the neighborhood. The children can see the houses and the space between them and, potentially, relate that idea back to the building. They can see that the classrooms relate to the houses and that the shared spaces relate to the spaces between the houses.

The building has a module and a human scale (measuring and counting). The building uses the module system to teach the children to relate the building to a system of measuring. The children can see how the building uses modules and the size of the materials. They can also see the scale of the human coming through in the design. The windows and doors relate to the human scale of either the child or the adult.

The children can also see proportion, primary shapes, and primary forms (shape recognition skills) within the building. The long walls of the classrooms are made of concrete blocks, which has an inherent proportional system. Concrete blocks also make a rectangular shape. The children can see other shapes throughout the building as they move through it. The teacher may place these shapes and forms on the walls or windows in order to show the children what they can find in the building. Some of the shapes or forms may be easier to see than others. The children can use their imagination to find these shapes and

forms.

Color is also an important part of the learning experience because the children learn color identification skills and color relationships. The building also uses colors as a part of the design to be a learning tool for the children. On the long walls of the classrooms, glazed color tiles on the outside draw the interest of the children.

The building and site offer a variety of views for the children. The children can experience the neighborhood as well as the busy city. The children see and experience many different spaces from this site.

SITE INVESTIGATION

The site chosen is centrally located at the corner of Jackson Street and Rosedale Avenue in Morristown, Tennessee. The site has good access to a major U.S. highway, 11E, which connects the east and west ends of town. The highway also connects the industrial parks. The U.S. highway, 11E, is also State Highway 34, and is adjacent to State Highway 343. Refer to the State and City Map on page 52 of Appendix A. Jackson Street links the site back to 11E, a major four lane highway, which makes it easy for parents/guardians to drop-off and pick-up their children as they go to and come from work. The site is also located near the downtown.

The existing zoning of the site is R-2 Residential. The homes in the neighborhood back onto a public park which is zoned central business. Refer to Existing Zoning on page 53 of Appendix A. The existing use of the site is a small business and residential. Refer to Existing Use on page 54 of Appendix A. The site has good vehicular circulation. Jackson Street and Rosedale Avenue are both two-way streets. Refer to Vehicular Circulation on page 55 of Appendix A. Public sidewalks around the site enable children living nearby to walk to school. The park provides walking paths. Refer to Pedestrian Circulation on page 56 of Appendix A.

The site is located where it receives sun from all angles throughout the day. The prevailing winds come from the northeast in the winter and the southeast in the summer. Refer to Sun Path and Wind Direction on page 60 of Appendix A.

The site is a safe and secure place for children to explore the environment. The site is within good walking distance of many places where the children may experience practical life, sensorial activities, math, language, art, science, geography, and culture. The site is in walking distance of several civic buildings such as the Hamblen County Courthouse, Morristown City Hall, Downtown United States Post Office, Morristown-Hamblen Public Library, and a Morristown City Fire Department. Refer to Civil Buildings on page 61 and 66 of Appendix A. The site is within walking distance of educational and cultural activities. For example, children can go to programs and plays at East High School, West High School, Lincoln Heights, Rose Center, or the Theatre Guild. Refer to Educational and Cultural Activities on page 63 and 66 of Appendix A.

The children also have opportunities to experience the practical activities of daily life such as visiting the Farmer's Market, the Downtown, or Food City, a local grocery store. Refer to Opportunities for Practical Life on page 62 and 66 of Appendix A. The children can go to the Girl's or Boy's Clubs for enrichment activities. Refer to Enrichment Activities on page 64 and 66 of Appendix A. There are two hospitals, Morristown-Hamblen Hospital and Lakeway Regional Hospital, in the area which the children can visit to experience what takes place in a hospital. Refer to Hospital on page 65 and 66 of Appendix A.

The children have access to Fred Miller Park, a public park, where they can learn about the natural environment, in which they live and play. The park is located between the site and the busy highway, so it also serves as a safety buffer. The natural feature, Turkey Creek runs through the park. The children can hear sounds from the running creek, children playing in the park, people having lunch in the park, people and dogs in the surrounding neighborhood, and people passing by in cars. Refer to Natural Feature on page 57; Drainage, Flooding, and Vegetation on page 58; and Noise on page 59 of Appendix A.

THE PRESENTATION OF THE DESIGN INVESTIGATION

PROGRAM

Morristown Montessori Preschool Functional Program

In the design of the preschool, there are five classrooms which have a Montessori teacher and one to two assistant(s). The state requires a one-to-twelve ratio for the number of children one teacher can have in a classroom. The classrooms are designed for children ages two and one-half to five years old. "Three Slide Show of Parents" explains:

The classroom is made up of children of mixed ages. Three-, four-, and five-years-olds all share the same space, and each child usually has the same teacher for three years. The mixed-age grouping of children corresponds to Maria Montessori's theory of child development, which is based on three-year cycles. (The NAMTA Journal 1996, 22)

The minimum of twenty children to a maximum of thirty-six children per classroom keeps the class size within the state limits. The class should be broken down into small groups so that the teacher and the assistant(s) divide the children.

In addition to classroom teachers, the administrative and support staff run the school. The school is designed to have a full-time director and secretary/receptionist. The support staff is only needed on a part-time basis. The cook is only needed to prepare the lunches for the children, and a nurse can come in a few days a week. The maintenance person is only needed to fix and repair things around the building and grounds. A janitor is needed to clean up after the children have left the school in the evening.

Morristown Montessori Preschool

<u>OCCUPANCY</u>	<u>min.</u>	<u>-</u>	<u>max.</u>
<u>TEACHING STAFF AND CHILDREN</u>			
5 Classrooms			
(20 - 36 Children per classroom) X (5 Classrooms)	100		180
Mixed aged classes - children 2 1/2 - 5 (Montessori learning)			
Student/Teacher ratio 1:12			
1 Teacher per classroom X 5 Classrooms	5		5
1 - 2 Assistant per classroom X 5 Classrooms	5		10
<u>ADMINISTRATIVE AND SUPPORT</u>			
Director	1		1
Secretary/Receptionist	1		1
Nurse (part-time)	1		1
Cook (part-time)	1		1
Maintenance person (part-time)	1		1
Janitor (part-time)	1		1
<u>TOTAL PEOPLE</u>	<u>116</u>	<u>-</u>	<u>201</u>

<u>SUMMARY OF SQ. FT. FOR PROGRAM ACTIVITIES</u>	<u>min.</u>	<u>-</u>	<u>max.</u>
<u>BUILDING</u>			
Main Floor	19,225		30,176 sq. ft.
Mezzanine	13,000		15,000 sq. ft.
<u>TOTAL BUILDING</u>	<u>32,225</u>		<u>45,176 sq. ft.</u>
<u>OUTDOOR SPACES</u>	<u>9,300</u>		<u>12,500 sq. ft.</u>
<u>TOTAL PROJECT AREA</u>	<u>41,525</u>		<u>57,676 sq. ft.</u>

Morristown Montessori Preschool Program

Each classroom is under the direction of one Montessori teacher and one or two assistant(s). The different educational areas include the instructional space, kitchen/eating space, cubby space, nap space, a hard surface teaching platform (floor - covered/uncovered), child restroom, observation space, and storage space. The instructional space is the area where the teacher or the assistant(s) will be sitting to give instructions on how to use a new material that is being brought into the classroom. The other areas in the classroom are designed to be self-learning places. The kitchen/eating space is the area where the children will have the use of a child scaled kitchen and the area where they will eat their lunches and snacks. This area has an easy to clean floor because spills will happen. Individual cubby spaces are located just outside of the classroom; this space is where the children will hang their coats and put the other things that they might bring to school. Children are responsible for taking care of and keeping their cubbies in order which helps the teacher reinforce responsibility. The nap space is the area of the classroom that is designed for all of the children to be able to lie on a child's size mat to take a nap. This area can be used for dramatic play when the children are not napping. The nap space can also be used for other small group learning activities (circle). The hard surface teaching platform is the floor of the classroom, or the porch. This is a place where the children and the teacher come to the same level. Everyone sits on the floor or porch for learning activities. Children are very comfortable with and experienced at taking part in activities on the floor, because they have played on the floor as children at home.

It is important for each classroom to have its own restroom for children. This way the teacher can observe the child going to the restroom without leaving the rest of the classroom unattended. By having the restroom in the classroom, a child who may become sick would not have to run down the hall, making a mess, while the teacher has to leave the rest of the children unattended.

The observation space is designed to let other teachers, parents, and visitors observe the children in the classroom without the children knowing that they are being watched. The children can be observed in the classroom from the observation room or the second floor. These observation spaces allow one to see individuals or groups of children in action from different perspectives. The observation room also allows the observer to view the children in the hallway space. Each classroom has storage space where the

teachers store materials for that classroom. There are child-scaled storage areas all around the room to give children easy access to materials.

The Communal Space is made up of many different spaces. The large group area is for large activities that the whole school takes part in or when the children are performing for the parents. It may also serve as an indoor play space. There are several small group areas where the children can take part in different activities, for example, storytelling and learning games. There is a reading/library area shared by the whole school where the children can get books to read or just to look at. Within the large area there is the stage where the children can perform for the parents or a small group. The storytelling area is made up of wooden blocks that can be removed to create a sunken area in the floor. The children can use the blocks as tables or chairs.

The shared educational spaces are designed for children from different classrooms to come together to take part in different learning activities, for example, library, music, science, art, history, and culture. Even in shared areas the children still learn and take part in the activities at their own pace. Some of the shared spaces connect classrooms to each other and to the hall. The classes may do special activities in these spaces for the other classes to observe. By using the shared spaces, the teachers can teach the children respect for other children's work and responsibility for their own actions.

The outdoor spaces include classrooms where the children can learn about things that take place in the surrounding environment. The children have the hard surface play areas where they can wait for their parents. They can also use this space as a community town or shops, a storytelling circle, urban gardens where the children fill the blocks with dirt to form a flower garden, and a place for the children to come in contact with water. The soft surface playground is located on the park side of the site. The children can play in water, the sandpits, and garden spots. They can also study plants, different animals that come in contact with the park, and observe the sun as it moves through the day. This design permits them to interact with what is taking place in the park.

Morristown Montessori Preschool

Program Activities Outline

<u>EDUCATIONAL SPACES</u>	<u>min.</u>	<u>max.</u>
Classroom 1 teacher and 1 - 2 assistant(s) 20 - 36 children (30 - 60 sq. ft./child)		
Instructional space	600	1,200 sq. ft.
Kitchen/Eating space	450	600 sq. ft.
Cubby space	80	100 sq. ft.
Nap space	400	500 sq. ft.
Hard surface teaching platform (covered/uncovered) Floor	100	150 sq. ft.
Child Restroom	95	100 sq. ft.
Observation space	50	150 sq. ft.
Storage space	100	150 sq. ft.
TOTAL 1 CLASSROOM	1,875	2,950 sq. ft.

5 CLASSROOMS		
TOTAL	9,375	14,750 sq. ft.

<u>SHARED EDUCATIONAL SPACES</u>		
	1,000	1,200 sq. ft.
	500	1,000 sq. ft.
	500	1,000 sq. ft.
TOTAL	2,000	3,200 sq. ft.

<u>ADMINISTRATIVE SUITE</u>		
Director (Administrative only)	150	200 sq. ft.
Secretary/Receptionist	150	200 sq. ft.
Children's arrival/drop-off		
Waiting area - interior	150	200 sq. ft.
Files/storage/supply storage	150	200 sq. ft.
Visiting child play space	150	200 sq. ft.
Teachers room/lounge	150	300 sq. ft.
Conference room	150	300 sq. ft.
Nurses office/sick room/restroom	300	450 sq. ft.
Kitchen (to prepare lunch for children)	150	200 sq. ft.
Faculty/visitor restrooms (mens and womens)	200	400 sq. ft.
TOTAL	1,700	2,650 sq. ft.

COMMUNAL SPACE (Large Open Space)

Large group area (400 people) (performance/play space)	3,500	5,000 sq. ft.
Small group area (3-4) (25 people) (partially included in the large space)	450	800 sq. ft.
Reading/Library	500	1,000 sq. ft.
Stage	300	600 sq. ft.
Story Telling Circle (25 people)	200	300 sq. ft.
Access to restrooms		
TOTAL	4,950	7,700 sq. ft.

SUPPORT SPACES

Circulation (included in communal space)	850	1,326 sq. ft.
Janitor closet/supply storage	100	150 sq. ft.
Mechanical room	100	150 sq. ft.
Wash room (washer & dryer)	50	100 sq. ft.
Wet area (mud room/tub)	100	150 sq. ft.
TOTAL	1,200	1,876 sq. ft.

TOTAL BUILDING MAIN FLOOR ONLY 19,225 30,176 sq. ft.

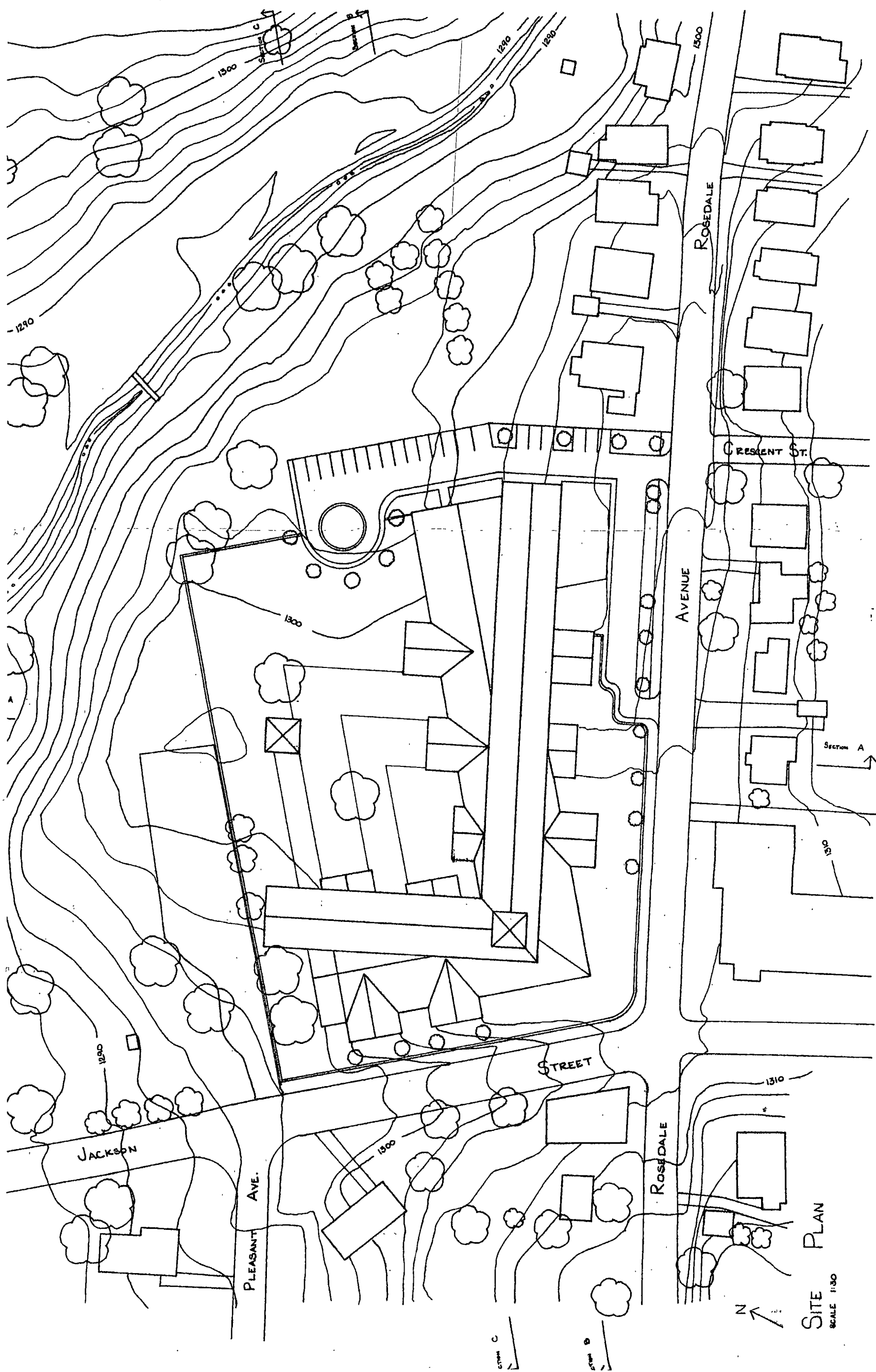
Mezzanine Level 13,000 15,000 sq. ft.
Observation/Learning experience
Performance space/Balcony/Shared space

TOTAL BUILDING 32,225 45,176 sq. ft.

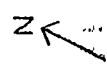
OUTDOOR SPACES

Classrooms (75 - 100 sq. ft./child) X (80 - 120)	9,000	12,000 sq. ft.
Hard surface playground (street side with fence or wall)		
Waiting area		
Community (town or shops)		
Story telling circle		
Urban garden (planting in the dirt filled blocks)		
Water (pool or stream)		
Soft surface playground (park side)		
Water		
Sand pits		
Garden spots		
Plants		
Animals		
Sun		
Interaction with the park		

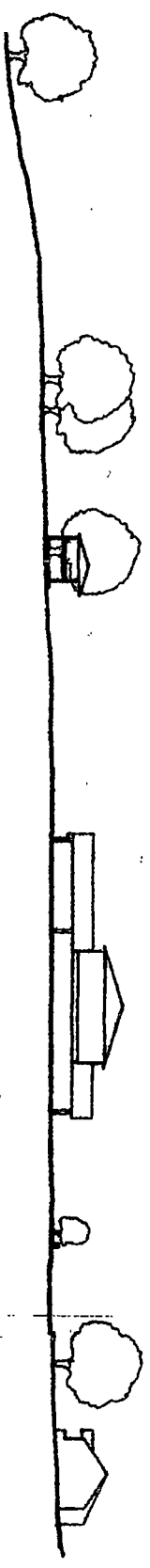
TOTAL	9,000	12,000 sq. ft.
Outdoor play house	100	150 sq. ft.
Outdoor toy play storage	100	150 sq. ft.
Access to restroom		
Maintenance storage	100	200 sq. ft.
TOTAL	300	500 sq. ft.
TOTAL OUTDOOR SPACE	9,300	12,500 sq. ft.
TOTAL BUILDING & OUTDOOR SPACES	41,525	57,676 sq. ft.



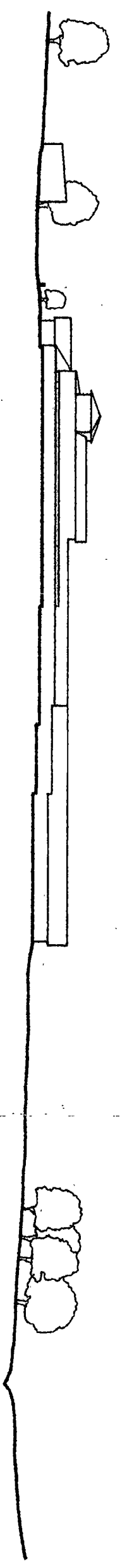
SITE PLAN
SCALE 1:30



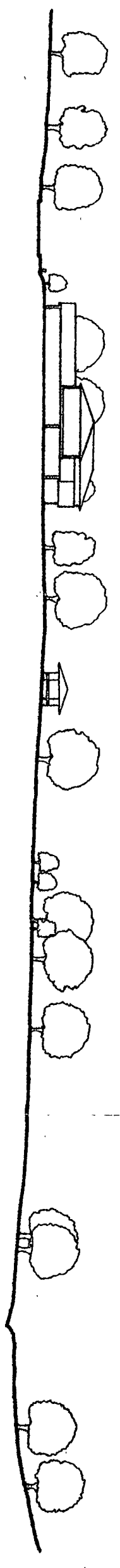
SITE SECTION A
SCALE 1:30



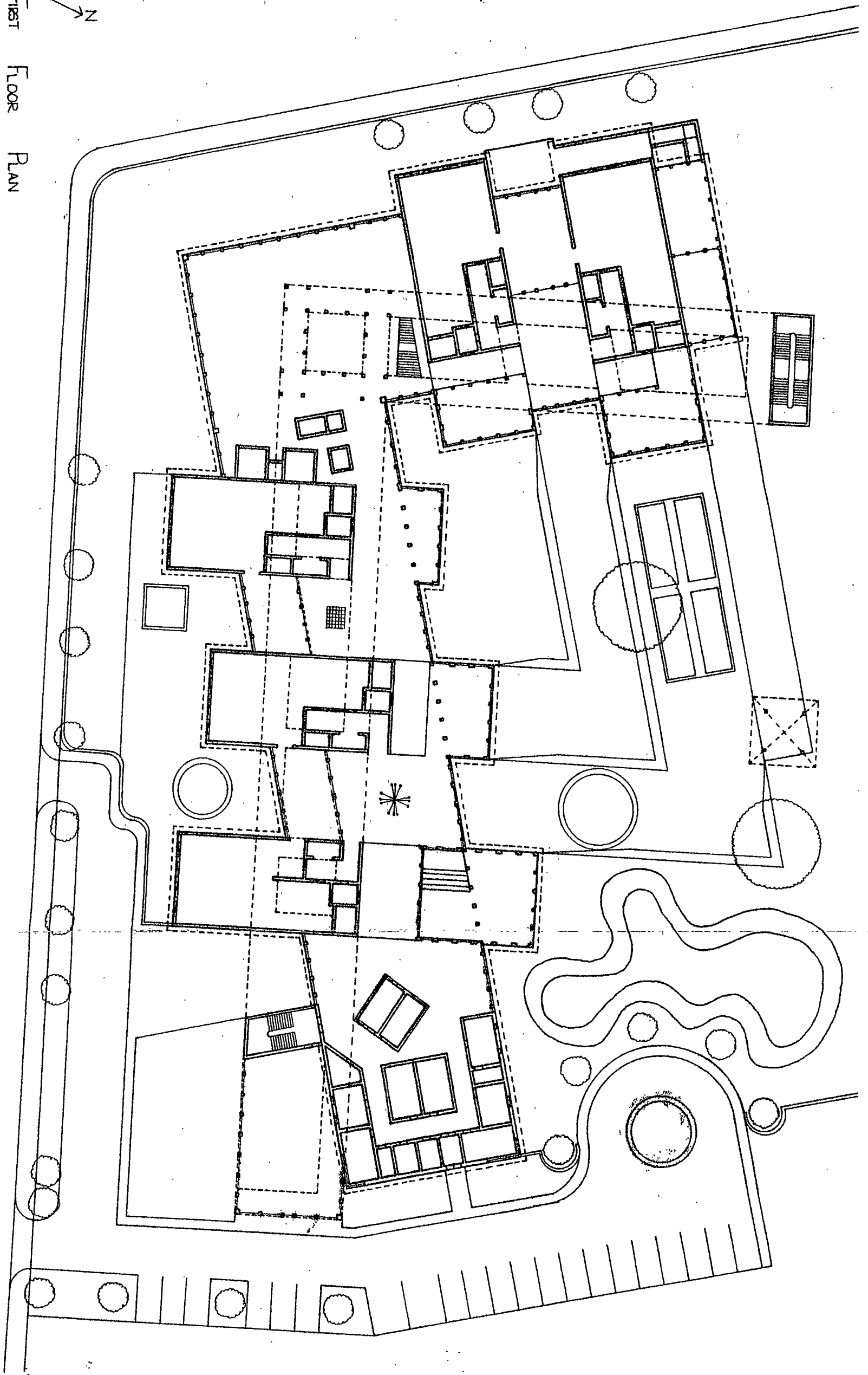
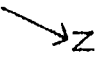
SITE SECTION B
SCALE 1:30

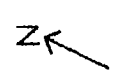
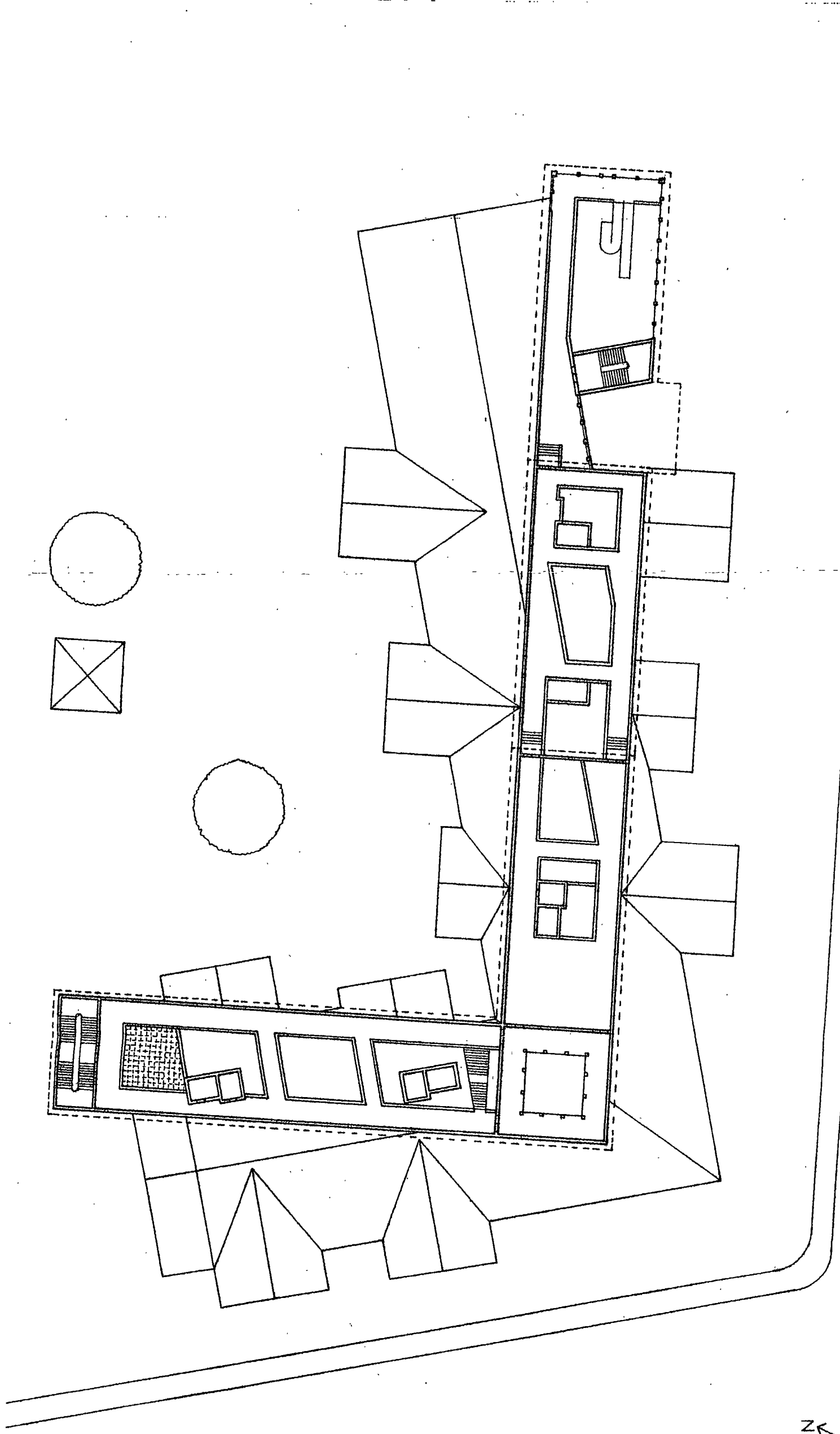


SITE SECTION C
SCALE 1:30

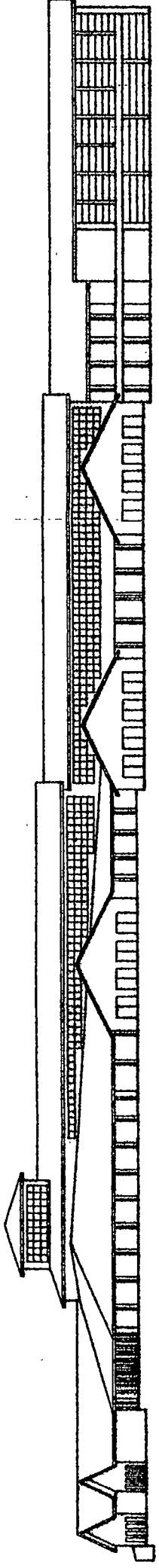


FIRST FLOOR PLAN
SCALE 1"=10'



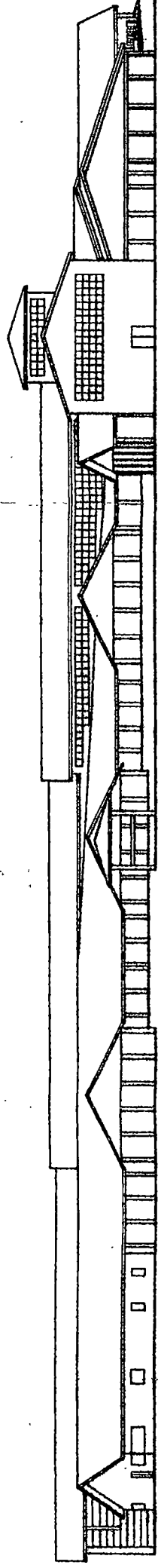


SECOND FLOOR PLAN
SCALE 1/8" = 1'-0"



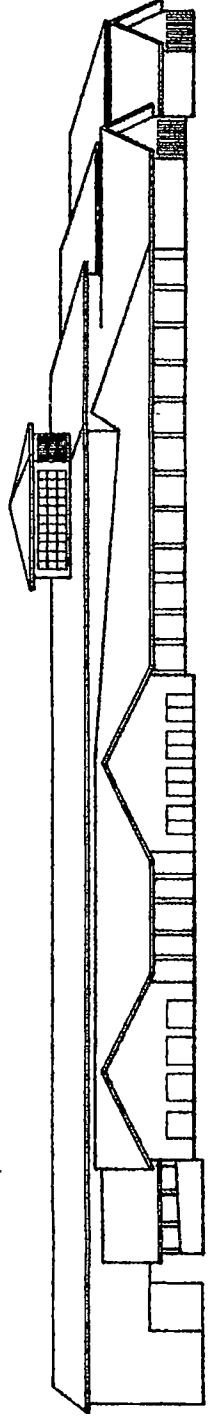
ROSEDALE
SCALE 1" = 16'

AVENUE
ELEVATION

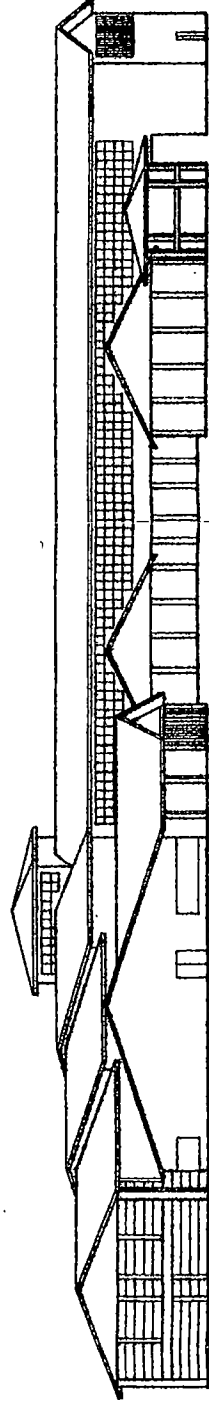


NORTH
SCALE 1" = 16'

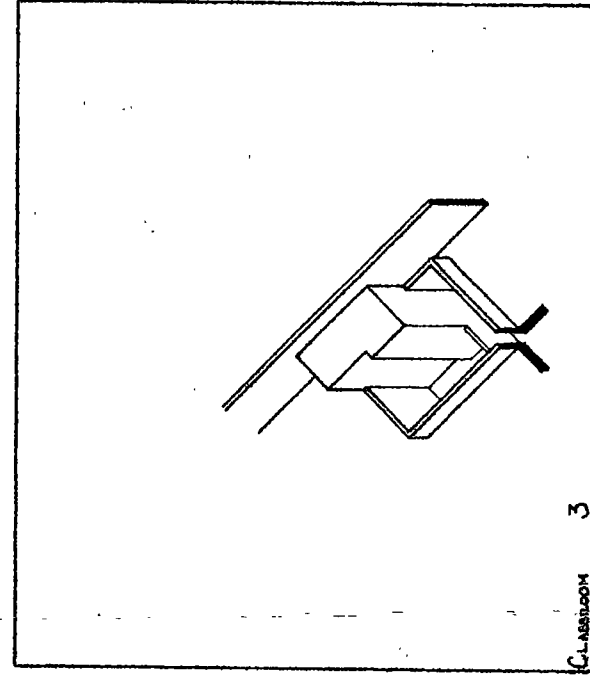
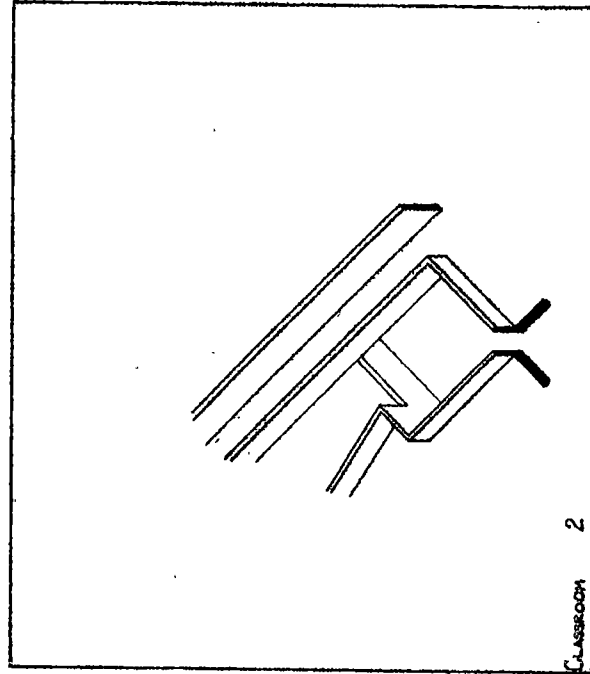
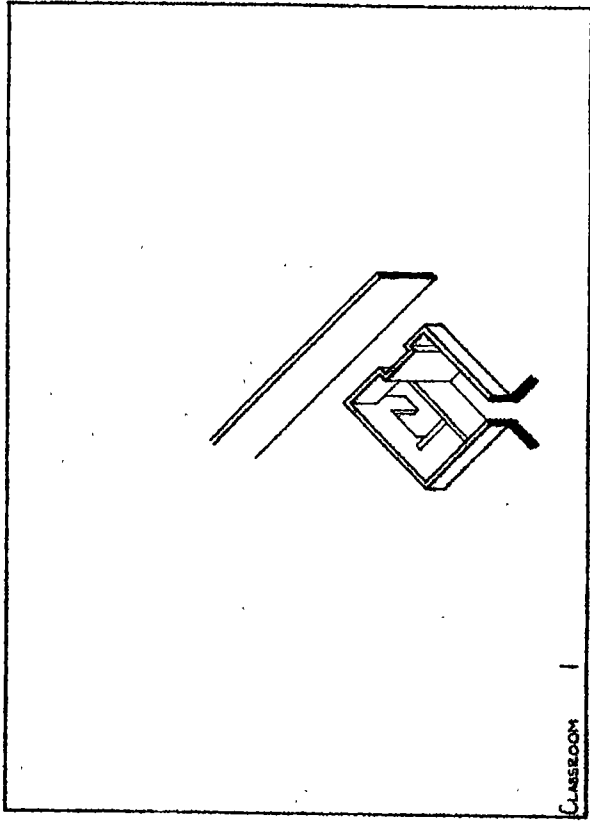
ELEVATION



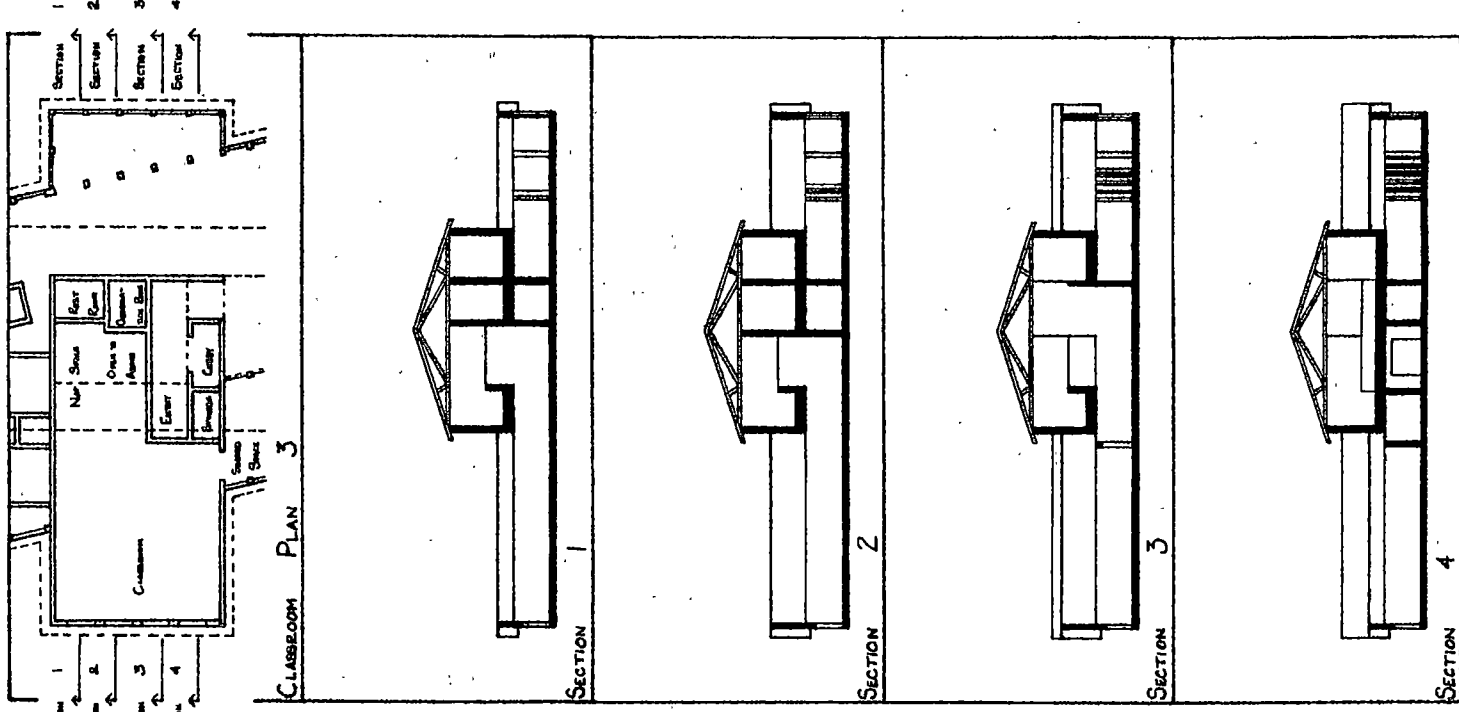
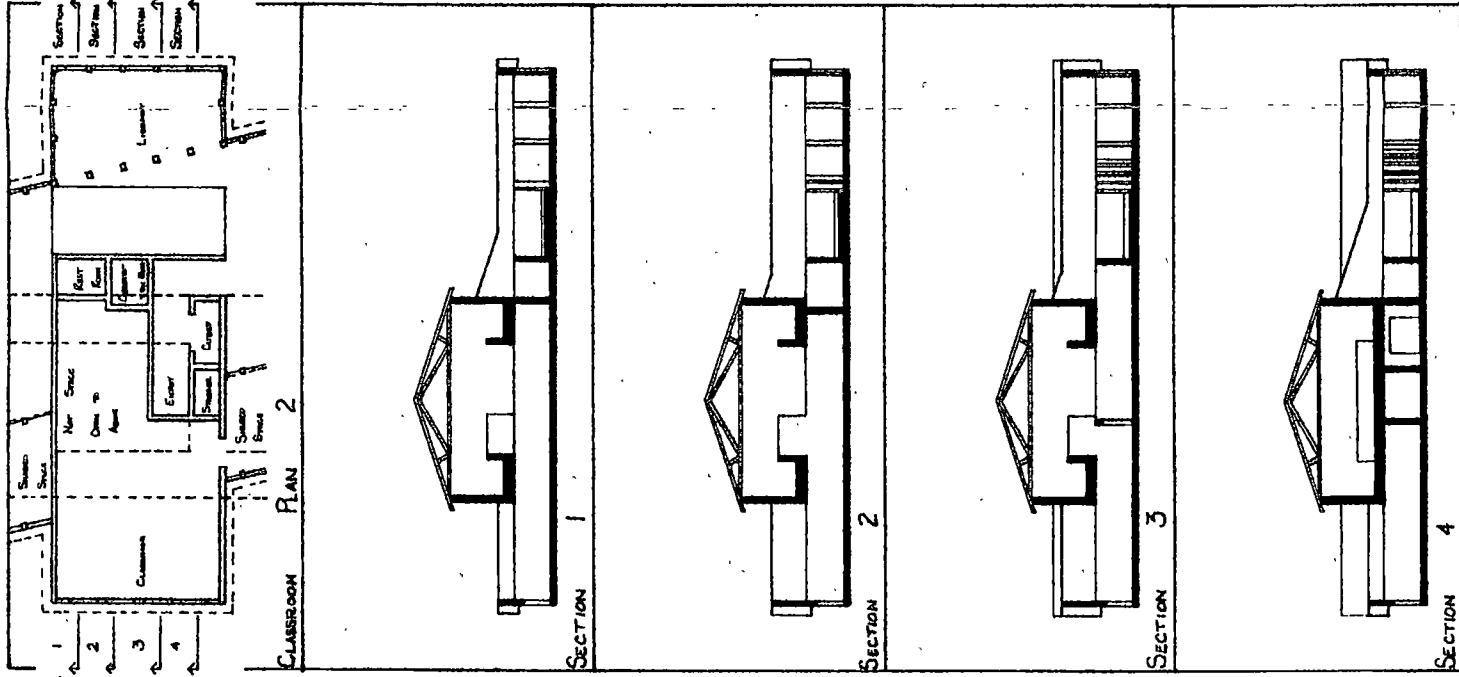
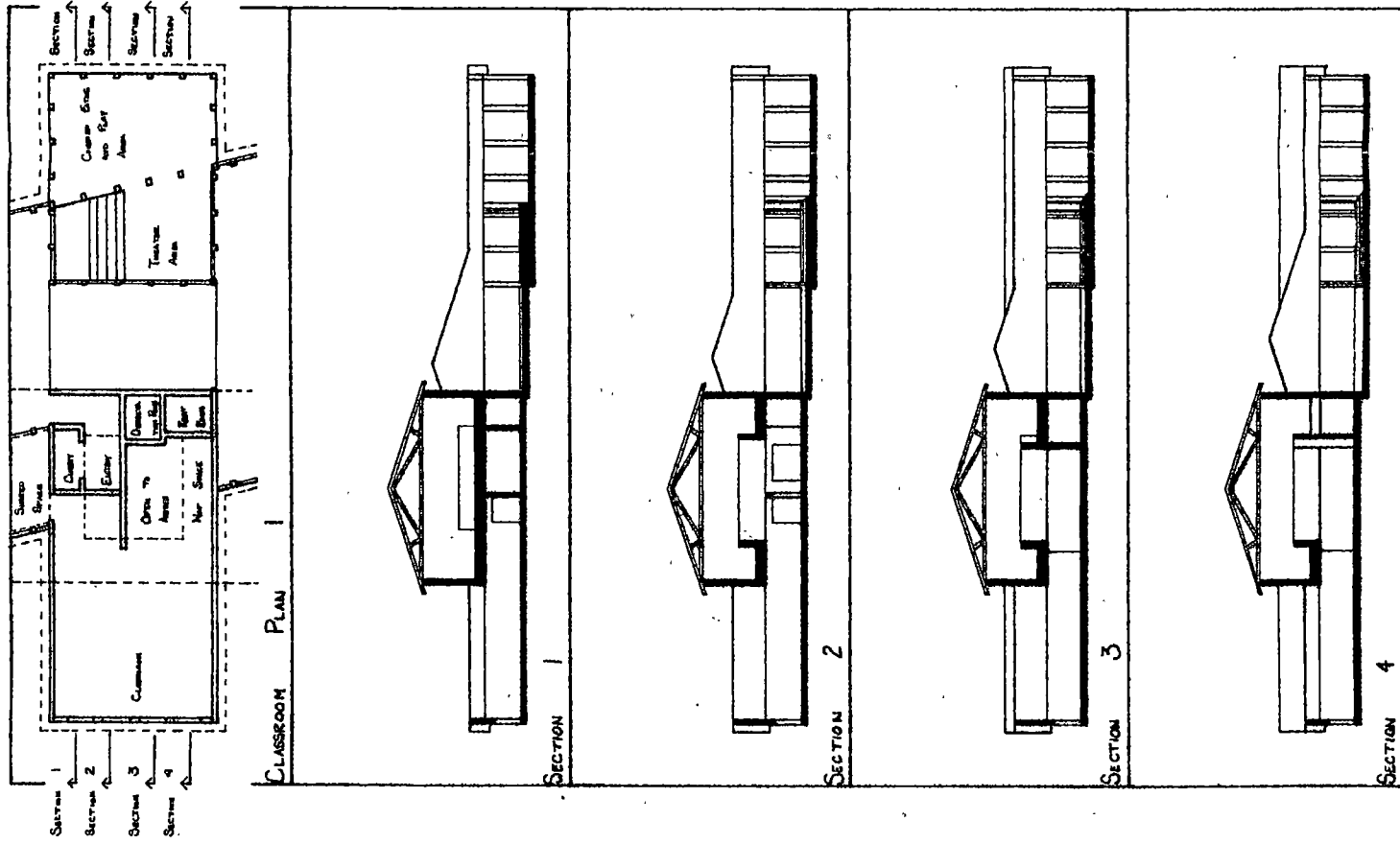
JACKSON STREET ELEVATION
SCALE: 1" = 16'



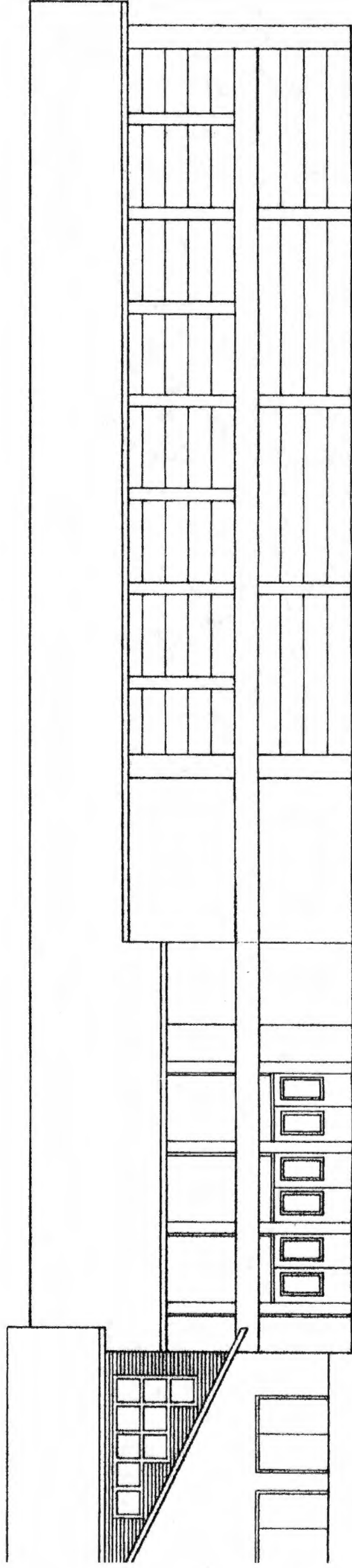
EAST ELEVATION
SCALE: 1" = 16'



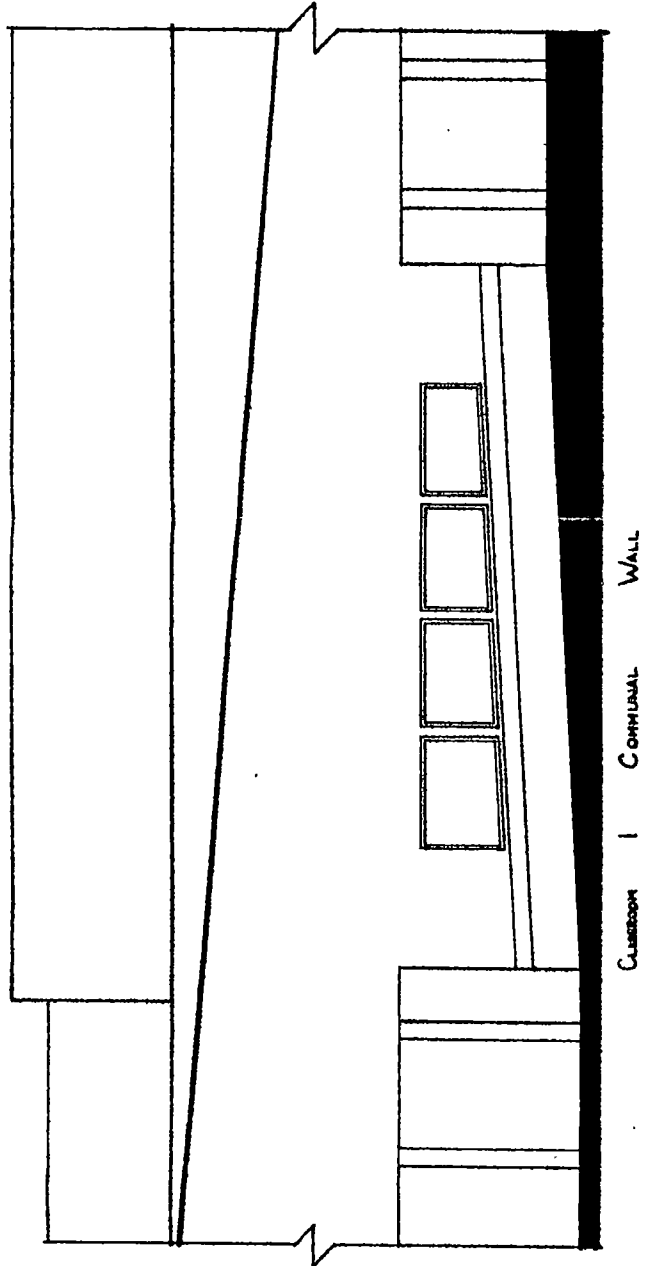
CLASSROOM AXONOMETRIC
SCALE 1" = 16'



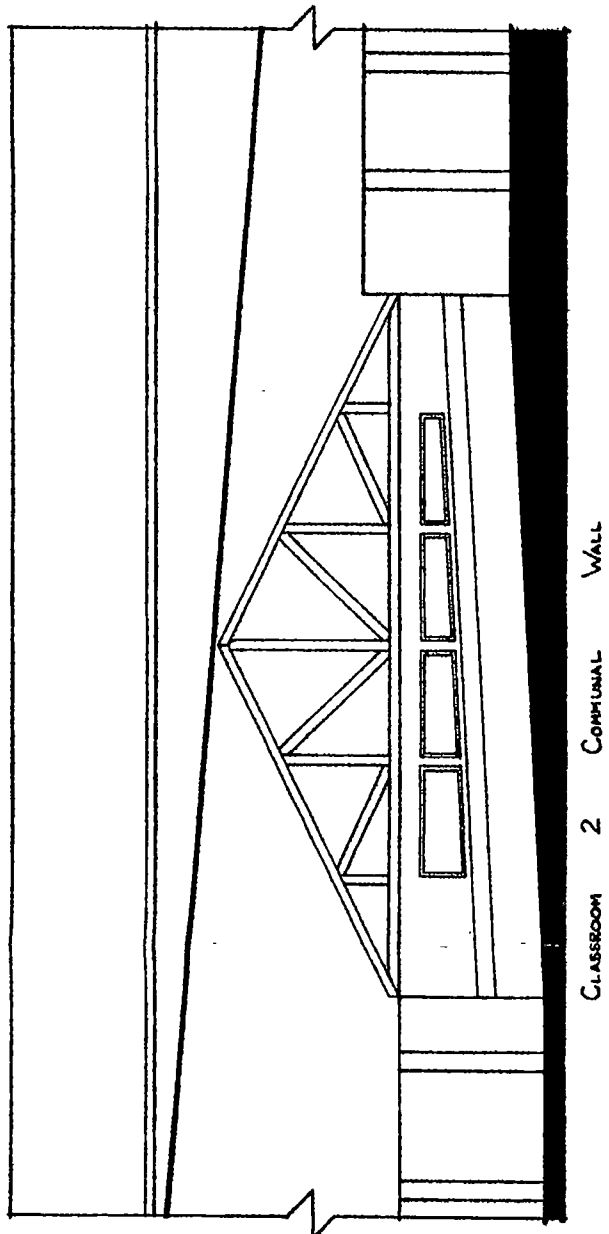
CLASSROOM PLANS AND SECTIONS
 SCALE 1"=4'



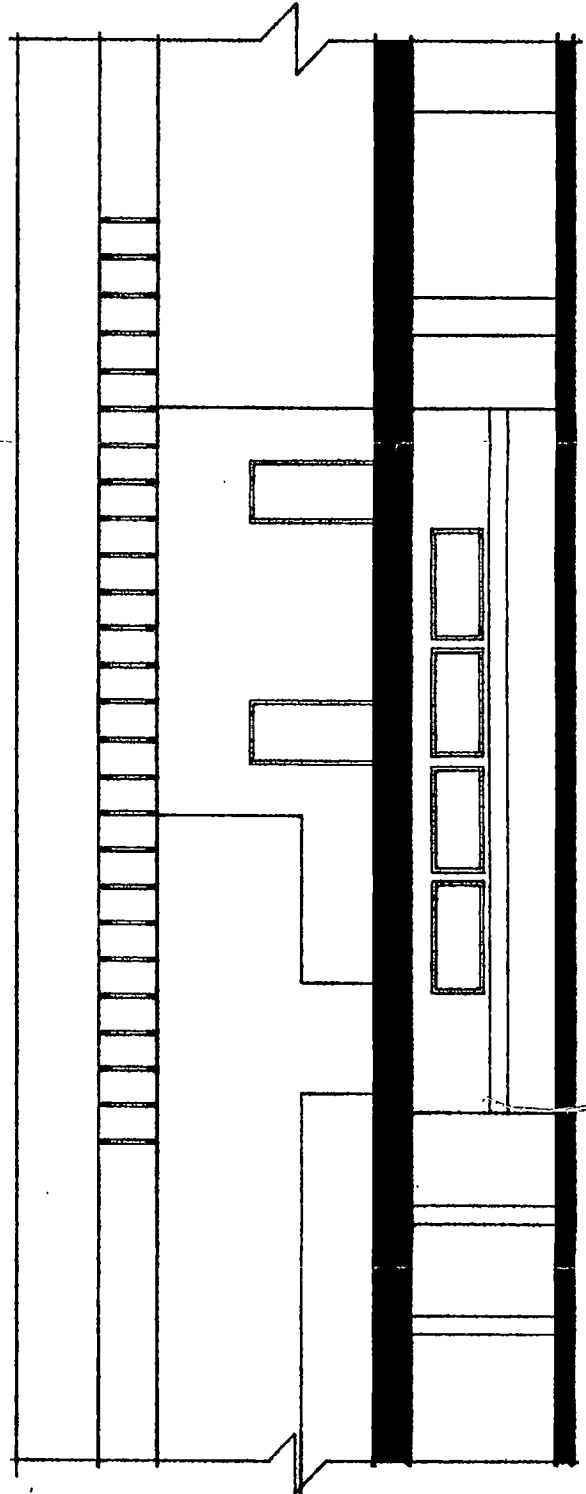
ENTRANCE ELEVATION
SCALE 1" = 4'



CLASSROOM 1 COMMUNAL WALL

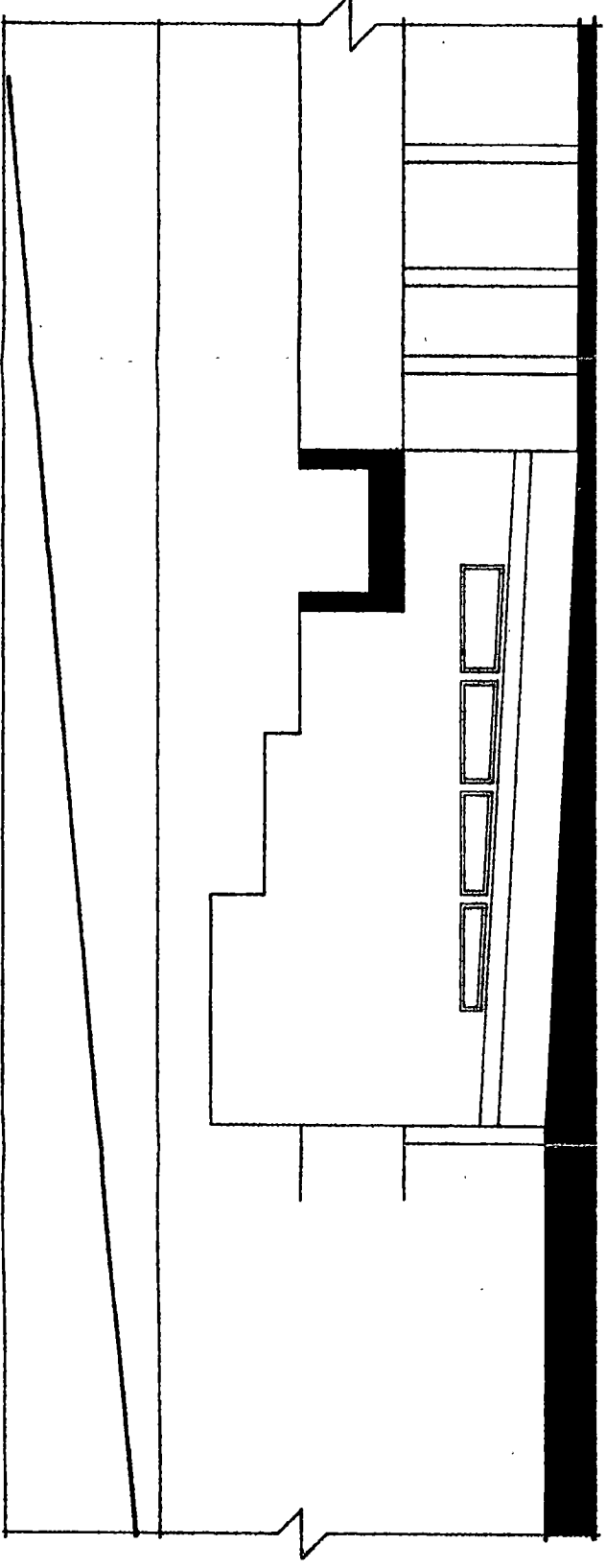


CLASSROOM 2 COMMUNAL WALL

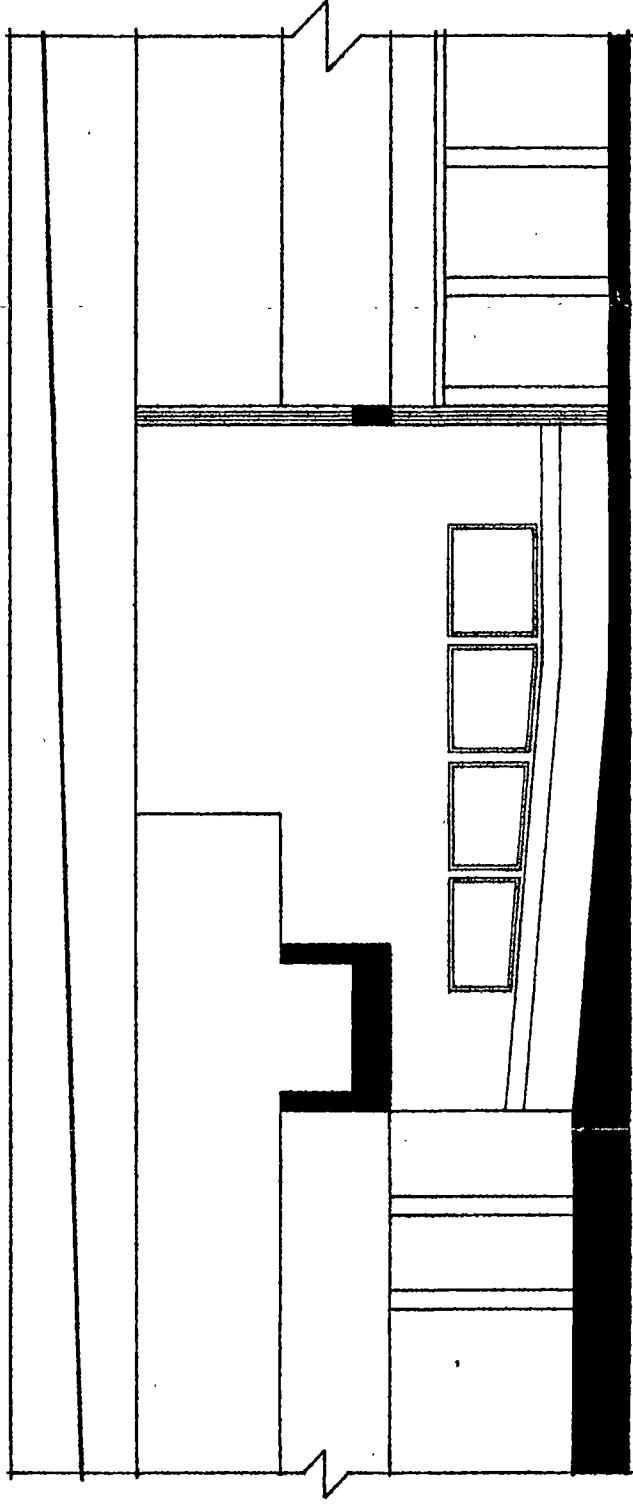


CLASSROOM 3 COMMUNAL WALL

CLASSROOM COMMUNAL WALL DETAILS AND SECTIONS
SCALE 1" = 16"



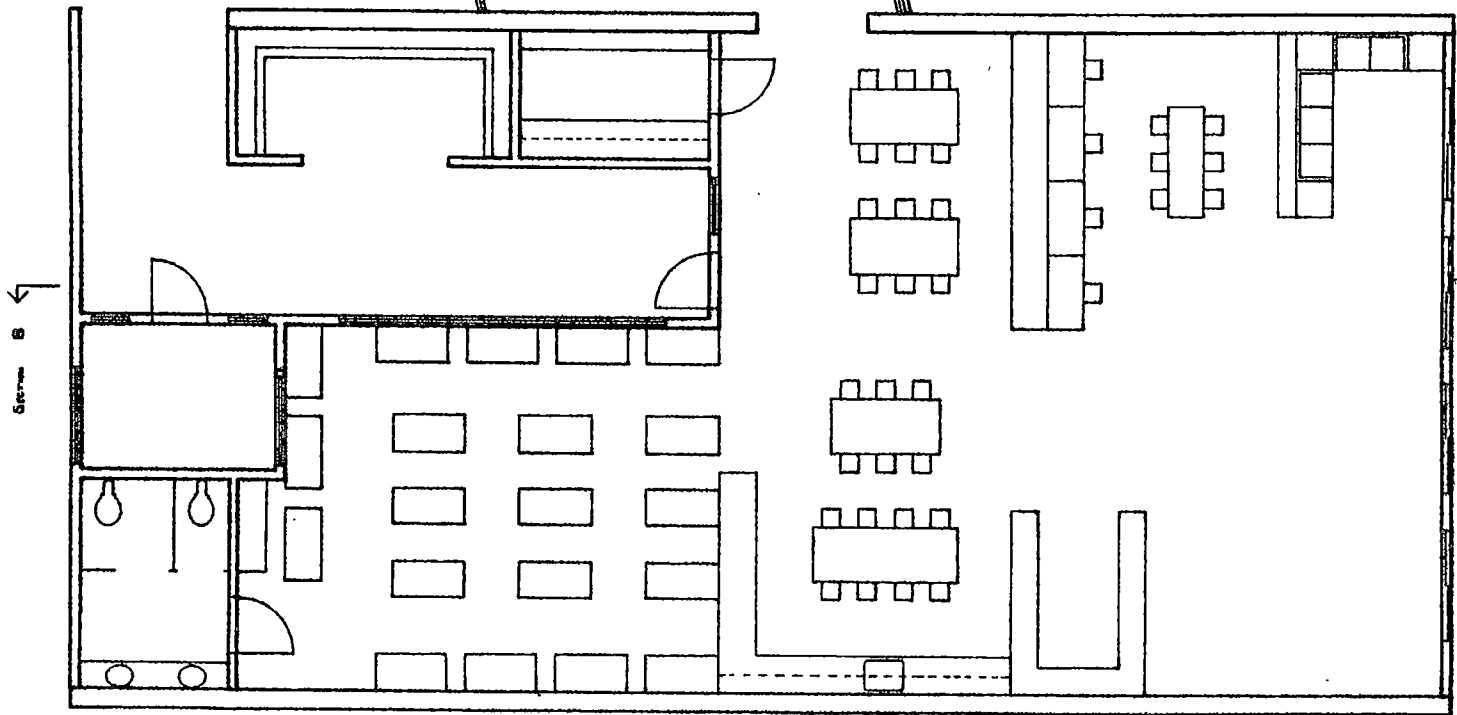
CLASSROOM 4 COMMUNAL WALL



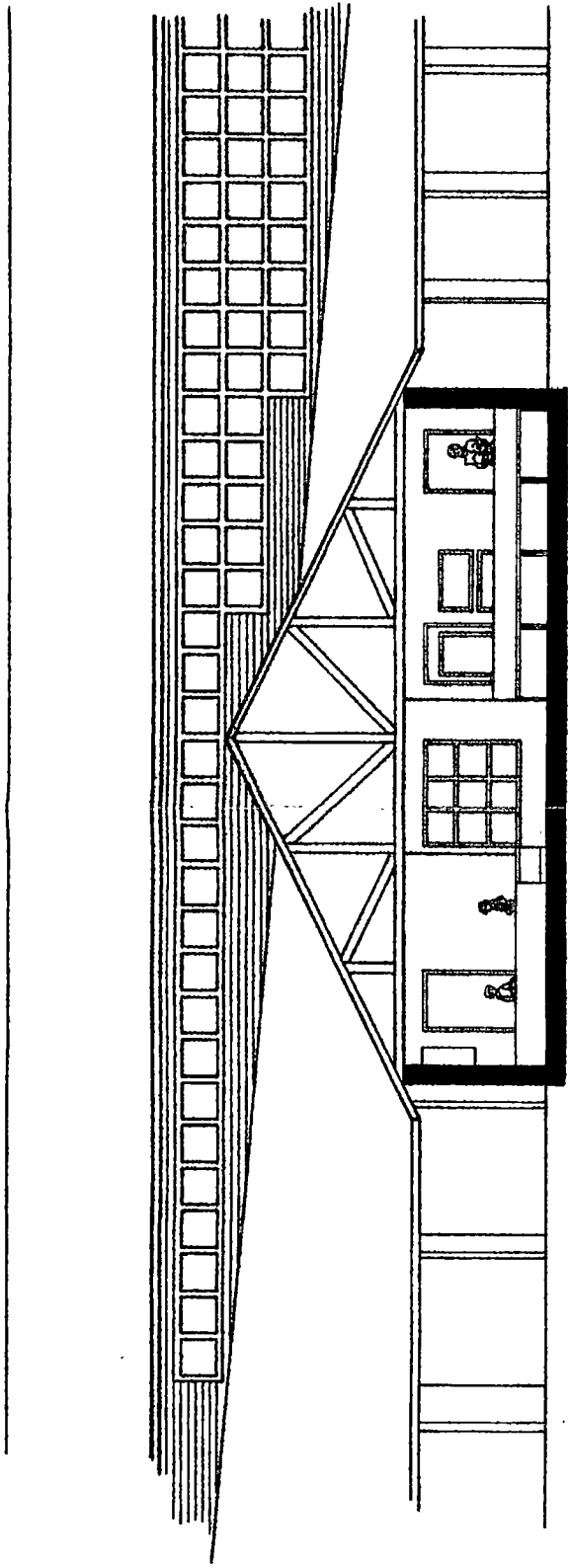
CLASSROOM 5 COMMUNAL WALL

CLASSROOM COMMUNAL WALL DETAILS AND SECTIONS

SCALE 1" = 16'

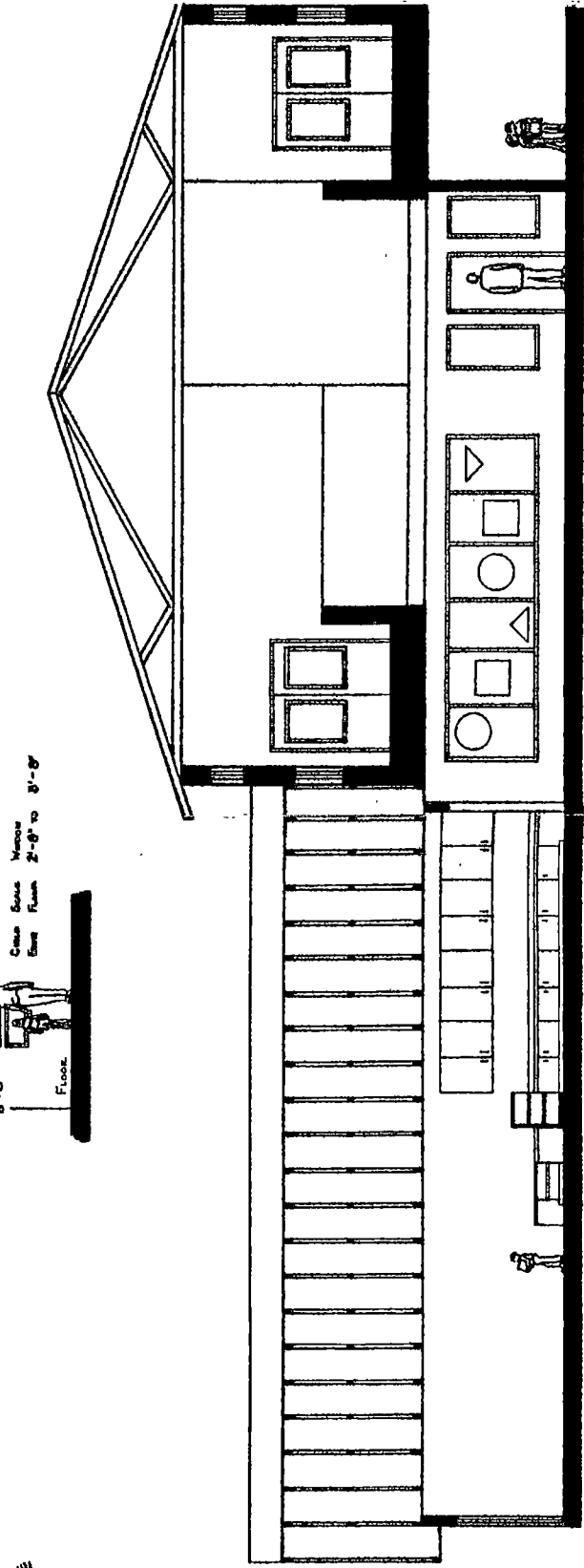


CLASSROOM 3
SCALE 1/8"=1'



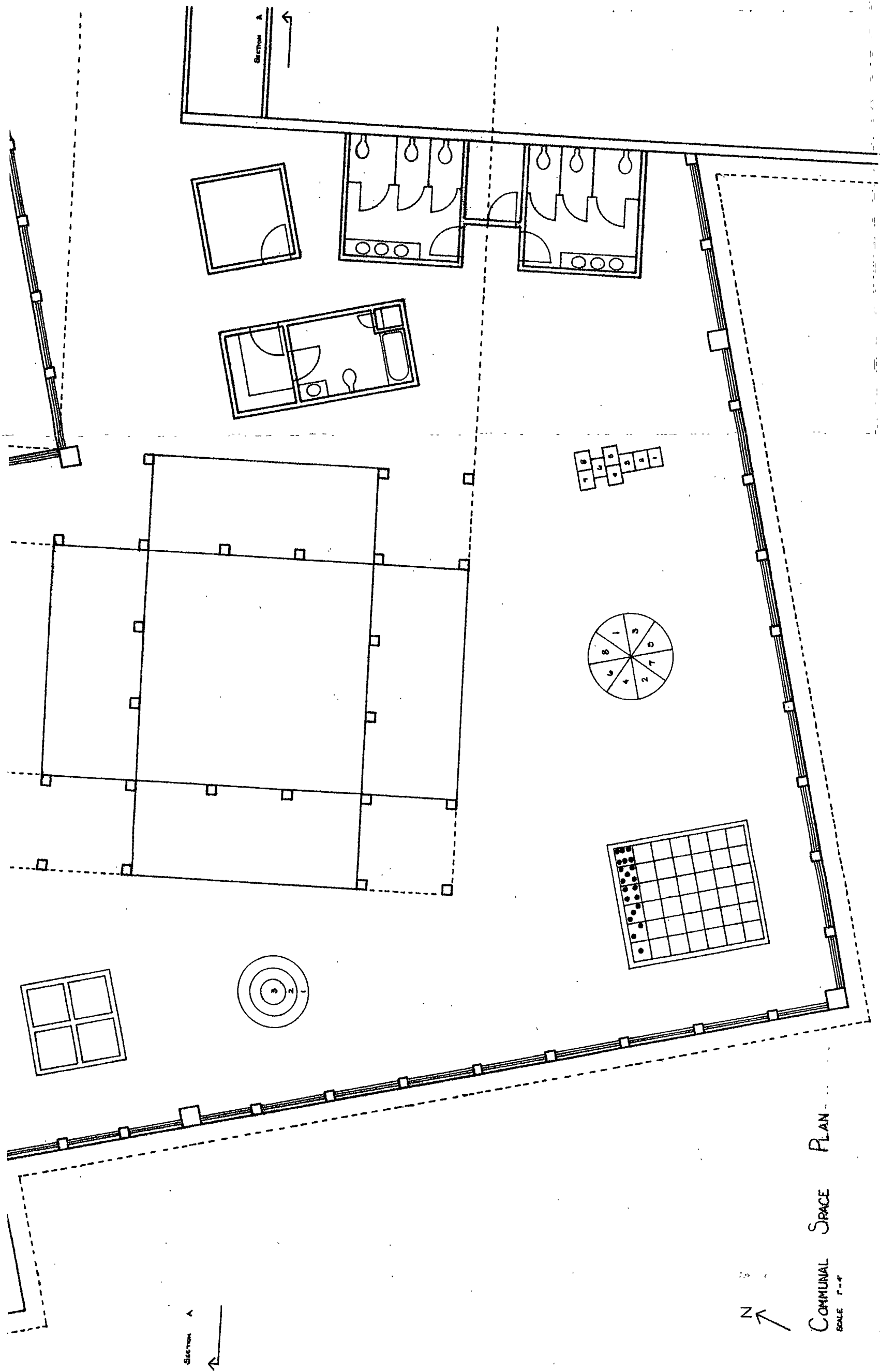
CLASSROOM SECTION A
SCALE 1/8"=1'

Outstanding Members
in various places to
show Black Plank
cut to suit the structural steel.



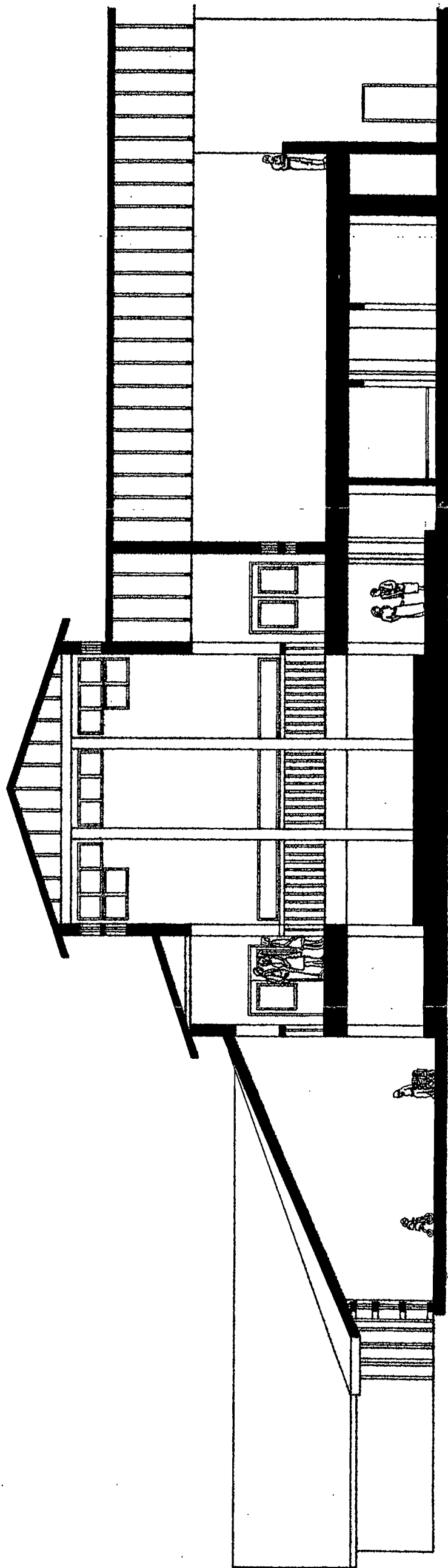
CLASSROOM SECTION B
SCALE 1/8"=1'

Cherry Desk and Plans to the
Blackboard are shown in the
plan view.
The Desk Covers are shown in
a detail view (shown above and below).
Wooden Desk and Plans to the
Blackboard are shown in the
plan view.
The Desk Covers are shown in
a detail view (shown above and below).
Wooden Desk and Plans to the
Blackboard are shown in the
plan view.

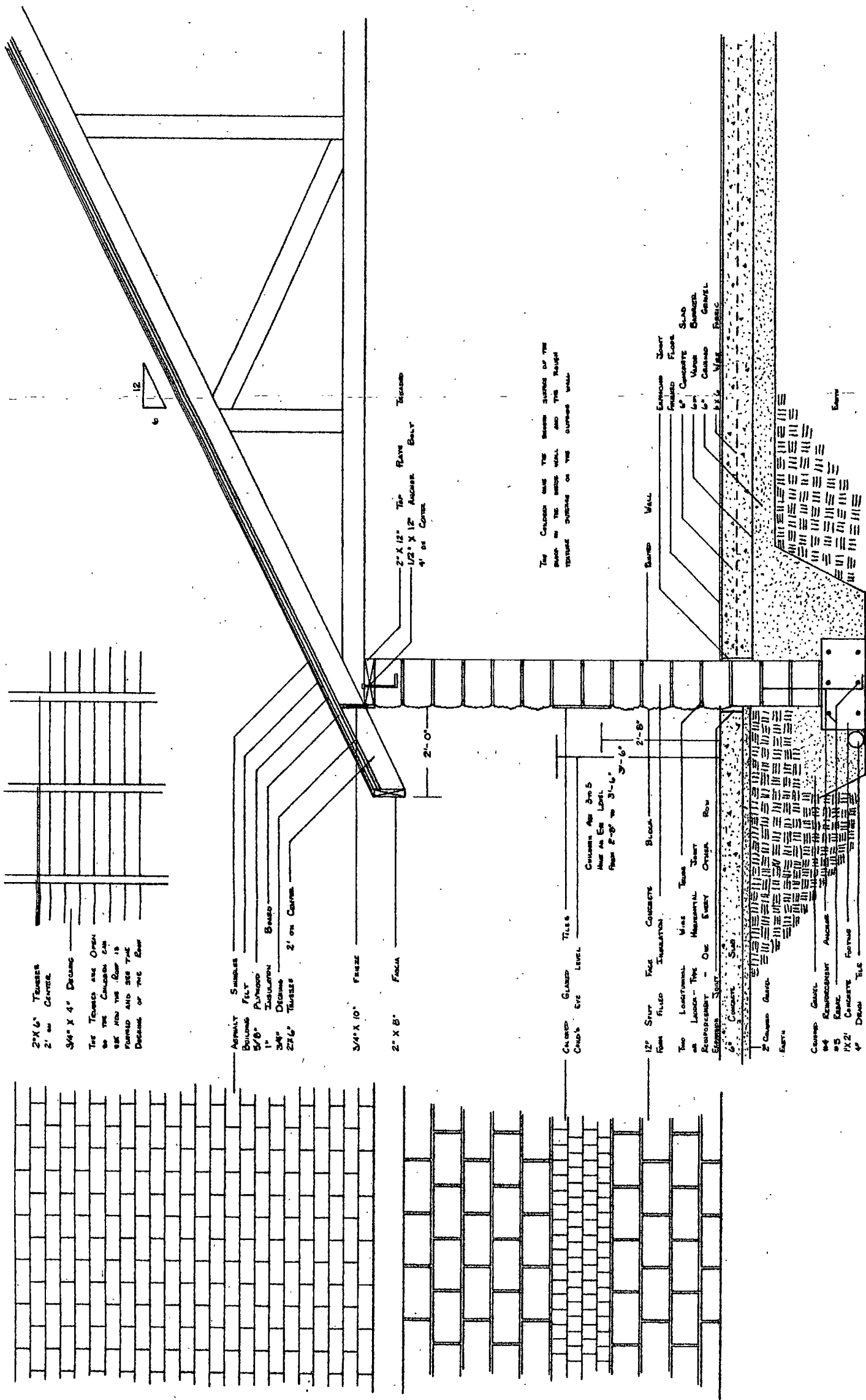


COMMUNAL SPACE PLAN

SCALE 1/4"



COMMUNAL SPACE SECTION A
SCALE 1"=4'



2" X 6" Teakets
2" on Center

3/4" X 4" Decks

The Teakets are Open
to the Ceiling and
are Now the Top of
Form and are the
Depth of the Edge

Apply
5/8" Plywood
1" Insulation
3/4" Diaphragm
2" Teakets
2' on Center

3/4" X 10" Frieze

2" X 8" Frieze

2" X 12" Top Flats
1/2" X 12" Angles
4' on Center

The Ceiling and the
Floor in the window wall
extend outside of the
outside wall.

12" Stucco
2" on Center

2" on Center

2" on Center

2" on Center

2" on Center

2" on Center

2" on Center

2" on Center

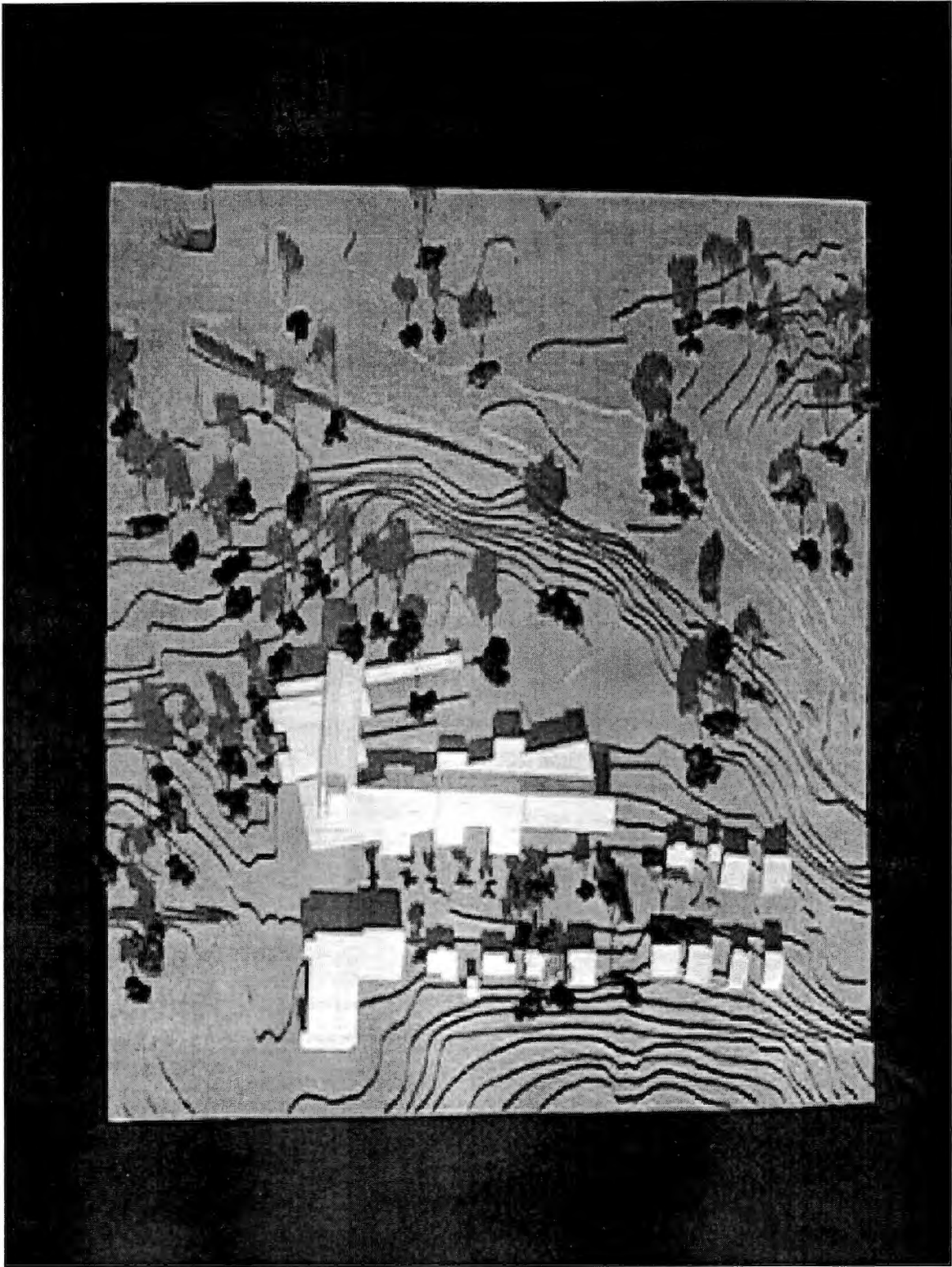
2" on Center

2" on Center

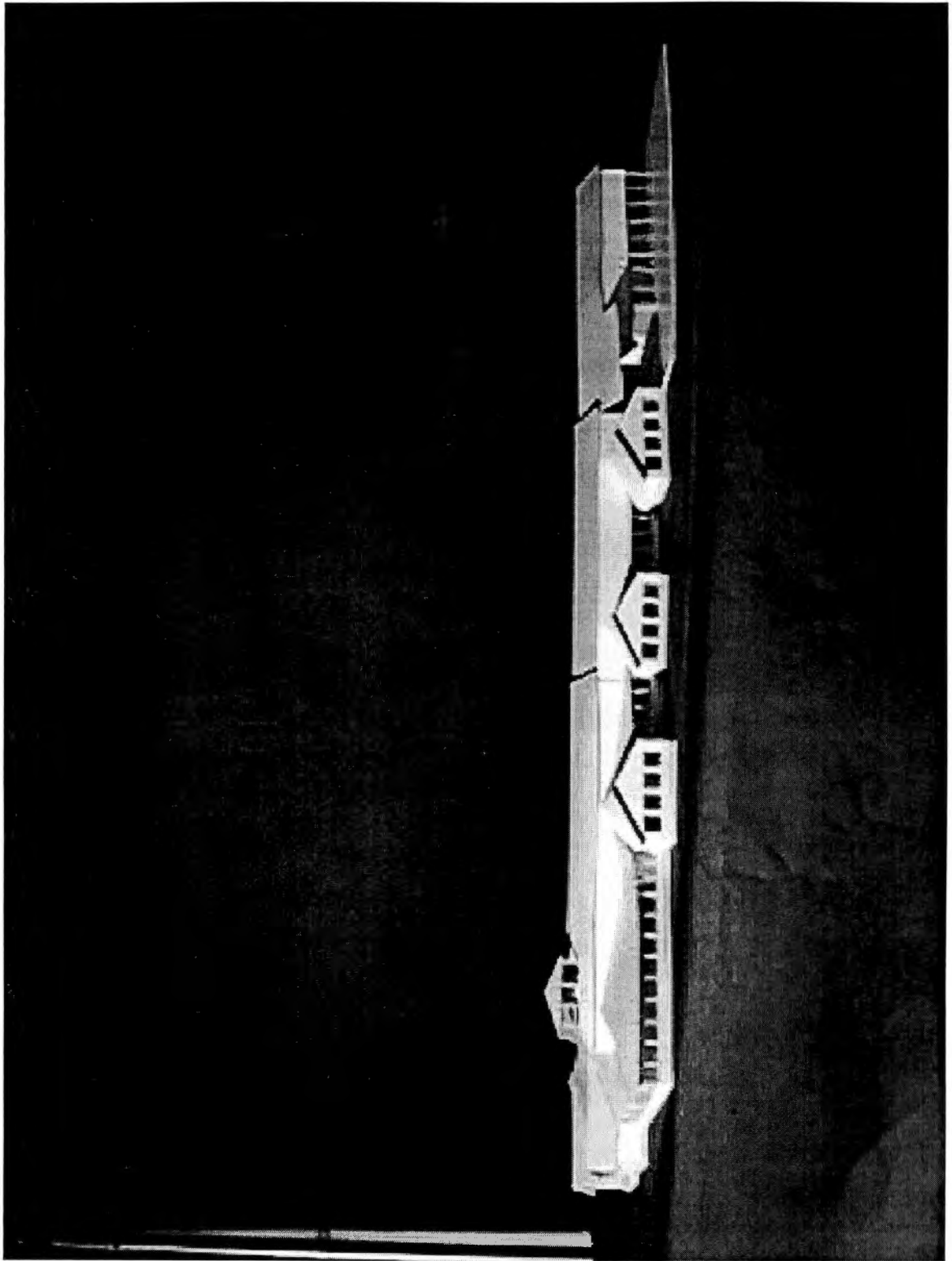
2" on Center

2" on Center

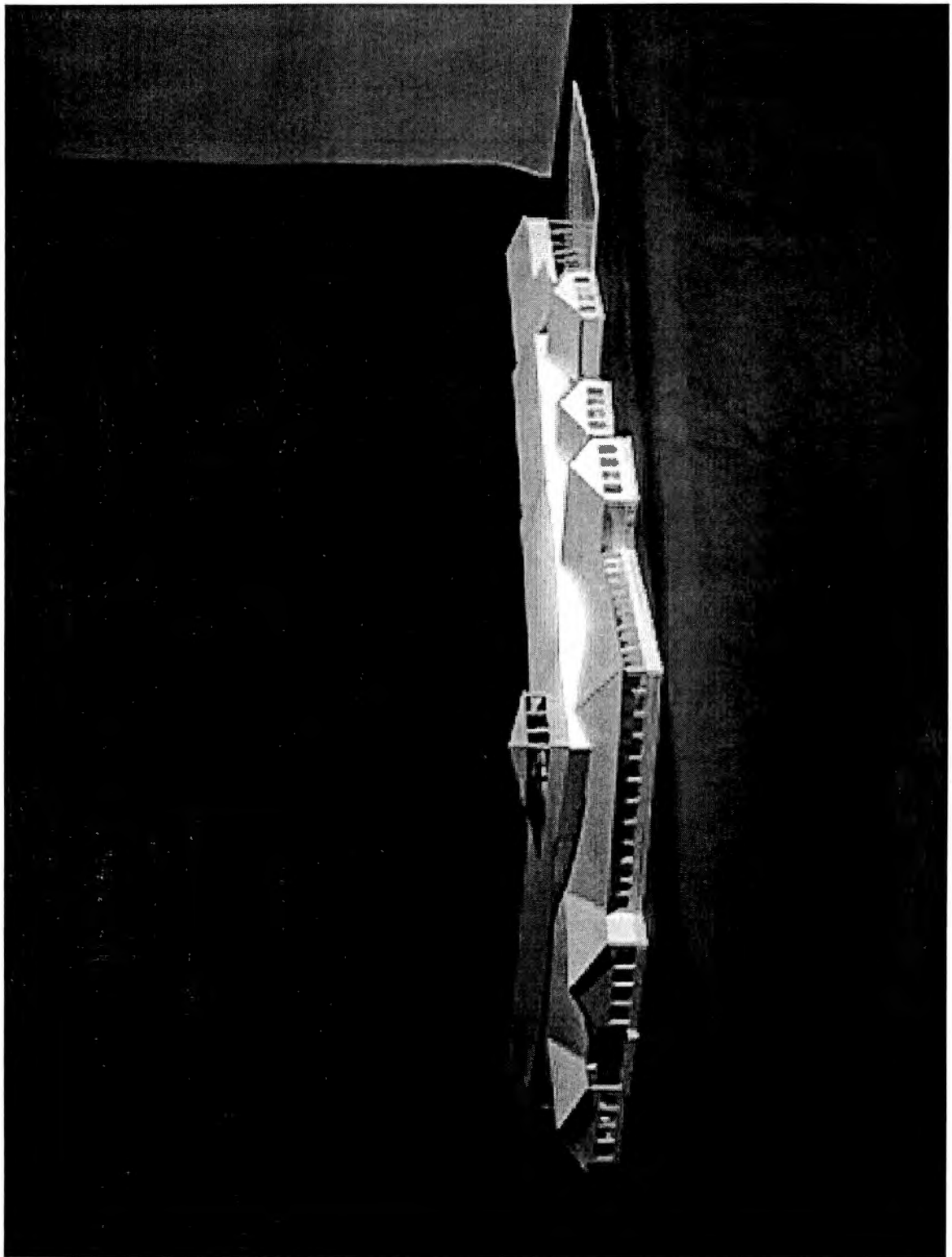
WALL ELEVATION AND SECTION
SCALE 1/4" = 1'



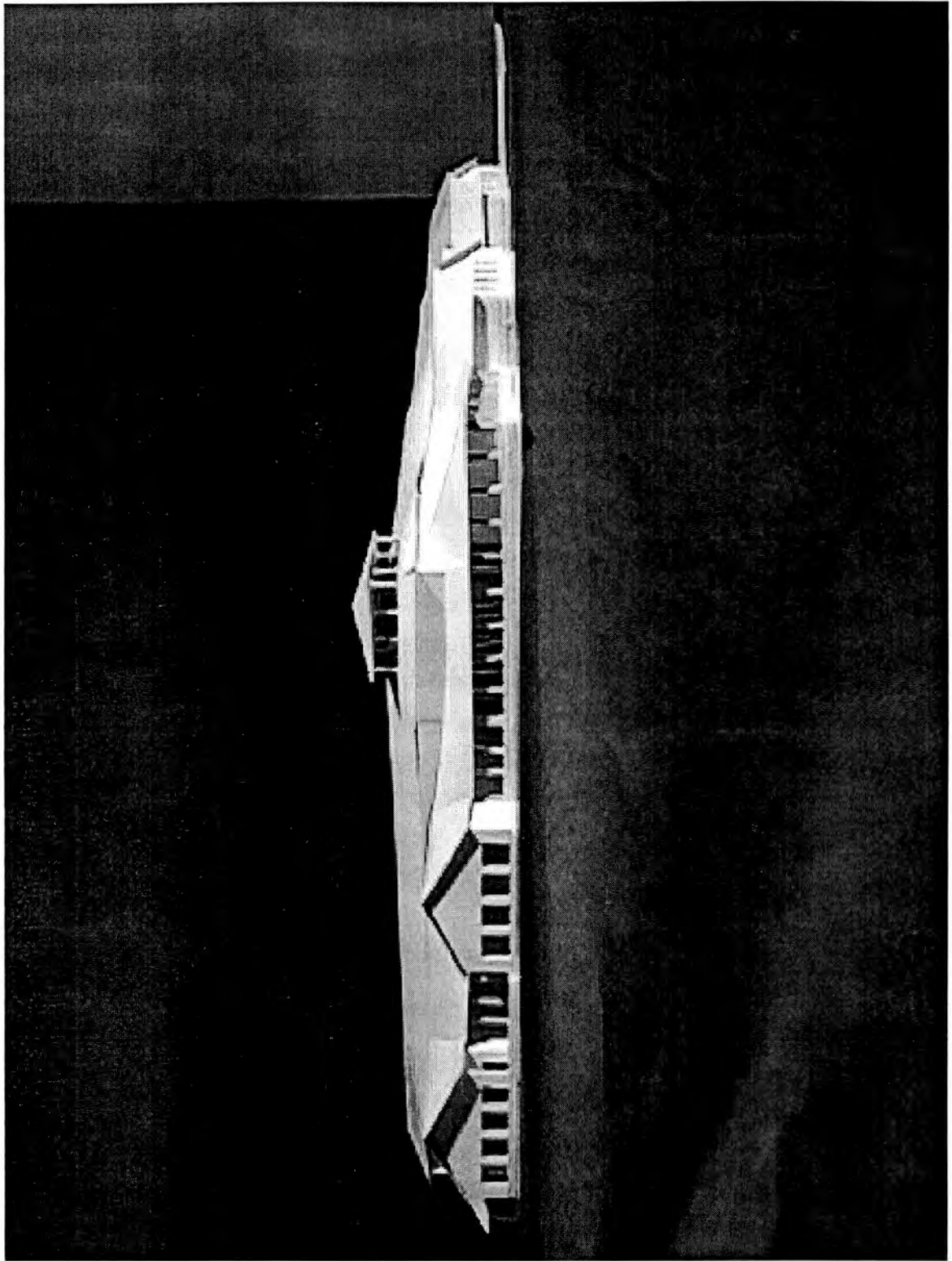
Aerial view of the site model.



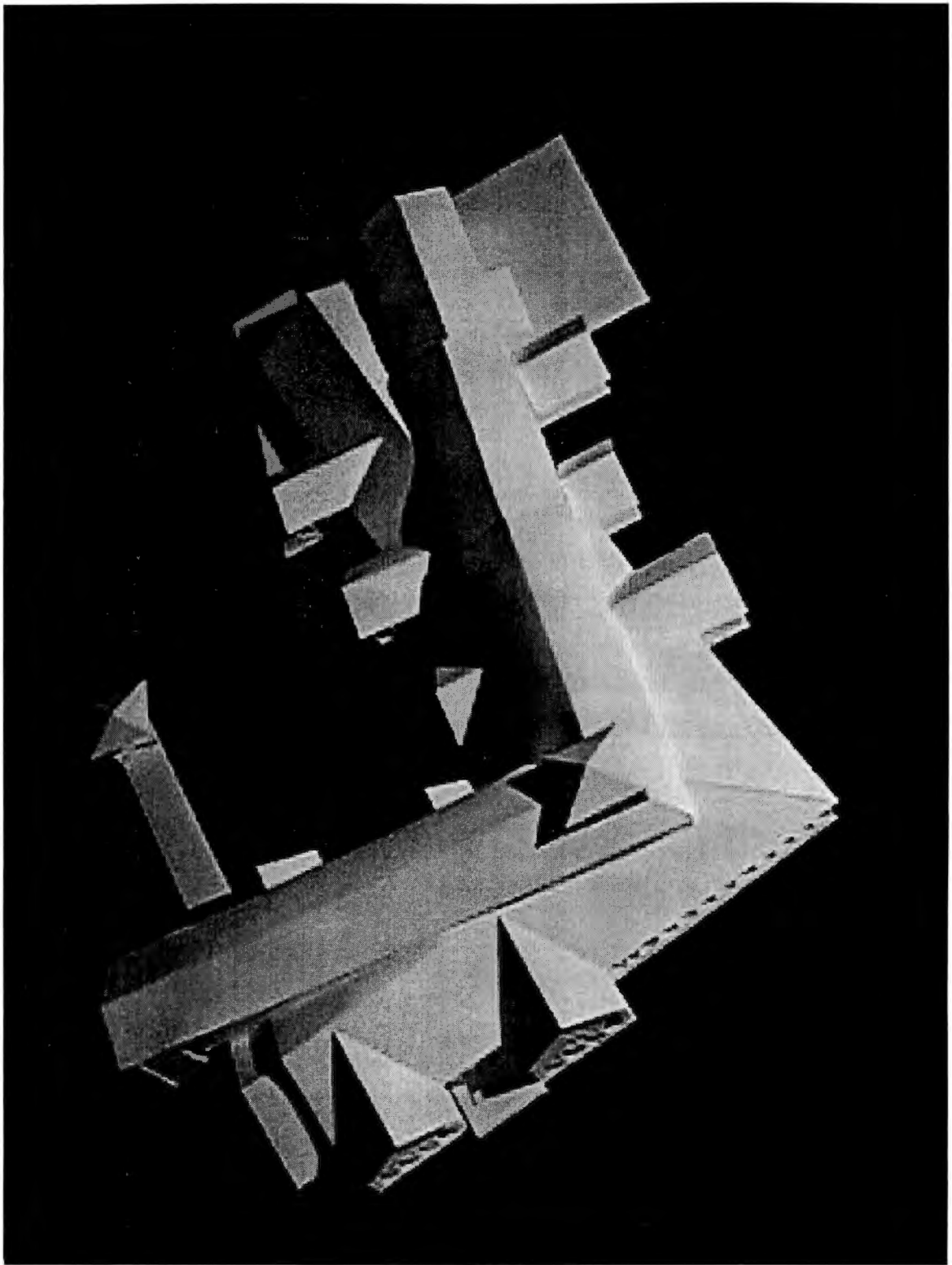
Rosedale Avenue Elevation .



A view from the corner.



Jackson Street Elevation.



Large aerial view of the 1/16" model.

THE DESIGN

The design of the Morristown Montessori Preschool is based on (1) the geometry of the streets and the surrounding neighborhood in which it is located and (2) Herman Hertzberger's Montessori School in Delft. The site is located at the corner of Rosedale Avenue and Jackson Street. A church across the street from the site serves as the starting reference point for the corner of the school. A straight line can be drawn from the front most part of the church across the street to the site. The reference point is where the front line of the church intersects with the property's setback line to create the corner of the building. The different street angles relate to the building. Two L-shaped forms relate to the two streets, and the two L-shapes work together in the first floor of the building. The second floor only relates to the L-shape that in turn relates to Rosedale Avenue. The classrooms facing Rosedale Avenue are parallel to the street, and the classrooms facing Jackson Street are parallel to the street. The distance from the street to the front of the classroom varies just like the houses vary in setback from the street. This movement in the building creates different spaces inside and outside the building. The classrooms that face Jackson Street are based on the spacing of the classrooms on the Rosedale Avenue side. The shared space between the classrooms mirrors the yards between the houses across the street.

I used Hertzberger's idea of the L-shape classroom and the different classroom sections much like rooms in a house. The classroom relates to the houses across the street, and the classroom is in the L-shape. The classroom is divided into different sections for different activities. This way the child who needs a quieter space is able to get away from the other children when he/she needs to concentrate on an activity. I did not use floor-level changes in the classroom to make the divisions because I wanted the whole classroom to be handicapped accessible. The divisions are made through the use of different flooring materials. Each classroom is a self-contained unit because it has a kitchen, bathroom, and a place to sleep just like a house.

The corner creates the Communal Space and anchors the site and the school to the community. The Communal Space focuses on the children by being the space where all the children in the school can come together to play or to perform. The Communal Space can be used for many different activities like open house for parents/guardians and grandparents to come and see what the children are doing and what the

school is all about. This space is designed with one large stage in the middle for large performances and four smaller stages around the large stage for small performances. The idea for the stages came from Hertzberger's idea of the podium. Refer to Podium Block and Display Area on page 109 of Appendix D.

The second floor opens over the large stage so that people can observe a performance from above. The stages can be used by the children as a place to gather, to play, or to do other learning activities. The idea for making the stages a gathering place also came from Hertzberger's idea of the podium block as can be seen on page 110 of Appendix D. The four smaller stages are one foot off the floor, and the large center stage is two feet off the floor. The stages are at different levels so that the children can see over the children on the stage in front of them. The stage is also a place where the children can stand and see over the adults. It is a space where children from different classrooms can come together to play when the weather is bad, and they cannot go outside.

In the Communal Space, there are game layouts on the floor that can be changed just like the classroom materials. These games are for the children to play and to learn from. Some of the basic games that preschool age children may find interesting are Four Square, Beanbag Toss, Bingo, and Hopscotch. The instructions and rules for these games can be found on page 119 – 121 of Appendix E. These are just some of the games that the teachers may choose for the children to play to gain basic skills and to learn respect for other children playing.

The walls of the classrooms that are part of the hallway are called Communal Walls. I designed the classroom walls as Communal Walls with different learning activities on each wall. Along these walls, the floor level is either on an incline, a decline, or is level with the classroom floor. This change plays a part in the activity on the wall. The child's eye level is important in this area because the learning activity takes place along this level. The child's eye level ranges from the eye level of a three-year-old to the eye level of a five-year-old. Rather than design one decorative motif, the design decision was made to provide a background for the teachers to use for changing materials. This supports the Montessori goal of providing a constantly changing learning experience for the children.

The hall of the building also changes levels to relate back to the elevation of the landscape. The child's eye level is important in these areas because the child can see things at his/her own level which can elicit a

real learning experience. For example, in this space the teacher may place the alphabet in the child's eye level area and use the rest of the wall to relate other things to the alphabet. In some places the wall may be on an incline or decline of the floor, making the eye level on an angle on the wall. Each Communal Wall can be designed differently by the teachers so that the child has many different learning experiences throughout the building. For example, the children can learn about color, shapes, plants, animals, culture, and history.

In the first Communal Space there are poles that tell the different directions. In this space there is a pole for North, South, East, West, and two poles for the different directions of the building. In the second Communal Space, between classroom number two and three, is a place designed for removable blocks of the floor that can come up to create a sunken sitting area. The blocks that are removed from the floor can be used by the children as chairs or tables. This area can be used as a reading or storytelling circle. The children can use the tables and chairs as they play. They may use the sunken area as a fort, as a lake, or anything else they can imagine. The idea for the removable blocks came from Hertzberger's Montessori School as can be seen on page 111 of Appendix D.

In addition to the spaces for faculty and students, other areas are created for additional staff and uses. The Administrative and Support Spaces are located at the East End of the building on the Rosedale Avenue side. This location makes it more convenient for the staff and parents to access the parking lot and the drop-off/pick-up area. The drop-off/pick-up area has to be away from the corner so that it does not cause any traffic or pedestrian problems. The drop-off/pick-up area is designed for parents to be able to drive up and drop-off/pick-up the child or park and take the child into the building. The staff of the school would supervise the drop-off/pick-up area during the normal drop-off/pick-up hours. The entrance is covered from the weather by the second floor. The second floor over the Administrative end is open to the first floor and is an outside play area for children during the drop-off/pick-up hours. The children can also play in this area during the school day when the weather does not allow them to play outside. This area is designed for the walls to open up on sunny days to allow the children to get the sun and the warmth from the sun while playing in a sheltered area.

The building has five classrooms that are each equipped for twenty to thirty-six children, one teacher,

and one to two assistant(s). The entrance door to the classroom has a window which measures from the eye level of a three-year-old to the height of an adult, to allow the children and teacher to see who may be on the other side of the door. There are two windows beside the entrance door: one is at the eye level of an adult and the second window is from the eye level of a three year old to the height of the eye level of a five year old. Hertzberger believed that children should be able to access the outside world, and his design shows a door connecting each classroom to the environment. In the Morristown Montessori Preschool design, the classroom has four sliding glass doors to serve as a way for the children to relate the inside to the outside and to allow natural light to enter. These doors also allow the children the access to the outside play and learning areas.

The classroom has instructional space where the class has circle activities and self-learning activities. The teacher will instruct the class on the correct use and care of materials. Within the classroom the children are provided a child-scale kitchen and eating area which has a hard surface floor for easy clean up. This area is designed for the children to do practical life activities and other activities that can be messy.

In addition to the instructional space, several other spaces are also necessary. The children have their own cubby in which to place their coats and any other things they may bring to school. The cubby space is designed at child scale, but still allows the teacher to observe them. The windows along the nap space provide the teacher the access to observe the children in the cubby space, as well as the children entering the classroom. These windows can also be used to display classroom activities. The classroom must provide a nap space for all children in the class to be able to lie down in the afternoon for a nap or to rest. It is important that the classroom also have a child scale restroom so that the children are not out in the hall and can be easily monitored by the teacher in the classroom.

The classroom also provides an area for adult observation, and this observation room is used in two ways. The observer can observe the children in the classroom and in the hallway without the children knowing that they are being watched. The observation windows can also be used to display transparent activities. On the Communal Walls, the observation window and three other windows are used to display classroom activities. The idea is to balance elements on the wall without calling attention to the observation window. Hertzberger uses different places along the walls as display areas. Refer to page 109

of Appendix D to see how he has used the display spaces.

The second floor of the building is used for watching a performance over the Communal Space and for observing the activities in the classrooms and shared spaces from above. The observation spaces are designed for parents and other adults to observe the children from different points to see what is taking place in the classroom. There is some space on the second floor for the teachers to prepare future activities for the class; however, most of the space is designed for observation and interaction with the lower floor. The second floor also has floor-level changes just as the first floor does. The changes in space, ceiling heights, "windows to the sky," etc. contribute to the variety and stimulation of the learning environment. These changes help in the outside design of the building, keeping it from looking like a factory. Therefore, it resembles the houses in the neighborhood.

As the children interact with the outside environment in the play area, some type of barrier is required to ensure that the children are safe and secure. The fence-wall is the barrier to keep the children on the preschool site, while allowing them to relate to things on the other side or to talk to the people on the other side. The fence is a concrete block wall that is designed to the scale of a child. The blocks are turned so that the children can put things in the openings or see through them. The block wall keeps the children physically safe and secure while allowing them the mental and visual freedom to explore. The idea for the fence-wall came from Hertzberger's Montessori School as can be seen on page 99 of Appendix D. I found Hertzberger's idea of the fence-wall being child-scaled and being different from the traditional fence very effective. I also used the fence-wall idea as the barrier in my design. The concrete blocks of the wall relate back to the concrete blocks used as part of the building. There has to be a barrier between the playground and the street to ensure the safety of the children at the school. In my design the fence-wall is the separation between the playground and the street and the playground and the park. The children can see and relate to the people on the street and the people that are in the park.

The long walls of the classrooms are built of split face concrete block. The textured side of the blocks is on the outside with the smooth side on the inside so that the children can see and feel the difference. On the outside of these long walls, there are two runs of block that are regular blocks faced with glazed color tiles which range from the eye level of a three year old to the eye level height of a five year old. These tiles

interest the children and help draw the children into the building to see what this place is all about. The walls facing the street are constructed of 2 x 6's and have wood siding on the outside and sheetrock on the inside. In this wall, four sliding glass doors allow for natural lighting, as well as easy access to the outside for the children and teacher. These different types of surfaces give the children the opportunity to learn about the different materials. The children can see and run their fingers along the mortar joints of the concrete blocks. They can touch the smooth surface of the sheetrock and be able to tell the difference in the walls of the classroom. The shared spaces and the walls of the hallway are made mostly of glass to allow for natural light to enter and for the children to see what is going on in the world around them. Doors along these walls allow access to the outdoor play area and to the environment.

The outdoor play area includes a hard surface riding path, a manmade pond, a sandpit, garden spots, and hard surfaces for game playing. A lookout tower, designed just for the children is at the end of the long hard playing surface. The idea to use concrete blocks around the garden spots and to divide the sandpits came from Hertzberger's Montessori School as can be seen on page 113 of Appendix D.

BIBLIOGRAPHY

- Aida, Takefumi. Buildings and Projects. New York: Princeton Architectural Press, 1990.
- Ash, Mitchell G. Gestalt Psychology in German Culture, 1890-1967: Holism and Quest for Objectivity. New York: Cambridge University Press, 1995.
- Bonsteel, Alan. "Maria Montessori and the 'Glass House'." The NAMTA Journal. 20 (3) (Summer 1995), pp. 6-13.
- DeVries, Rheta and Lawrence Kohlberg. Program of Early Education: the Constructivist View. New York and London: Longman, 1987.
- Dudek, Mark. Kindergarten Architecture: Space for the Imagination. London: E & FN Spon, 1996.
- Emerson, Glen. "Using Questions: A Sensorial Study." Montessori Life. 5 (3) (Summer 1993), pp. 33-34.
- Forman, Ellice A., Norris Minick, and C. Addison Stone. Contexts for Learning: Sociocultural Dynamics in Children's Development. New York: Oxford University Press, 1993.
- Foreman, George E. and Fleet Hill. Constructive Play: Applying Piaget in the Preschool. Menlo Park, California: Addison-Wesley Publishing Company, 1984.
- Geri, Frank H. Illustrated Games, Rhythms, and Stunts for Children. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1957.
- Gettman, David. Basic Montessori: Learning Activities for Under-Fives. New York, St. Martin's Press, 1987.
- Greenman, Jim. "Living in the Real World: So You Want to Build a Building? Dancing with Architects and Other Developmental Experiences -- Part 3: Designing the Building." Child Care Information Exchange. 83 (January/February 1992), pp. 47-50.
- Helick, R. Martin and Margaret T. Watkins. Elements of Preschool Playyards. Pittsburgh: Regent Graphic Services, 1973.
- Henderson, Roxanne. The Picture Rulebook of Kids' Games. Chicago, Illinois: Contemporary Books, Inc., 1996.
- Hertzberger, Herman. Buildings and Projects 1959-1986. Den Haag, Nederland: Arch-Edition, 1987.
- Hertzberger, Herman. "Herman Hertzberger 1959-1990." Architecture and Urbanism. April Extra Edition, 1991.
- Hertzberger, Herman. Lessons for Students in Architecture. Rotterdam: Uitgeverij 010 Publishers, 1991.
- Hiebert, Elfrieda H. Literacy for a Diverse Society: Perspectives, Practices, and Policies. New York and London: Teachers College Press, 1991.
- Kahn, David, Editor. "The Montessori Learning Community: Evolving Schools, Evolving Adults, Evolving Children." The NAMTA Journal. 20 (2) (Spring 1995), pp. 1-15.
- Kitchener, Richard F. Piaget's Theory of Knowledge: Genetic Epistemology & Scientific Reason. New Heaven and London: Yale University Press, 1986.
- Kloos, Maarten, Editor. Amsterdam: An Architectural Lesson. THOTH Publishing House, 1988.

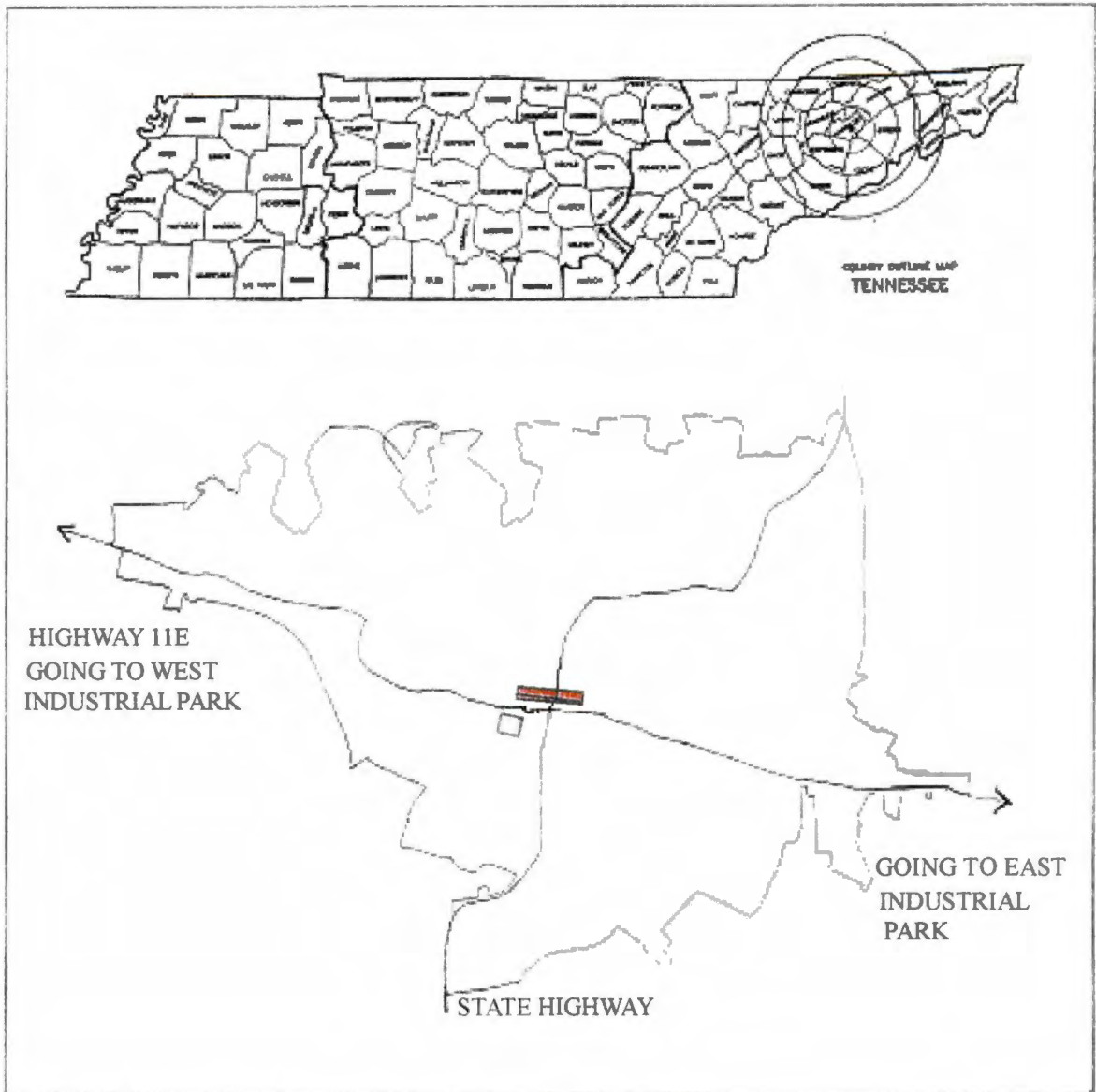
- Koch, Marcella M., Editor. "The Learning Place-Designed a 'An Optimum Environment' For Teaching." Modern School. (January 1972), pp. 4-7.
- Kohl, Marguerite and Frederica Young. Games For Children. New York: American Book-Stratford Press, Inc., 1953.
- Kramer, Rita. Maria Montessori. New York: G. P. Putman's Sons, 1976.
- Laseau, Paul and James Tice. Frank Lloyd Wright: Between Principle and Form. New York: Van Nostrand Reinhold, 1991.
- Miller Peggy L. Creative Outdoor Play Areas. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1972.
- Montessori, Maria. "The Organization of Intellectual Work in School." The NAMTA Journal. 20 (3) (Summer 1995), pp. 20-28.
- Montessori, Maria. The Secret of Childhood. Notre Dame, Indiana: Fides Publishers, Inc., 1966.
- Neill, S. R. St. J. and E. J. M. Denham. "The Effects of Pre-school Building Design." Educational Research: The Journal of the National Foundation for Educational Research. 24 (2) (February 1982), pp. 107-111.
- Passantino, Richard J. "Preschool Comes to School: Design Concerns of Preschool Facilities." School Business Affairs. 60 (1) (January 1994), pp. 26-30.
- Rasmussen, Steen Eiler. Experiencing Architecture. Cambridge: The M.I.T. Press, 1962.
- Schapiro, Dennis. "The Faithful Montessorian's Guide To Public Montessori Programs." Montessori Life. 6 (4) (Fall 1994), p. 18.
- Standing, E. M. Maria Montessori: Her life and Work. Fresno, California: Academy Library Guild, 1959.
- Standing, E. M. The Montessori Method: A Revolution in Education. Fresno, California: Academy Library Guild, 1962.
- Standing, E. M. The Montessori Revolution in Education. New York, Schocken Books, 1966.
- Taetzsch, Sandra Zeitlin and Lyn Taetzsch. Preschool Games and Activities. Belmont, California: Fearon Publishers, 1974.
- "Three Slide Shows for Parents." The NAMTA Journal. 21 (1) (Winter 1996), pp. 14-36.
- Thrush, Ursula. "Peace 101: Implementing the Vision." Montessori Life. 5 (2) (Spring 1993), pp. 36-37.
- Turner, Joy. "The Public School Montessorian an interview with Dennis Schapiro." Montessori Life. 6 (4) (Fall 1994), pp. 19-22.
- Verschuur, Mary. "All-Day Montessori: Creating a 'Caring Community'." The NAMTA Journal. 20 (2) (Spring 1995), pp. 29-37.
- Vidal, Fernando. Piaget Before Piaget. Cambridge, Massachusetts and London, England: Harvard University Press, 1994.
- Watanabe, Hiroshi. Amazing Architecture from Japan. New York: Weatherhill, Inc., 1991.

Wit, Wim de, General Editor. The Amsterdam School: Dutch Expressionist Architecture, 1915-1930.
Cambridge, Massachusetts and London, England: The MIT Press, 1983.

Wright, Frank Lloyd. Designs for an American Landscape 1922-1932. Great Britain: Thames and Hudson,
1996.

APPENDIX A: SITE ANALYSIS

STATE AND CITY MAP

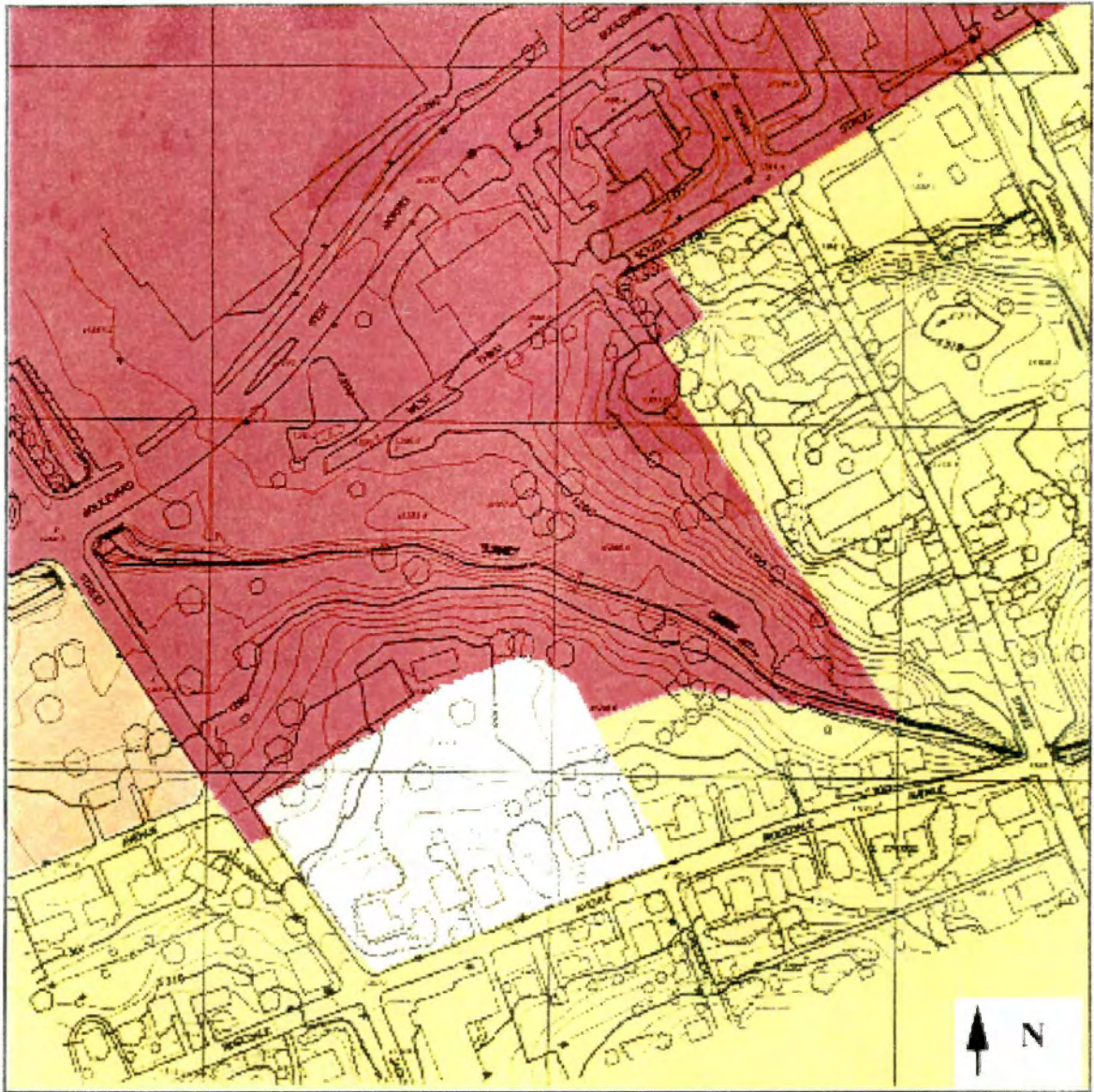


KEY	
	SITE
	DOWNTOWN

NOTES

The site chosen is centrally located on the corner of Jackson Street and Rosedale Avenue in Morristown, Tennessee. The site has good access to U.S. Highway 11E, a major highway which connects the west and east ends of town. The highway also connects the industrial parks to each other. The industrial parks are major employers of the parents of the Montessori students. There is easy vehicular access for dropping off and picking up children as parents go to and from work.

EXISTING ZONING



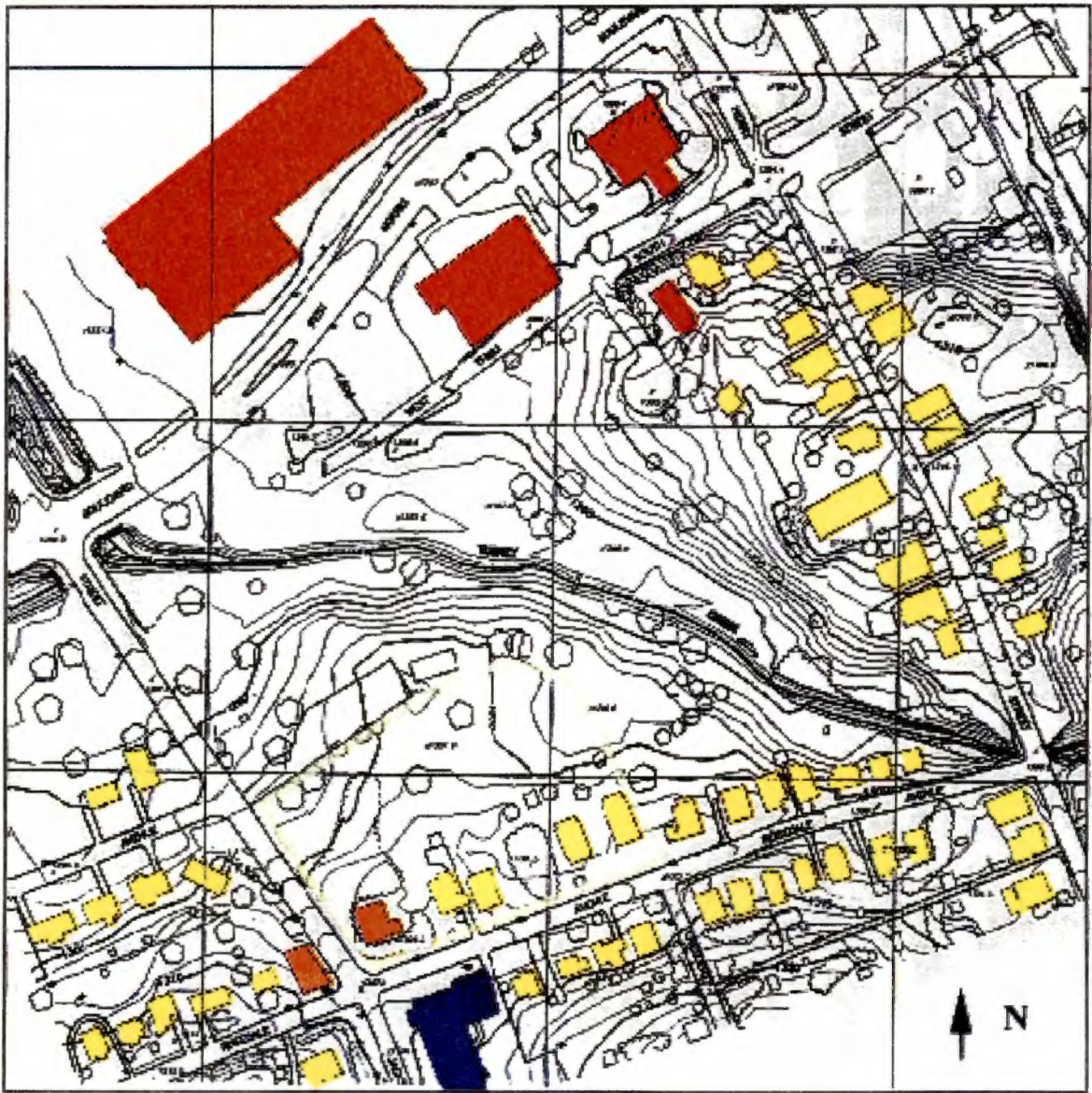
KEY

- SITE
- CENTRAL BUSINESS
- INTERMEDIATE BUSINESS
- R-2 RESIDENTIAL
-
-
-
-

NOTES

The site chosen is centrally located in an R-2 residential neighborhood and is connected to the central business district and intermediate business district.

EXISTING USES

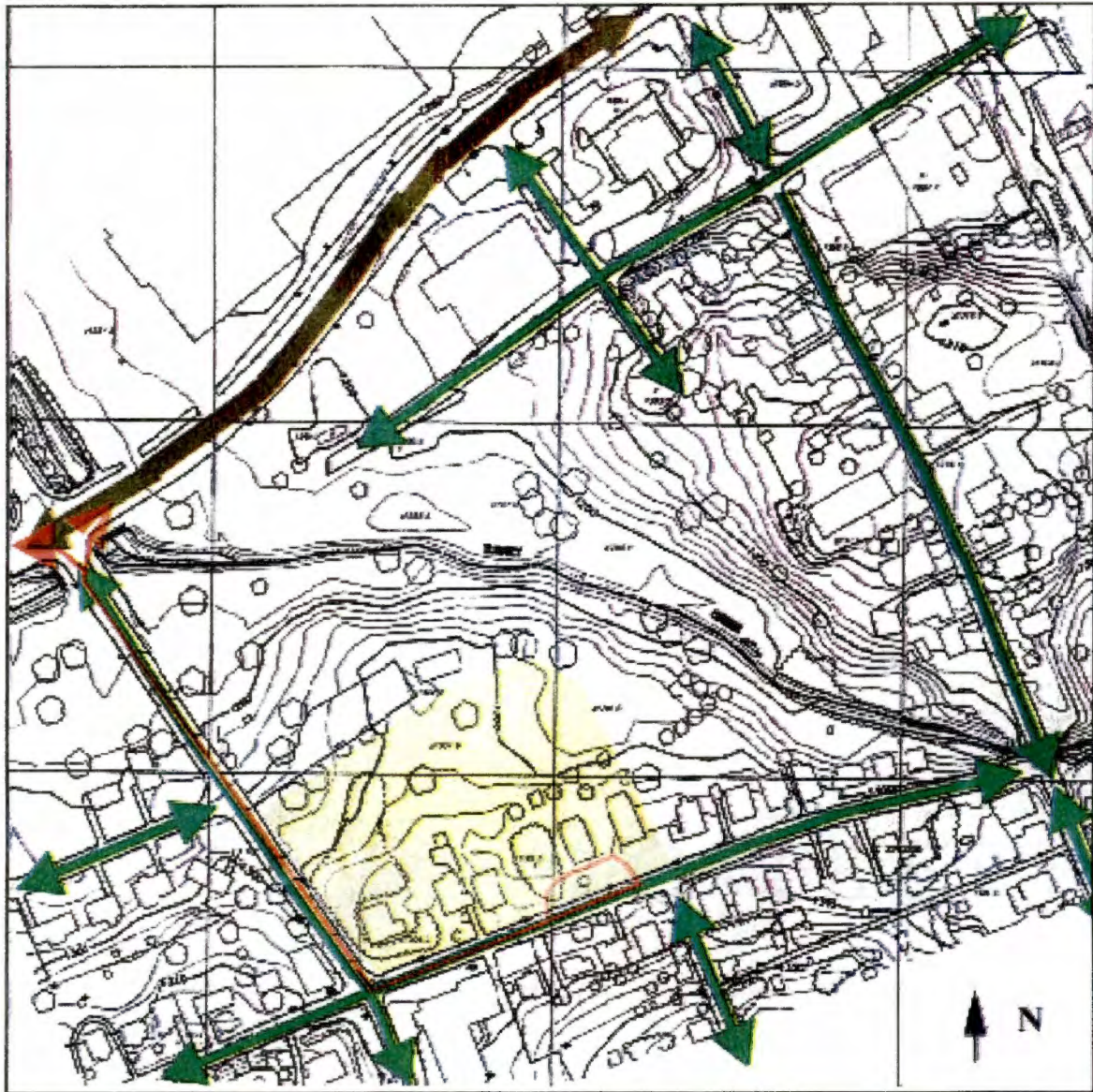


KEY	
	SITE
	COMMERCIAL
	SMALL BUSINESS
	RESIDENTIAL
	RELIGIOUS










NOTES

At the site the children are in the neighborhood setting but can easily see commercial, small business, and religious activities from the building site.

VEHICULAR CIRCULATION



KEY

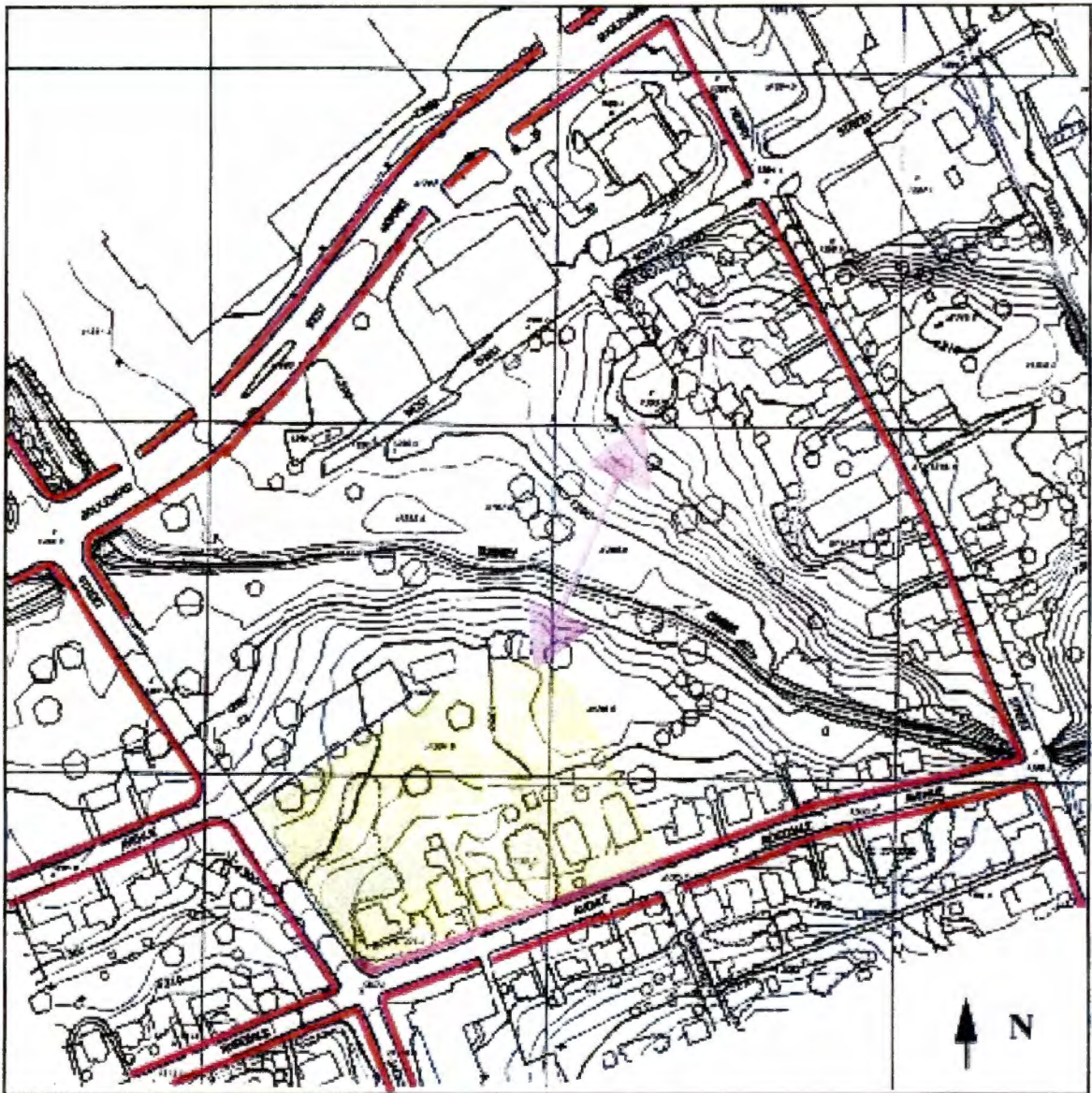
-  SITE
-  11E MAJOR HIGHWAY
-  MINOR TRAFFIC: 2WAY 2LANE
-  MINOR TRAFFIC: 1WAY 1LANE
-  DROP-OFF / PICKUP ROUTE
- 
- 
- 
- 

NOTES

ROSEDALE AVENUE

This is the ideal street for the school to front because of low traffic volume in the neighborhood.

PEDESTRIAN CIRCULATION



KEY

- SITE
- PUBLIC SIDEWALK
- WALKING PATH
-
-
-
-
-

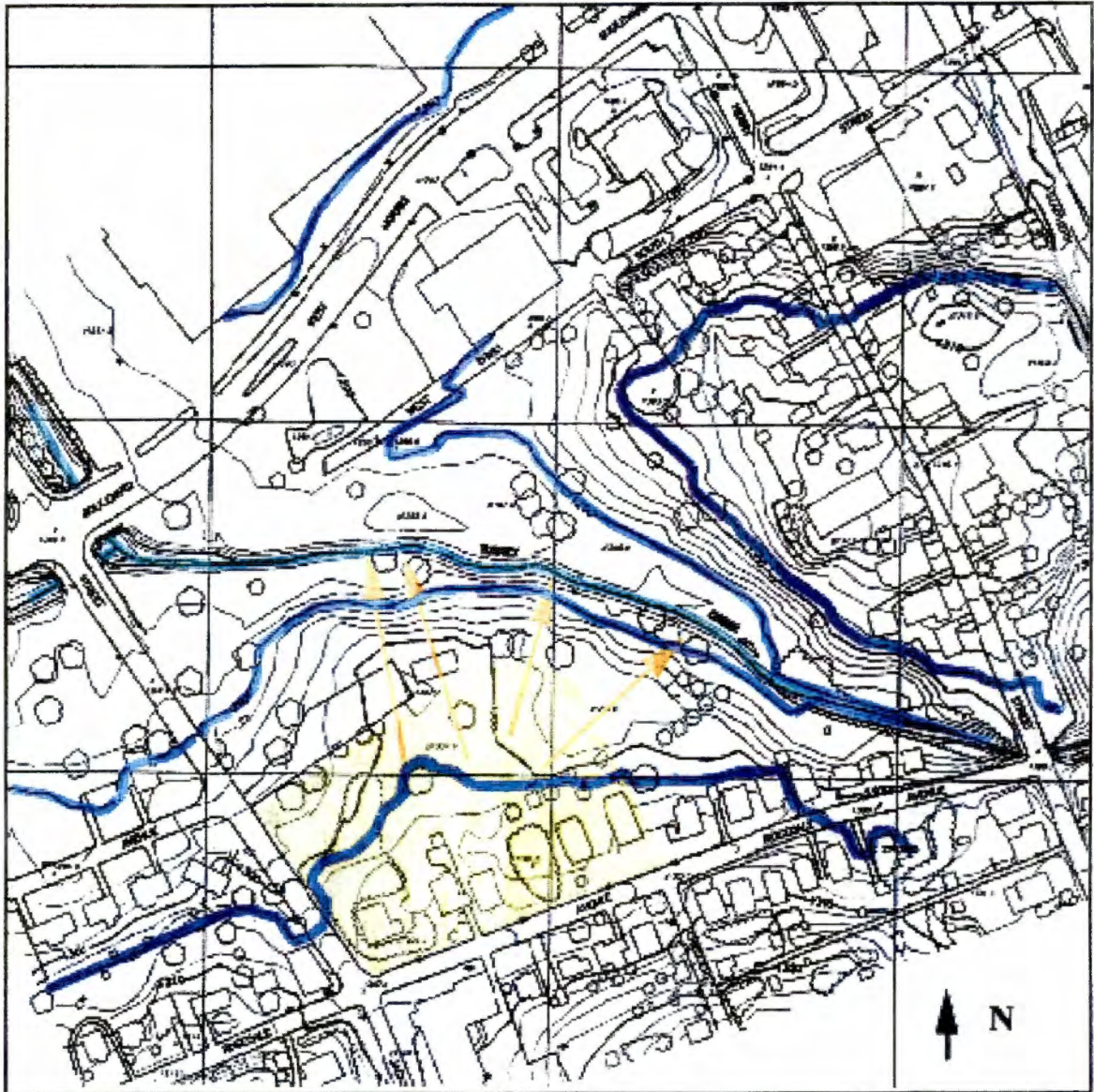
NOTES

ROSEDALE AVENUE

The site is located in a low volume traffic neighborhood.

Public sidewalks are available around the site to make it easy for children to walk to school.

NATURAL FEATURE

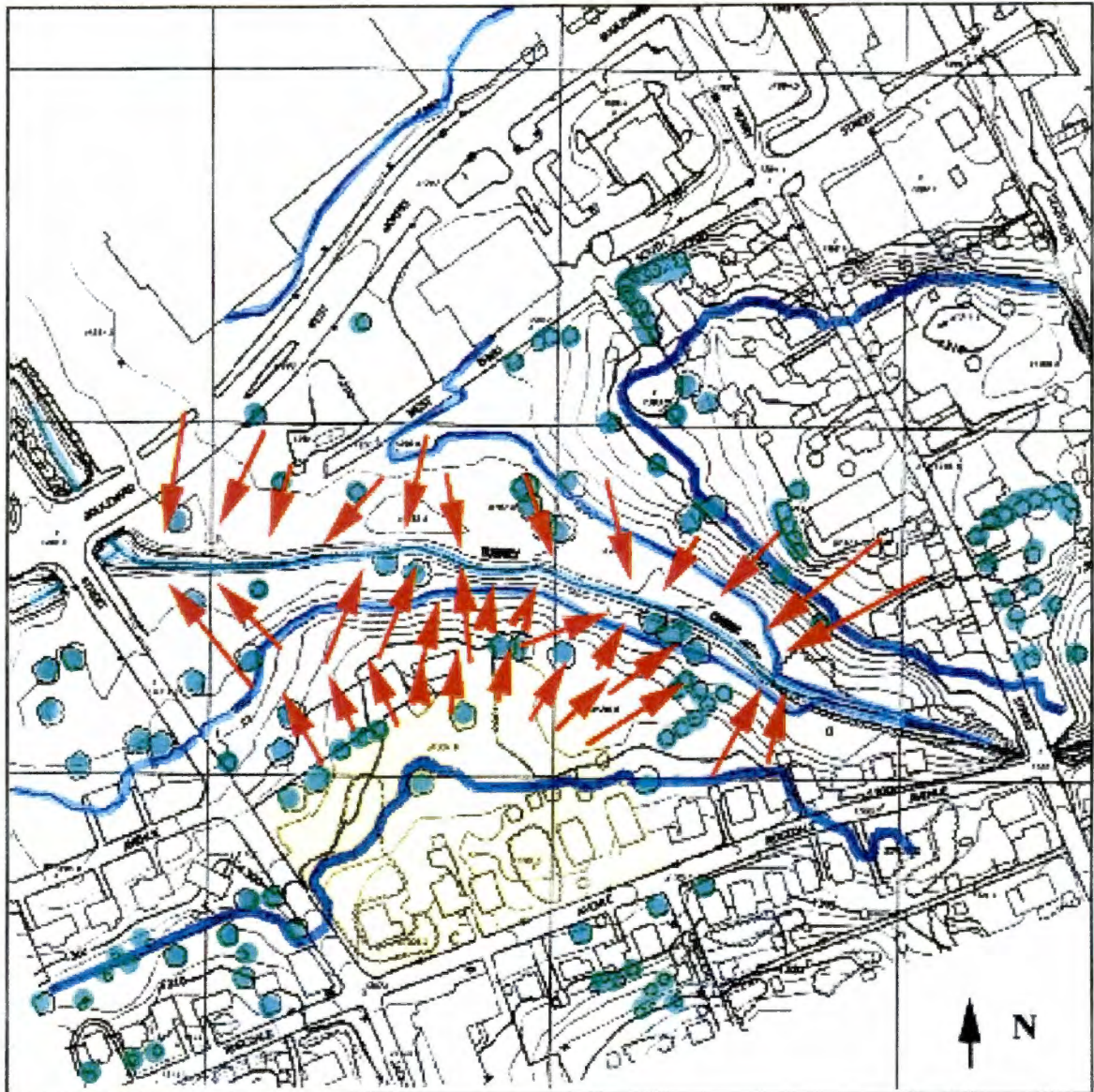


KEY	
	SITE
	CREEK
	100 YEAR FLOOD PLANE
	500 YEAR FLOOD PLANE
	PLACES TO GET TO WATER

NOTES

The creek is the natural feature that is located in the park which can easily be accessed from the site. The children can get to the water in places along the creek.

DRAINAGE, FLOODING, AND VEGETATION



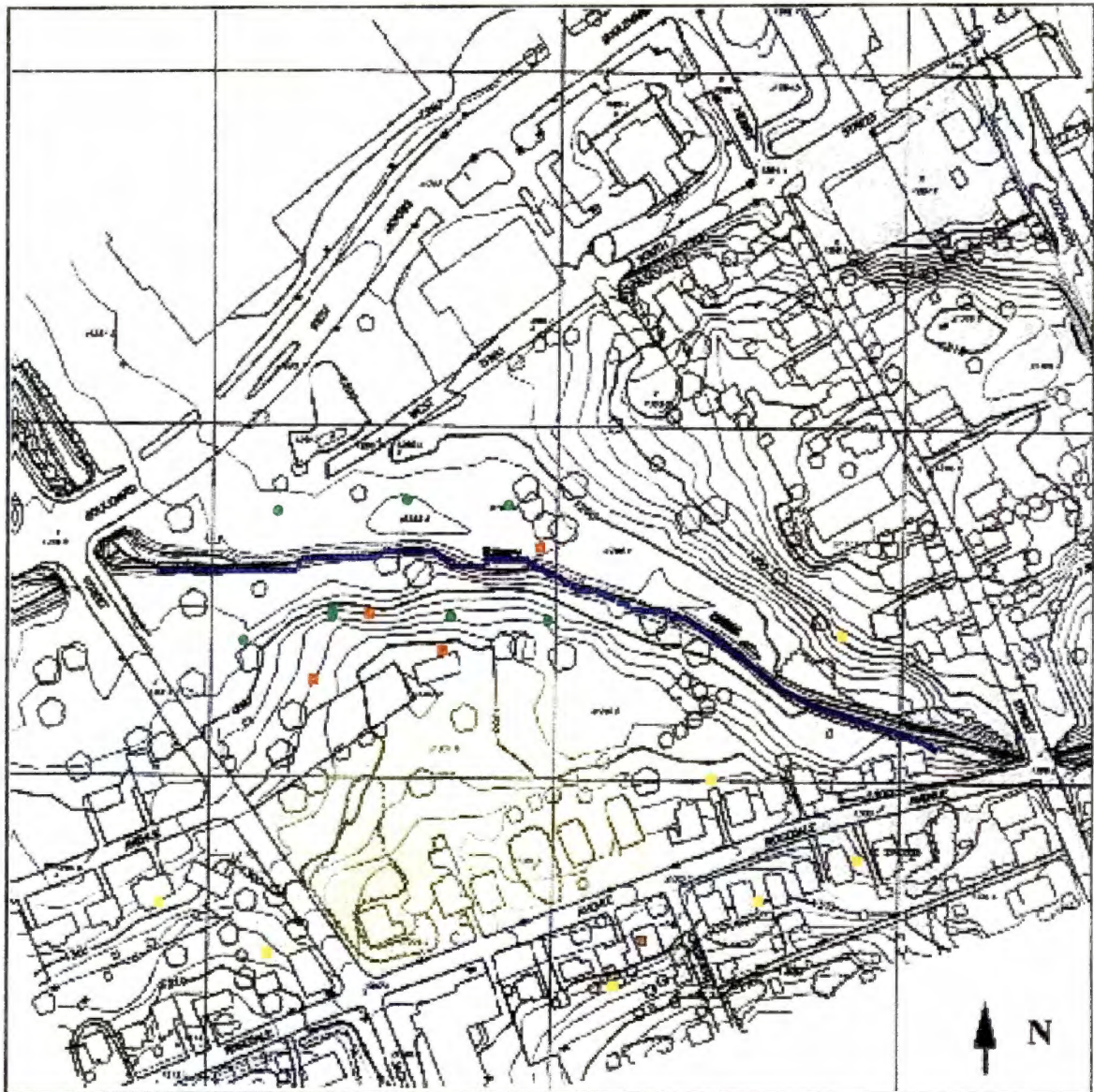
KEY

- SITE
- CREEK
- 100 YEAR FLOOD PLANE
- 500 YEAR FLOOD PLANE
- SURFACE DRAINAGE
- VEGETATION
-
-
-

NOTES

The site is located near a creek which runs through the park. The site is located outside of the flood planes. The site has good drainage toward the creek. There is a lot of vegetation around the site. The city maintains the park, and the creek is a nice place for the children to go and play.

NOISE



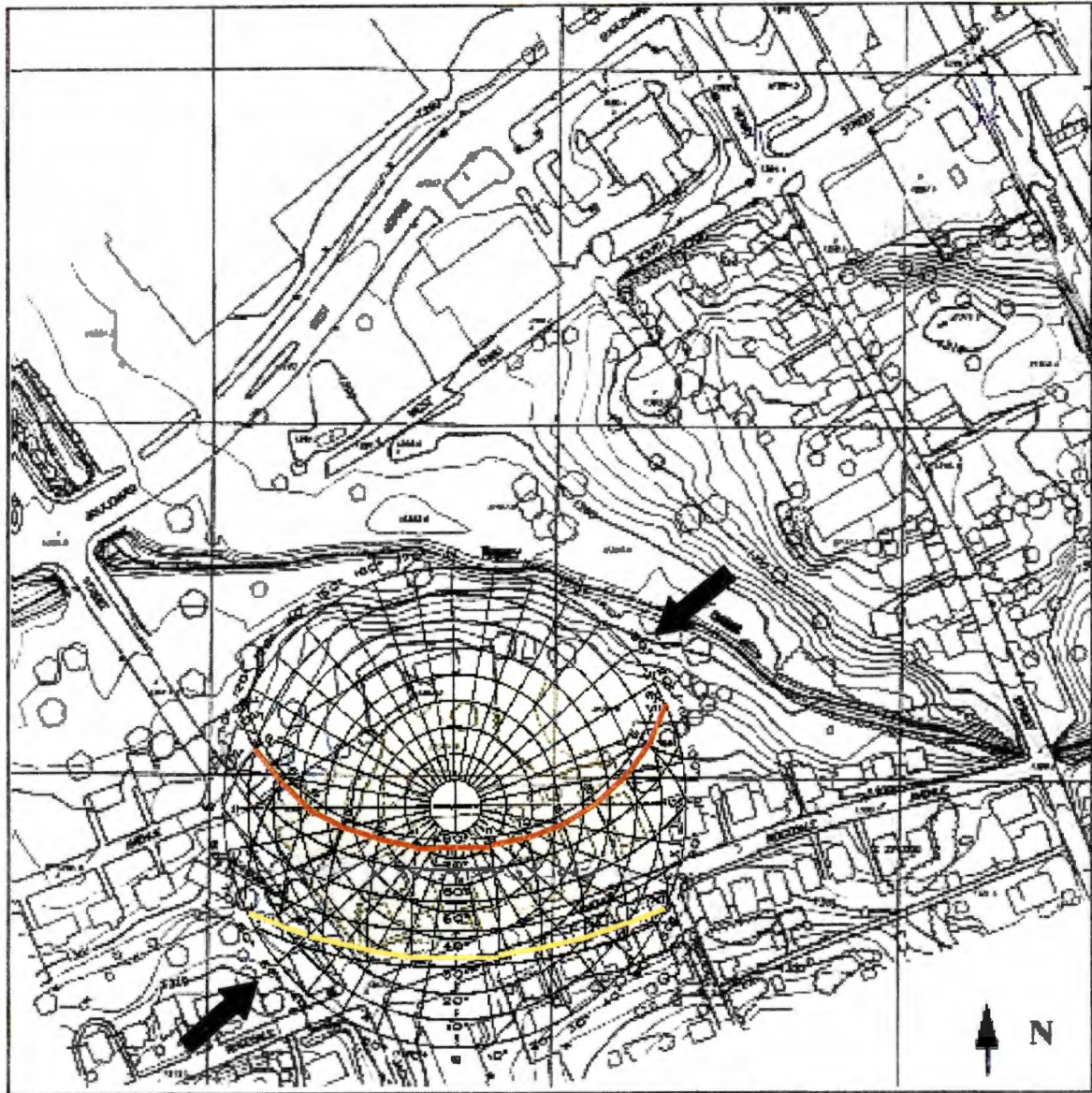
KEY

- SITE
- CREEK
- PARK
- PEOPLE HAVING LUNCH
- NEIGHBORHOOD
- DOG
-
-
-

NOTES

The children can hear different noises from the site that would be very comforting to them. They can hear the sound of the creek running, people in the park, and other neighborhood sounds.

SUNPATH AND WIND DIRECTION



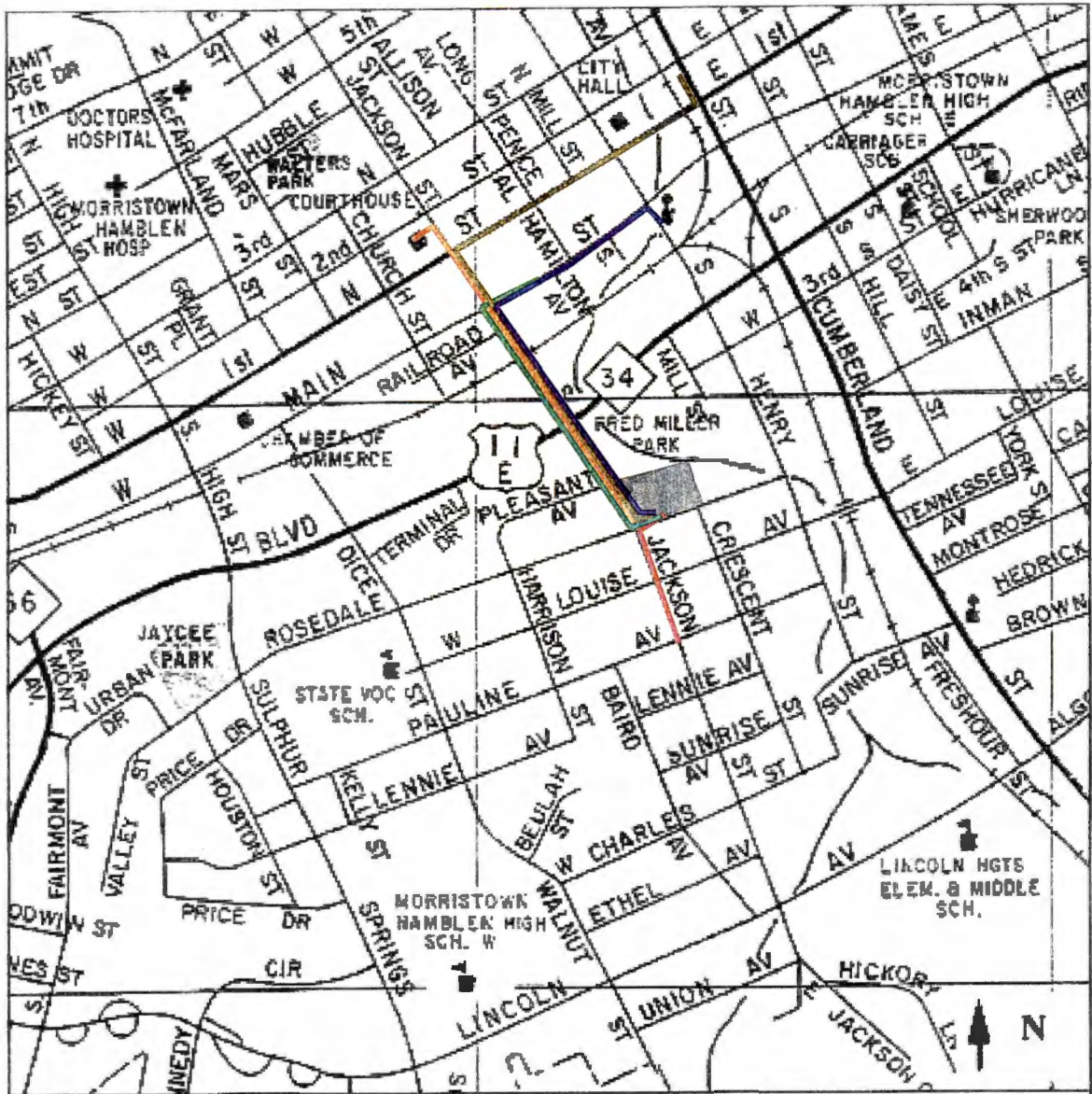
KEY










-  SITE
-  PREVAILING WINDS
-  SUMMER SUN: JULY 21
-  WINTER SUN: DEC 21
- 
- 
- 
- 
- 

NOTES

The site is located in a place which receives sun from all angles at all times of the day. The prevailing winds come from the northwest in the winter and the southeast in the summer.

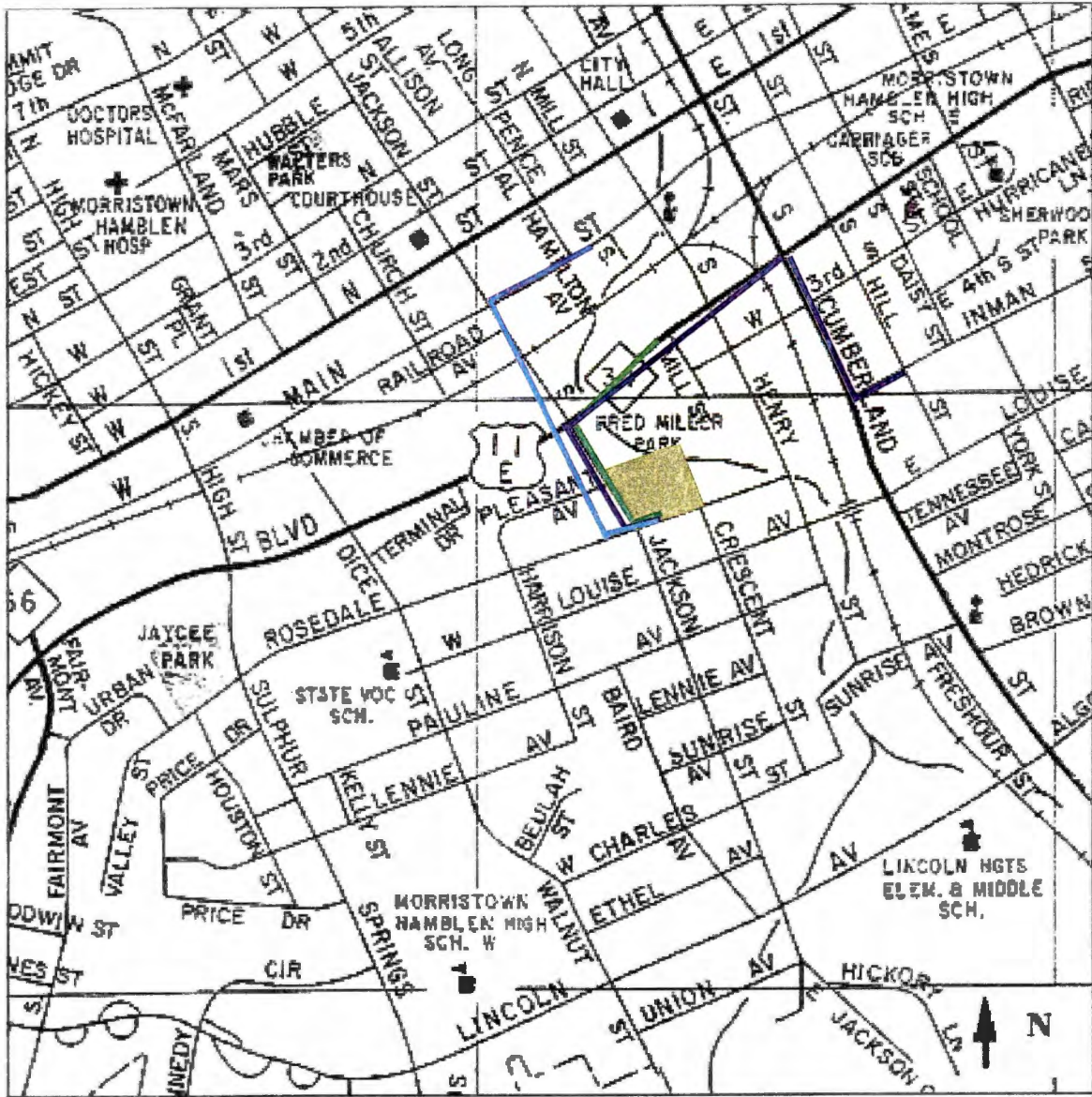
CIVIC BUILDINGS












KEY	
	SITE
	COUNTY COURTHOUSE
	CITY HALL
	DOWNTOWN POST OFFICE
	PUBLIC LIBRARY
	CITY FIRE DEPARTMENT
	
	
	

NOTES
Count Courthouse 4/10 mile 16 minute walking
City Hall 7/10 mile 28 minute walking
Downtown Post Office 5/10 mile 20 minute walking
Public Library 3/10 mile 12 minute walking
City Fire Department 3/10 mile 12 minute walking

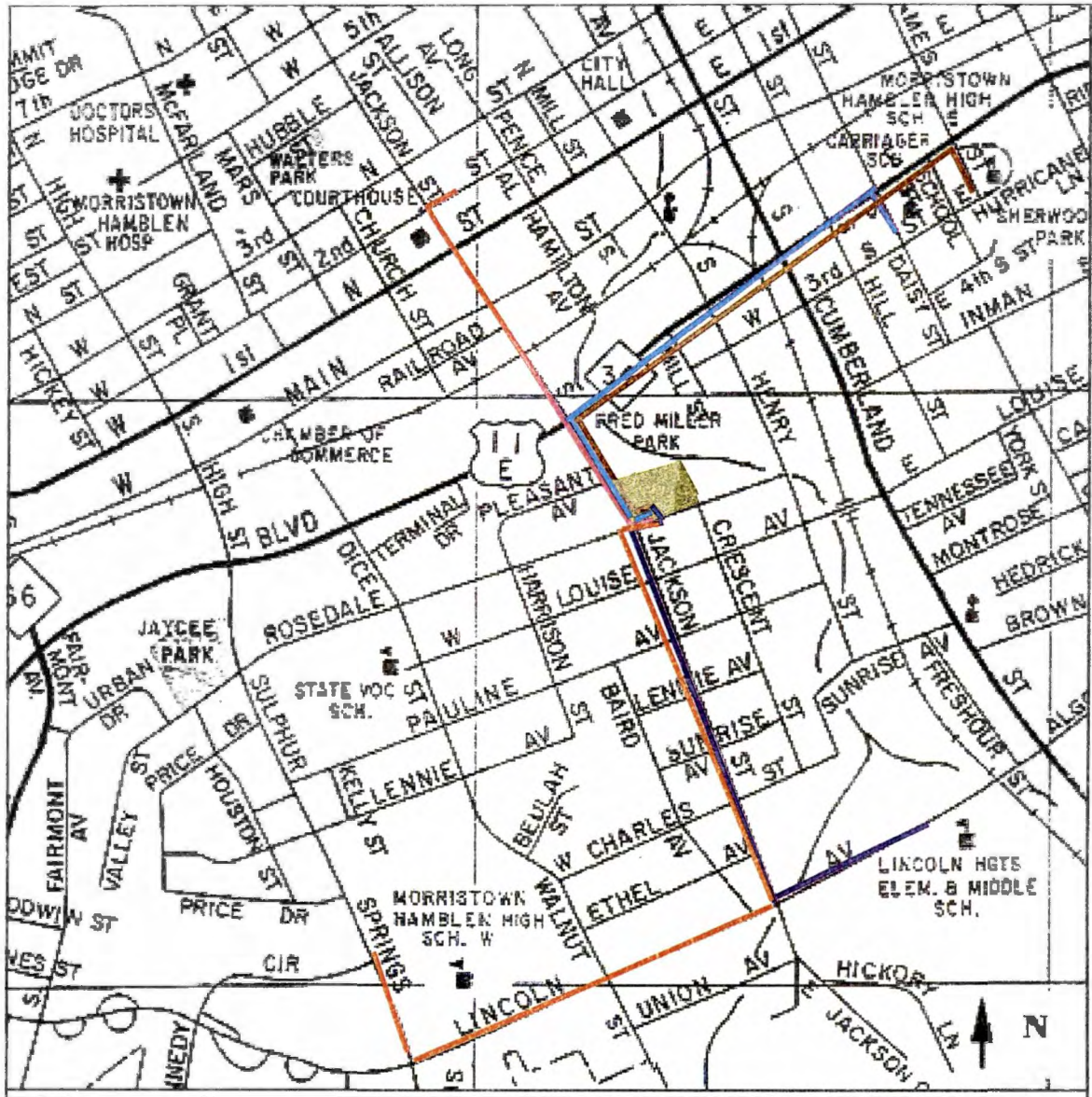
OPPORTUNITIES FOR PRACTICAL LIFE












KEY	
	SITE
	FARMER'S MARKET
	DOWNTOWN
	FOOD CITY
	
	
	
	
	

NOTES
Farmers Market 3/10 mile 12 minute walking
Downtown 4/10 mile 16 minute walking
Food City 7/10 mile 28 minute walking

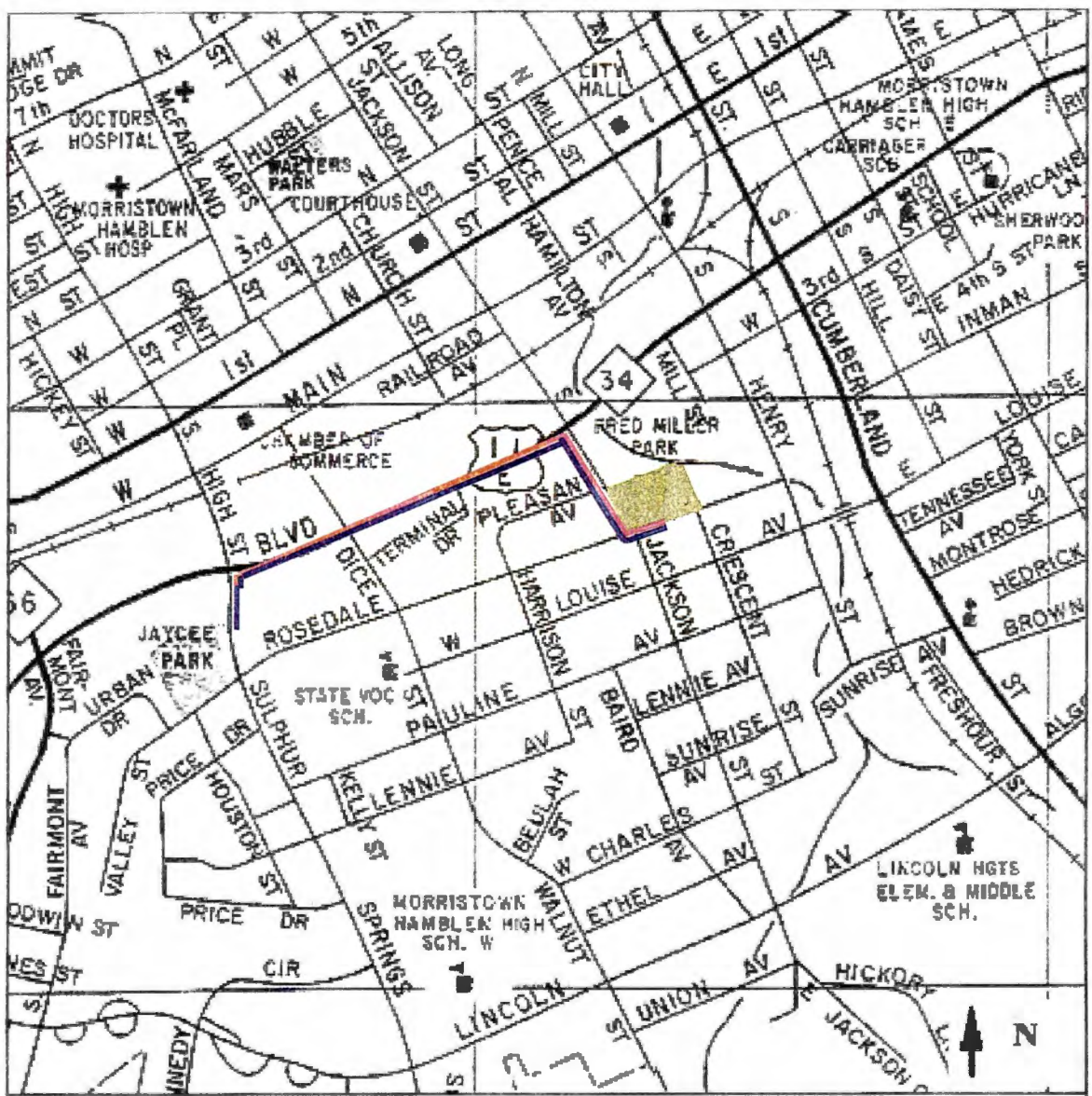
EDUCATIONAL AND CULTURAL ACTIVITIES












KEY	
	SITE
	EAST HIGH SCHOOL
	WEST HIGH SCHOOL
	LINCOLN HEIGHTS
	ROSE CENTER
	THEATRE GUILD
	
	
	

NOTES
East High School 8/10 mile 32 minute walking
West High School 1 2/10 miles 48 minute walking
Lincoln Heights 9/10 mile 36 minute walking
Rose Center 4/10 mile 16 minute walking
Theatre Guild 5/10 mile 20 minute walking

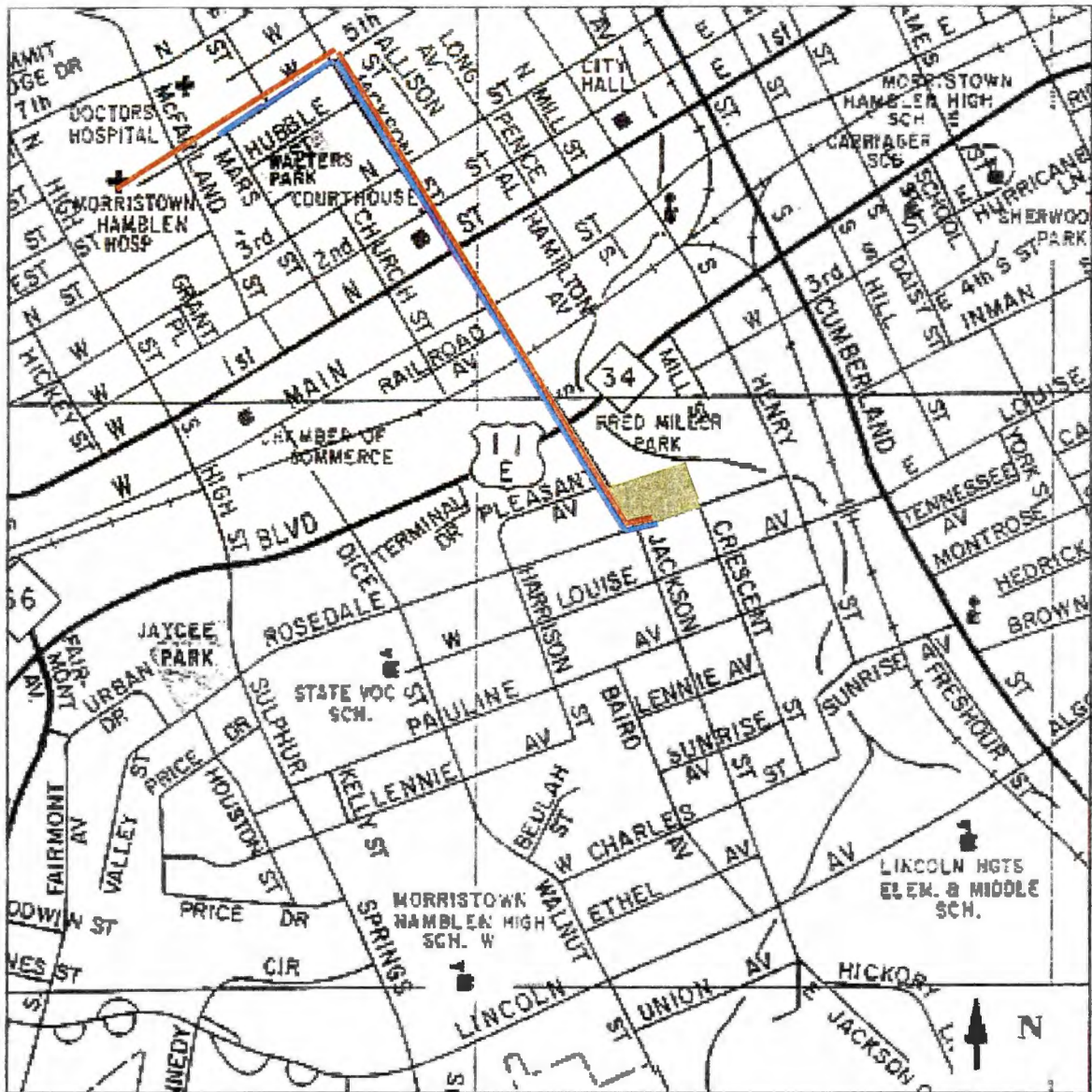
ENRICHMENT ACTIVITIES



KEY	
	SITE
	GIRL'S CLUB
	BOY'S CLUB
	
	
	
	
	
	

NOTES
Girl's Club 6/10 mile 24 minute walking
Boy's Club 6/10 mile 24 minute walking

HOSPITAL



KEY

- SITE
- MORRISTOWN-HAMBLEN
- LAKEWAY
-
-
-
-

NOTES

Morristown-Hamblen 1 1/10 miles 44 minute walking
 Lakeway 9/10 mile 36 minute walking

**DISTANCES AND TRAVEL TIME WALKING BETWEEN SITE
AND AMENITIES**

PLACES	DISTANCES	TIME ONE WAY
Civic Buildings		
Courthouse	4/10 mile	16 minutes
Downtown Post Office	5/10 mile	20 minutes
City Hall	7/10 mile	28 minutes
County Justice Center	6/10 mile	24 minutes
Public Library	3/10 mile	12 minutes
Fire Department	3/10 mile	12 minutes
Educational & Cultural Enrichment Activities		
Lincoln Heights	9/10 mile	36 minutes
East High	8/10 mile	32 minutes
West High	1 2/10 miles	48 minutes
Theatre Guild	5/10 mile	20 minutes
Rose Center	4/10 mile	16 minutes
Opportunities for Practical Life Activities		
Farmers Market	3/10 mile	12 minutes
Food City	7/10 mile	28 minutes
Downtown (Main Street)	4/10 mile	16 minutes
Enrichment Activities		
Girls Club	6/10 mile	24 minutes
Boys Club	6/10 mile	24 minutes
Hospitals		
Hamblen Hospital	1 1/10 miles	44 minutes
Lakeway Hospital	9/10 mile	36 minutes

ASSUMPTIONS

- A teacher with children can walk 1.5 miles per hour.
- A teacher with children will not walk more than 30 minutes.
- Any walking distance over 30 minutes is a walking distance for one teacher and two children or is a driving activity for the whole school.

APPENDIX B: CLIMATE CONDITIONS ANALYSIS

TEMPERATURE

The graph of the temperature in Morristown to help in the design of the Morristown Montessori Preschool. From the graph, one can tell when the children will need to wear a coat, a jacket, or shorts to make them comfortable when they are playing or doing activities outside. The outside play areas are designed so that the children have places to play outside all year round. The children can play on the South side of the building during the winter months so that they will be getting the direct sun to help keep them warm, and they can play on the North side of the building during the summer months so that they will be in the shade of the building and trees to keep them cool from the heat. In the design of the building, there are areas in the building where the children can play when the weather is bad and they cannot play outside.

RELATIVE HUMIDITY

The Relative Humidity is important to the design of the Morristown Montessori Preschool. The Relative Humidity is higher in the morning hours and lower in the afternoon and evening hours. From the graph, one can see that the Relative Humidity is at it's lowest at 1:00 pm. This information helps to plan good times for the children to play outside without being so hot.

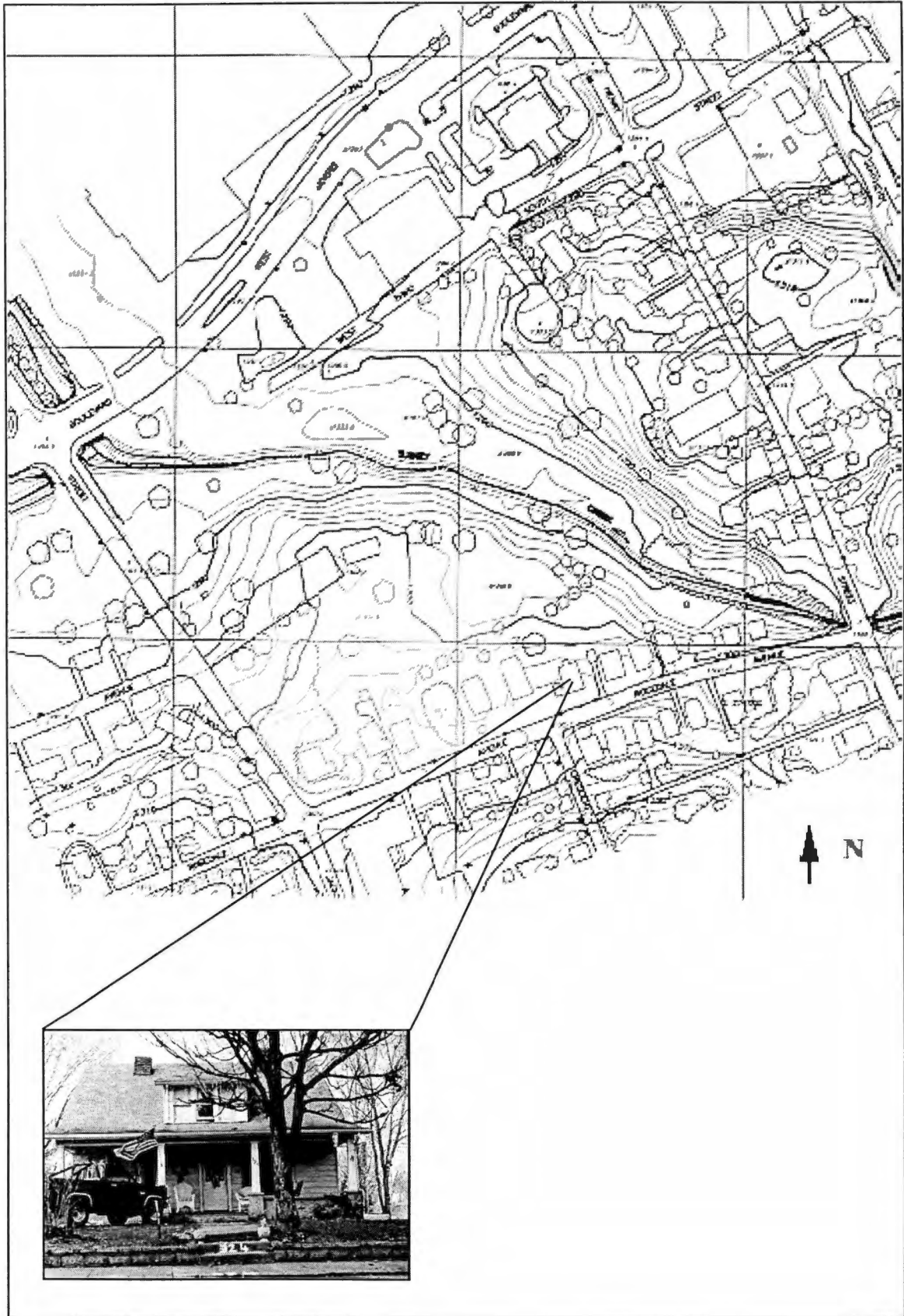
SKY COVER

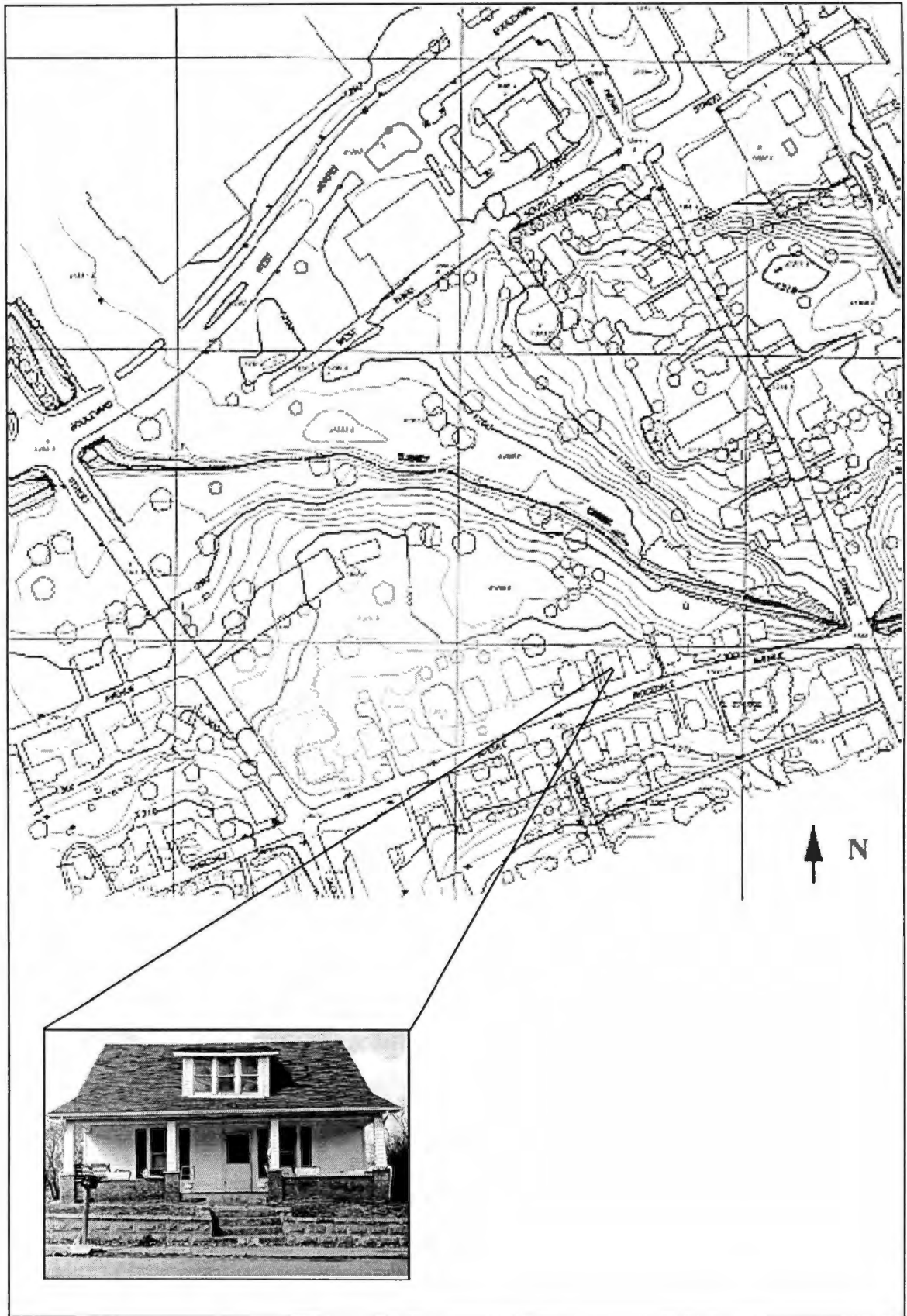
The Sky Cover is important in the design of the Morristown Montessori Preschool. From the graph, one can see that the clear days in the spring and winter are better times for the children to be outside because the weather will seem to be warmer. In the summer and fall, the partly cloudy and cloudy days are better play days to make it feel cooler outside on the children.

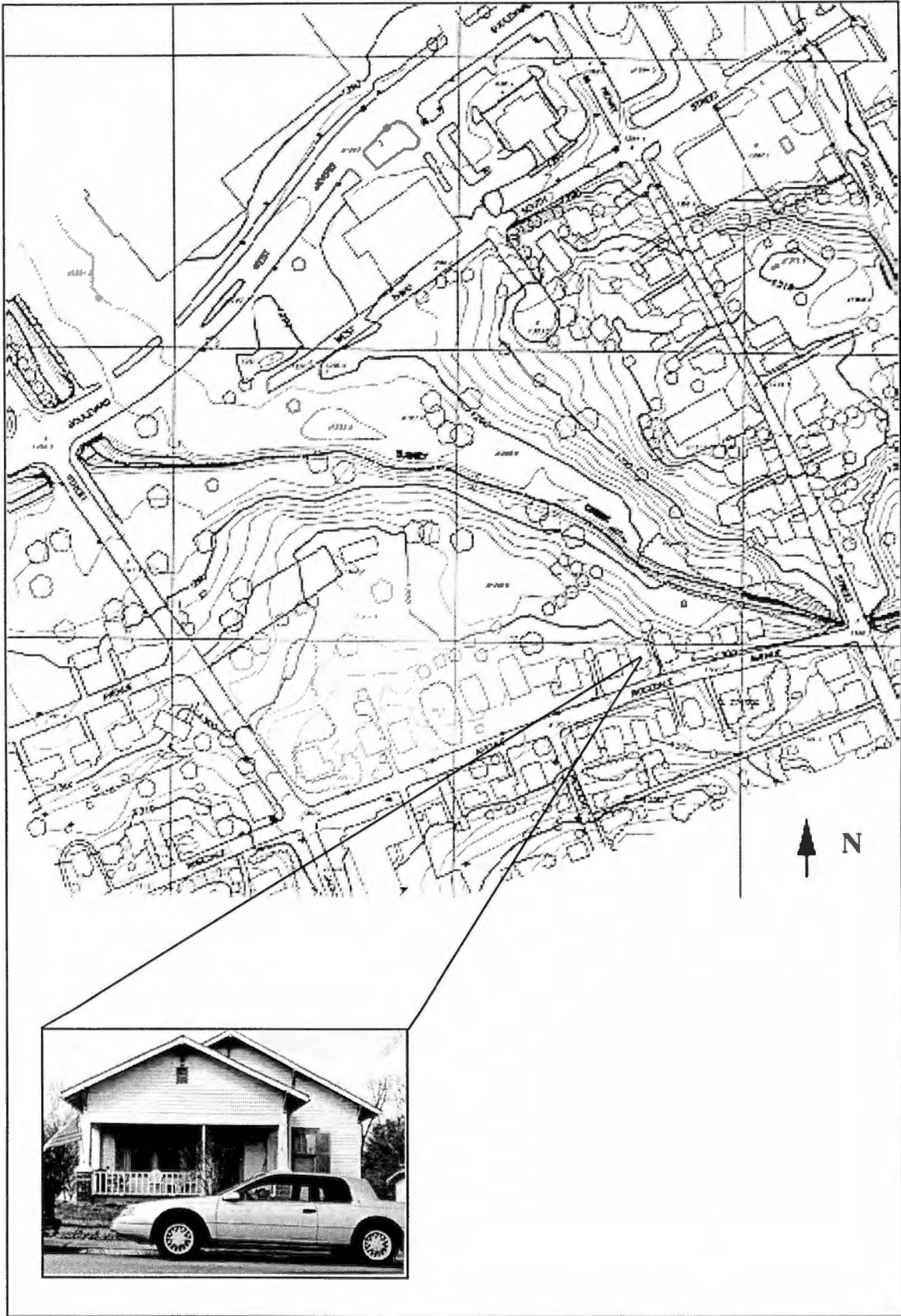
PRECIPITATION

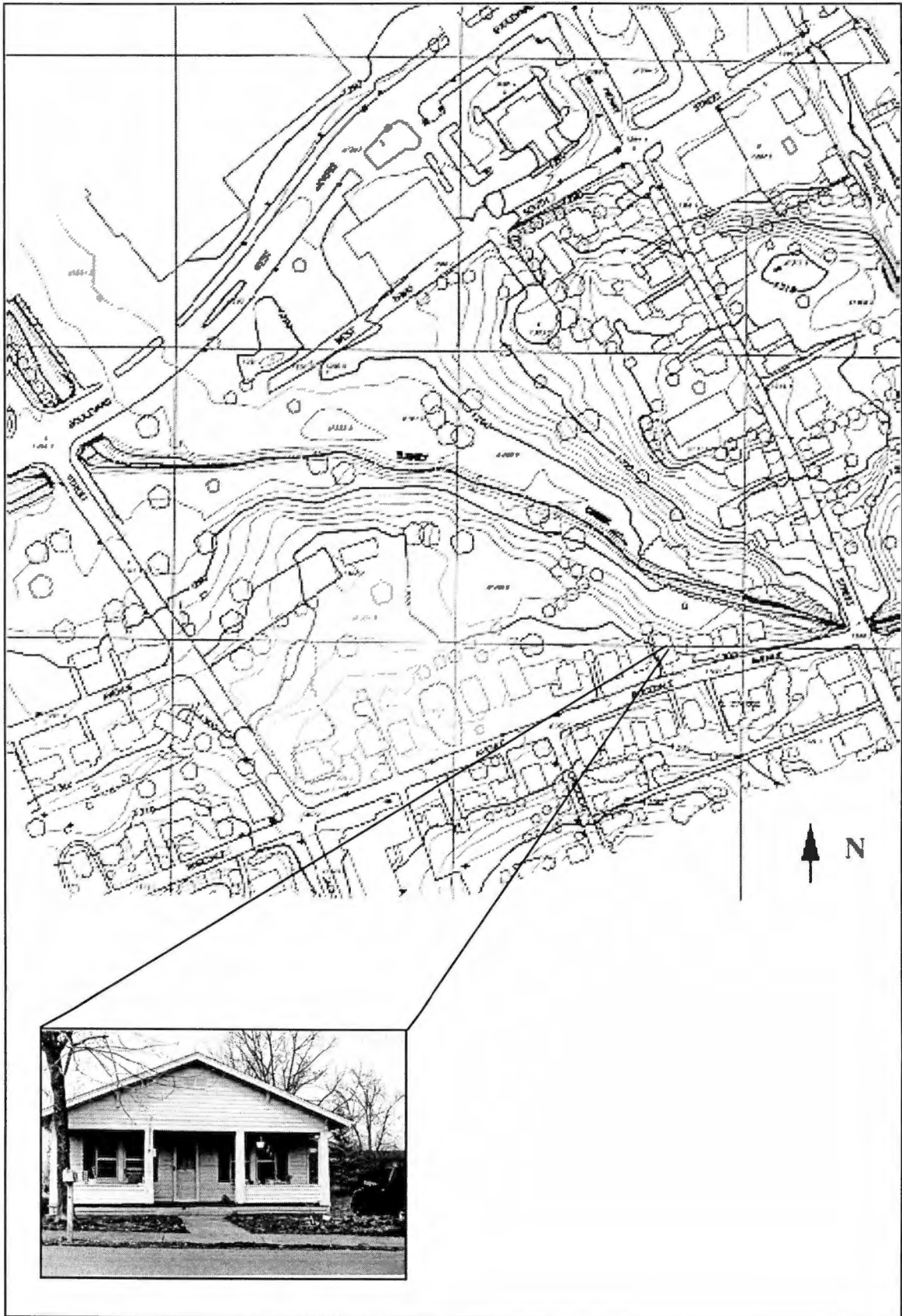
The Precipitation in the area is also important in the design of the Morristown Montessori Preschool. From the graph, one can see that there will be times when it will be raining or snowing, and the children will be unable to play or to do activities outside and will need to have a place to go other than the classroom. The high amount of precipitation also indicates that it would be advantageous to have “sheltered” outdoor play areas that could be used when the precipitation is the only factor that would stop outdoor play.

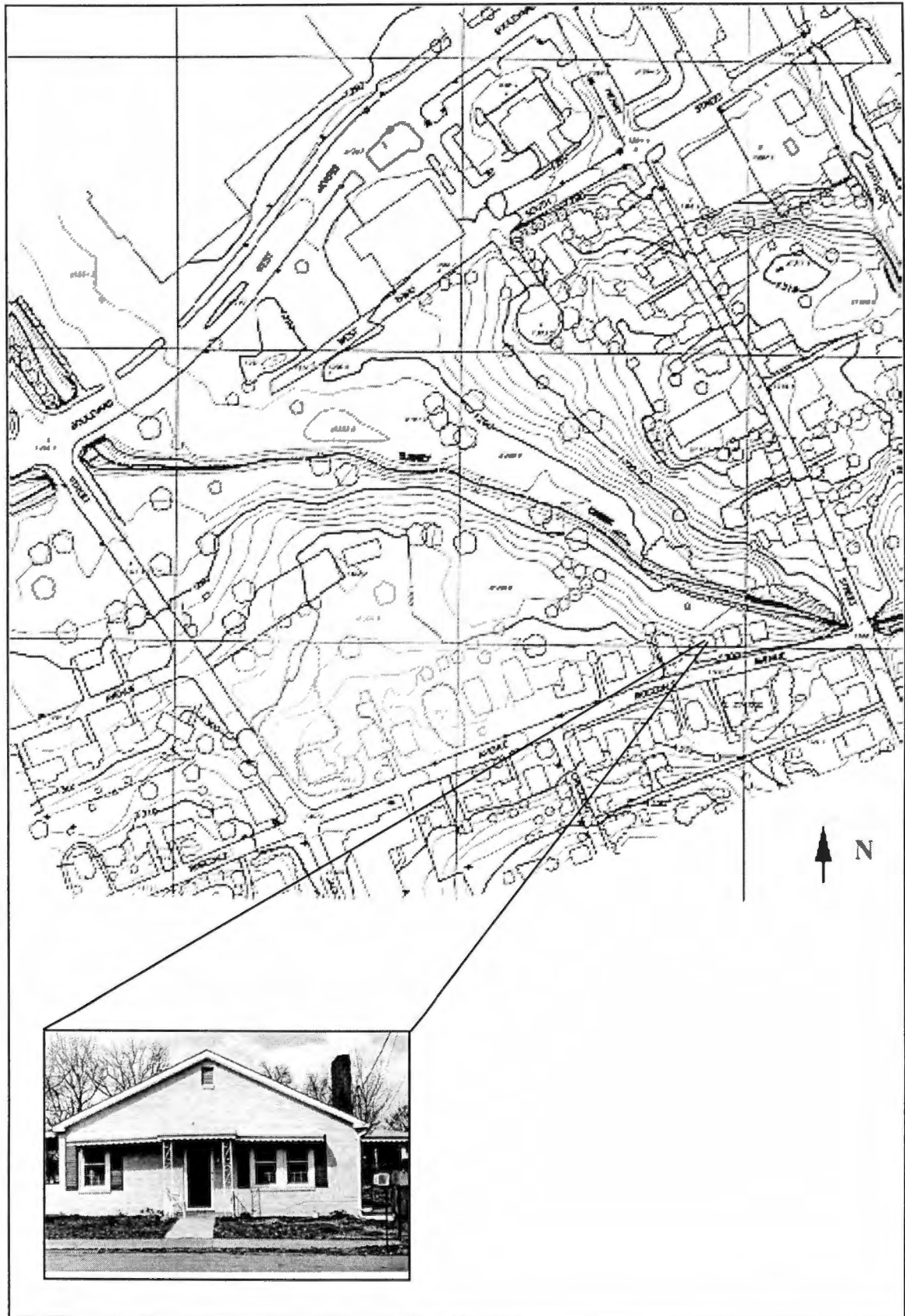
APPENDIX C: EXISTING NEIGHBORHOOD FABRIC

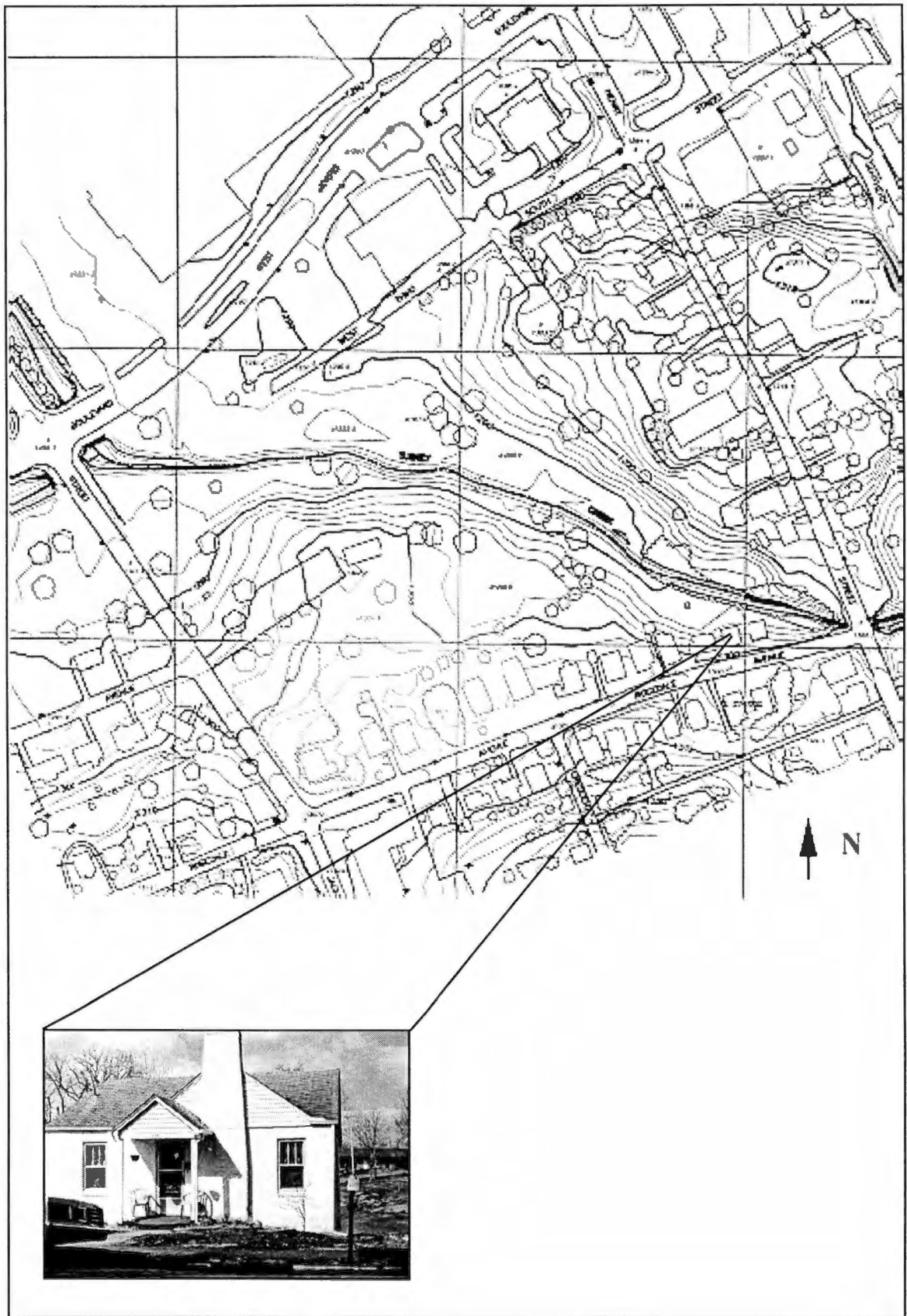




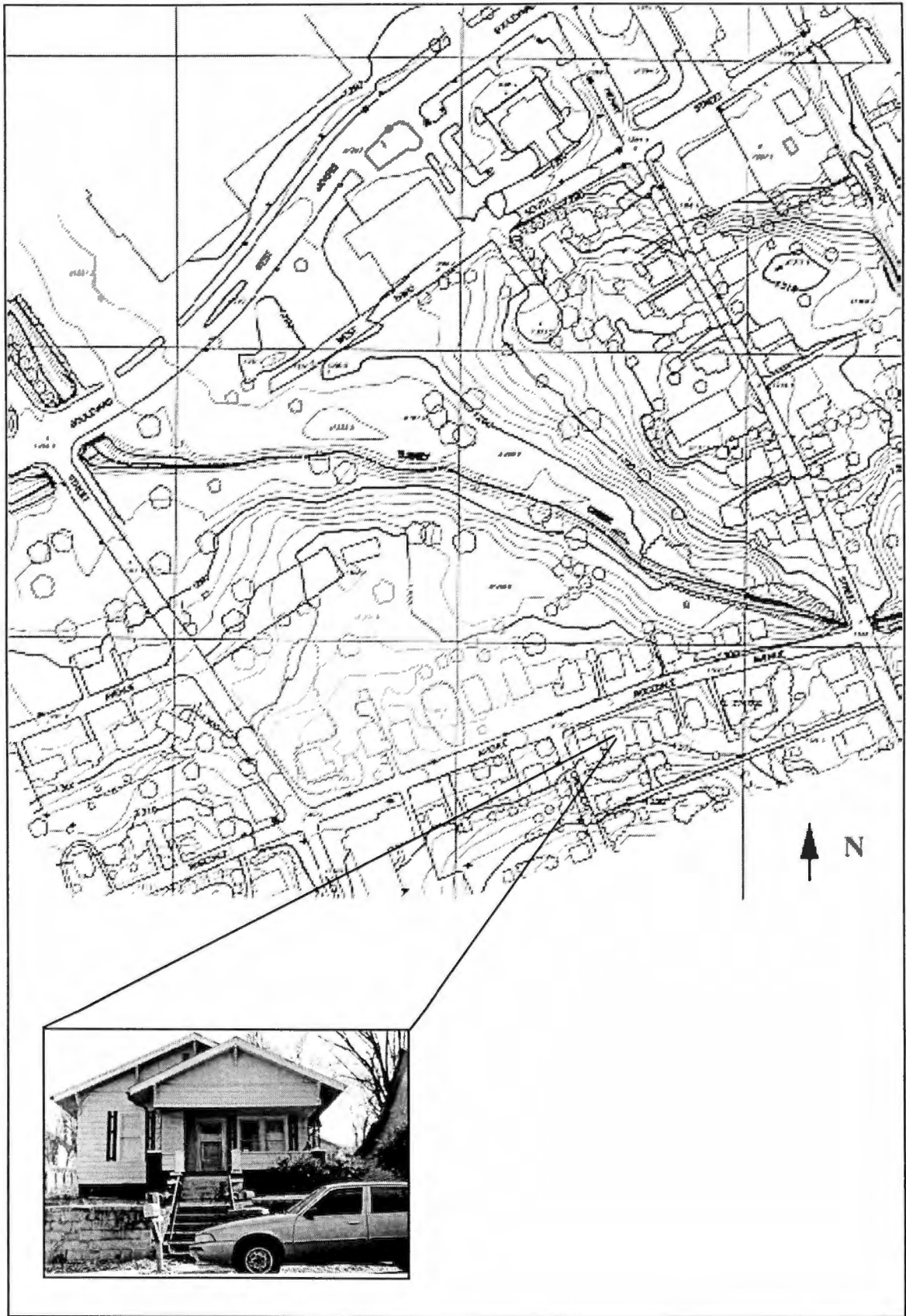


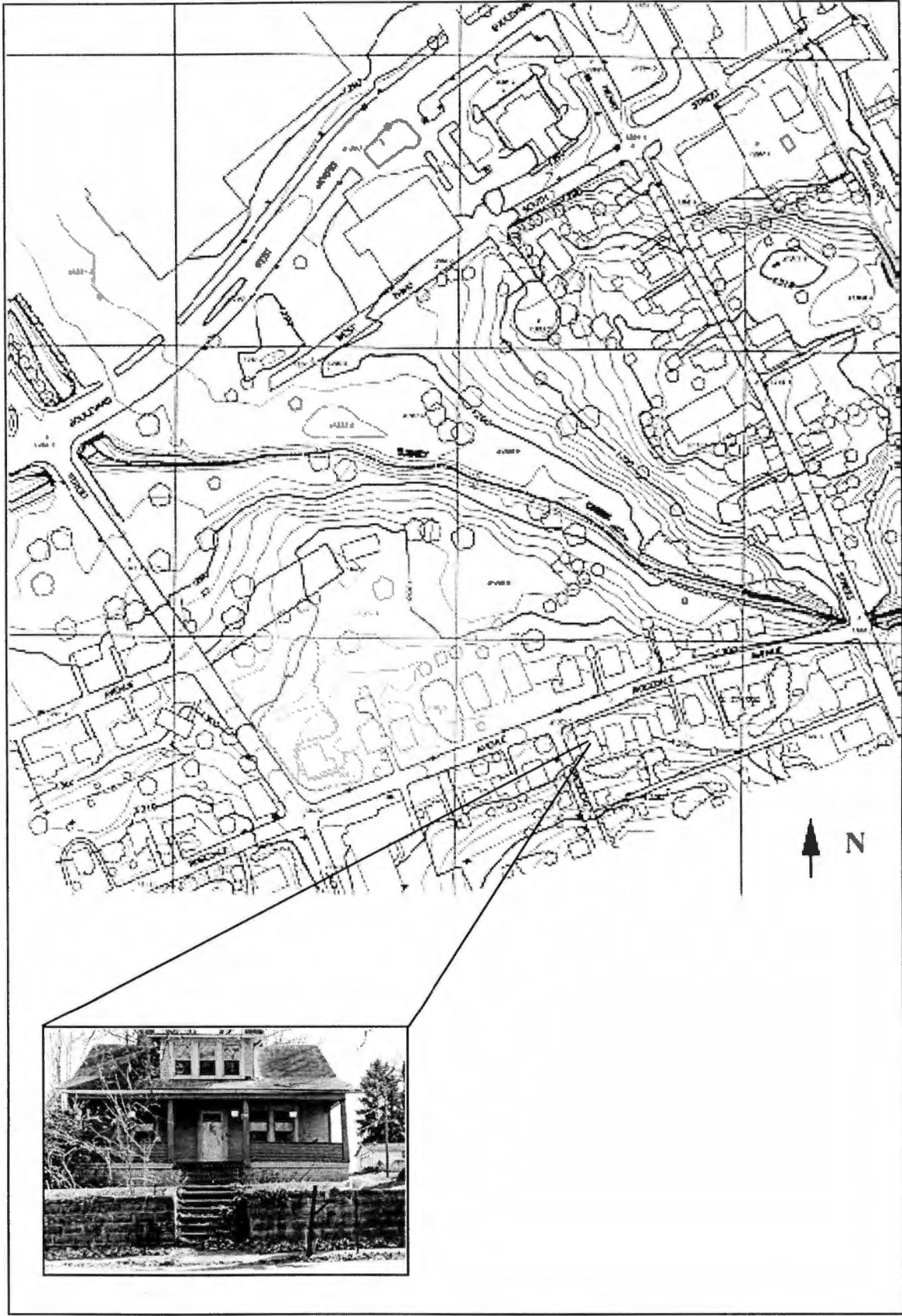


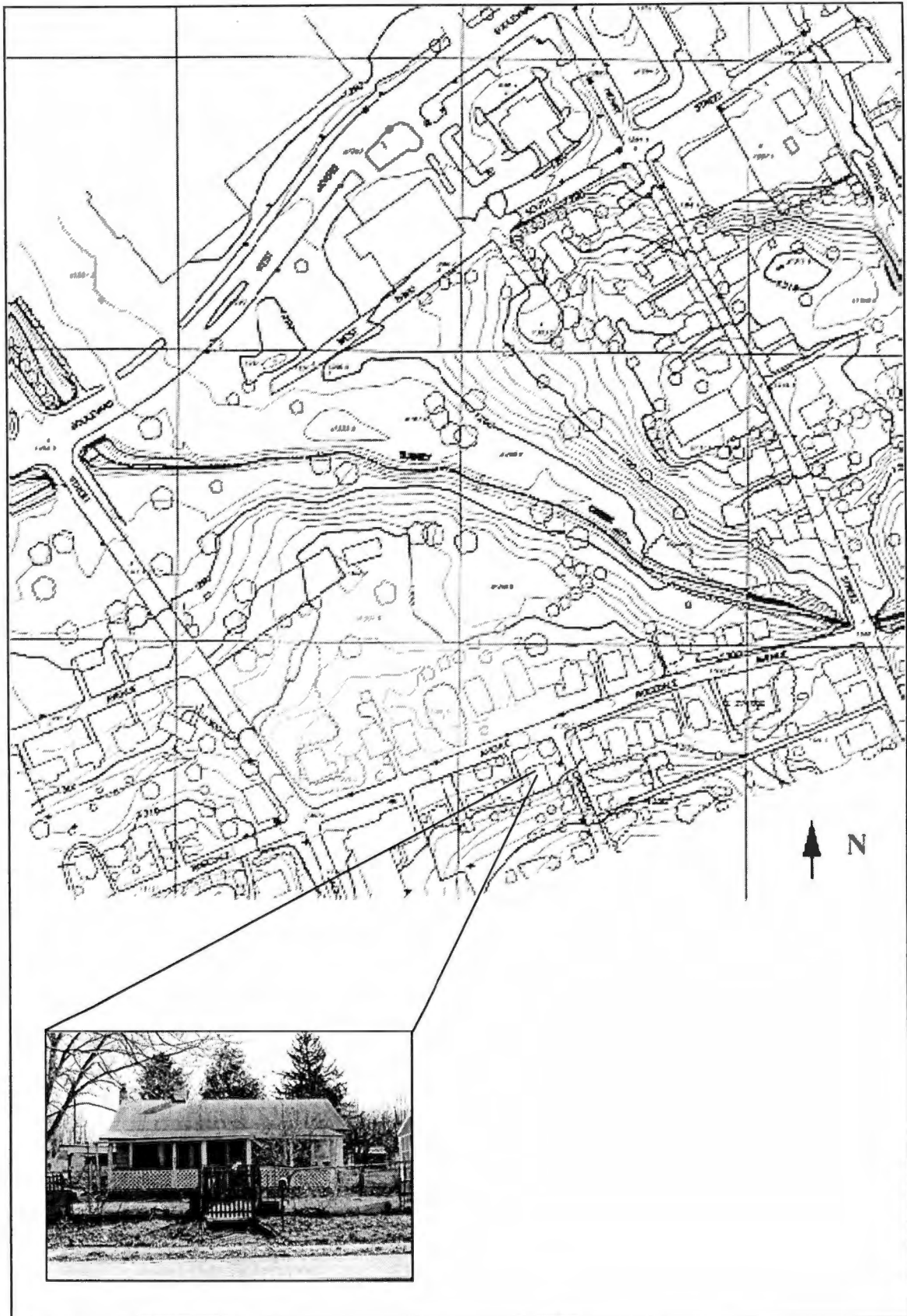


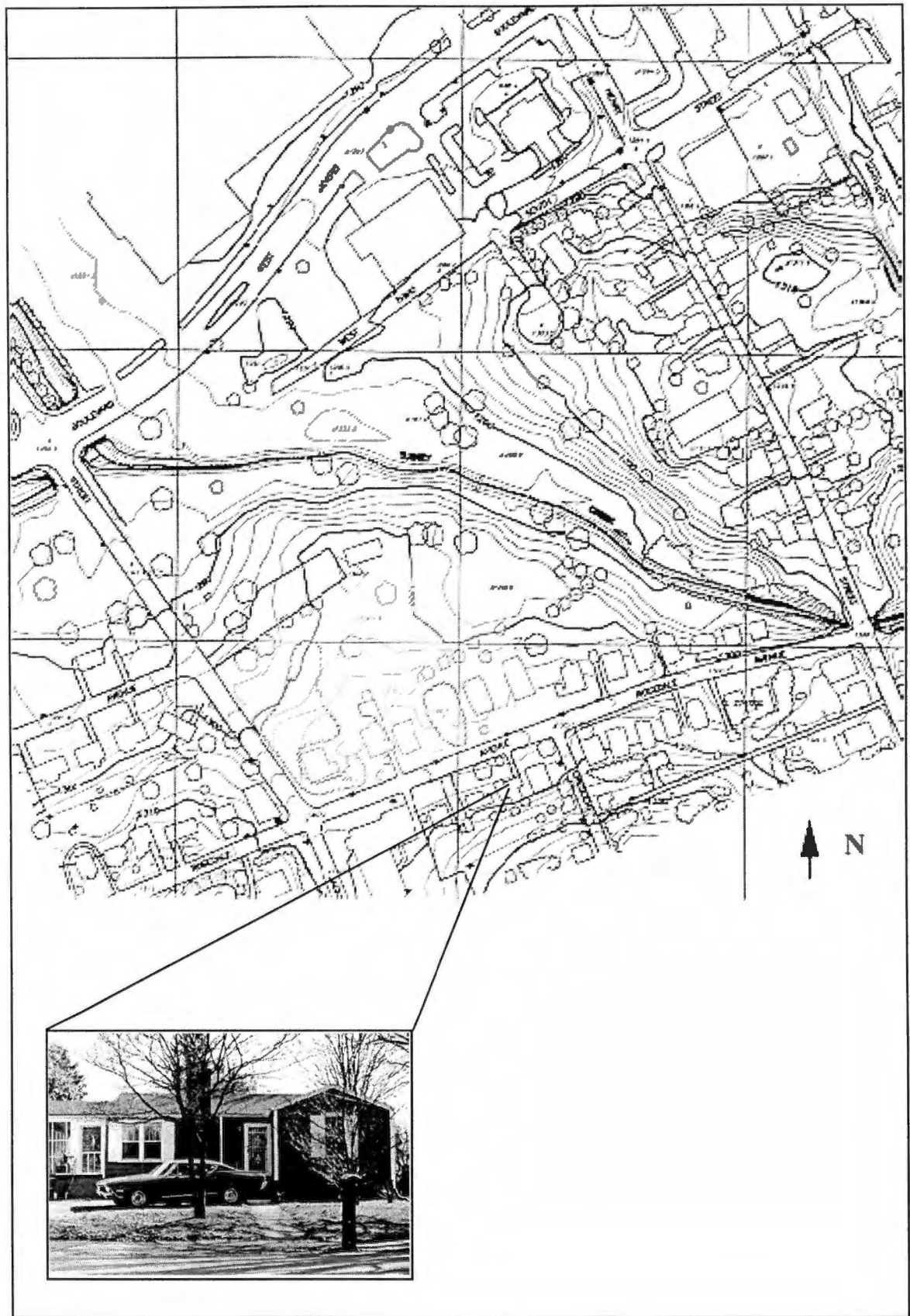


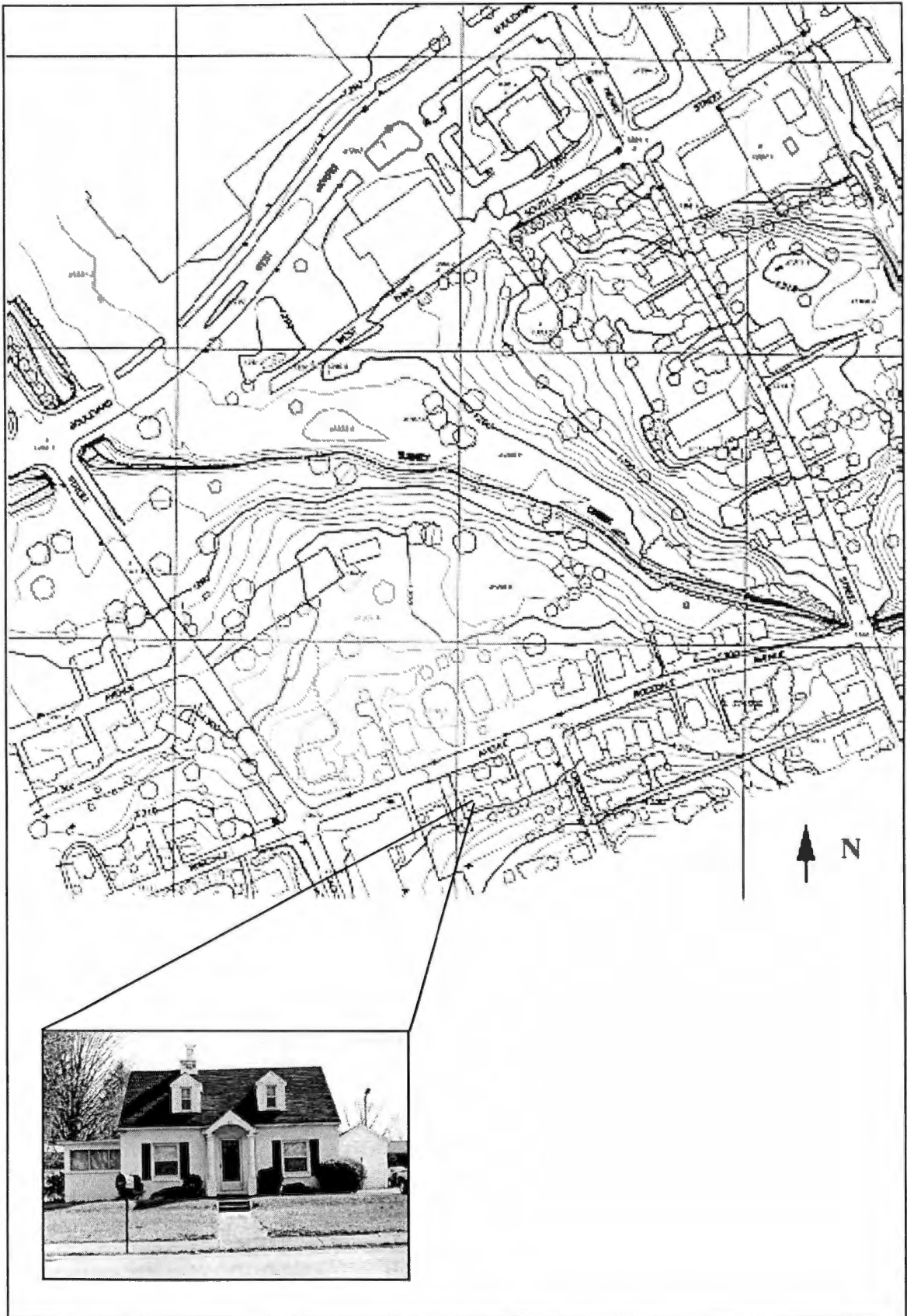


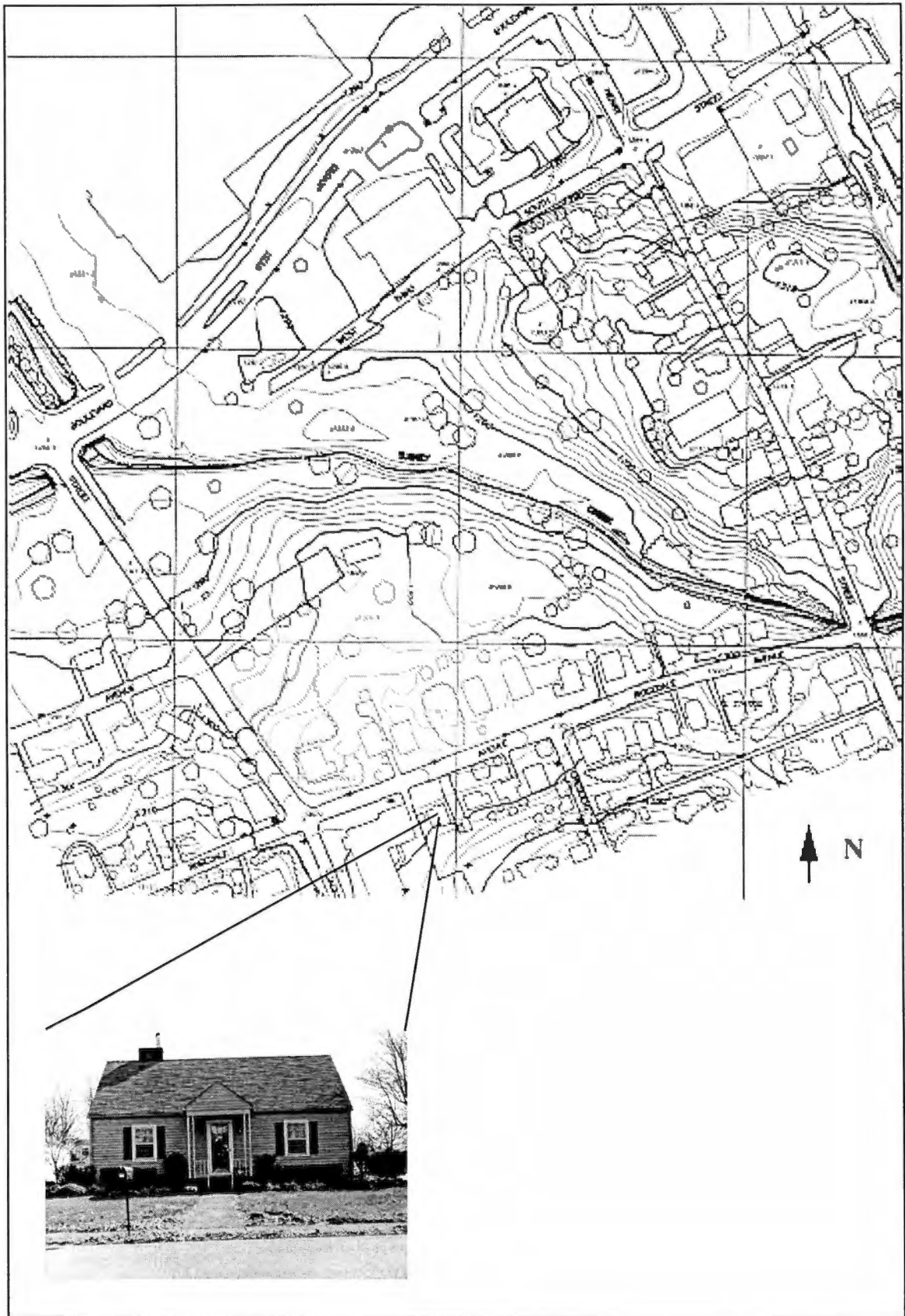












APPENDIX D: CASE STUDY
HERMAN HERTZBERGER'S MONTESSORI SCHOOL IN DELFT

Herman Hertzberger's Montessori School in Delft

I chose this case study because it was about a Montessori Preschool. The building was designed as much as possible in accordance with the Montessori method of education. Hertzberger, the architect of this case study - Montessori Preschool says:

In the traditional rectangular classroom this usually results in a rather chaotic situation, whereby one child is concentrating on its work, while the other is moving around, so that to a certain extent each child is a potential hindrance to the others. This can obviously have an adverse effect on those children who have difficulty concentrating, or who are doing work that requires extra concentration. By articulating the classroom space as an L-shape rather than the usual oblong, and by making one section slightly higher than the other, the children are no longer confronted with such a distracting diversity of activities as soon as they look up from what they are doing, and by using different sections of the classroom for different activity - like the room of a house - the children will obviously be hindered less by their classmates. Those children who have most trouble concentrating can be given a fixed place in the quietest corner; so that, for instance, when they are doing arithmetic, which requires a lot of concentration, they will not be disturbed by the children who are painting, modelling or doing other things - and perhaps having more fun. (Hertzberger 1987, 49)

Hertzberger uses a podium block as a center point of the hall. The children use the podium as a stage and a place to sit. The children can get up higher off the floor so that they can see around like the adults.

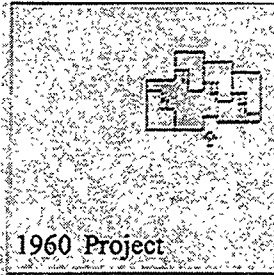
In the Delft school, Hertzberger used the relationship between the classroom and the hall as if the classrooms are shops around a square. The exterior of the classroom is like a shop window to show others what the group is doing and what they have to offer. All rooms are grouped around the hall. The large open space of the hall gives a great deal of space to the children to be by themselves or to do group activities.

Hertzberger uses a sunken sitting area in the school, which consists of loose wooden blocks. When the blocks are removed, it creates a sunken sitting area. The area created is a place where a class or small group can gather for storytelling or a learning activity. In this design, I used Hertzberger's idea for the sunken sitting area. The sunken sitting area is located between two classrooms and is in the Communal Hall. When the wooden blocks are removed, they can be used as chairs or tables for the children. The sunken area can be used as a storytelling circle or a place to do small group activities. The children can use the sunken area as a lake or fort as they play.

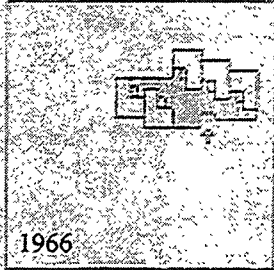
The school has a sheltered entrance because the children tend to stay around after school. The playground is not a closed courtyard; it is an open public space, making it part of the neighborhood. This attracts children in the neighborhood out to play after school hours.

A child scale wall-fence made of concrete blocks separates the playground from the street. The blocks are laid on their sides to create openings from one side to the other. The children can place things in the openings, and they can see through the openings. The wall-fence's being low allows the children at the school to relate and talk to the children that are on the outside.

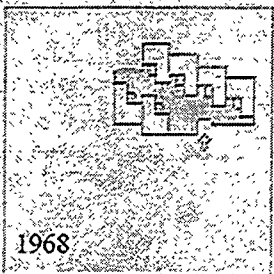
HERMAN HERTZBERGER'S MONTESSORI SCHOOL



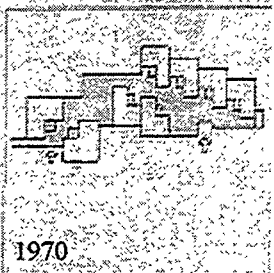
The original design of the school in 1960.



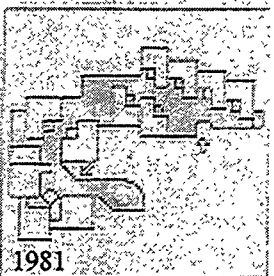
The building as it was built in 1966.



The building as it was in 1968 after addition.

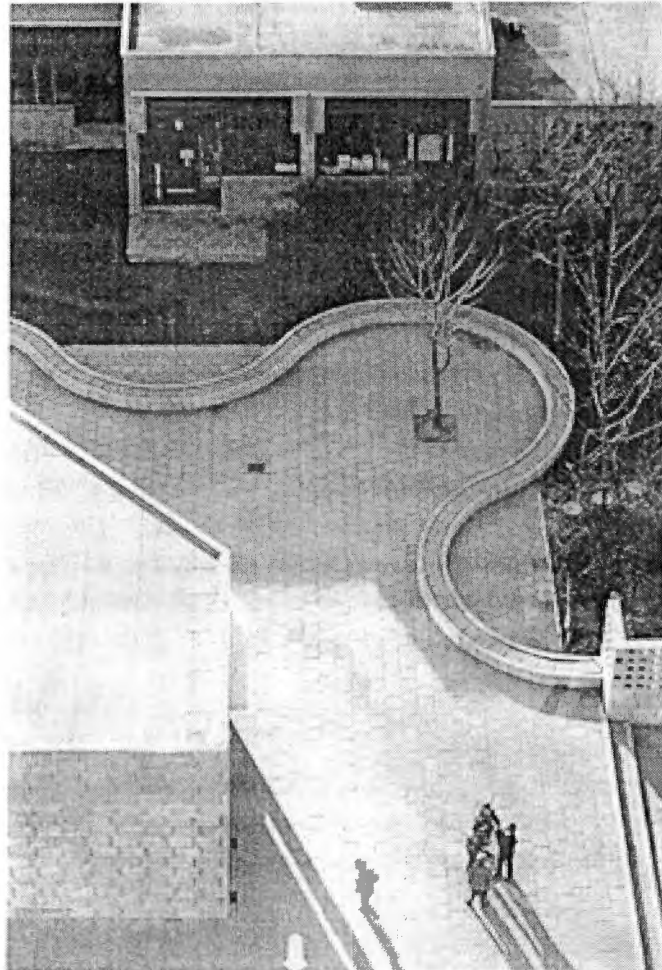


The building as it was in 1970 after the additions.



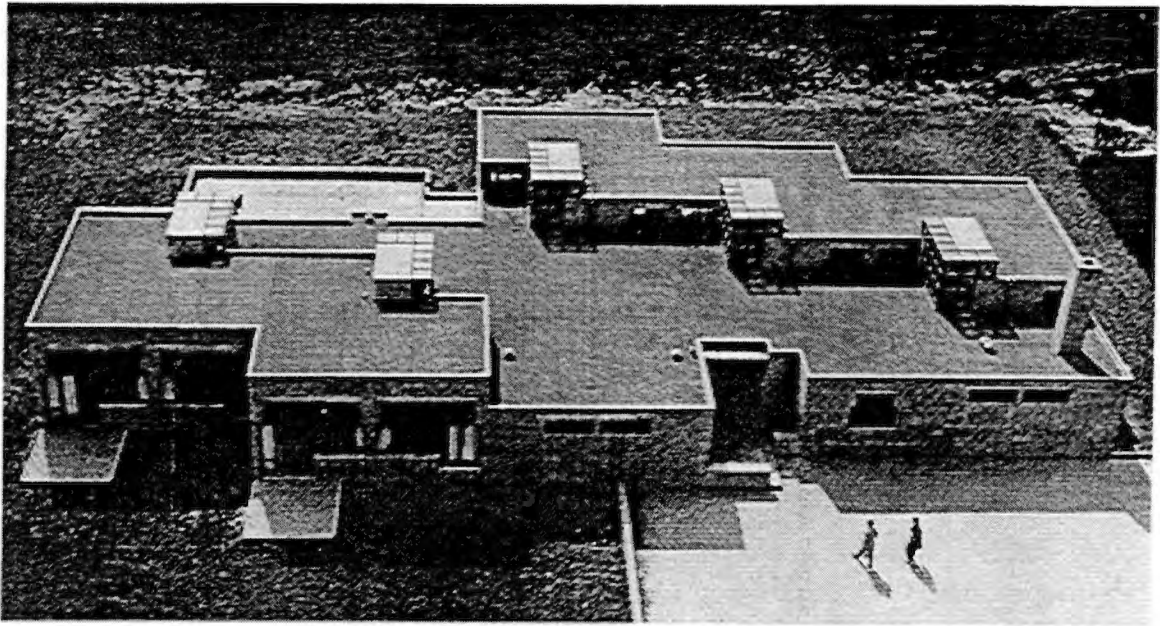
The building as it was in 1981 after the addition of the Primary School.

MAIN ENTRANCE FOR THE PRIMARY SCHOOL

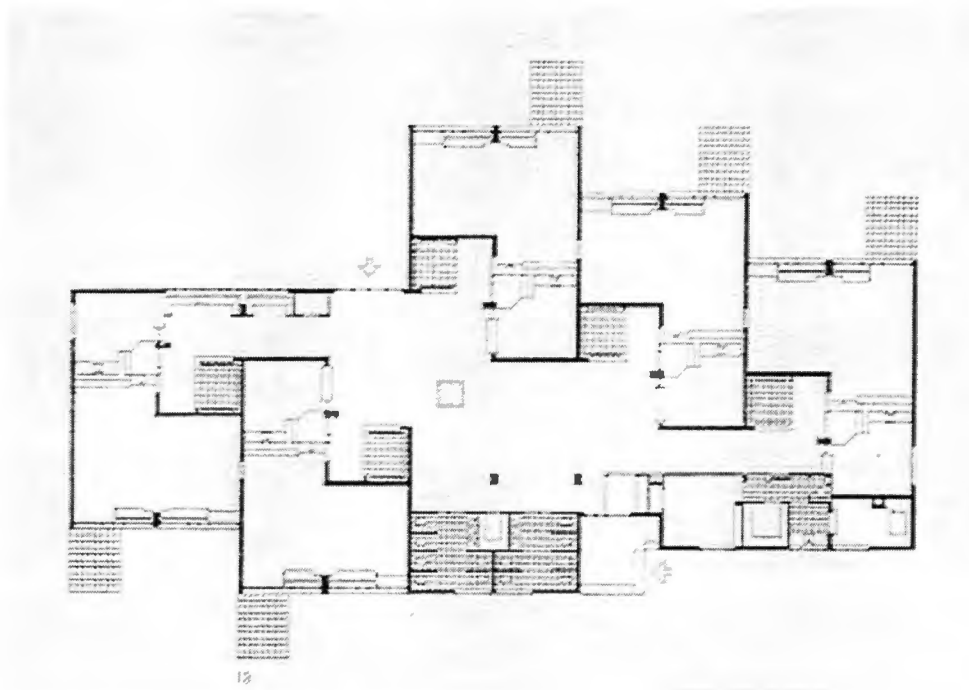


The curving wall is used as a barrier to keep the children off the grass and on the hard surface. The wall can also be used by the children and parents to sit and talk. The hard surface can be used for play.

THE ORIGINAL BUILDING

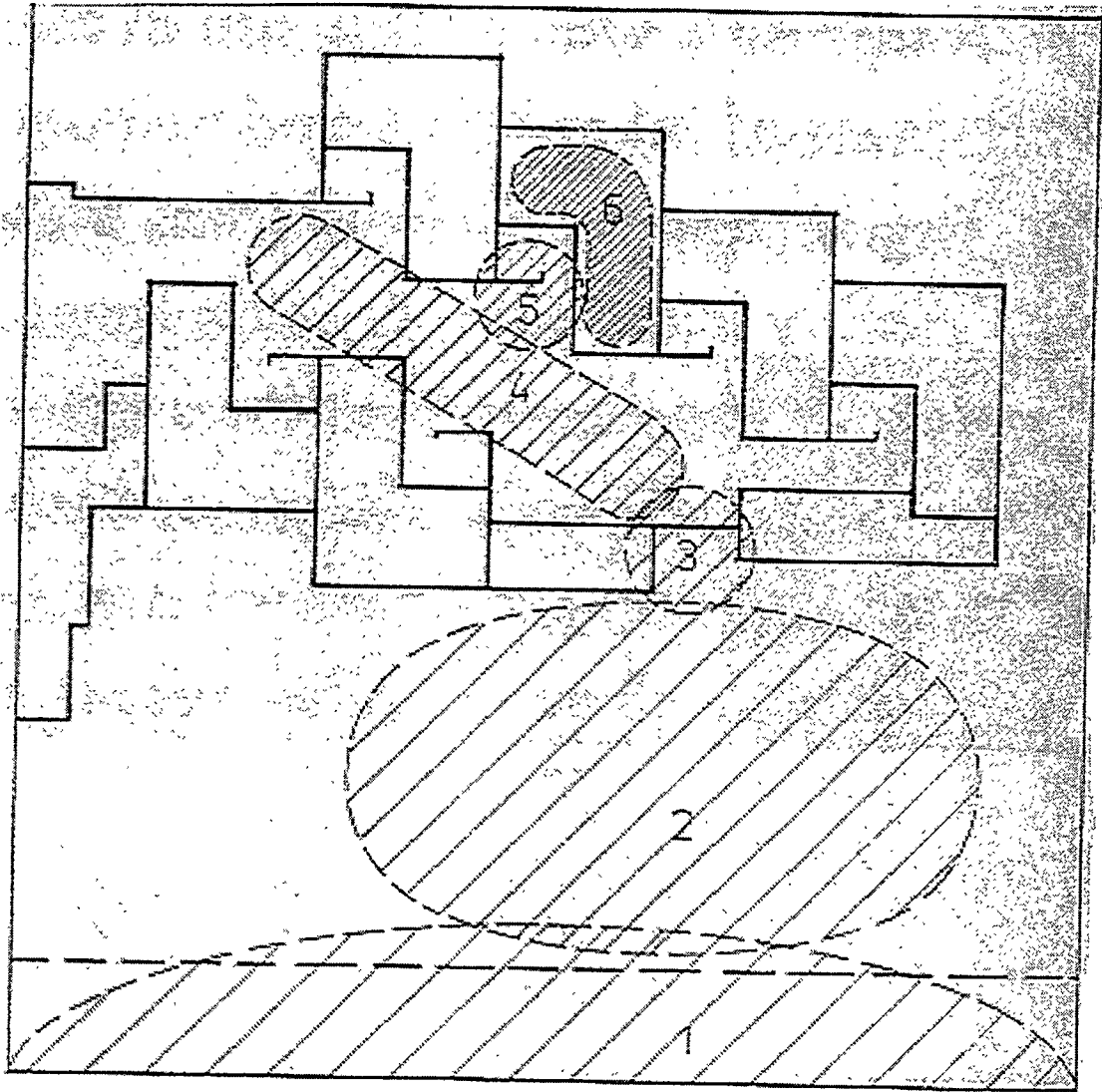


Showing the entrance to the building and the amount of hard surface play area.



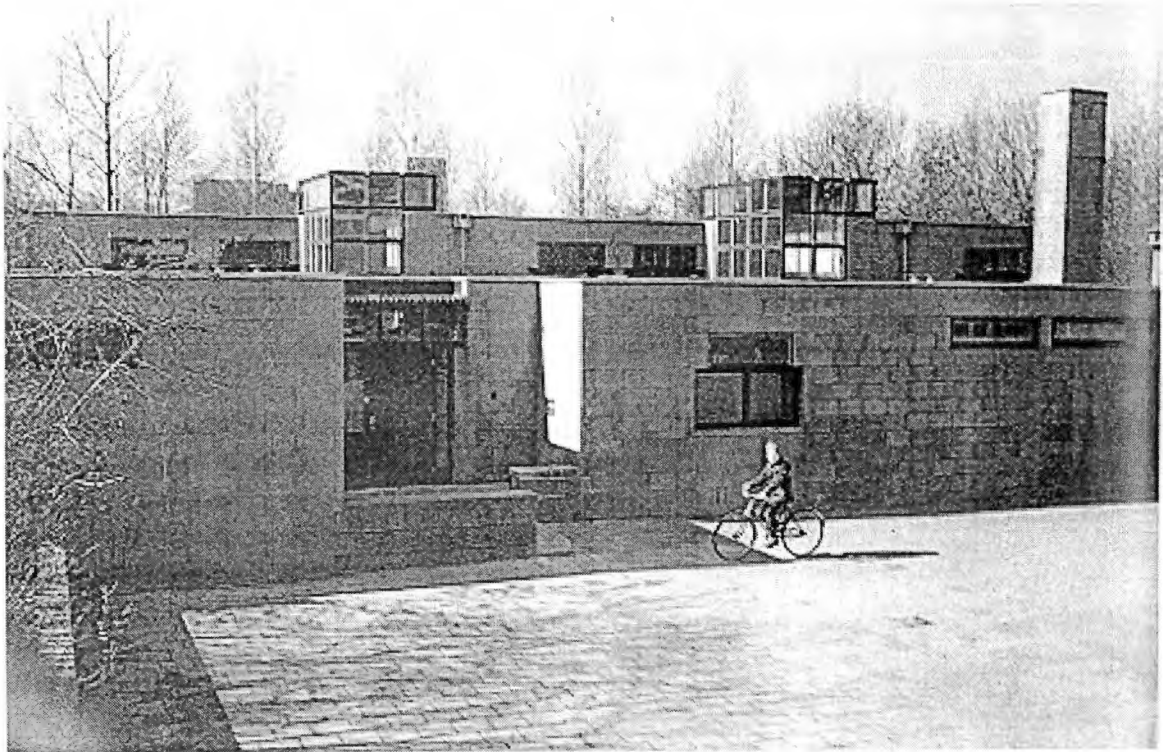
Floor Plan of the building that was built in 1966.

ZONING



1. Parking
2. Outdoor Play Space
3. Entrance
4. Communal Space
5. Child Space
6. Classroom

KINDERGARTEN ENTRANCE

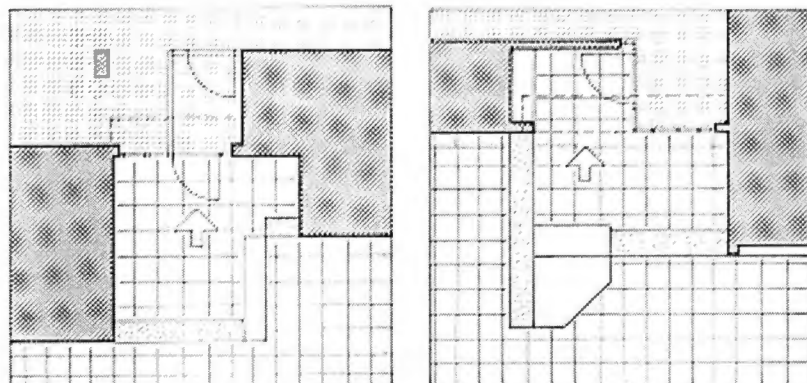


This photo shows the entrance to the Kindergarten by going through the play space. People walking through the play space may be a security issue. It is good for the children to see people coming and going but I am not sure that it is ideal for a visitor (stranger) to walk through where the children are playing. It is a matter of security. The children must be in a safe environment.

KINDERGARTEN ENTRANCE WAY



This view shows the Kindergarten Entrance from the inside. One has to go through two sets of doors to be in the school.



Plan showing Kindergarten Entrance.

HARD SURFACE PLAYGROUND



The outdoor hard surface play space is just outside the Kindergarten entrance. The fence/barrier is made of concrete blocks that the children can see through. The wall is also low so that the children can see over it and communicate with the children outside the school. The wall is secure to keep the children in the play space while allowing them to still feel free to talk and see the outside world around them.

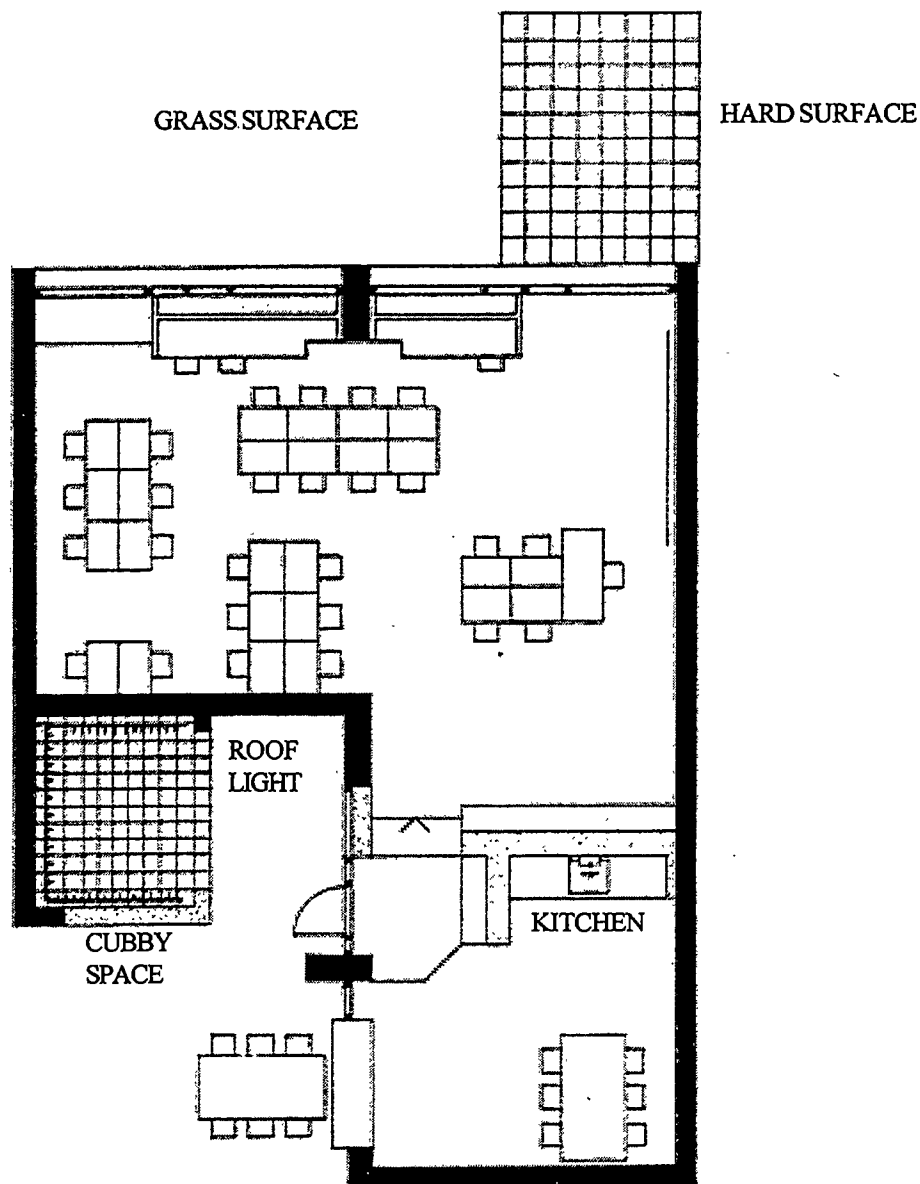
ENTRANCE DOOR



The view shows children getting ready to go out to the playground. The teachers are helping. There are windows in the door and around the doors. This is so the children and teachers can observe if there is someone coming the other way.

The windows in the doors are low enough that the children can see out and in to see if there is anyone on the other side. The door is also easy for the child to open. This makes the child feel independent.

CLASSROOM



The teacher and children have a view into the hall and cubby space area. The cubby space is a place where the children hang their coats and put their bookbags.

The roof light (light well) is in the space just outside the classroom door. It lights the space up. It is there as a symbol to tell the children that there is something that takes place in that area.

The kitchen area is on a different level than the rest of the room. This area is a place where the children can paint, play in sand, cook, and other activities that need to be on a floor surface that is easy to clean up.

VIEWING

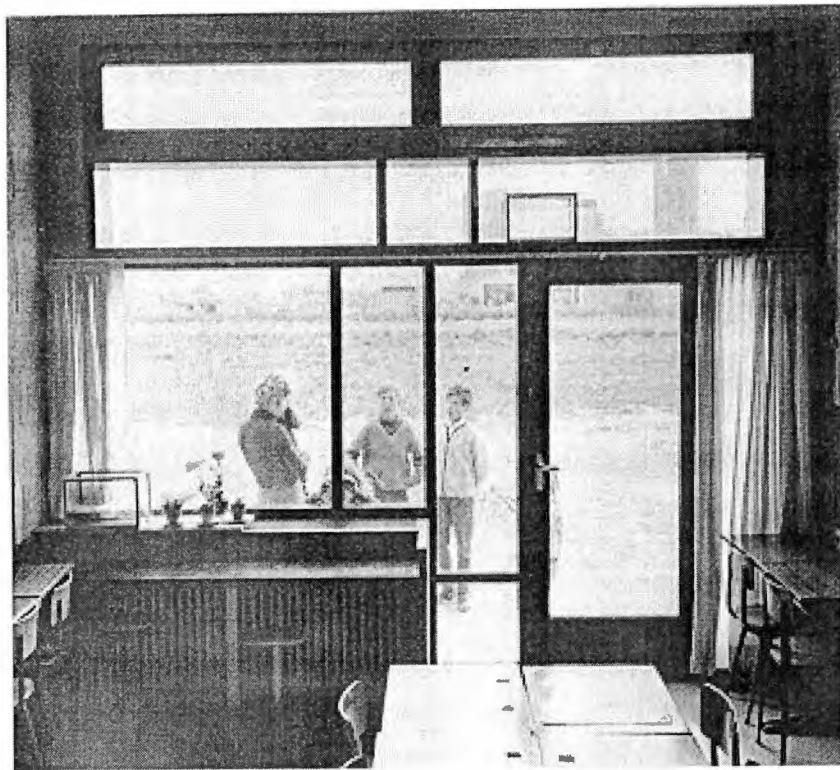


A child or teacher can view the communal space from the classroom.

I think that the windows are a good idea so that the children in the classroom can see out into the Communal Space to see what other children are doing. The other school children can see through the windows to see what is going on in the classroom.

The other children can learn what is taken place in the classroom without going into the classroom.

CLASSROOM VIEW



A view from a classroom to the exterior. This view shows the different heights of windows and the amount of natural lighting that can come in through the windows.

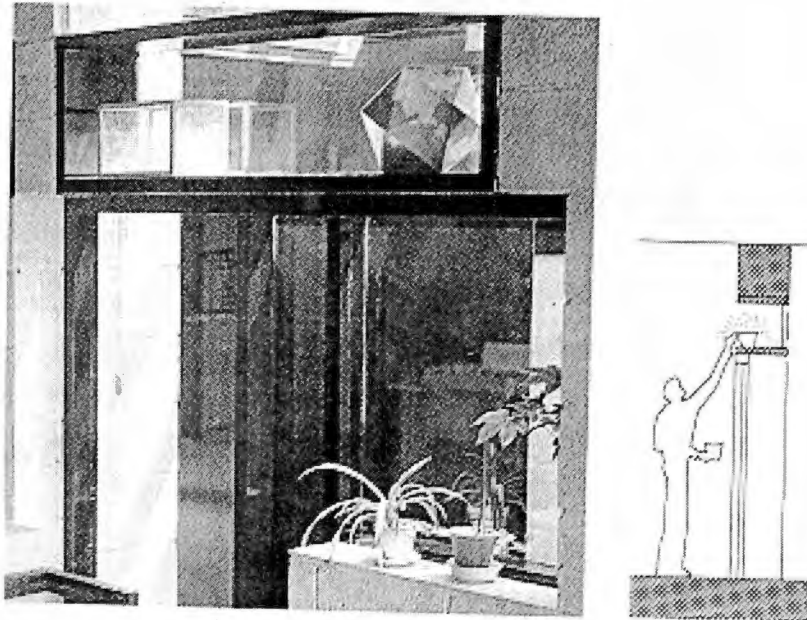
The children can relate to the environment by being able to see outside from the classroom. The children can observe the different times of the day and the climate by being able to see outside.

CLASSROOM VIEW



A view looking outside from within the classroom. It shows some of the work area, storage and activity spaces.

DISPLAY SPACE



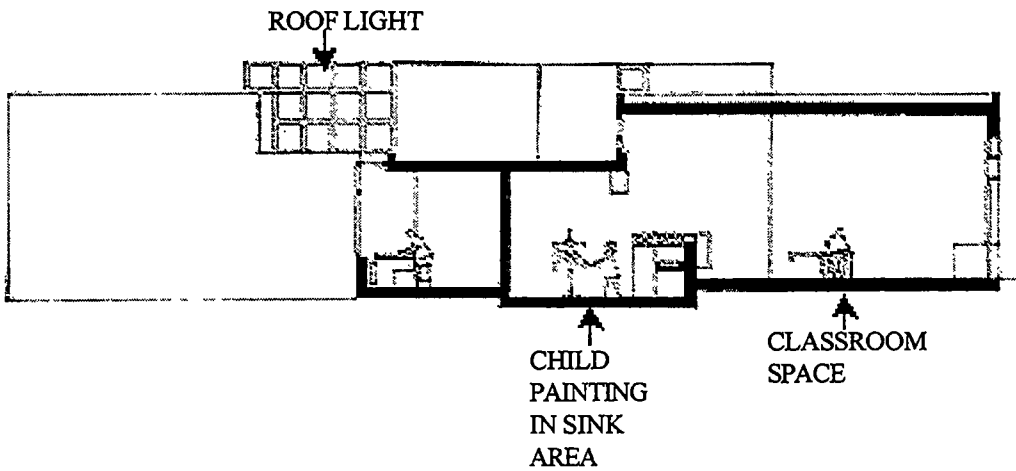
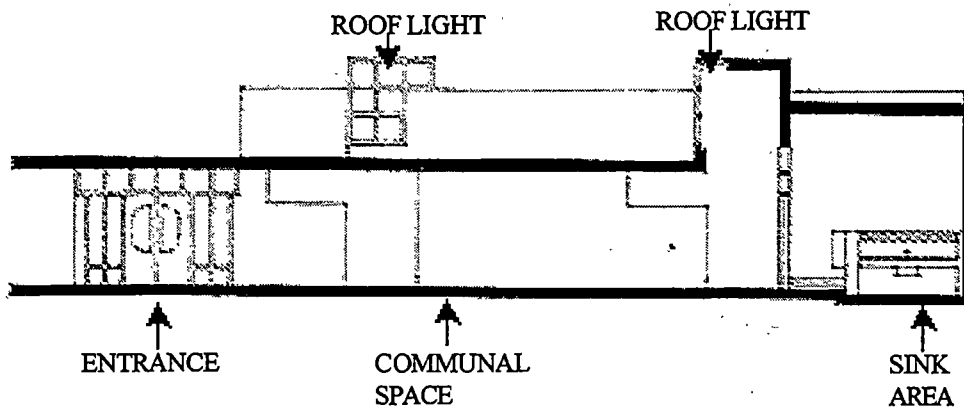
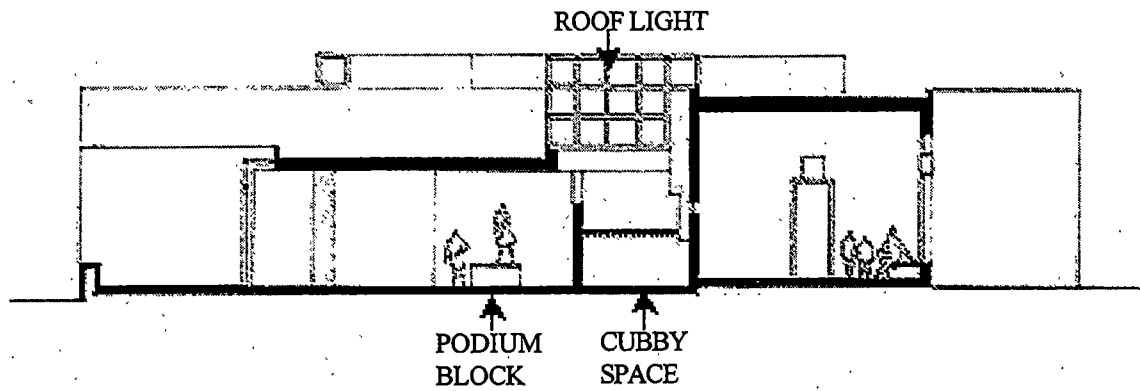
There is a display space above the door. The display space can be used to display objects and projects. This space is out of reach of children. They can view the objects but cannot touch.

CLASSROOM STORAGE SPACE

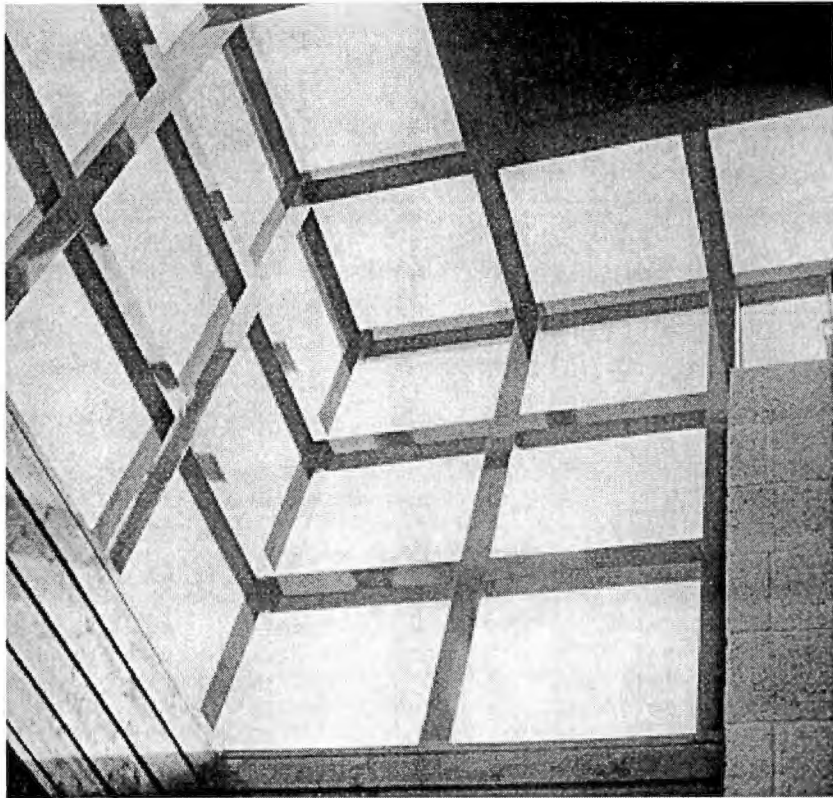


This view shows the classroom storage space for activity materials. It also shows small work area in the back where children can go to get away or to have a quieter space to think and work. It shows the different windows and what effects they have on the room.

SECTIONS



ROOF LIGHT



This view show the roof light. Each of the panels are square to work in the proportional system. The roof light allows a large amount of natural light to flood down into the space. The roof light creates a different atmosphere just outside the classroom.



This view shows how the light floods in from the roof light.

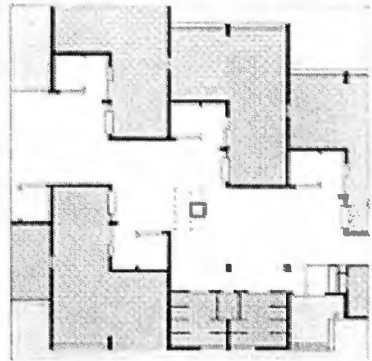
PODIUM BLOCK AND DISPLAY AREA



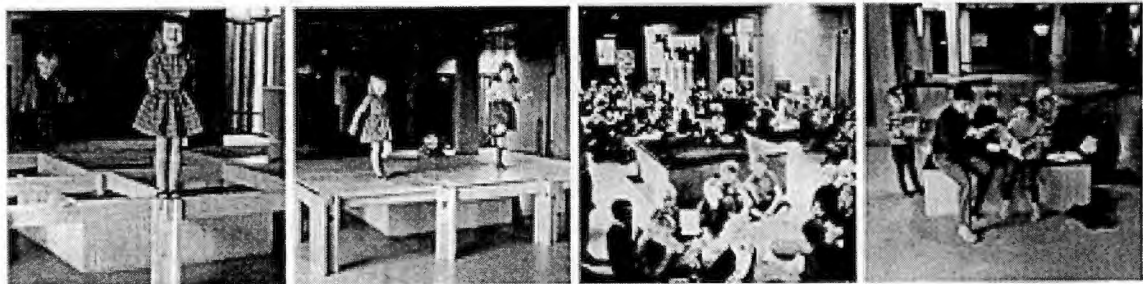
The podium block becomes a stage and a center point of the hall.

There are display areas in the wall which are to display objects and children's work.

PODIUM BLOCK



The podium block can be used as a place to gather and do work in a small group.

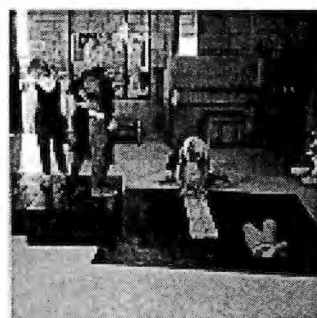


The podium block can be added to form a larger stage for school performance.

SUNKEN SITTING AREA



The sunken sitting area is in the hall of the kindergarten. The floor consist of loose wood blocks. When the blocks are removed there is a square sunken sitting area. The area can be used for a talking or storytelling circle. The children can use the blocks as chairs and tables.



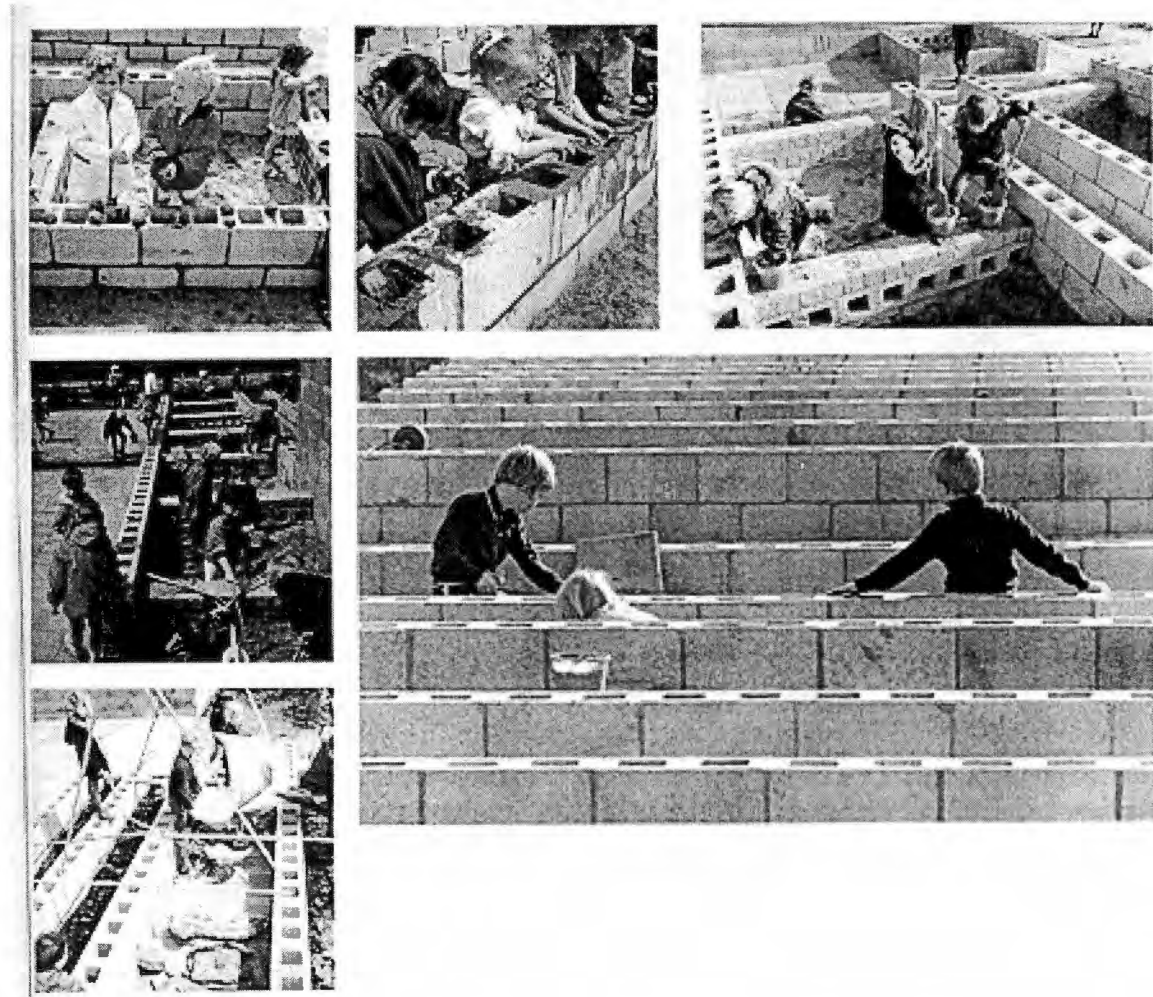
LIBRARY



The library is integrated into the hall. The reading table is around a block. There is a roof light above the table so that there is a large amount of natural light flooding the space.

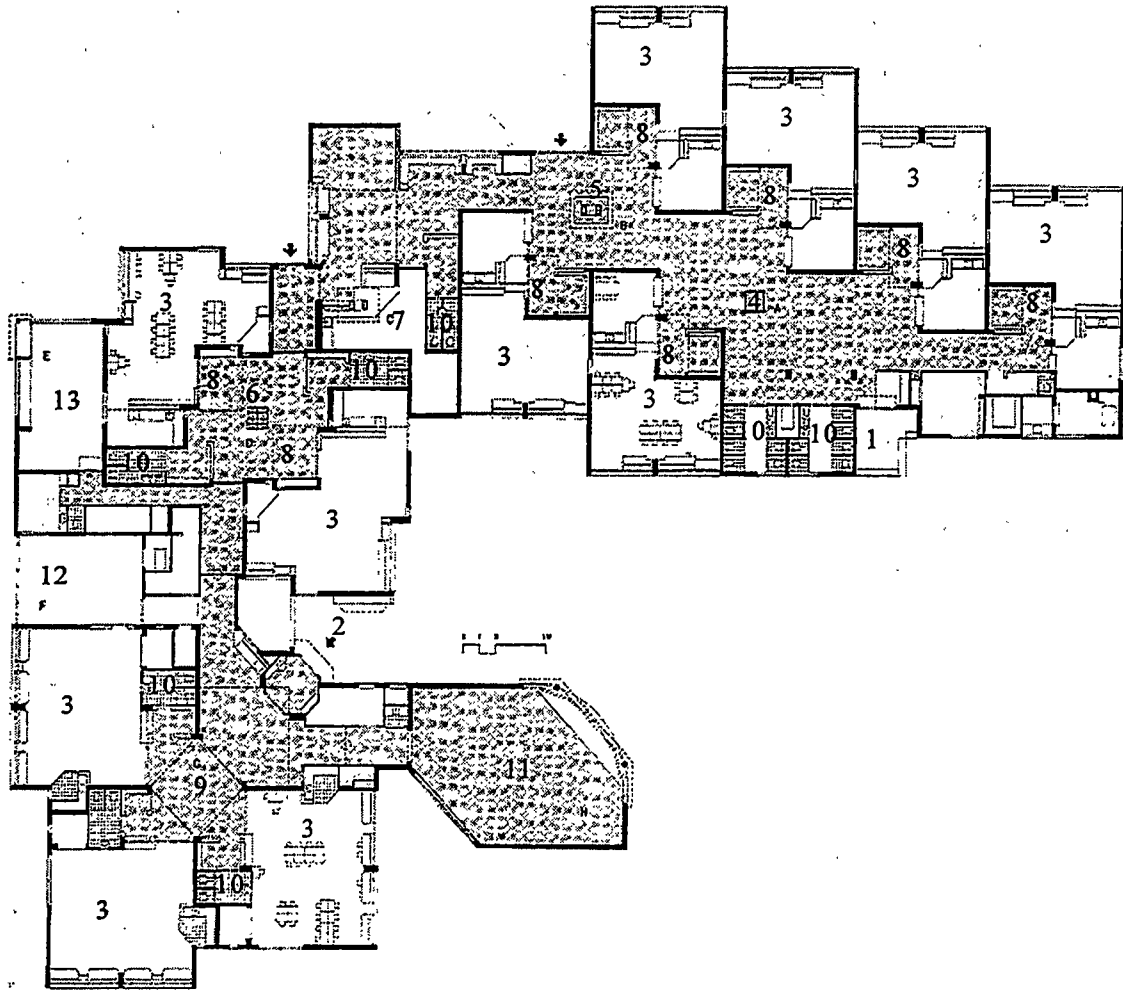
This area is an addition that was made in 1968 to the original building.

SAND PITS



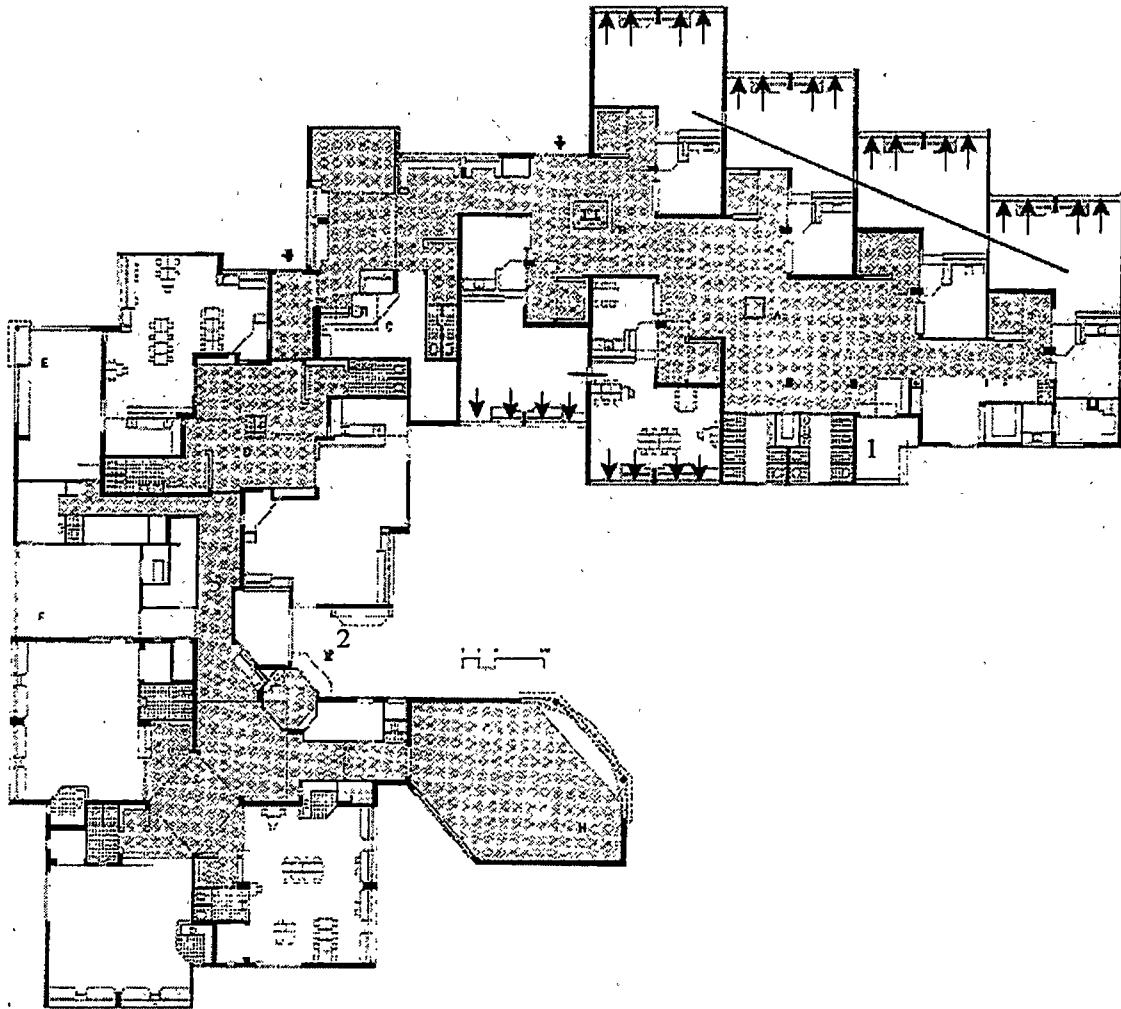
The sand pits are constructed of a concrete blocks. The low walls divide the spaces into small areas. The children can play individually or in small groups. They may fill the blocks with sand or dirt to make a garden.

IDENTIFICATION OF SPACES



1. Entrance for Kindergarten
2. Entrance for Primary School
3. Classroom
4. Podium Block
5. Reading Table & Library
6. Sunken Sitting Area
7. Open Fireplace
8. Roof Light
9. Central Roof Light
10. Restroom
11. Area for Common Mobilize
12. Garden Space
13. Teacher's Common Space

VISUAL LINKS

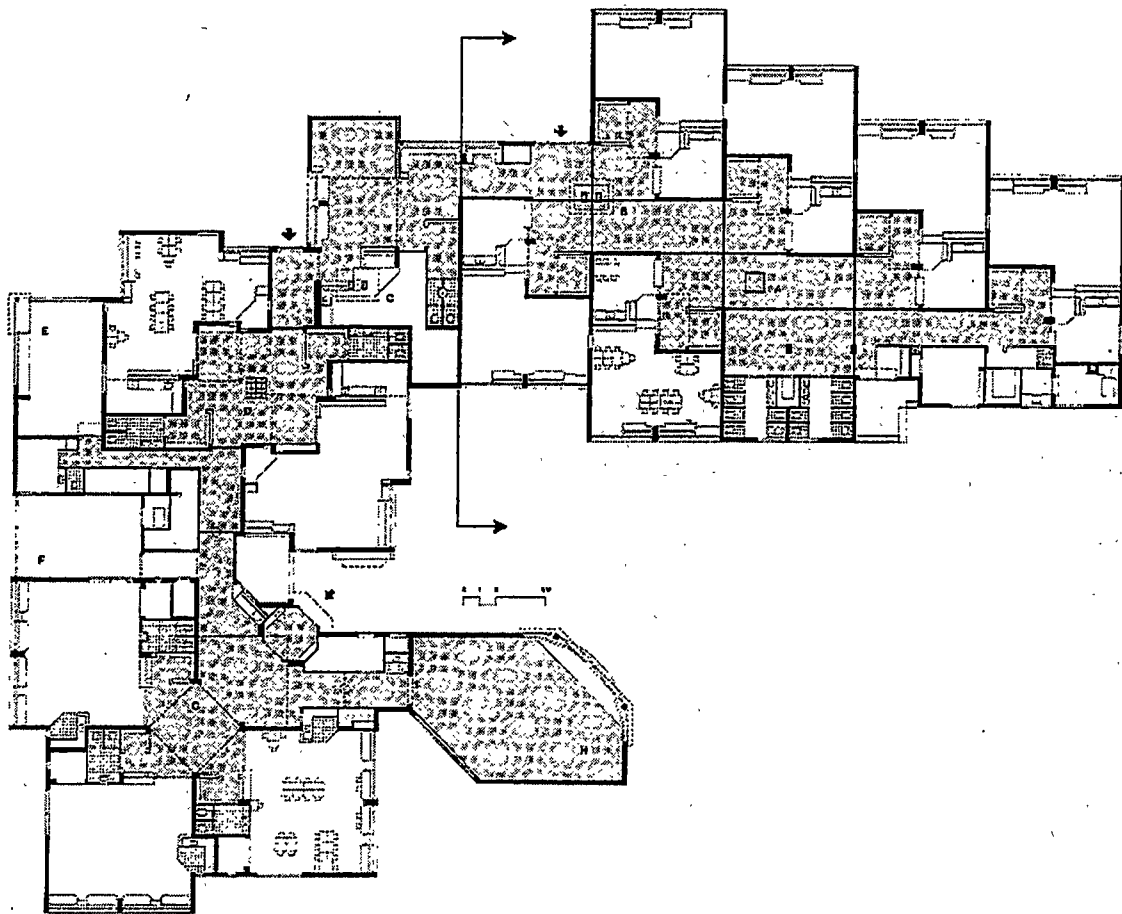


1. Main Entrance for Kindergarten
2. Main Entrance for Primary School

Each Classroom has access to the outside. They have windows and a door. The classrooms have a strong relationship with the outdoors and nature.

There is a window between the classrooms which creates a visual link to the classrooms. The visual links take place in the Kindergarten section of the school.

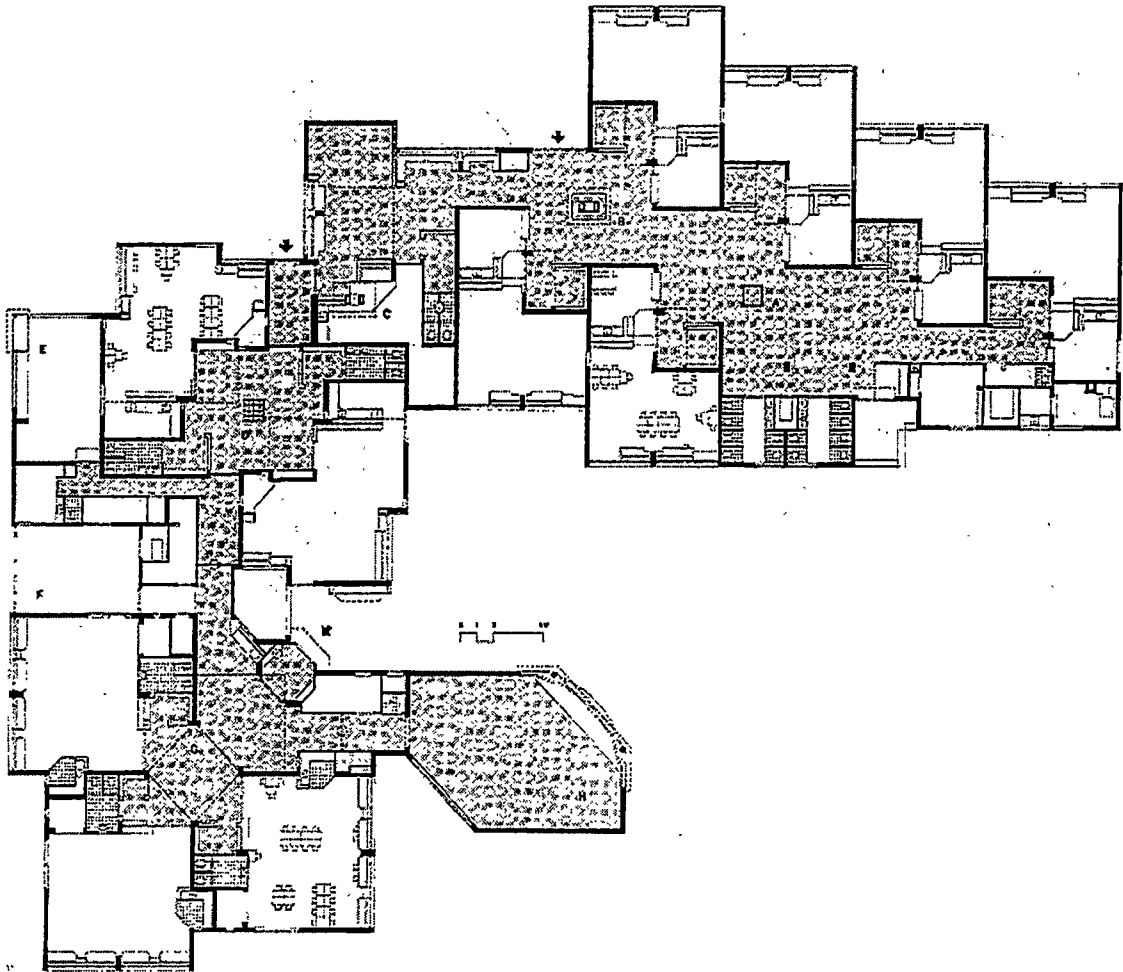
OVERLAP



From the classroom the teacher has a view of the cubby spaces and some of the communal hall. I do not see how the teacher can view or supervise children going to the bathroom. I believe that it is ideal to be able to observe all the children from the classroom. I do not think that the teacher should leave the room to take a child to the bathroom. Children sometimes need help while in the bathroom. The only time a teacher can observe all the children and one going to the bathroom is when they are in the communal hall.

The walls appear to connect to create a large rectangle. In this rectangle is the classroom, coat space (cubby space), the roof light, and part of the communal hall. In the classroom there is another rectangle, it runs along the outside wall allowing for a large amount of natural light. The cubby space and light well are part of the classroom but are separate from the activity spaces. The cubby space is a place for the children to put their stuff. Making the children independent and do things for themselves.

OBSERVATION ACCESS



The children have to go to the restrooms that are across the communal hall away from the classrooms. The children need access to the restrooms when they are in the classroom as well as when they are in the communal hall.

I find it hard for the teacher to be able to observe and supervise the children in the classroom and the child/children going to the restroom. The children can be observed and supervised from the communal hall. The teacher in the classrooms do not have any visual access to the restroom. The restrooms should be made private for the children but the teacher should be able to observe and supervise.

APPENDIX E: GAMES

COMMUNAL SPACE FLOOR GAMES

Games

The games are to be played on the floor of the Communal Space. These are just a few games that the teacher may choose for the children to play. The games can be changed just like the classroom materials change. The children can learn many different things from playing games, for example, counting, order, respect, and responsibility.

FOUR SQUARE

TYPE: Handball in a square court
OBJECT: Hit the ball accurately for low score
PLAYERS: 4-7
AGES: 3-5 and older
WHERE: Outdoors, gym
EQUIPMENT: Tennis or racquet ball (the bouncier the ball, the harder the game)

Players draw a square court and divide it into four squares. A player stands in each square. One player serves into any other square. To do this, he/she bounces the ball once in his/her square, then hits it to another square. The person in that square must hit the ball after it bounces, delivering it to another square. In this way, the players volley: hit, bounce, hit, bounce. Players get points in one of three ways: for hitting a ball out of the court instead of into a square; for hitting a ball so it lands on the line; or for failing to hit the ball after it has bounced one time in his/her square. When one player reaches a score of 10, the game's over. The player with the lowest score wins.

VARIATIONS: With more than four players, kids can rotate in and out after every serve, each one staying in for exactly four serves. After everyone has rotated in twice, the player with the lowest score wins.

BEANBAG TOSS

TYPE: Target tossing
OBJECT: Hit the targets for high score
PLAYERS: 2 or more
AGES: 3-5 and older
WHERE: Indoor or out
EQUIPMENT: Beanbags, one for each player (can be made by filling old socks with dry beans or pebbles), targets (drawn on pavement with chalk or on large sheets of heavy paper, cardboard, or plywood)

Players draw a target (about two and a half feet across) and number the sections. Players establish a throwing line eight, ten, or more feet away. Then they take turns throwing the beanbags, each throwing once, aiming for the sections with high point values. A throw should be scored according to where the most beanbags lie when they stop. After ten turns, the player with the most points wins. Players also might play until someone wins by reaching a score of 21.

BINGO FOR PRESCHOOLERS

TYPE:	Game of chance
OBJECT:	Be first to cover 6 squares in a row
PLAYERS:	2 or more
AGES:	3-5
WHERE:	Anywhere
EQUIPMENT:	Paper or card paper, crayons, a die, markers (pennies, game pieces, or such)

A grown-up draws the grid (including the dice above the grid). Leave the boxes empty, and then make copies and color them in or older preschoolers can do this. Keep the colors simple: yellow, red, green, blue, purple, and orange. Each row should contain only four colors (so two colors will be duplicated, which will speed up the game a little). The players take turns calling out one of the colors any they choose then throwing the die. Every time a player's card has a square of the color called under the number on the die thrown, he/she covers the square with a marker. The first player to cover six squares in a row wins. Rows may be horizontal (across) or vertical (up and down) only.

HOPSCOTCH

TYPE:	Hop and target throw
OBJECT:	Make it through the diagram the right way and first
PLAYERS:	2-4 (and slightly more in some games)
AGES:	3-5 and older
WHERE:	Outdoors, gym
EQUIPMENT:	Markers and chalk

In basic Hopscotch, the players draw a numbered diagram, usually in chalk on pavement. Though this is a very common Hopscotch diagram, Hopscotch patterns can come in many forms, and Hopscotch games with many variations in rules. Some are given here, but players often get two or more players take turns hopping through the segments in a particular way. They usually use markers to show their progress. (Players should choose distinctive markers - stones they can tell apart, different coins, whatever. Serious Hopscotch players have special have lucky markers that are unique.)

Different Hopscotch games have different rules about how the players hop. Usually, players must avoid squares that hold the markers of the other players, and sometimes they must avoid their own markers. Also, when thrown, a player's marker must land inside the right segment, or that player's turn is over.

TYPICAL RULES AND VARIATIONS: The following rules are typical of most Hopscotch games:

- Generally, when a player hops on one foot, he/she must keep hopping on the same foot until (and unless) he/she reaches the special segments that must be hopped on in special ways for certain games. Players must hop, not step, from segment to segment.
- In games where players hop to one end of the pattern and back, players may decide to face backward on the way back.
- Often turn may consist of one player going to the end and back, if he/she can do it successfully. Then it's the next player's turn. Or a player may, during one turn, keep on playing, going there and back, there and back, moving his/her marker, until he/she makes an error. If the first player gets all the way through the game in his/her first turn, a tie is the best the others can do. But next time they can make the game more difficult!

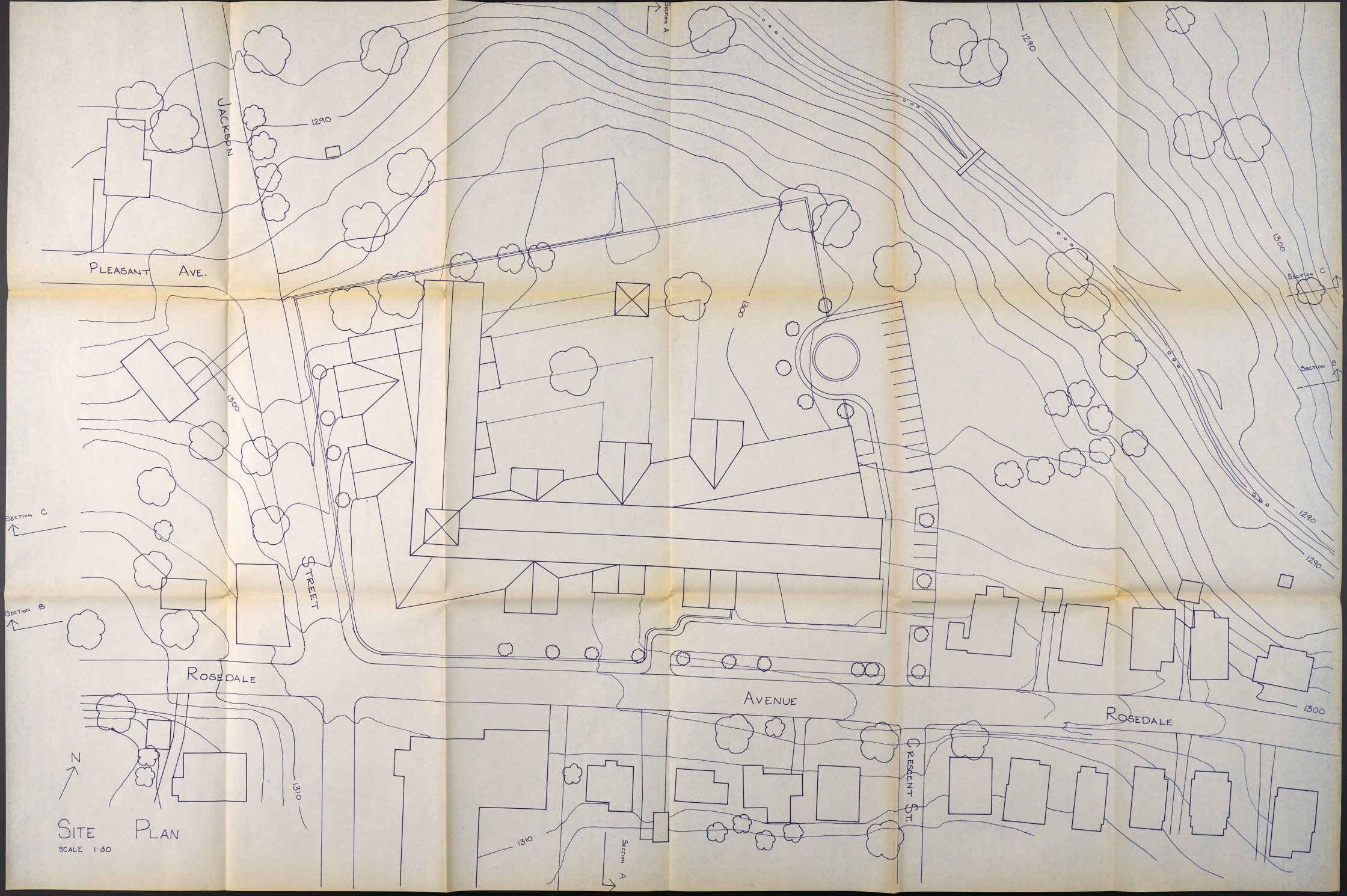
- When a player tosses his/her marker, if he/she misses the square he/she shooting for his/her turn is over. Or, each player could have two tries to throw the marker where it should go.
- Usually, if player lands in a square that he/she shouldn't have landed in (for instance, one that holds another players marker), his/her turn is over.
- If a player's foot lands on a line, he/she loses his/her turn. Or, players may decide that as long as the foot is more in (where it should be) than out, that's OK.
- If a player makes an error, his/her turn is over. On his/her next turn, he/she resumes playing from where he/she was at the beginning of the turn where he/she messed up.

(Henderson, Roxanne. 1996. The Picture Rulebook of Kids' Games. Chicago, Illinois: Contemporary Books, Inc.)

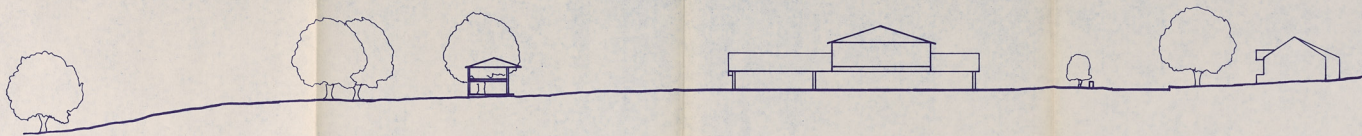
Four Square page 62
Beanbag Toss page 18
Bingo page 24
Hopscotch page 88

VITA

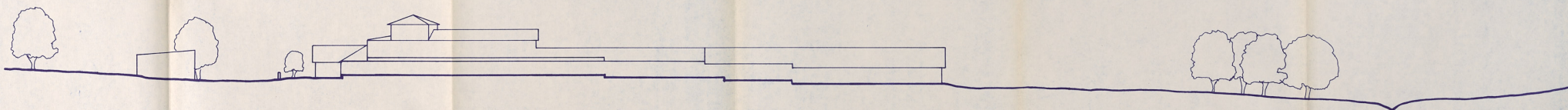
I, Yvonne Caroline Tompkins Miller, was born in White Pine, Tennessee on August 31, 1967. I attended schools in the public system of Hamblen County, Tennessee, where I graduated from Morristown-Hamblen High School East in August, 1984. In August, 1984, I entered Walters State Community College, Morristown, Tennessee, and I received an Associate of Science in Technology in August, 1987. After graduation, I entered East Tennessee State University, Johnson City, Tennessee in August, 1987, and I received the Bachelor of Science in Engineering Technology in August, 1989. In June, 1994, I entered the University of Tennessee, Knoxville, Tennessee to pursue the Master of Architecture Degree. The Master Degree was received May, 1999.



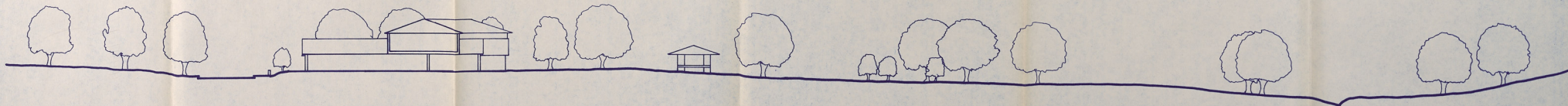
SITE PLAN
SCALE 1:30



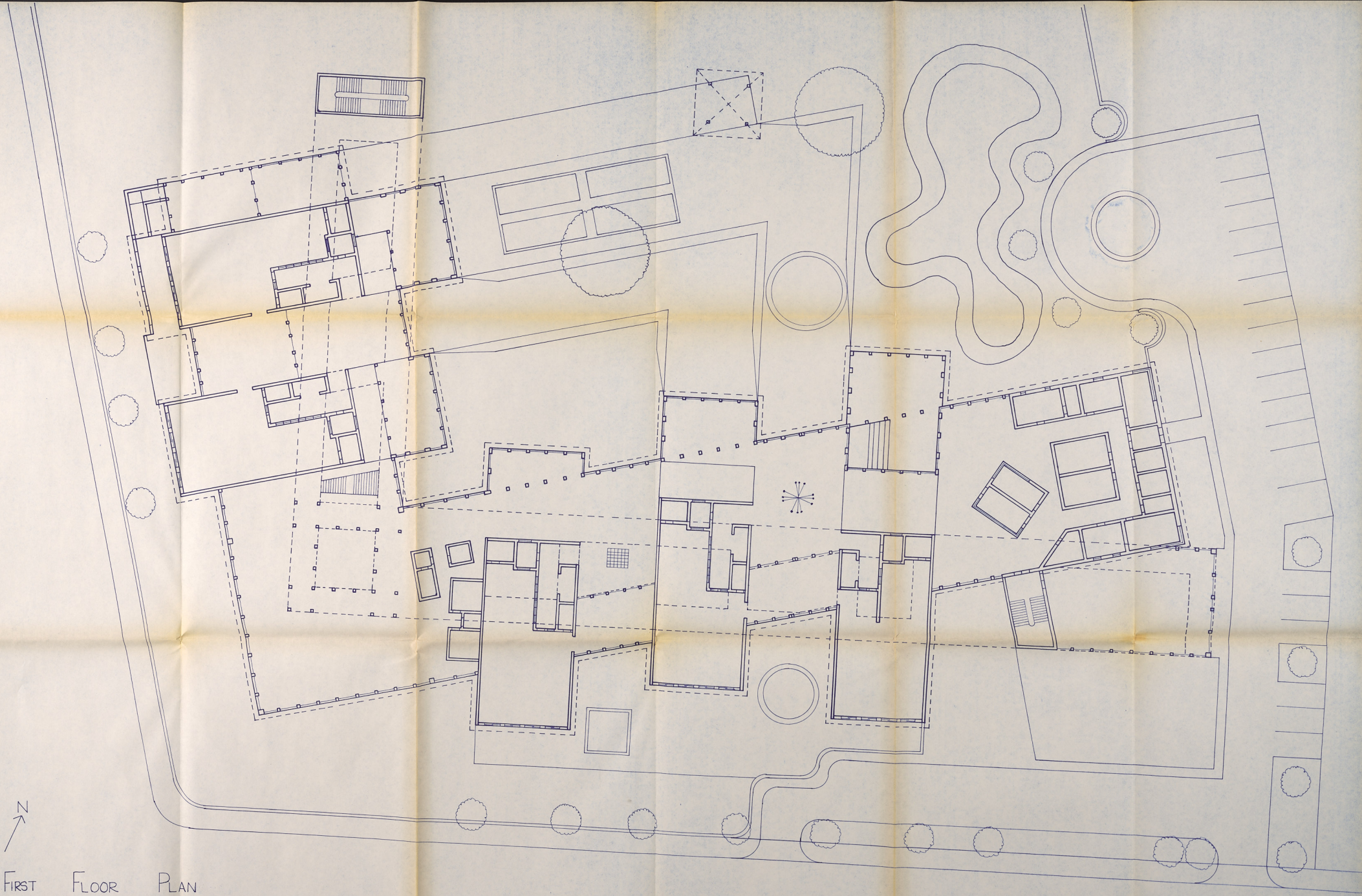
SITE SECTION A
SCALE 1:30



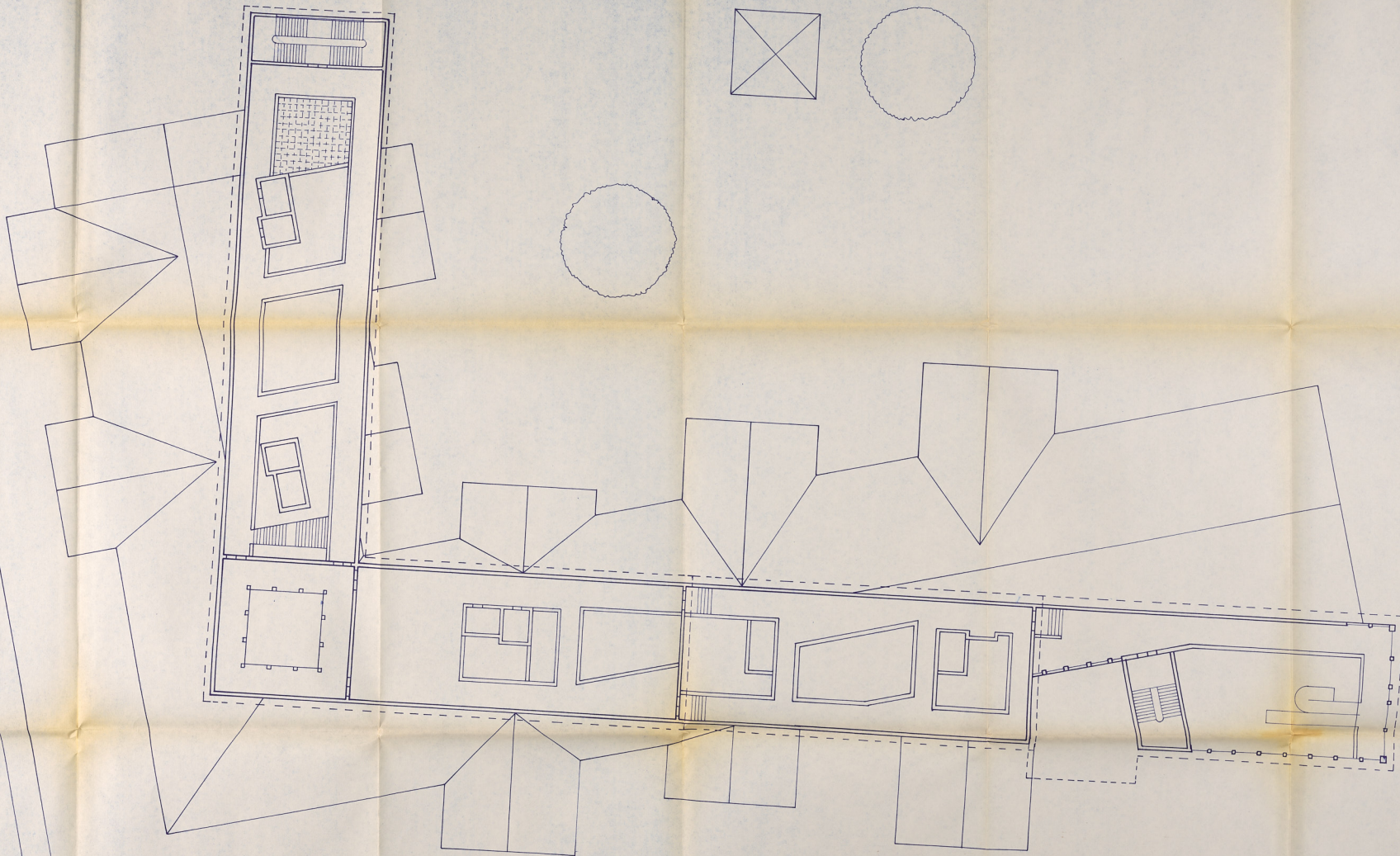
SITE SECTION B
SCALE 1:30



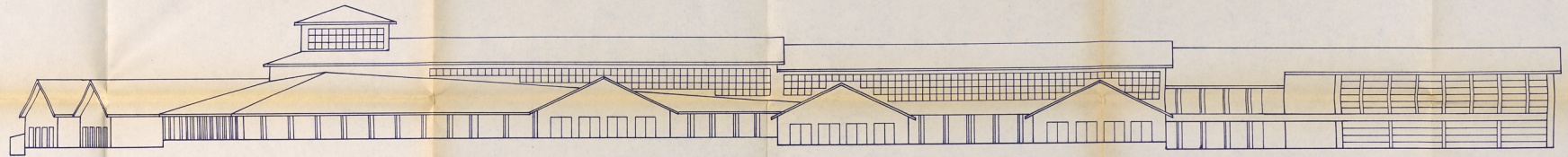
SITE SECTION C
SCALE 1:30



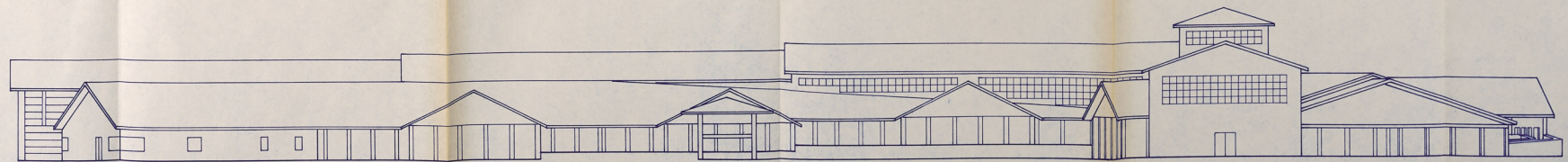
FIRST FLOOR PLAN
SCALE 1" = 16'



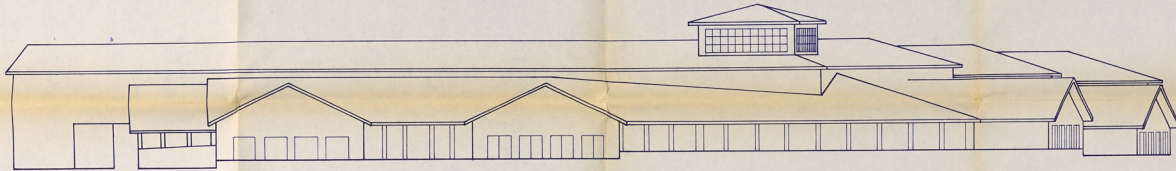
SECOND FLOOR PLAN
SCALE 1"=16'



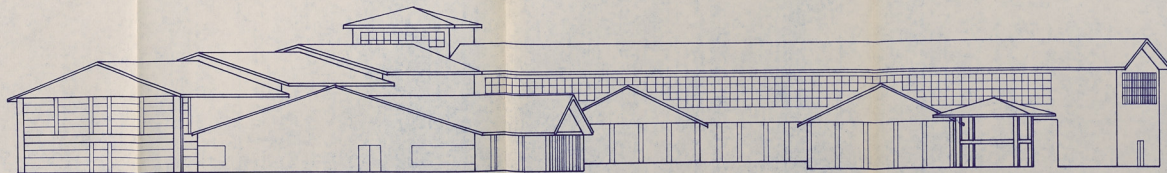
ROSEDALE AVENUE ELEVATION
SCALE 1" = 16'



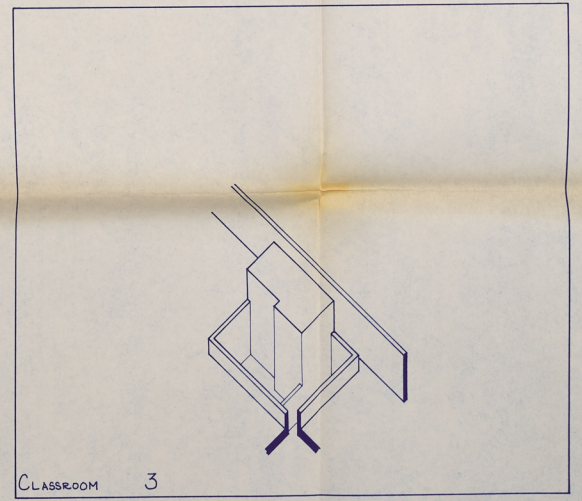
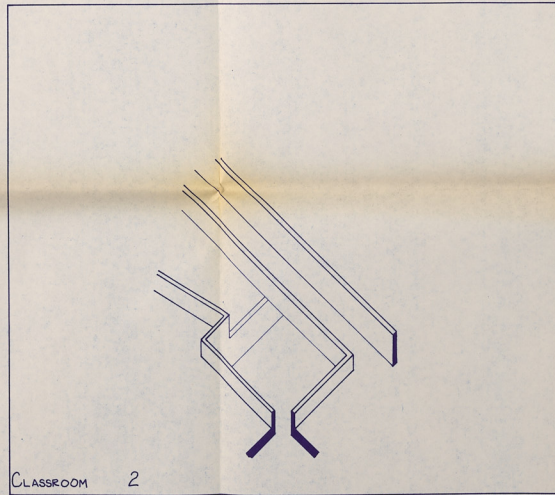
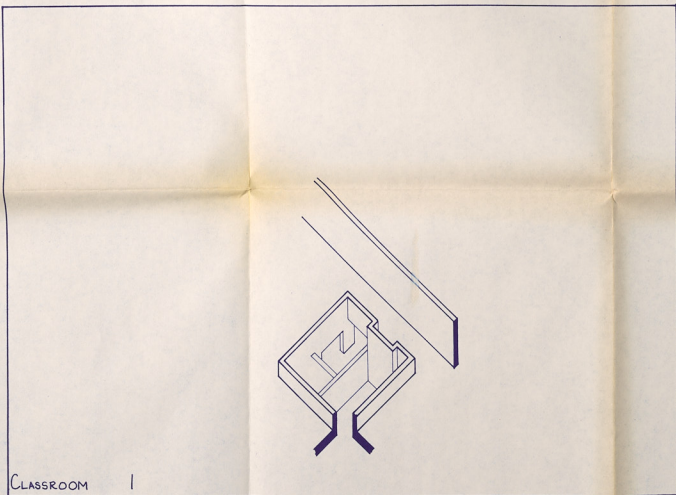
NORTH ELEVATION
SCALE 1" = 16'



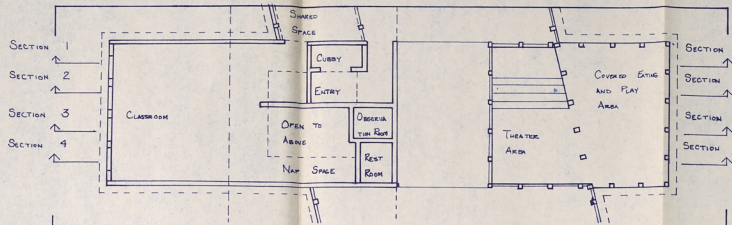
JACKSON STREET ELEVATION
SCALE 1" = 16'



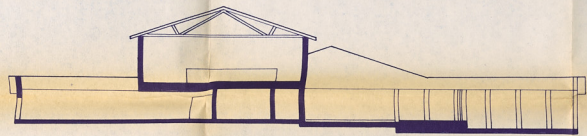
EAST ELEVATION
SCALE 1" = 16'



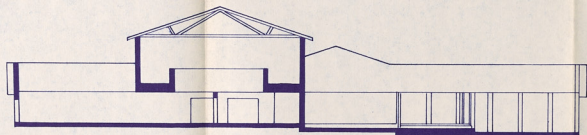
CLASSROOM AXONOMETRIC
SCALE 1" = 16'



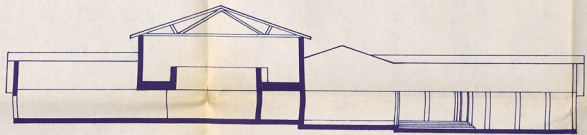
CLASSROOM PLAN 1



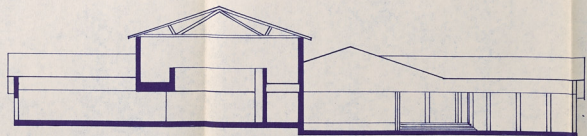
SECTION 1



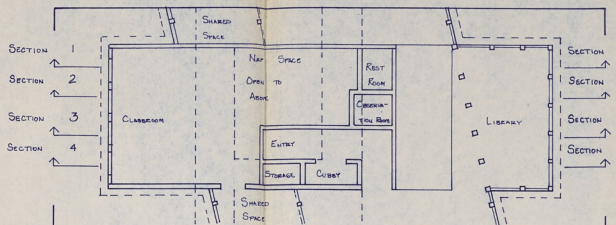
SECTION 2



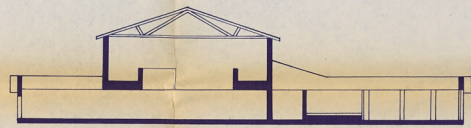
SECTION 3



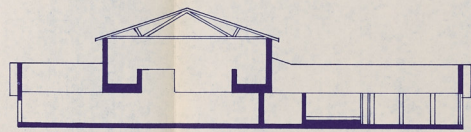
SECTION 4



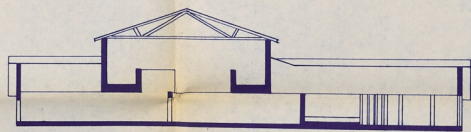
CLASSROOM PLAN 2



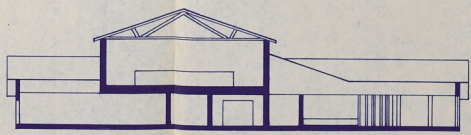
SECTION 1



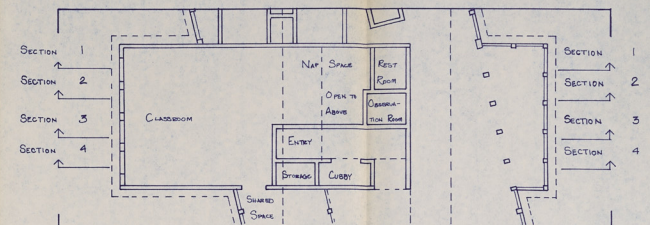
SECTION 2



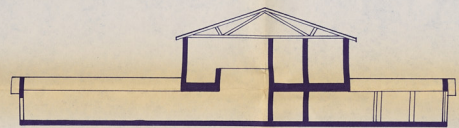
SECTION 3



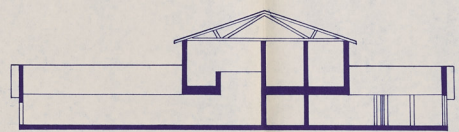
SECTION 4



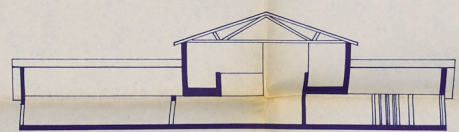
CLASSROOM PLAN 3



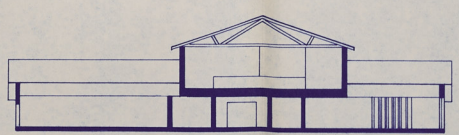
SECTION 1



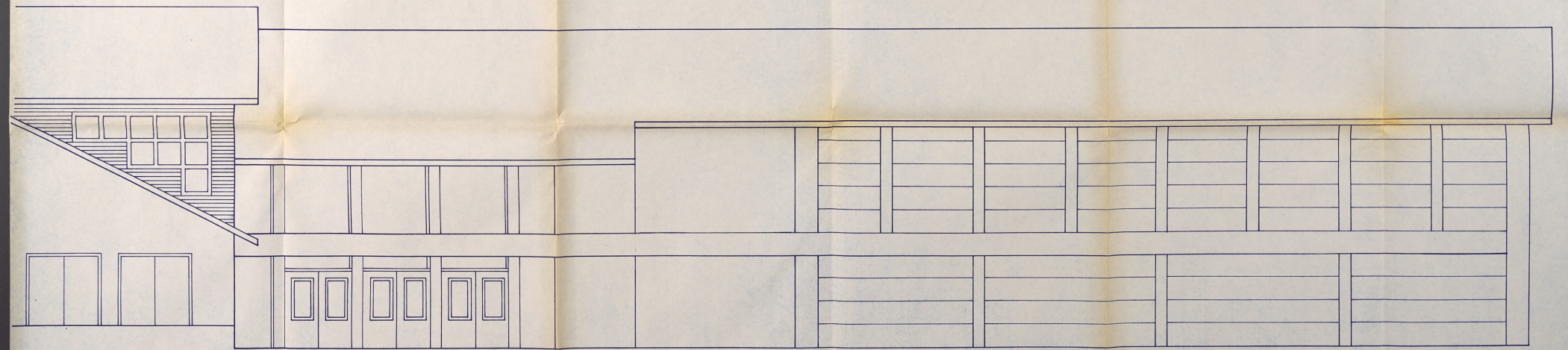
SECTION 2



SECTION 3

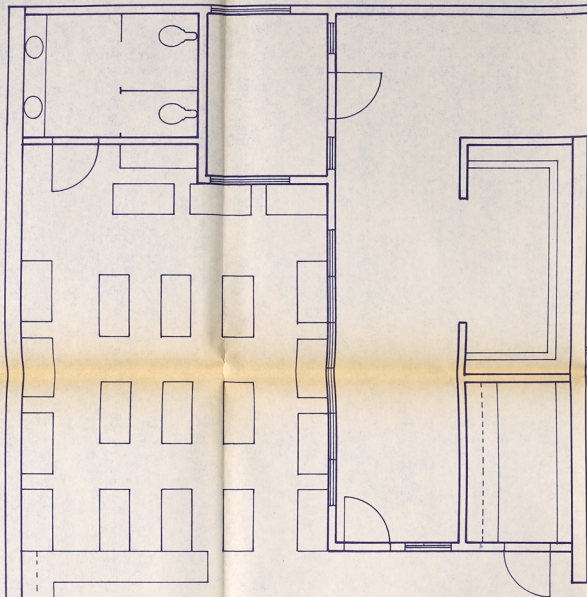


SECTION 4



ENTRANCE ELEVATION
SCALE 1" = 4'

SECTION B ←

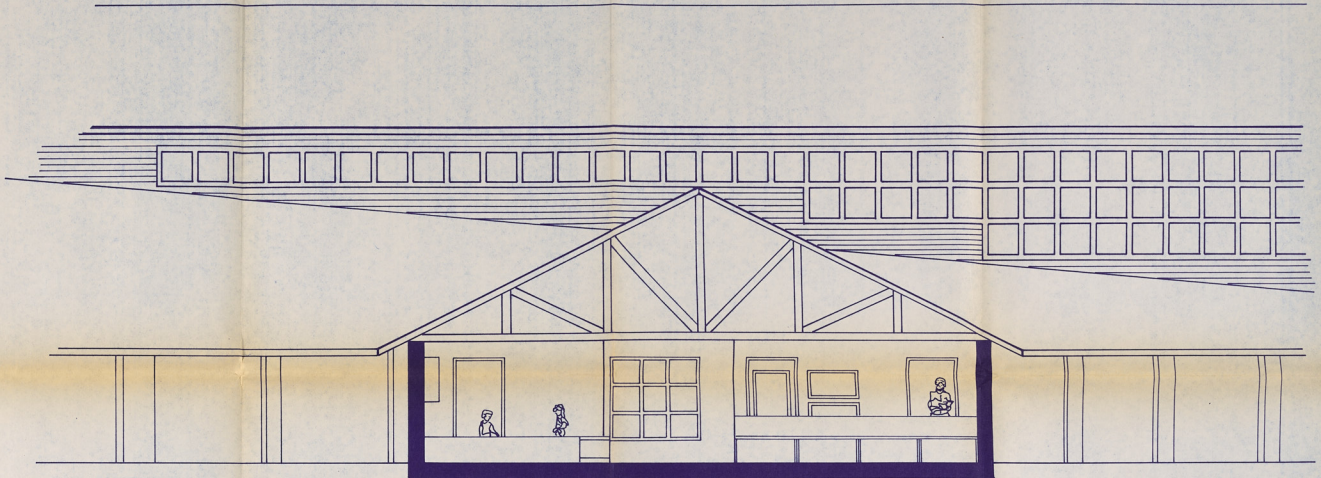


SECTION A ↑

SECTION A ↑

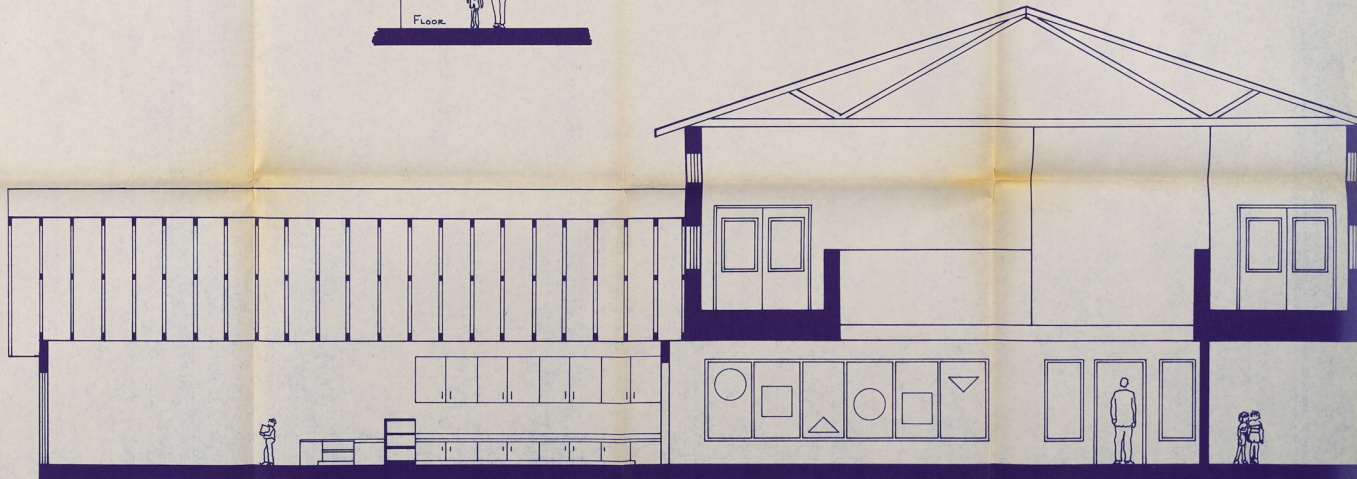
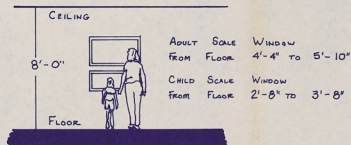
CLASSROOM 3
SCALE 1" = 4'

SECTION B ←



OBSERVATION WINDOW
IS BUILT DOWN TO
CHILD SCALE PIECES
CAN BE USED AS DISPLAY AREA

CLASSROOM SECTION A
SCALE 1" = 4'



CABINET DOORS ARE FLUSH SO THE
TEACHER CAN DISPLAY MATERIALS AND
CHILDREN'S WORK.
THE BASE CABINETS ARE SCALED FOR
A CHILD'S USE (WASHING HANDS AND DISHES)
UPPER CABINETS ARE FOR THE TEACHER'S USE

WINDOWS ARE USED FOR OBSERVING THE CHILDREN IN THE
CLASSROOM AND IN THE ENTRANCE
CHILDREN IN CUBBY AREA CAN ALSO BE OBSERVED
THE WINDOWS CAN BE USED FOR DISPLAYING MATERIALS THAT RELATE TO
SEASONS OR TO CLASSROOM ACTIVITIES AND ARE CHANGED BY THE TEACHER
THE WINDOWS CAN ALSO BE USED TO DISPLAY CHILDREN'S WORK

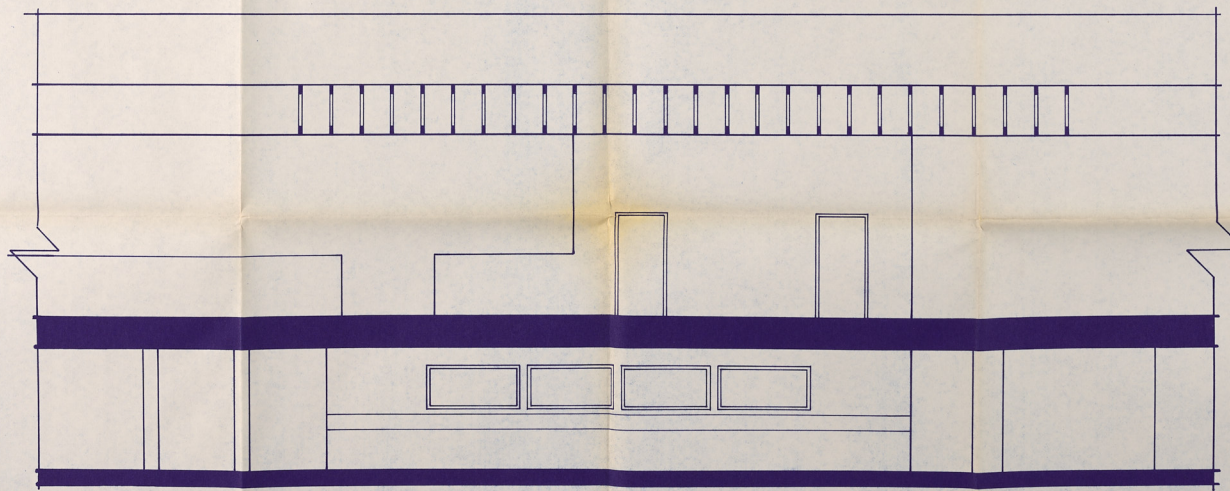
CLASSROOM SECTION B
SCALE 1" = 4'



CLASSROOM 1 COMMUNAL WALL



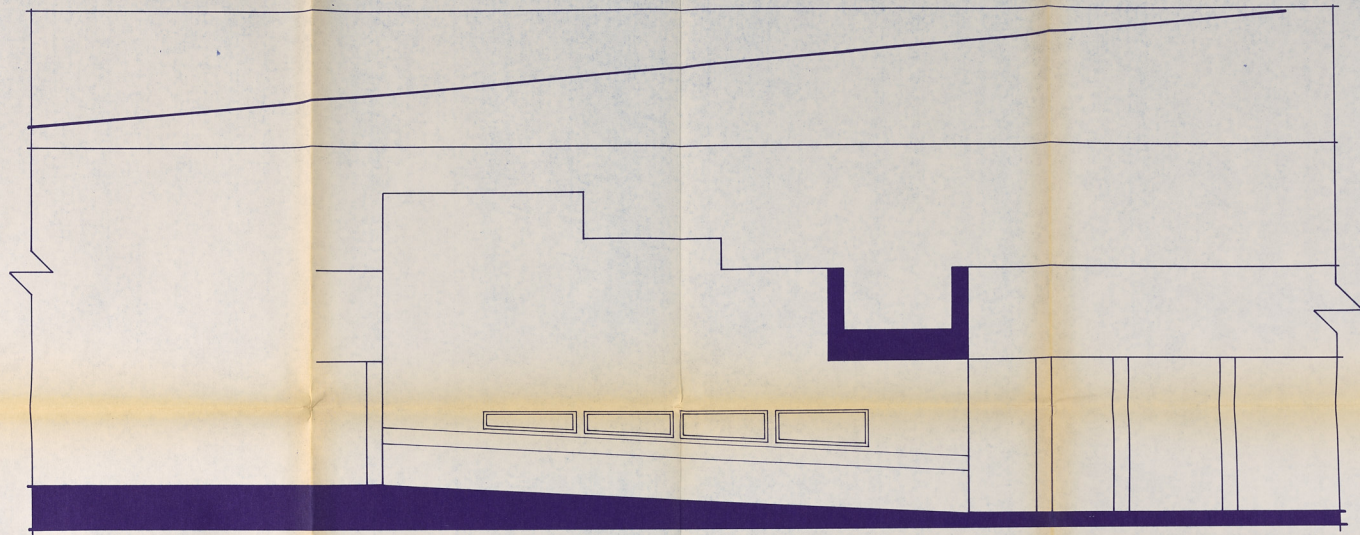
CLASSROOM 2 COMMUNAL WALL



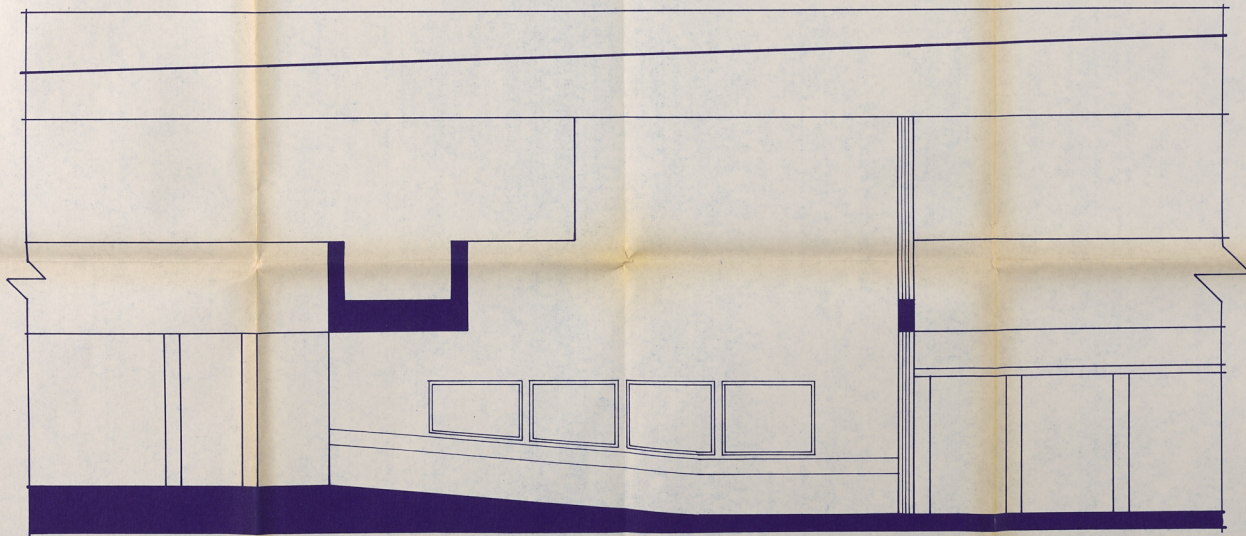
CLASSROOM 3 COMMUNAL WALL

CLASSROOM COMMUNAL WALL DETAILS AND SECTIONS

SCALE 1" = 16'



CLASSROOM 4 COMMUNAL WALL

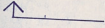


CLASSROOM 5 COMMUNAL WALL

CLASSROOM COMMUNAL WALL DETAILS AND SECTIONS

SCALE 1" = 16'

SECTION A

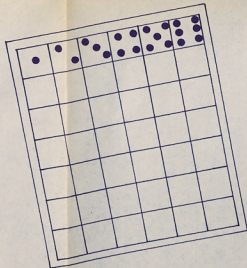
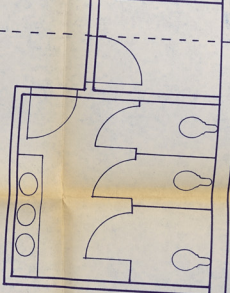
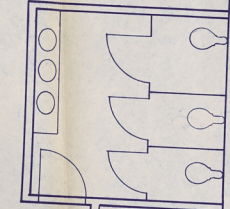
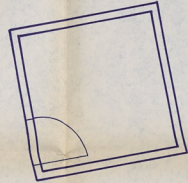
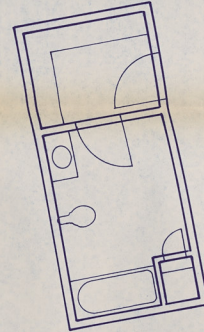
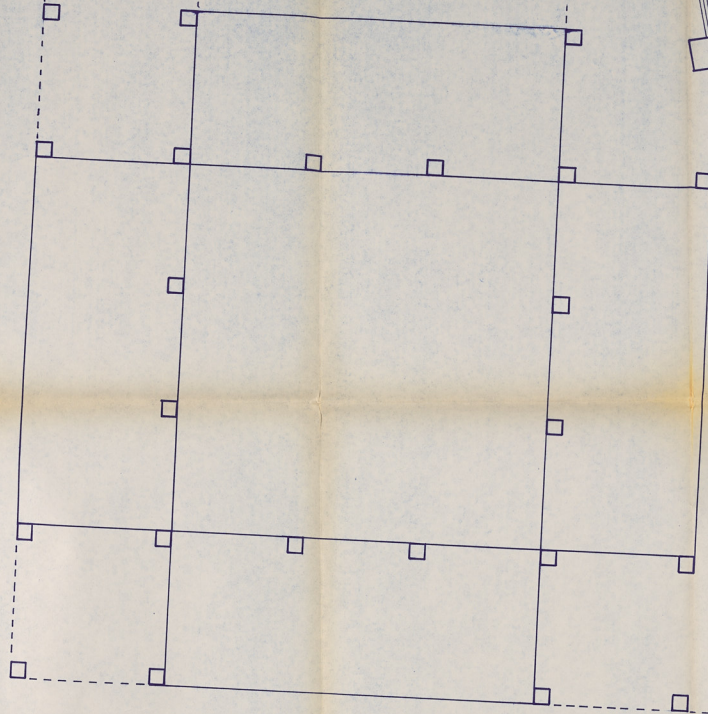
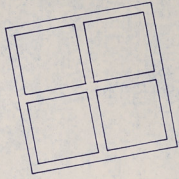


SECTION A



COMMUNAL SPACE PLAN

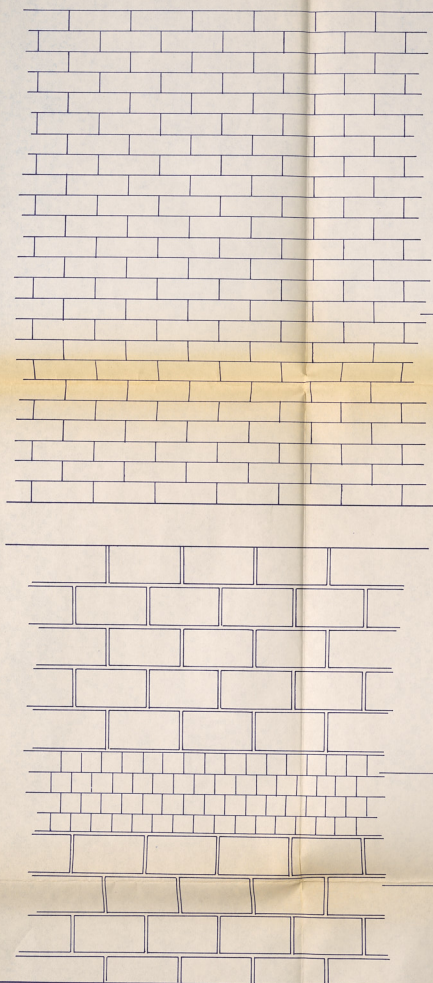
SCALE 1" = 4'





COMMUNAL SPACE SECTION A

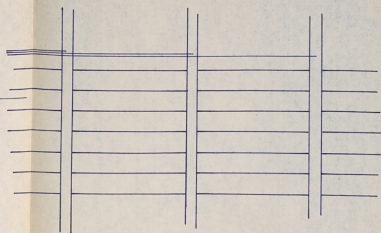
SCALE 1" = 4'



2" X 6" TRUSSES
2' ON CENTER

3/4" X 4" DECKING

THE TRUSSES ARE OPEN
SO THE CHILDREN CAN
SEE HOW THE ROOF IS
FORMED AND SEE THE
DECKING OF THE ROOF



ASPHALT SHINGLES
BUILDING FELT
5/8" PLYWOOD BOARD
1" INSULATION BOARD
3/4" DECKING
2" X 6" TRUSSES 2' ON CENTER

3/4" X 10" FRIEZE

2" X 8" FASCIA

2" X 12" TOP PLATE TREADED
1/2" X 12" ANCHOR BOLT
4' ON CENTER

2'-0"



COLORFUL GLAZED TILES
CHILD'S EYE LEVEL

CHILDREN AGE 3 TO 5
HAVE AN EYE LEVEL
FROM 2'-8" TO 3'-6"

3'-6"

2'-8"

12" SPLIT FACE CONCRETE
FOAM FILLED INSULATION

CONCRETE BLOCK

PAINTED WALL

TWO LONGITUDINAL WIRE TRUSS
OF LADDER-TYPE HORIZONTAL JOINT
REINFORCEMENT - ONE EVERY OTHER ROW

CONCRETE BLOCK

EXPANSION JOINT
FINISHED FLOOR
6" CONCRETE SLAB
6" VAPOR BARRIER
6" CRUSHED GRAVEL
6 X 6 WIRE FABRIC

EXPANSION JOINT

6" CONCRETE SLAB

2" CRUSHED GRAVEL

EARTH

CRUSHED GRAVEL

#4 REINFORCEMENT ANCHOR

#5 REBAR

1' X 2' CONCRETE FOOTING

4" DRAIN TILE

EARTH

THE CHILDREN HAVE THE SMOOTH SURFACE OF THE
BLOCK ON THE INSIDE WALL AND THE ROUGH
TEXTURE SURFACE ON THE OUTSIDE WALL

WALL ELEVATION AND SECTION

SCALE 1" = 1'