Itsukaichi Country Club Nishi-Tama, Japan

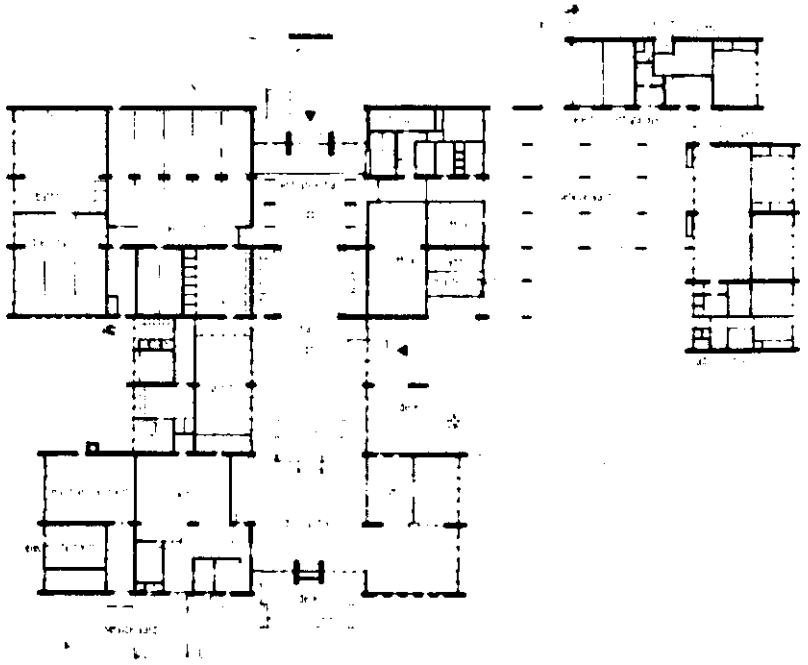
Critical Issues:

1) For the building to exist as a unit - as a countable whole.
2) The building is not to be air conditioned.
3) The creation of a unified, lighthearted atmosphere.
4) Highly flexible zoned areas.

Building Analysis:

1) The building exists as two parts: a peaked, linear steel-frame space and the flat roof, grid plan space of walls and concrete posts. The latter exists to serve the needs of the former.
2) The high roof on the one space is used to gather hot air because of the lack of air conditioning.
3) Materials such as a pine ceiling, unfinished concrete posts and beams, wooden furniture, and wood-brick paving are used to promote a lighthearted mood.
4) A 7.2m x 1m grid system is used to allow for easy expansion of the baths, locker rooms, dressing rooms, and administrative offices.

Space



Floor plan; scale: 1/800.

Structure

The structure is concrete columns and bearing walls which support a 7.2m x 1m grid system concrete slab. This system is easily expanded.

Circulation

Circulation is linear along the one large space branching out linearly from the hall.

Waterwood National Golf Club Lake Livingston, Texas

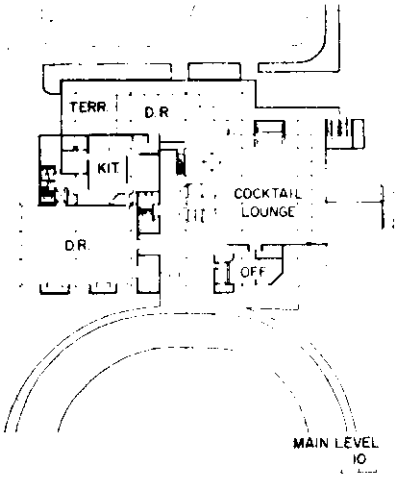
Critical Issues:

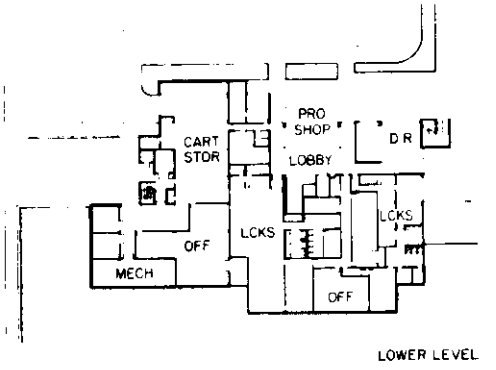
1) Have men's and women's locker rooms, the pro shop, coffee shop, and golf cart storage all open to the tees at grade level.
2) Allow view from the other prime spaces such as lounges, dining rooms and dining terraces.
3) Create small areas for small groups in an open plan.

Building Analysis:

1) A two level scheme was developed to allow athletic functions to have ground level access to the tees while social functions have views and balconies overlooking the course on an upper level.
2) The social areas are open underneath a trussed roof form to allow for flexibility while the walls step in and out creating a number of quiet corners.

Space





Structure

The structural system is an ordered pattern of concrete columns supporting the prefabricated five-foot-deep trusses on 16-foot centers. Finishes are wood siding on the upper level, brick below; wood plank ceilings and copper fascia.

Circulation

This is a 2-story scheme with a fairly centroidal circulation.

Kiso Country Club Kiso, Japan

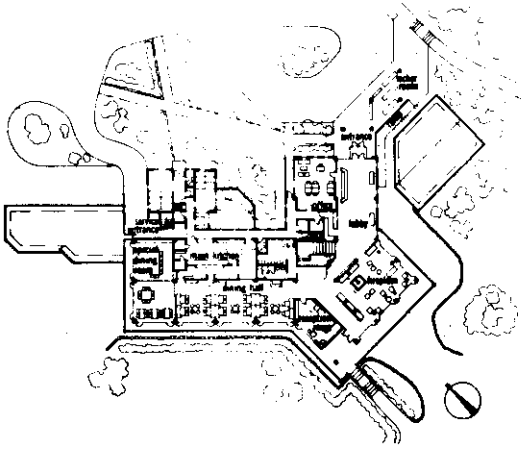
Critical Issues:

1) To keep the continuity of the landscape.
2) To have harmony with the environment.
3) To place the facilities so the guests can make a psychological change over from golf to relaxation.
4) To keep lounge chairs from being dragged in the locker room and obstruct passage.

Building Analysis:

1) The building was designed low and inconspicuous because of the splendor of the natural setting.
2) The building employs a few architectural characteristics found in local farm-houses.
3) The lounge and starting lobby face the first and tenth tees of the course, while the locker rooms and dining rooms face a commanding view of Mount Ontake.
4) Wooden lockers with attached benches were used in the locker room.

Space



Second-floor plan; scale: 1/1,200.

Structure

Reinforced concrete columns and bearing walls support large rafters of unfinished larch logs.

Circulation

A 2-story scheme with linear circulation.

Rurikei Golf Club Funai, Kyoto

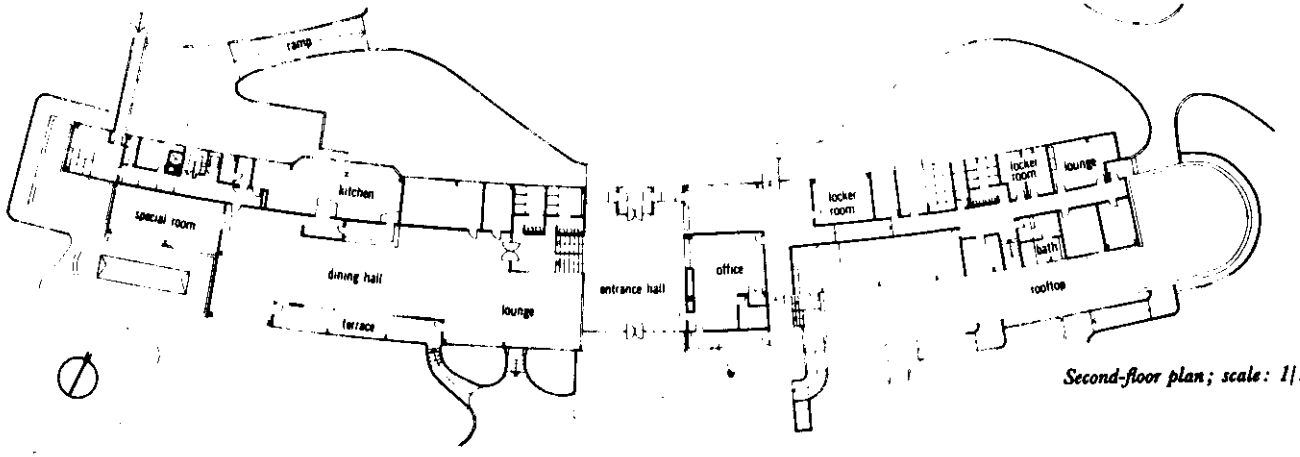
Critical Issues:

1) Recall the history of the "blue valley" in material.
2) Maximize window area looking onto the large golf course.

Building Analysis:

1) Blue slate paving was used to attempt to recall the wings of the ledendary birds of this valley.
2) The curved form of the plan allows more window space.

Space



Second-floor plan; scale: 1/1,000.

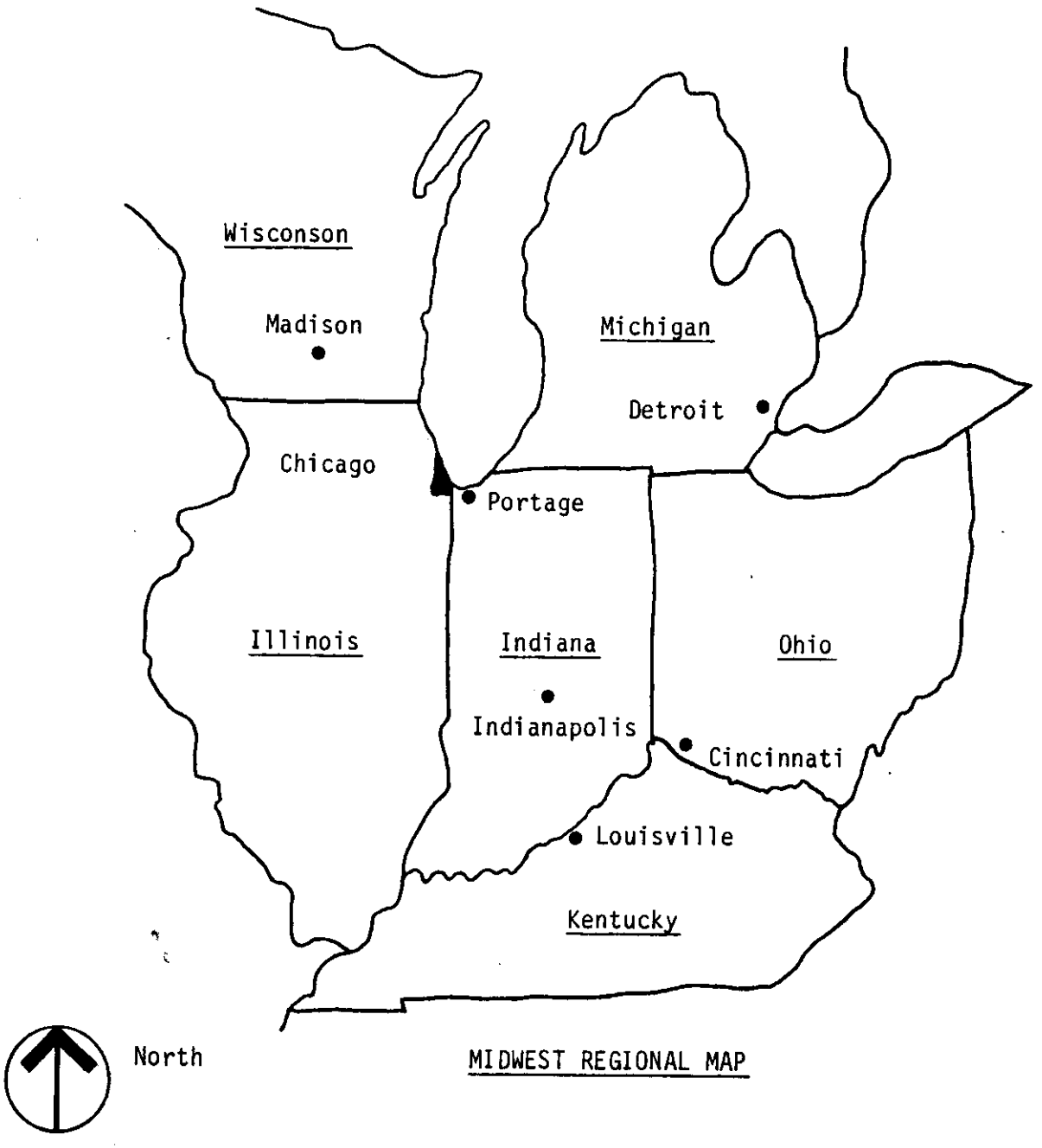
Structure

Reinforced concrete walls with steel frame roof.

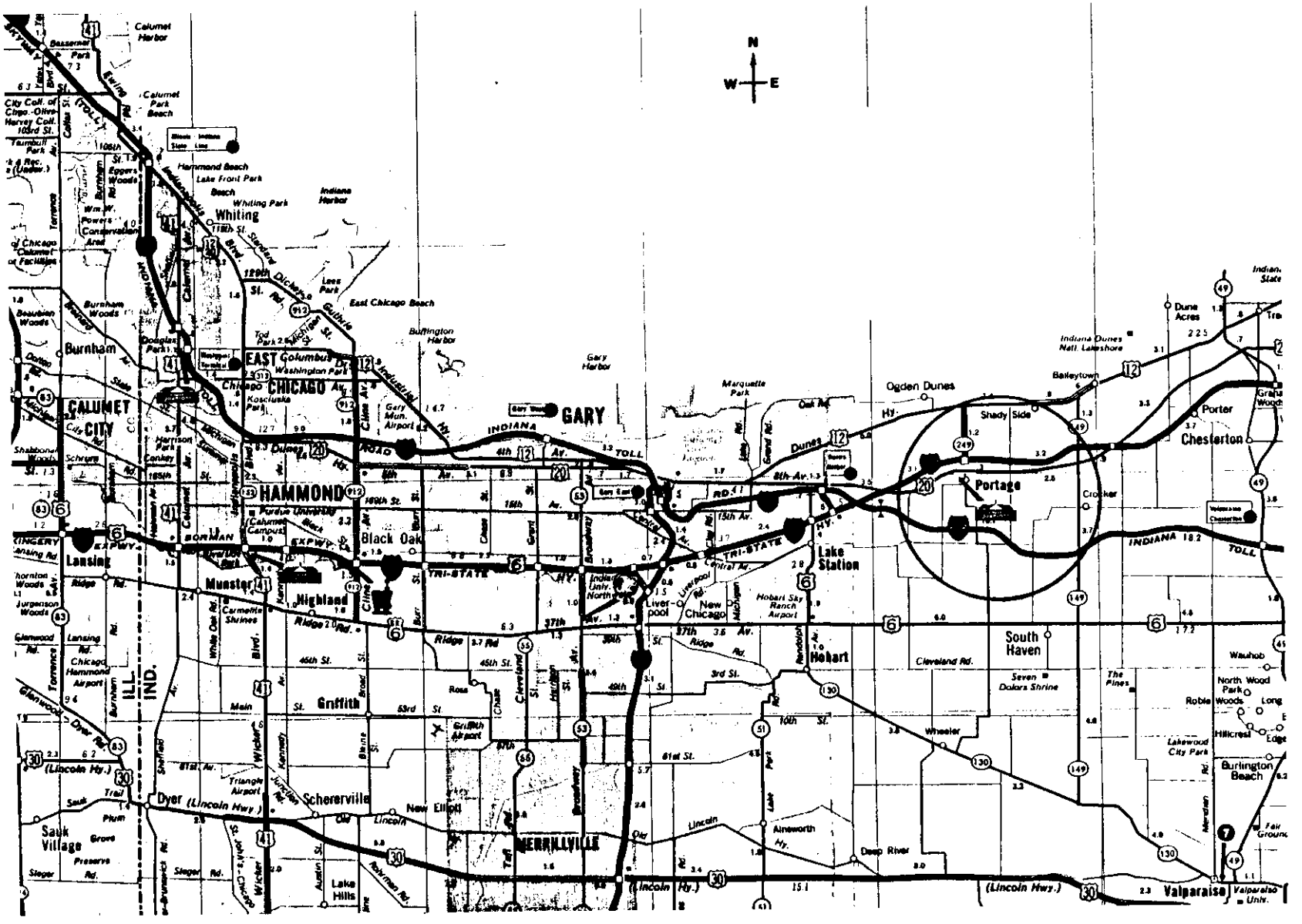
Circulation

One story linear circulation.

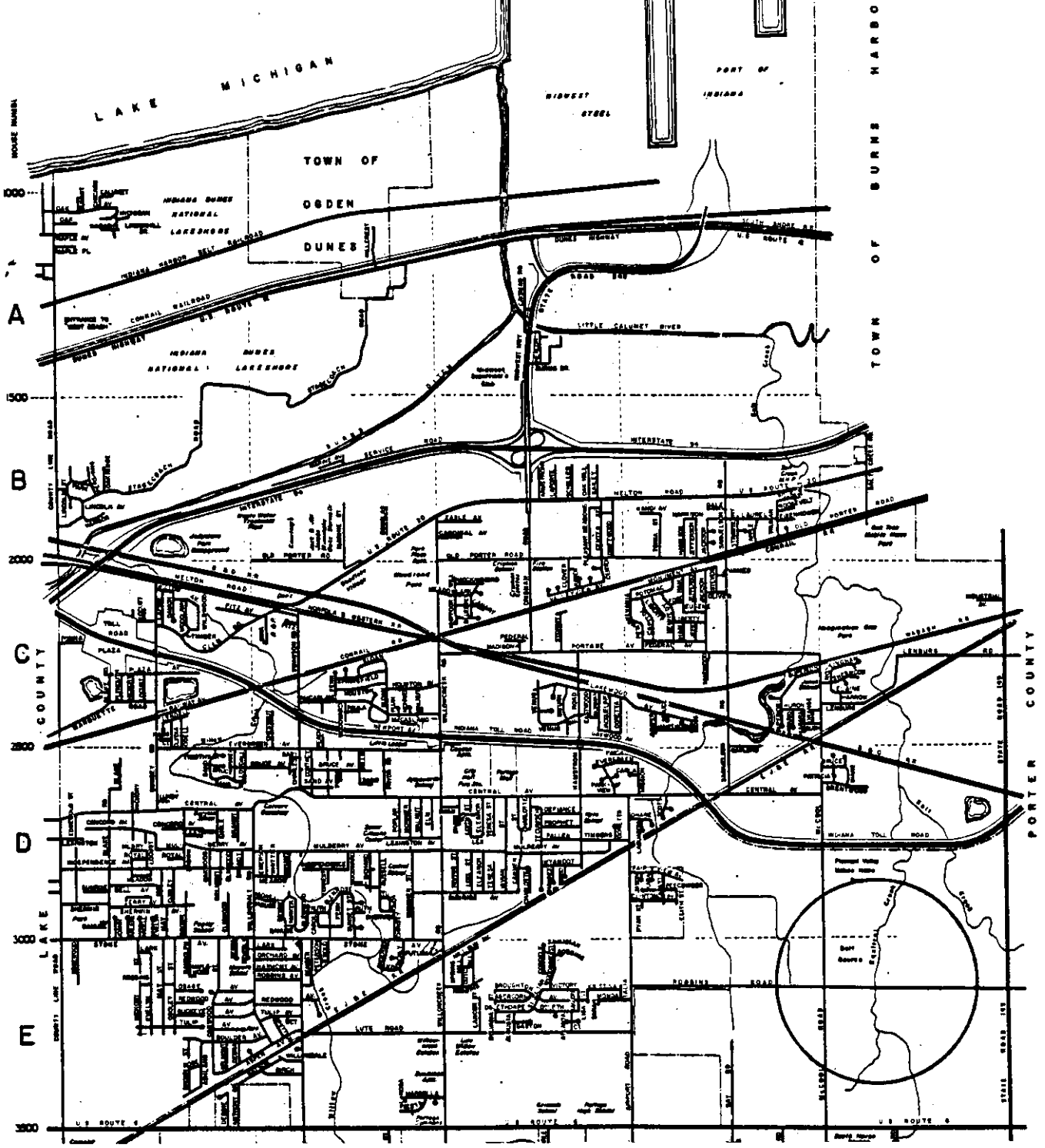
site analysis



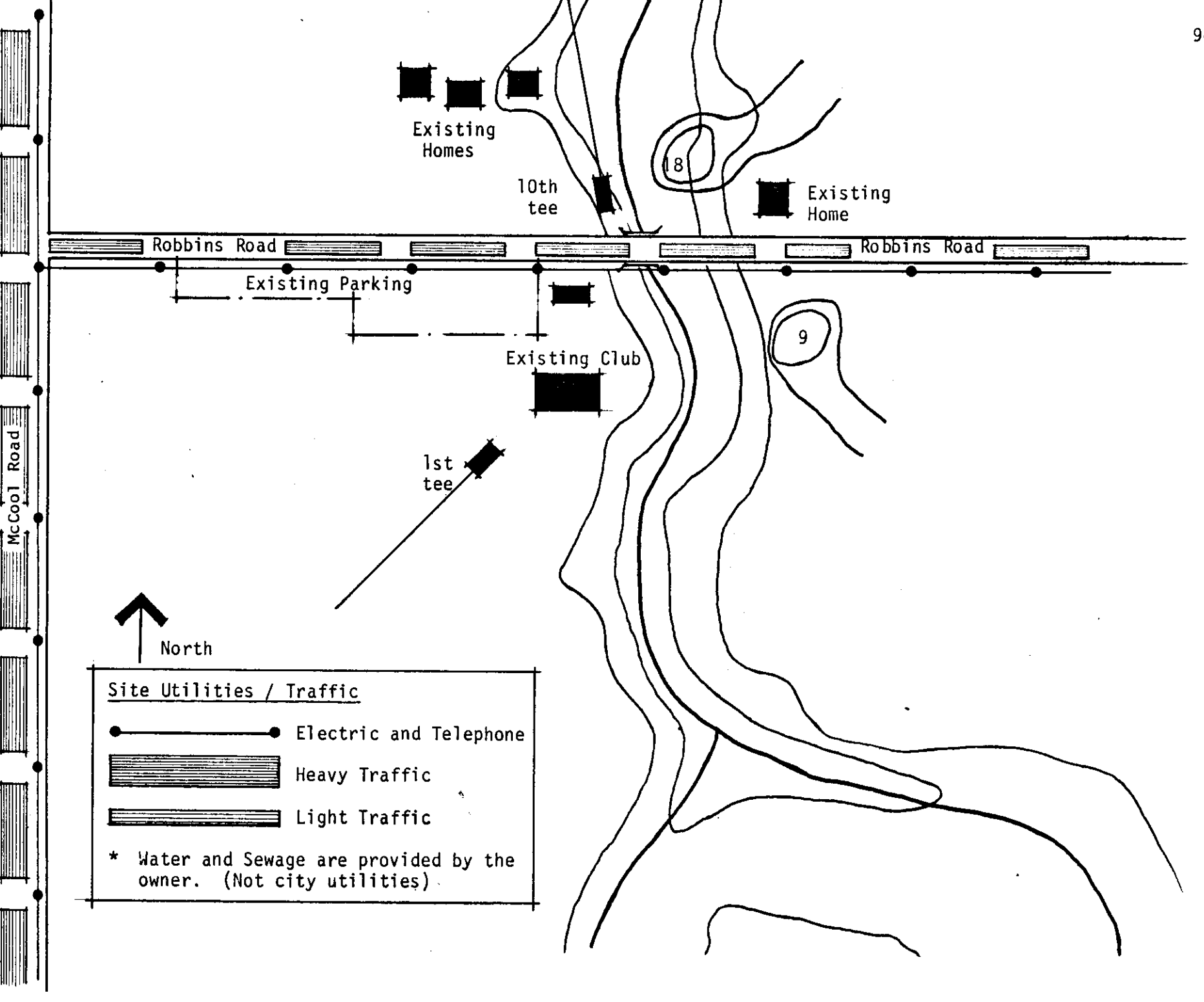
MIDWEST REGIONAL MAP

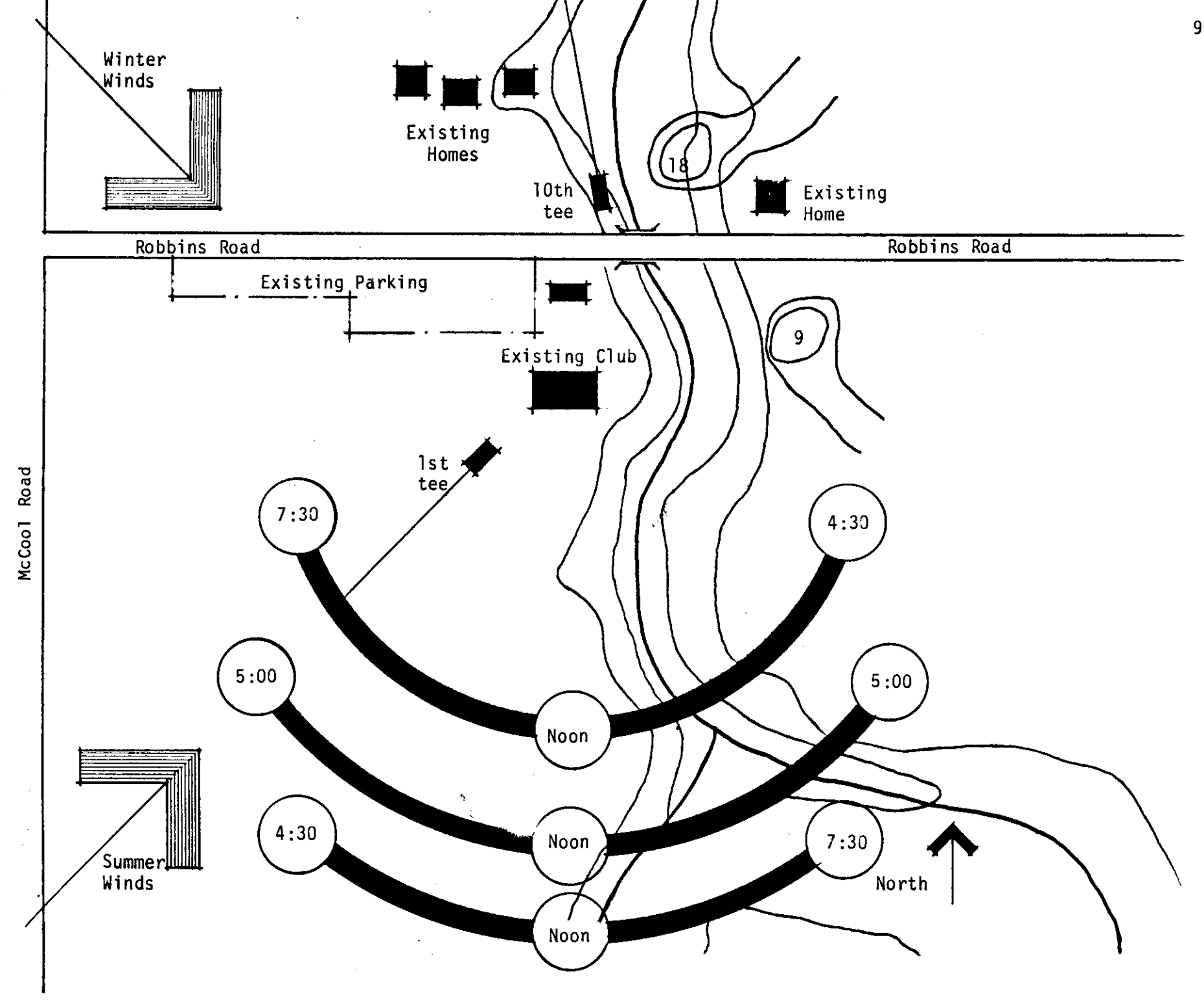


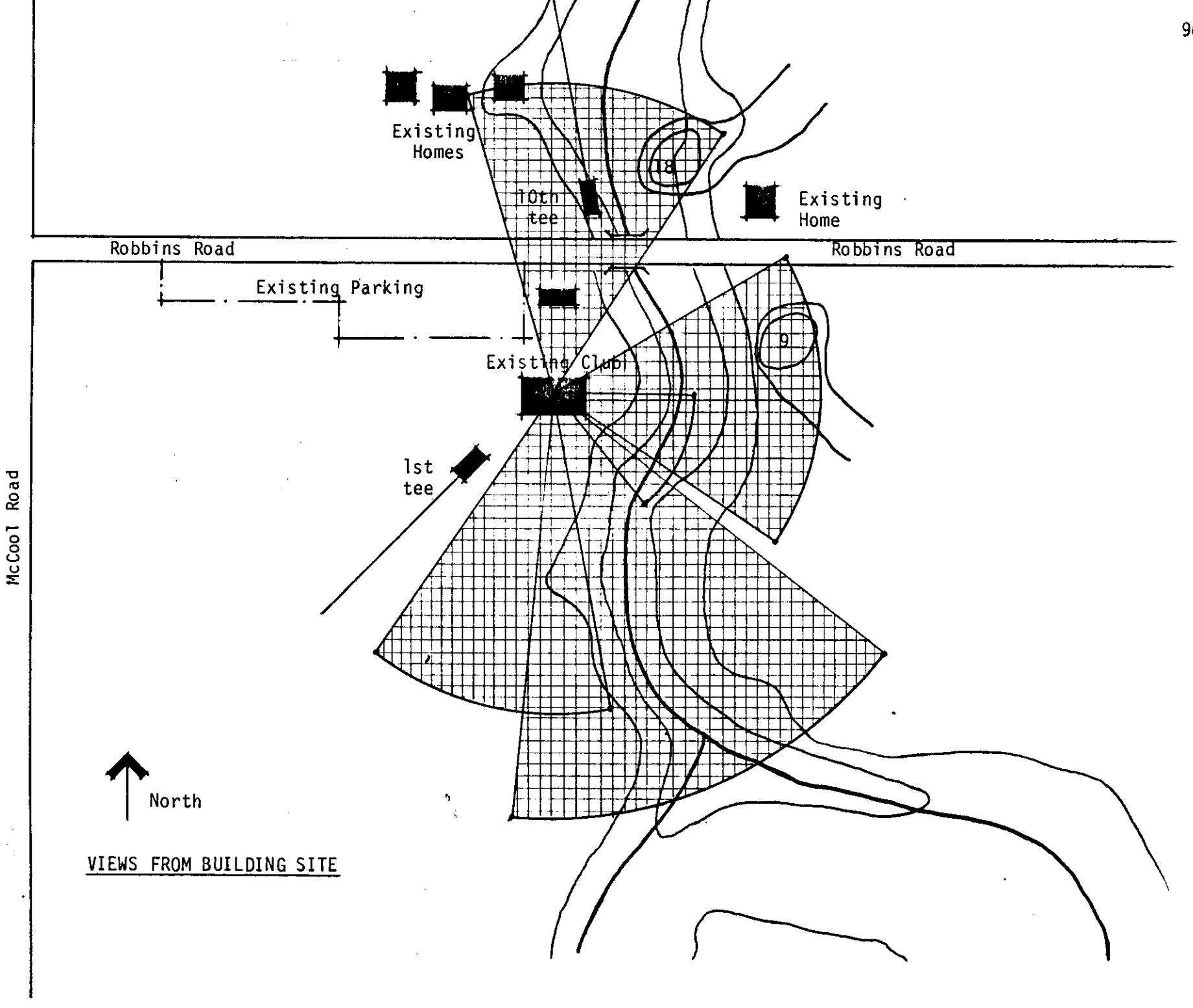
The Calumet Region



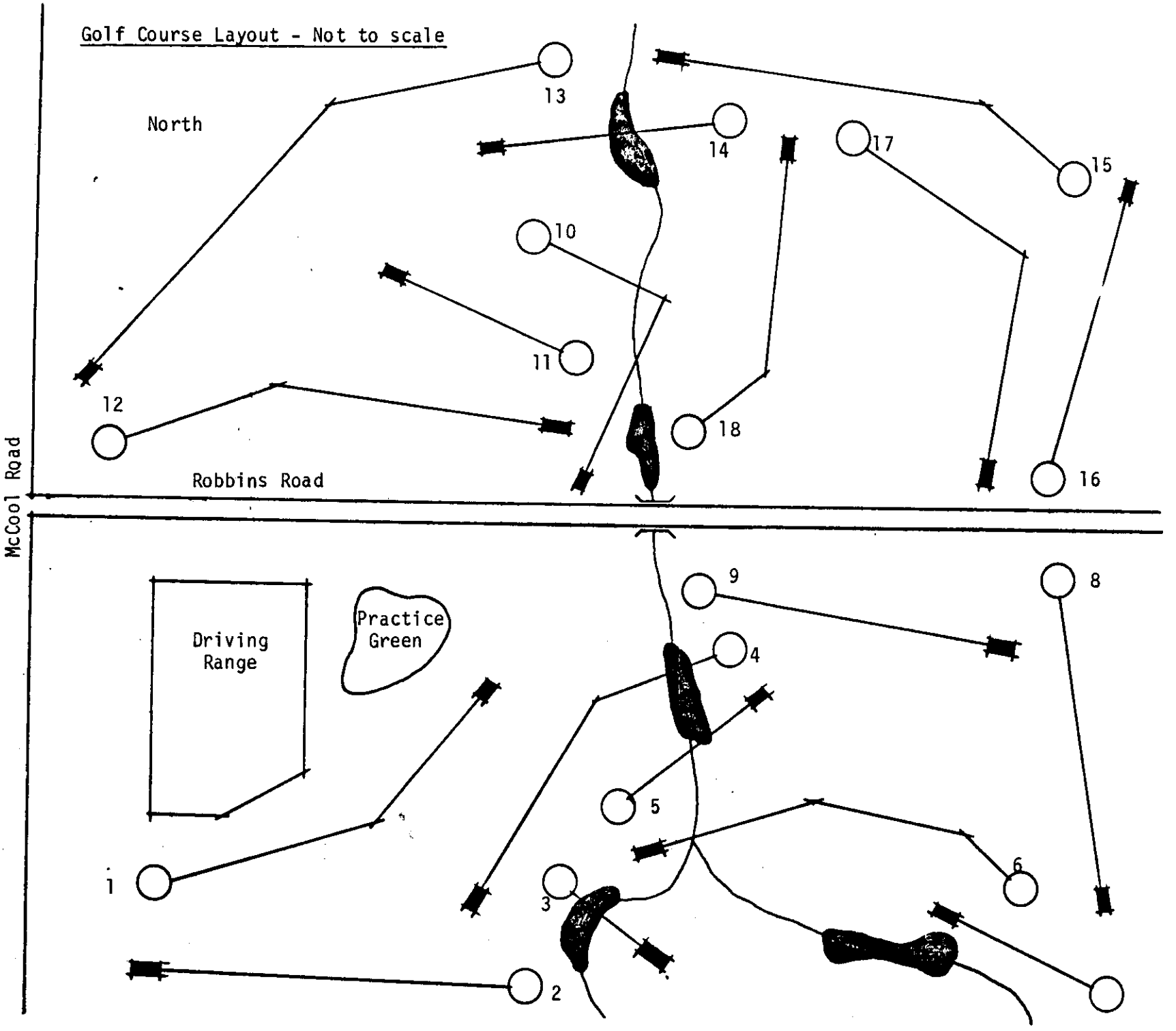
City of Portage

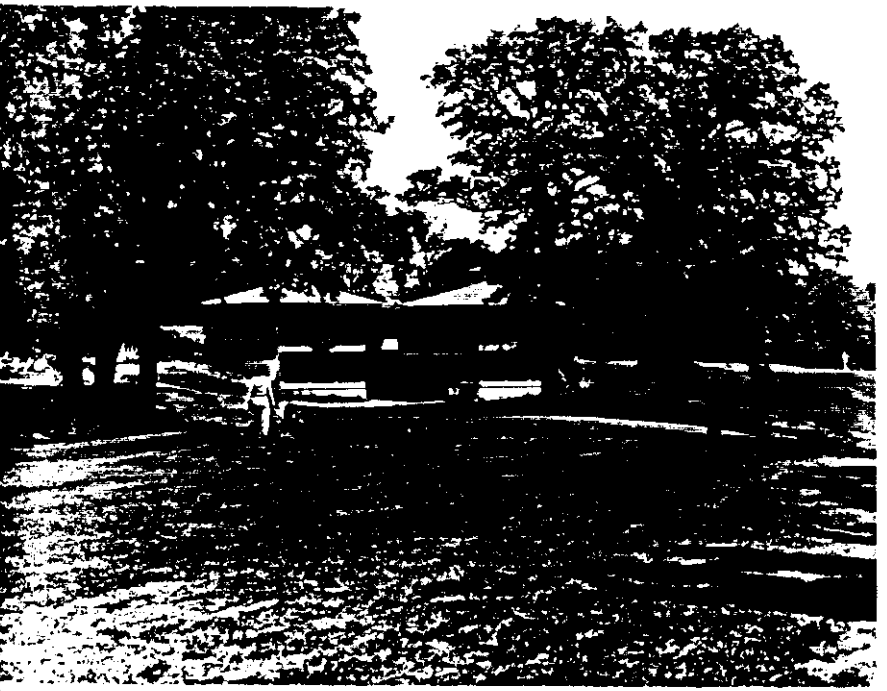

Existing Homes
10th tee
18
Existing Home
Robbins Road
Robbins Road
Existing Parking
9
Existing Club
1st tee
McCool Road
North
Site Utilities / Traffic
Electric and Telephone
Heavy Traffic
Light Traffic
* Water and Sewage are provided by the owner. (Not city utilities)

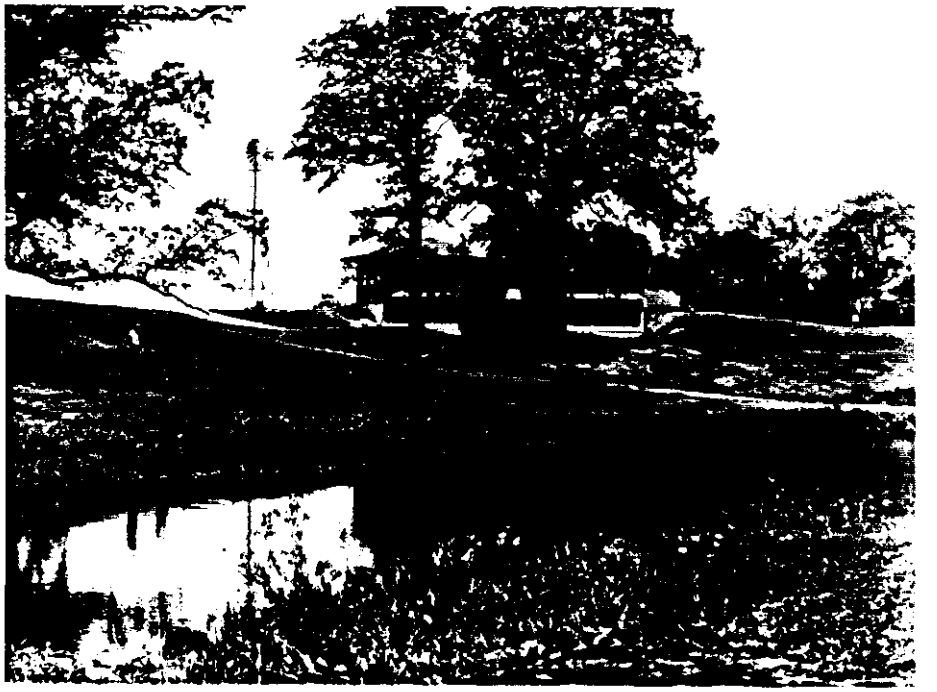

Winter
Winds
Existing
Homes
18
10th
tee
Existing
Home
Robbins Road
Robbins Road
Existing Parking
9
Existing Club
1st
tee
McCool Road
7:30
4:30
5:00
5:00
Noon
4:30
Noon
7:30
Noon
Summer
Winds
North

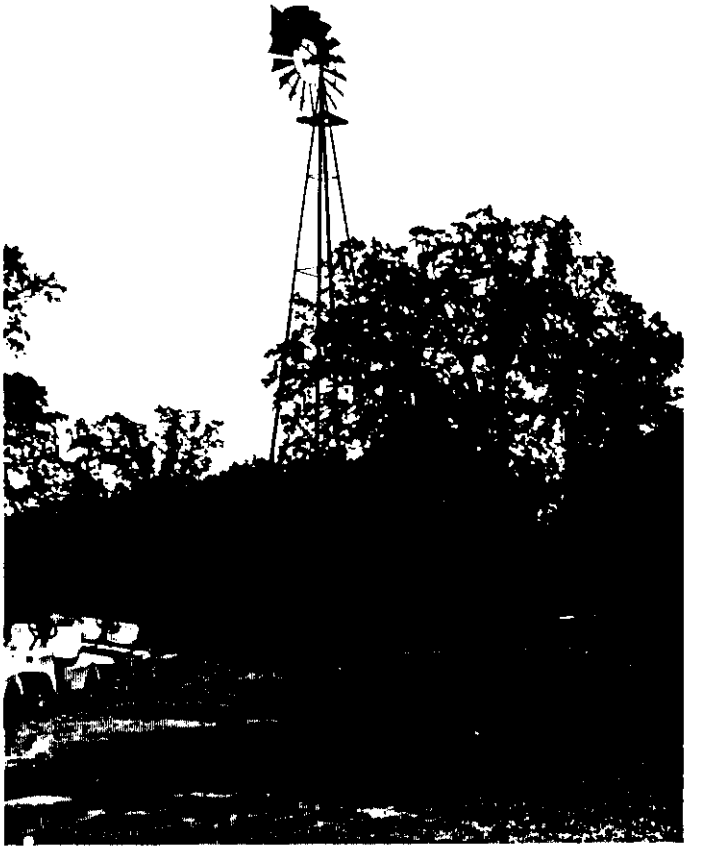


VIEWS FROM BUILDING SITE


Golf Course Layout - Not to scale
North
13
14
17
15
10
11
12
18
16
Robbins Road
McCool Road
Driving Range
Practice Green
9
8
4
5
6
1
3
2







conceptual design

Conceptual Design

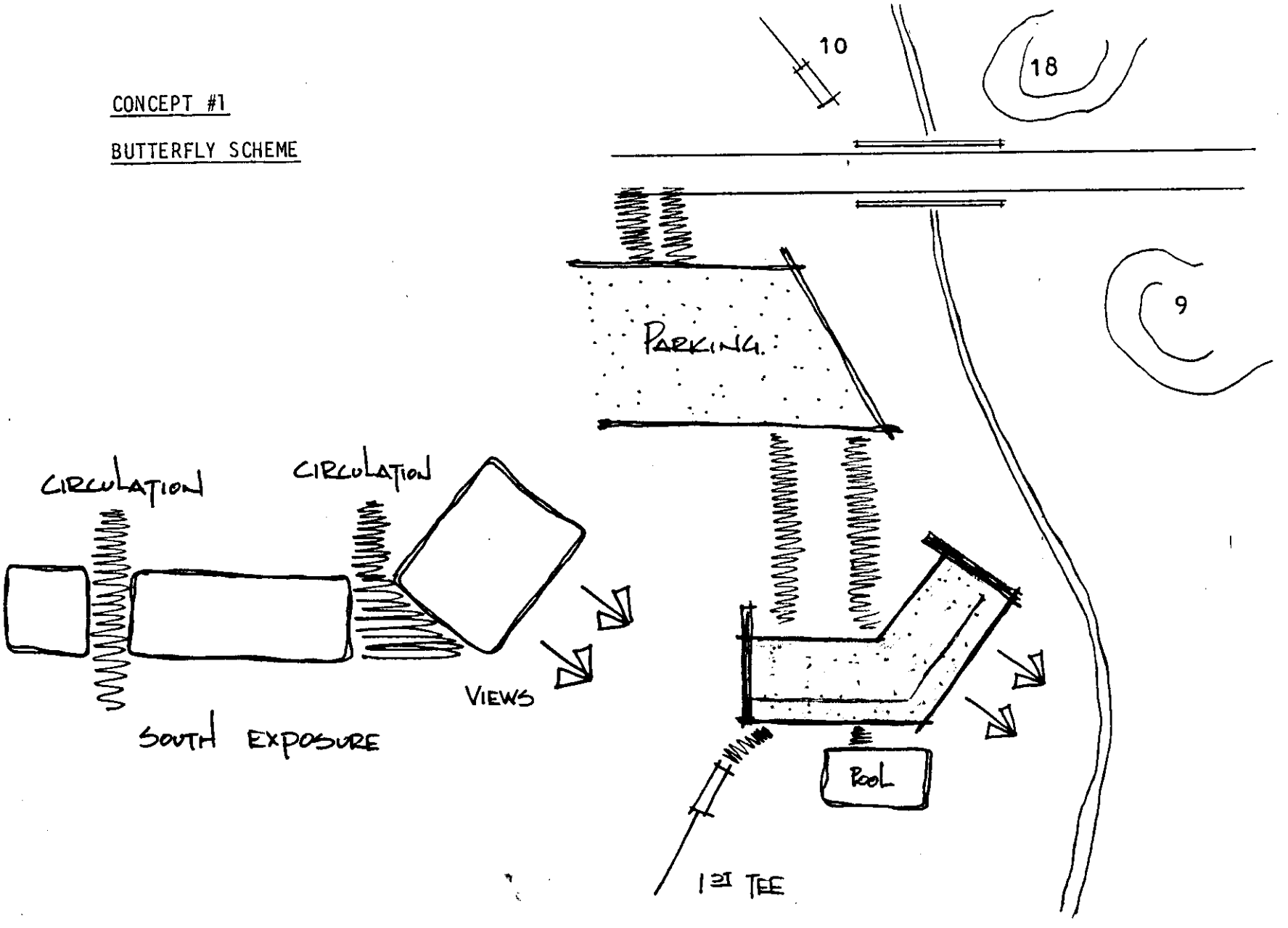
During the conceptual design phase, the major areas of concentration were the building to site relationship and the circulation patterns created by the existing golf course. Six different schemes were presented in this phase. In all of these six schemes the following criteria were taken into consideration.

1) A southern (solar) exposure
2) Views of and beyond the creek
3) Relationship to the road, bridge, and Squirrel Creek
4) Control over golfers at the 1st tee, 9th hole, 10th tee, and 18th hole
5) Response to climatic conditions such as solar and wind patterns

Although many ideas from all concepts show up in later development, the concept I chose to develop is concept #6, a linear bridge spanning the creek. The decision to span the creek came about for two reasons: 1) to create a southern exposure and open up to the best views of the creek, both at the same time; 2) to aid in creating a smooth circulation path between holes for the golfers. The relationship of the bridge to ground was also taken into consideration. I devised the relationships: 1) bridge floating above ground, 2) bridge resting on ground, and 3) bridge built-in (dam with a hole in it). I personally felt that a clubhouse should be a domineering element on the landscape, a center of visual impact as well as activity, an element that can be seen and recognized from all around the golf course. For this reason I decided to develop my design along the bridge floating above ground concept.

CONCEPT #1

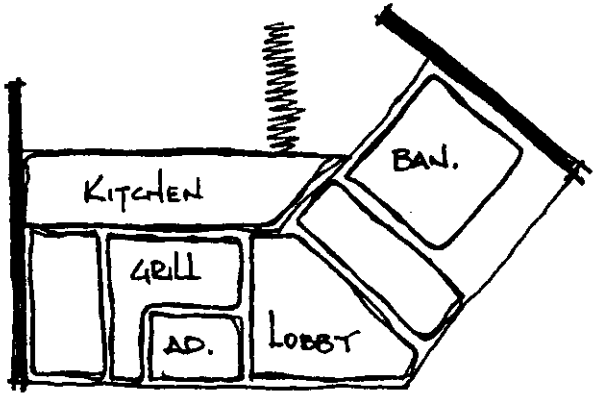
BUTTERFLY SCHEME



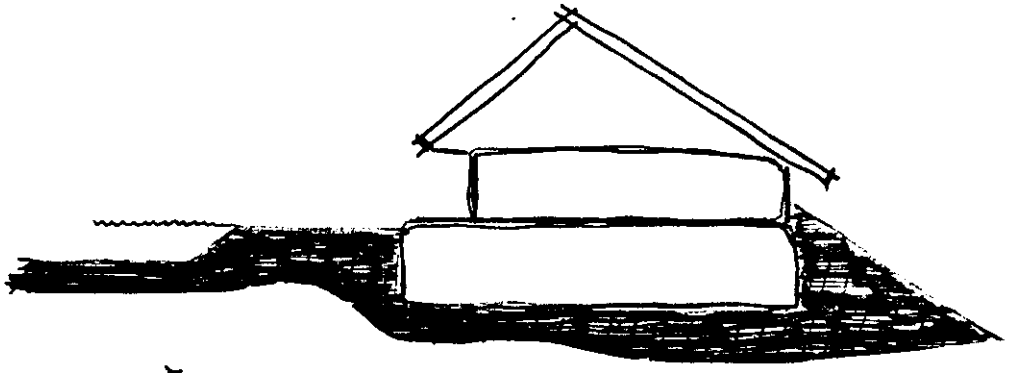
CONCEPT DIAGRAM

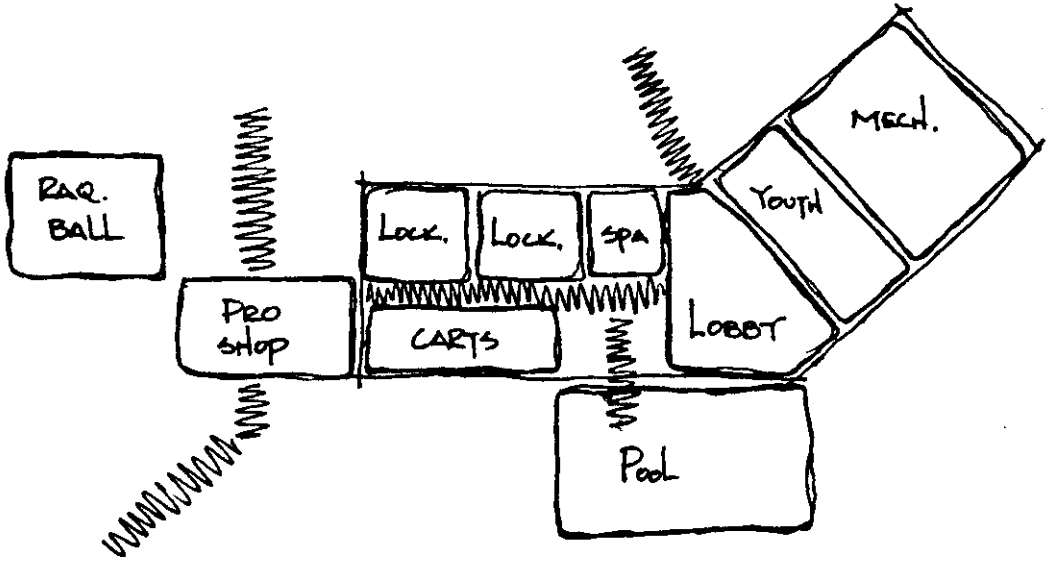
North

SITE PLAN



UPPER LEVEL



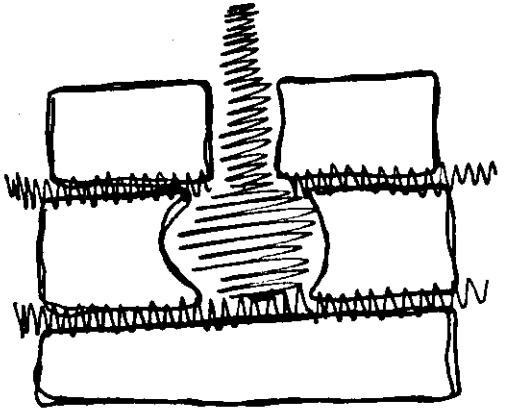


GROUND LEVEL

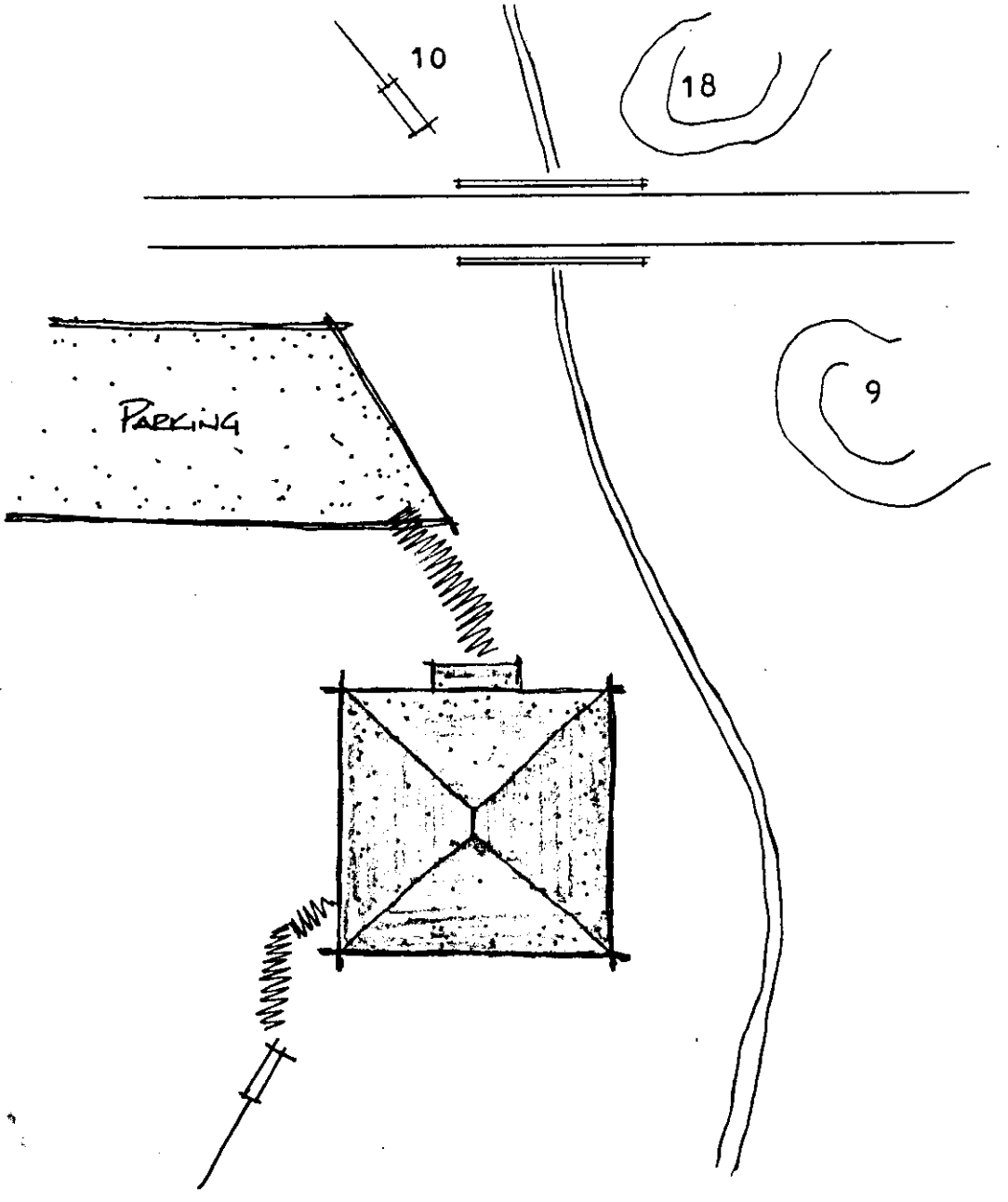
PLANS - SECTIONS

CONCEPT #2

CENTROIDAL SCHEME

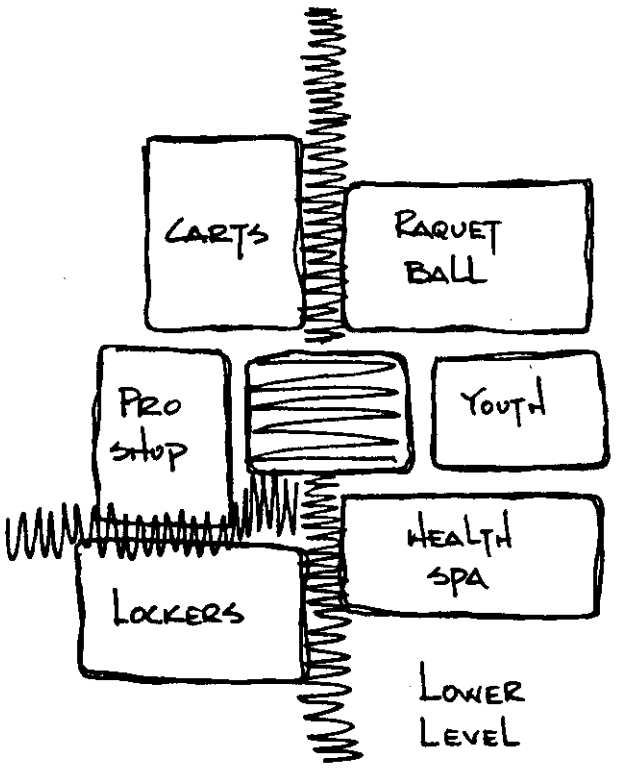


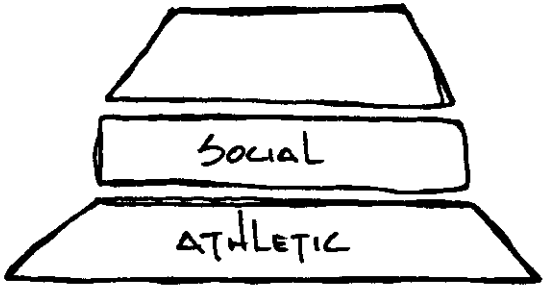
CONCEPT DIAGRAM

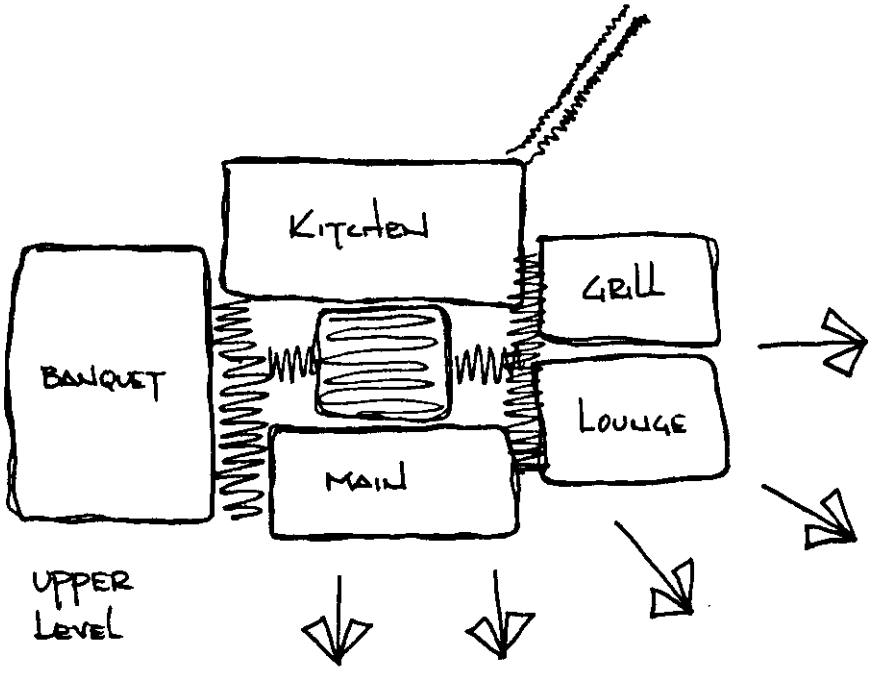


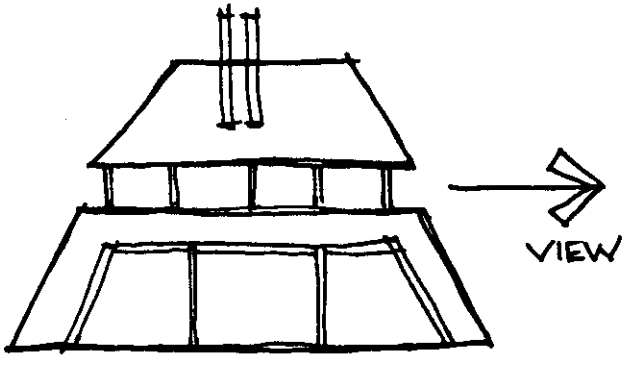
North

SITE PLAN

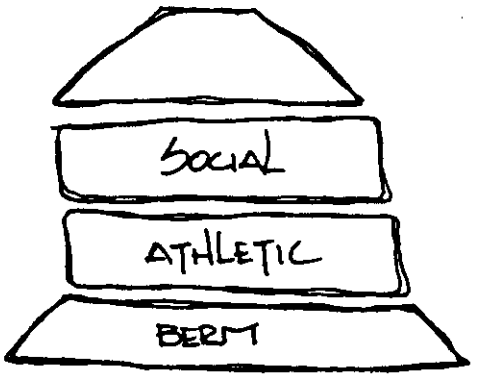


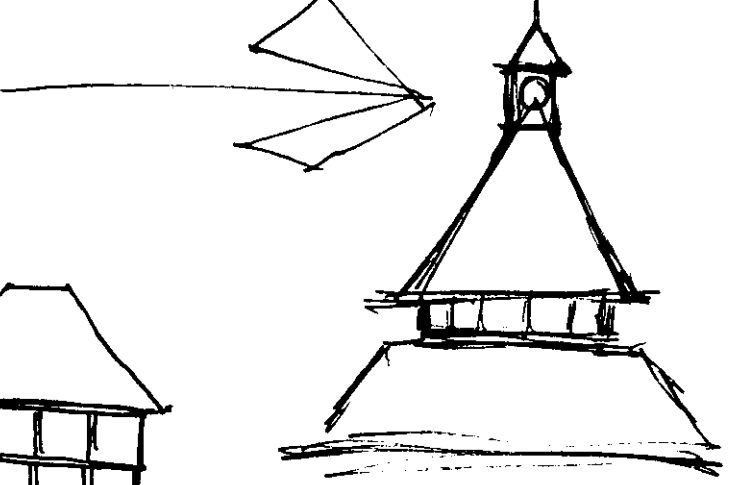


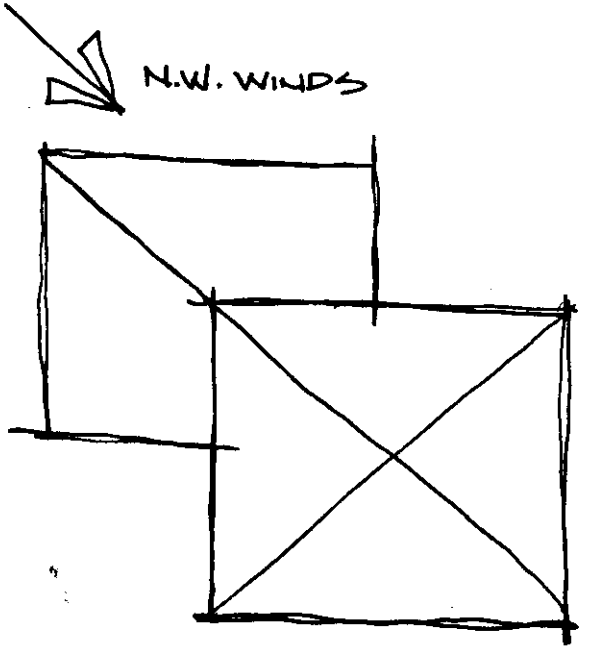


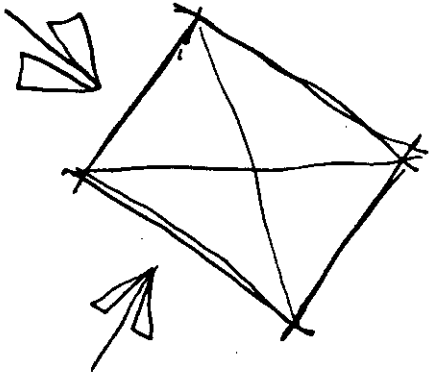


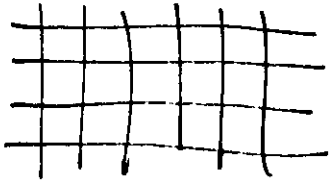
PLANS - SECTIONS

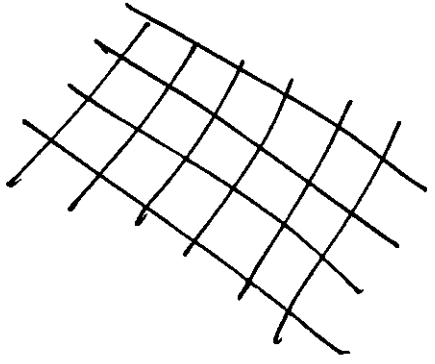












ALTERNATIVES

Linear

Line
Linearity - what is that?

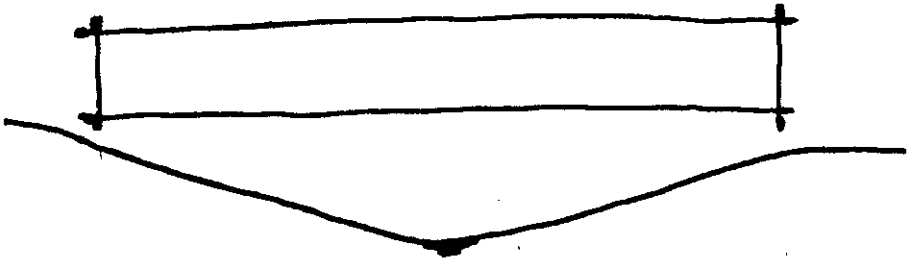
Road is linear
Creek is linear - curvilinear?

Perpendicular axis

Bridge (road) is linear
Parking can be linear
Bridge across creek (building) can or is linear

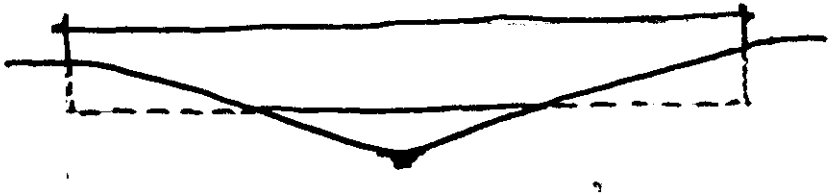
Bridge

Bridge is circulation
Linear (bridge) (Circ.)
Event
Path from one place to another
One side to another
"Other side of the tracks"



BRIDGE FLOATING ABOVE GROUND

BRIDGE RESTING ON GROUND

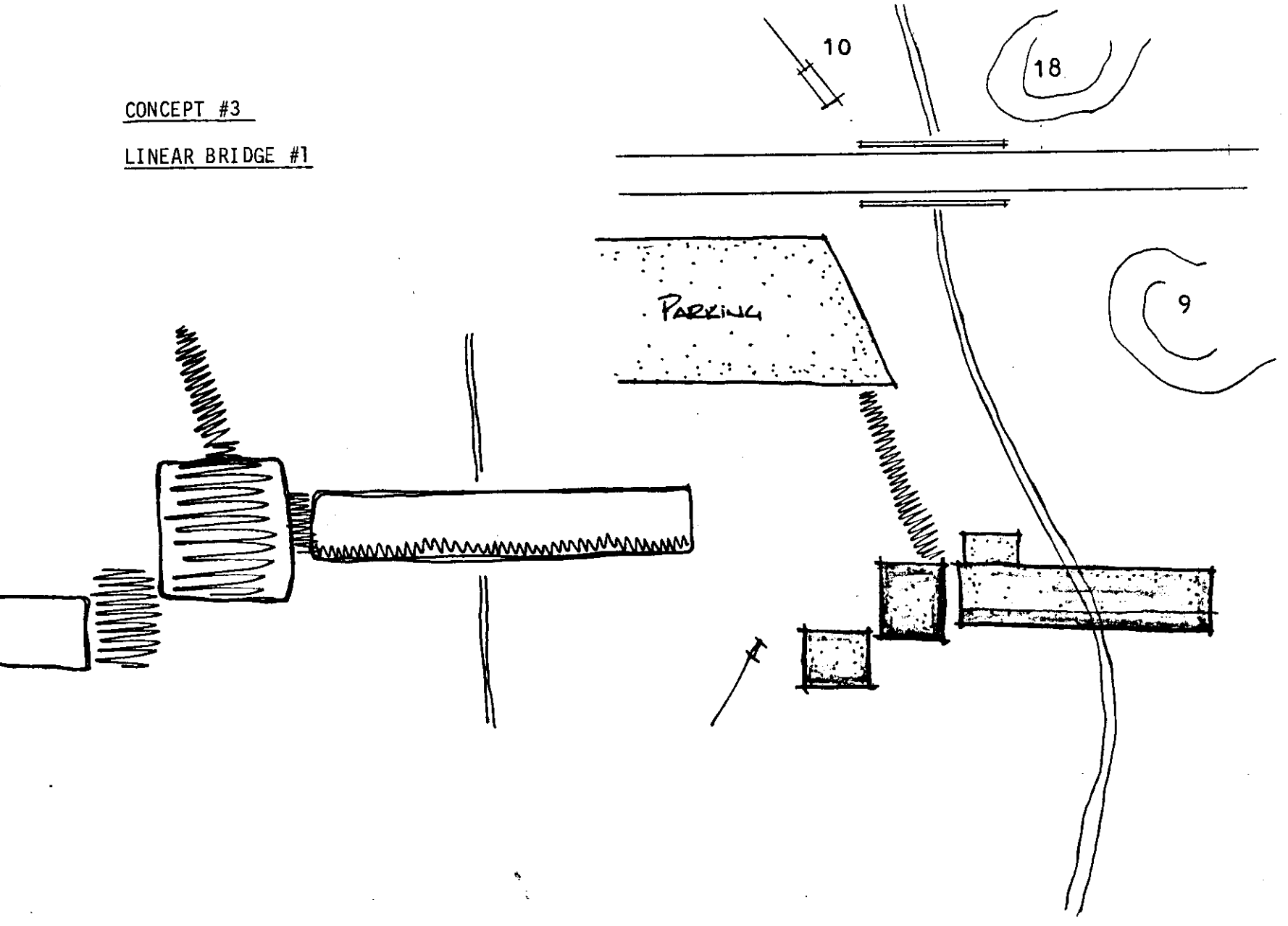


BRIDGE BUILT-IN
(DAM WITH A HOLE IN IT)

RELATIONSHIPS OF GROUND TO BRIDGE

CONCEPT #3

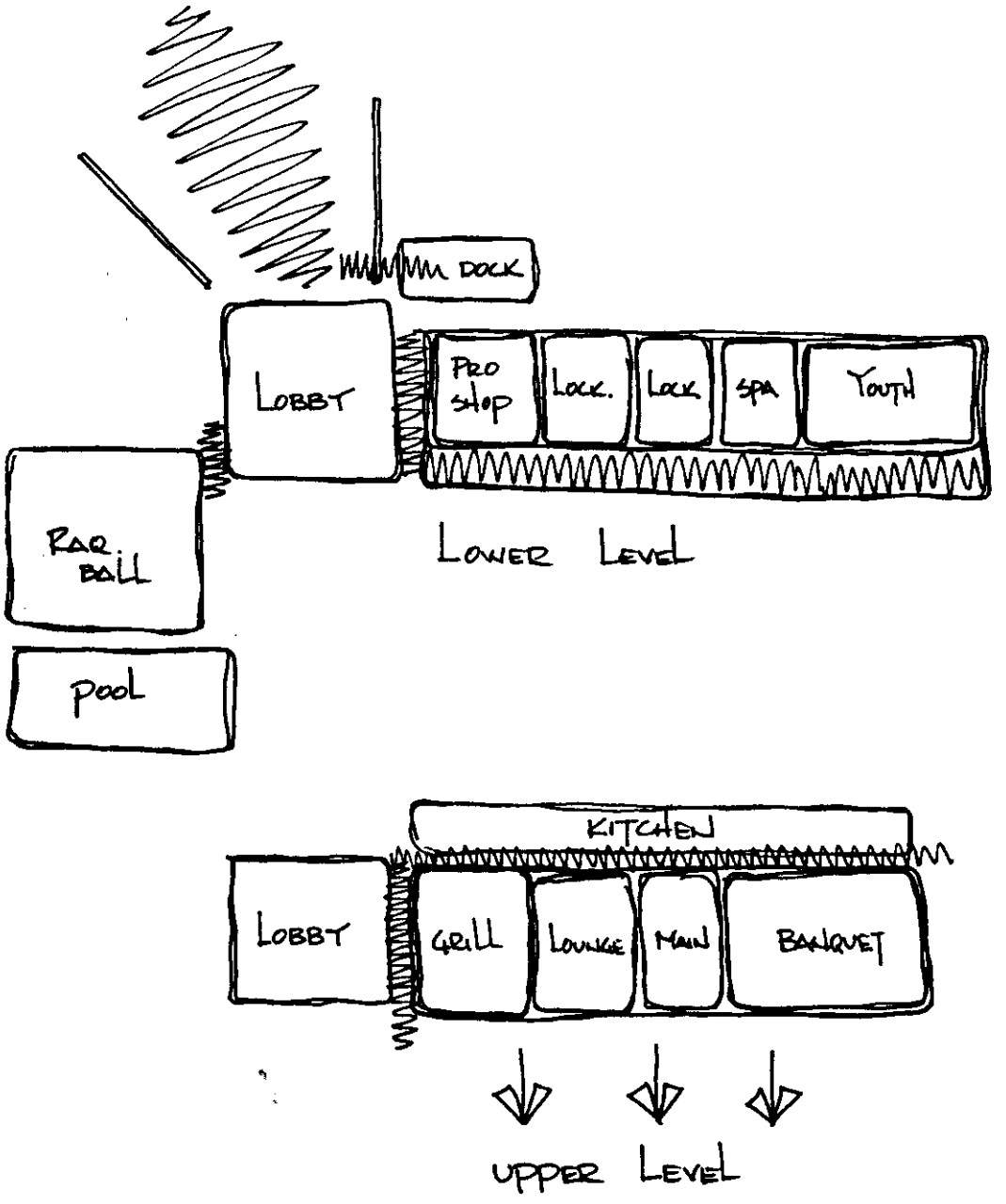
LINEAR BRIDGE #1



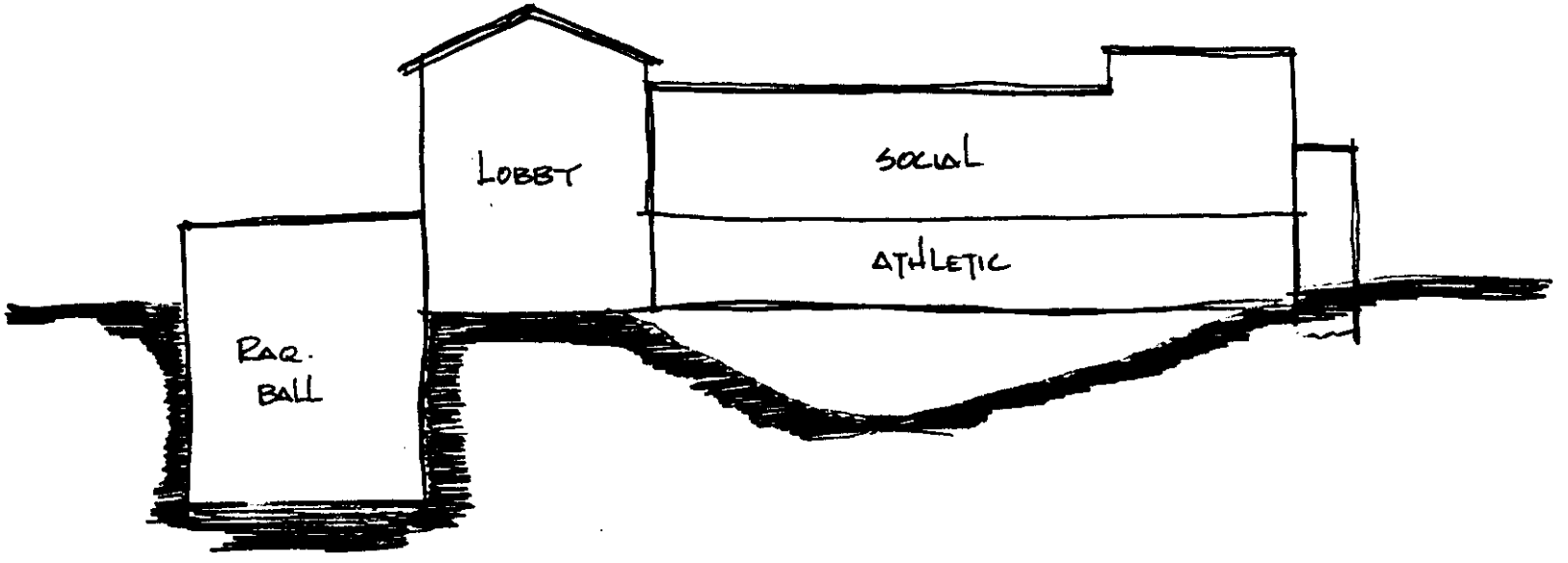
CONCEPT DIAGRAM

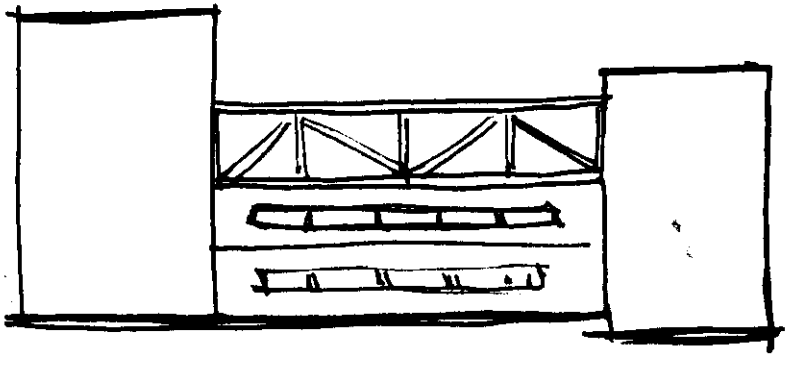
North

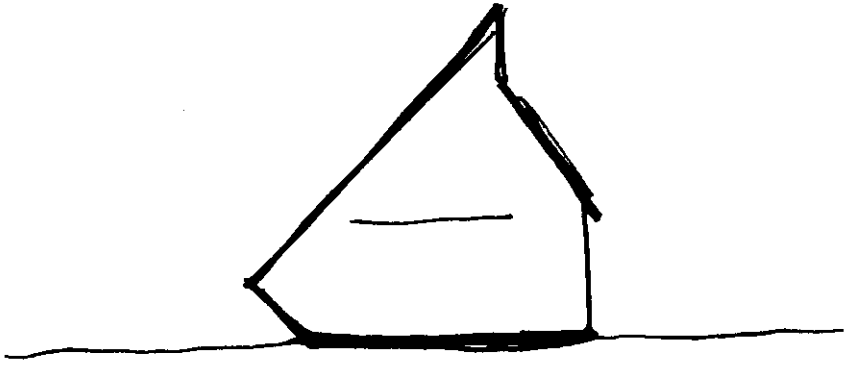
SITE PLAN


DOCK
LOBBY
PRO SHOP
LOCK.
LOCK
SPA
YOUTH
RAQ BALL
POOL
LOWER LEVEL
KITCHEN
LOBBY
GRILL
LOUNGE
MAIN
BANQUET
UPPER LEVEL

PLANS



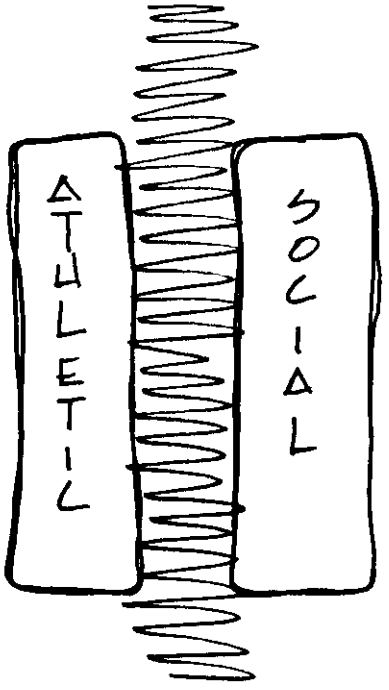




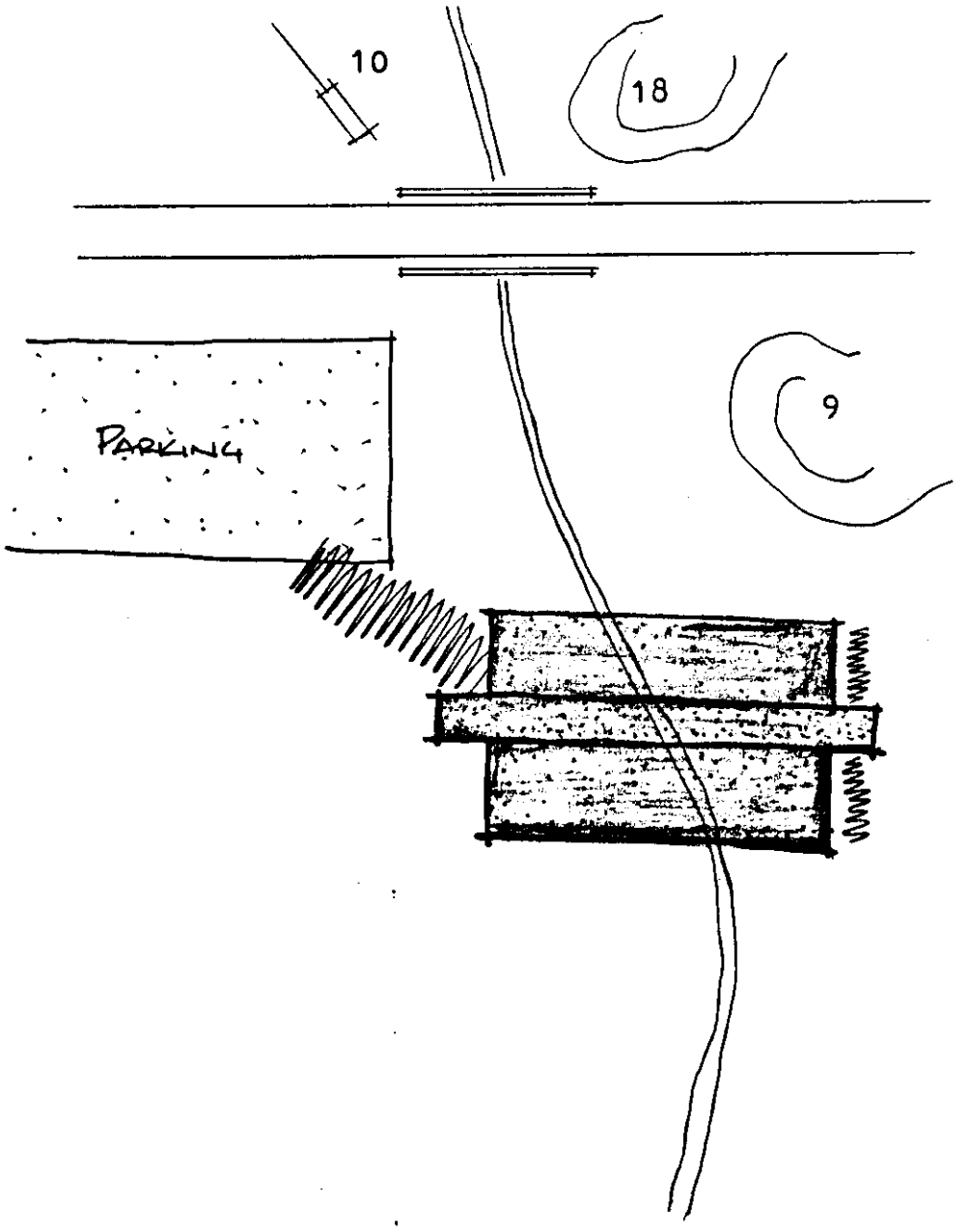
SECTIONS

CONCEPT #4

LINEAR BRIDGE #2

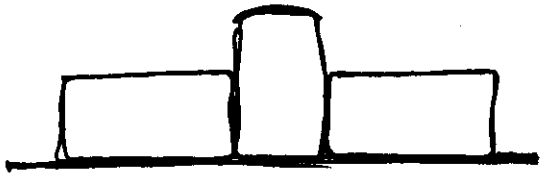


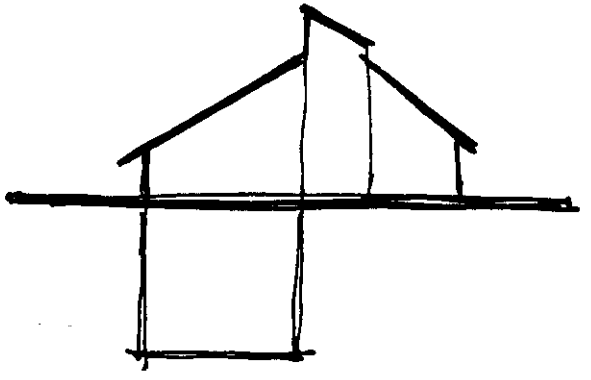
CONCEPT DIAGRAM

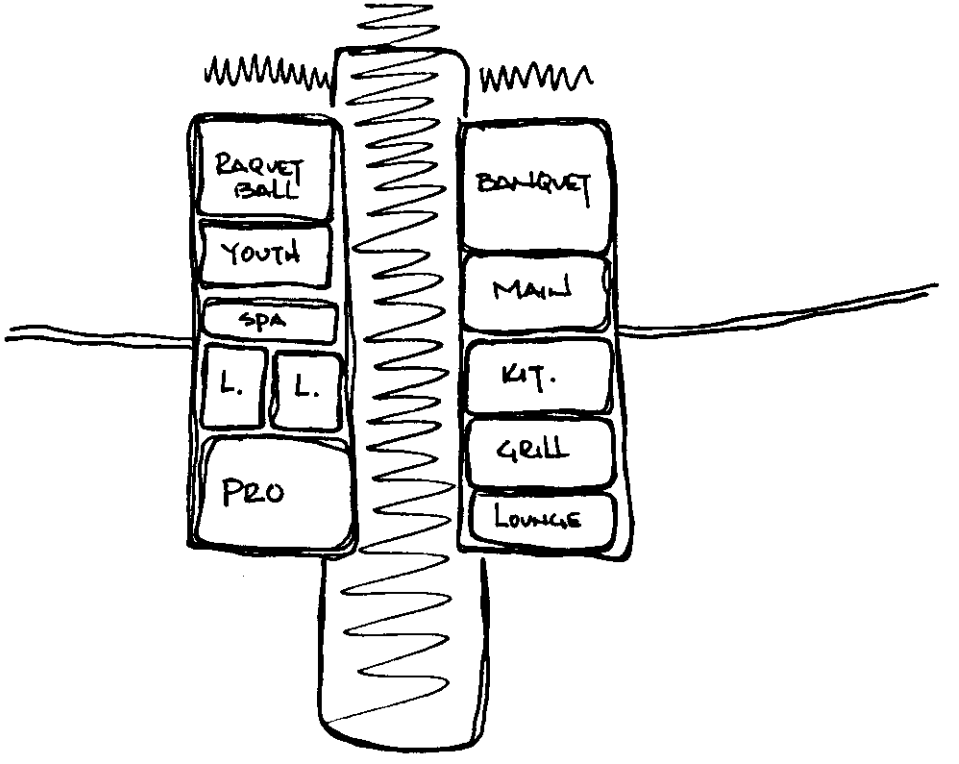


North

SITE PLAN



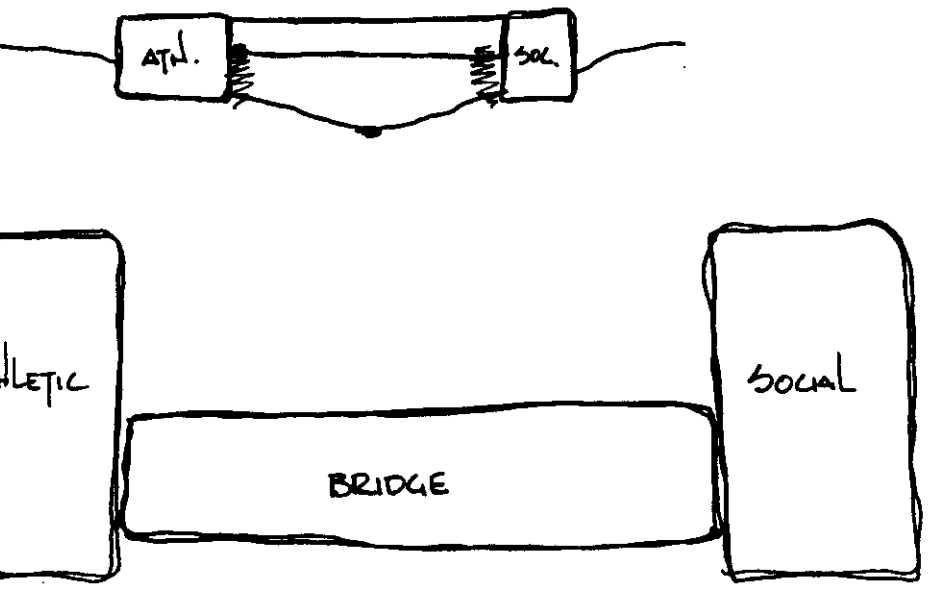




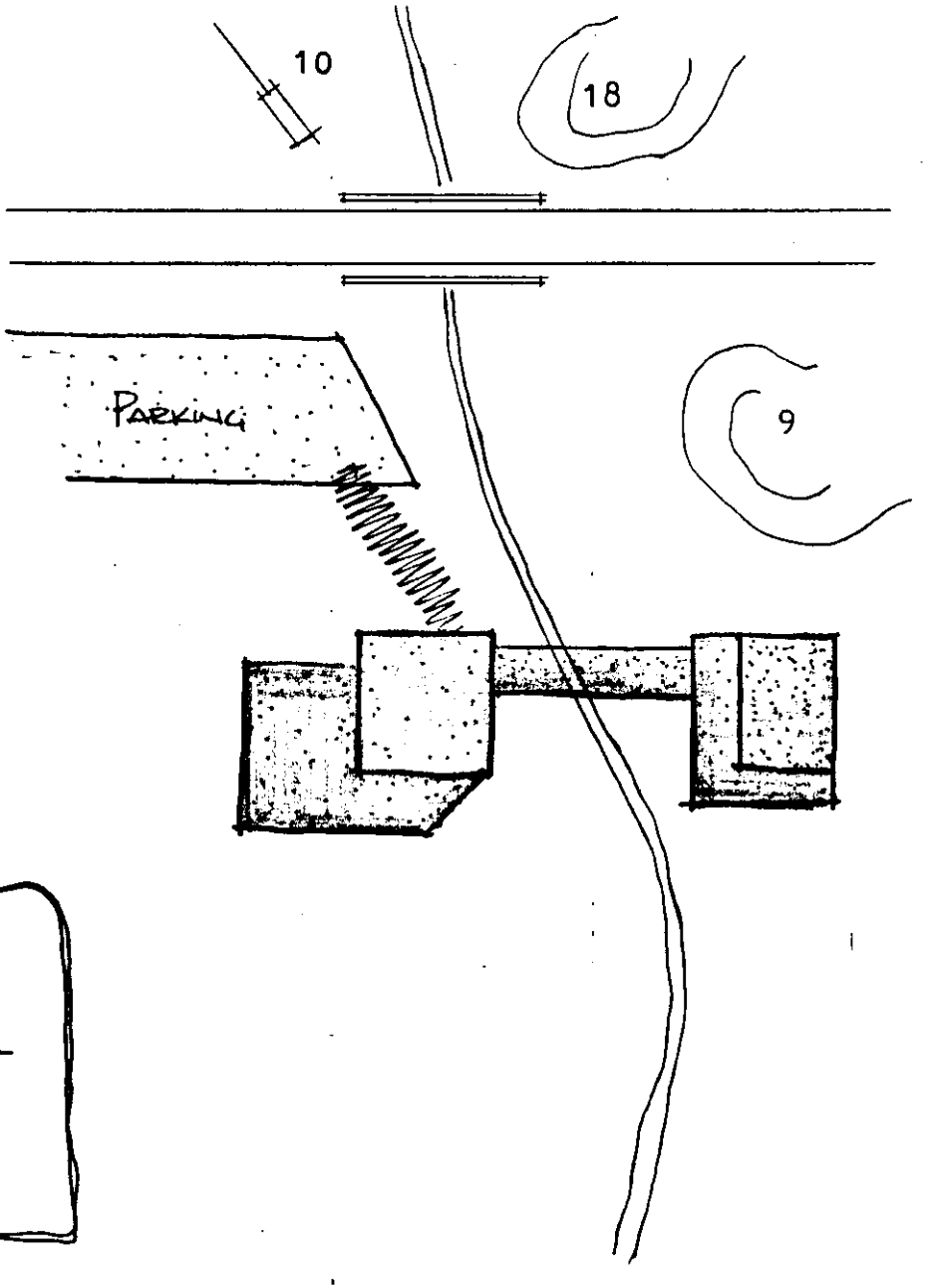
PLANS - SECTIONS

CONCEPT #5

BI-NUCLEAR BRIDGE

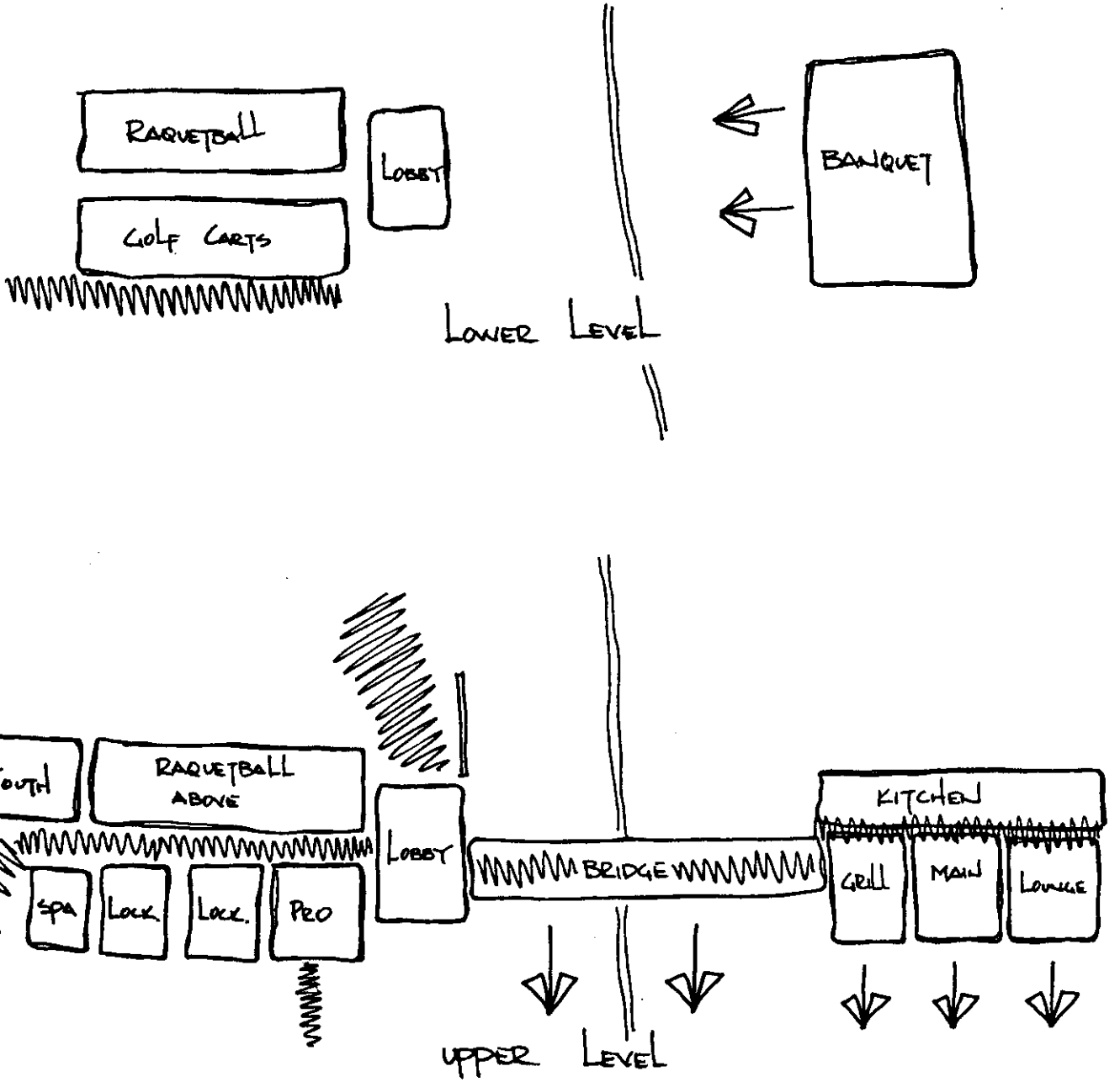


CONCEPT DIAGRAM

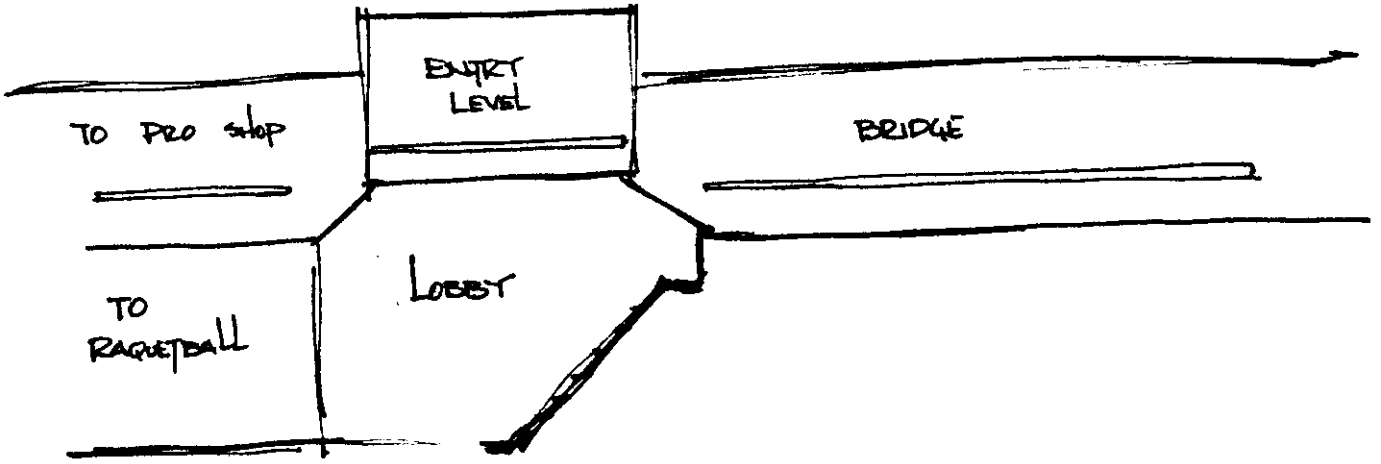


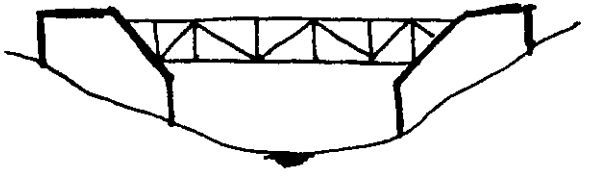
North

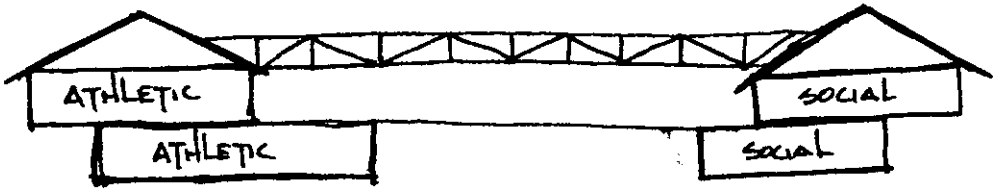
SITE PLAN


RAQUETBALL
LOBBY
GOLF CARTS
BANQUET
LOWER LEVEL
YOUTH
RAQUETBALL
ABOVE
LOBBY
KITCHEN
SPA
LOCK
LOCK.
PRO
BRIDGE
GRILL
MAIN
LOUNGE
UPPER LEVEL

PLANS


ENTRY LEVEL
TO PRO SHOP
BRIDGE
LOBBY
TO RAQUETBALL

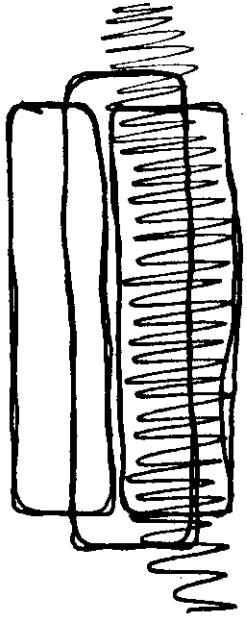



ATHLETIC
ATHLETIC
SOCIAL
SOCIAL

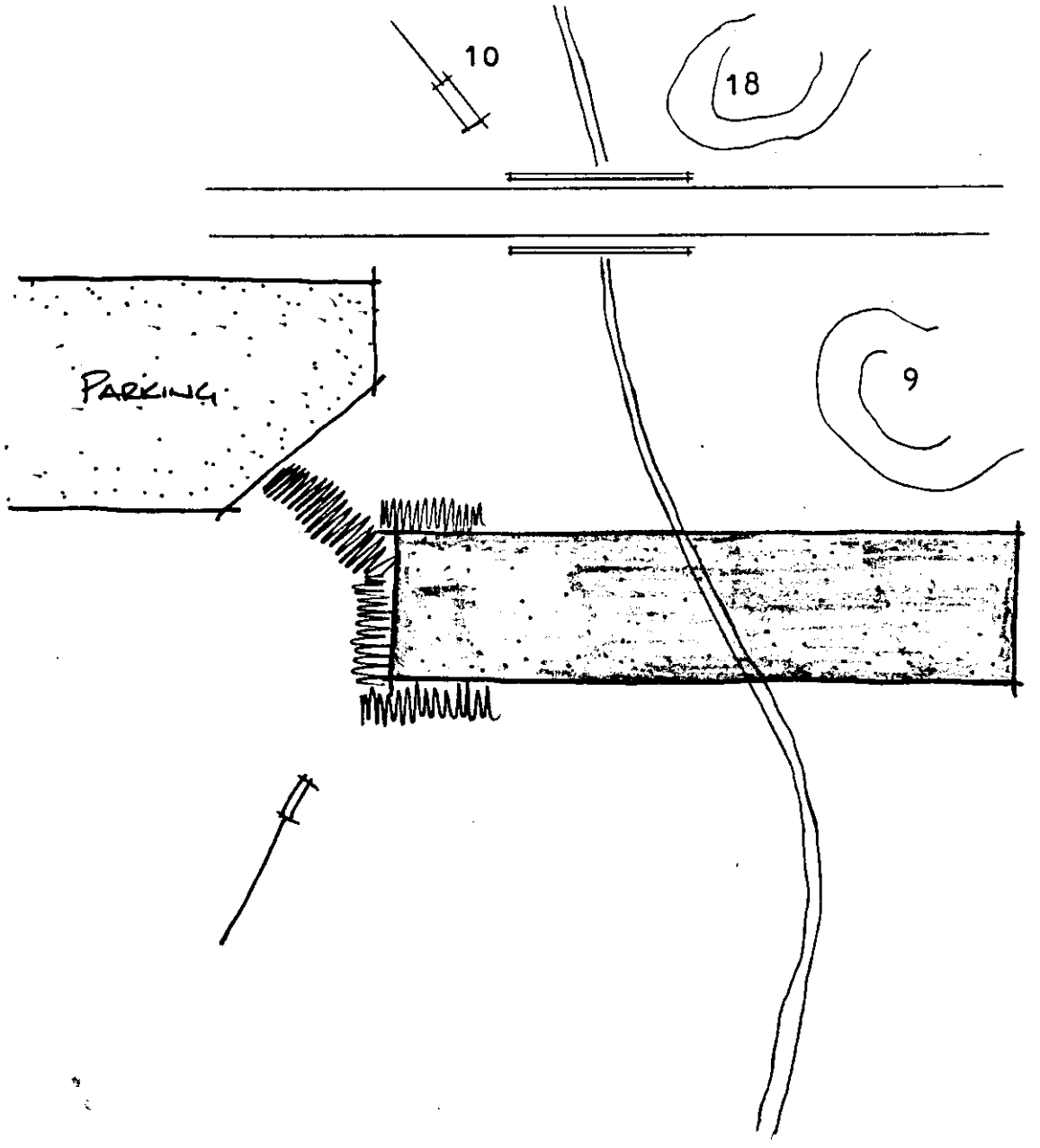
SECTIONS

CONCEPT #6

LINEAR BRIDGE #3

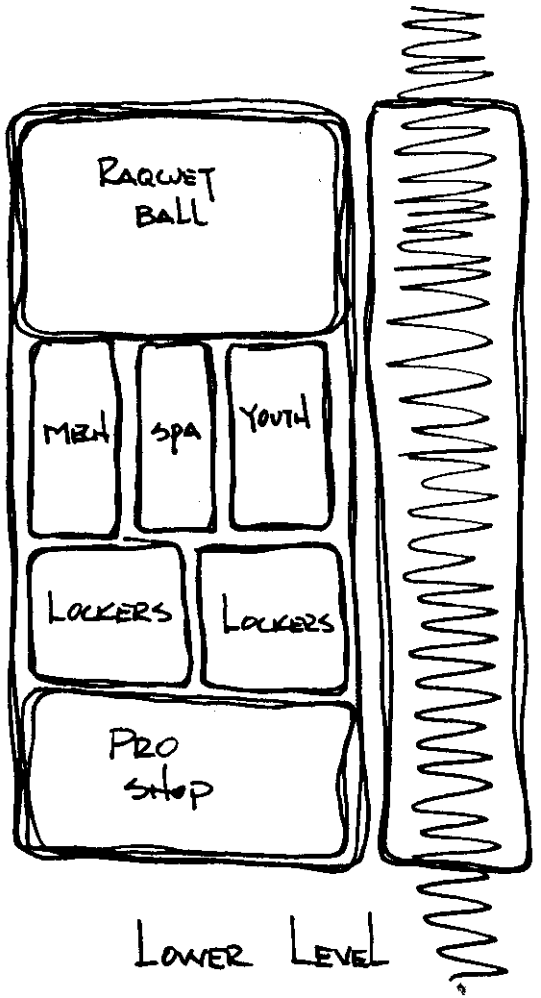


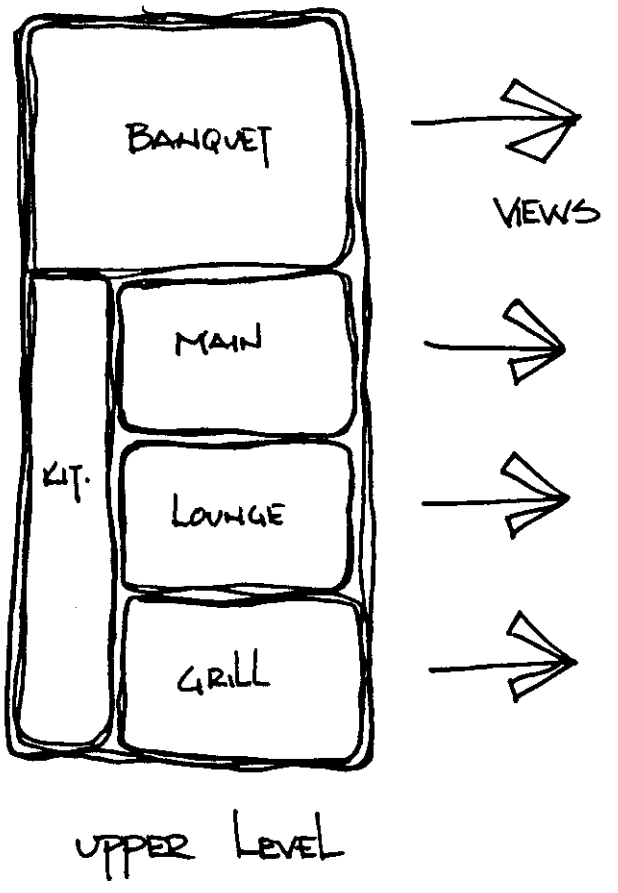
CONCEPT DIAGRAM



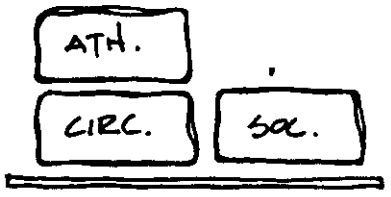
North

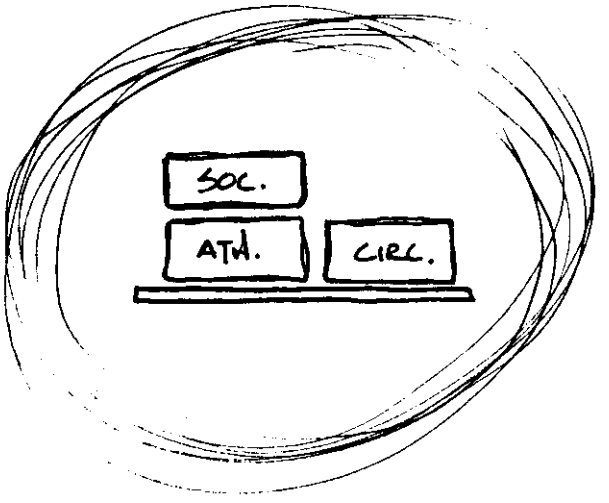
SITE PLAN

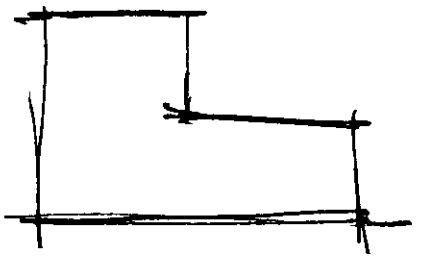

RAQUET BALL
MEN
SPA
YOUTH
LOCKERS
LOCKERS
PRO SHOP
LOWER LEVEL

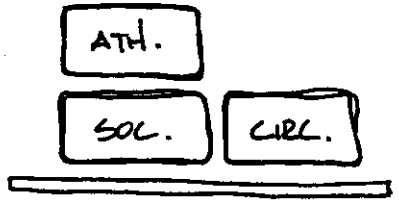

BANQUET
VIEWS
MAIN
KIT.
LOUNGE
GRILL
UPPER LEVEL

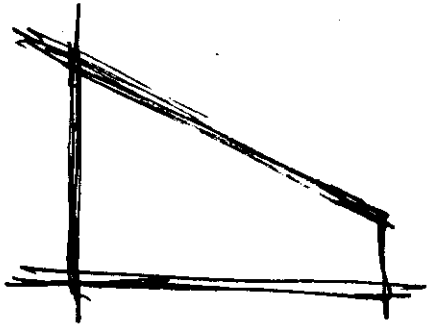
PLANS

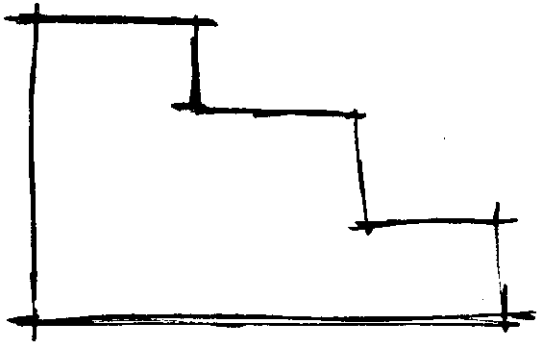


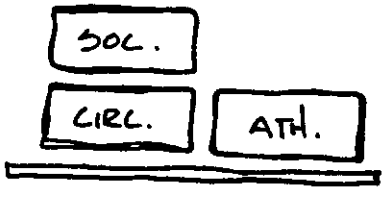


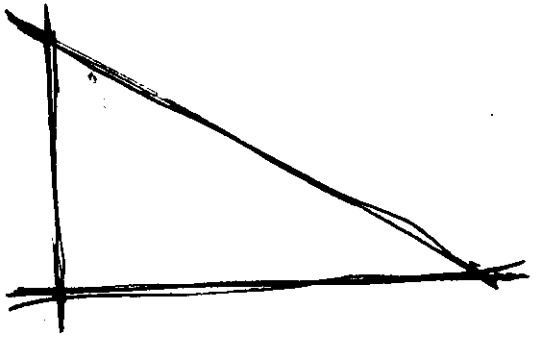


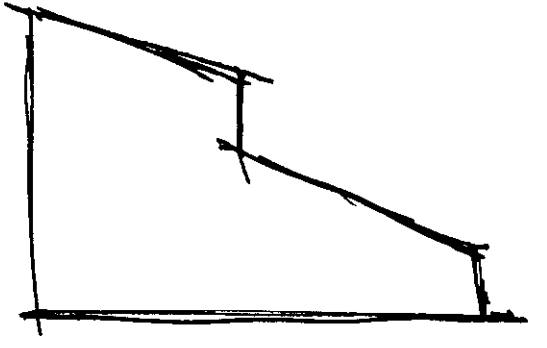




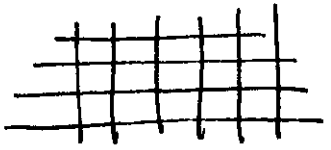


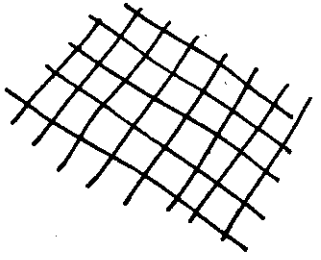


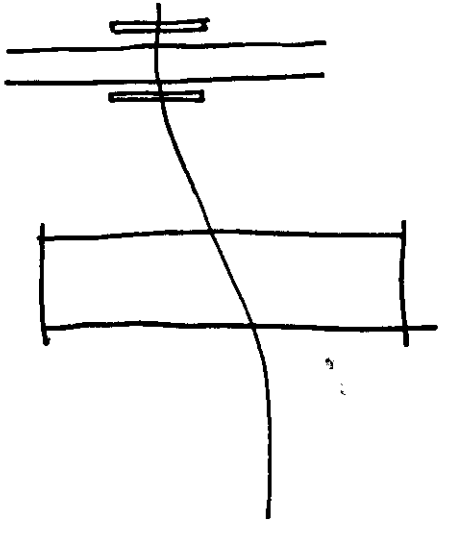


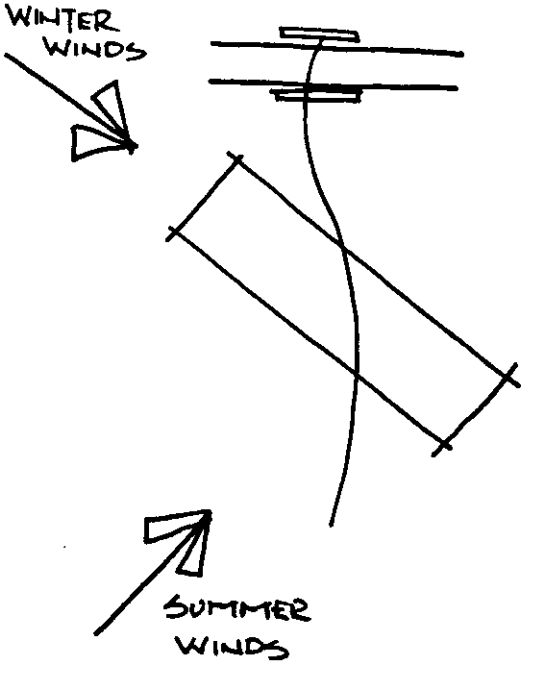


SECTIONS









ALTERNATIVES

design development

Design Development

As I started to develop my bridge concept I found that I had a huge 3-story building that completely dwarfed the size of the creek. To solve this problem I built the bridge into the ground, thus reducing the scale of the building. At the same time I created a dam which created a lake. Then the scale and proportion of building to water came to be more complimentary.

The form of the building grew out of a compromise of solar angles. At one time I was utilizing both air and water collectors, and for both uses an angle of 45° seem to do well. Later on the system of southern glazing and overhangs developed for passive space heating. As a result of this system, each space has its own south-facing balcony. Earth berms were used both to compliment the roof forms and to partially protect the building from the cold north and northwest winds.

The space is primarily broken up into three areas. The middle section serves as an entry and circulation space, both vertically and horizontally. This central space is flanked by two other spaces that serve major functions.

The circulation of the building is simple and clean. It needs to aid the golfers access from one side of the creek to the other. The circulation is primarily linear, as is a bridge.

The structure of the building is reinforced concrete. Concrete was used for the reasons that: 1) concrete lent itself to forms free of seams, 2) it was an appropriate material for a dam 3) the natural color works well against the overwhelming green of a golf course. The system used is concrete exterior bearing walls, with twelve inch concrete interior columns 20'-0" on center.

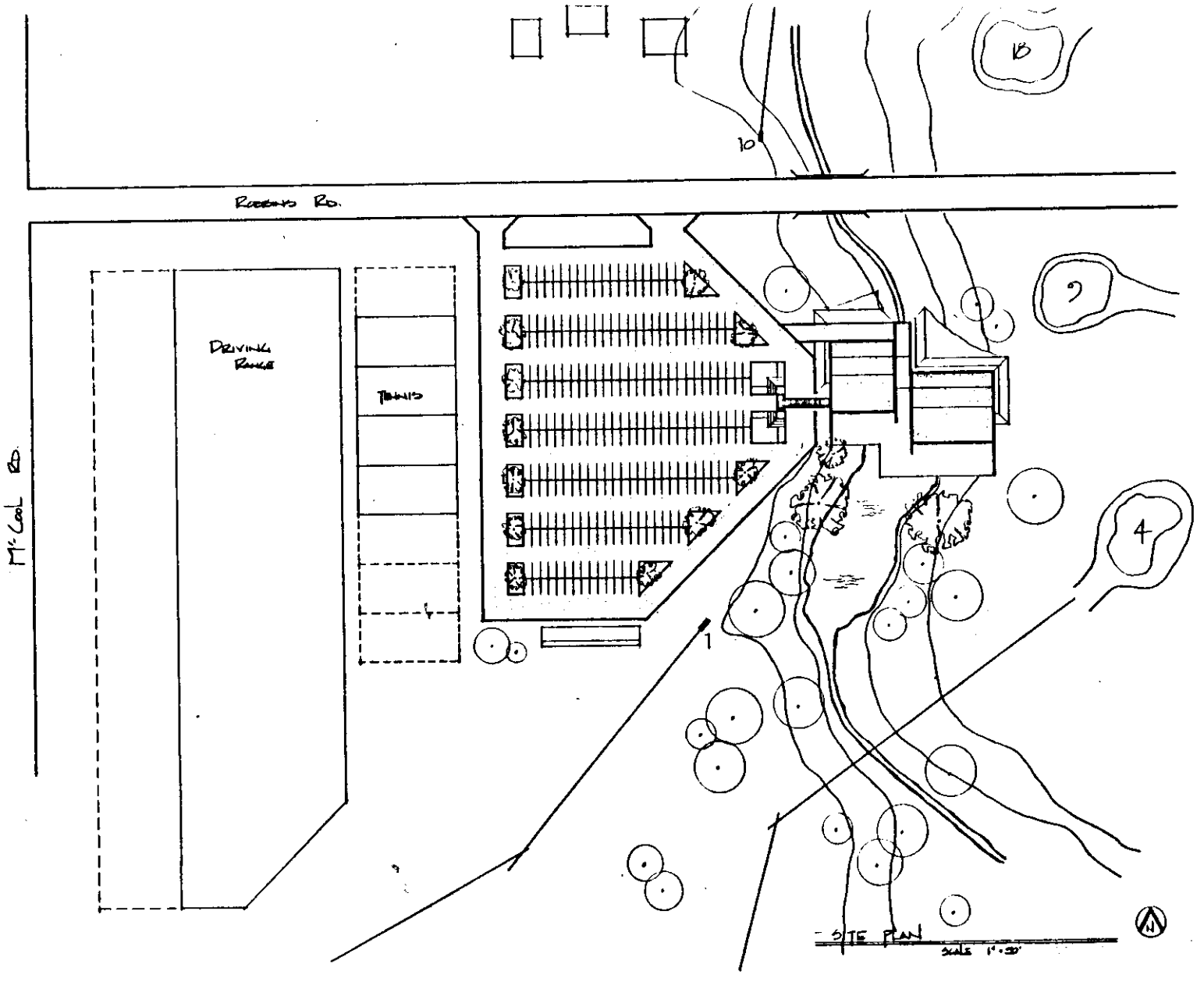
The mechanical systems for the building are:

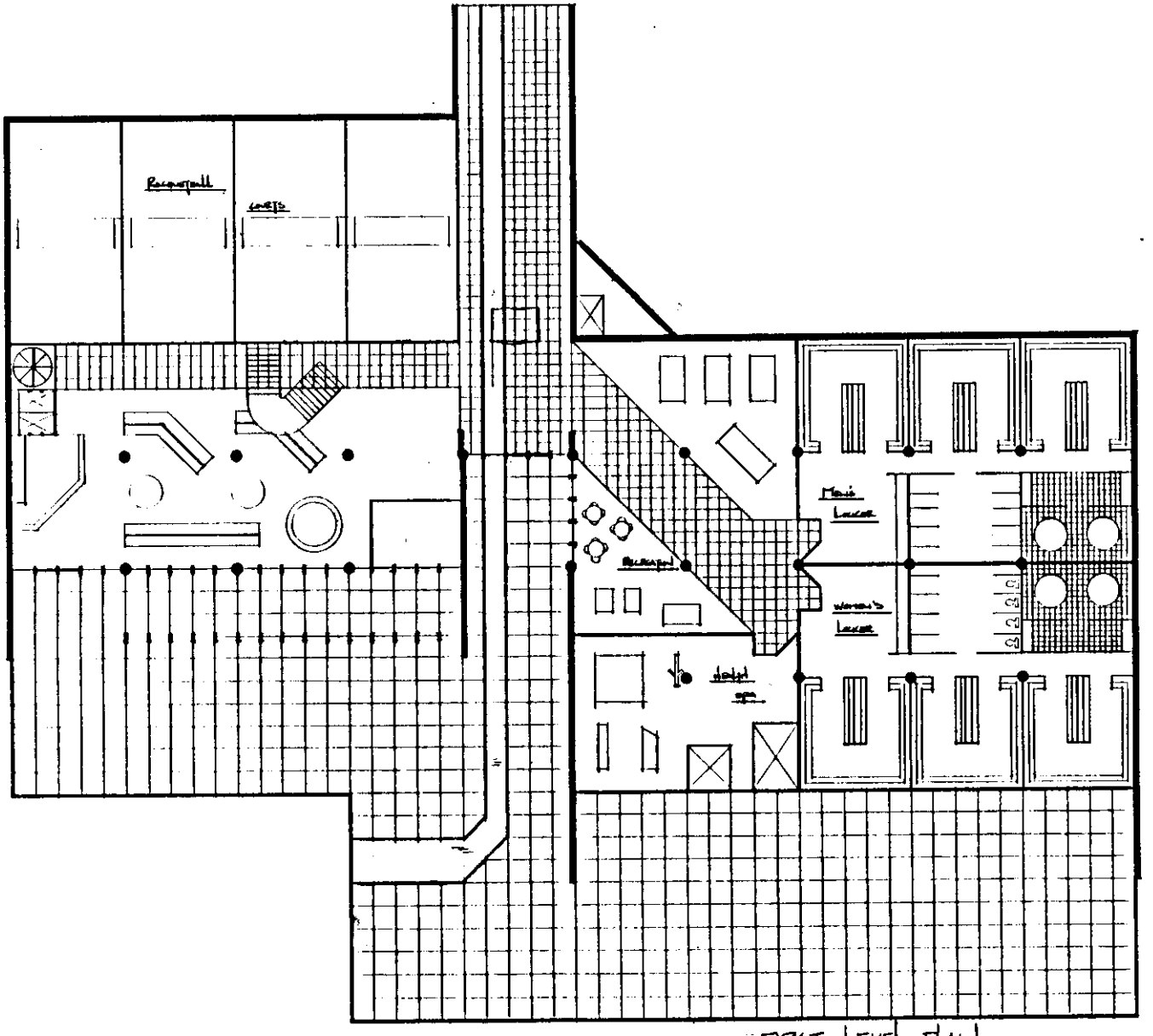
1) Passive solar space heating
2) Air to air heat pump for auxiliary heating and cooling
3) Active solar domestic hot water

Mechanical services are routed along the same path as pedestrian circulation.

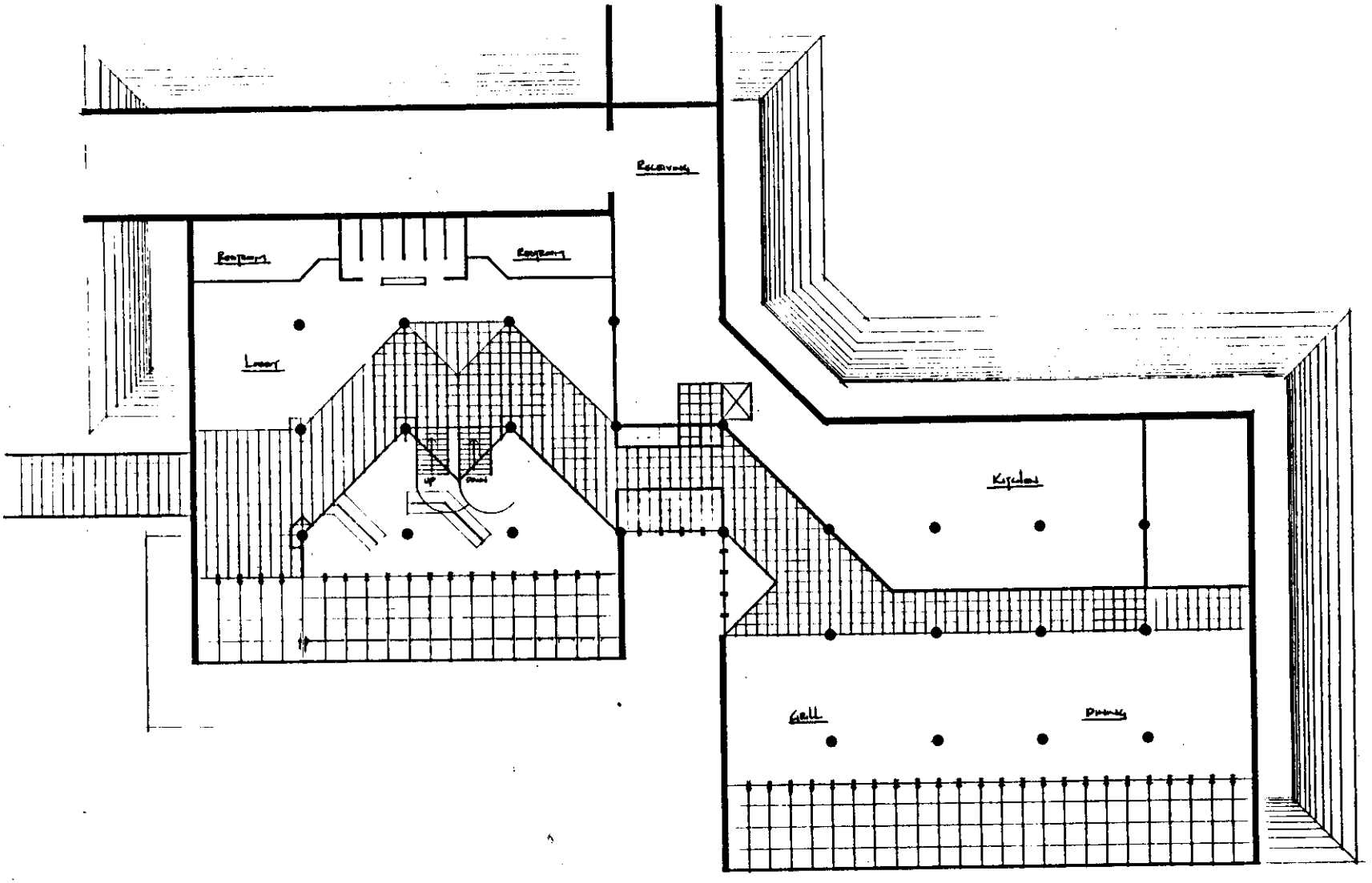
The first set of drawings were presented at mid-quarter of the design development stage. They acted as a first step and as a base for further development.

The second set of drawings were presented at the end of the design development phase. They are revisions of the original development drawings presented at mid-quarter. These drawings were also revised before the final design drawings were started.

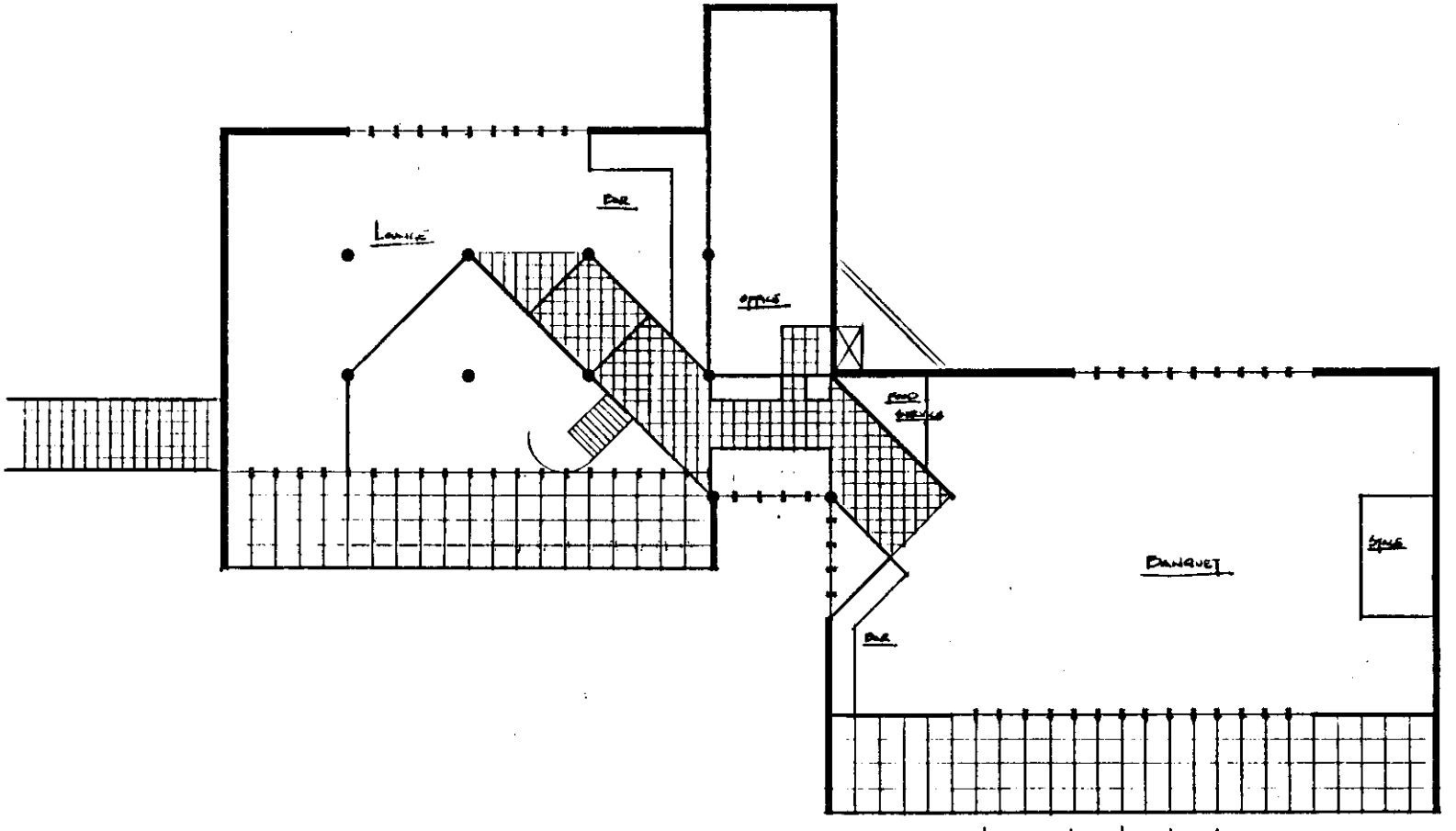

Reeders Rd.
McCool Rd.
Driving Range
Tennis
10
1
2
4
SITE PLAN
scale 1"=30'



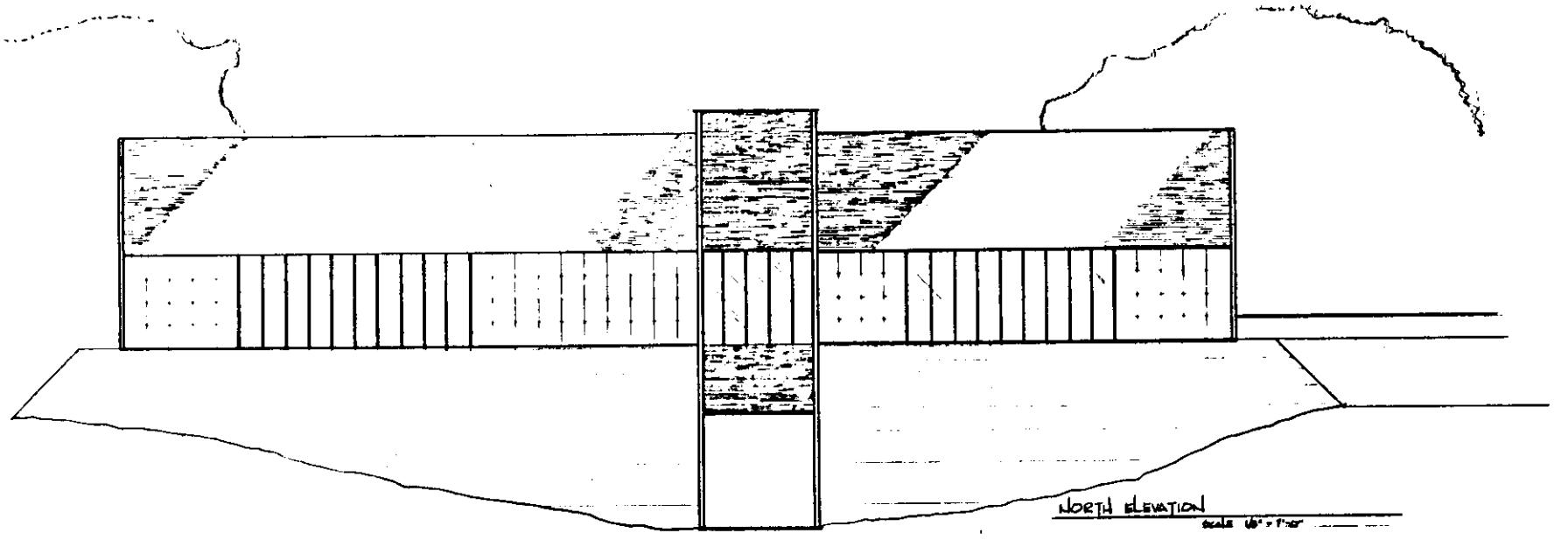
FIRST LEVEL PLAN

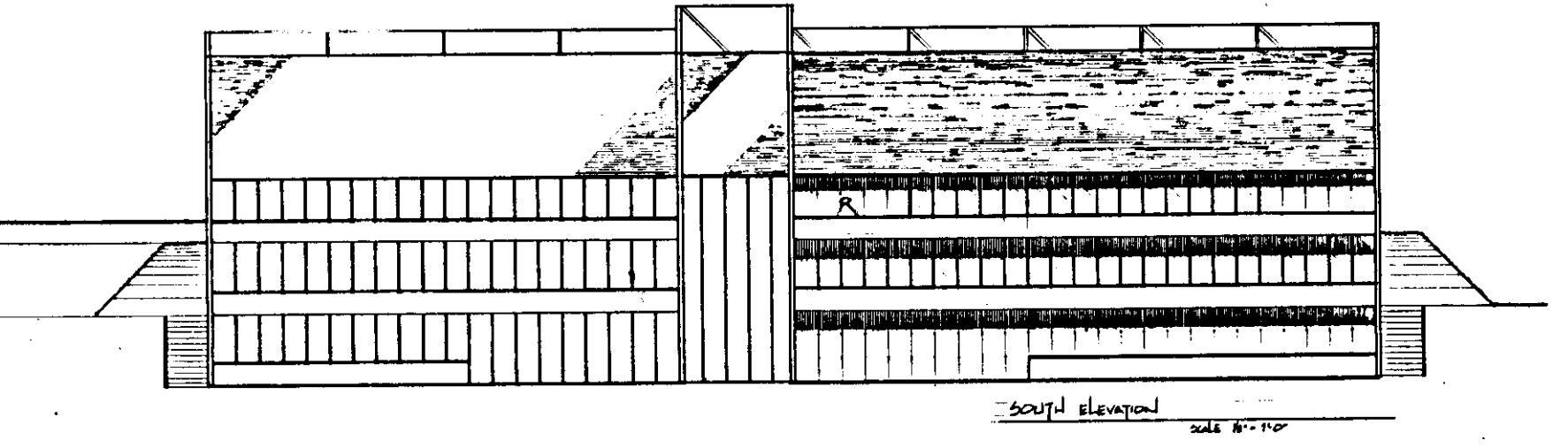


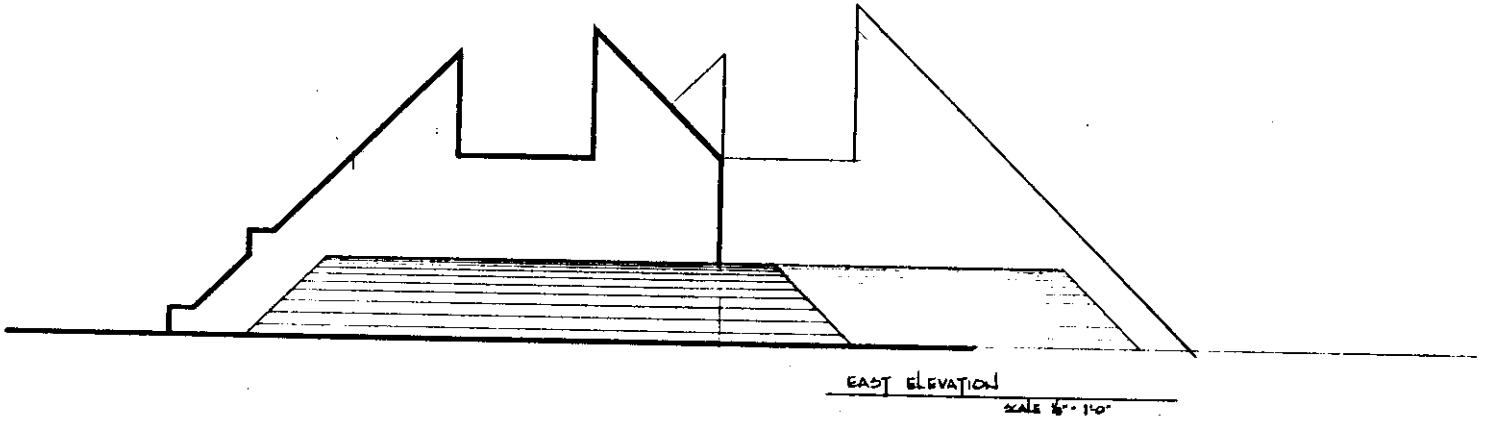
SECOND LEVEL PLAN

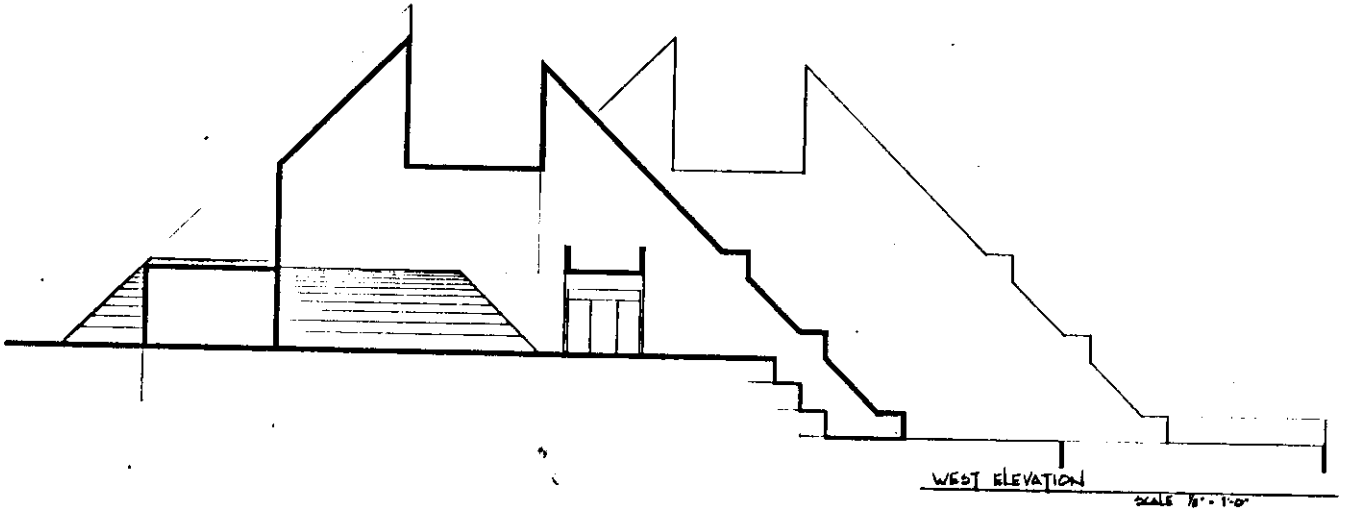


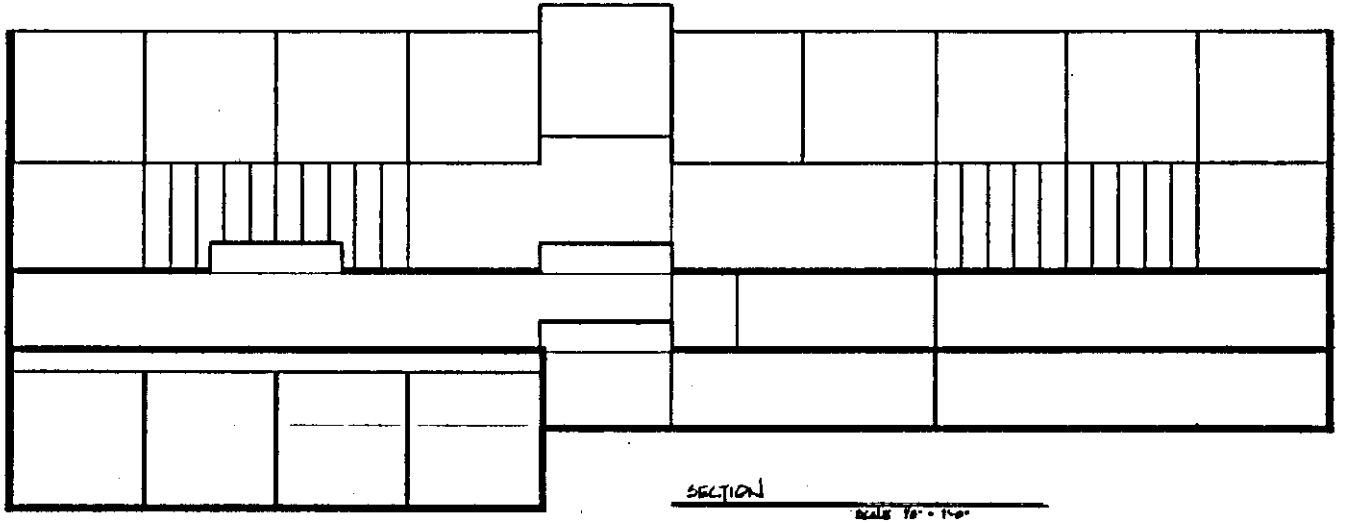
THIRD LEVEL PLAN

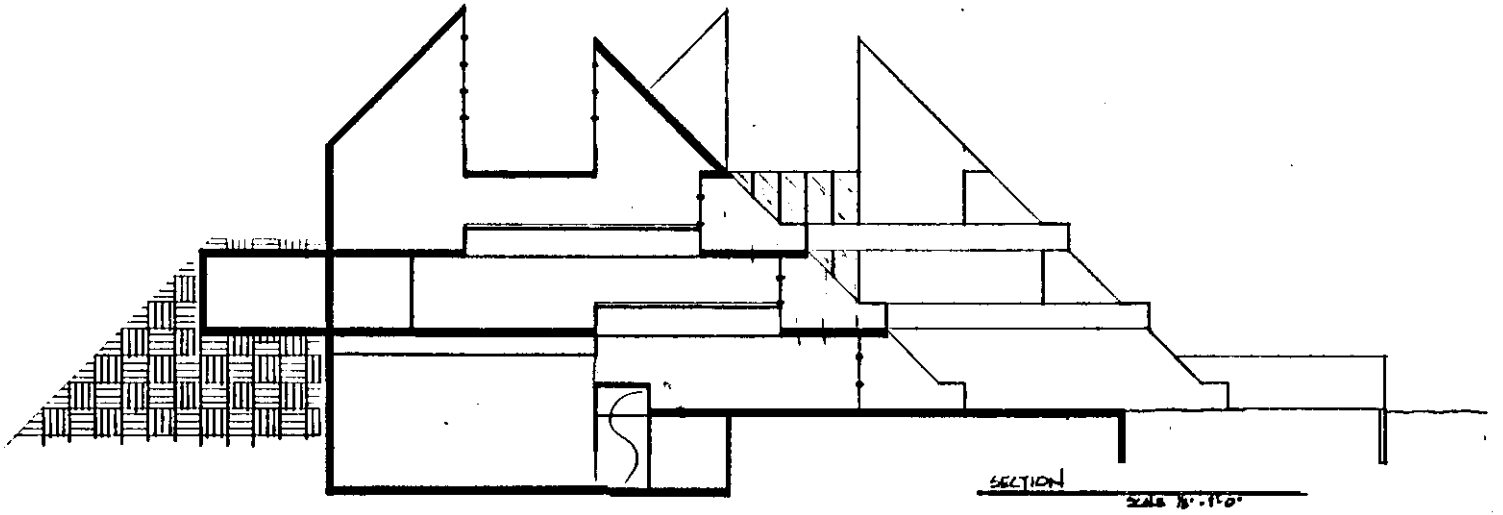

NORTH ELEVATION

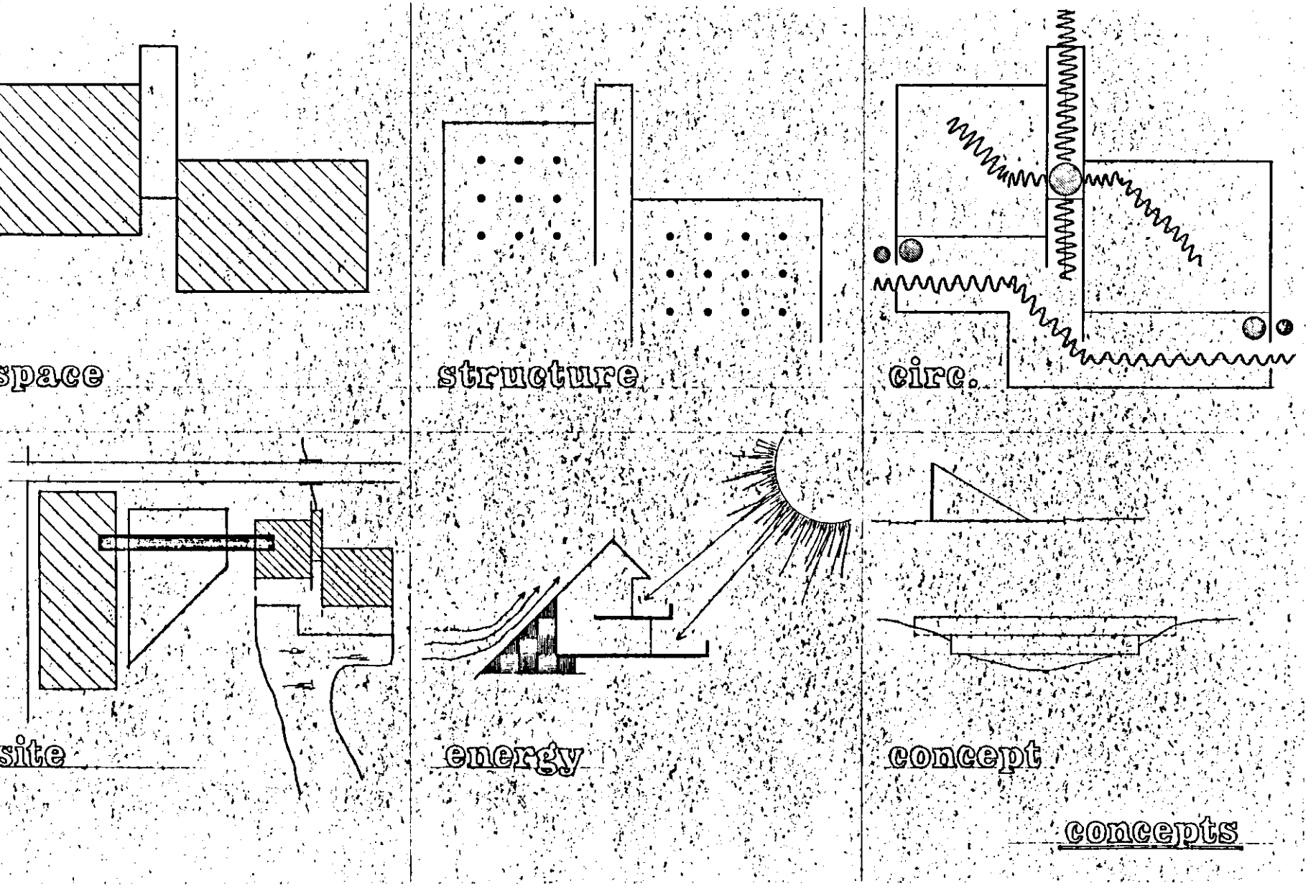

R
SOUTH ELEVATION

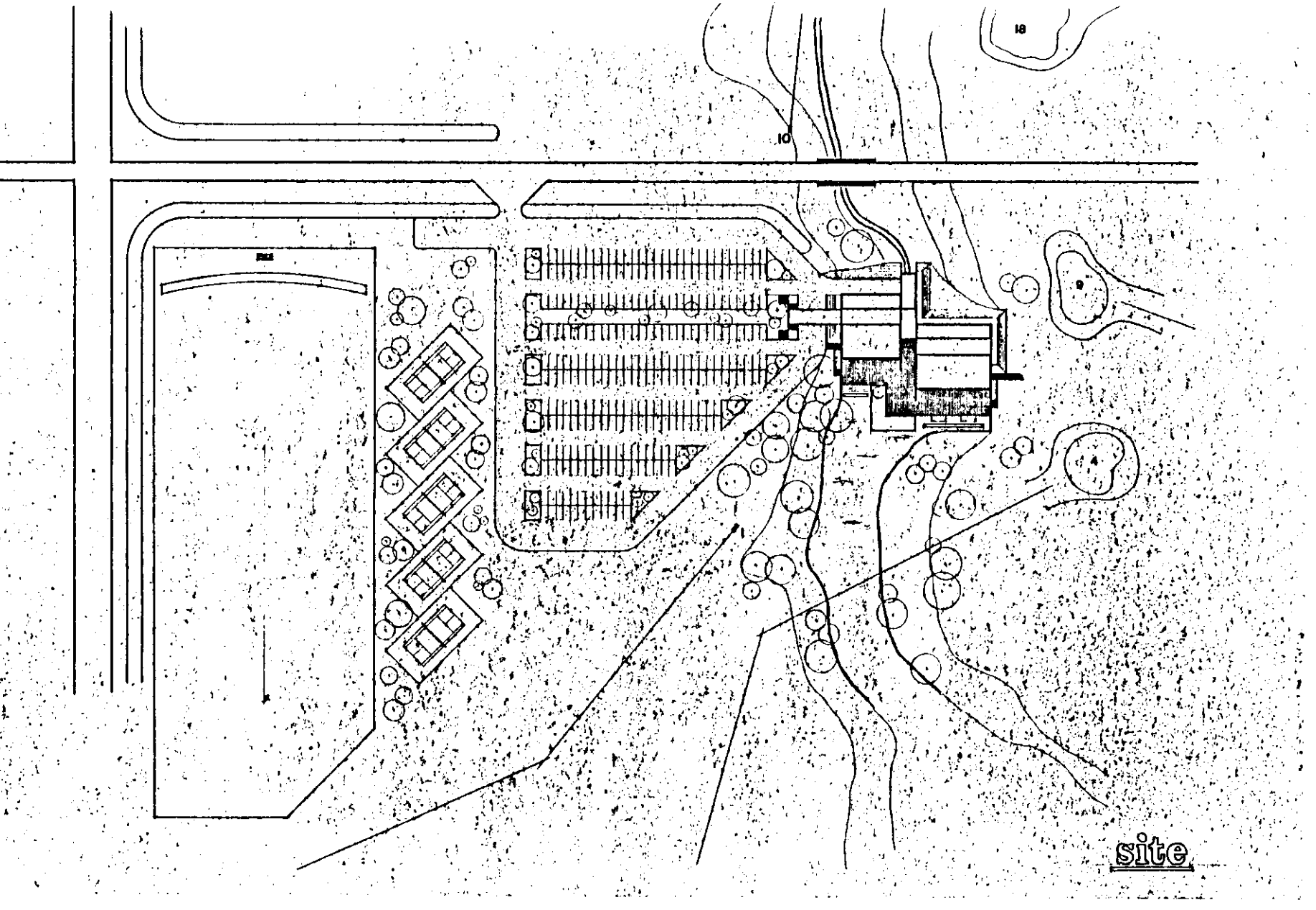

EAST ELEVATION
SCALE 1/8" = 1'-0"

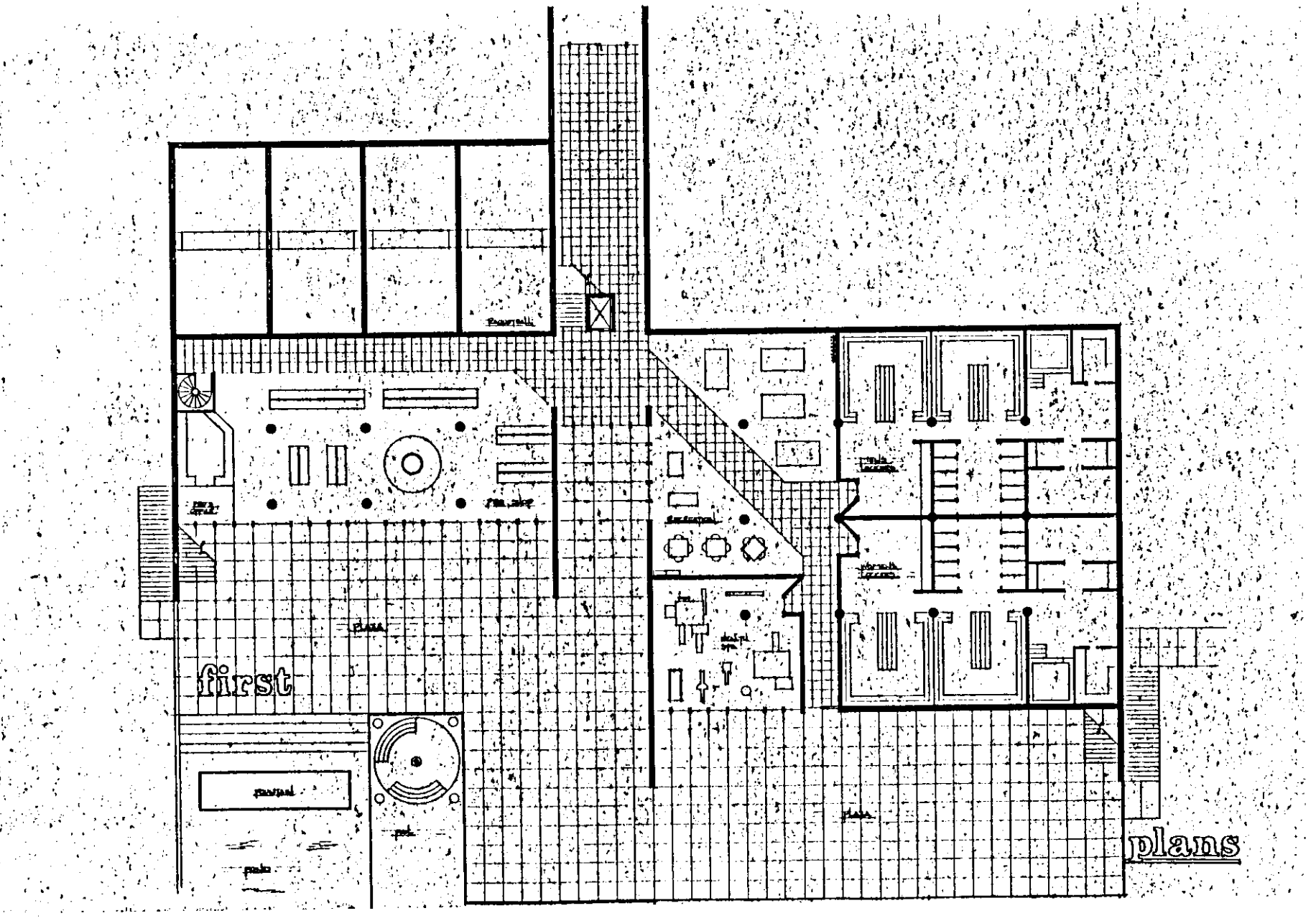

WEST ELEVATION
SCALE 1/8" = 1'-0"

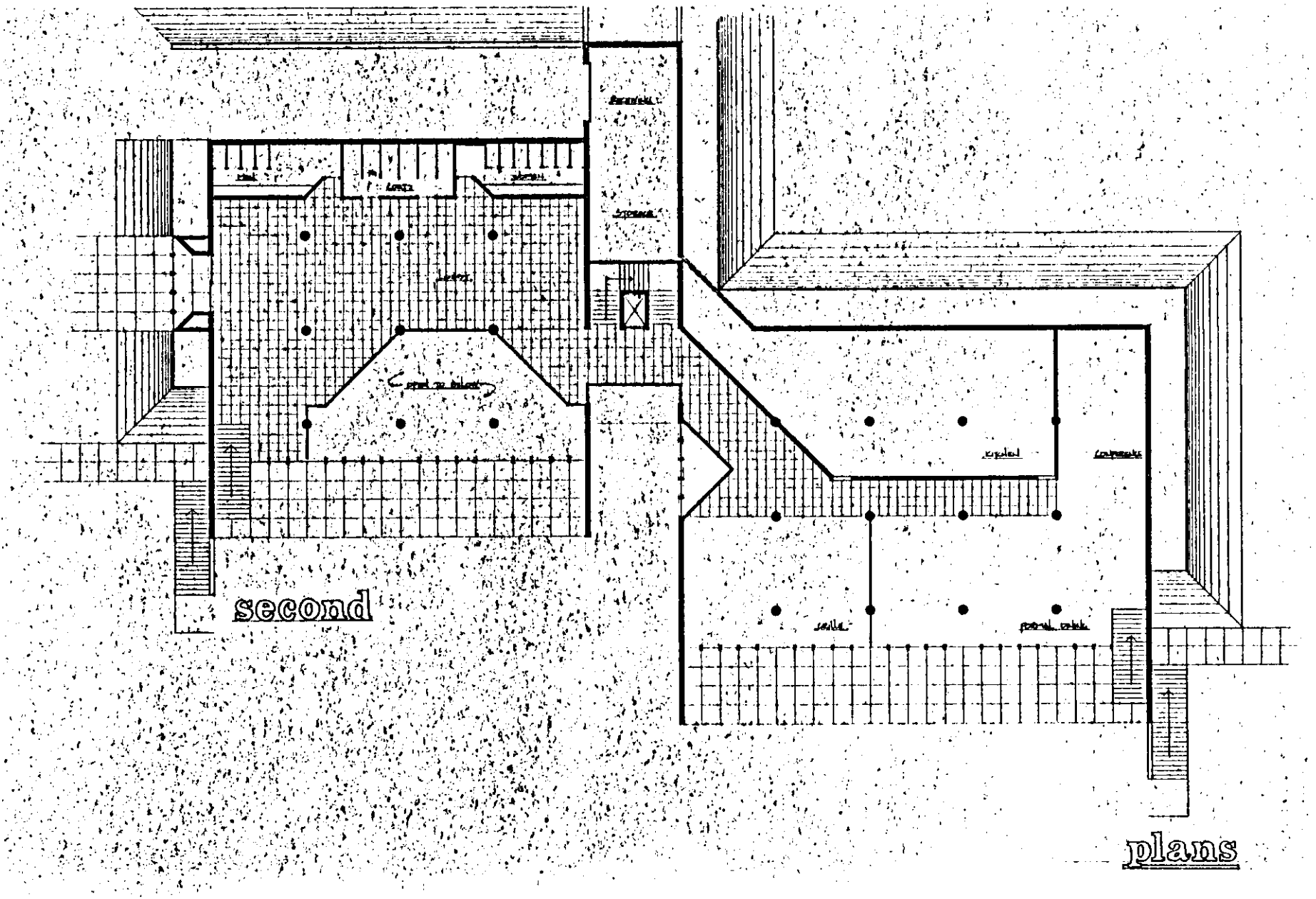

SECTION

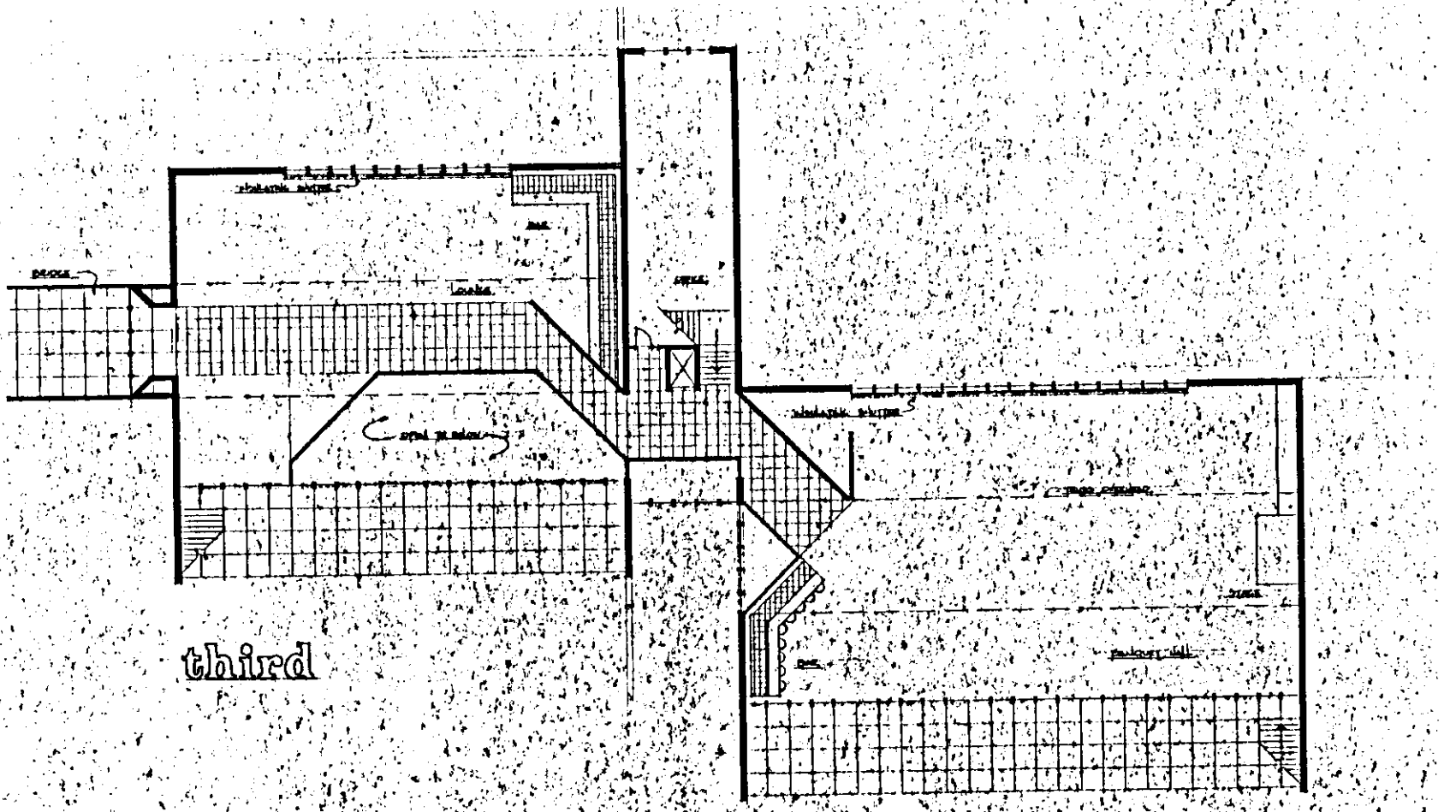

SECTION


space
structure
circ.
site
energy
concept
concepts

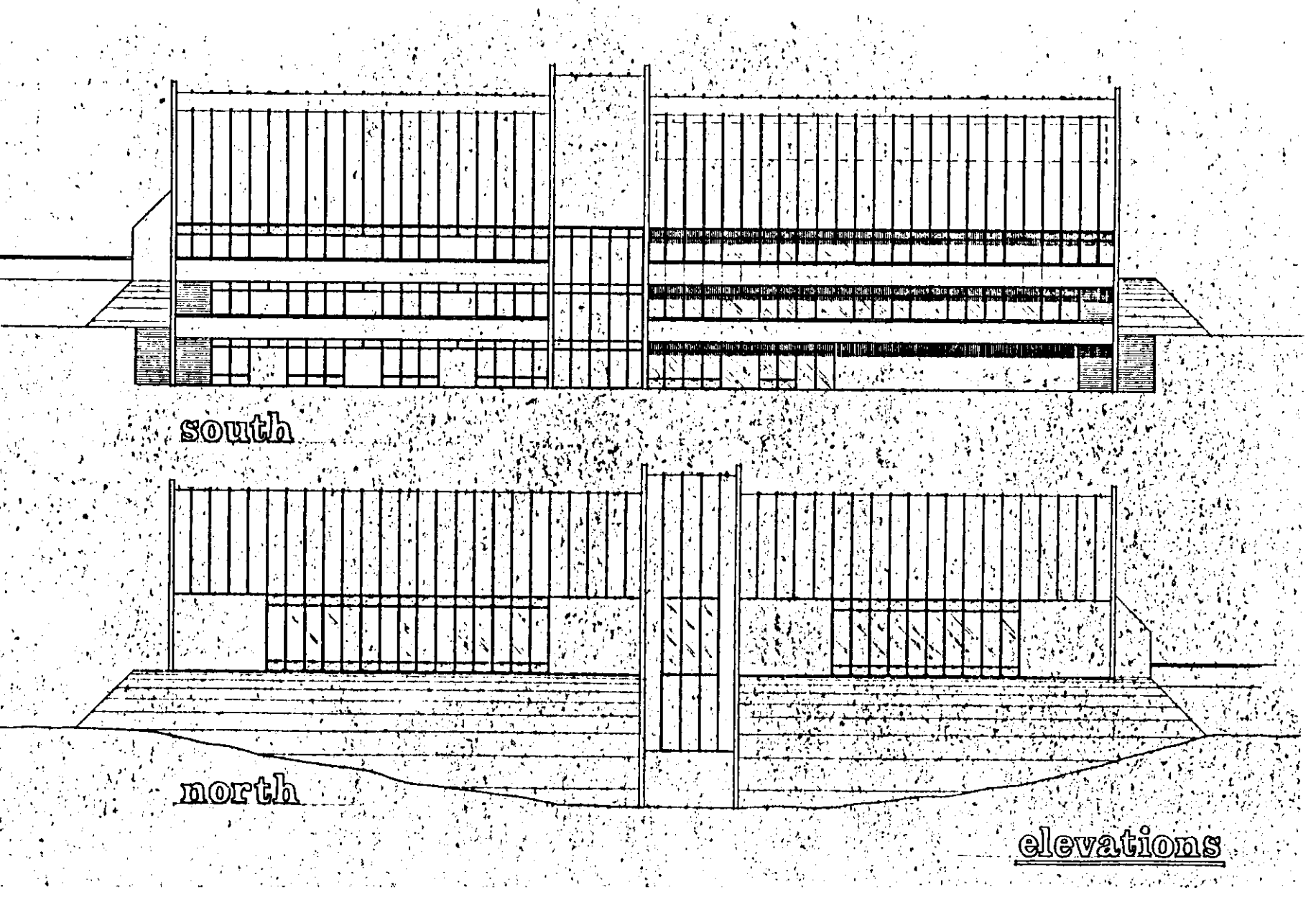

18
10
site


first
plans

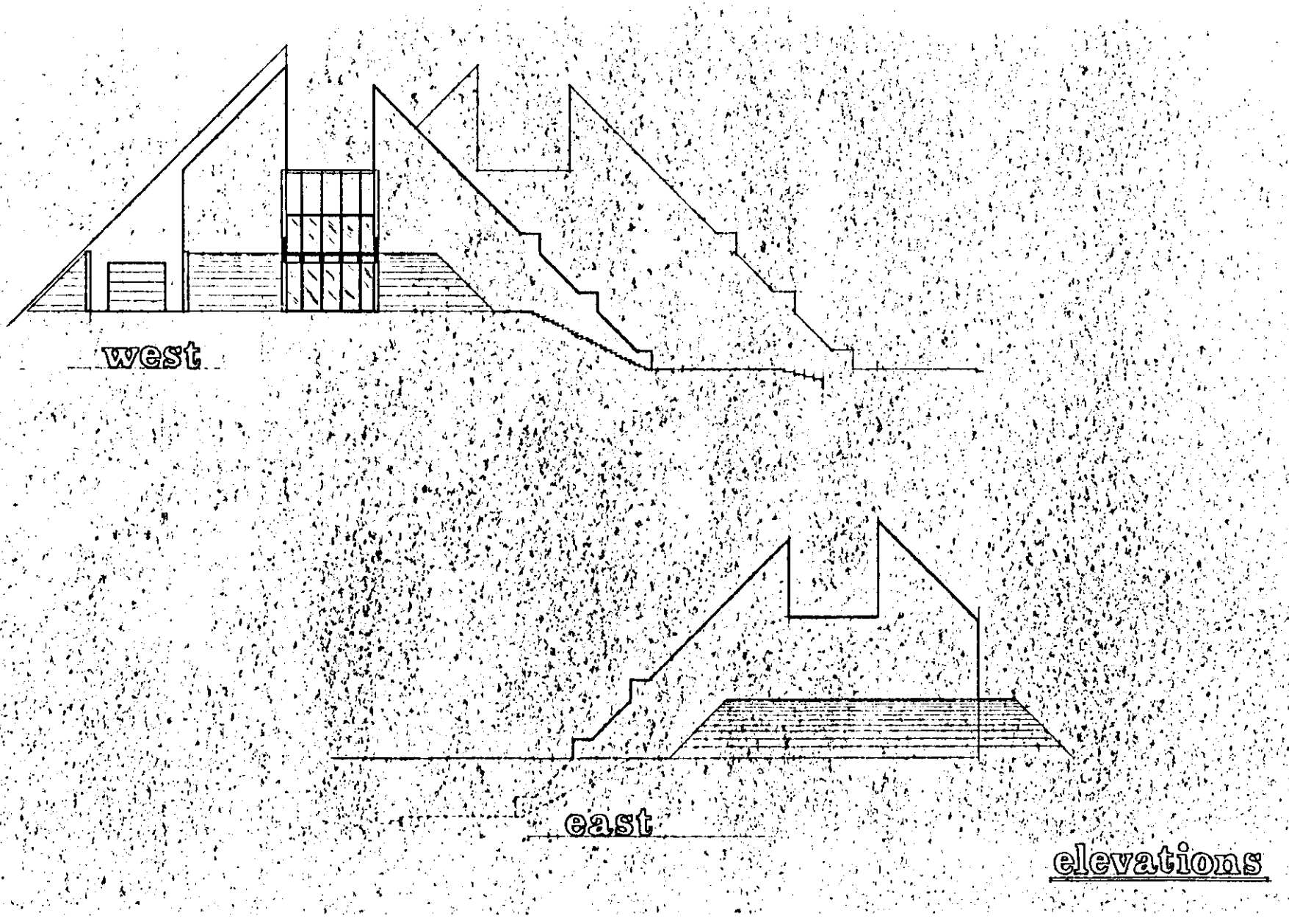

second
plans



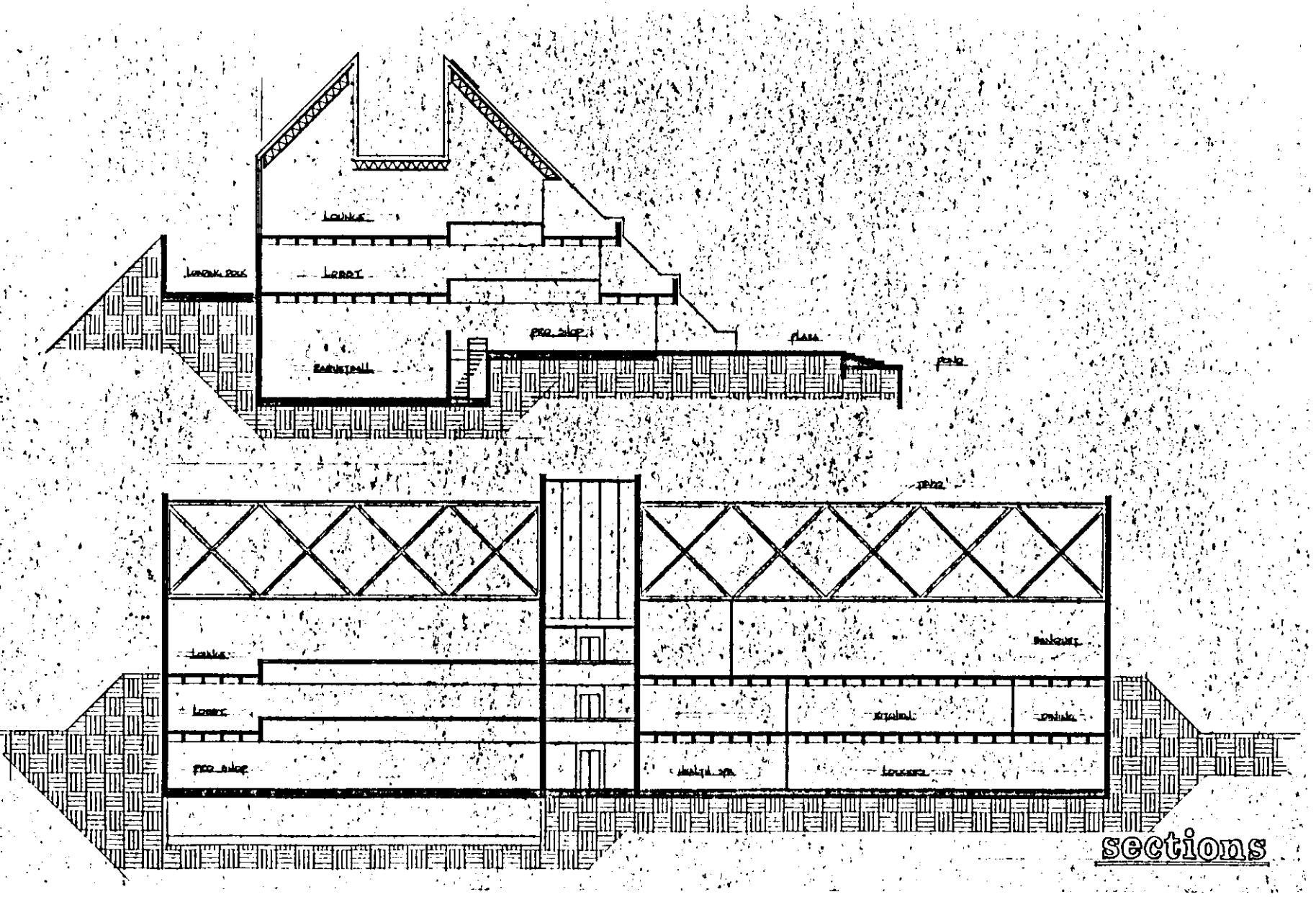
plans



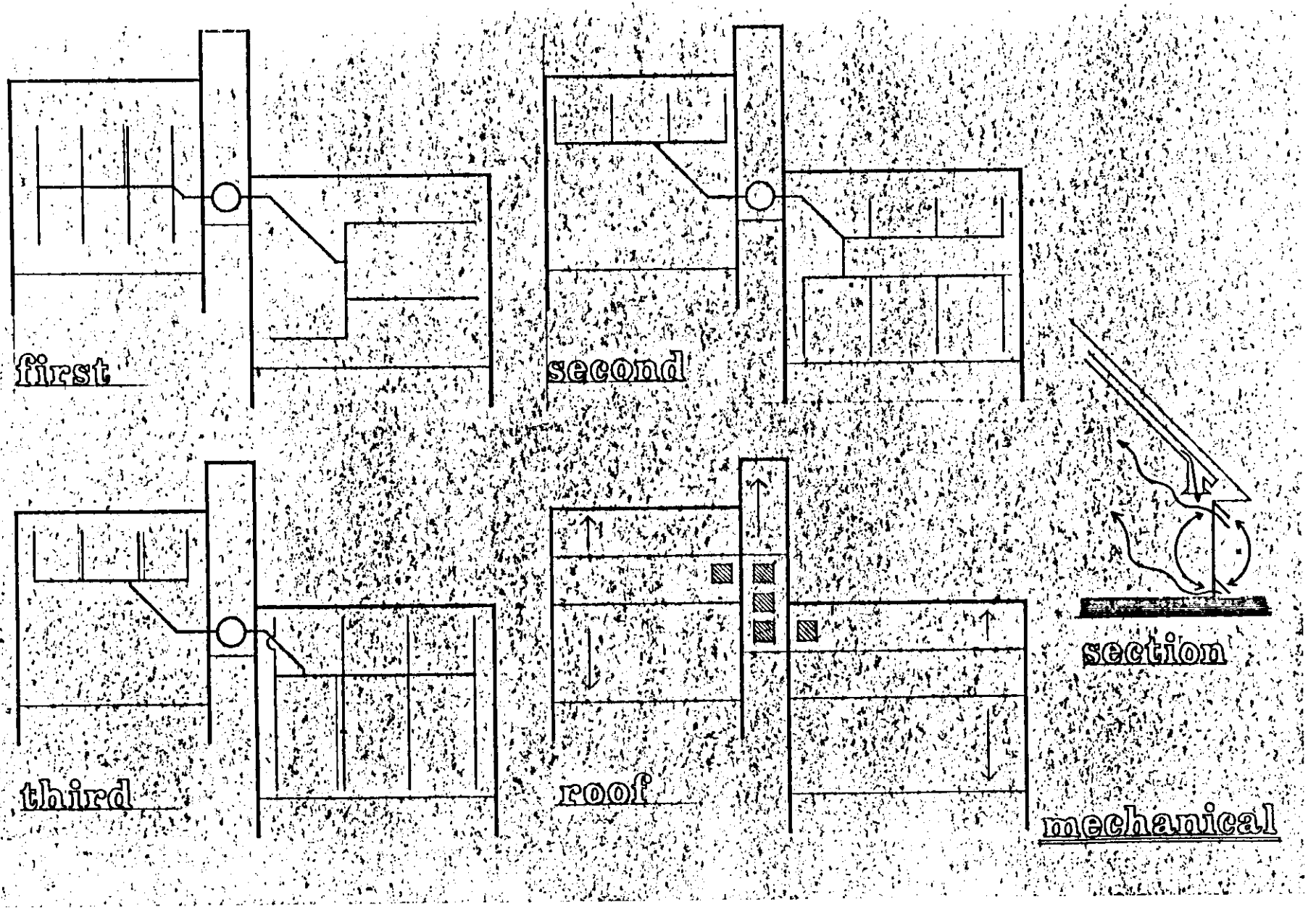
elevations

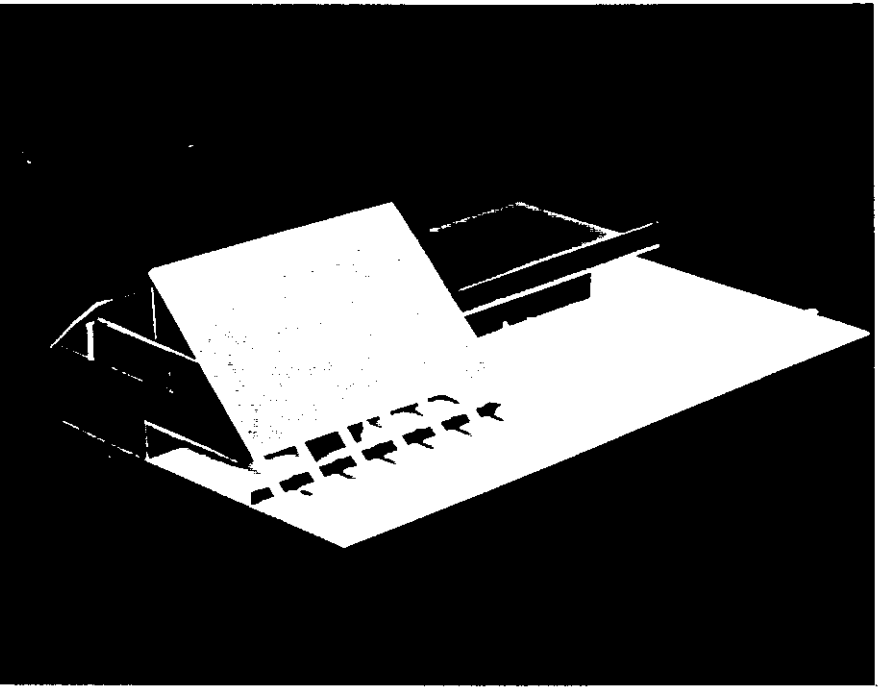


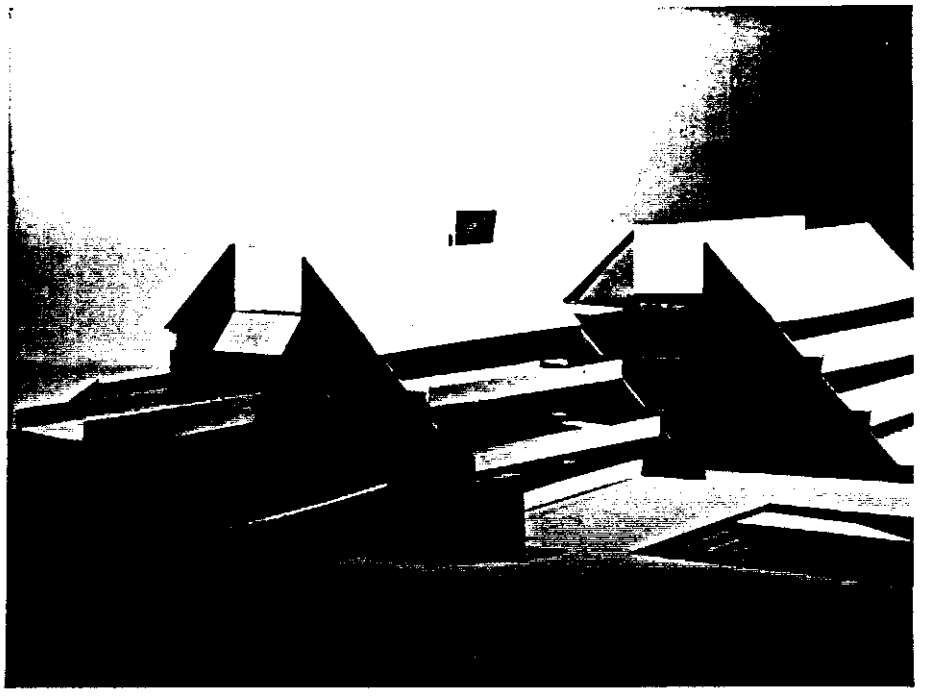
elevations

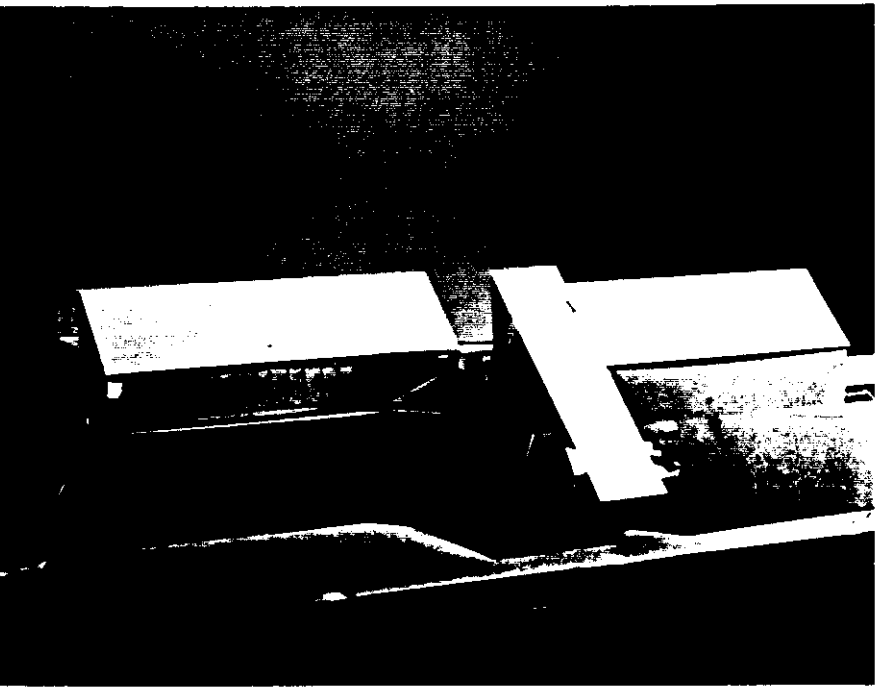

Lounge
Lower
pool shop
Basketball
plaza
Lounge
Lower
pool shop

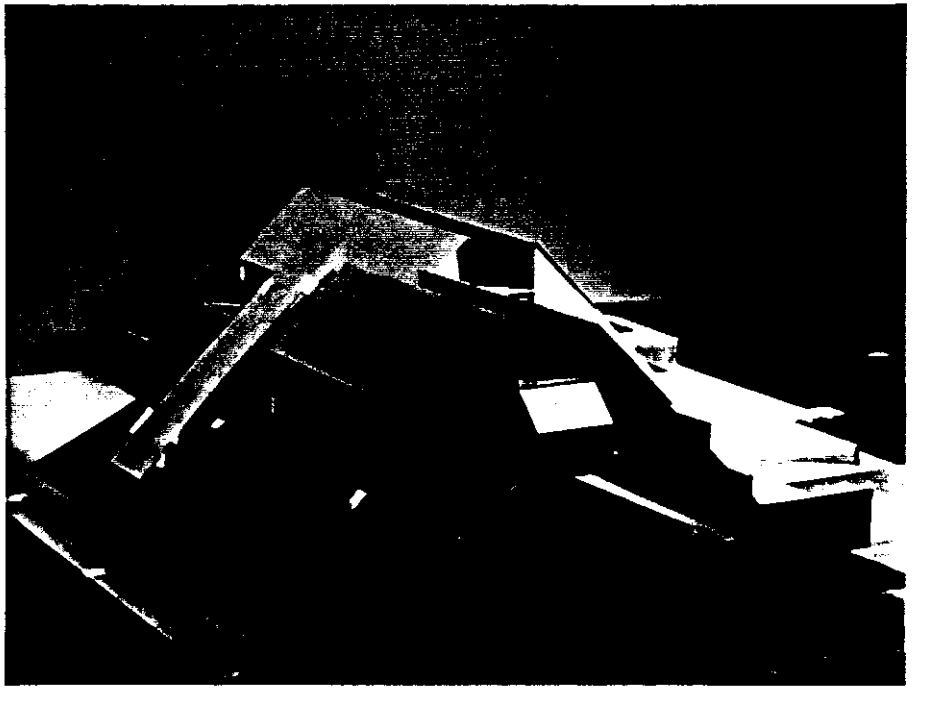
sections


first
second
third
roof
section
mechanical

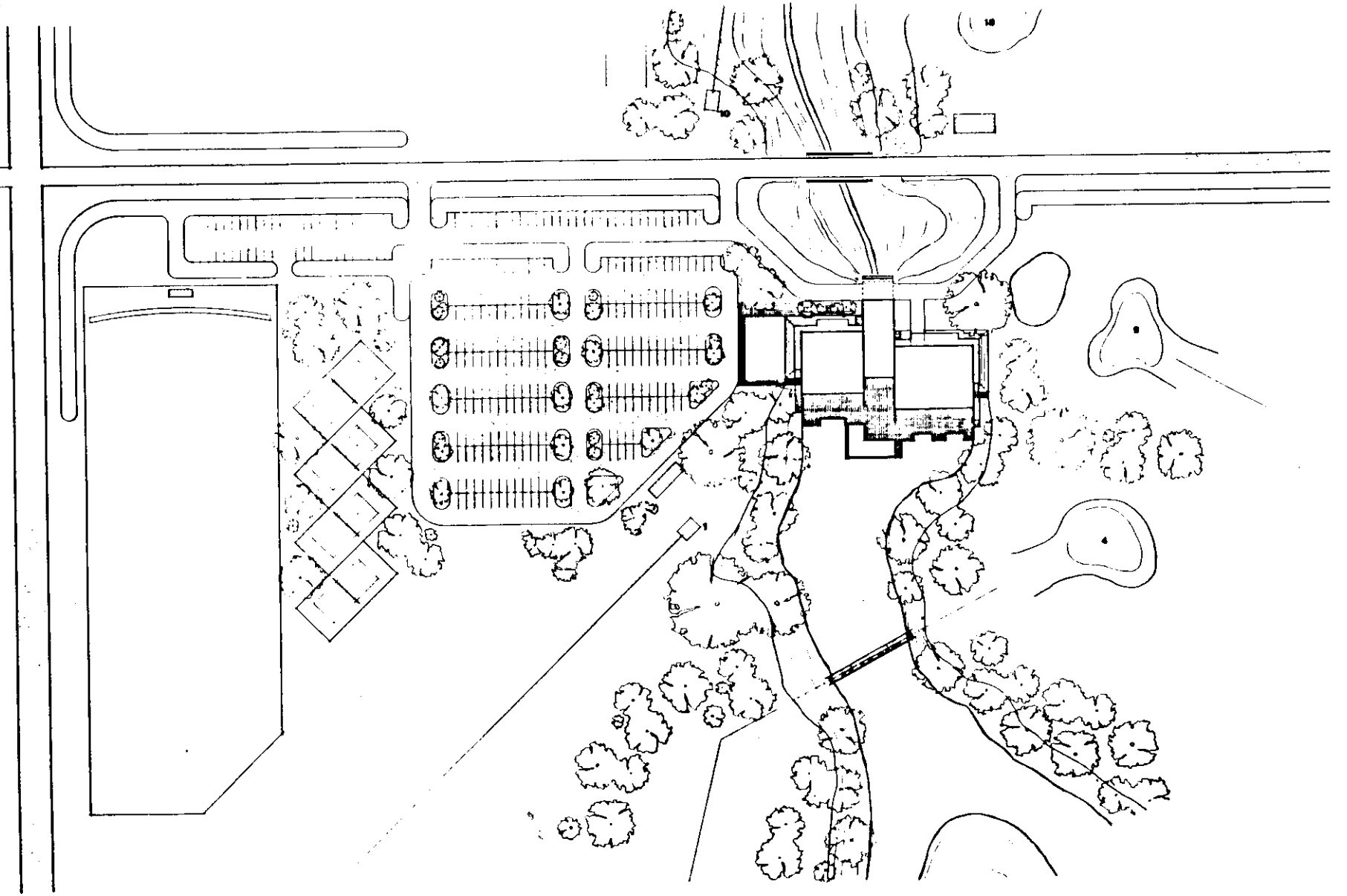




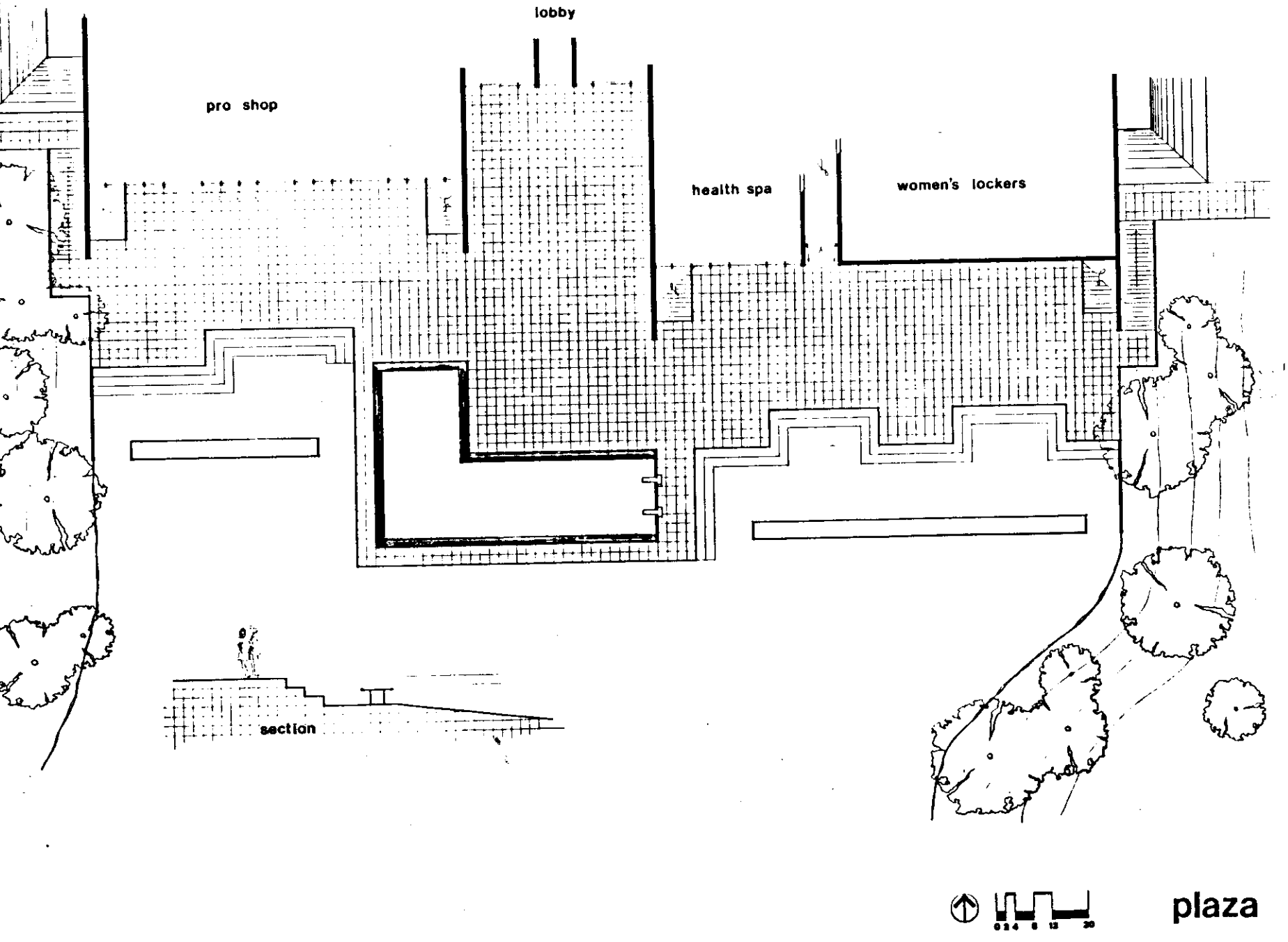


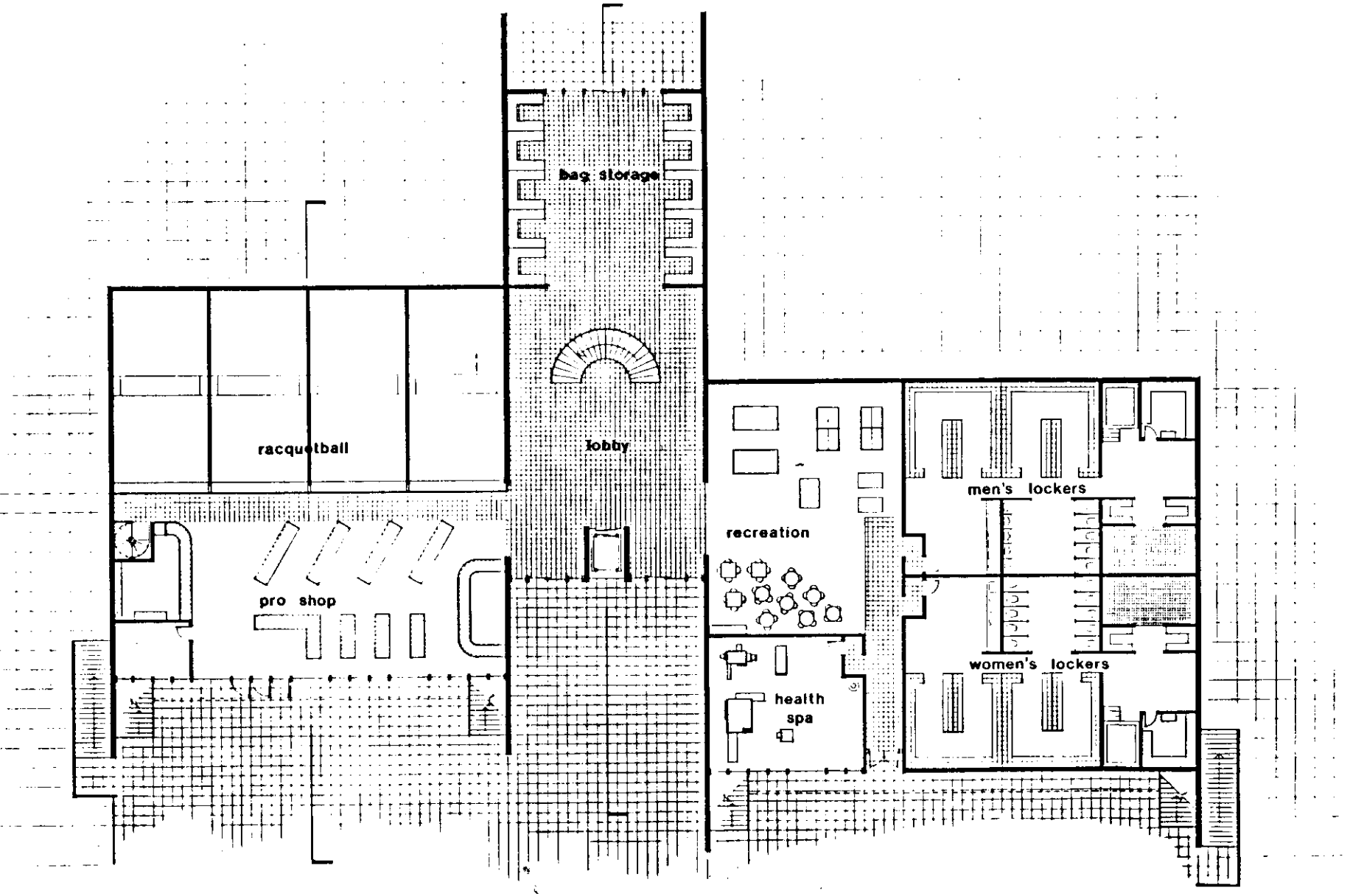


final design

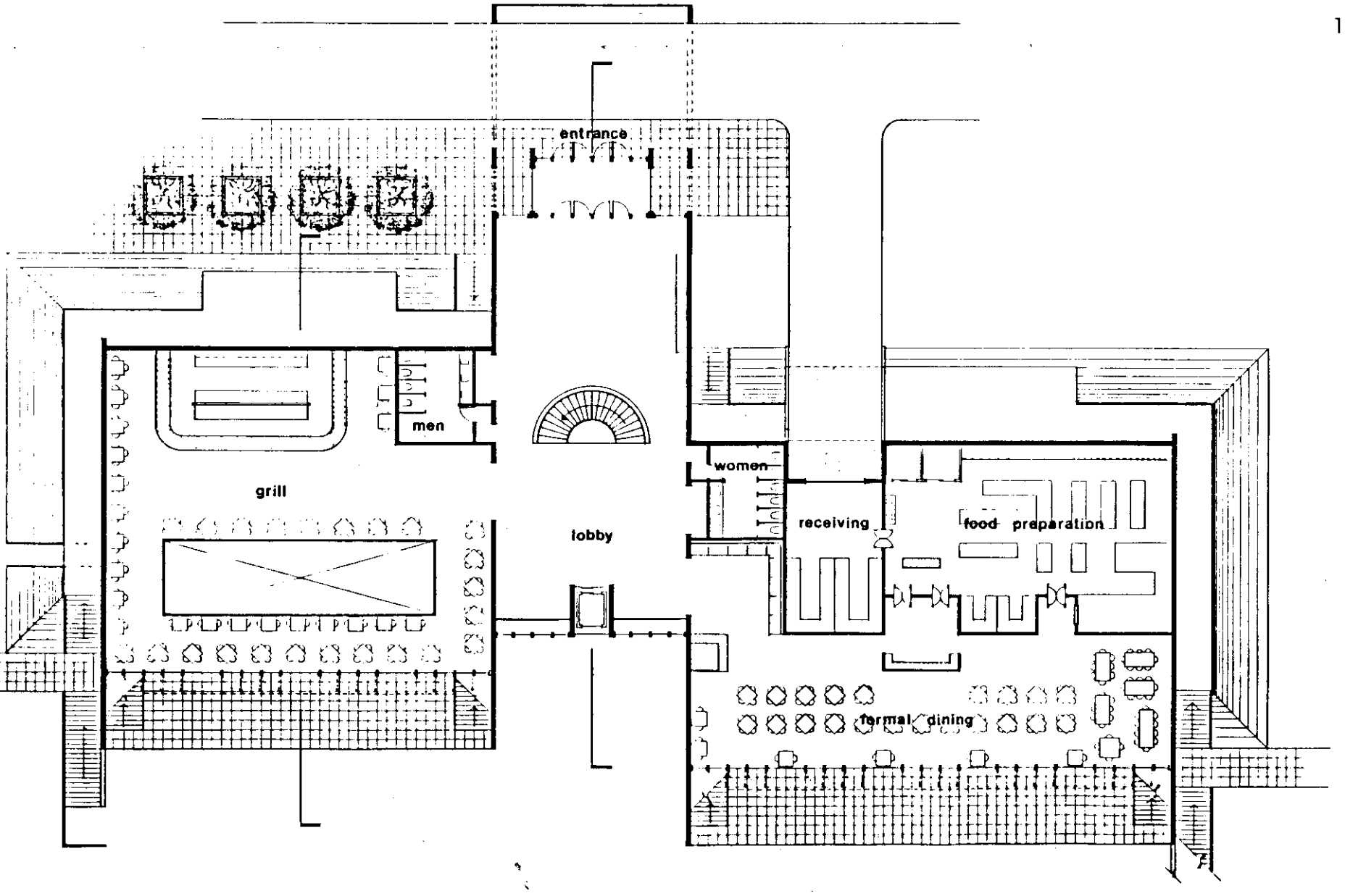


site

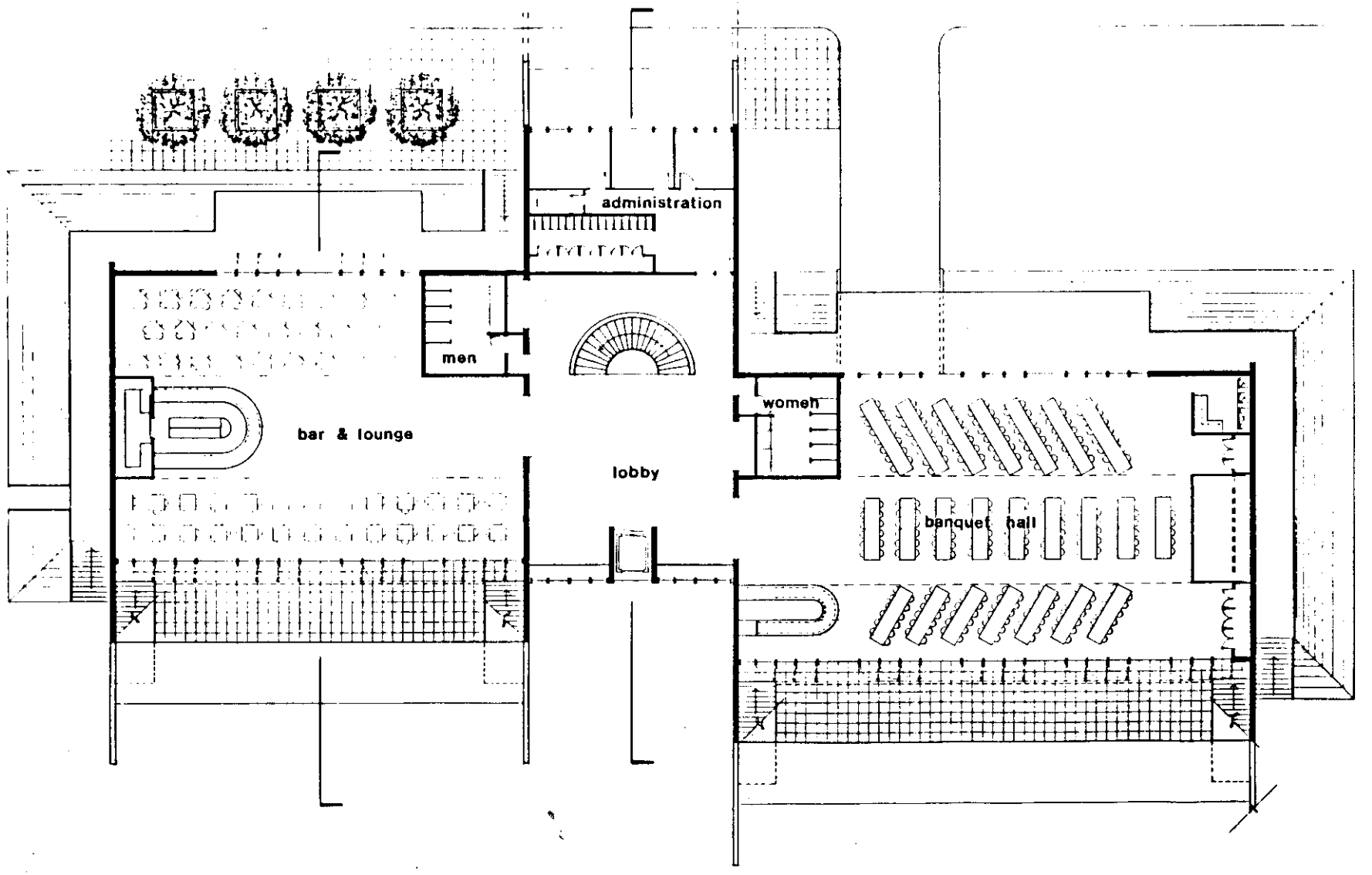

lobby
pro shop
health spa
women's lockers
section
plaza


bag storage
racquetball
lobby
recreation
men's lockers
pro shop
women's lockers
health
spa

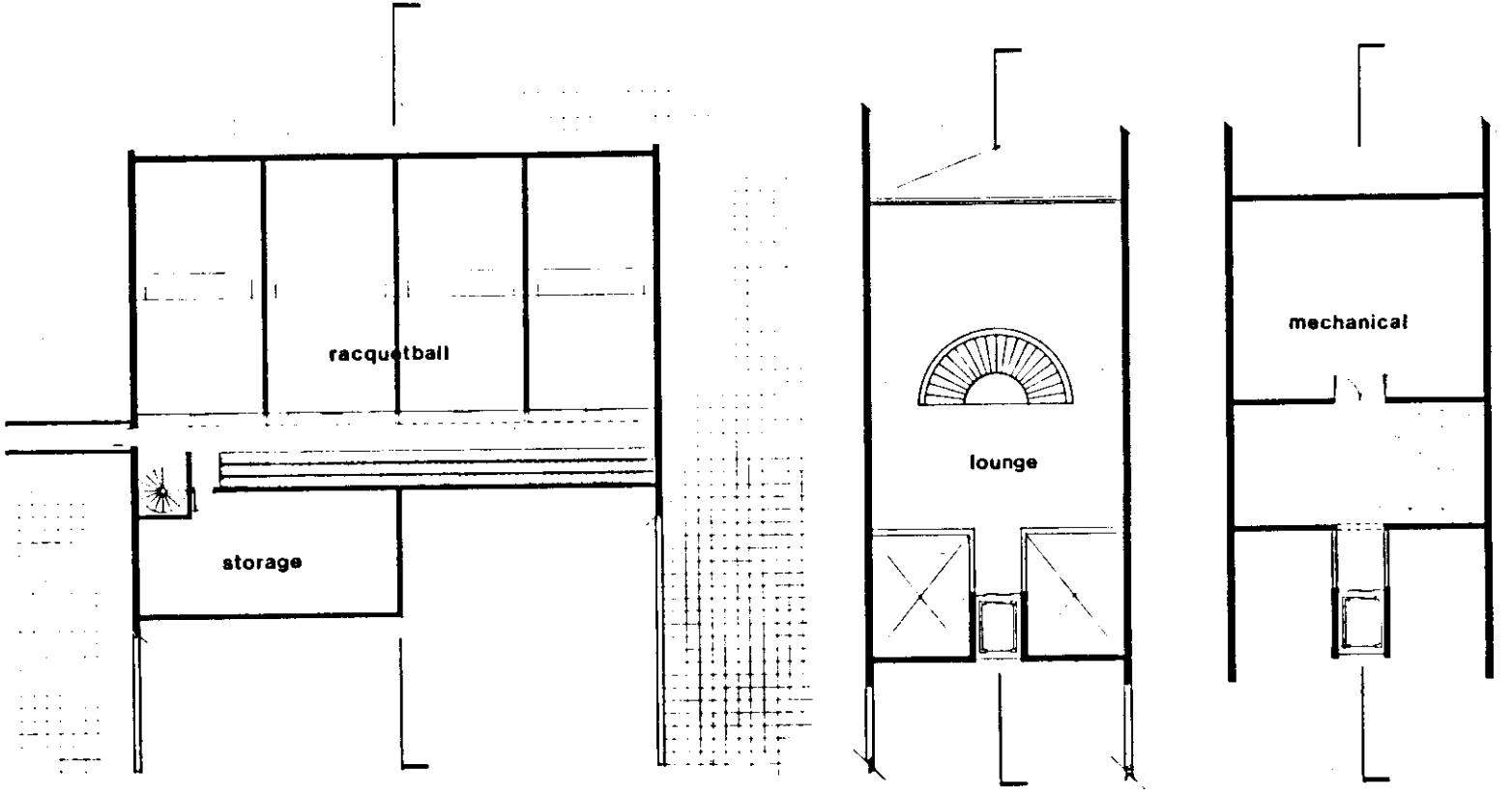
first floor



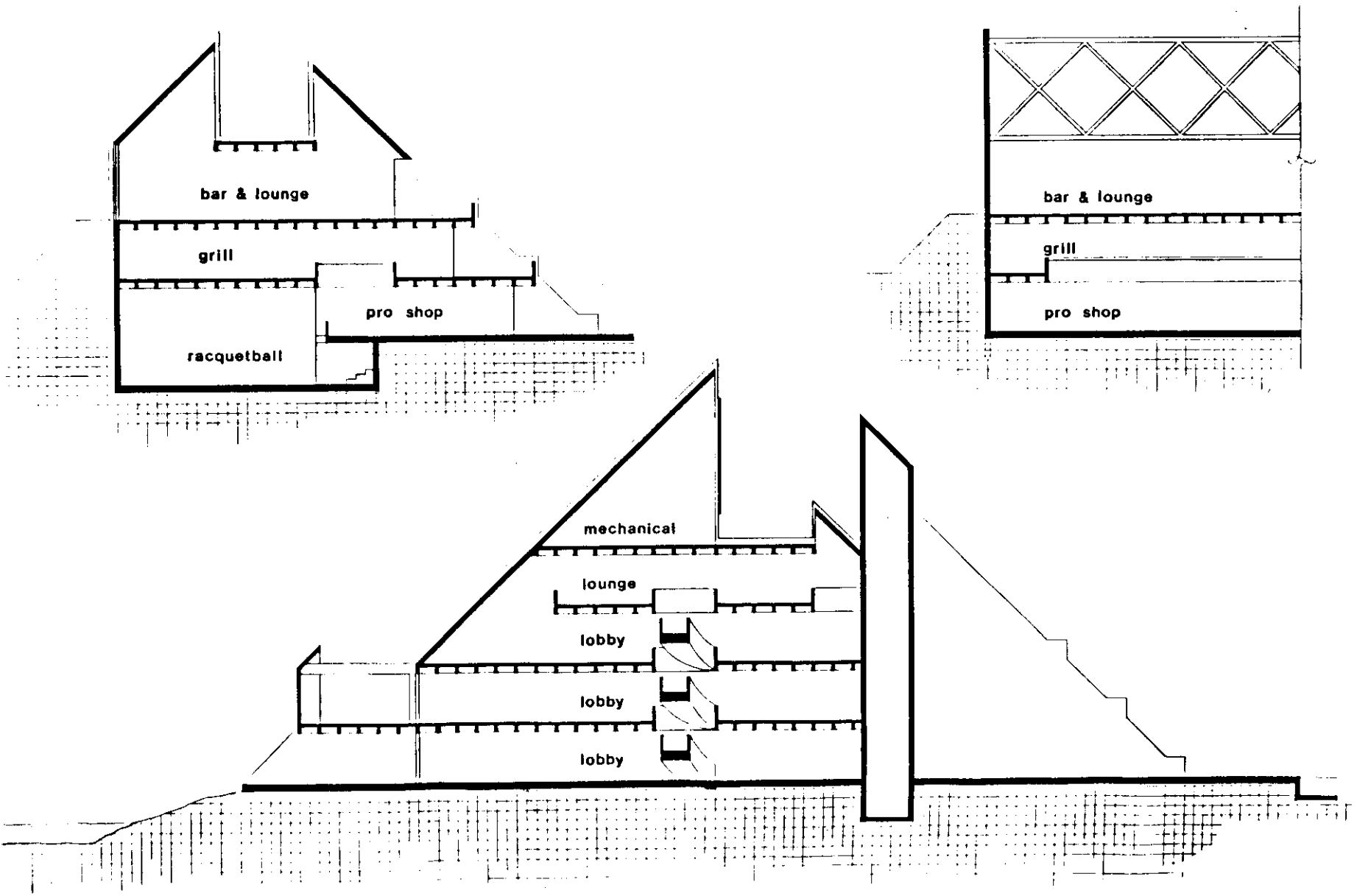
second floor



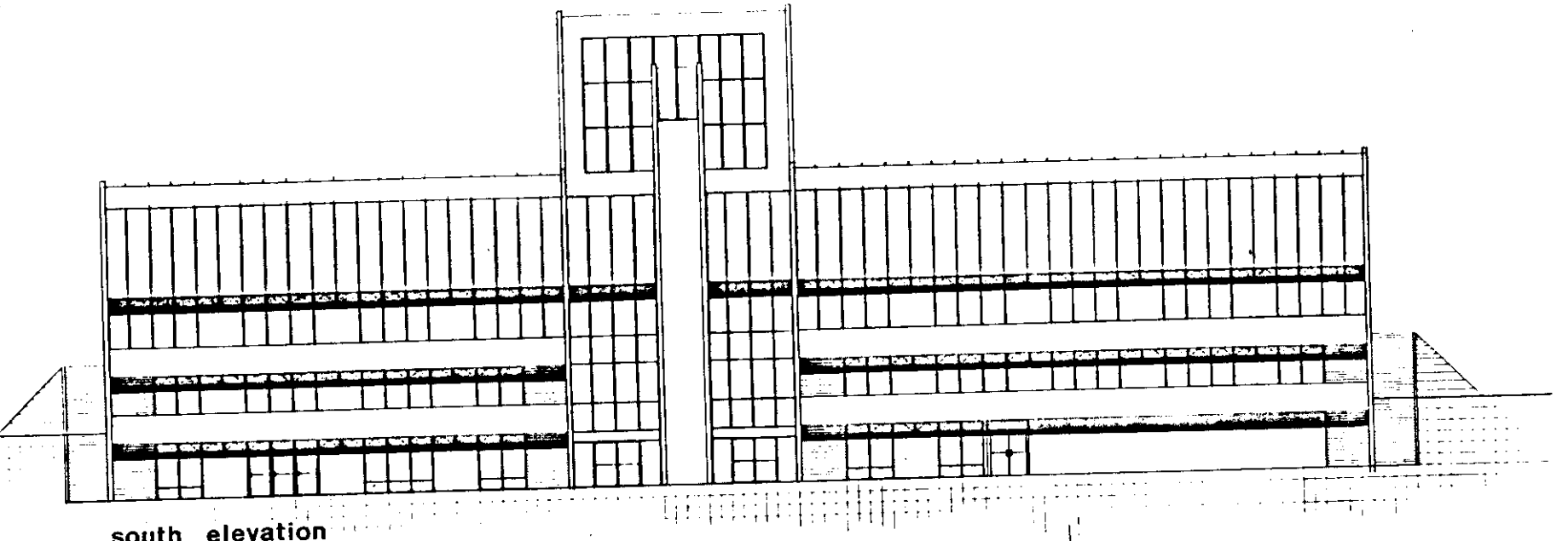
third floor



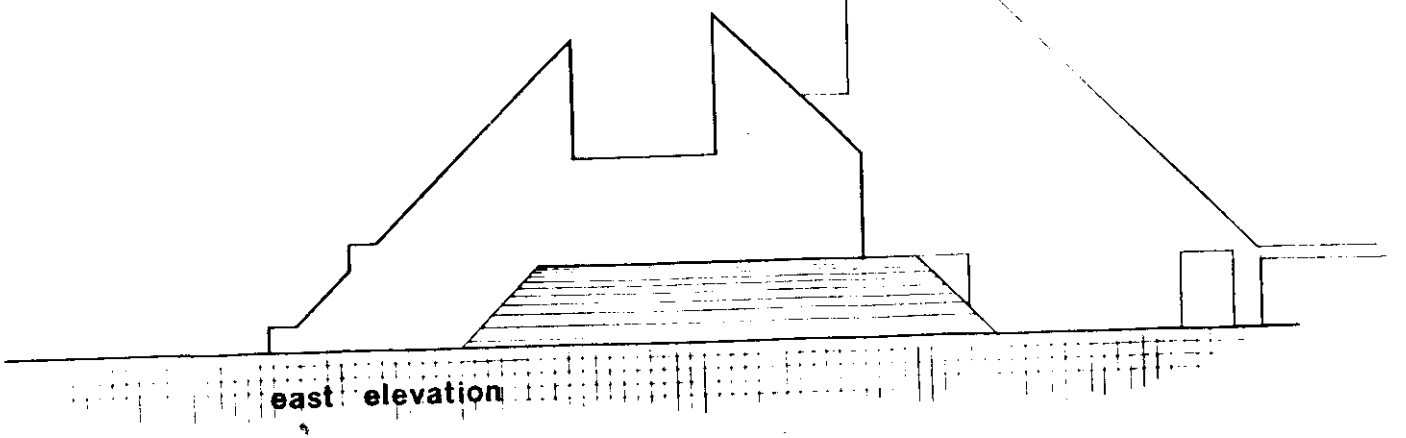
plans


bar & lounge
grill
pro shop
racquetball
bar & lounge
grill
pro shop
mechanical
lounge
lobby
lobby
lobby

sections

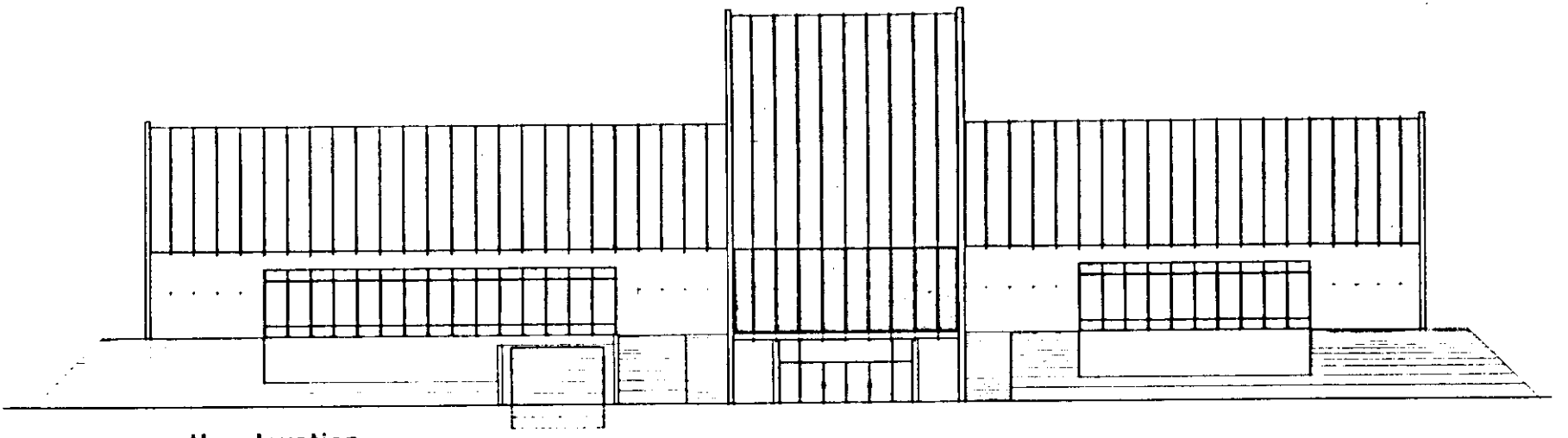


south elevation

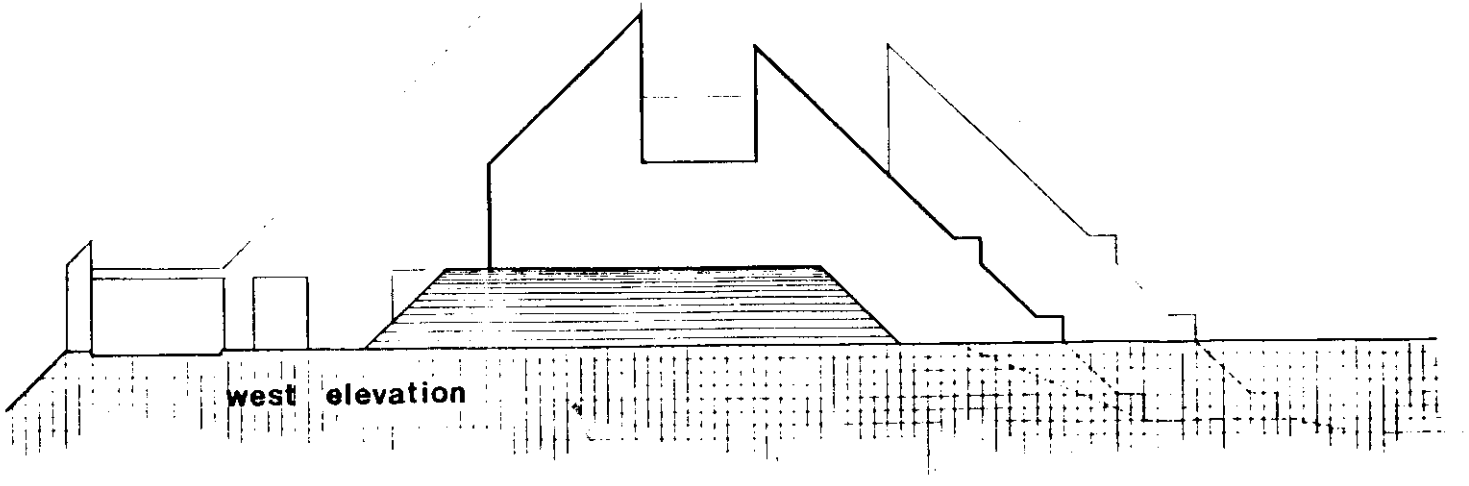


east elevation

elevations

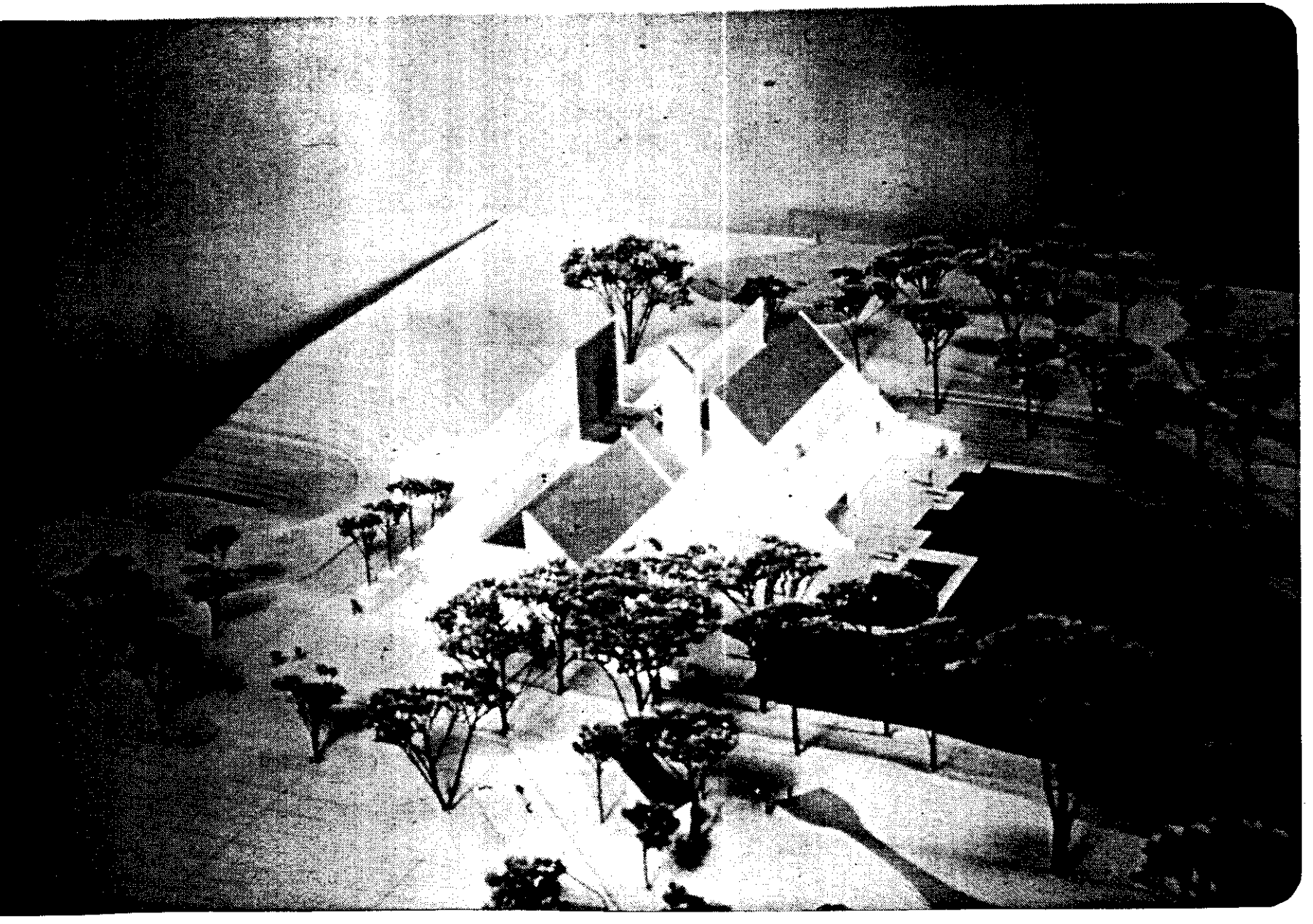


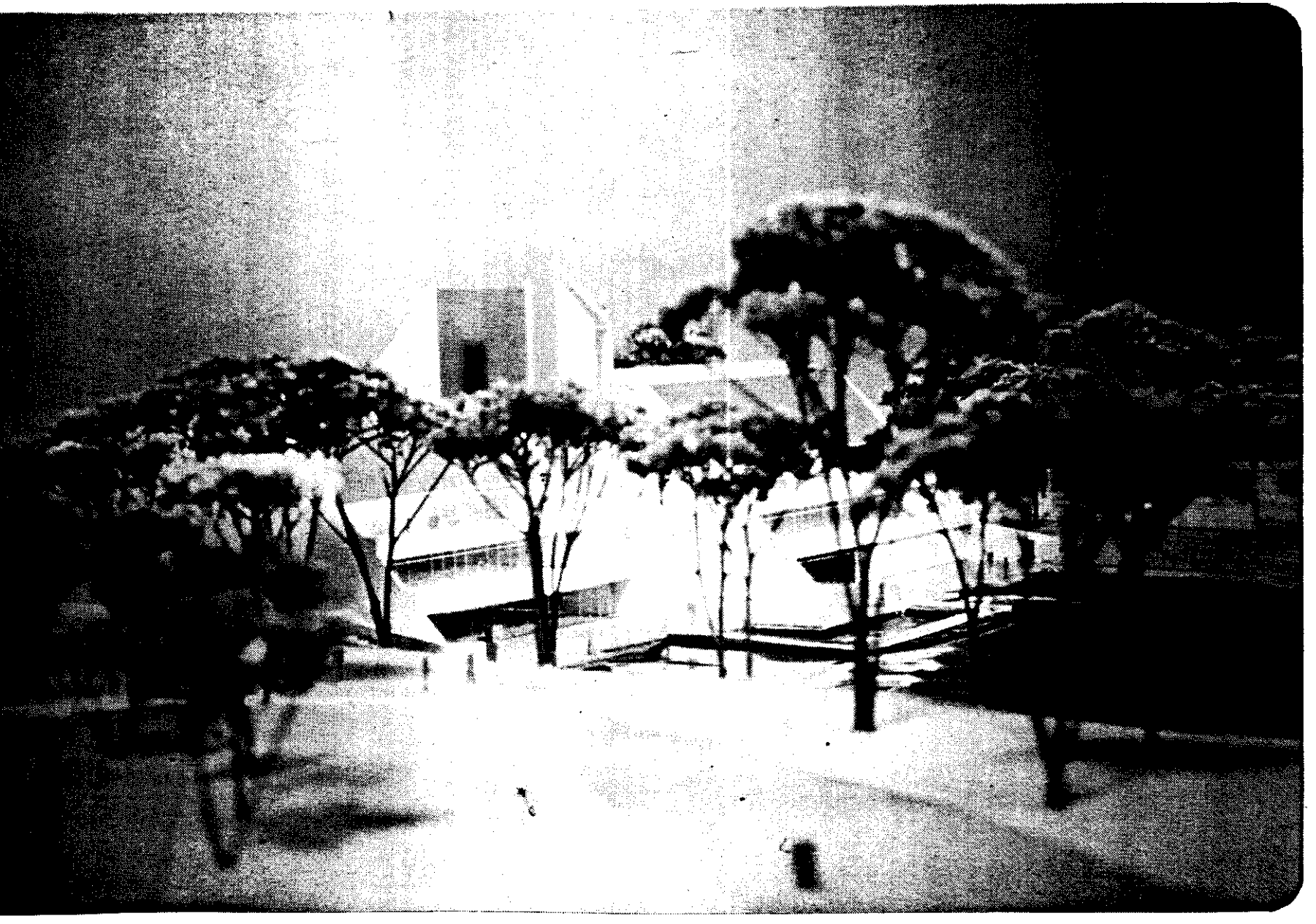
north elevation

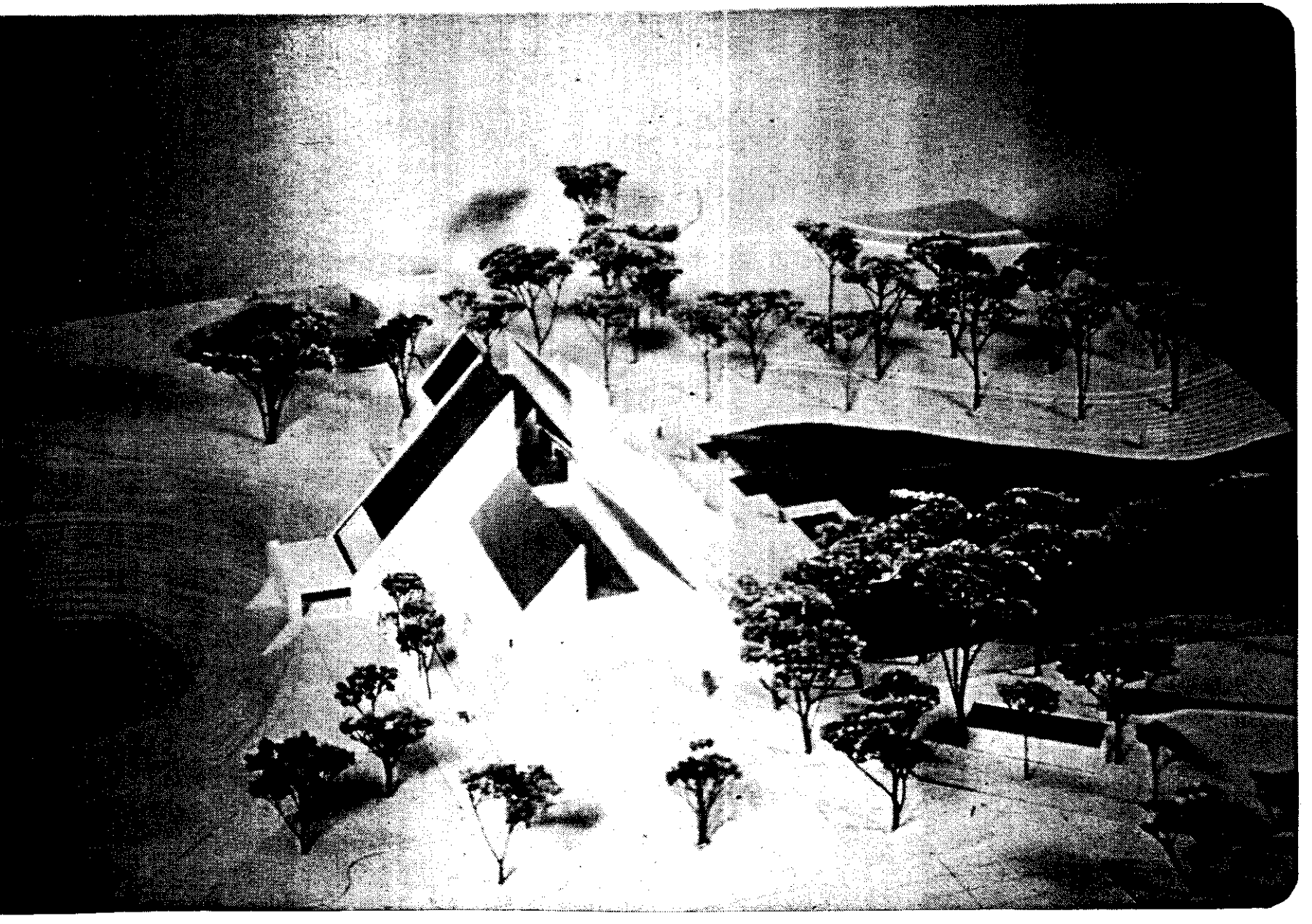


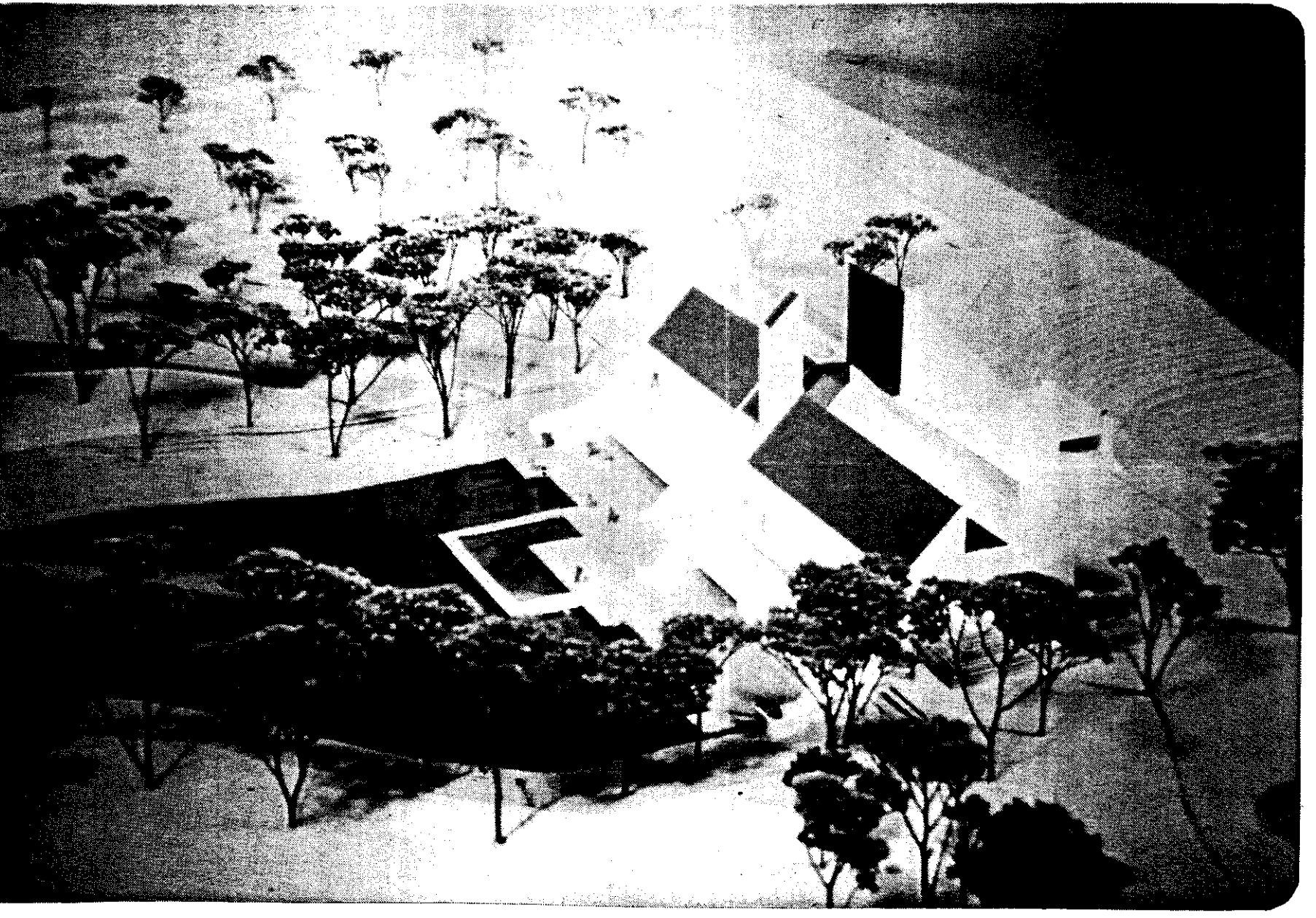
west elevation

elevations









appendix

Acknowledgements

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And my fellow classmates:
Brad Barker
George Brunner
Dave Haycock
Frank Mora
Steve Park
Maureen Westrick

Equipment List

Heavy Equipment

2 golf course tractors for mowing
1 utility tractor with front end loader and backhoe
1 dump body utility vehicle
1 1/2 T. pick-up truck

Mowing Equipment

7 greensmowers
2 three gang mowers for tees and aprons
2 seven gang fairway mowers
1 five gang rough mower
4 commercial 20"-21" rotary mowers

Maintenance Equipment

1 power sprayer for fungicides & attachments
1 roto-type spreader for fairways
1 fertilizer spreader for fairways
3 spreaders for greens and tees
1 power spreader for top dressing
1 Spikaire
1 power aerating machine for greens and tees
1 set tractor drawn aerator for fairway with dragmats
2 plug cutters for tees and greens
1 power drag mat for greens and tees
1 power chain saw
1 power leaf blower
1 power sod cutter
1 power leaf sweeper
1 liquid fertilizer equipment
1 loam screening machine
1 Thatch machine

Equipment List (cont'd)

Golf Equipment and Tools

2	hole cutters
36	hole cups
2	cup extractors
36	poles and flags
18	practice green markers
4	set tee markers
18	golf ball washers
12	wastebaskets
18	practice green cups
10	aluminum whip poles
2	wheelbarrows
1	20'-30' aluminum ladder
1	transit

Shop Tools

1	steam cleaner - portable
1	mower reel grinder
1	bedknife grinder
1	portable lapping machine with compound
1	1.fT. chain hoist
1	3T. hydraulic jack
1	battery charger
1	air compressor with 50' hose, regulator spray gun
1	large vice
1	complete set of machinery tools including screw drivers, hacksaws, pliers, calipers, cold chisels, bolt cutters, ignition wrenches, monkey wrenches, etc.
1	complete set of socket, box end and open end wrenches, miscellaneous masonry, carpentry and automatic tools

Equipment List (cont'd)

Hand Tools

shovels
sod sifters
turf edgers
cultivators
spades
iron rakes
wood rakes
trap rakes
picks
mattocks
push brooms
pitch forks
wood saws
axes
pruning shears
sickles
crow bars
sledge hammers
sledge hammers
tamps
water pump