

A Resource Complex for Sandy Neck Beach ...

An Exploration in Building on an Ever-Changing Land

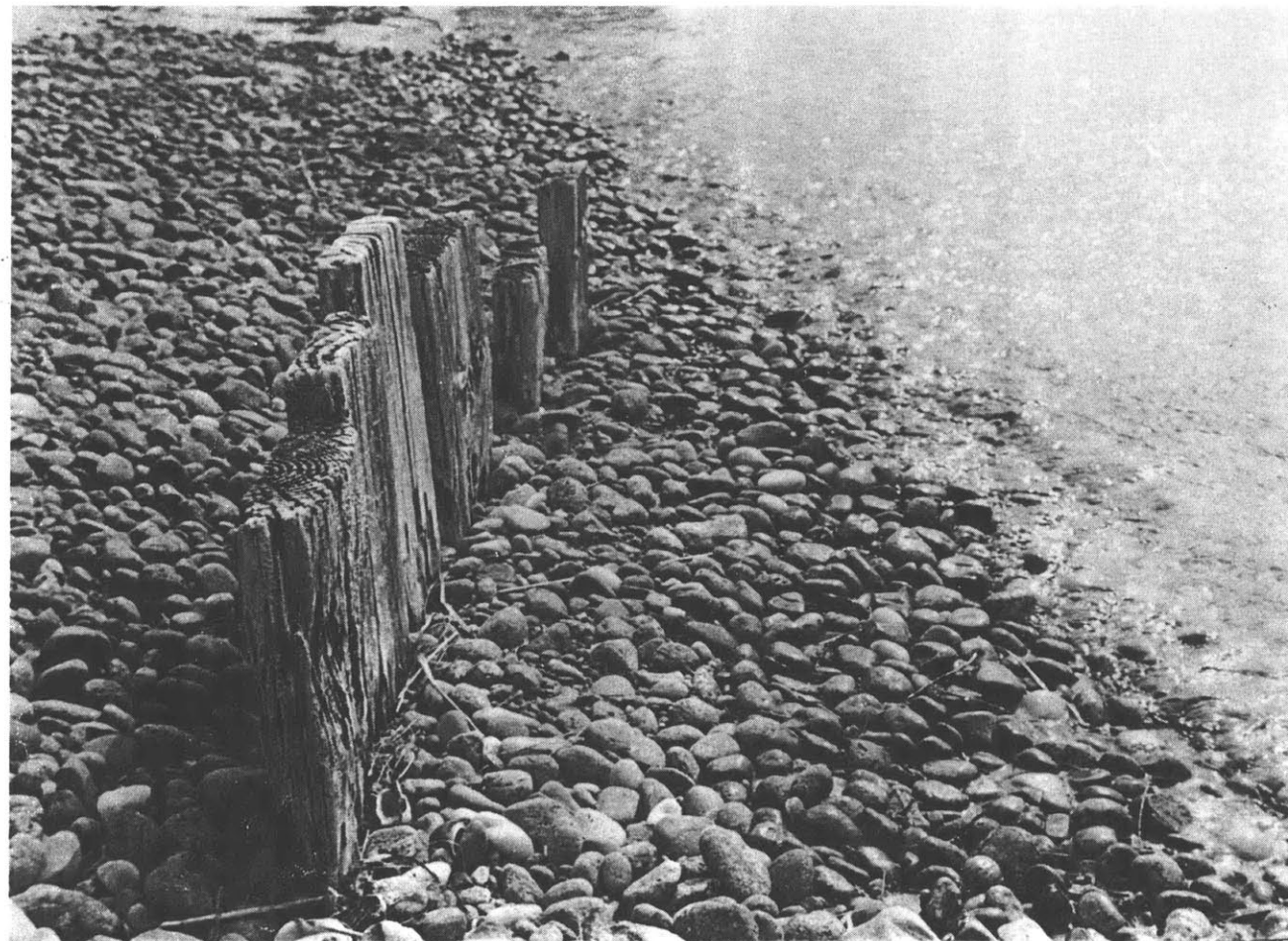
by

CYNTHIA L. SOLARZ

Bachelor of Arts
Wheaton College
Norton, Massachusetts
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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE
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Signature of author
Cynthia L. Solarz
Department of Architecture
May 8, 1987

Certified by
William Lyman Porter
Professor of Architecture and Planning
Thesis Supervisor

Accepted by
Julian Beinart
Chairman
Departmental Committee for Graduate Studies

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Abstract

A Resource Center for Sandy Neck Beach
An Exploration in Building on an Ever-Changing Land

by
Cynthia L. Solarz

Submitted to the Department of Architecture on May 8, 1987
in partial fulfillment of the requirements for the Degree of
Masters in Architecture

ABSTRACT

This thesis is an exploration into a spit of land, called Sandy Neck Beach on Cape Cod, Massachusetts. It is a barrier beach system which is experiencing many changes. These changes are manifest not only in its physical form but also in the impressions of the forms which use it. This project is therefore a documentation of the history of Sandy Neck and the problems that face it today, and a proposal for a resource complex intended to aid in the procreation of a better understanding of the natural processes of the land.

Thesis Supervisor: William L. Porter
Title: Professor of Architecture and Planning





2000

This is dedicated to my family,

and Eric, my very best friend.

I would like to thank-

Bill Porter for his unending ideas, enthusiam, and patience.

Waclaw Zalewski for his structural guidance and
thoughtfulness.

My 4.01 students and fellow T.A.'s for their cheerleading.

Kay, Dan, Damon, and Maria for each of their special talents
in helping out.

All of the people in California who shared their hospitality
and along the way spurred my confidence and
independence.

Eric for his support and encouragement.

And finally, my family, for the room to grow.

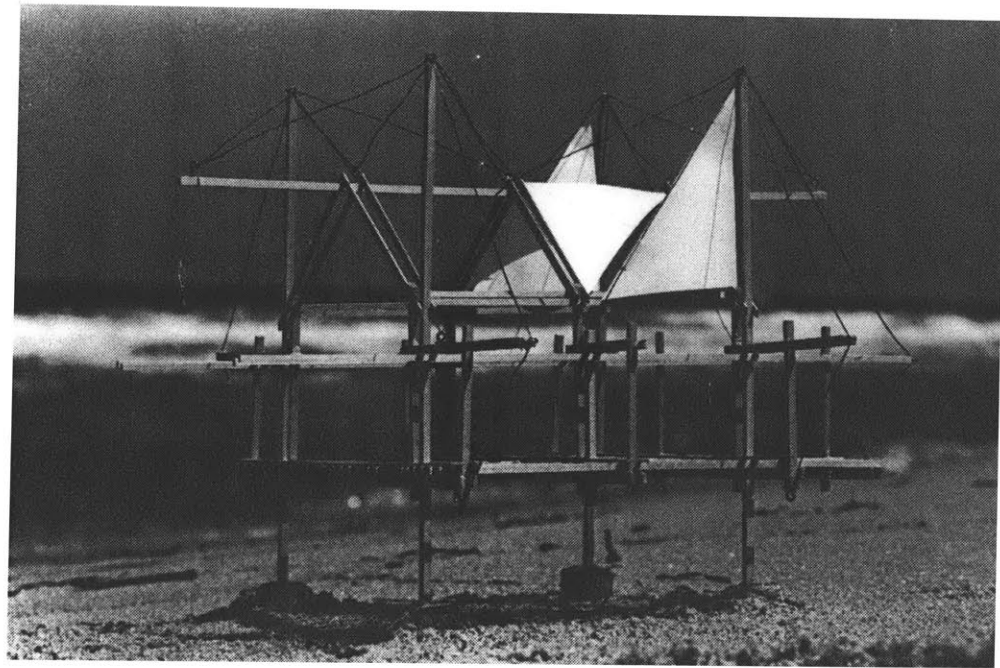
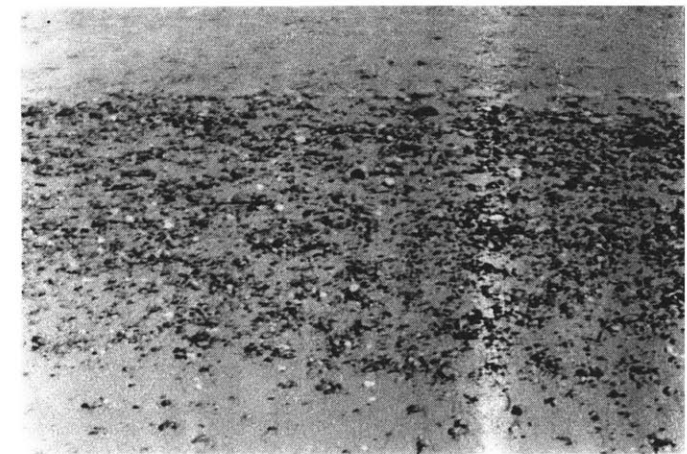


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A Brief History of Sandy Neck

Sandy Neck is a coastal barrier beach on the north side of Cape Cod running six miles west to east and varying in width from approximately 200 yards to a half mile. It was formed after the glaciers of the Pleistocene Epoch's Wisconsin Stage had receded, by the Bay's currents transporting grains of sand from the Manomet Bluffs, southeast, until the deeper waters of what is now Barnstable Harbor caused the grains to precipitate. Continuous action of the longshore currents formed sand bars which accrued into this coveted spit once described by a sojourner as "a long and lofty fantastical beach, thrown into a thousand grotesque forms by the united forces of wind and waves".¹ These forces still continue to form, reform, and deform Sandy Neck.

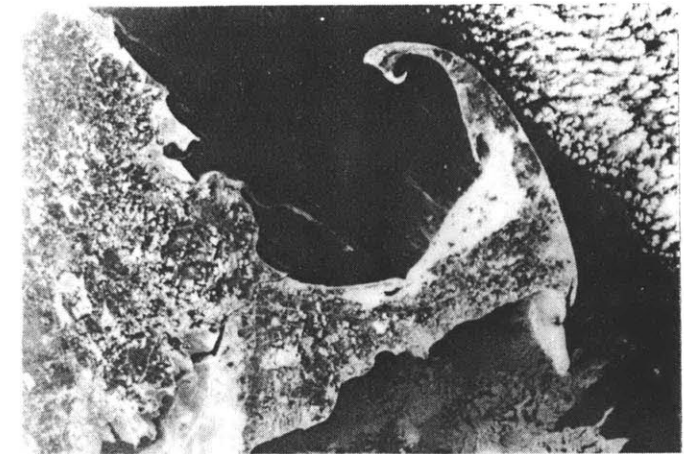
Attached to the mainland only on its western edge, Sandy Neck formed a lagoon in between its southern shore and the glacially formed coast of Barnstable. Because Sandy Neck acted as a barrier to this area, normal tidal cleansing was disrupted. Clay silts and organic debris were trapped, thereby building mudflats. These flats built up until the majority of the surface area was no longer subjected to

submersion, thus allowing vegetation to grow. Today, four miles long and two miles wide, this area is the largest salt marsh on Cape Cod and is known as the Great Marsh of Barnstable. This marsh and the Neck comprise the Town of Barnstable's two most treasured natural resources.

Realizing this land's wealth, the Indians of the area saw Sandy Neck as hallowed territory, and used the Neck for celebrations, feasts and as a burial ground. Remnants of their banquets remain in the form of shell middens, which if scoured diligently may expose an ancient arrowhead. Story has it that in 1644 settlers gave Serunk, Chief of the Scorton Tribe, four coats and three axes in exchange for Sandy Neck, leaving the Indians to muse at the absurd notion of buying land. As the Indians had found the tidal sands fertile with shellfish, the settlers discovered the waters abundant in blackfish or pilot whales. So great were the harvests of these fish that in 1715 four tracts of land were specifically reserved, "where any citizen of the town who was engaged in whaling might erect a 'try-house' and have room enough for his blubber barrels, lumber and other gear. A part of Sandy Neck is still called the 'Try Yard' although no one knows exactly where it is".²

The salt marsh at this time was referred to as the "hay-grounds", as it was being utilized as grazing land for cattle, and salt hay was harvested for thatch. Although, this land had started out as common lands, in 1697, households drew lots for six acre parcels. In theory, this land is still privately owned; however, a fire in the County Courthouse destroyed the records, and the locust poles which were used as land markers have long since rotted away. Frequently, cattle and other grazing animals would wander over to the Neck and begin foraging the dunes. "All this activity concerned the settlers, since it damaged the stability of the dunes and the sand began washing into Barnstable Harbor and blowing onto the marsh. Perhaps, what might be considered the first shore protection laws of this country were enacted in the Town of Barnstable when it was ordered that a fence be erected and maintained at the westerly end of the Neck to prevent horses, neat cattle and other creatures (probably sheep) from coming onto Sandy Neck and eating the vegetation."³

By the mid 1700's a new industry was developing on the Cape. This was the making of salt through the evaporation of seawater. With livestock marsh grazing becoming less popular due to predation by wolves, entrepreneur Loring Crocker took



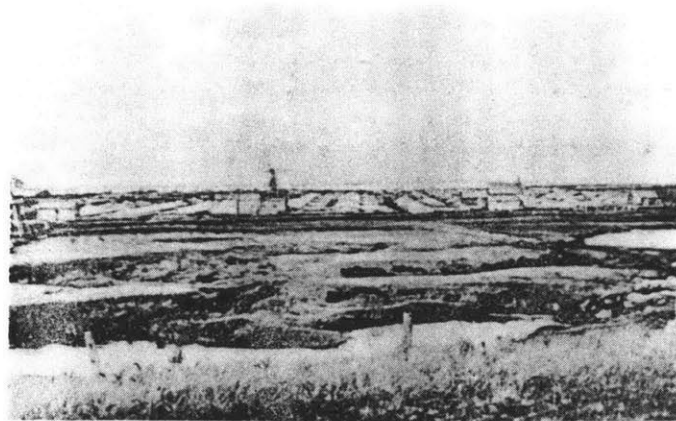
Aerial Photo of Cape Cod (5.)



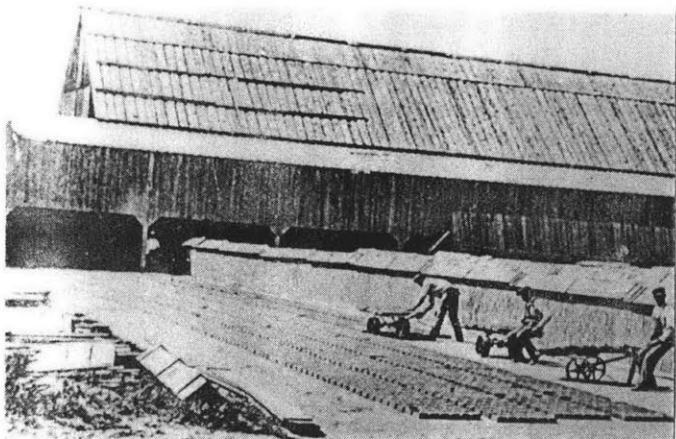
The Great Marsh and Sandy Neck

Blackfish Ashore (5.)





Loring Crocker's Salt Works (3.)



West Barnstable Brickyard (6.)



Sandy Neck Lighthouse (6.)

advantage of this vast expanse of seaside land to erect one of the most productive salt works in the area.

Loring Crocker's saltworks were located on the shore facing Sandy Neck. He drew the water into a wooden reservoir built on the ridge of the beach, then let the water run via miniature falls through seven vats, each placed lower than the other. These measured about 18 feet in width, 50 to 60 feet in length and less than a foot in depth. In the first three the evaporating water left strings of ropy vegetation. In the next three, lime was precipitated. In the seventh, crystals of salt were formed during the final evaporating and these could be shoveled in barrels and stored in sheds to dry. The whole process took six weeks though the time varied a bit because of the weather.⁴

In addition to whaling several other industries were being conceived. Bradley Jenkins, Jr., was the first man to grow cranberries on this land. In his zeal for success, he tried to buy up all the land on the Neck for bogs. By the time he was done he owned 700 acres – nearly the entire upland, and 100 bogs. Jenkins died with no heirs, so the property was appointed to a friend, Abel D. Makepeace, who was also an owner of the West Barnstable Brick Company. This particular industry, located just off what is now Route 6A, was started by three enterprising

men, Levi Goodspeed, Noah Bradford, and Charles Crocker, and operated between the years 1878 and 1929 before it went bankrupt. As a result of all these activities on the Neck, a trail along the marsh edge had been defined. Taking advantage of the Neck's abundant wildlife and now easy access, duck hunters began building shacks along this road. These shacks would serve as shelter when it became profitable to escort city hunters out to the Neck for a weekend of hunting in the marsh.

By 1827, a lighthouse of sorts was built on the Point. This first beacon was a light constructed on top of a keeper's hut. However, in 1857, a real lighthouse was built. The lighthouse keeper was George Albert Jamieson whose lived out on the Point with his family. His daughter recalls, in an article in the *Barnstable Patriot*, on November 7, 1974, that there were many chores to be done: lenses to be polished, wicks to trim, oil to look after and painting for the inspector. In 1931, the illumination at the lighthouse was changed to incandescent oil vapor with increased candle power, but the Point was changing too, and it became necessary to move the light to a steel skeleton tower two hundred feet nearer the end. The illuminant was changed to acetylene and was automated. It burned only from April to October, which

reflected the decrease in Harbor traffic. Eventually, this automatic light was discontinued in 1952. Concrete footings and fragments of the rusted framework still remain hidden by the primary dunes at the Point.

The Point was changing, not only in physical shape, but also in character. To the west of the lighthouse a summer fishing and visiting colony was evolving. Cottages were floated over from the mainland and once on shore, were erected on pilings. People also boated over supplies and built camps, with much of the builders' character playing a significant role in the design. For example, "Wilton Crosby, an ancestor of the Crosby family that owns two boat yards in Osterville, built a cottage using brass portholes for windows".⁵ As frequenting the Neck became a popular leisure time activity, entrepreneur Herbert Lovell decided to open a Chowder House at the Point's cottage colony. Mr Lovell would also provide "catboat" service for tourists or guests who wished to patronize his establishment.

As one might predict, Sandy Neck was an active landmark during prohibition. With its long uninhabited coastline protecting the maze-like creeks of the marsh, Sandy Neck did its share to support rum-running.

During World Wars I and II , Sandy Neck once again served its country's cause, this time as a practice ground. The dunes were used for bombing practice and the front beach accommodated landings made by the Army's amphibious forces. The blueberry patches in the upland forest housed an installation which the Coast Guard used for training military dogs. While all this was going on, the fishing industry still continued. Weirs set up on both sides of the Neck trapped fish, which were then taken in to Barnstable Village and either sold fresh or frozen and shipped to Boston. This livelihood continued until the 1960's when the interior fishing stock dropped significantly and larger more profitable harvests were obtained on the outer banks.

Around this time, the Town began to feel the possible threat of higher government agencies taking control of this land, as was the case in the National Seashore. The general consensus of the Town was opposed to this intrusion, fearing that a paved road running down the center of the beach would be the State's solution to management. In an effort to deter the State from taking such action, the Town began buying up parcels from private owners. In the cases where land that had a structure on it was taken, the Town

signed a lease with the owners allowing them to use the property with the right of use being passed down through generations. The only stipulation was that general repairs and upkeep could be performed, but no additions could be made to the structures. At recent count the Town has accumulated all but about one hundred acres, thereby making the Town well on its way to restoring all of Sandy Neck to the public domain once again.

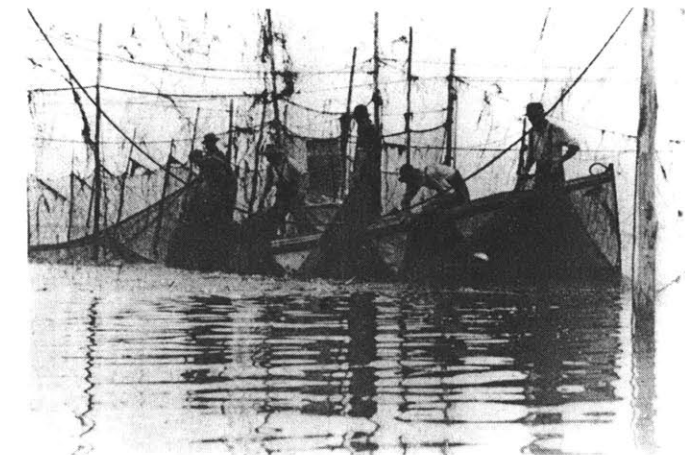
¹ Timothy Dwight, *Travels in New England and New York*, Harvard University Press, Cambridge, MA, 1969, p. 49.

² Henry C. Kitteridge, *Cape Cod: Its People and Their History*, Houghton Mifflin Co., Boston, MA, 1968, p. 69.

³ *The Seven Villages of Barnstable*, The Town of Barnstable, Barnstable, MA, 1976, p. 291.

⁴ Marion Vuilleumier, "By 1840, Saltworks Declined, but the Industry Had Thrived", *Cape Cod Times*, Summer Preview '85, p. F-14.

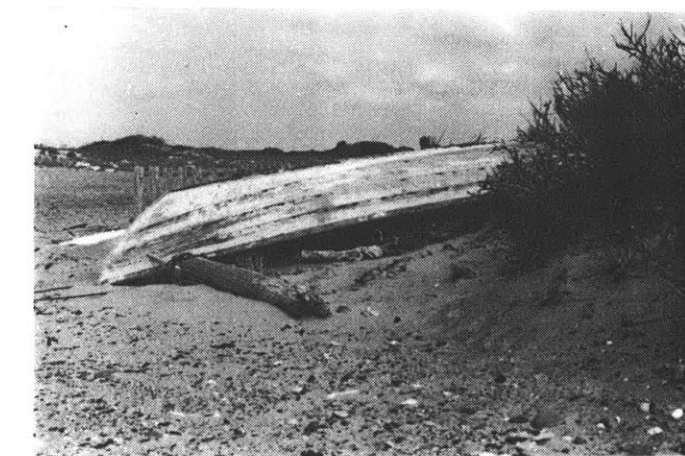
⁵ Edward W. Desmond, "Charting History: An Archival Study of Three Centuries on Sandy Neck", *The Cape Cod Times*, October 17, 1983.



Fishing Weirs (6.)

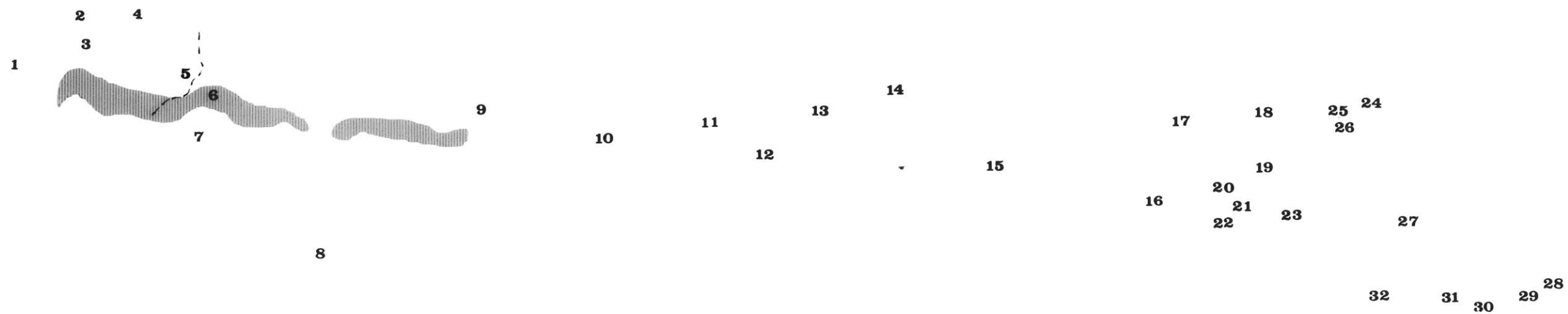



The Colony at the Point



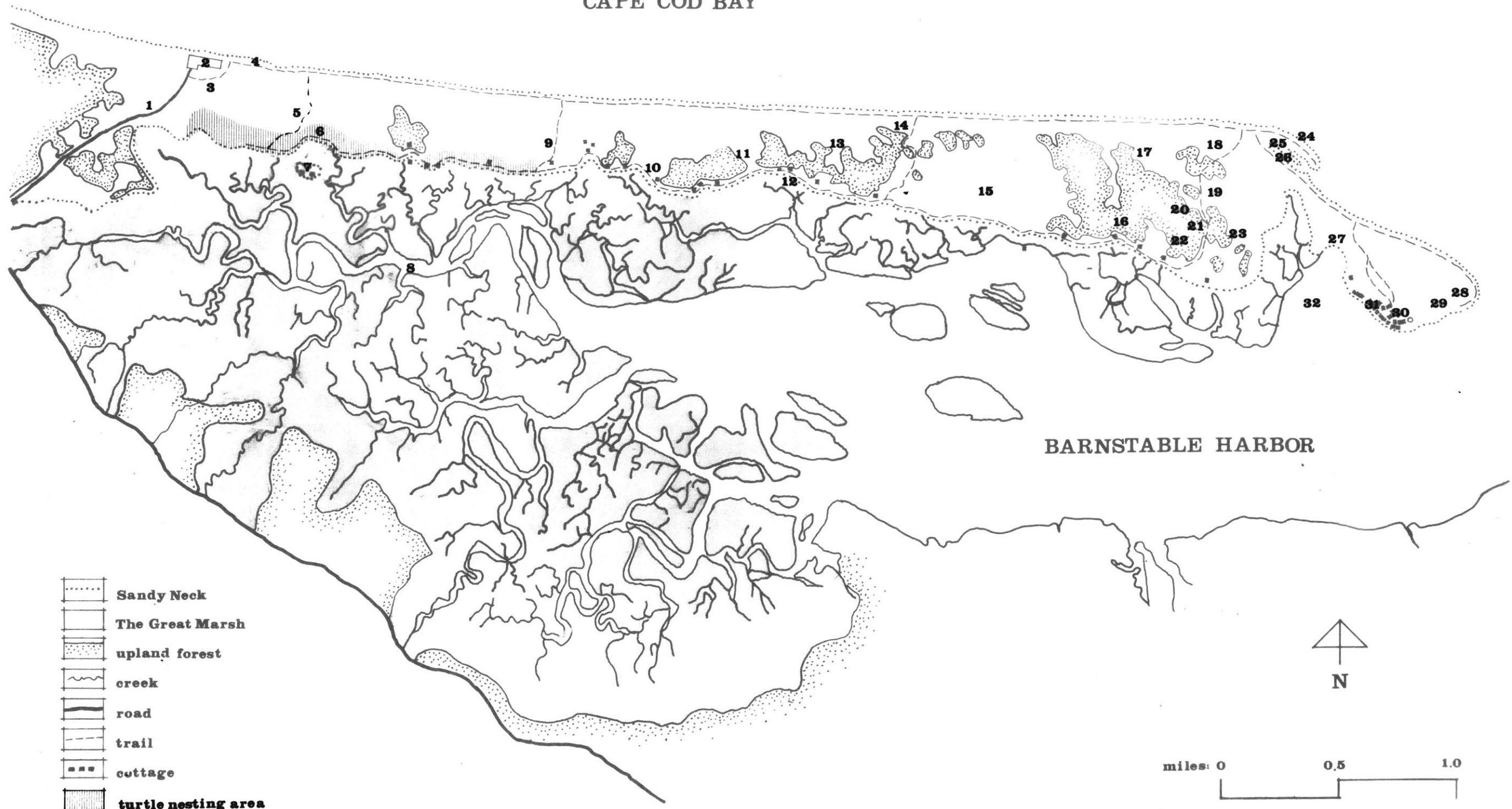
Some Special Places on Sandy Neck

1. Sandy Neck Road
2. Parking Lot and Bathhouse
3. 4-Wheel Drive Vehicle Access Trail
4. Front Beach Trail
5. Trail #1 - the old access trail
6. The Marsh Trail
7. Great Island
8. Clam Flats at Low Tide
9. Trail #2
10. The Bog Blind
11. Sugar Foot Dune
12. The Conservation Hut
13. The Dune Blind
14. Trail #4
15. Indian Shell Middens
16. Horse Trails
17. The Cedar Dune Blind
18. Trail #5
19. Bogs with Philaform Sun Dew
20. The Stilt Blind
21. The Tree Blind
22. Blueberry Patch with Bee Hives
23. The Marsh Blind
24. Little Neck
25. Least Tern and Piping Plover Nesting
26. Clam Flats
27. Trail #6
28. The Point
29. The Light Tower Ruins
30. The Old Lighthouse
31. The Colony
32. The Cove



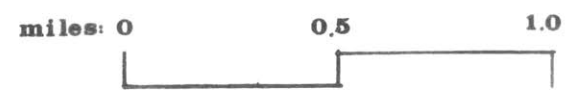
 turtle nesting area

CAPE COD BAY



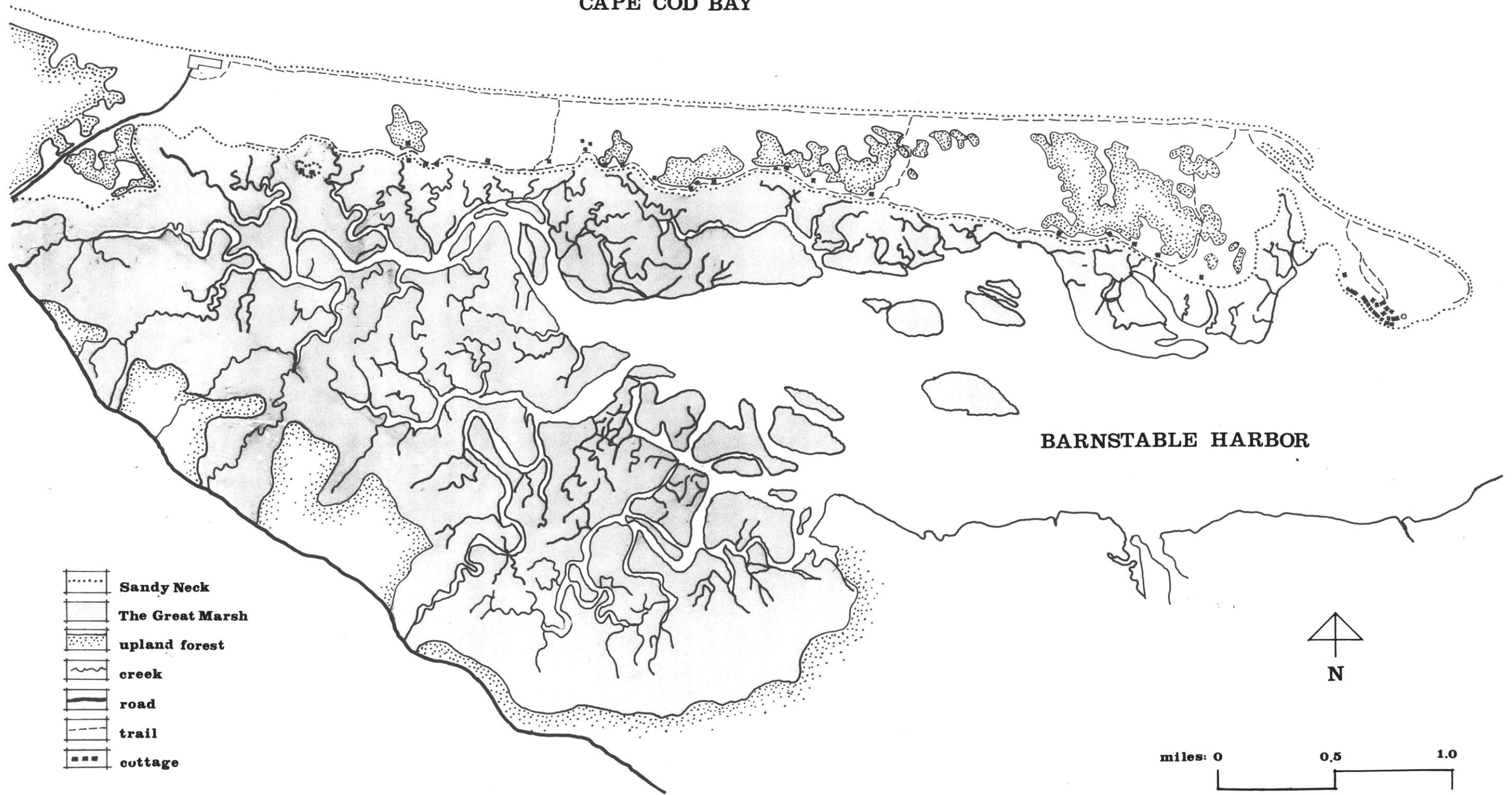
BARNSTABLE HARBOR







-  Sandy Neck
-  The Great Marsh
-  upland forest
-  creek
-  road
-  trail
-  cottage
-  turtle nesting area

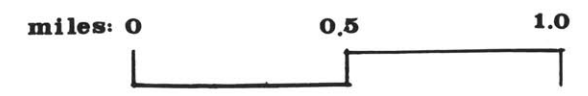


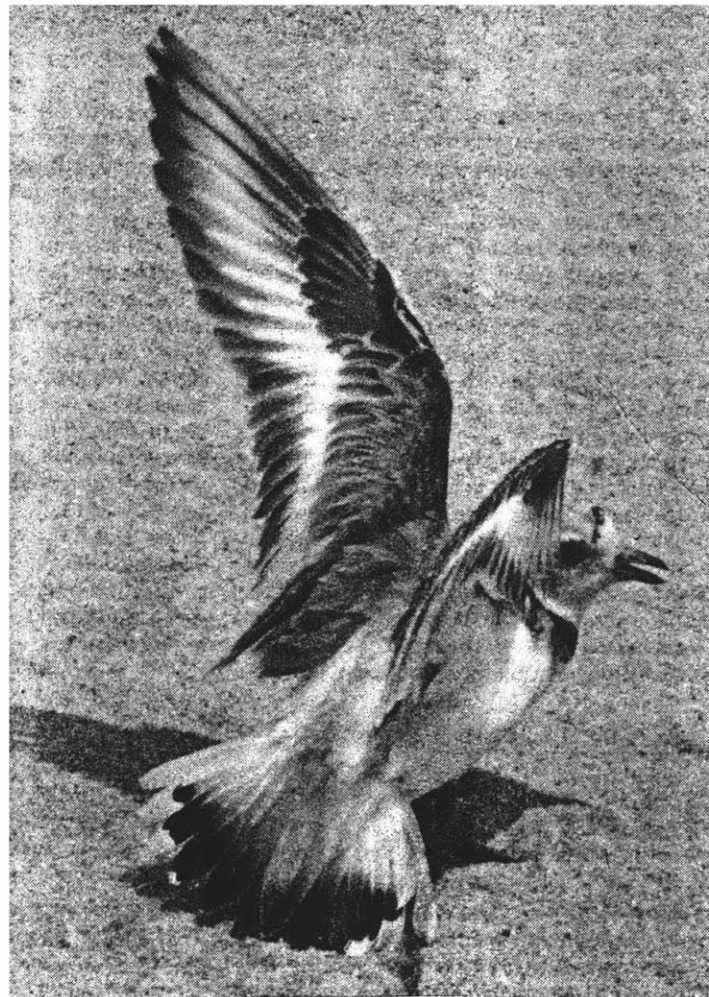
CAPE COD BAY

BARNSTABLE HARBOR



-  Sandy Neck
-  The Great Marsh
-  upland forest
-  creek
-  road
-  trail
-  cottage





"But if I were required to name a sound the remembrance of which most perfectly revives the impression which the beach has made, it would be the dreary peep of the piping plover (*Charadrius melodus*) which haunts there."

Cape Cod- H.D. Thoreau

Problems Facing Sandy Neck Today

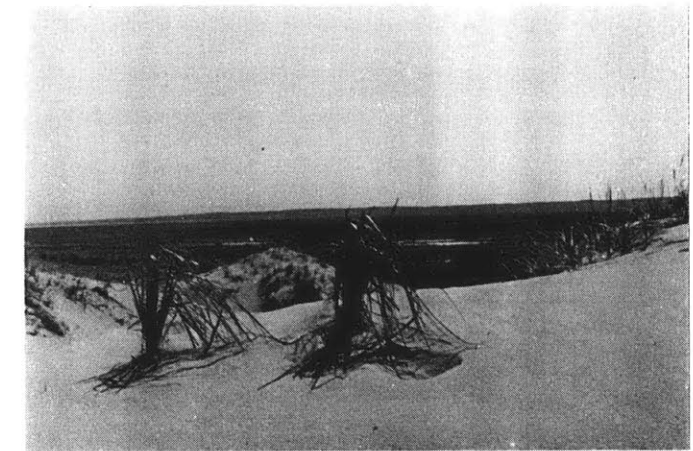
Sandy Neck is a very special place, not just because of its spectacular beauty but because of the fragile ingredients from which it is composed. Specifically, Sandy Neck hosts three primary ecosystems: the tidal beach front, the upland forest and the marshlands. Each system is unique, yet all are interdependent and overlapping. The salt marsh, whose inner creeks are protected from the powerful energy of the Bay's waves but are still able to partake of their beneficial cleansing, is a prolific generator of micro-organisms. These tiny creatures are the foundation of the food chain and not only serve as nourishment to other animals but also aid in the regeneration of the marsh itself. The frontal beach, sculpted by the whims of the tidal waters, serves as feeding and nesting ground for many shorebirds. For example, the Piping Plover (*Charadrius melodius*), today an endangered species, makes its nests amongst the rocks and pebbles captured at the vegetation line. Separating these two systems is the upland forest, which houses a myriad of species, all co-surviving within these three ecosystems and engineering their own niches

Through the years this varied landscape has attracted many visitors with diverse interests, and over the years the numbers have increased. While the popularity of the Neck has grown, the town has managed to keep access restrained to one paved road which runs down the western edge. Sandy Neck Road attaches Route 6A, one of the Cape's three major highways, to the public parking lot and beach. Admission to the remaining six miles of beach is only by foot, boat, or four-wheel drive vehicle. For most, this limited access makes the Neck an highly treasured escape.

Restrictions from the Town have kept Sandy Neck uninhabited, except for the Point colony and the scattered marsh trail cottages. Those who wish to enjoy Sandy Neck's resources for an extended period of time are therefore forced to seek alternative means. This "squatting" occurs in the form of four-wheel drive campers. On weekends these vehicles descend upon the beachfront en masse. The drivers pick out what they consider to be the most advantageous spot (people being creatures of habit as are most animals, these spots do not vary from week to week) and powwow with the other campers to set up weekend neighborhoods. In addition to the campers, there are "day trippers". These are four-wheel drive vehicles that come

out to use the beach just for the day. On busy weekends there can be over 600 vehicles on the beach.

Boaters also stake their claim to Sandy Neck by anchoring off the shore of the south side of the Point or the low tide flats adjacent to Little Neck, and wading into shore. The public beach is also quite popular. On hot summer days the parking lot is full by 10:00 am, leaving those who were slow to start waiting not-so-patiently in their cars until someone leaves. While some of these invaders fish off the banks or explore the Neck's upland offerings, the majority frequent the neck for social reasons. This secluded peninsula offers an oasis from encroaching responsibilities or a chance to gather and party with friends. For the most part personal conduct stays in check; however, there are those few... In an effort to keep "those few" few, the Town has equipped the beach with rangers. These law enforcement officials patrol the beach, enforcing rules and regulations laid down by the Sandy Neck Governing Board. The constraints are more or less intended to protect the beach from the humans and the humans from the beach. During weekdays and the off-season, traffic on the beach sharply decreases. These days find one or two campers serving as shelter for fisherman, while couples with dogs stroll in





the tranquility, and cottage owners take in the harvest sunset before the winter winds make the environment harsh. In the fall, the Neck is open to hunters, as the upland forest houses a growing deer population and the tall marsh grasses make suitable camouflage for duck blinds.

Attracted to the Neck because of its varied wildlife and its sporadic but intense human population are a group of four biologists from Tufts University, who are also residents of the Town. For over ten years, various members of this group, with the volunteer aid of high school students, have been conducting observations and studies on a few of the species which are indigenous to the area. One of the goals of the biologists is to discover ways in which the Town can better manage the vagrant visitors so they can continue to coexist with the native inhabitants. In several cases the two components presently exist in conflict. A striking example, is the plight of the Piping Plover, mentioned previously, this bird makes its nests on the front beach. The nests are simple scrapes in the sand, lined with bits of shell. In an effort to conceal the nest from predators the eggs are mottled to blend in with the sand, which it accomplishes quite successfully. The ruse is so effective that quite often the eggs are trampled by an unsuspecting

human or unleashed dogs. If the eggs survive to hatching, then the next task is to get the chicks down to the water's edge to feed on plankton and microscopic worms caught inbetween grains of sand. Navigating the beach front proves to be quite an obstacle course for the young chicks. Instincts call upon the birds to hide in depressions in the sand when threatened. Since chicks and adults are feathered to blend in with their beach environment this crouching action makes them invisible. However, all too often the lowest depression is a wheel rut and the perceived predator is a four-wheel drive vehicle. Sandy Neck is one of the last strongholds of the Piping Plover on the northeast coast.

In an effort to support their work both financially and educationally, the biologists run field expeditions on the Neck during the summer. Interested participants pay a nominal fee to cover food and equipment, and live out on the beach in the conservation hut, a cabin donated by the Town. Work is focused around the collection of data for the various studies. When not in the field, the biologists give lectures, upon request, to civic and private organizations. Each year, they also produce a slide-tape presentation for the Town. This venture illustrates the rules and

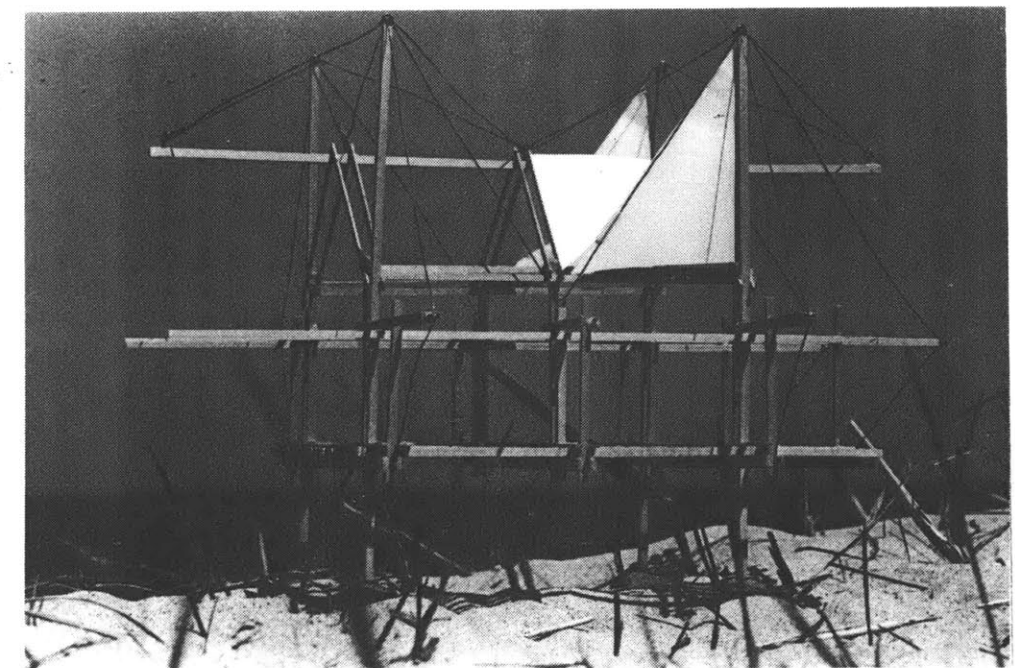
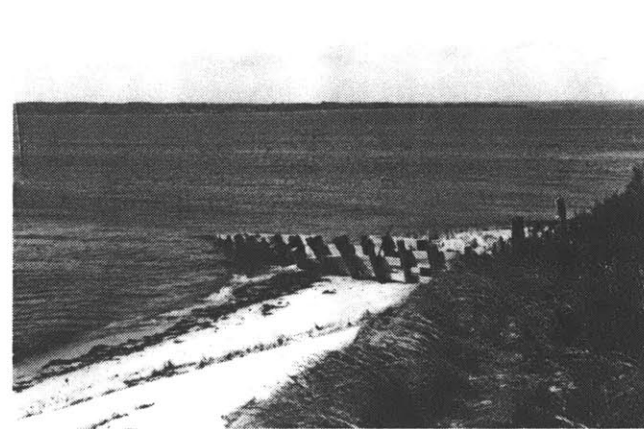
regulations of Sandy Neck and also introduces the lands' ecology. It is a mandatory part of the four wheel drive vehicle inspection procedure but quite often it is never shown due to the absence of a proper viewing facility. Despite this obvious effort to familiarize people to their environment and explain how they can help preserve it, there is still a gross lack of understanding of the natural processes of the land and also a general mistrust of the biologists' efforts.

This mistrust grows from what one of the biologists refers to as the "unpleasant diagnosis syndrome"...when a doctor tells a pack-a-day smoker he has lung cancer his typical reaction is to be mad at the doctor. For years Sandy Neck has been run as a small scale, low visibility operation. And for years this was adequate. Landowners and "regulars" kept tabs on the land and took care of it as they saw fit, with a minimal amount of intrusion from the Town. However with the popularity of the Neck increasing, along with an awareness for its natural resources and processes, Sandy Neck finds itself stuck in a somewhat begrudging phase of transition. While everyone who is involved with the Neck acknowledges its increasing use, the general reaction is one of Yankee heritage, "we've done it this way for years and it

works". But, in actuality it doesn't, and Sandy Neck's care is now slowly being transferred to those who have knowledge and experience in coastal zone management. This process is proving to be a very painful one and one where bruised egos abound.

The major problem which is facing Sandy Neck in this transition, and which needs to be addressed if Sandy Neck is to be successful now and in the future, is the lack of cohesiveness, cooperation and communication between all the parties involved. There needs to be a strong unifying force which ties together all the administrative and participatory factions. There needs to be a regulated comprehensive educational program available to the public at all times. There needs to be an all encompassing proclamation: "This is Sandy Neck. It's here for your enjoyment. This is how it works...its yours! Take care of it!" We can no longer deny the popularity and the fragility of this wonderful land.

This is where the concept of a Sandy Neck Resource Complex has been conceived. This complex in its very nature would proclaim Sandy Neck's specialness. It would be a facility for all who use the Neck: the biologists, the bathers, the rangers, the four wheelers, the townspeople, etc.





The Program

| | |
|----------------------------------|-------------|
| Exhibition Space- | 2000 sq.ft. |
| Entry | |
| Books and Gifts | |
| Information | |
| Exhibits | |
| Administrative Facilities | 250 sq.ft. |
| Auditorium- | 2050 sq.ft. |
| Multi-use | |
| Accommodate about 100 | |
| Ranger Station- | 1025 sq.ft. |
| Office | |
| Lockers | |
| Lavatory and Shower | |
| Sitting Room | |
| Kitchen Facilities | |
| Garage for 2-3 Official Vehicles | 875 sq.ft. |
| Lifeguard Station | 1050 sq.ft. |
| Toilets and Showers for Bathers | 400 sq.ft. |
| Food Facilities | |
| Gathering Space for Nature Walks | |
| A Lookout Tower | |





-Site Transformation Sketch

The Site

The site for the resource complex is the existing parking lot and bath house presently referred to as Bodfish park, and the land immediately adjacent to the east, south and west. The site was chosen for three reasons: it is directly accessible by Sandy Neck Road, it serves as a gateway to the beach, and it is the primary view upon approach.

Before I could begin ordering the elements in the site, or designing, I first had to understand the site itself and thereby formulate decision-guiding principles. One way of doing this is by dissecting the whole, breaking it down into its component parts. Once this is done, each of these entities can be examined or analyzed by itself and how it functions in the whole. In the site analysis I have attempted to sort out and define specific physical qualities of the landscape: edges, paths, directions, protected places and wide open spaces, and lowland and vantage points. By diagramming these and overlaying the diagrams I was able to discern particular relationships and characteristics.

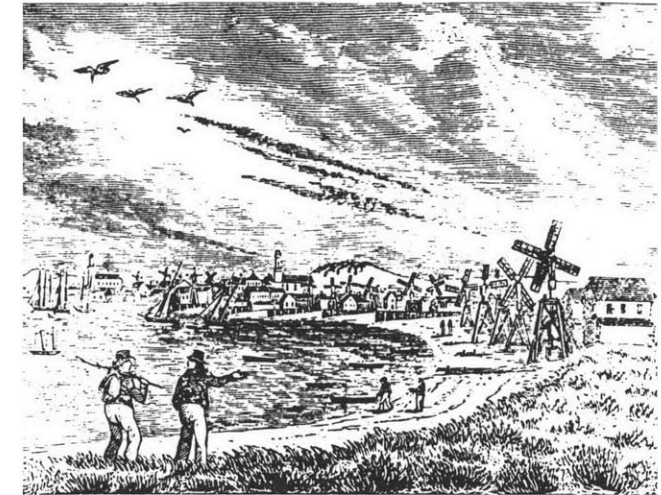
For example, I defined edges as a change in the ground cover, whether it is through differences in textures, such as sand to

macadam, or abrupt changes in the slope. The pathways and directions, chosen by most visitors, are usually defined by these edges, and traversing the edge only occurs when there is a break in the continuity of the form. Primary travelling movement is parallel to the shore. On the Neck people travel east to west when they are exploring or going to a particular region. However, movement perpendicular to the shore, north-south, is directed. If one travels in this direction one is doing so to perform a particular activity, i.e., going swimming, going back to one's towel, etc. This pattern of movement applies to the beach as a whole. The two major ways of travelling the Neck are parallel routes either down the front beach or the marsh trail. However, in order to go to a cabin, the front beach, or the marsh, one must travel over the perpendicular crosstrails. This hierarchy of movement became a primary principle in defining circulation patterns.

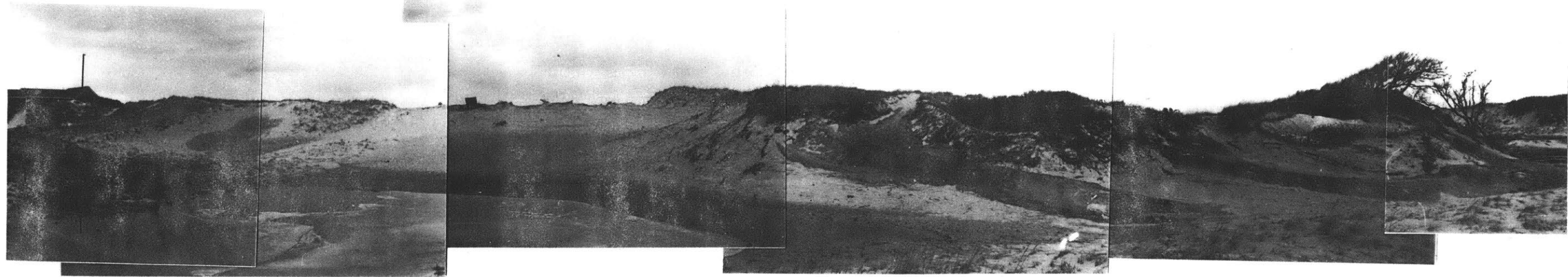
The more I analyzed the site and its physical properties, the more obvious it became that the site was very similar to the Neck in general composition, as well as in circulation. For example, at the eastern edge of the site a blow-out had occurred, creating quite a large canal between landforms. This opening seeps around

behind the site until it meets with the anchoring body of the mainland. This scooping out causes the encompassing landform to become a type of peninsula. Taking clues from this geological similarity I drew the analogy further to see if I could combine the similar patterns of movement with activities and functions found on the Neck and those proposed in the program. This theory then became the basis for the site design.

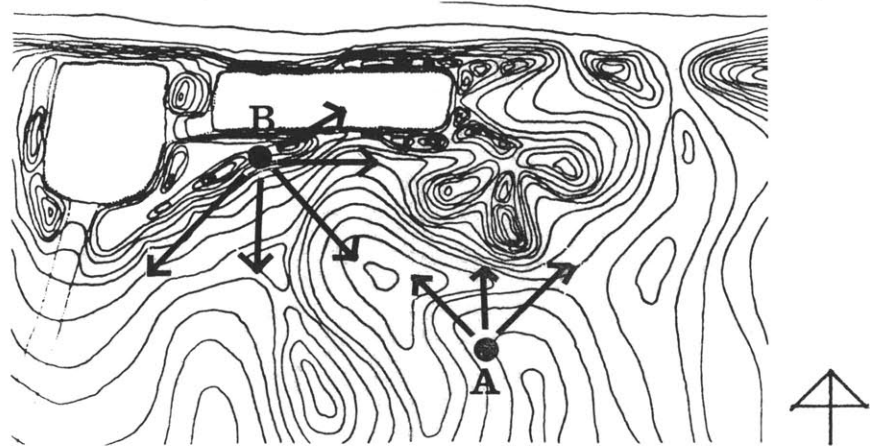
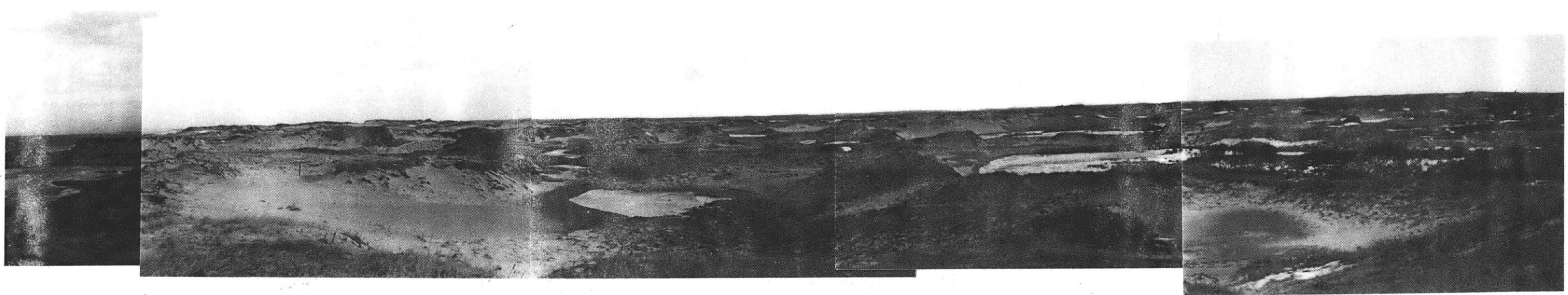
The first step I took was to change the location of the parking lot. This decision had very little to do with either of the previously mentioned guiding principles; however, it was a move based on the natural processes of the land. The parking lot presently exists on the primary dune front, which gives it an exquisite view but it also makes it quite vulnerable to the Bay's waves. The last "100 year storm" which we had in January, 1987, lopped off approximately three feet of the macadam. However, as the dunes continue inland they become quite stable and therefore allow for greater permanency. Consequently, I have decided that it is more advantageous to place the lot behind the dunes in the flatter lowlands where expansion is also more viable. This would allow the land to react naturally, and it would also open up this area for people to inhabit and enjoy.

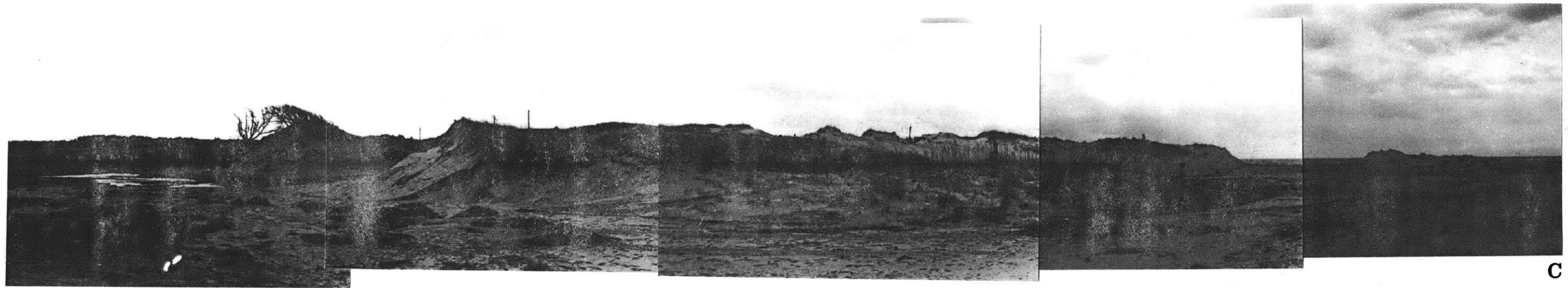


A



B

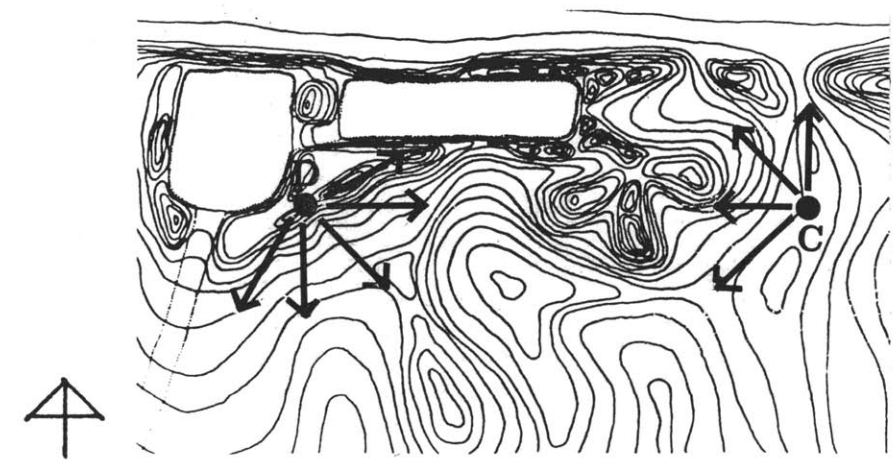




C



D



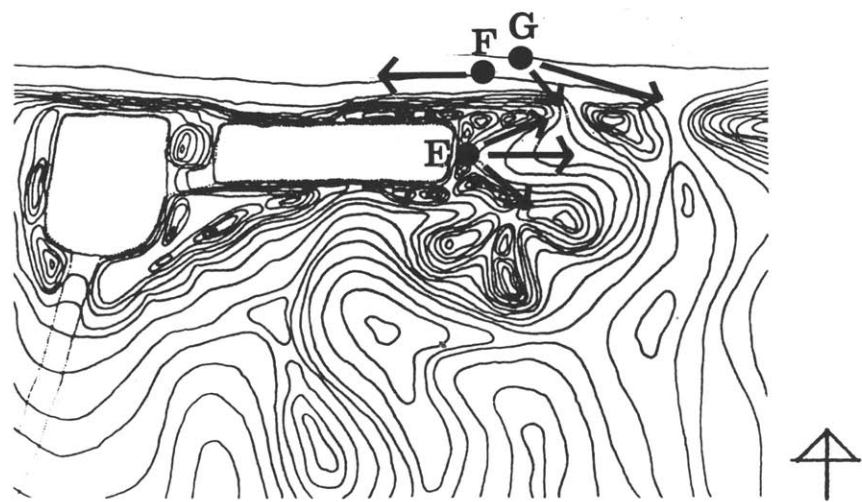
E



F



G

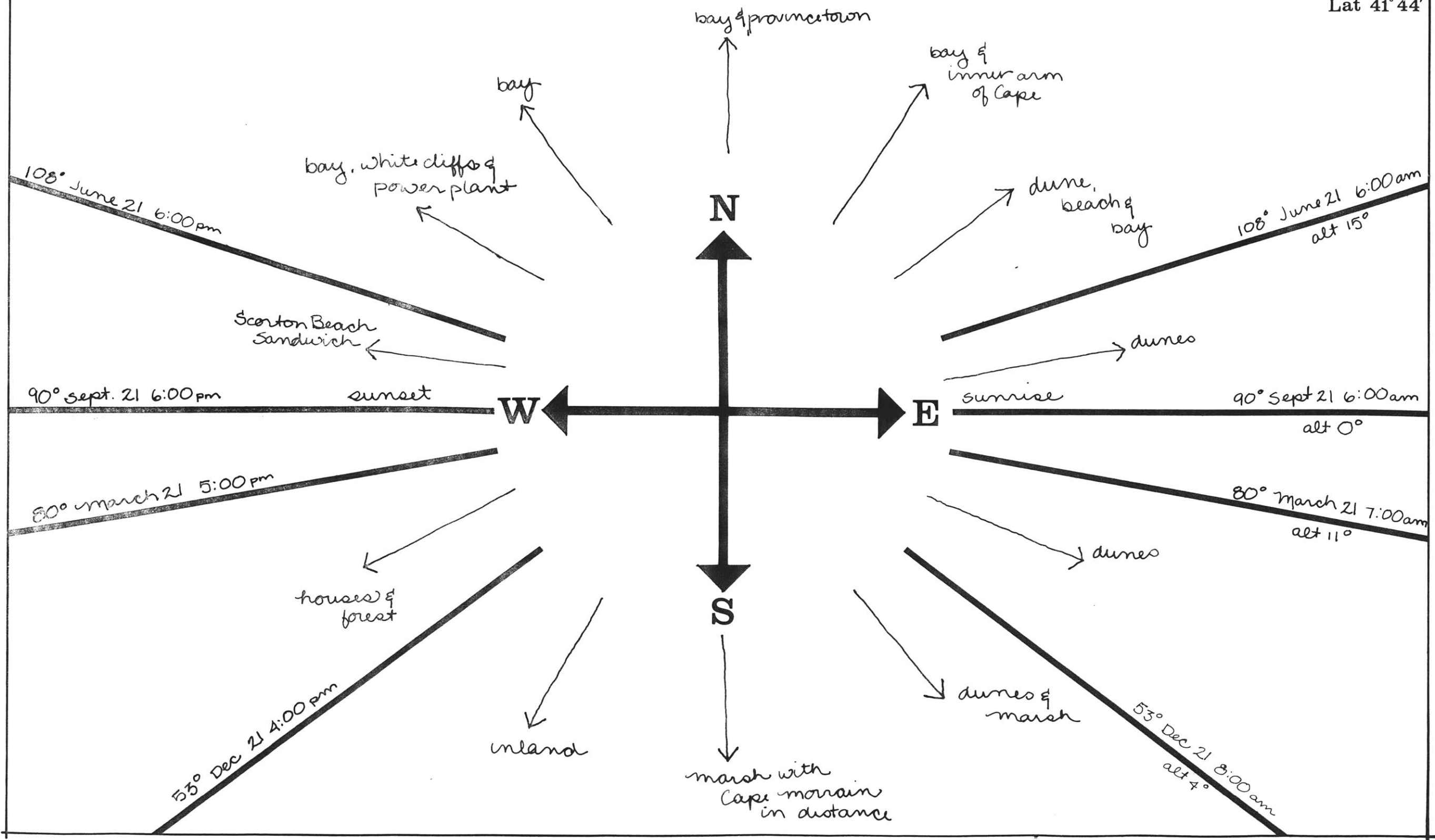


SITE ANALYSIS OVERLAYS

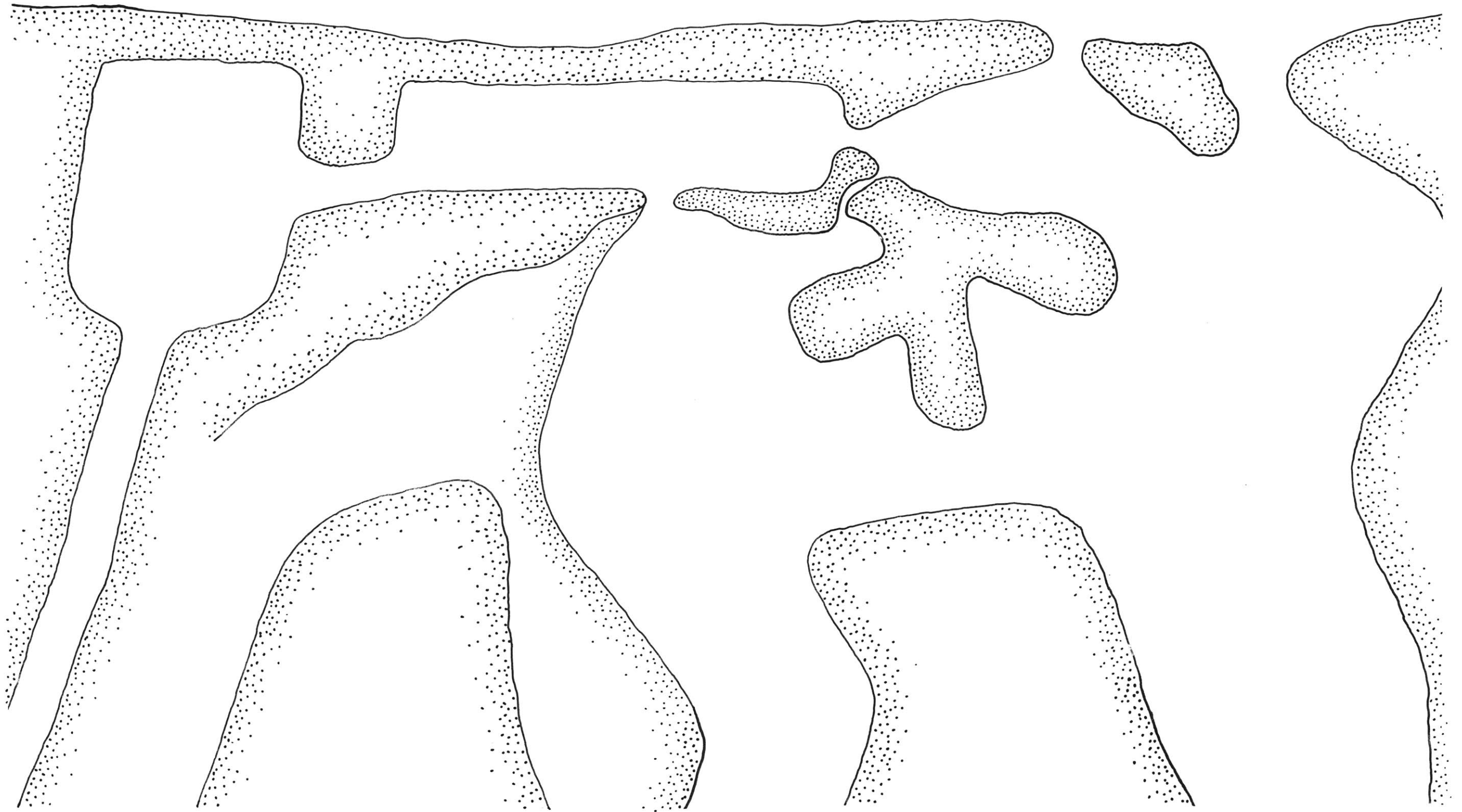


Compass Rose, Sun Angles, and Views

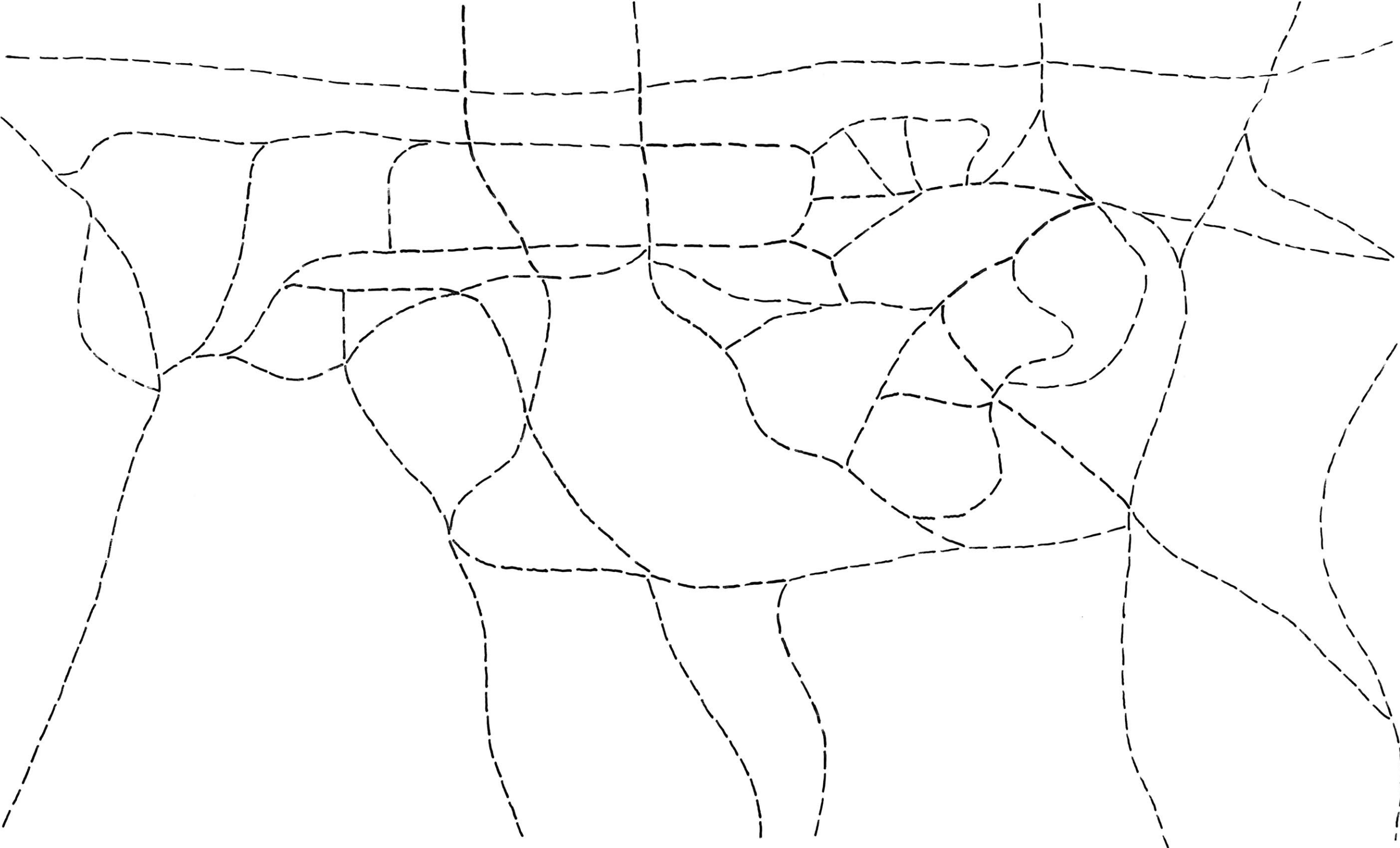
Lat 41° 44'



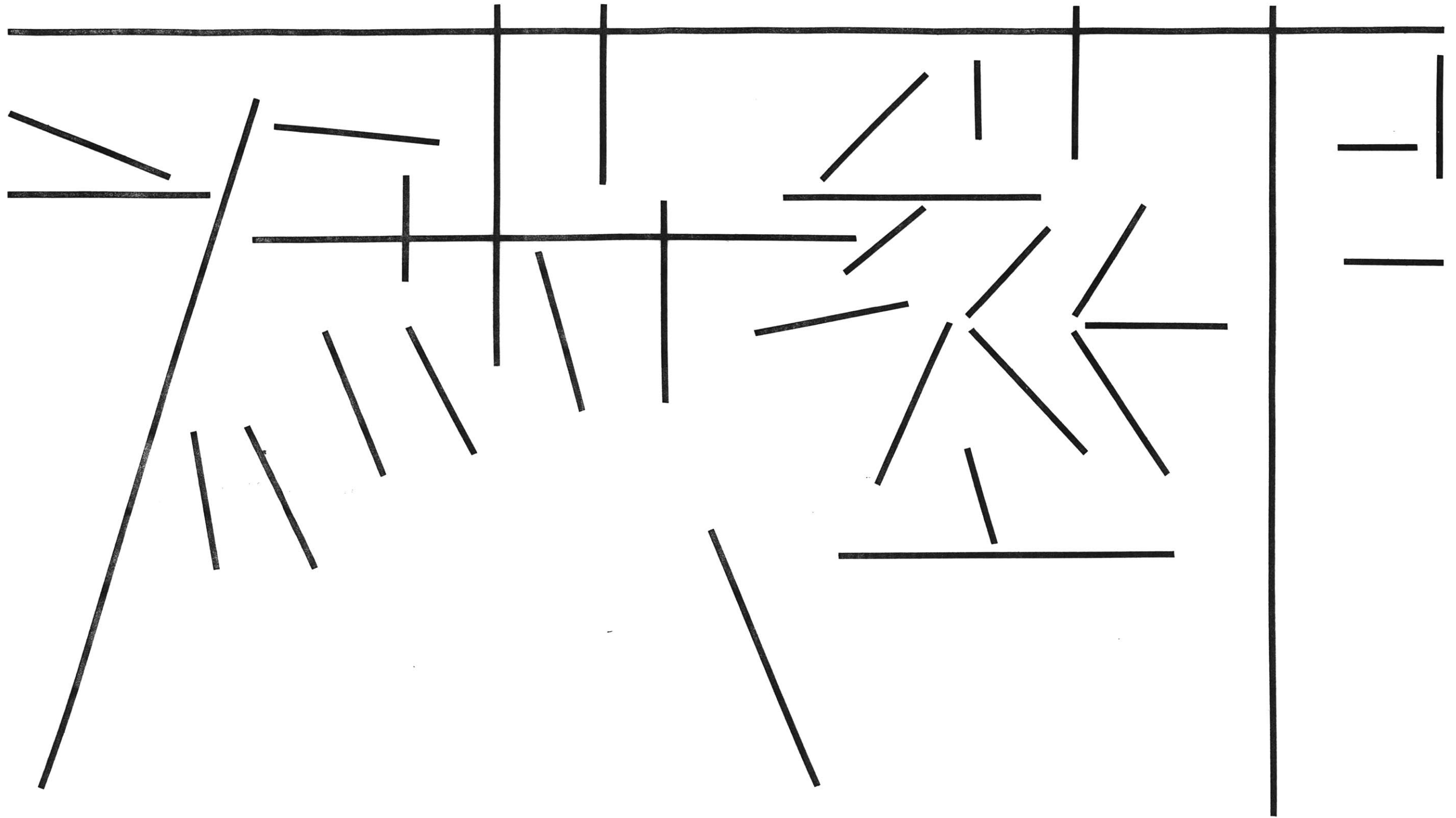
Edges




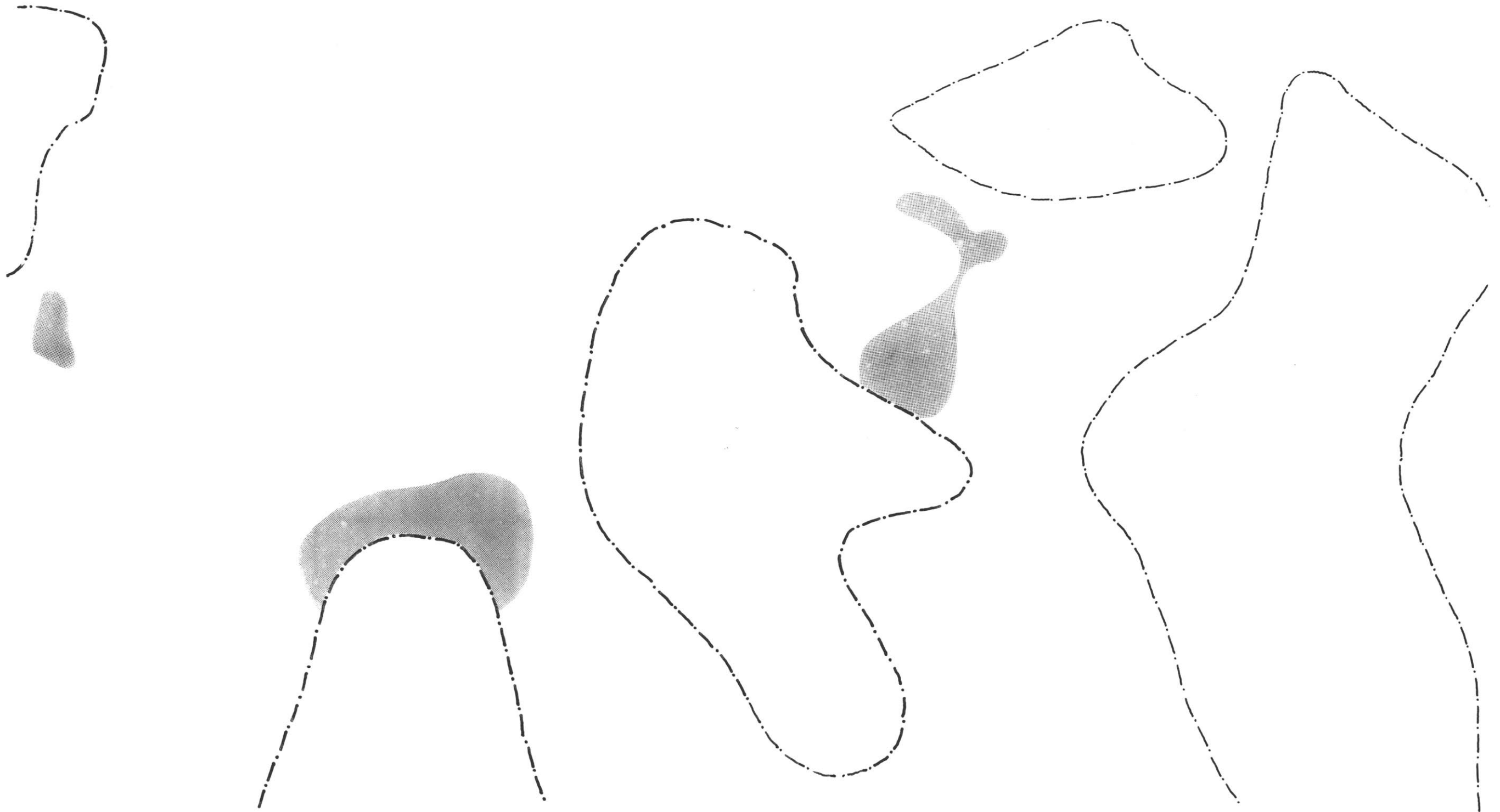
Paths



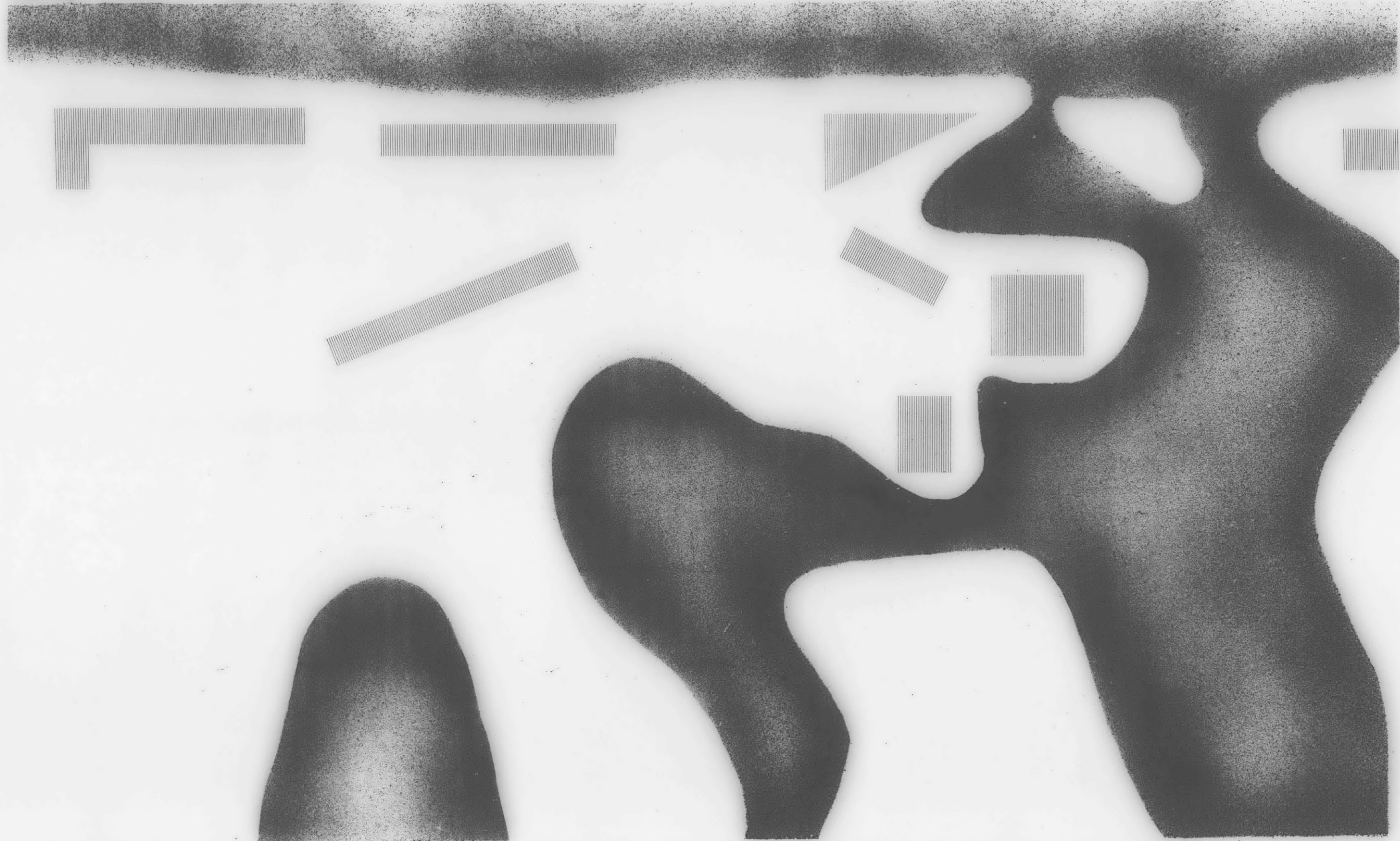
Direction



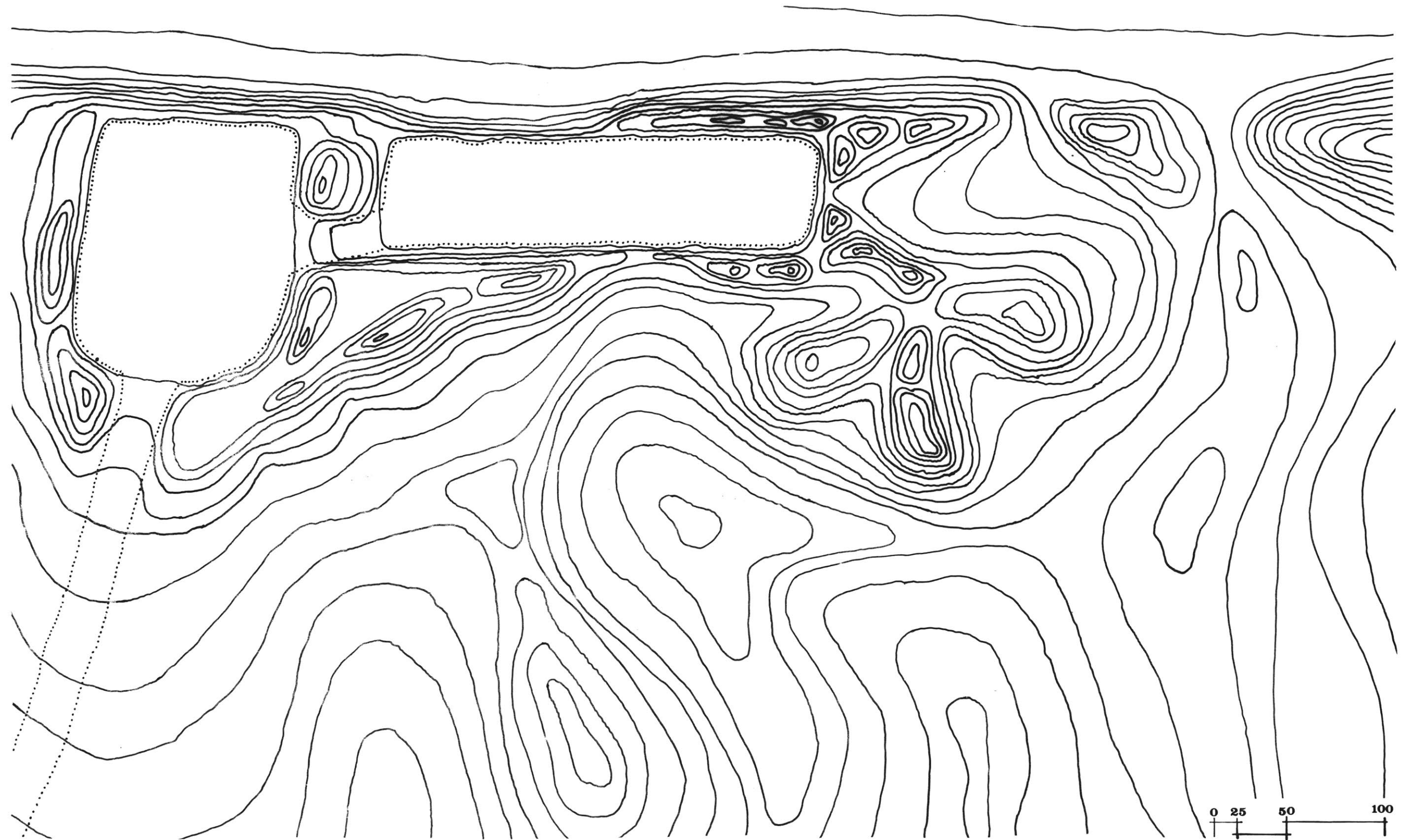
Wide Open Spaces — — — Protected Places 



Vantage Points  Lowlands 



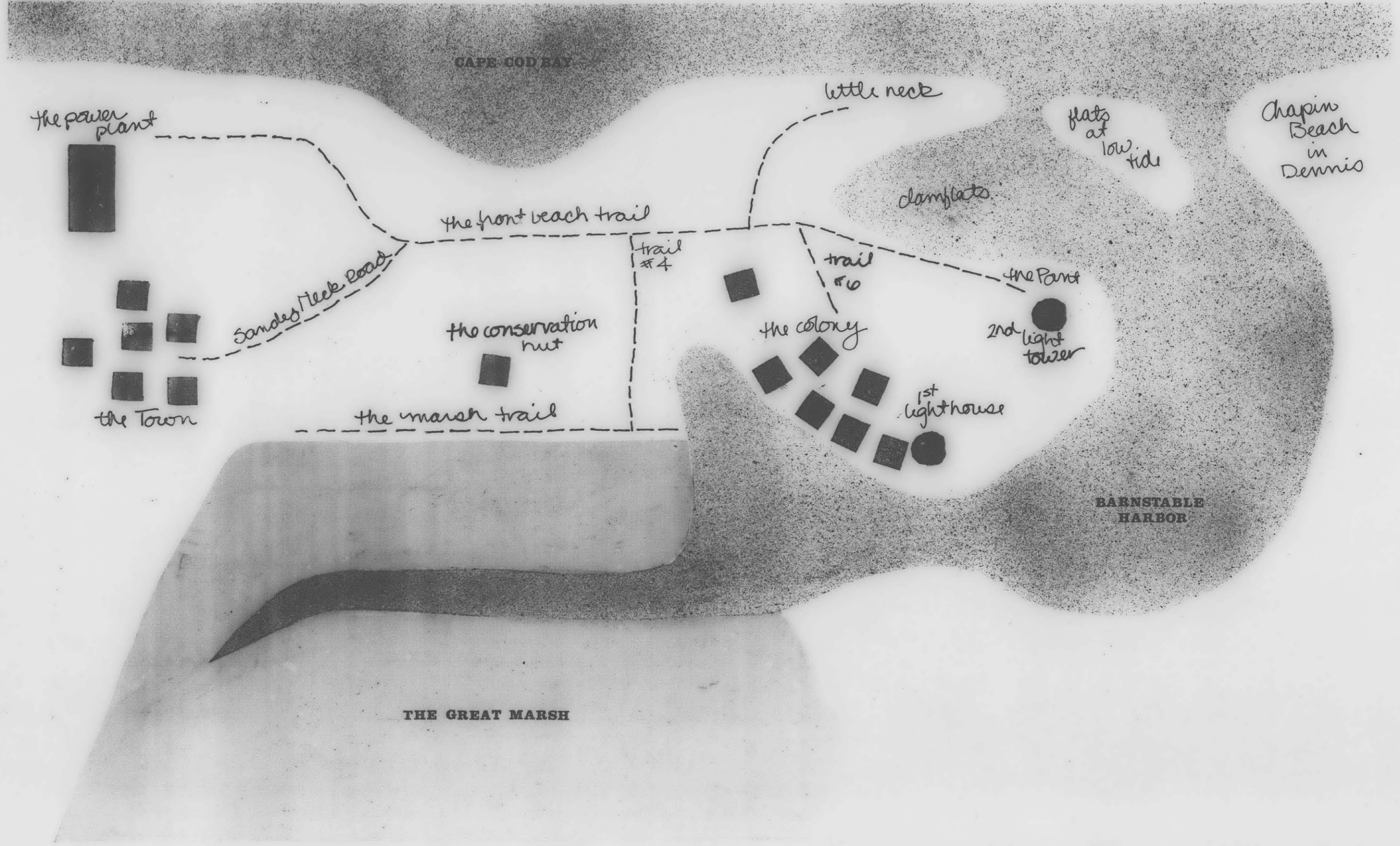
Present Contours



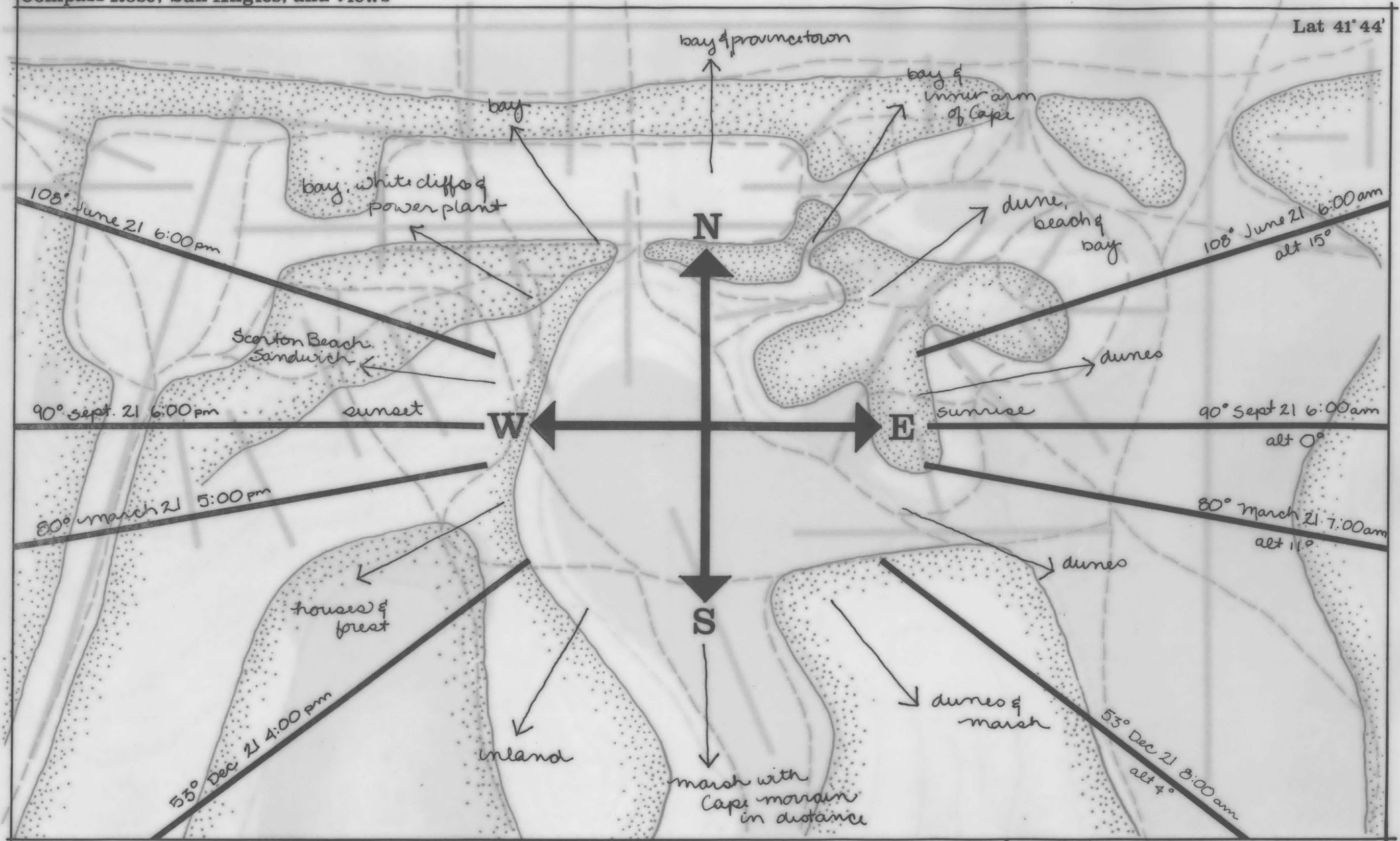
Revised Contours

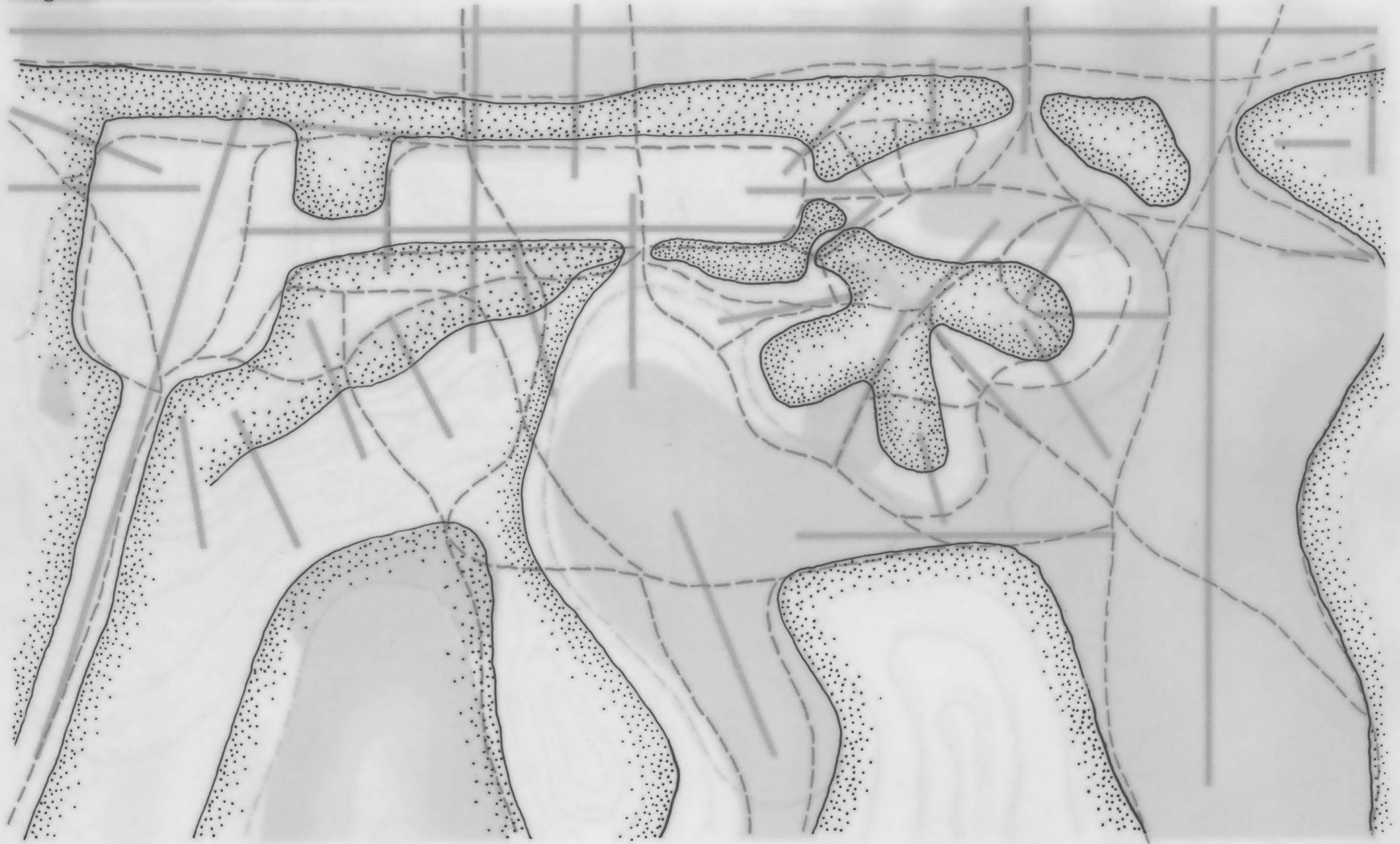


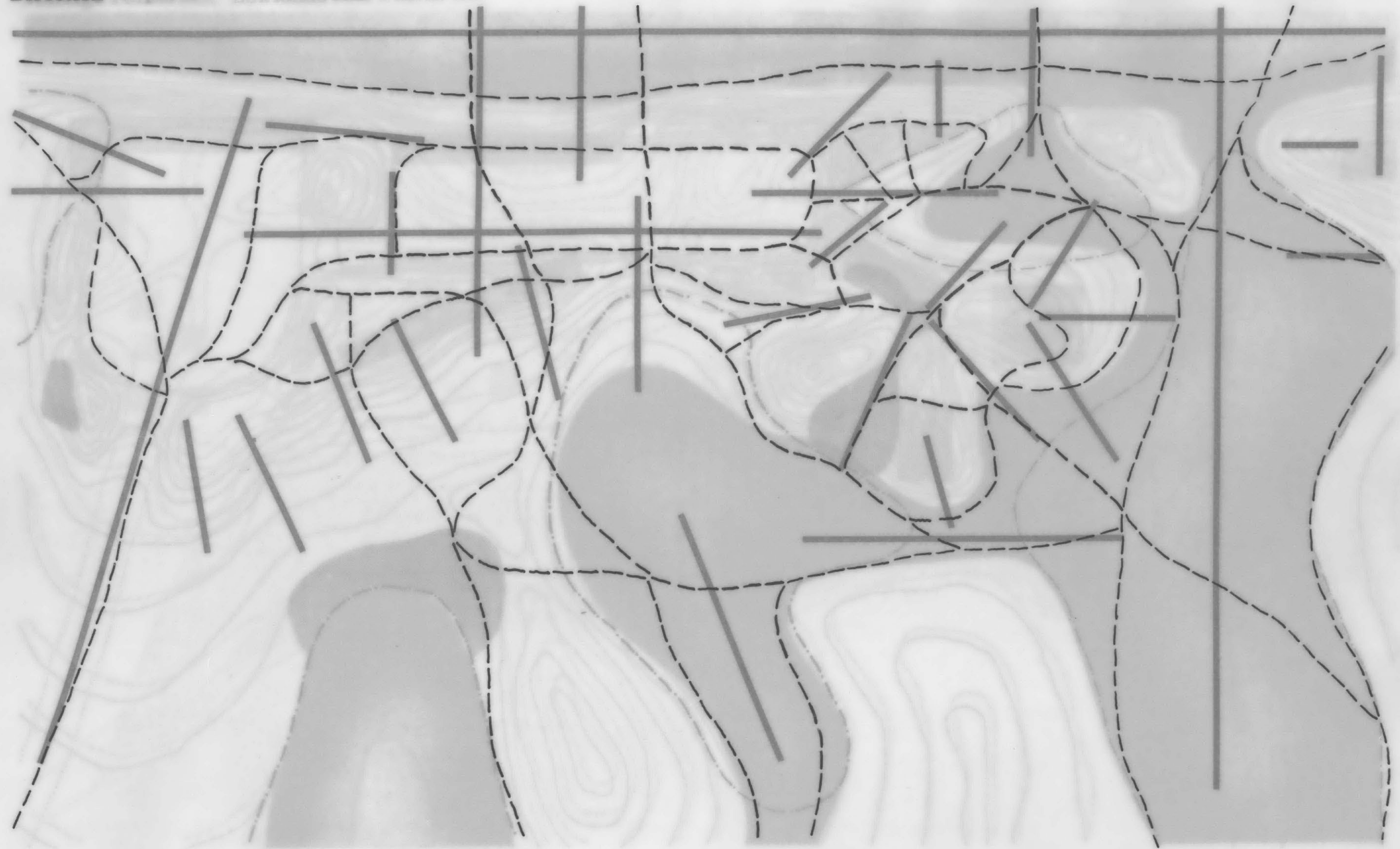
Site Transformation



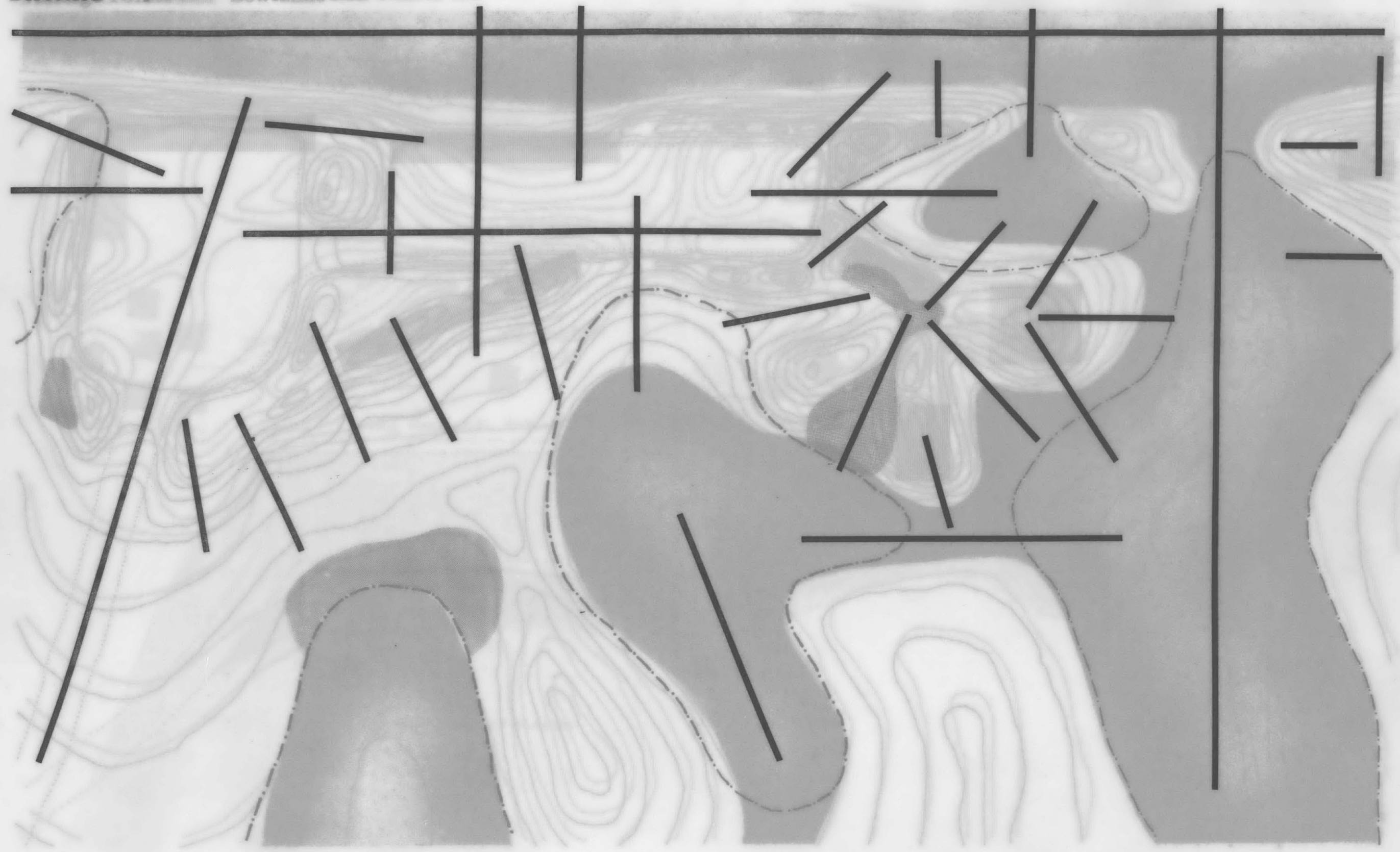
Compass Rose, Sun Angles, and Views



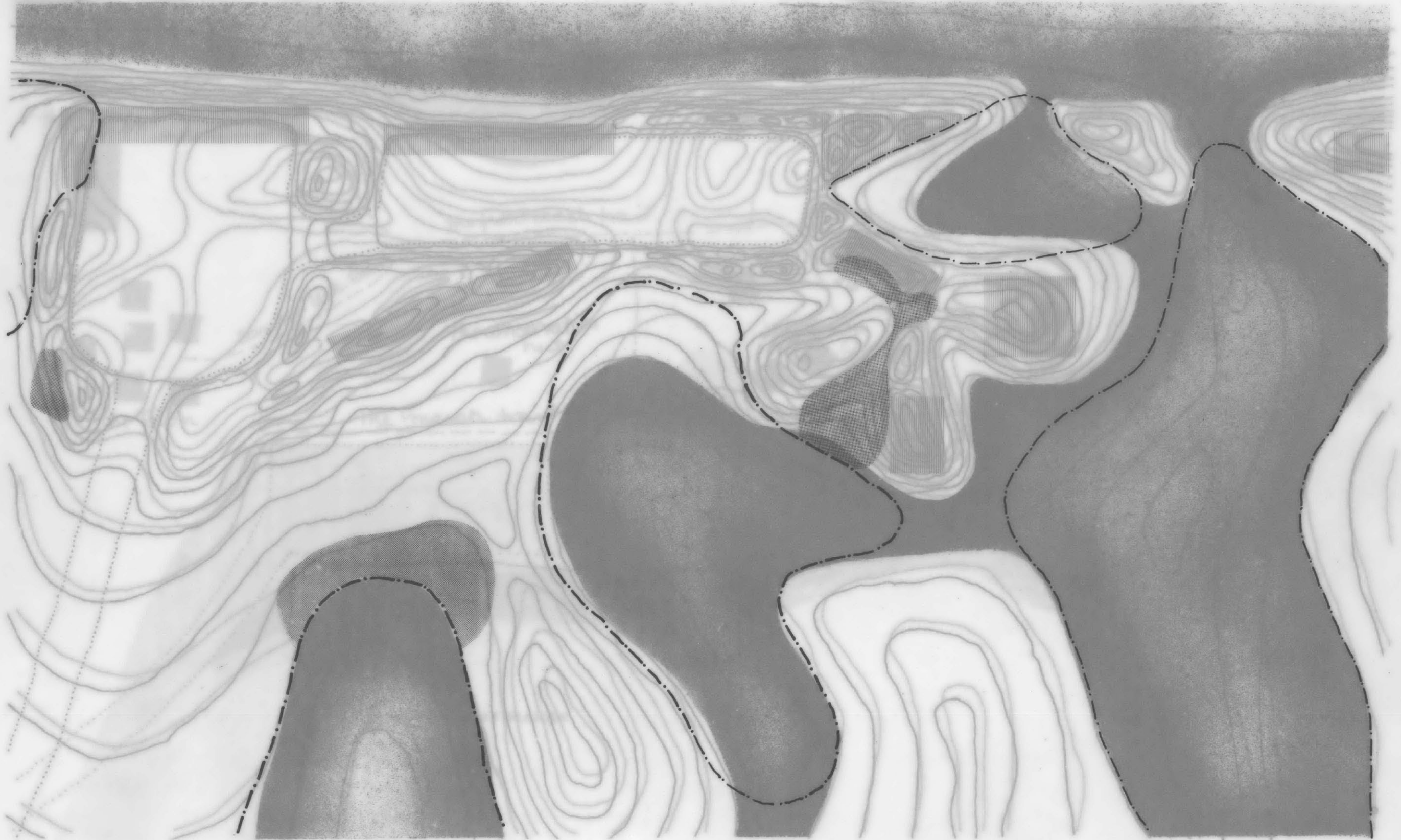




Direction  Open Spaces  Low Protected Places 



Wide Open Spaces — Low Protected Places ■■



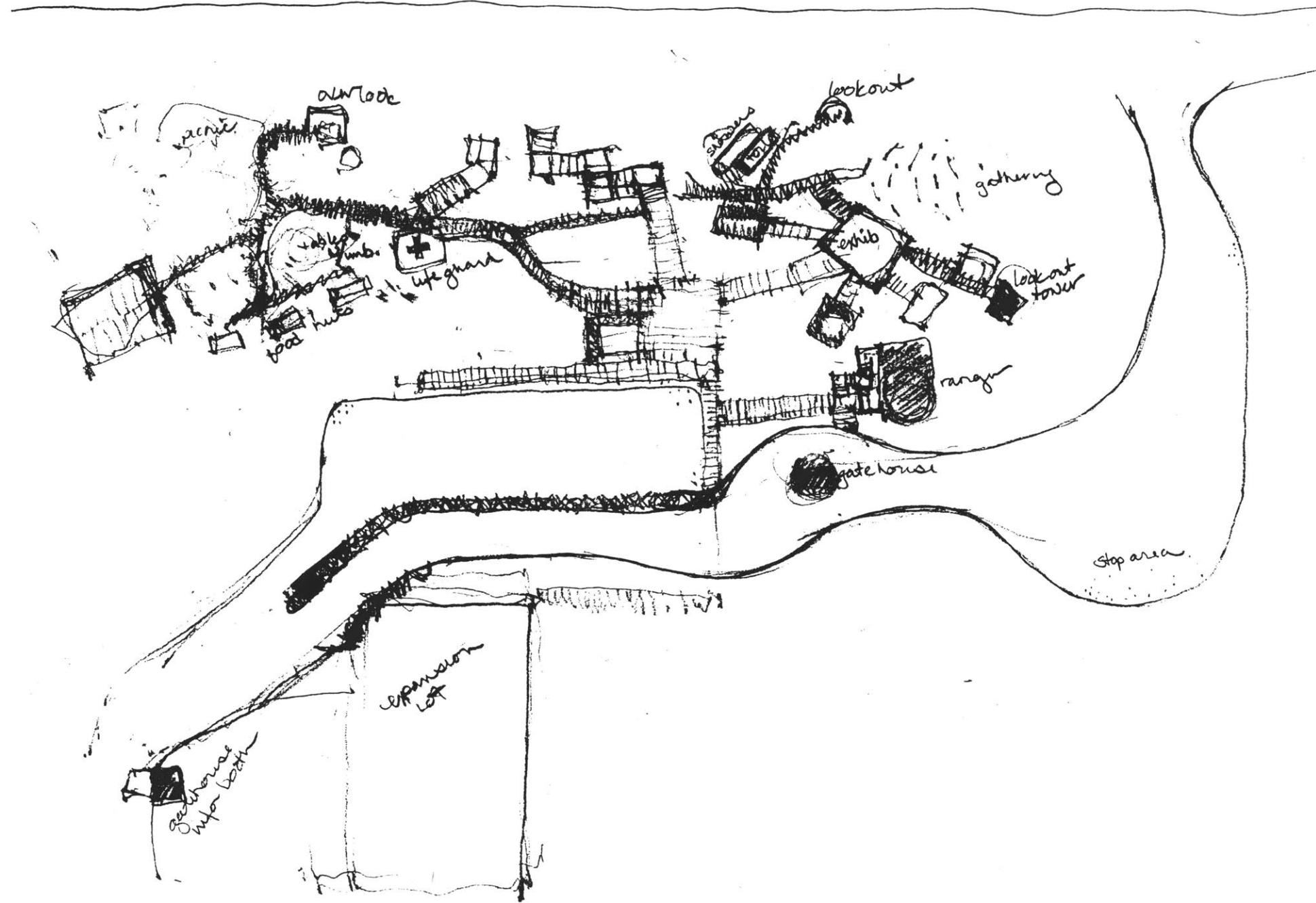
Vantage Points  Lowlands 

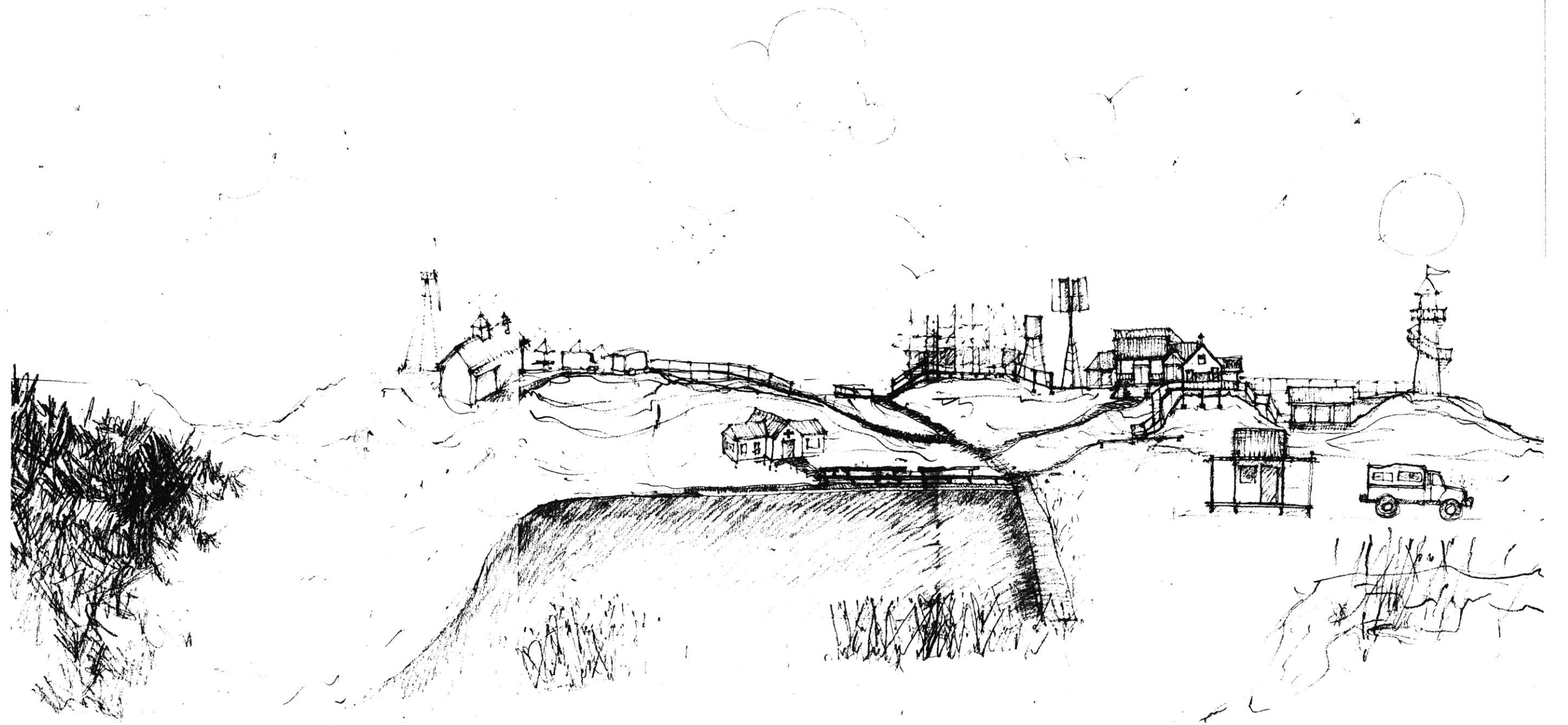







Revised Contours
Site Transformation



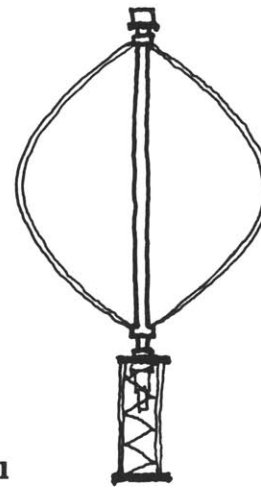




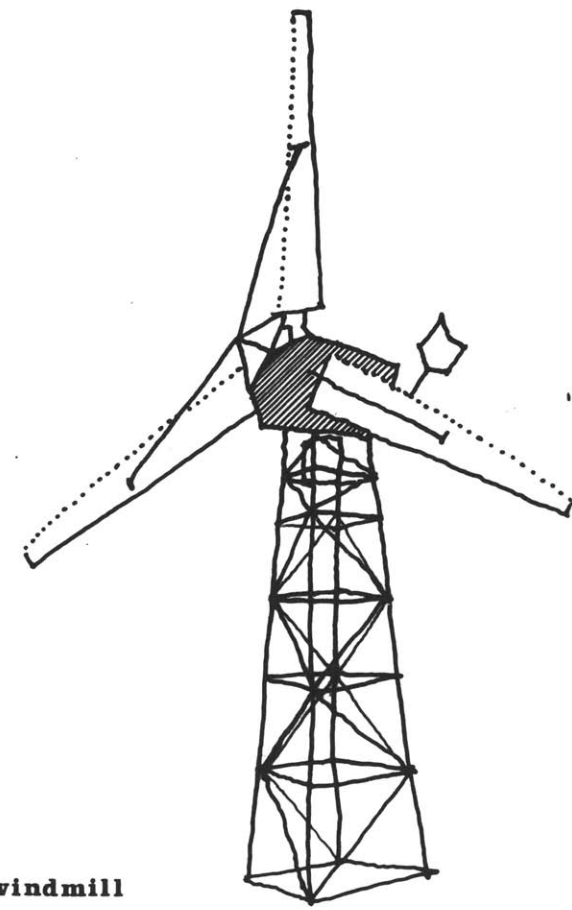
KEY FOR SITE PLAN

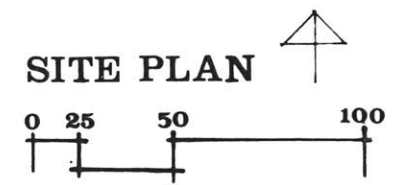
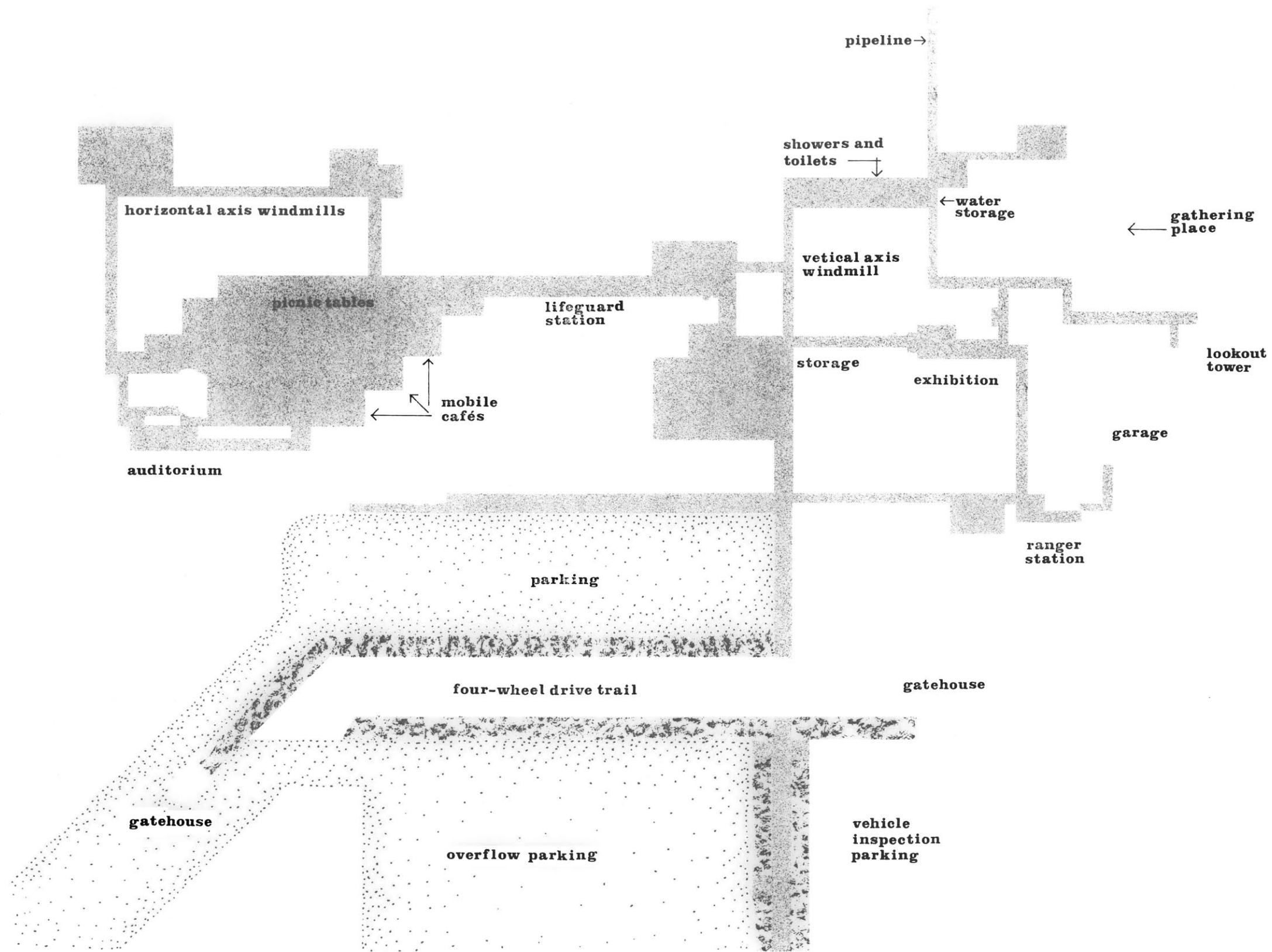
-  **paths**
-  **paving**
-  **planted vegetation**

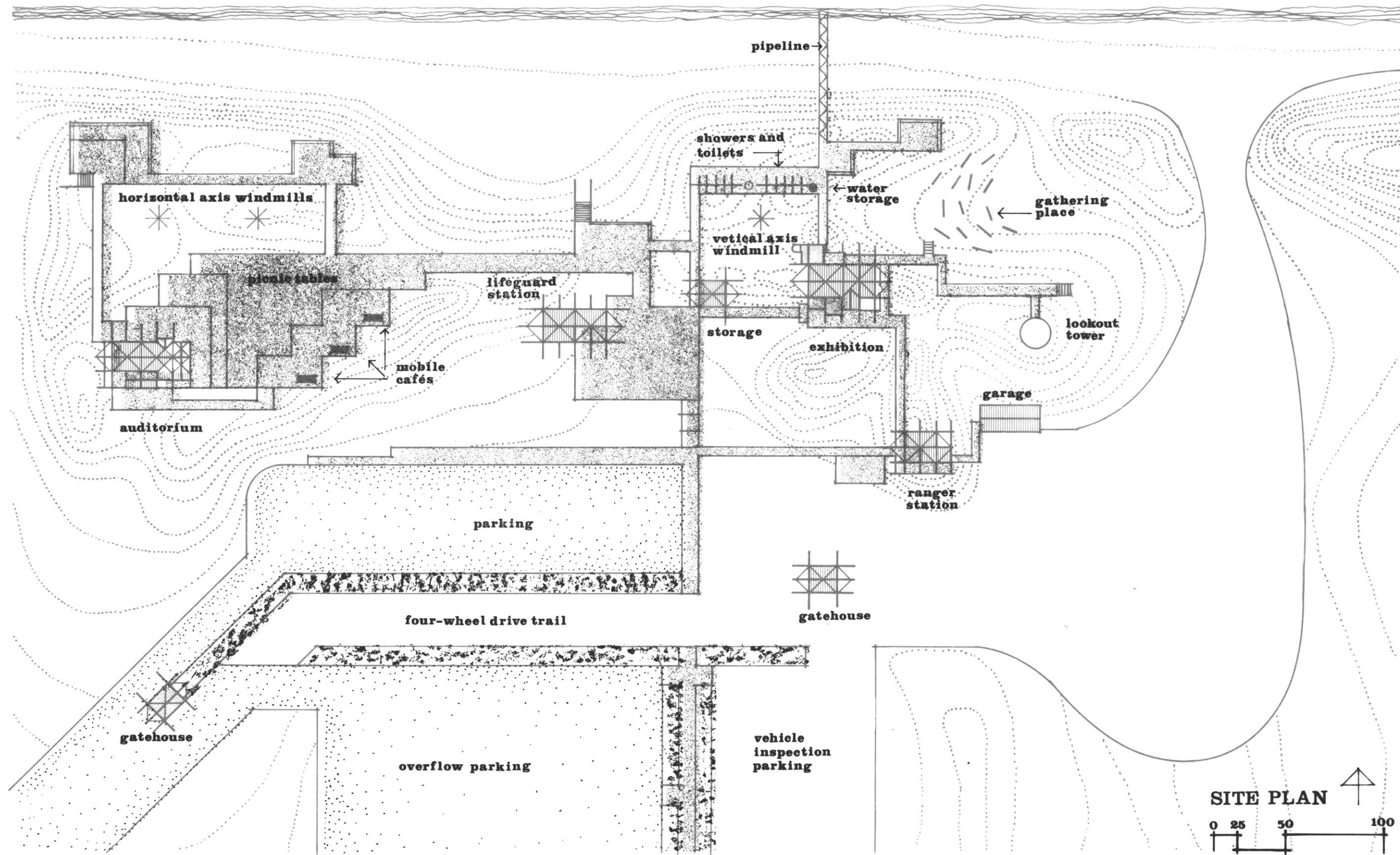
vertical axis windmill

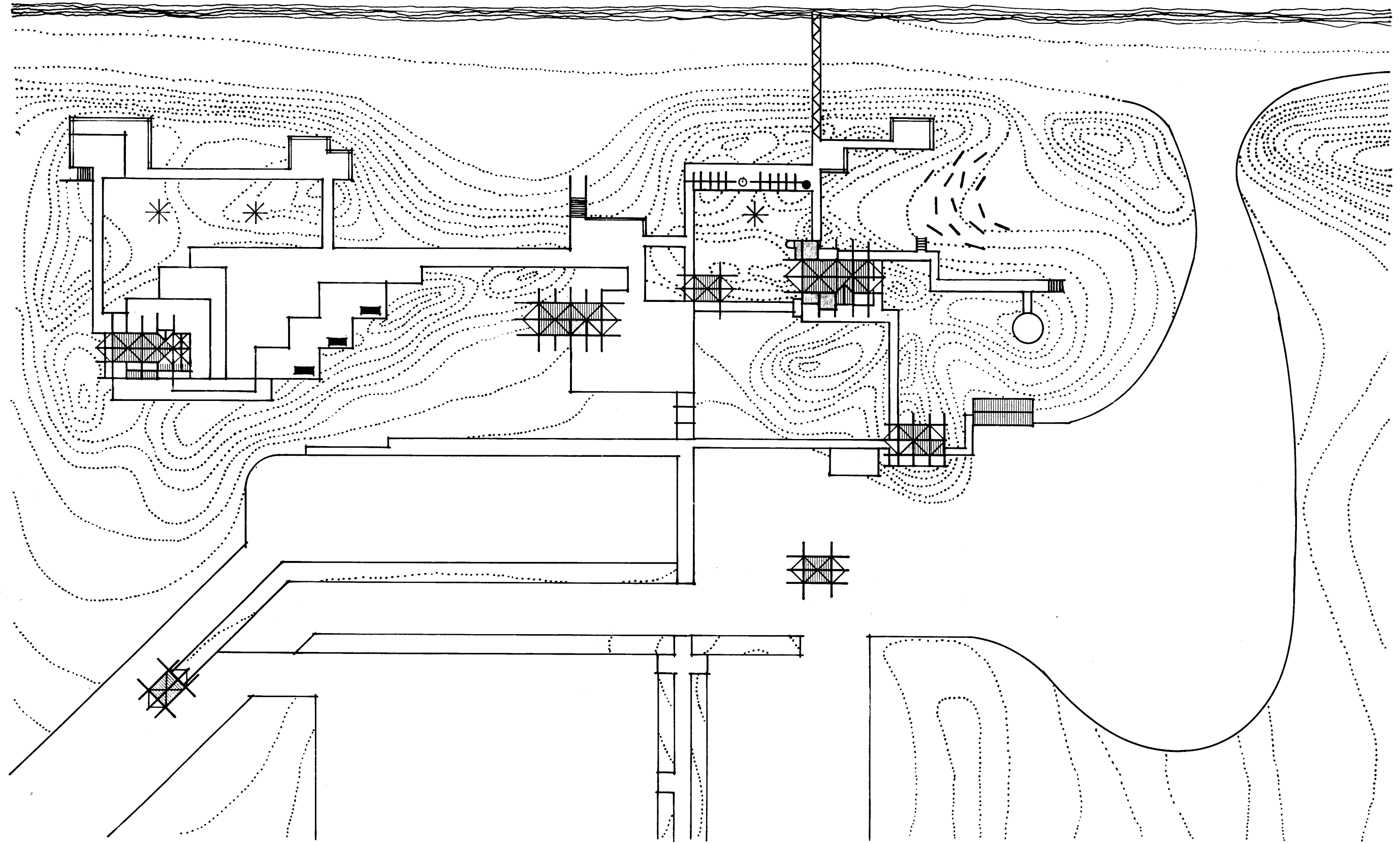


horizontal axis windmill









The Pathways

There are many inherent pathways on Sandy Neck, some which have been there for years, such as the marsh trail and the crosstrails; some whose existence depends on nature, like the front beach vehicle trail and foot trails through the dunes and forest; and others which were specifically built by the land owners to traverse the terrain with ease or to access deeper waters. Each of these movement-definers is unique in character and specific to use and site.

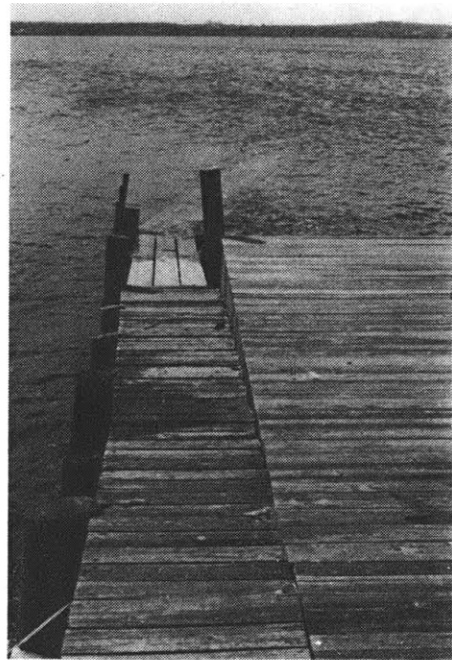
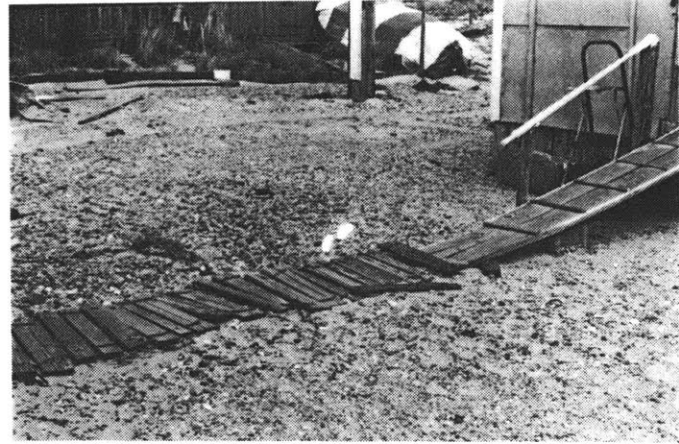
Since one of the objectives in the site plan is to move people through the land and allow them to explore it, and since random trampling of the dunes is hazardous to the existence of the beach, the pathway system becomes an important component of the Resource Complex. In designing the different types of paths to be utilized, I have drawn upon examples indigenous to Sandy Neck. There are three basic pathway systems employed to move people through the site.

The first is the most primitive and, therefore, also the most transient. This is the "roll-a-way". It is made of a series of 2x8 pressure treated planks, strung together with submarine wire through looped grommets screwed into the planks. These units are specifically designed for areas where sand is fairly compact and there is no vegetation. The units are laid down on the ground and can be attached end to end. Since it acts as a type of paving, the roll-a-way can be used where vehicle access into the site is desired. As a result of its simplicity of design, it may also be picked up and moved or rolled away.

The second system is a series of low platforms 4 feet to 8 feet wide and 8 feet long. They are made up of 2x8's laid 2 inches apart on 2 4x6's for the 4 foot width or 3 4x6's for the 8 foot width. Like the roll-a-way, these platforms sit on the ground and attach end to end. They should be used in areas where paths go inbetween vegetation and in places where the sand is soft.

The platforms are also used as the walkways in the third variety, the elevated paths. This system is a series of frameworks bolted together to form a walk whose elevation is variable depending upon the type of terrain being trespassed. Sometimes it skims just above the blades of grass while other times it flies over migrating undulations. These paths have railings to lean against, and seating areas sporadically placed to allow for moments of reflection.

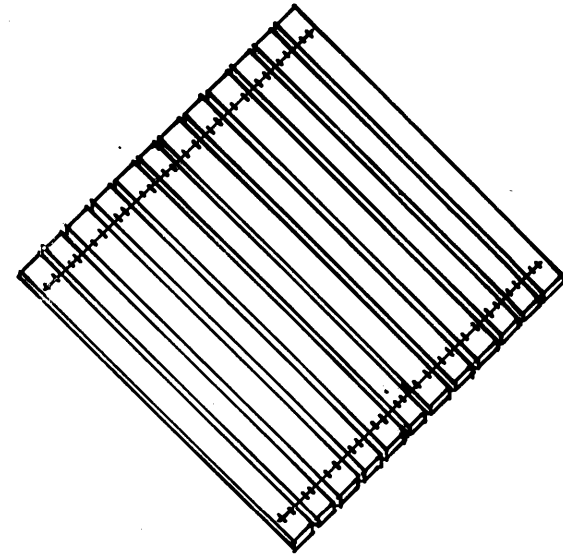
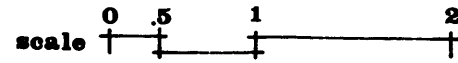




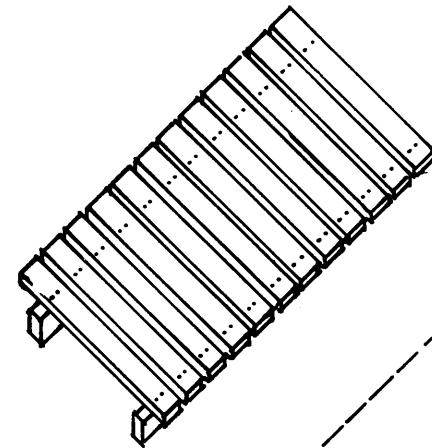
Ventura Harbor, CA



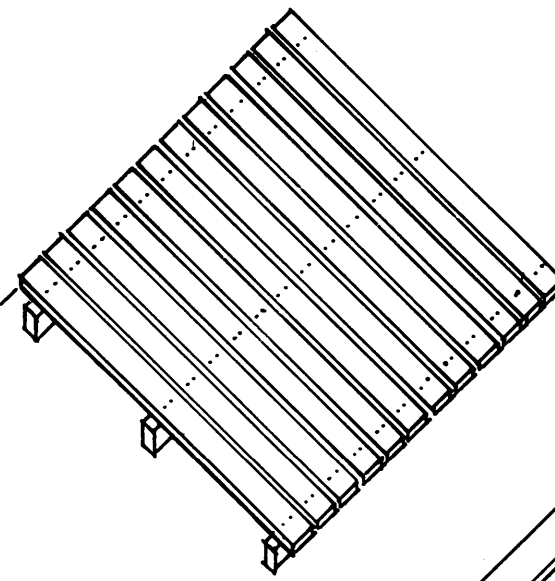
Path Parts



4' platform

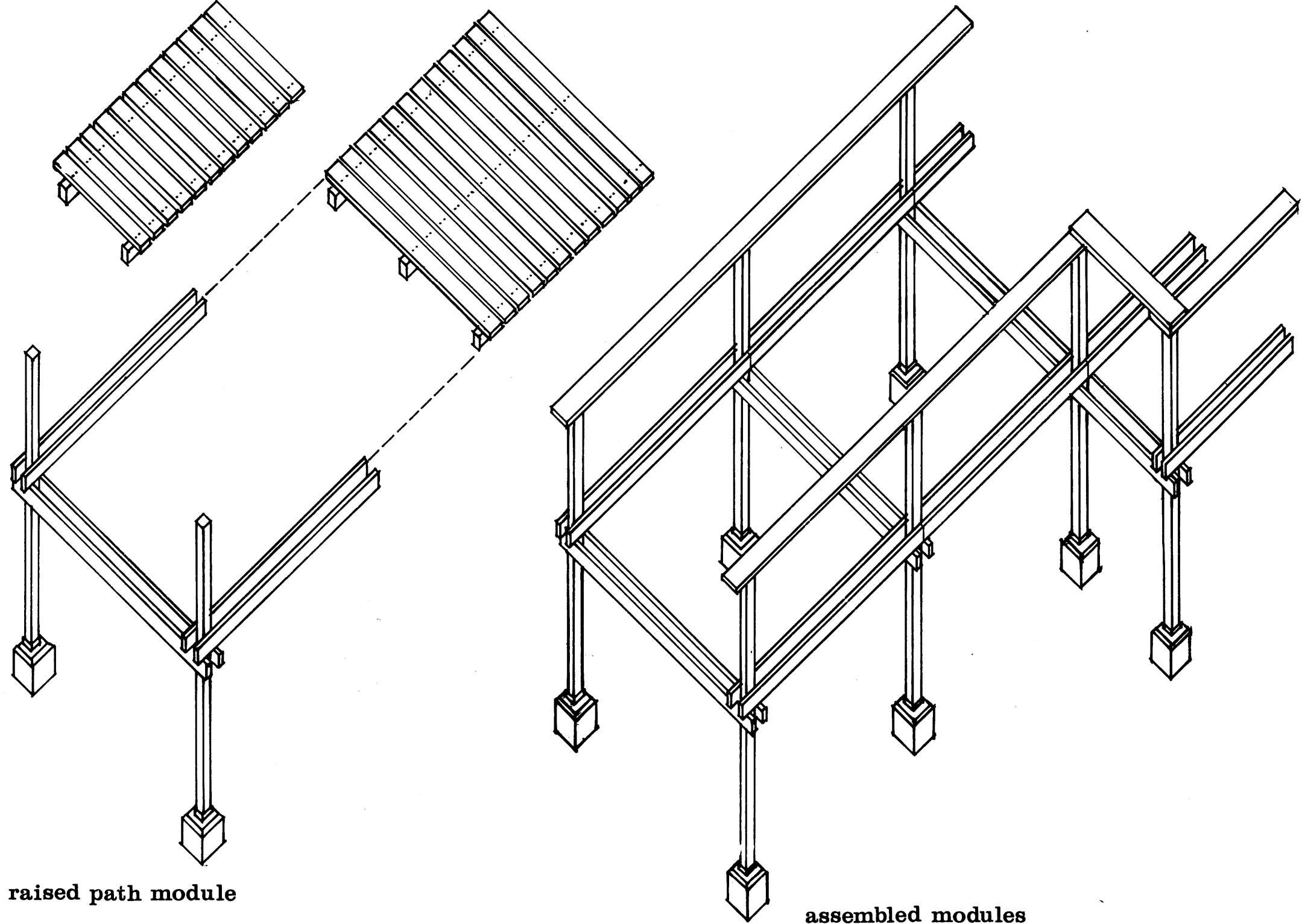
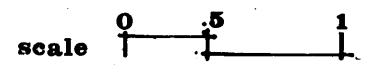
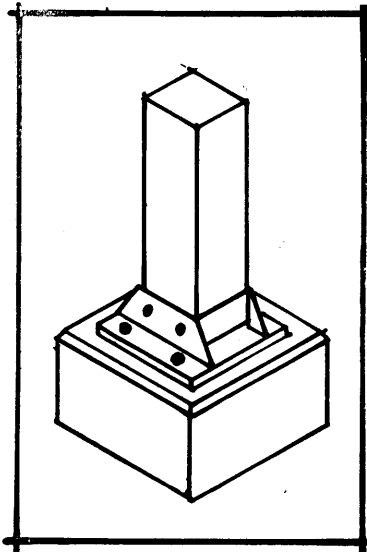


8' platform



roll-a-way

column base

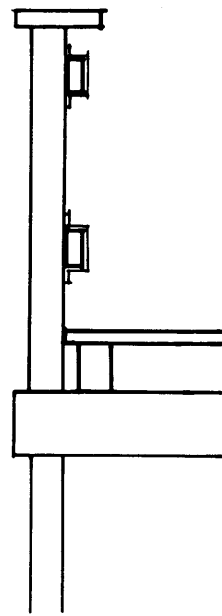


raised path module

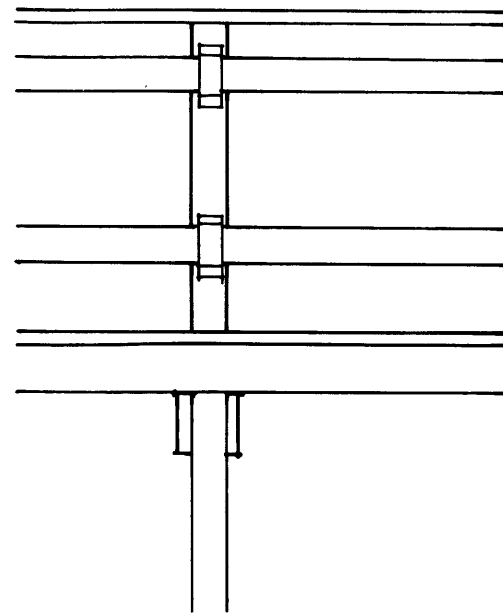
assembled modules

Details
railings

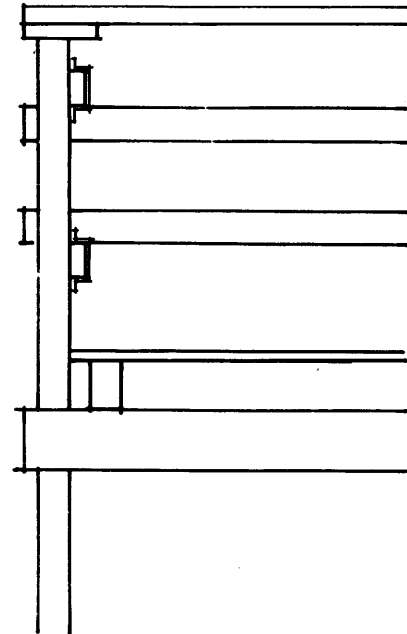
scale 0 .5 1 2



section

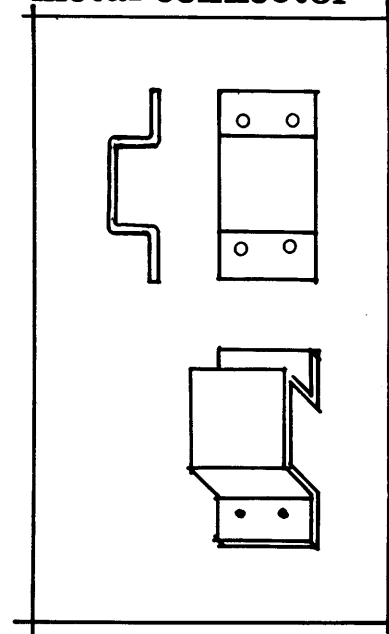


elevation



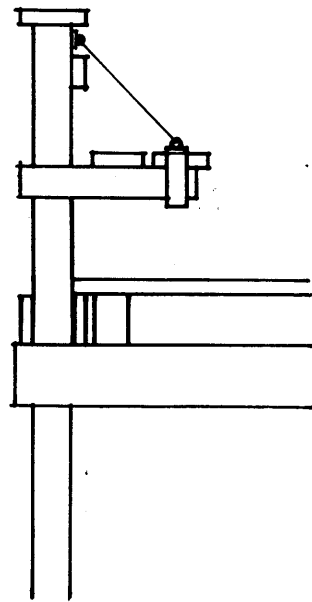
corner

metal connector

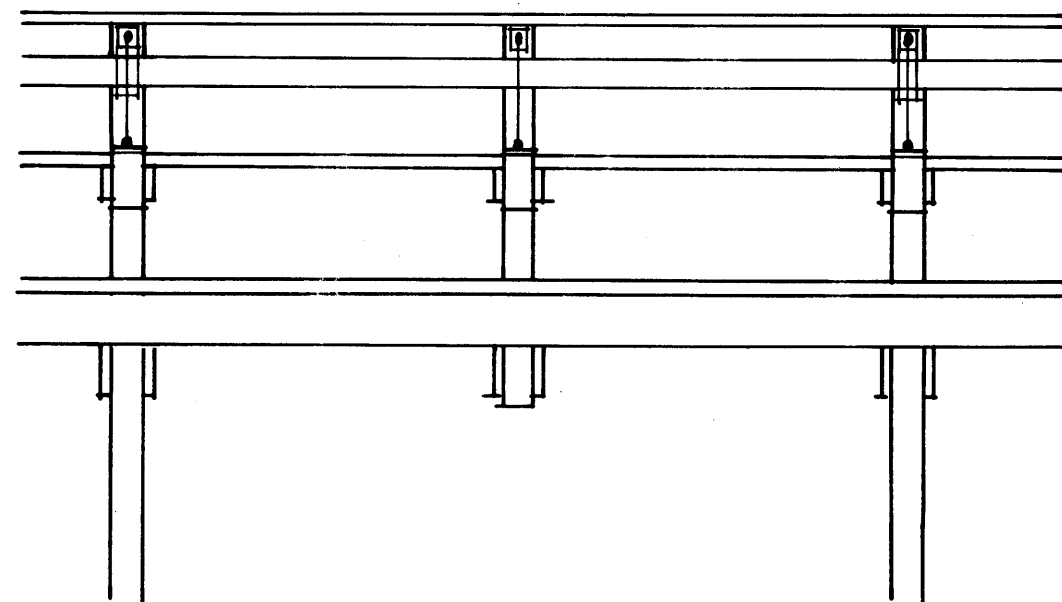


scale 0 .5 1

seating

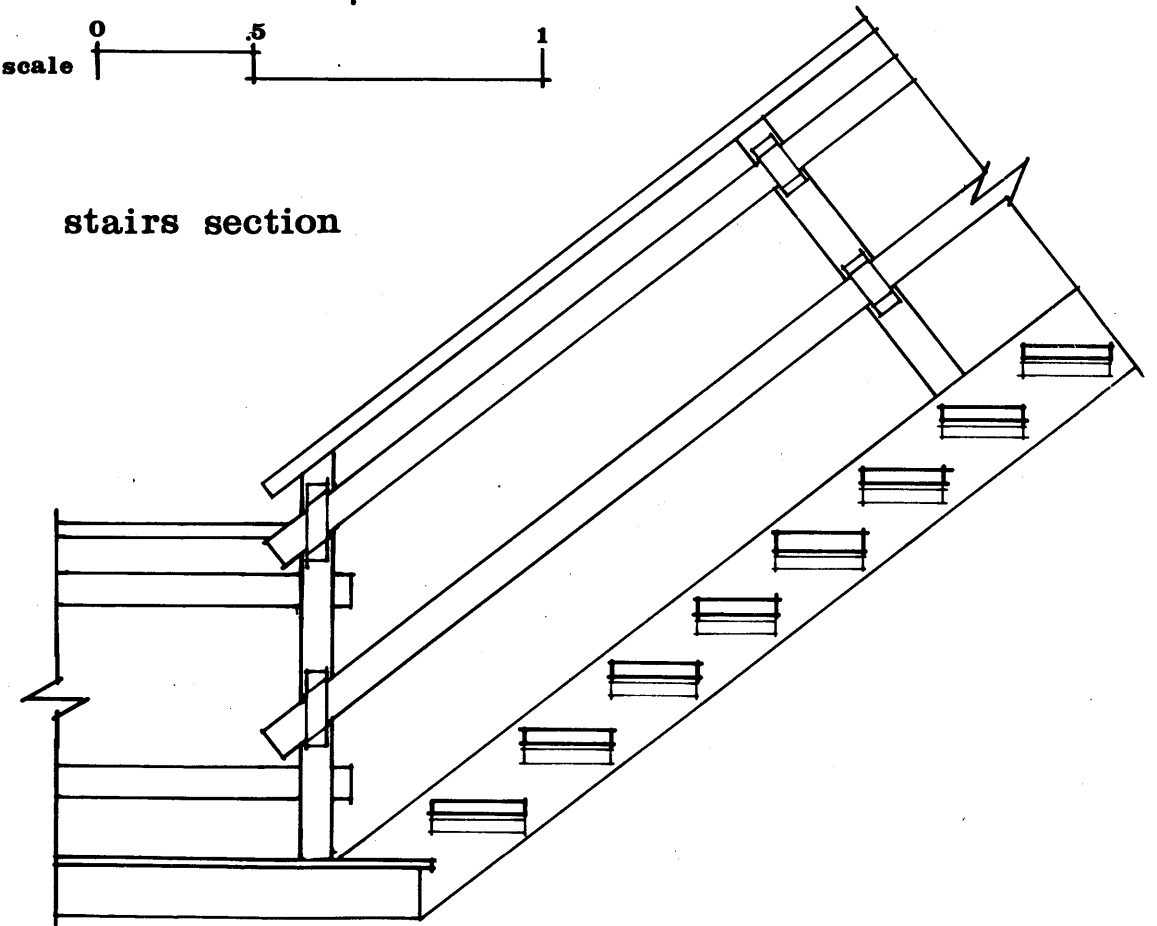


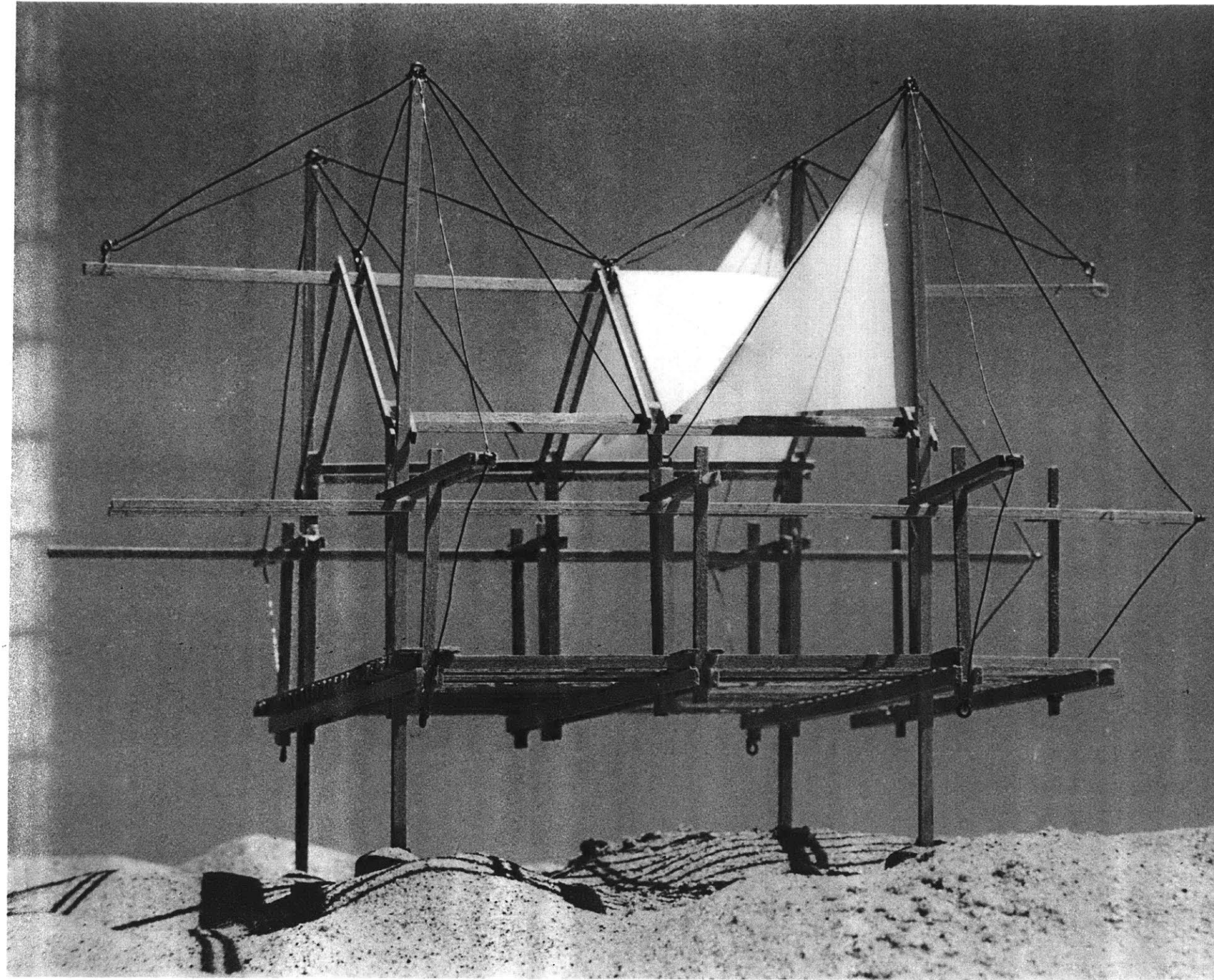
section



elevation

stairs section





"I am pessimistic about the human race because it is too clever for its own good. Our approach to nature is to beat it into submission. We would stand a better chance for survival if we accommodated ourselves to this planet and viewed it appreciatively instead of skeptically and dictatorially."

- E.B. White

The Buildings

From its very beginnings, the human race has been on the move. As a result, much of our time and energy has gone into developing ways of facilitating our transition from one place to another. Whether we're developing methods of getting from place to place by inventing vehicles such as cars or boats, or adjusting to surroundings once we get there, as we did when we designed the lunar module, we are continually faced with adapting to a new or changing environment.

Such issues must also be confronted when building on a beach. However, in the case of Sandy Neck, there is an additional factor to be addressed: on a beach the land form is always changing due to the natural forces of the wind and water. There are two ways of dealing with these changes. The first is to stop the rearrangement by putting up seawalls and other such barricades. But as we have discovered the hard way, preventive measures make matters worse as they interrupt the development of buffers which are formed naturally by the waves. Not only does this method offer a placebo-type solution to the problem, but it is also antithetical to the philosophy which

underlies the conception of the Resource Complex.

Therefore, I have chosen an alternative method to approach this building form. Instead of holding back the natural movement of the land, I have tried to find a way of allowing the natural process to continue unencumbered, except perhaps in a few corners where the land is captured by concrete forms, as a record or reminder of its vitality. Embarking, somewhat apprehensively, into a bit of unknown territory, I have looked to such forms as cranes, offshore oil rigs, lunar landing modules and boats for structural guidance.

My first idea was to dot the landscape with a series of cranes which would rearrange the buildings according to changes in the terrain. As I explored this idea further and thought of it in terms of the reality of the site, I realized that this notion was a bit too impractical if not improbable. The next idea was to design a structure, which instead of moving to accommodate the site, could be stationary and allow the land to move through it. The obvious solution, in this case, was to set the buildings on pilings. However, the task wasn't going to be that simple. Since the project program was extensive, I felt that it was very important that intrusions and

rearrangement of the land be minimal. Adopting some clues from Richard Rogers and Renzo Piano, and leaning heavily on sailboat design, I developed a structural system for the buildings based on a thirty-two foot module, supported in each corner by a mast. These are the only points where the buildings touch the ground. The masts support the enclosing structure through a series of tensile elements, thereby suspending the buildings above the ground and allowing the flow of the land to continue uninhibited.

In designing the form of the enclosed structures I found that there were two issues that I needed to consider. The first was the role that Sandy Neck's rich history and indigenous culture should play as form-giver. The second was the notion that as the structure and the process of the Neck are visible, so too should the working components of the buildings and the site be forthright and understandable.

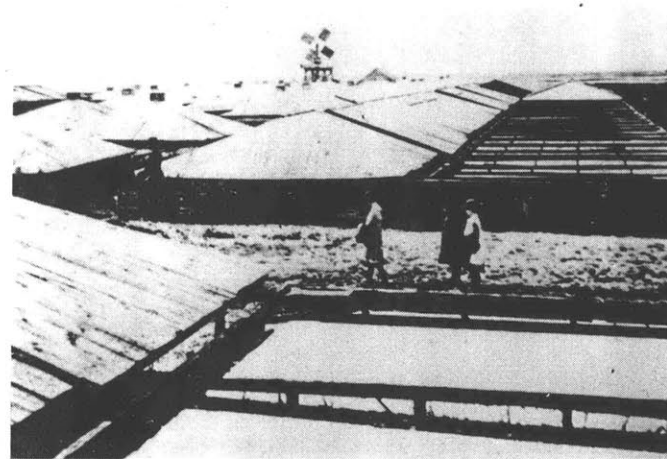
The folklore of Sandy Neck conjures up many images of fishing weirs, boats, barns, cottages with many add-ons, lighthouses, windmills, etc. I have tried to incorporate many of these into the built landscape, in an effort to evoke a feeling of familiarity and association to establish further unity with the land. I have also tried to keep the forms simple, as in the "Cape Cod"

tradition. The stark forms and the regular pattern of the walkways contrast with the organic movement of the land, and thereby offer a reciprocal relationship.

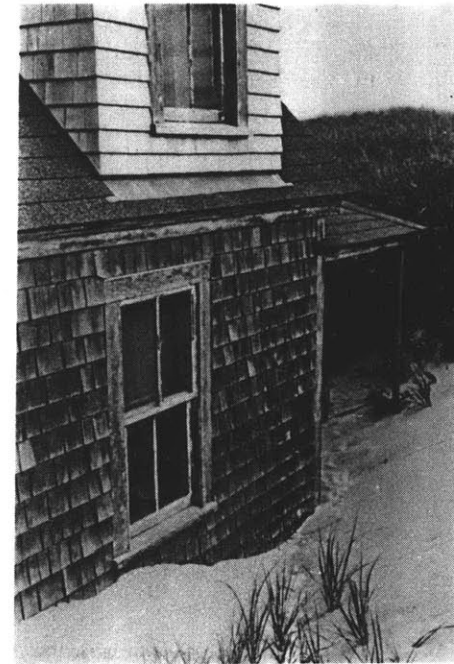
The second issue was addressed by taking advantage of many of the natural resources the site has to offer. The wind energy is captured by the horizontal axis windmills to generate electricity and by the vertical axis windmills to pump water from the Bay. This water is then be desalinated and used to supply the showers. Other water can be obtained from pumps, as is the case in the cabins. This water is heated by solar panels affixed to the roofs. Toilet facilities would consist of oil flush toilets. Grey water and wastes from the toilets would be stored, then taken to a nearby sewage treatment plant. Winter heating is provided by wood stoves as use of the buildings would be planned but sporadic. In general, the resource complex should be as independent of the land as is possible.



IMAGES & PRECEDENT

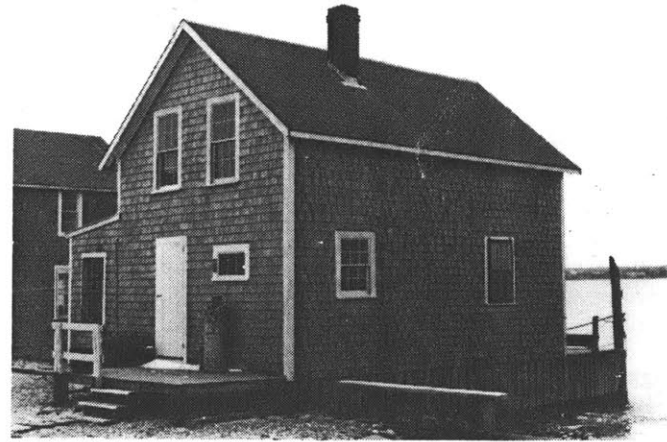


Salt Works, East Dennis (5.)

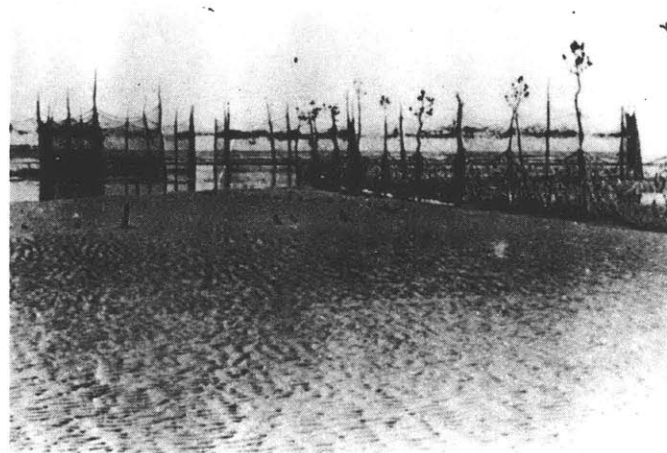


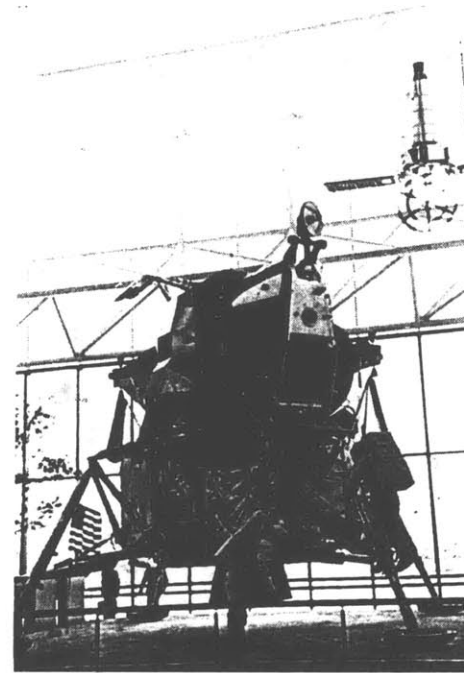
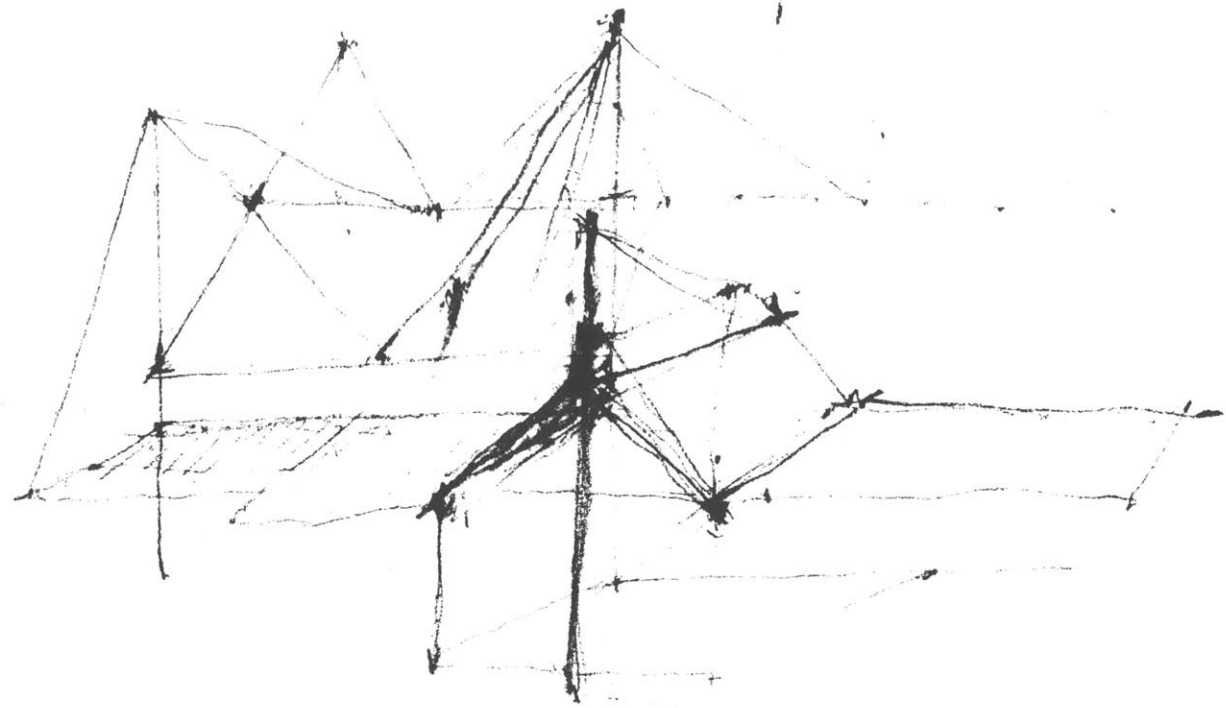
Beach Cabin (5.)





Fishing Weirs (5.)



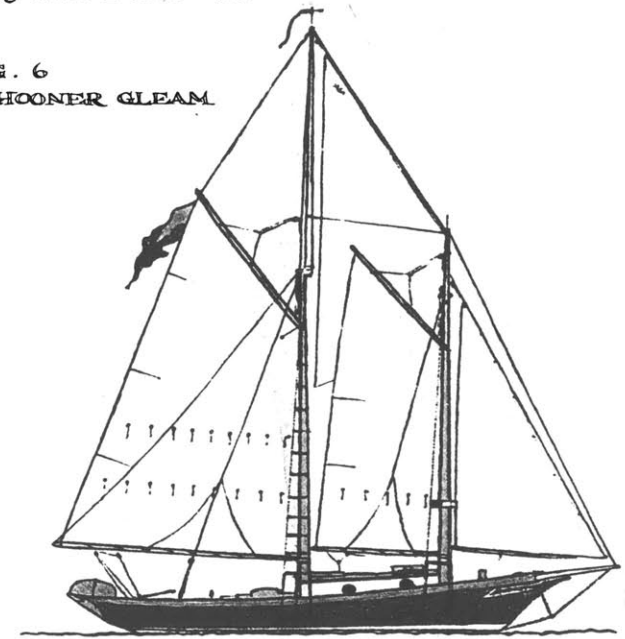


Lunar Module (1.)

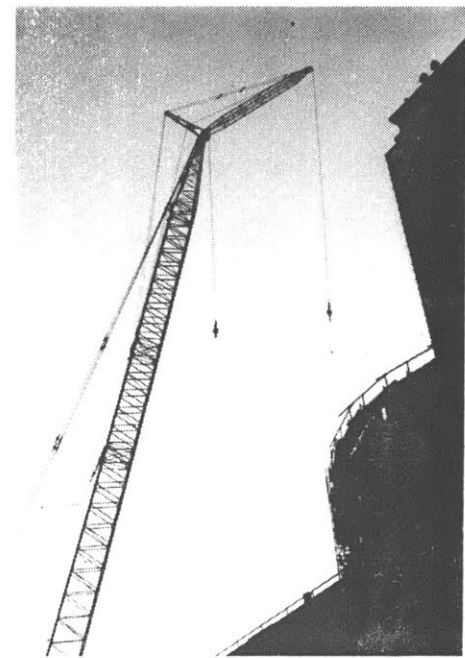


Landing Foot Detail (1.)

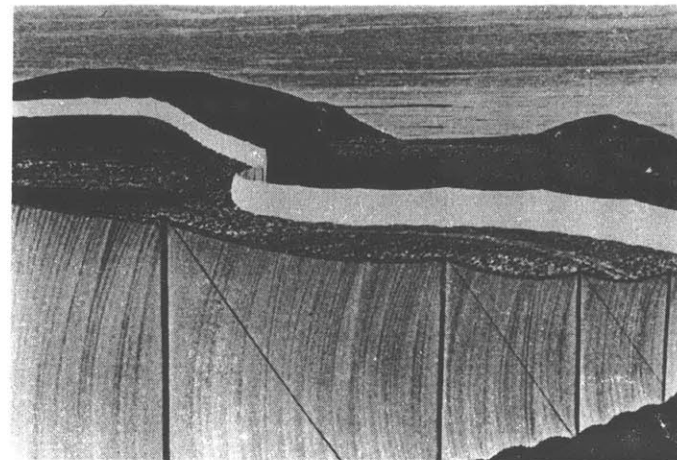
FIG. 6
SCHOONER GLEAM



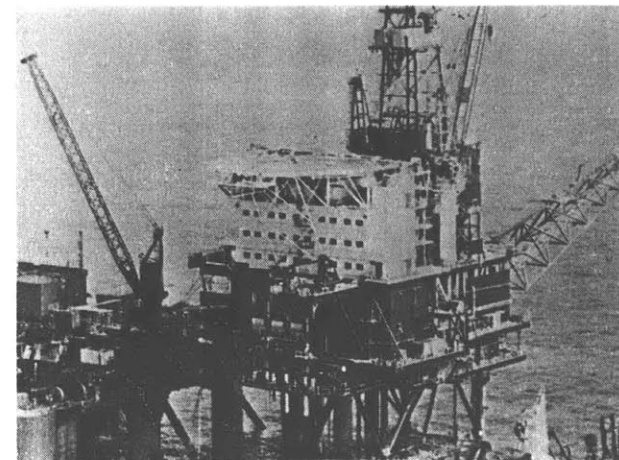
Wooden Boat, April 1987



Running Fence (4.)

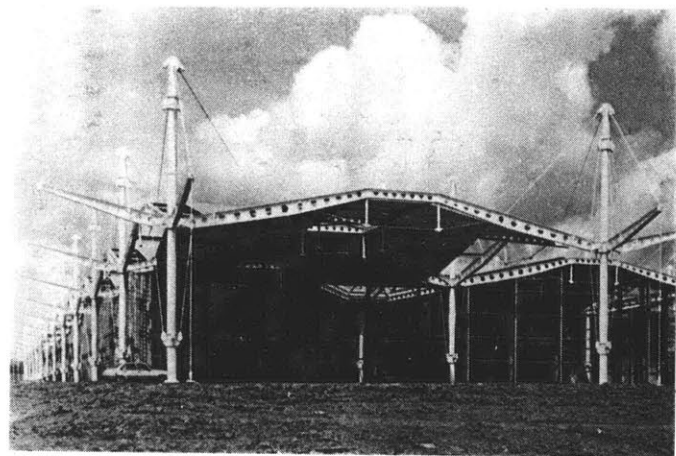


Oil Rig (1.)

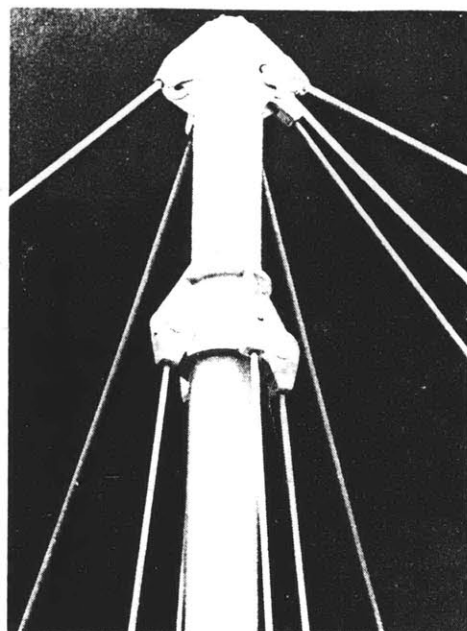


Ventura Harbor, CA

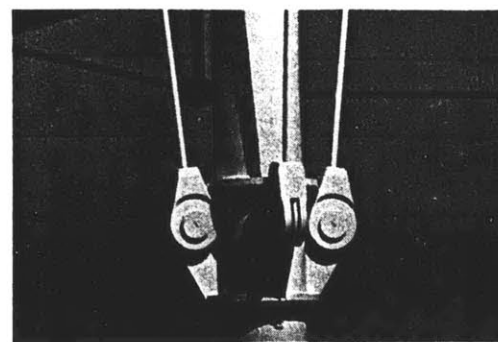




Renault Center, Norman Foster Assoc. (1.)



Detail (1.)



Detail (1.)

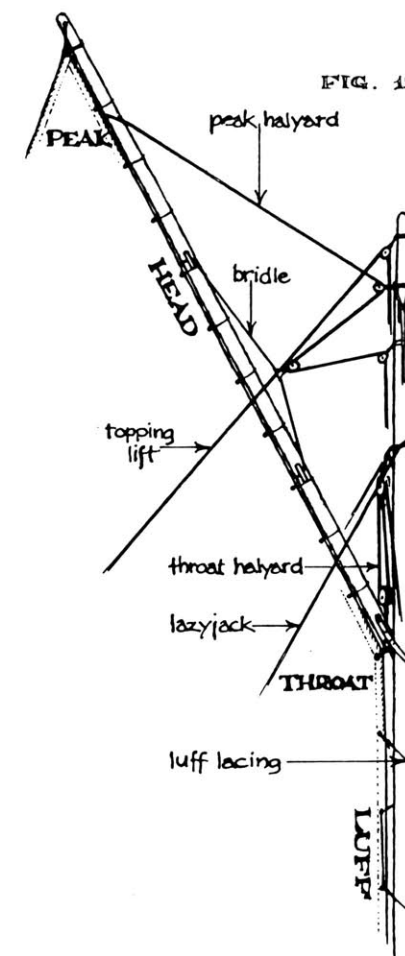
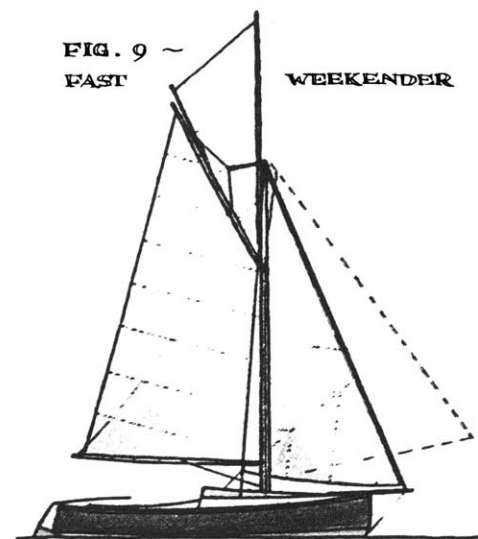
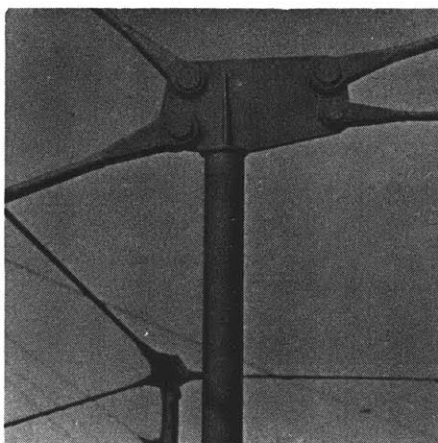
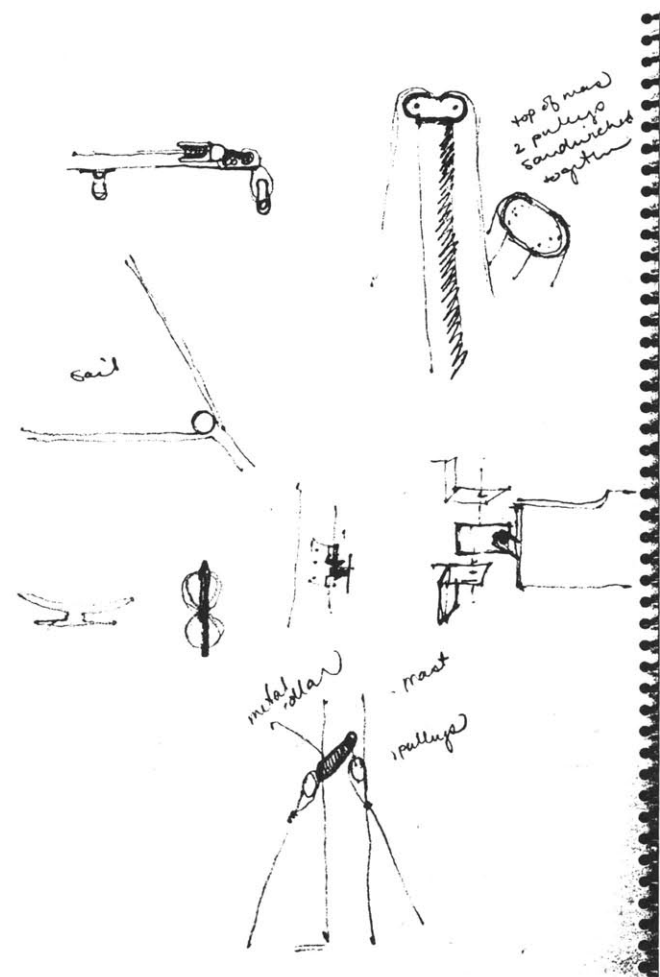


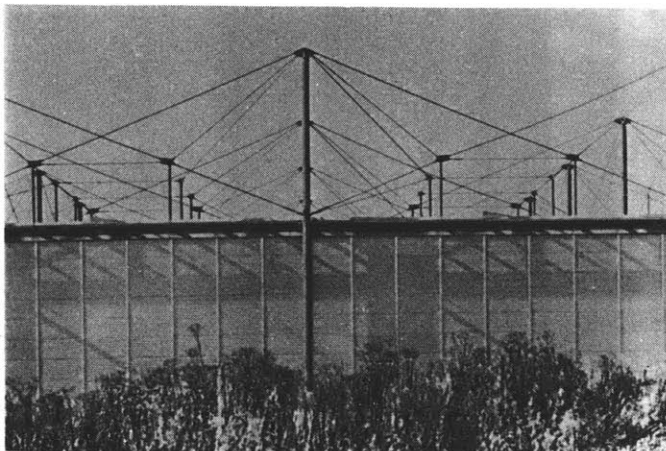
FIG. 13



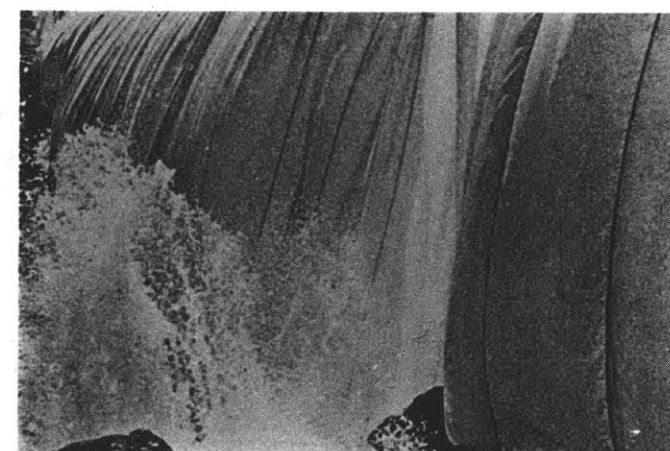
Wooden Boat, April 1987

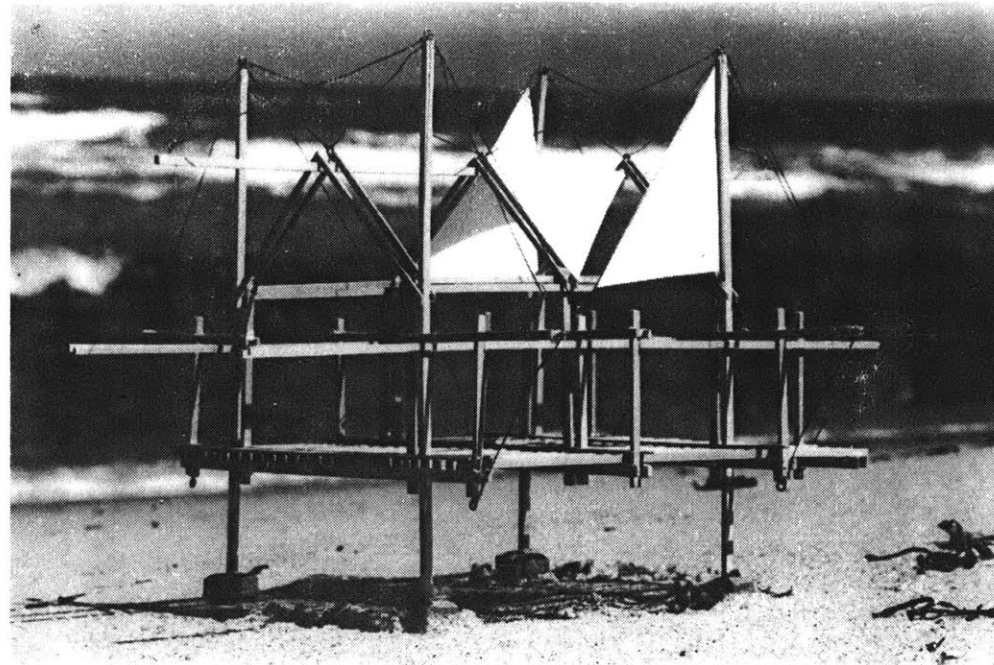


Fleetguard, Richard Rogers & Partners (1.)



Running Fence (4.)

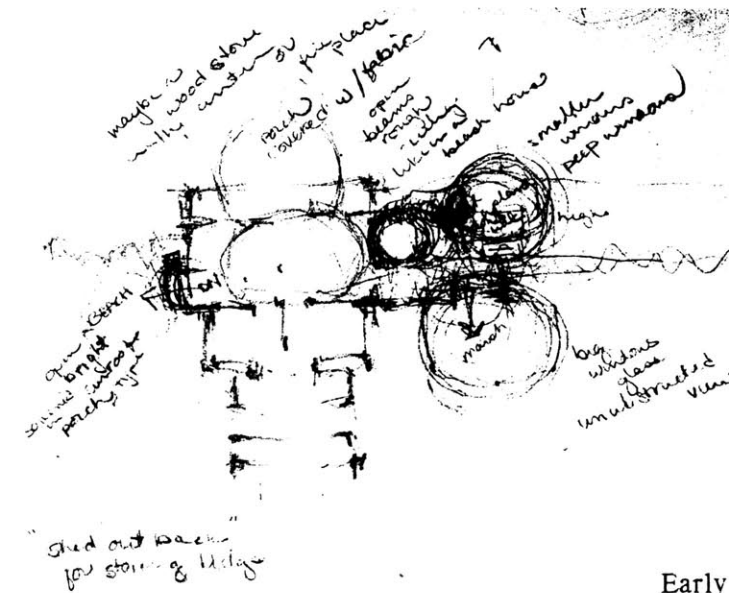
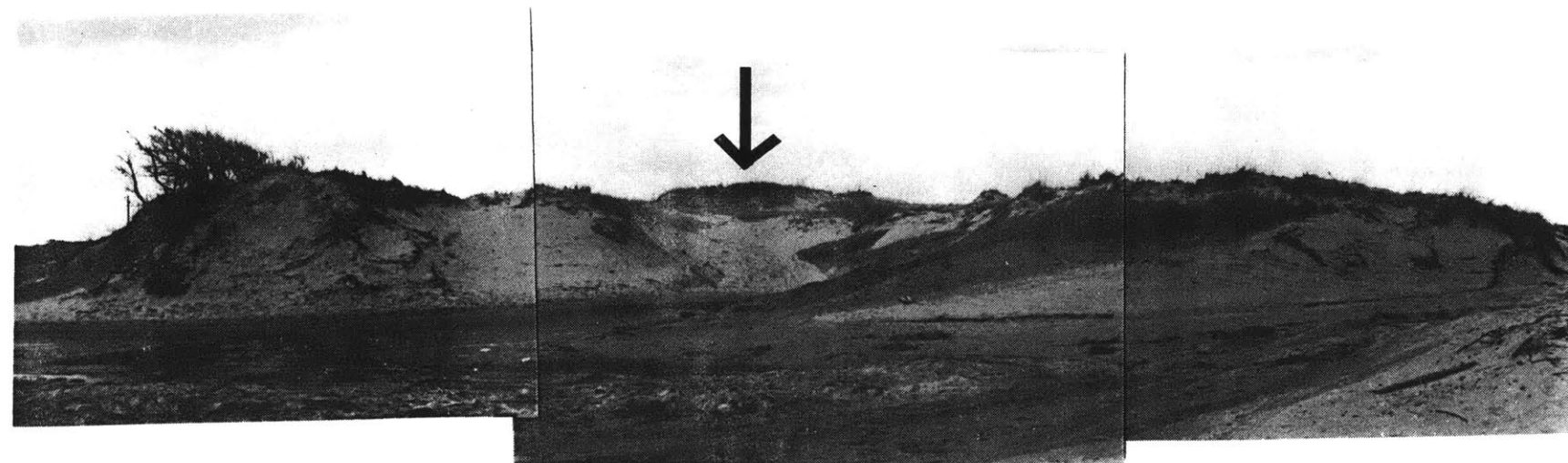




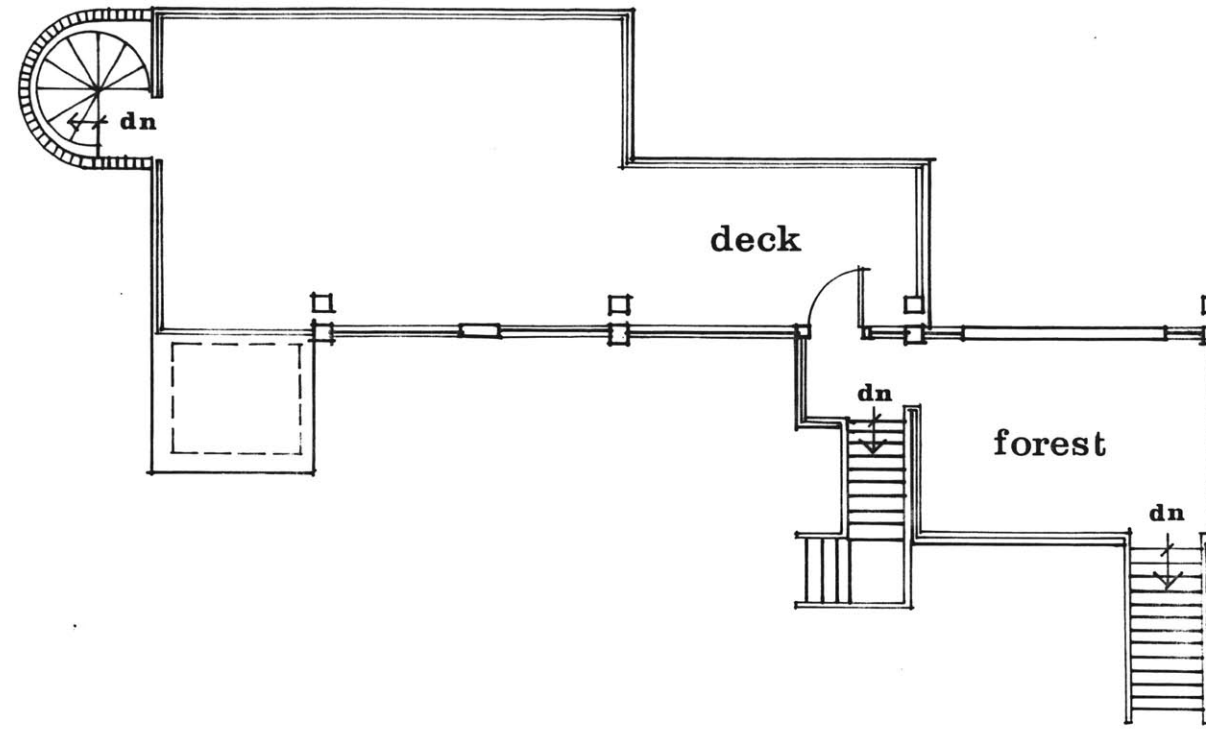
The Exhibition Building

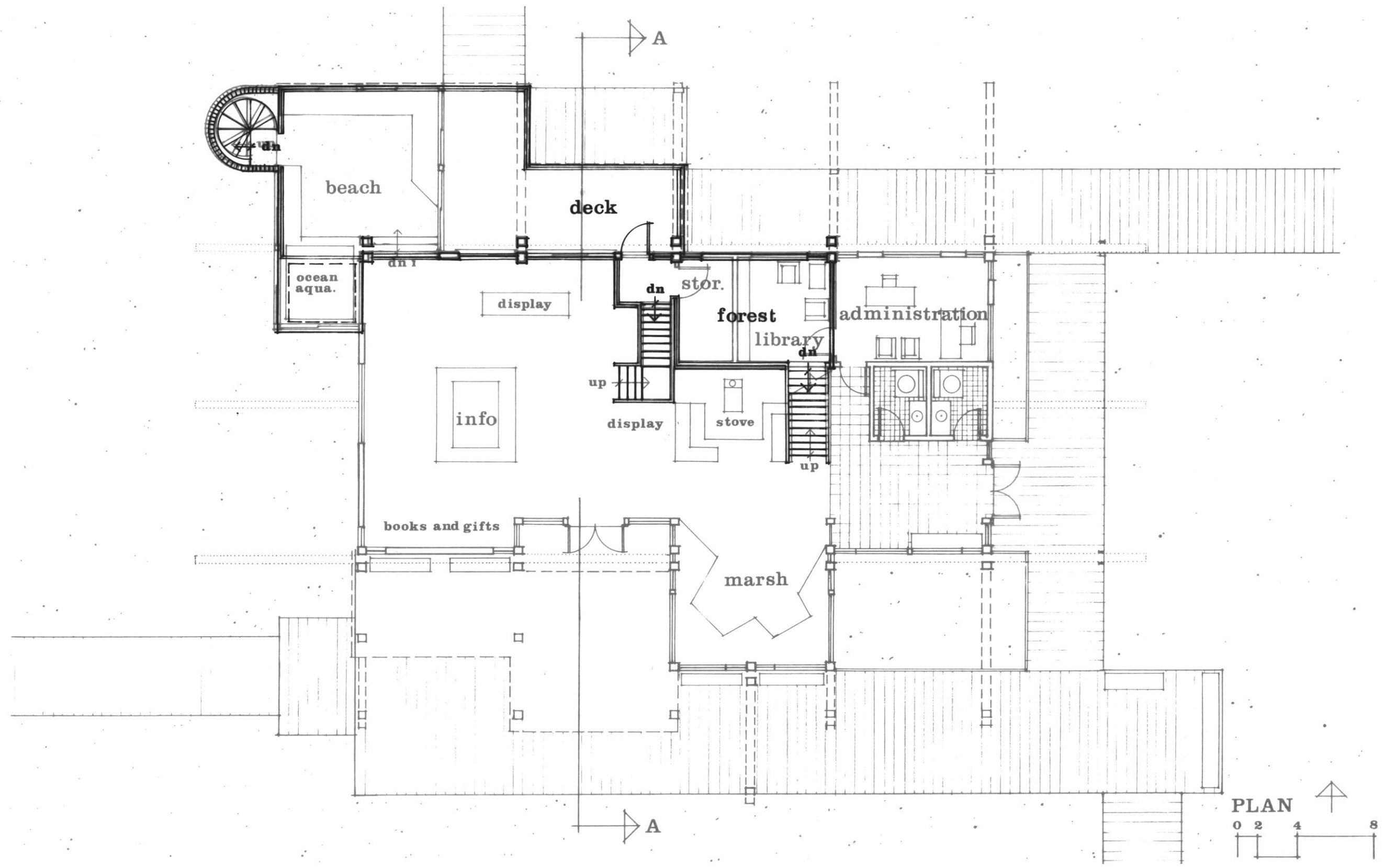
The exhibition building is centrally located in the site on a precipice which is prominent upon arrival. The building would be used to disseminate general information about the beach, and would contain displays on each of the three specific ecosystems. It accommodates a small gift and book shop and administrative facilities. The plan diagram is intended to reflect the relationship of each of the three environments as they occur on Sandy Neck. Movement through the building is also designed to be suggestive of one's transition into each of the actual areas.

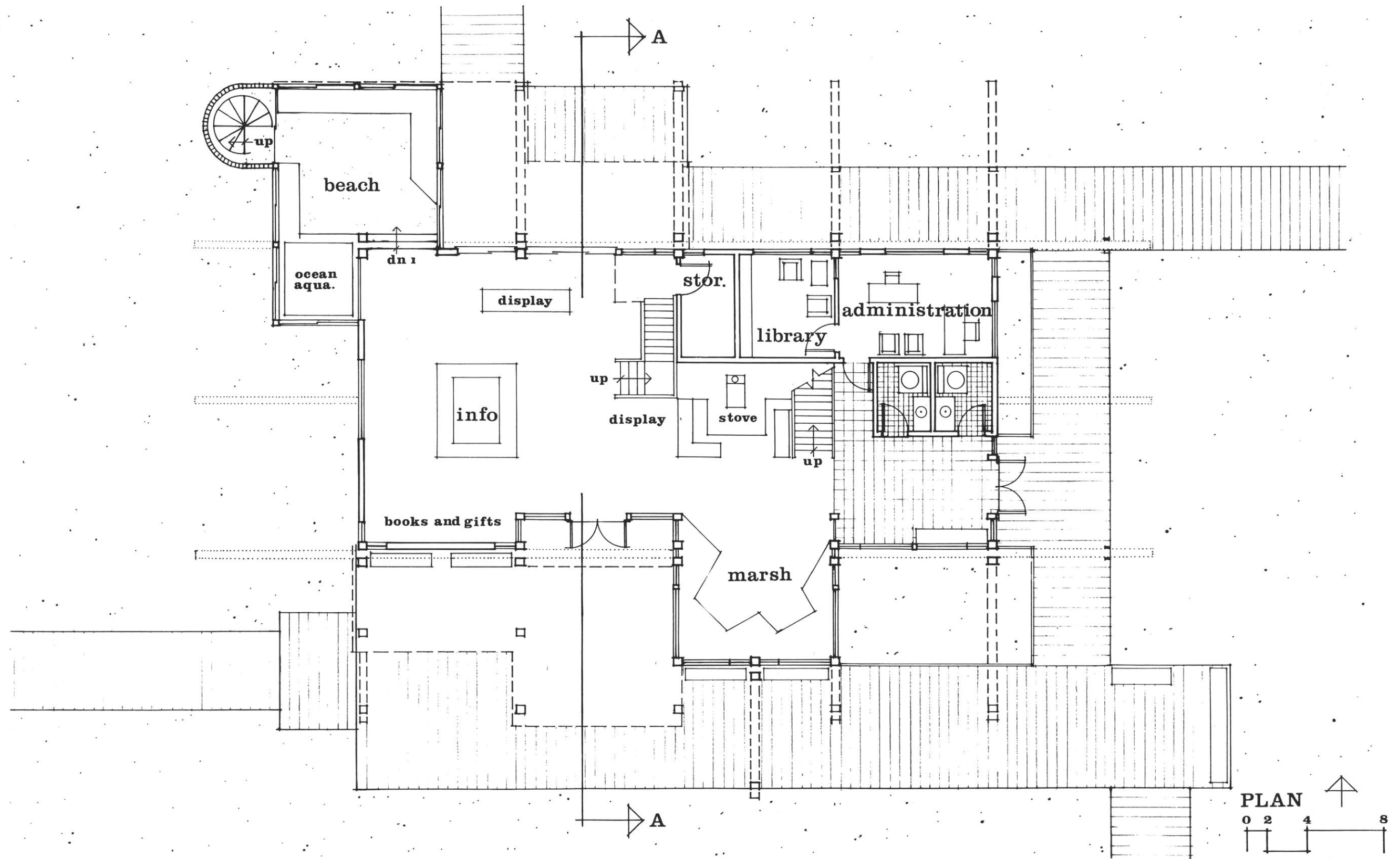
Nestled behind the exhibition building, in a naturally formed auditorium, is a gathering space for people to congregate before embarking upon nature walks. Seating is provided by 12"x18" concrete logs of varying lengths scattered in an arch around the immediate site.

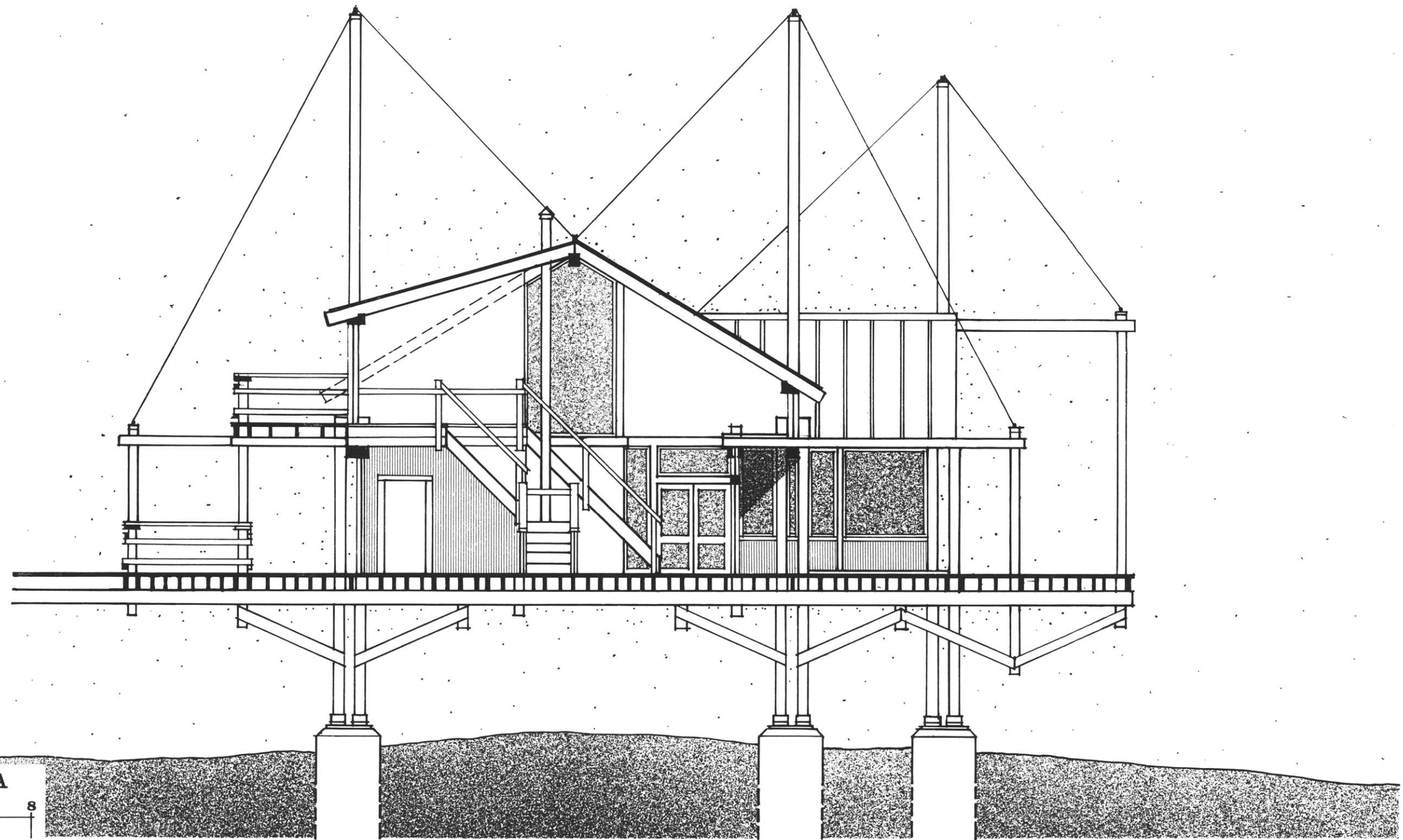


Early Plan Sketch

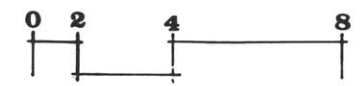


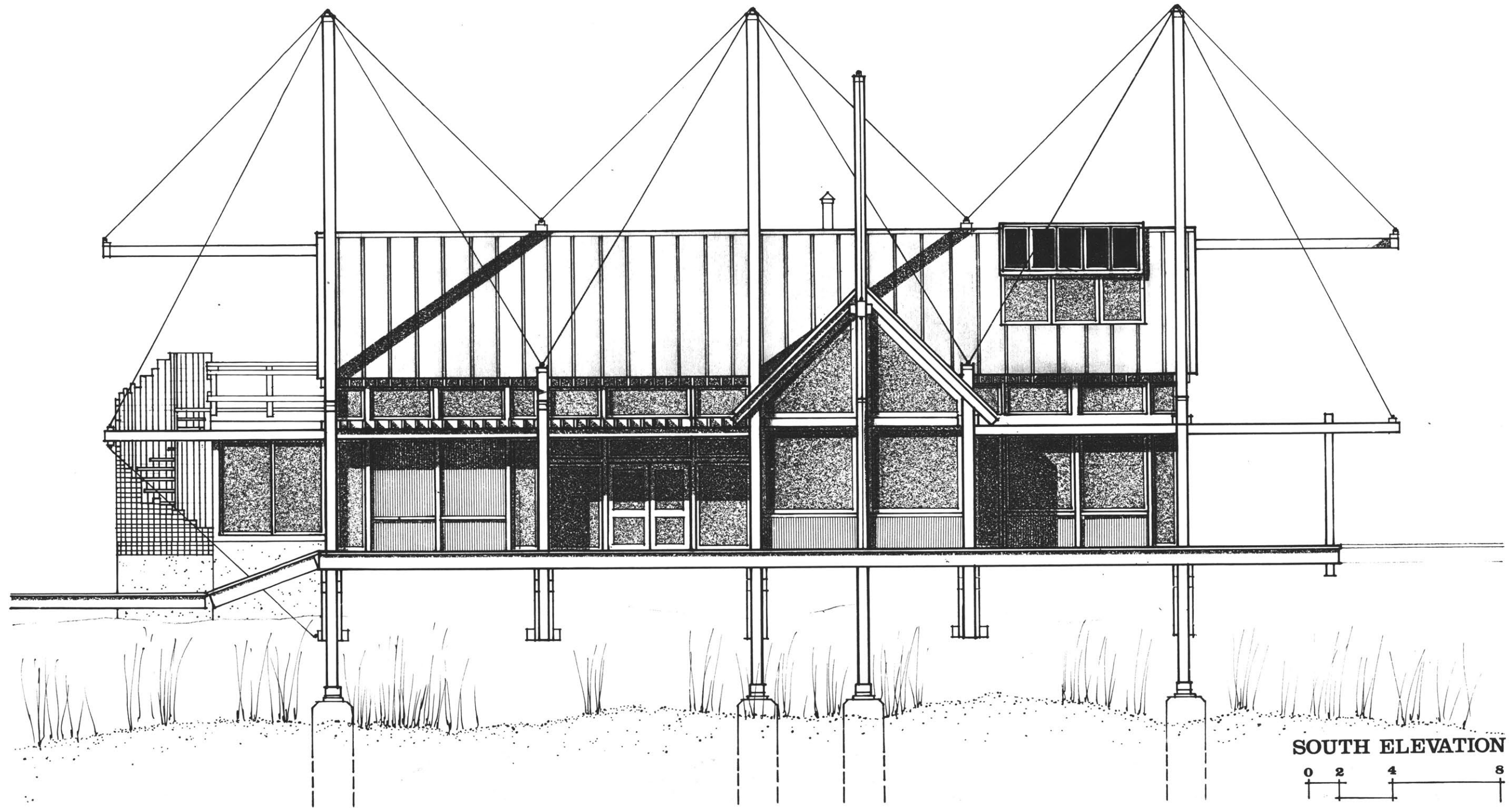




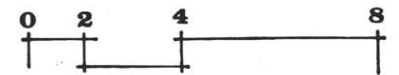


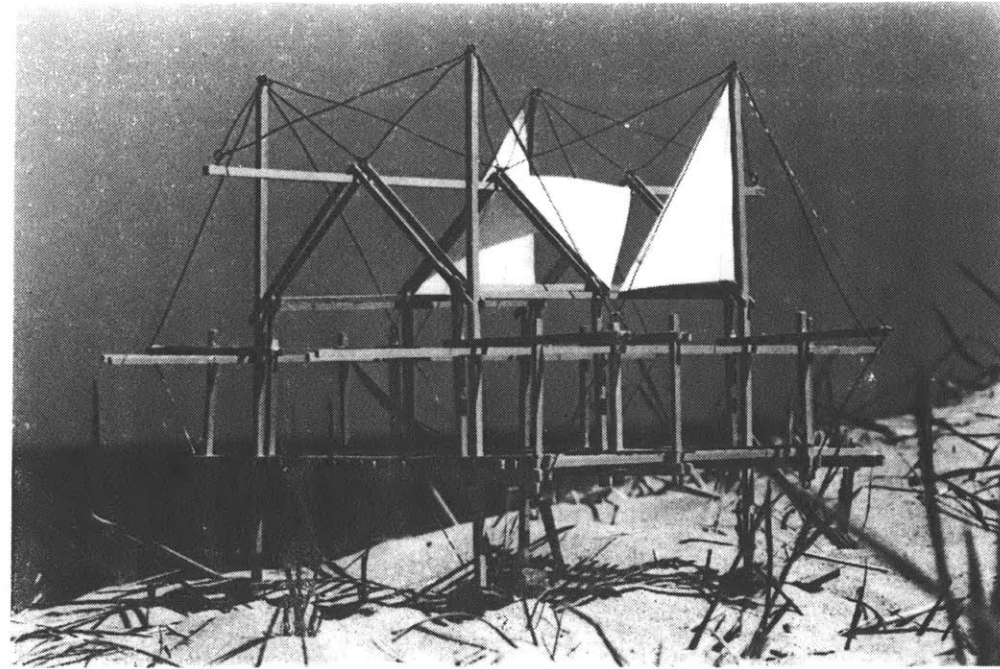
SECTION A-A





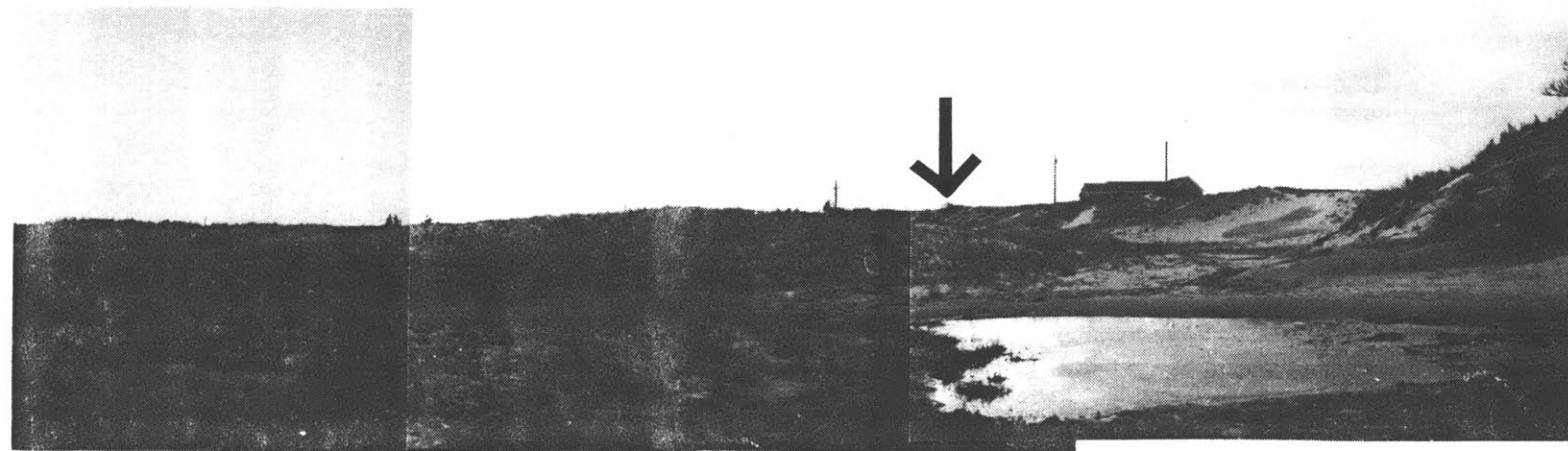
SOUTH ELEVATION





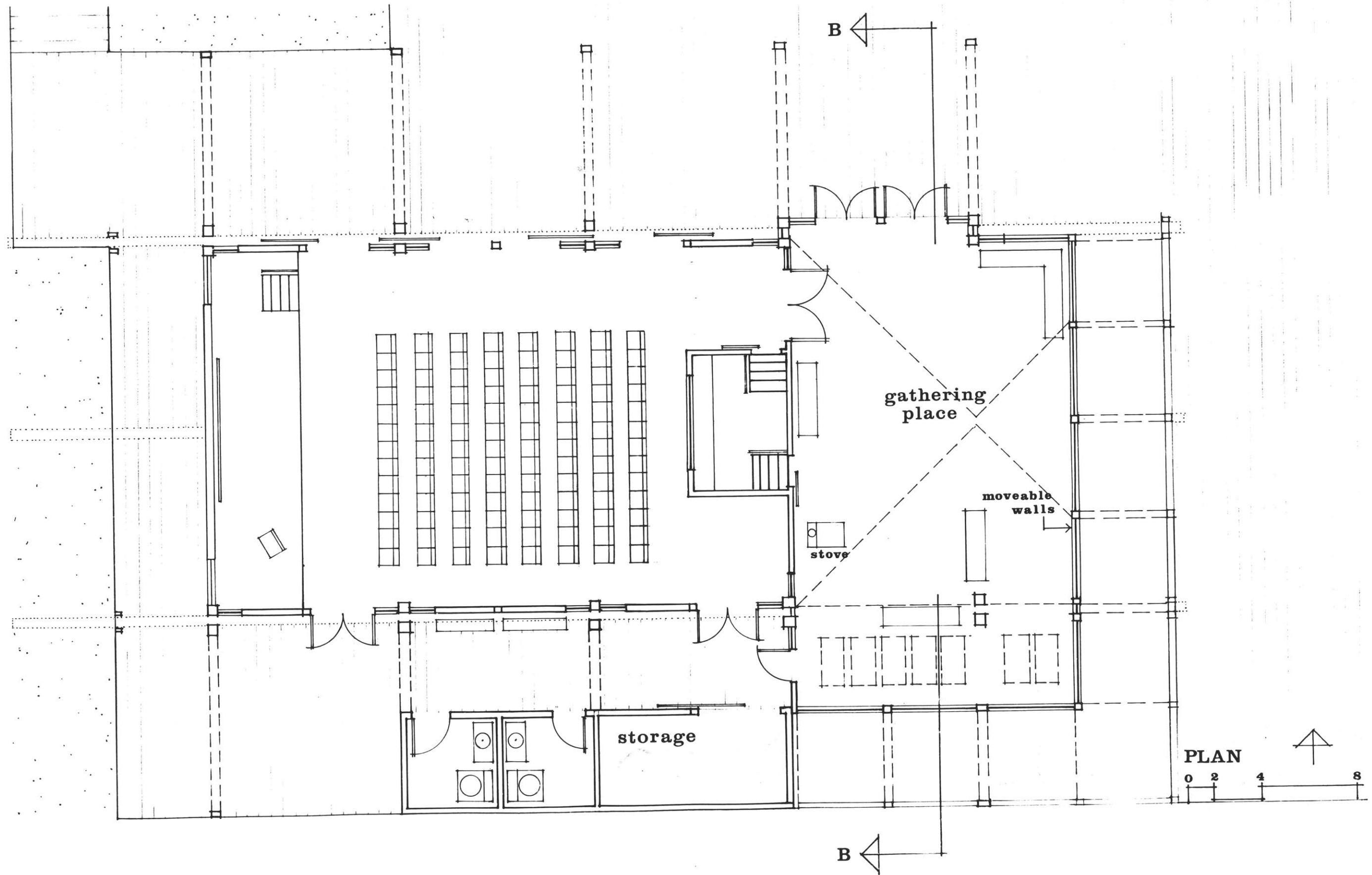
The Auditorium

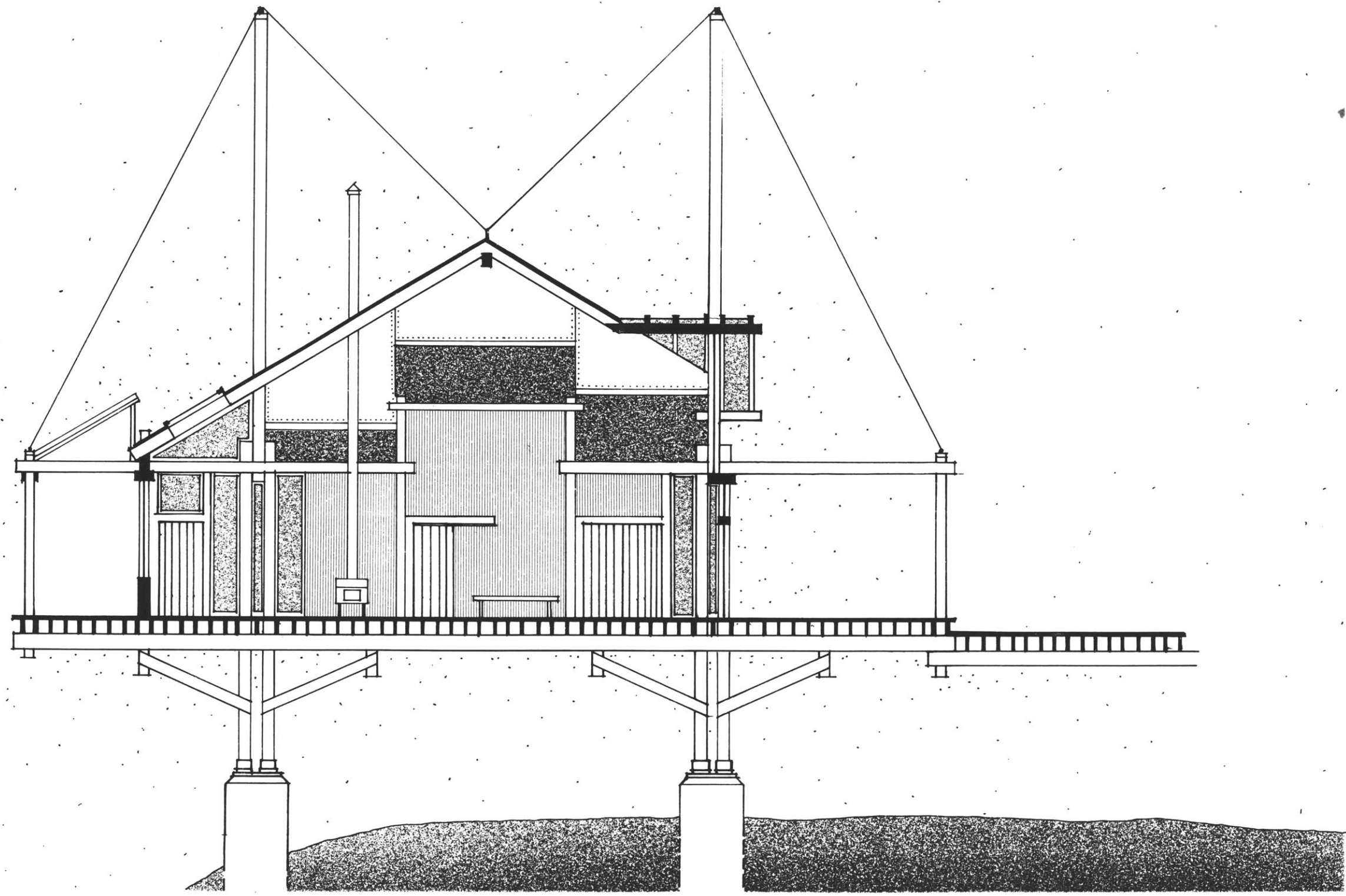
The auditorium is located on the westernmost edge of the site. It accommodates approximately 100 people and serves as a facility for meetings, lectures and audio/visual presentations. It hovers above the ground and utilizes the site's natural slope to form a type of garage/carport, underneath, for the mobile cafes. The structure is simple and barnlike in nature and permeability is variable depending upon the weather. During the summer the wall panels of the gathering space may be lifted up and attached to cross beams on the framework of the exterior walkways, thereby allowing the area to spill into the outdoors and be defined primarily by the skeleton and the roof form. The roof over the gathering space also allows for a degree of transparency, by having large glass triangular sections covered with canvas. This canvas can be raised along the tensile cables to allow for illumination.



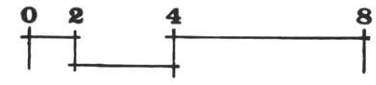
- gathering space becomes transparent
 in summer
 the walls lift up & attach to the beams
 the roof is made out of glass, which
 has a material covering - This
 covering can be raised or lowered
 like a sail. Some can be raised
 or all can depending on the
 wind & the sun

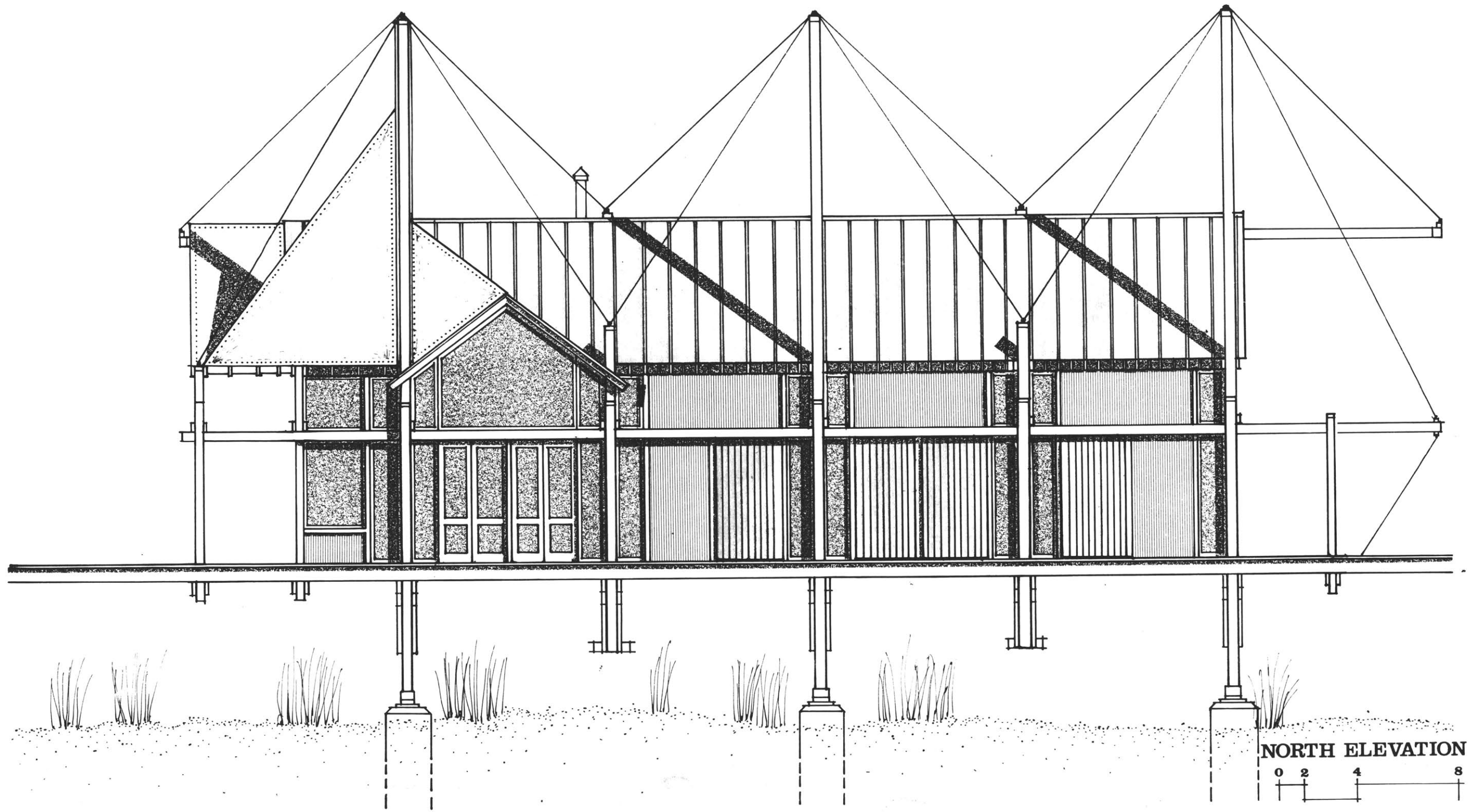


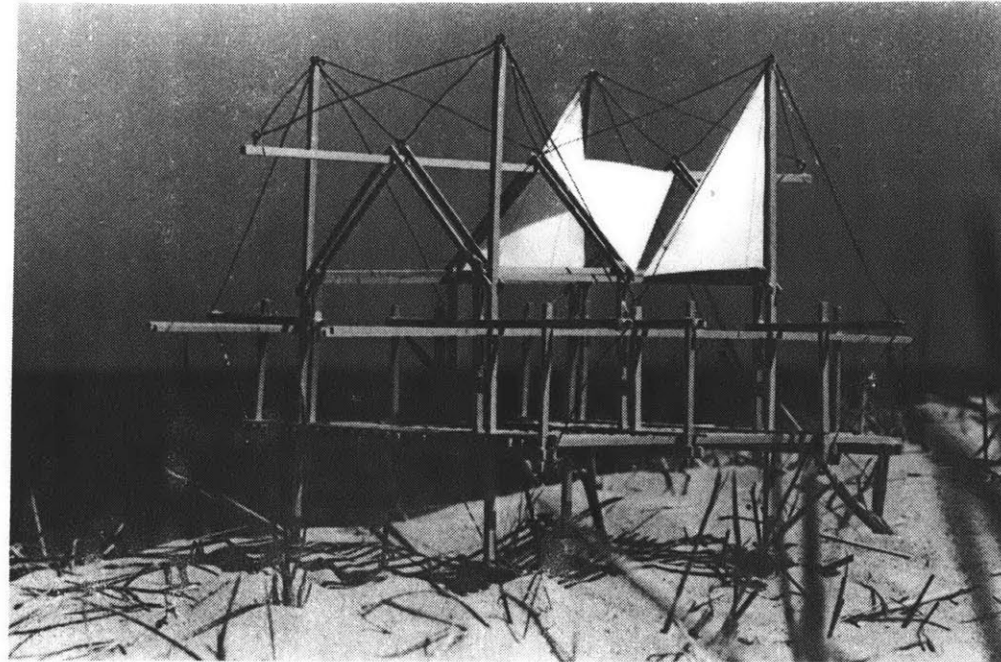




SECTION B-B

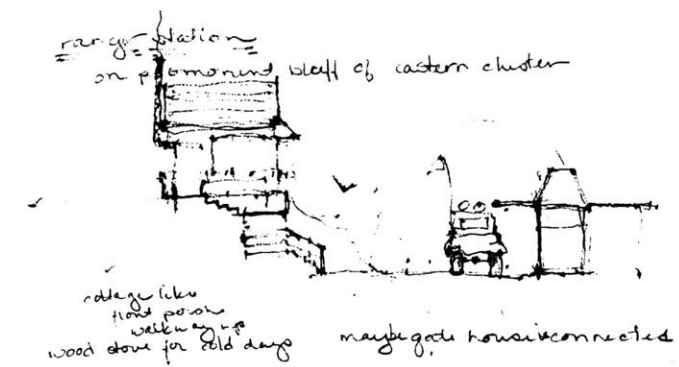
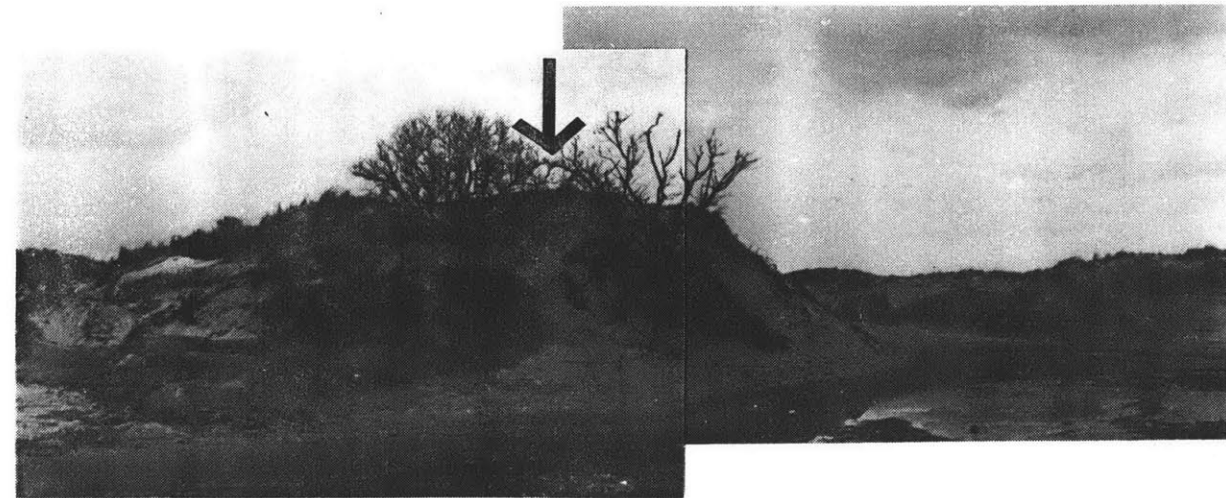


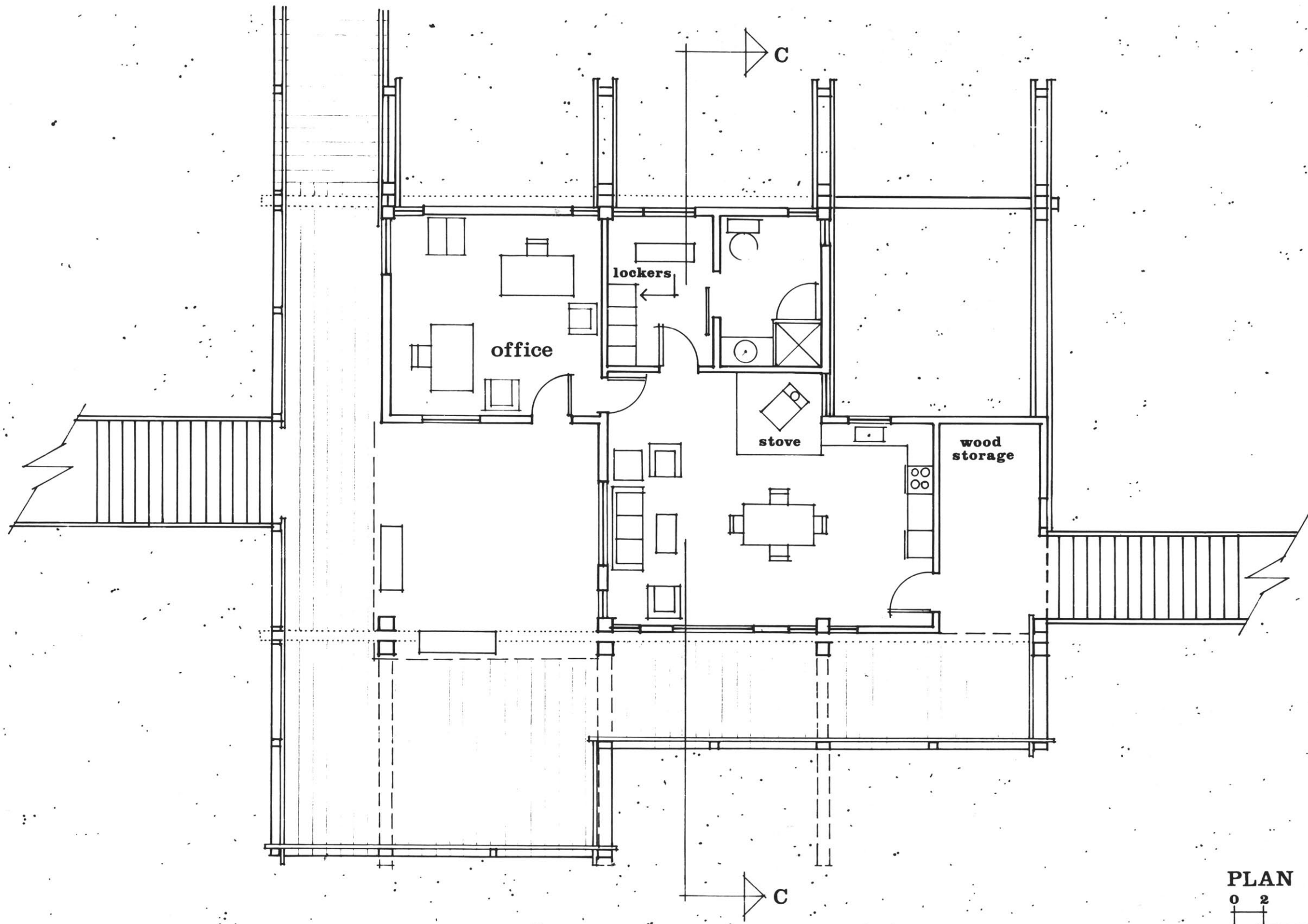




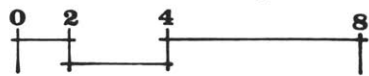
The Ranger Station

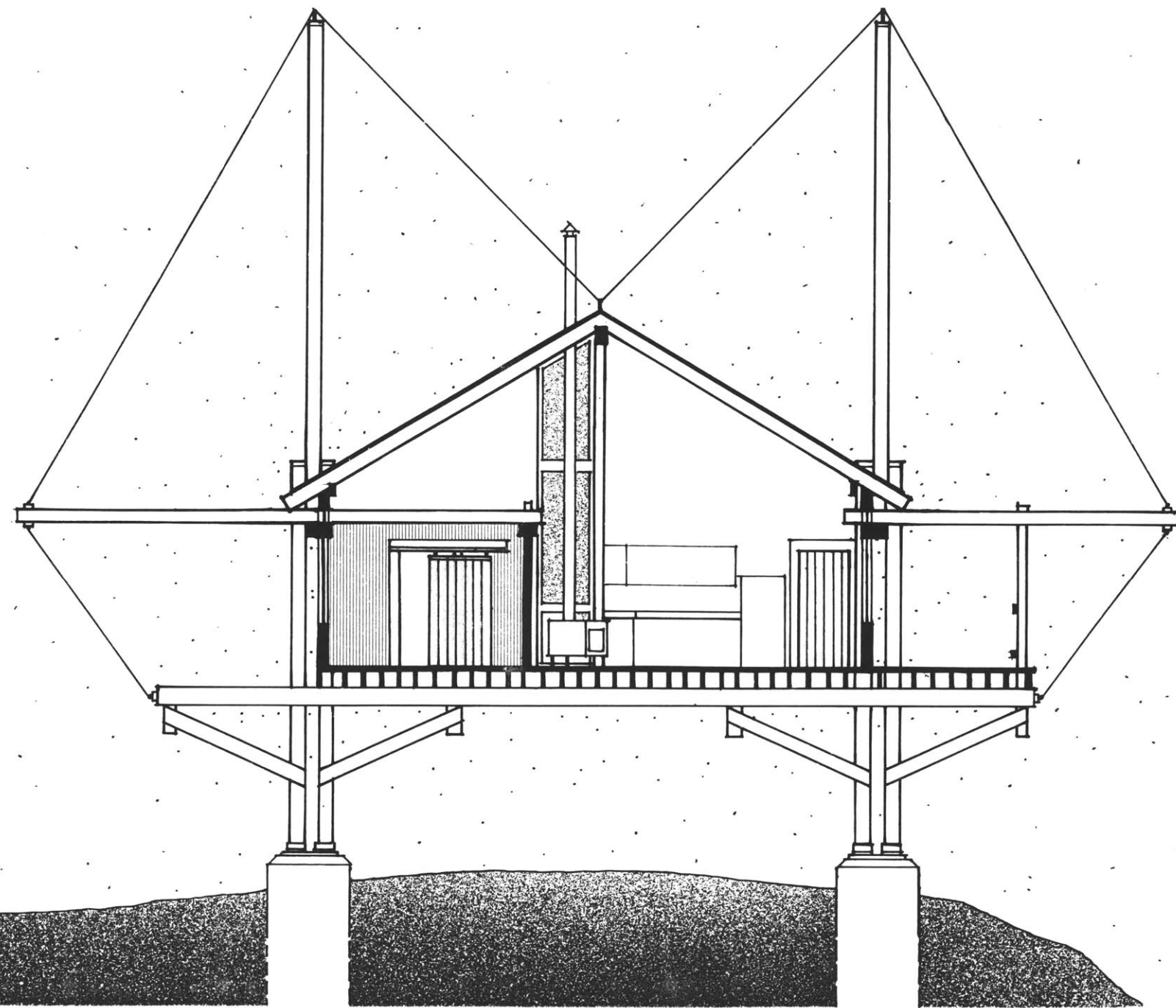
The ranger station is located in the southeast corner of the site on a dune overlooking the four wheel drive trail. It has direct access to the exhibition building and visual access to the gatehouses. The station consists of an office, a living area with a complete kitchen, a changing and locker room, and a lavatory with a shower. The office, equipped with a covered-porch waiting area directly outside, adequately houses two desks, one for the chief ranger and one for the deputy ranger. Adjacent to this building to the east, and down at the trail level, is a garage which accomodates two to three official vehicles.



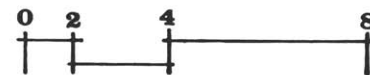


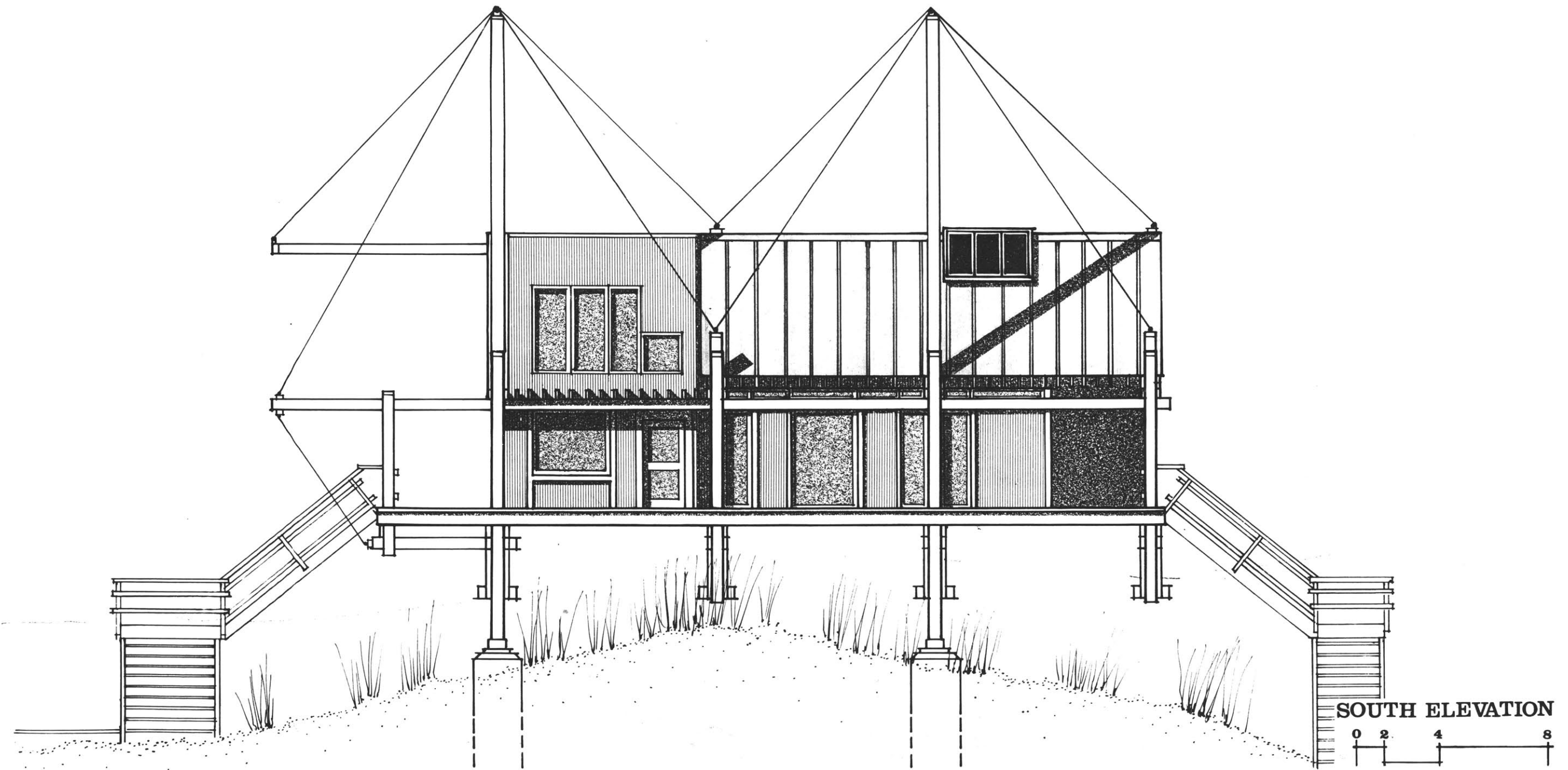
PLAN



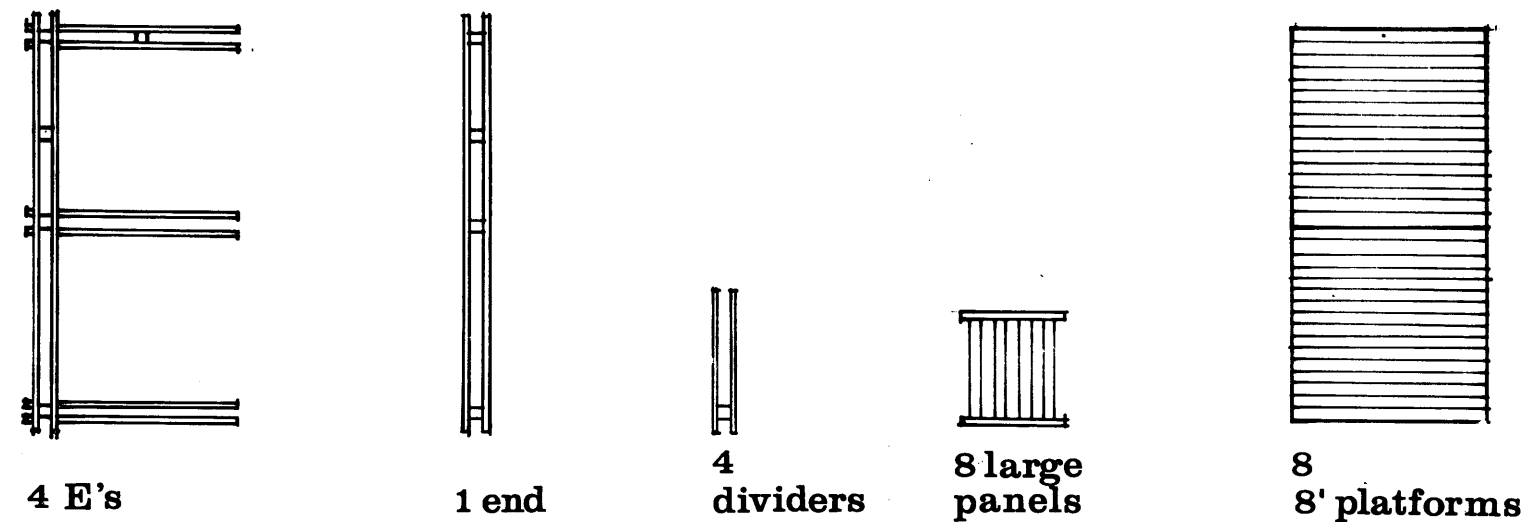


SECTION C-C

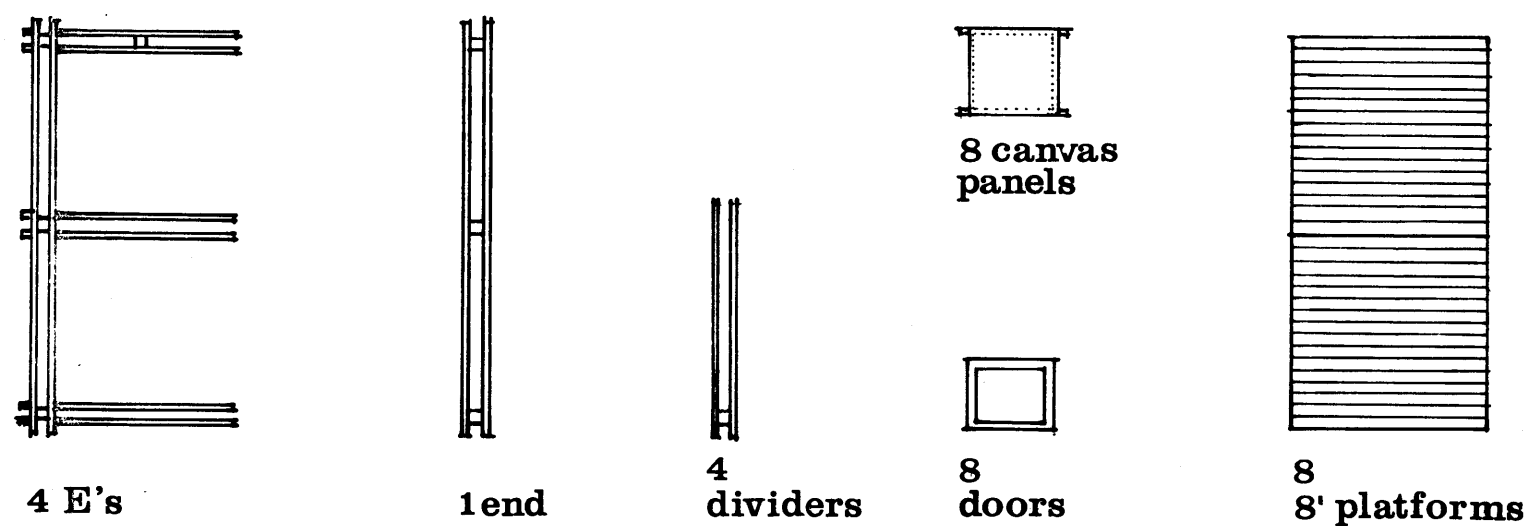




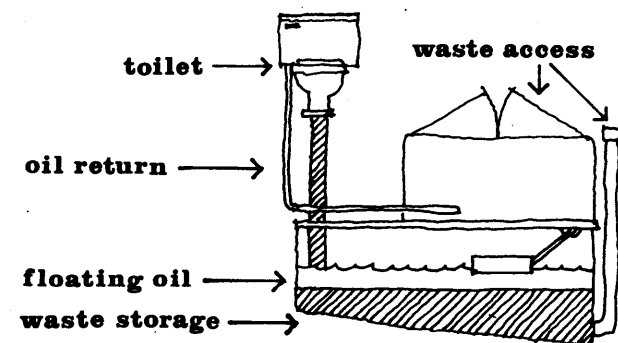
Shower Parts



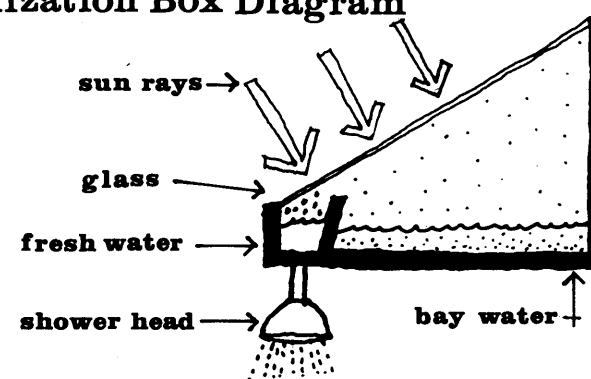
Toilet Parts



Oil Flush Toilet Diagram



Desalinization Box Diagram

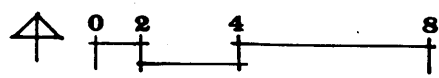


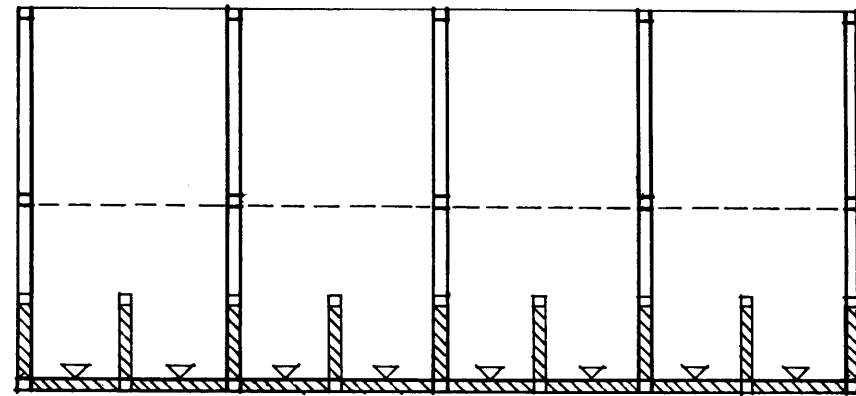
The Showers and Toilets

The showers and toilets are located along the northernmost bluff of the site. They are the closest facility to the beach and therefore the most susceptible to wave action. Because of their siting and their seasonal use, they are the most transient built-structures. They are designed by a kit of parts and may be disassembled, stacked and put away each year. The principle masts sit in a base with three legs which are adjustable to the changing terrain.

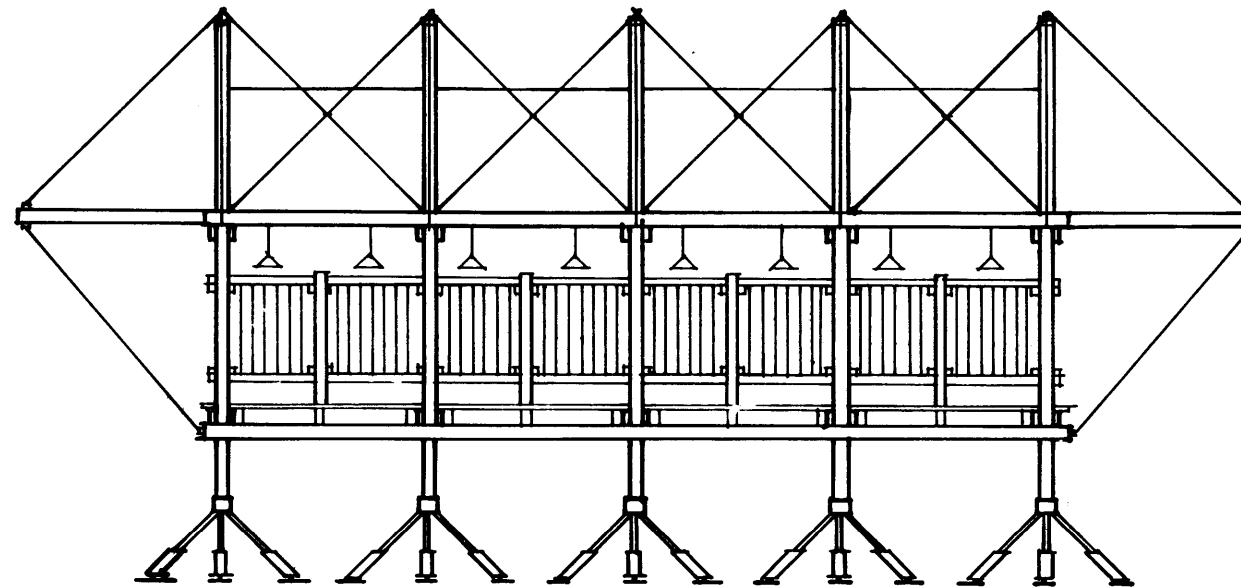
The showers are supplied with desalinized water from the Bay. The water is pumped to the site by a verticle axis windmill and stored in a storage tank. The water runs by gravity into triangular boxes sitting above the shower stalls. The interior and exterior of the boxes' legs are painted black and the hypoteneuse is glass. The sun's rays penetrate the box and heat the water causing it to evaporate and then condense on the glass surface. The droplets roll down the incline into a holding trough. The water, warmed by the process, is then accessed through the shower head with the aid of gravity.

The toilets are the oil-flush variety which are now being used in several national parks. As the name implies, these facilities use oil instead of water as the flushing agent. The waste is carried away to a holding tank were it sinks to the bottom and the oil rises to the top. A float scoops out the oil, and recirculates it to the toilet. This is the only part of the process which requires energy, which can be provided by solar panels placed above the stalls. Eventually, the holding tanks need to be emptied at a nearby sewage treatment plant, and in this case, the closest facility is in Hyannis.

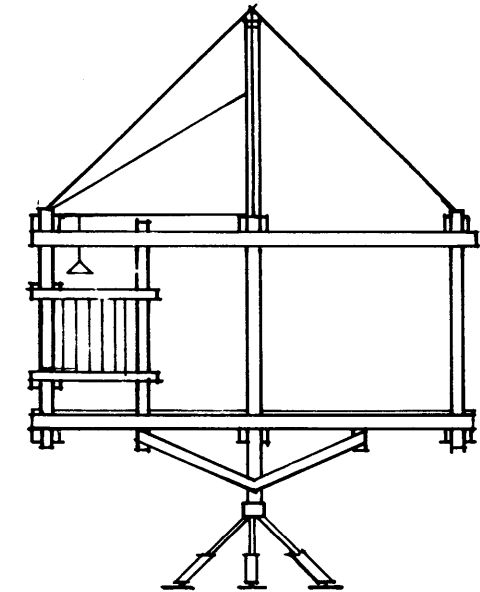
Showers 



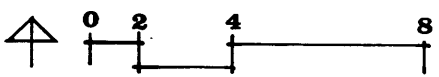
plan

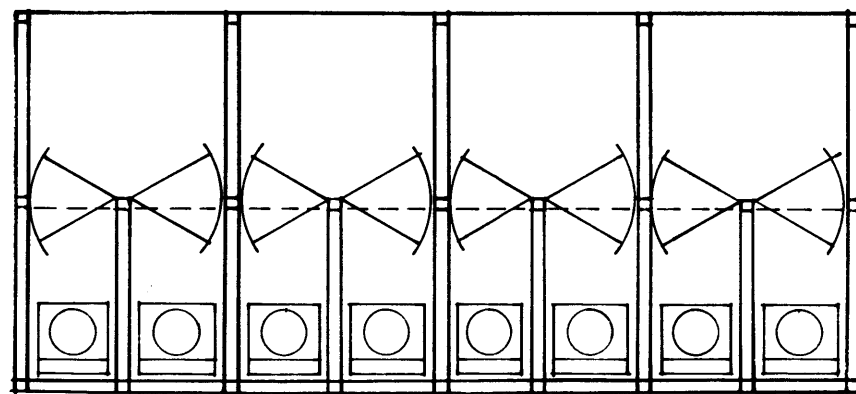


elevation

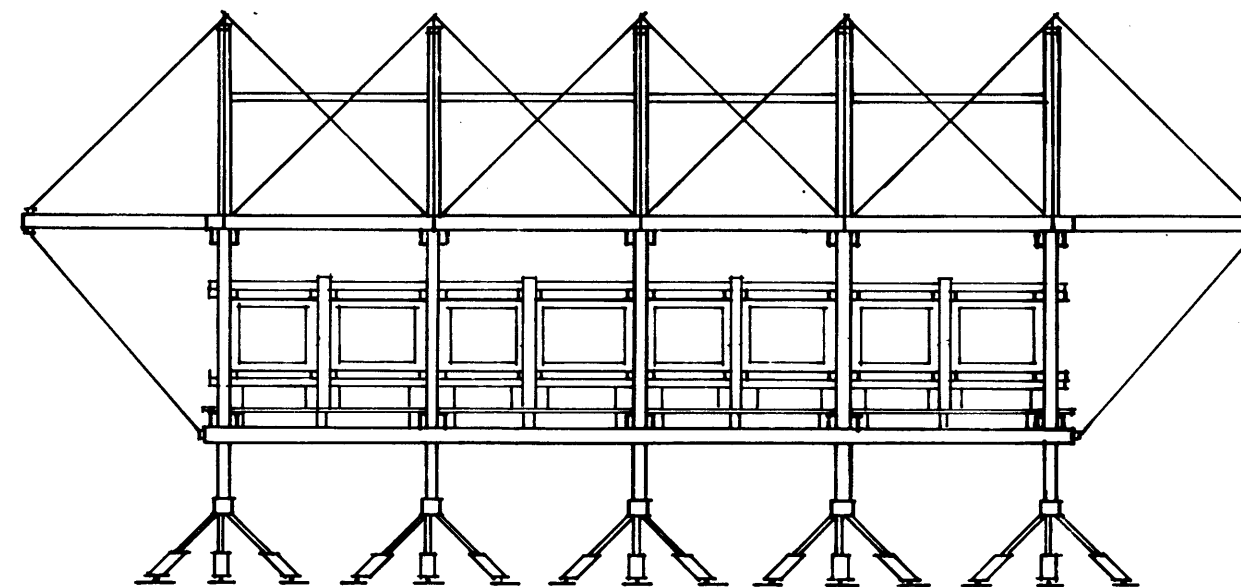


section

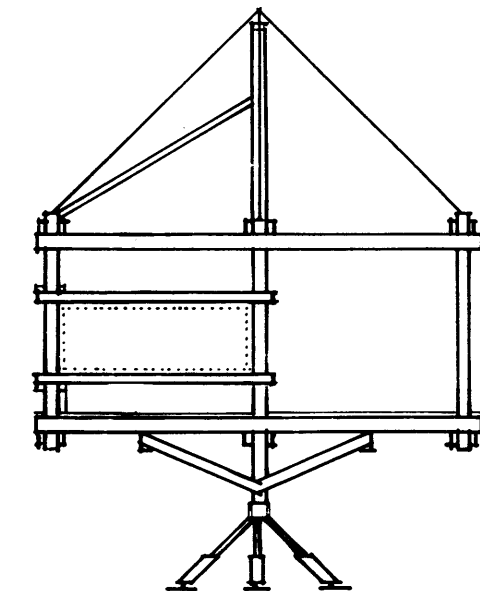
Toilets 



plan



elevation



section

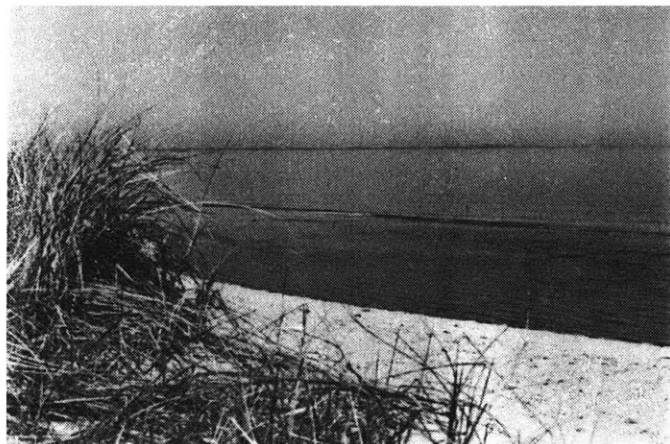
"This is the hardest of all sounds in nature to hear: the silent assertion of a landscape itself. It requires a rare confluence of moods— clarity on nature's part, receptiveness on our own— a suspension of normal expectations and a relaxed extension of our own senses, to feel such deep vibrations."

Outlands- Robert Finch



Key to Photographs

1. Ackerman, Kurt. *Industriebau*
2. Hovelenakk, Per. *Christo: Complete Editions 1964-1982*
3. Kitteredge, Henry C. *Cape Cod: Its History and Its People*
4. Spies, Werner. *Christo: The Running Fence*
5. Thoreau, H.D. and Robinson, Wm. F. *Cape Cod*
6. Town of Barnstable. *The Seven Villages of Barnstable*



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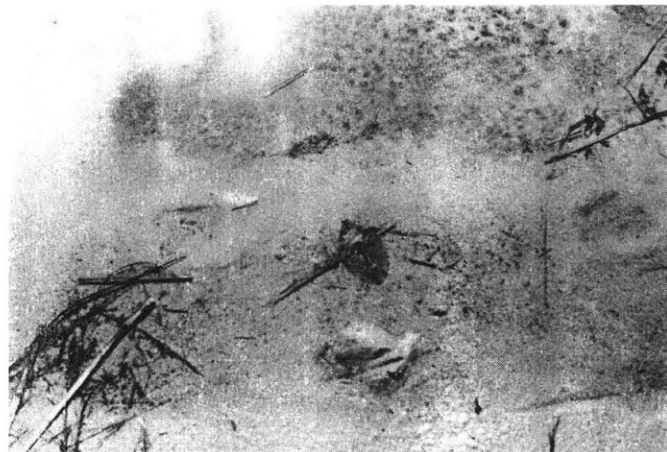
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