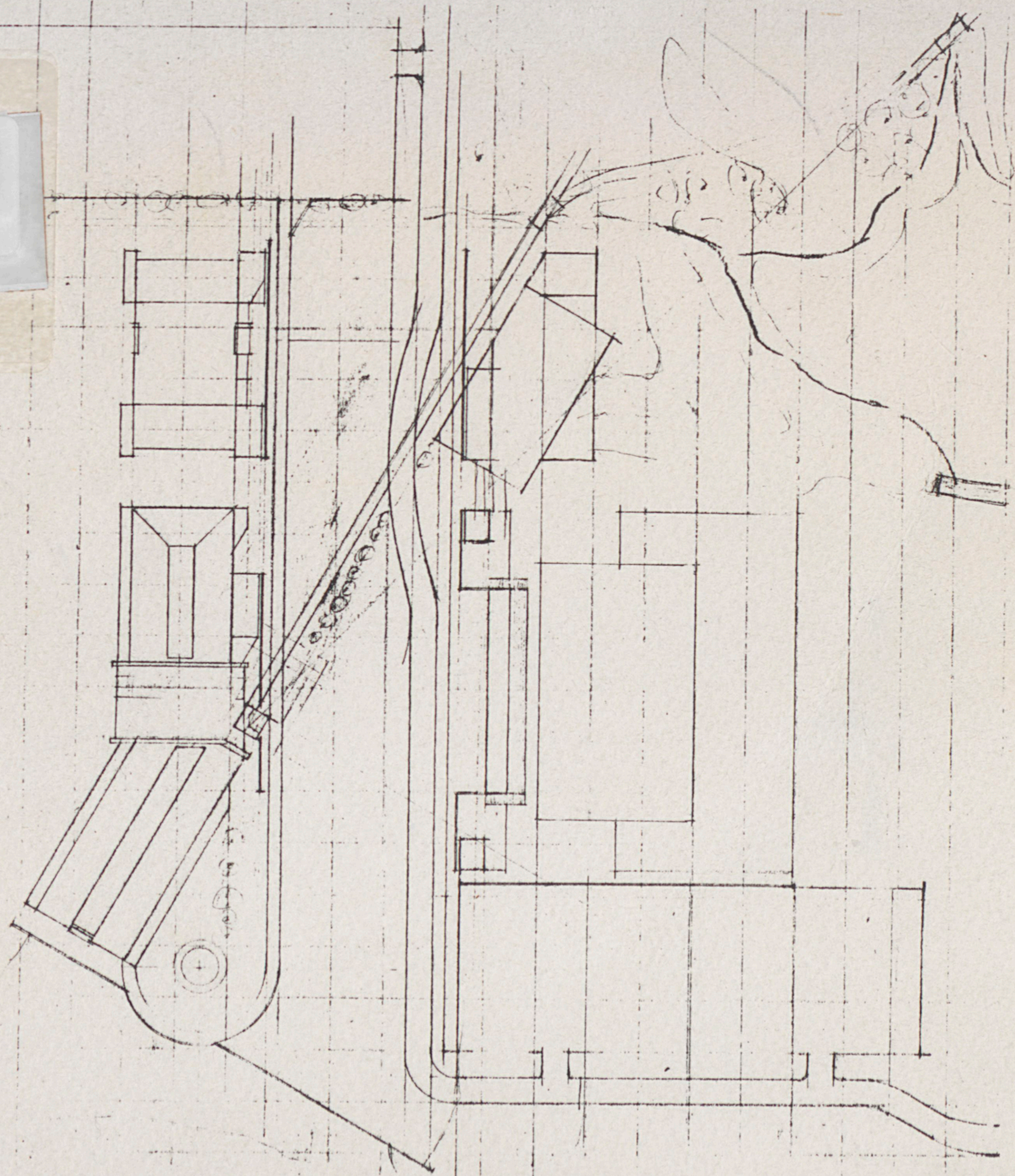


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movement as an idea
powder river county recreation park

mike beam

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Movement as an Idea:
Powder River County Recreation Park

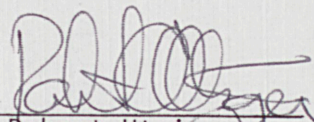
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Mike Beam

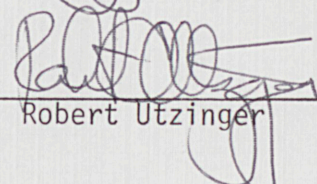
A thesis submitted in partial fulfillment
to the requirements for the degree
of
Bachelor of Architecture

Approved:

Thesis Advisor:


Robert Utzinger

Director,
School of Architecture:


Robert Utzinger

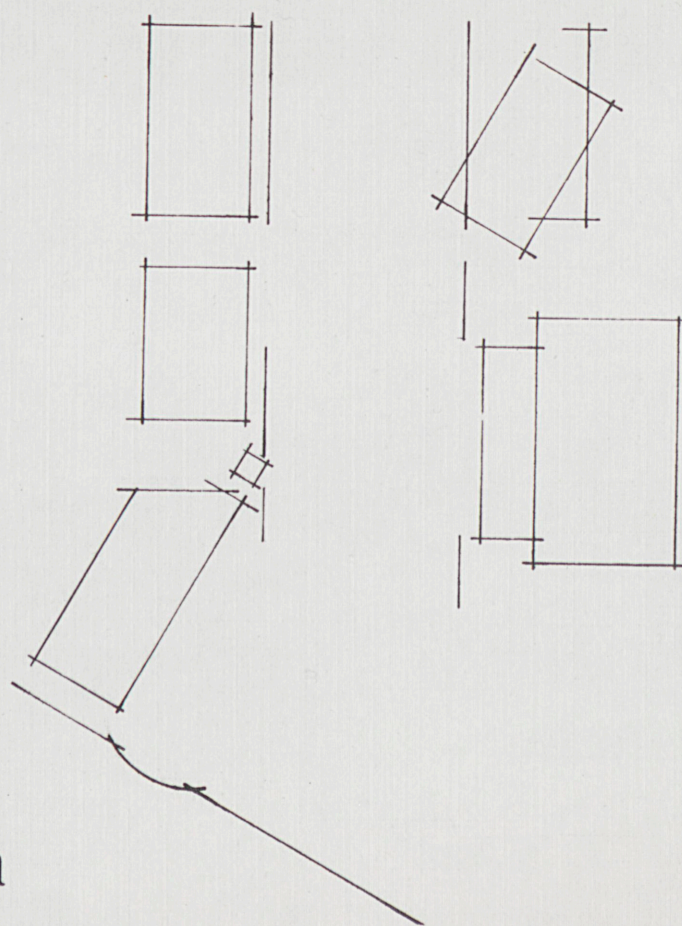
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movement as an idea

powder river county recreation park

mike beam

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movement as an idea

INTRODUCTION

Man has a need for the sense of belonging to the space which surrounds him. This need comes from his desire to have an understanding of his environment and an ordering to the events which occur around him. Christian Norberg-Schulz says: "Basically, man orients to 'objects', that is, he adapts physiologically and technologically to physical things, he interacts with other people, and he grasps the abstract realities, or 'meanings', which are transmitted through the various languages created for the purpose of communication. His orientation to the different objects may be cognitive as well as affective, but in either case it aims at the establishment of a dynamic equilibrium between him and his environment....Most of man's actions comprise a spatial aspect, in the sense that the objects of orientation are distributed according to such relations as inside and outside; far away and close by; separate and united; and continuous and discontinuous. Space, therefore, is not a particular category of orientation, but an aspect of orientation."¹ Thus, man has a need for the understanding of space, which can be brought about through a system of spatial order.



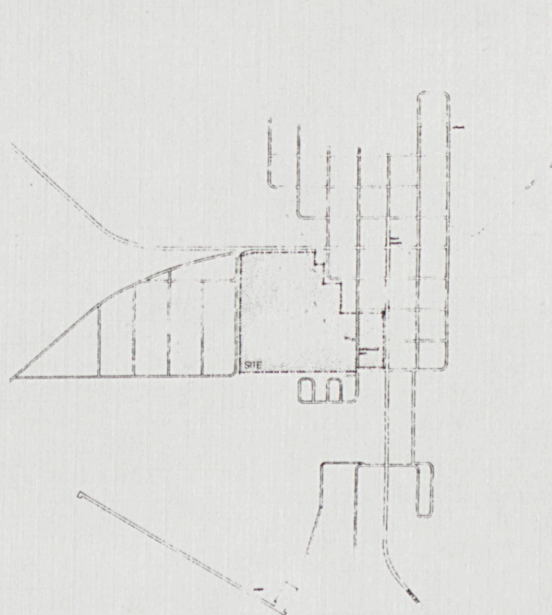
Our movements are subject to the physical forces of our built environment, in which we are physically contained, limited, and directed by these forms. Through the use of these forces, a sense of spatial order can evolve. Being that the world is very complex, with many individual and scattered parts, and those parts being complex and dispersed in themselves, man needs this sense of order to gain a 'dynamic equilibrium' with his environment. This order can be structured around his movements, and how he perceives space in relation to them. So in turn, this order forms a context for spatial experience.



2

For my study, an investigation into one system, or type, of spatial order, I have chosen to do a recreational park for Powder River County, Montana. This recreational park, being an individual part of the world's events, is a complex entity in itself.

My desires were first to study movement as an organizational element for spatial order, and secondly to do a building type in the area in which I grew up. This building type had to be appropriate to the area, as well as being complex to a certain degree. After an investigation into the needs and cultural norms of the area, I chose a recreational park for the county. It is complex, with many scattered functions and activities, but most of all it is a people place. The proposed project includes an agricultural center, with a fairgrounds and multi-purpose facility, and a large park surrounding the main activity areas. The site for the project is in the middle of Broadus, the county seat, on a large piece of undeveloped property.



BROADUS

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A movement system lends itself to a complex facility, creating an organizing force to bring together many parts into a cohesive whole. It forms a structure which parts can plug into, giving a sense of unity to the built form. The structure can change in type and scale, but still establishes an image quality, creating spaces for communication, interaction, and encounter, forming a place for social interaction within the community.

While the system gives unity and focus, pulling together an array of parts, this organization must still differentiate the parts of the whole. Space must be differentiated, so as to accommodate and encourage a range of uses from public to private. This is how social interaction takes place, and the participant can begin to perceive and relate to the spaces. Without it, man may not be able to create a satisfying 'equilibrium between him and his environment.'

A movement system must be approached on several levels. First, and most importantly, as an organizational element. At this level it creates the sense of 'rhyme and reason,' to the multitude of events taking place around the participant. Secondly, it must be looked at in terms of proximity to the participant. We as participants observe space in relation to our orientation, so it now must be viewed in the third dimension, where as in the first level, it is viewed in a more two-dimensional sense. In the second level we must deal with the sequentiality of movement, how the participant per-



ceives the space as he moves through it. The third level is how the participant perceives movement and space, from one space to another. We look at how he reacts in terms of interest and involvement to the spaces. This level could actually be a portion of each of the two previous levels, but probably deals with movement mostly in the third dimension.

Image should be dealt with in all three levels, but probably most importantly in the third. To have a satisfying 'equilibrium' with the participant's environment, there must be interest within the space for the participant. The images which are created must be appropriate to the context, that being the area which they are in and the activities which are taking place. I have chosen to take the images of a fairground and of a small south-eastern Montana community on the prairie, and utilize them in an abstract sense in the design of the spaces. These images will create interest in the participants through memory recognition.

With a movement system, an overriding image quality is created for the park and the community. This is done first through the sense of order, secondly through the sense of perception, and thirdly through the sense of interest and involvement of the participant.



STREET IN ALBEROBELLO: Italy

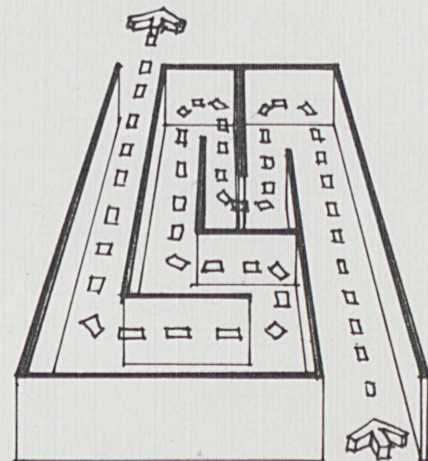
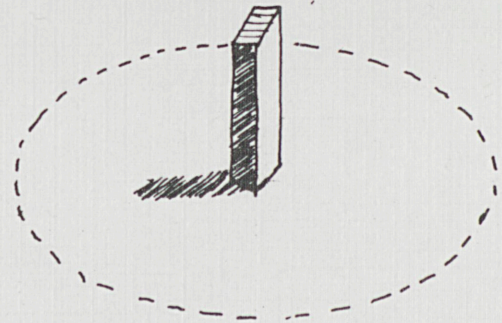
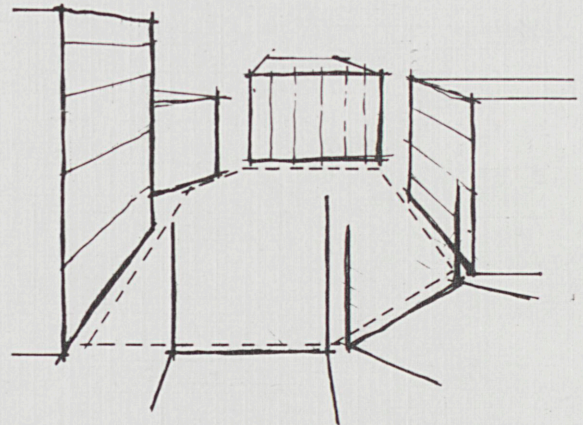
Goethe wrote:

"...only when we walk around a building, move through it, can we share in its life."²

Space has been typically thought of as a void, the lack of solid, and being created by the solid forms which are around it. It can either be very rigidly defined, in the case where enclosure is created by surrounding forms, or loosely defined, with the implied area around an object in a field. Man perceives space readily if it is more narrowly defined. If the clarity is simple and direct, he can easily become aware and interested in the events taking place.

We as humans can perceive space, and as we move through it, a continuity of experiences are created. The forms become the focus of our attention and act as stimulus for our movement, real or imagined. Therefore, architecture incites action, and becomes a stage for movement and interaction.³ We can only perceive this, if we move thorough the space created.

Through this, architecture can be created around movement. This movement becomes the ordering that man needs to understand the environment around him. The primary way it becomes successful is through the impact it makes on the minds of the participants; their awareness and responsiveness.



The basic goal of a movement system is to create a design structure which will bring the many facets of the design into a coherent whole. It must be clearly expressed to accomplish man's need for order. Thus, the system itself must be clearly defined, in order for us to have a better understanding of it.

I have broken the system into three major parts:

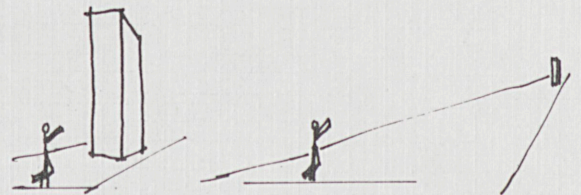
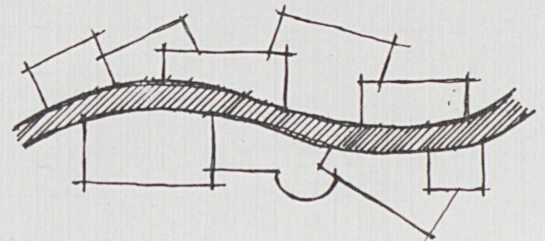
- Directional Movement
- Sequential Movement
- Transitional Movement

Separately, each area individually has its own function towards design, but together they create place.

Directional Movement deals with the overall organizational elements of design. This becomes the overriding idea which pulls all the different parts together, mainly in the two-dimensional aspects of planning.

Sequential movement deals with the proximity of the participants. As observers, the participants move through a space and relate to it in terms of their orientation. This area begins working with the three-dimensional aspects of movement.

Transitional movement is concerned with how the participant reacts to the spaces created, in how he perceives movement and space, from one space to another. This area deals with how the ideas of the space generate interest and involvement in the participants.



All three areas together, form the principles of a movement system. In many aspects they are all parts of one another. Transitional movement, in particular, is concerned very much with the ideas of the other two areas.



18th centuries fronting a tree-lined canal in The Kampen, Holland.

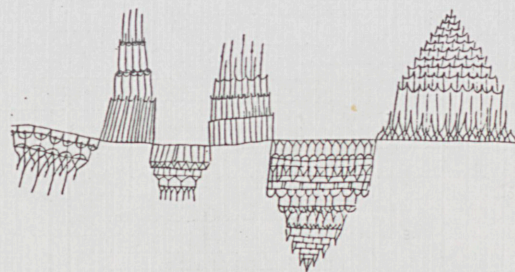
Directional Movement

In planning we need some sort of structural definition to create this needed sense of order. Through the use of exterior space patterns, we can structure a visual continuity to the parts of the plan. In the case of movement, we use the patterns of circulation (pedestrian and vehicular) and functional relationships as our structuring devices. The paths of circulation, and the lines created by functional relationships, become the spine for organization. Thus, the spaces created become supported by these lines of the system.

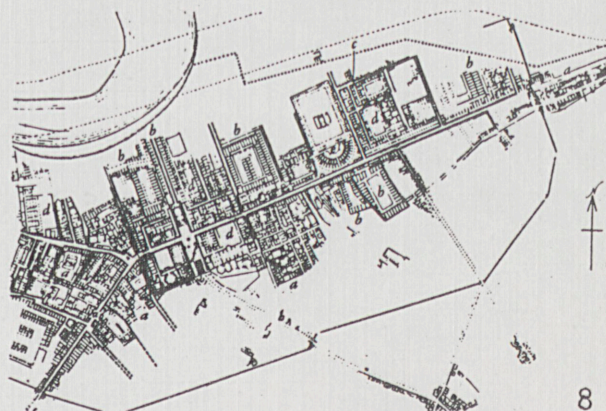
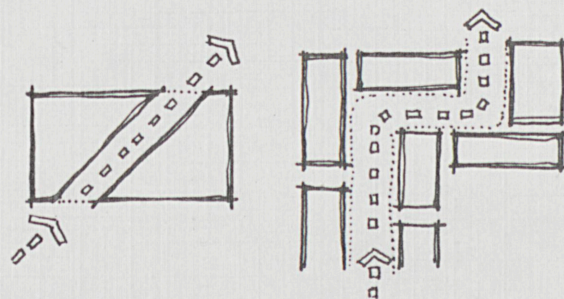
The line can be a very powerful idea, but in a simple way, it brings order to an array of parts. It can be felt in Paul Klee's drawings, even when the parts are somewhat alike or very different. In the lower drawing, each of the parts are very individual, but there still is a great sense of unity, brought about by the cohesive power of the line.

In architectural space, the most prominent line of movement is the path. The path becomes a track through space. Its most visible state is when it manipulates built form, or is manipulated by built form itself.

Some examples of movement systems in architecture may make the ideas more clear. The most common would probably be the linear seam approach in which loosely related objects are organized along the path of movement. This



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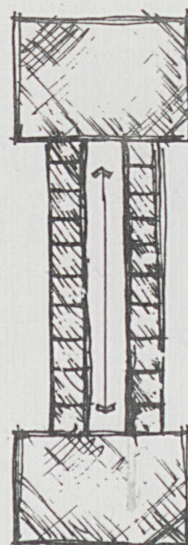
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would be similar to many of the Main Streets in the United States. A second approach could be where the path becomes the defining edge around an array of parts. This could be a perimeter road surrounding a park or an interstate freeway looping around a metropolitan area. A third type of system could be the linking together of two separate entities. An example of this would be the connection of two major activity generators by a path. This could be a shopping mall, where two large department stores are at opposite ends, with the many smaller stores between.⁴

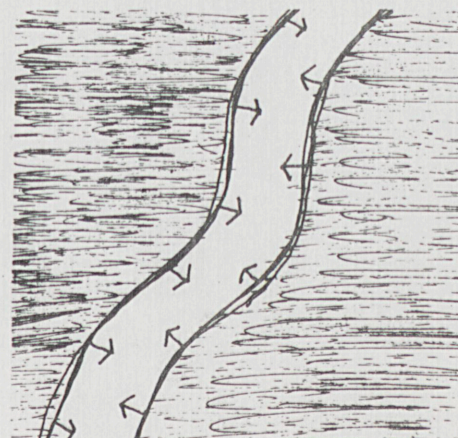
The visual character of the path, in the third dimension, is how we as participants perceive it. We can comprehend the directional order by the experiences of the space along the path. These experiences are found in the articulation to the area adjacent to the path.



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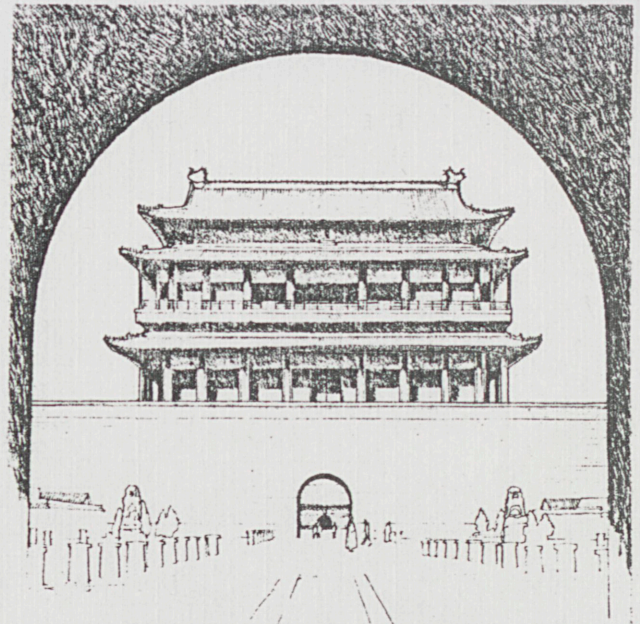
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Sequential Movement

We perceive space and forms differently, primarily in how we relate to them in terms of scale. It is all a matter of our orientation in how we perceive them. When we stand in the middle of a great cathedral, we are in awe of its spatial qualities, yet we have a different feeling when we stand in the middle of a closet. Yet again, when we are in a jet 20,000 feet above the ground, we perceive the prairie below differently than if we were standing in the middle of that land. So it is all a matter of proximity in how we relate to the spaces around us.

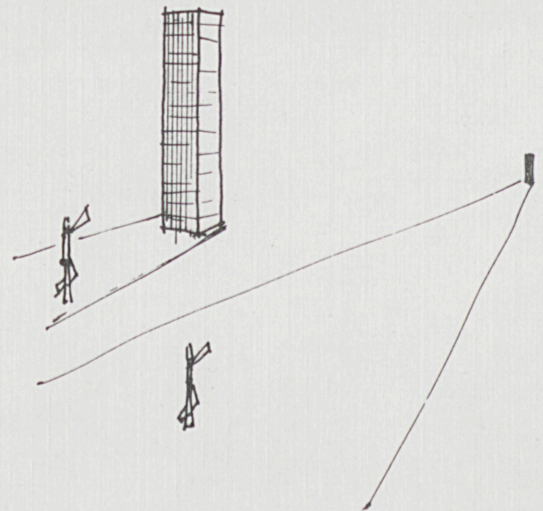
The location and the distance from an object can determine how we perceive that object. The closer we are to an object, the easier it is for us to judge our scale relationship. We also are able to see more detail the closer we get.

Another factor in our perception of space and form is the speed in which we view them while we are in movement. As pedestrians, moving slowly, we are able to grasp a lot of detail. With pedestrian paths, we need to create interest and variety to stimulate movement. This can be done through the use of closely spaced focal points and objectives. With vehicular movement we are unable to catch much detail, especially at a close distance. Also, the speed in which one travels in a vehicle determines the



QIAN MIER: Link between the Imperial City to the north and the Outer City to the south in Peking, China.

11



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amount of detail one can perceive. The faster one goes, it limits the amount of detail he can grasp. Here our path of movement must be flowing and our focal points and objective widely spaced.

No matter from what orientation we perceive space, we start becoming aware of certain spatial qualities. These qualities create importance along the path, which in turn strengthens its image. They are such things as: special facade and material characteristics (texture, color, shape, lighting, etc.); the proximity of special features (landmarks, rivers, mountains, activities, etc.); unique smells and sounds; and most importantly, visual exposure of things from the path, as well as the path itself.

Orientation now becomes the factor in how we relate to space and form. We must deal with perception simultaneously, in terms of distances and scale, and at the different speeds of movement.

Our orientation allows us to gain a sense of bearing; by what we are able to see and relate to. It also starts allowing us to make judgments such as our destinations, interests, and involvement.



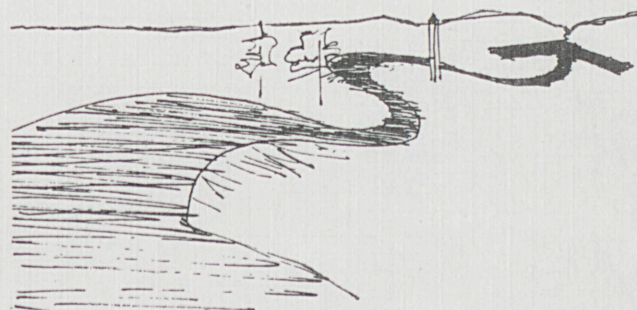
STREET IN ALBERODELLO: Italy

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CHAMP DE MARS, PARIS

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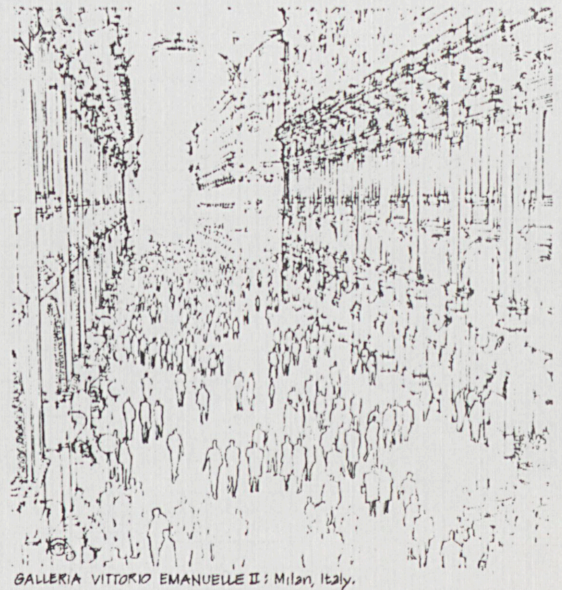
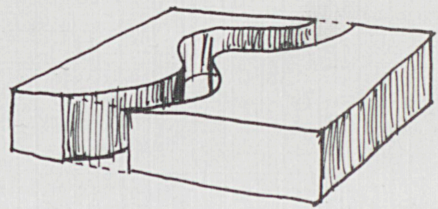
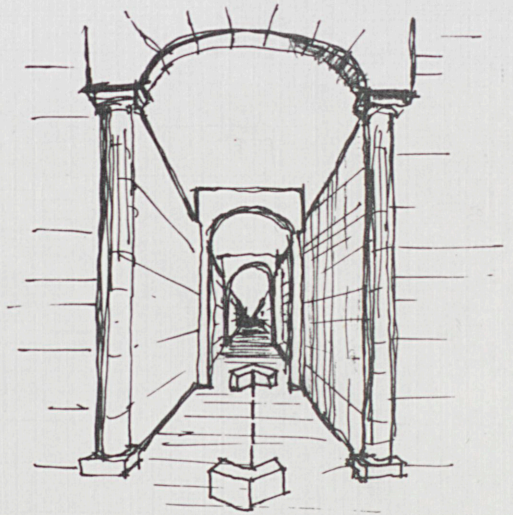
Transitional Movement

We are now concerned with the participants intellectual reactions to the spaces created. How the participant perceives movement and spatial quality, as he moves from one space into another, becomes an important aspect to the success of the movement system. The way it becomes successful, is by the impression it makes on the minds of the participants.

If the environment created is visibly organized and defined, the participant can partake in it, and make understanding of it with his own meanings and connections. Then it becomes a true place, memorable for the individual.⁵

This success evolves when there is incitement for interest and involvement in each of the participants, to partake in the experiences created. The first way, is becoming aware of the movement system itself. Initially, it may be visually perceiving its organization, possibly by directional qualities or physical path manipulations. Also, it could be pulling participants along the path by the use of interest generators. Secondly, incitement is encouraged in how the spatial qualities are handled in the spaces the participant must make decisions in.

There are many types of interest generators for paths of movement, but the creation of a focal point is probably the most used. It becomes a point of spatial prominence along the path, and can be utilized in many forms. It may become



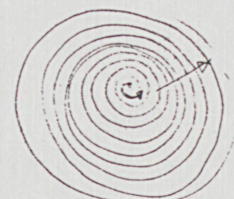
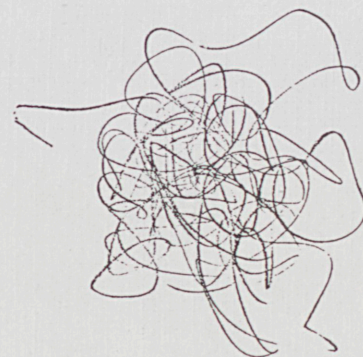
an organizational factor in itself, as the Paul Klee drawings show (a point in space becomes an organizing factor in bringing order to chaos). Also, it may become a point of destination or interaction, such as town squares, markets, landmarks, or intersections of paths. They can become points of orientation along the path, as well as giving the participants a sense of arrival.

Anticipation is another key in movement generators. The mystery of what is around the corner can be very enticing for the participant.

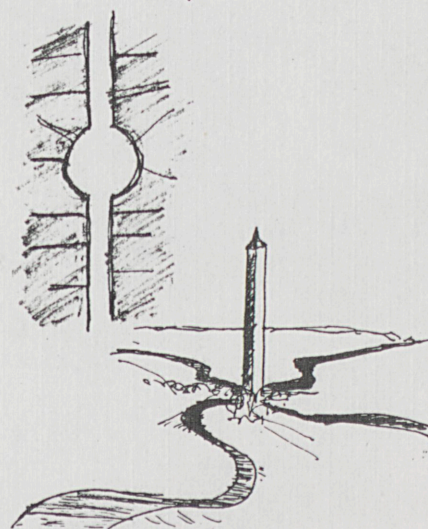
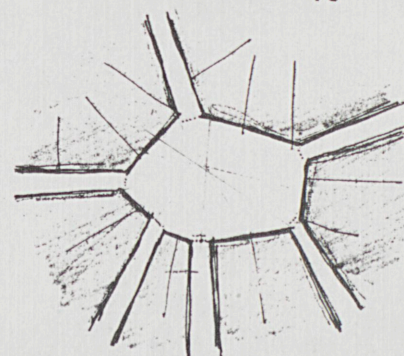
Another form of interest generation is activity. People can become aware of variations in activity, and tend to follow the main flow of activity. Also, they tend to follow a path if there are places of interest and activity to encounter along its way. This could be such things as the shade over a park bench, the shelter of a gazebo, people selling goods along the walk, or a concert in an outdoor theatre. These intermittent points of interest give direction to the participant, as well as a sense of scale and bearing to distance.

The spatial qualities of the space in which the participant perceives, influences his reactions to that space (feelings of interest towards comfort, belonging, motivation to move on or stay, recognition to what goes on in the space, etc.). Again, there are infinite ways to incite interest and involvement in a space.

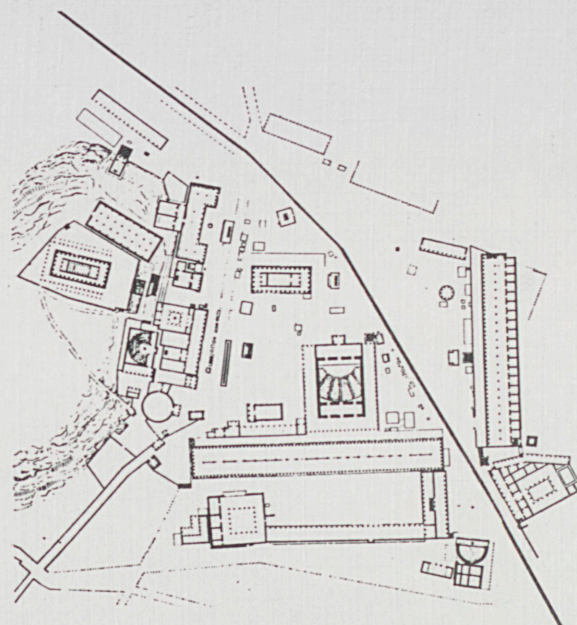
One example is to produce a certain amount of manmade disorder in plan, such as that in cities



15



of antiquity, creating dynamic residual space. The spaces formed can create interest in the participants, if only for the fact that when disoriented, he becomes aware of the movement and the spatial relationships around him. A good example of this is the Athens Agora, in which order is brought about by the line of the Panathenaic Way, but the disorder of the plan creates a dynamic space. Also, there is a visual point of destination, the Acropolis on top of the hill. This is but one case of how the spatial qualities create interest in the participant. What becomes important is how the articulation of the space is dealt with, and the images that are created.



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THE ACROPOUS, ATHENS

17

APPLICATION

A total movement system becomes a social generator which establishes an image quality for built form. This image quality evolves out of the dialogue between the system's own structuring and environmental context.⁶ It can be used to emphasize, dignify, or give meaning to built form. Architecture can be created around movement, thus it incites action, and becomes the generator for movement and interaction. We can only perceive this if we move through the spaces created.

The movement system lends itself to a complex facility, such as a county recreational park. It becomes appropriate first through its organizational characteristics, this ability to bring an array of parts into a coherent whole, and secondly through its capacity to create interest and involvement in its participants.

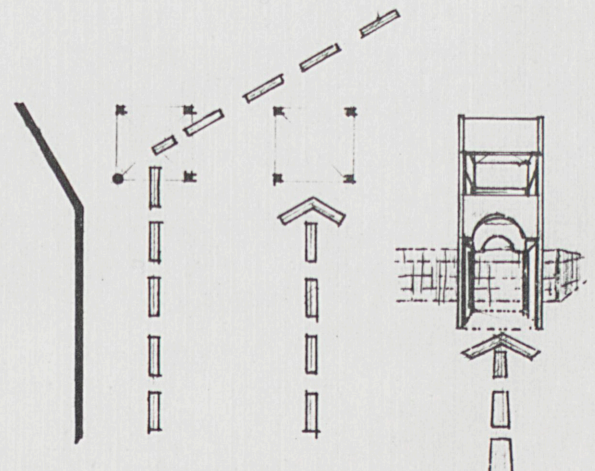
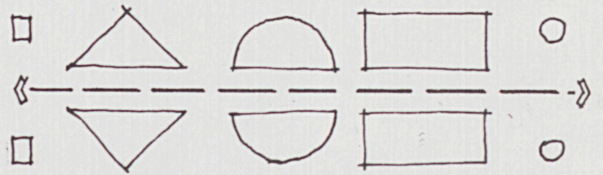
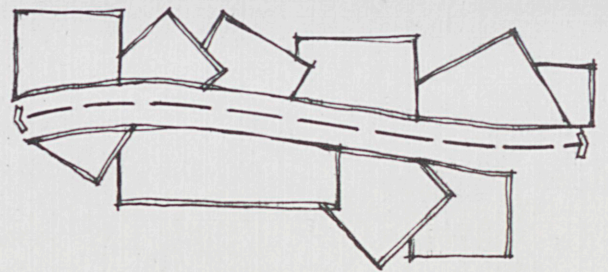
The recreational park has a fairground, multipurpose facility, and large park, along with many activities which relate to each, causing it to have many scattered functions. So in its design it becomes first a planning study, due to this complexity, and secondly an image study.

As an organizational element, the movement system uses space patterns as a structuring device to bring visual, as well as functional continuity to the parts of the plan. Pedestrian and vehicular circulation patterns, and functional relationships, become these structuring devices. The lines created become the spine for the organization.

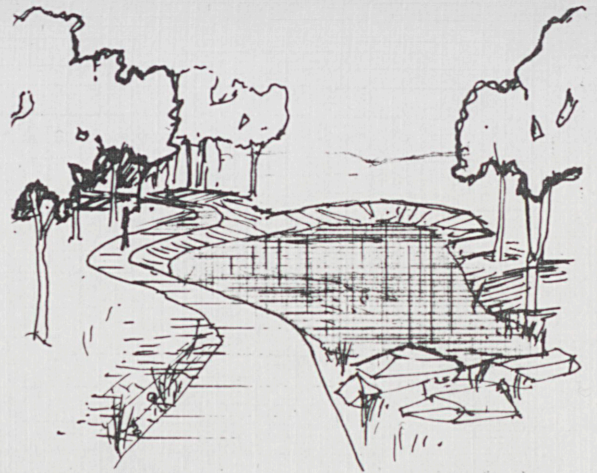
For the movement system to become successful, it depends upon the impressions it makes on the minds of the participants. How they perceive the movement and the spatial qualities becomes an important aspect in its success, the desire being that it becomes a truly memorable experience for each individual. For this to happen there must be interest generation in the system. The primary purpose being that the participants become involved in the spaces created.

This interest is most importantly influenced by how the path, which is the spine, is dealt with. People tend to have the desire to know where a path is coming from and going to, so it will have points of destination by the creation of nodes and landmarks. If the path is clearly and well defined, it strengthens its identity and helps to bring the whole design together.

Elements which can be used as nodes and landmarks: a water or clock tower that will become a visual landmark and possibly a point of decision along the path; outdoor common spaces; the placement and shape of buildings; views



of the valley, park, and movement along the path itself; points of activity generation, such as the fairground; landscaping within the park through the use of water, vegetation, and elevation changes; etc.. Another form of interest generation is the use of anticipation along the path, by arousing ones curiosity to find out what is at the end or around the corner. This can be done through the use of landscaping, placement of buildings, and the line of movement along the path.



A sense of perception of how the path is organized and awareness to its spatial qualities, creates importances for the path. This perception allows us to make judgments, such as orientation, destination, interest, and involvement. If the environment is visibly organized and defined, there are points of interest, such as nodes and landmarks, and the articulation of the spatial qualities strengthens its image, the participants can partake in it, and make an understanding of it within their own minds.



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To create importance in the articulation of the spatial qualities, memory recognition within the participants will be employed through the use of common images. The majority of the participants which will be using the park are from the same local area, and have the same basic cultural backgrounds and norms. The images which are appropriate to the context and activities which will be taking place, are those of a fairground and of a small south-eastern Montana community on the prairie. These



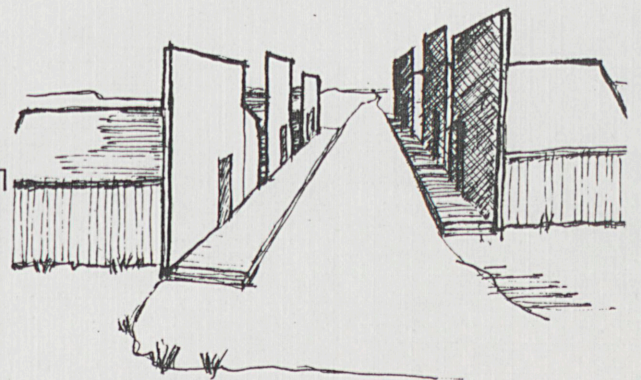
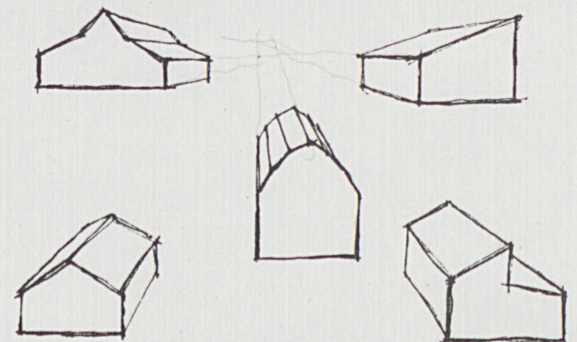
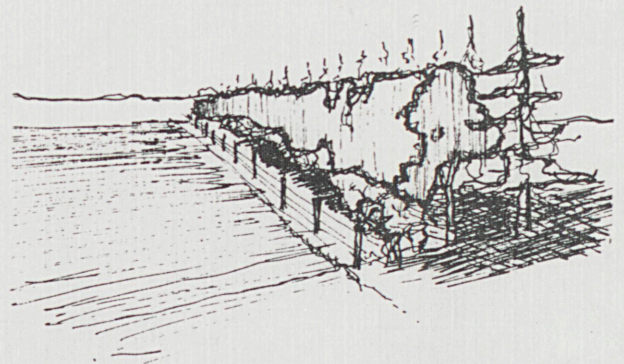
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images will then be utilized in an abstract sense in the design of the spaces.

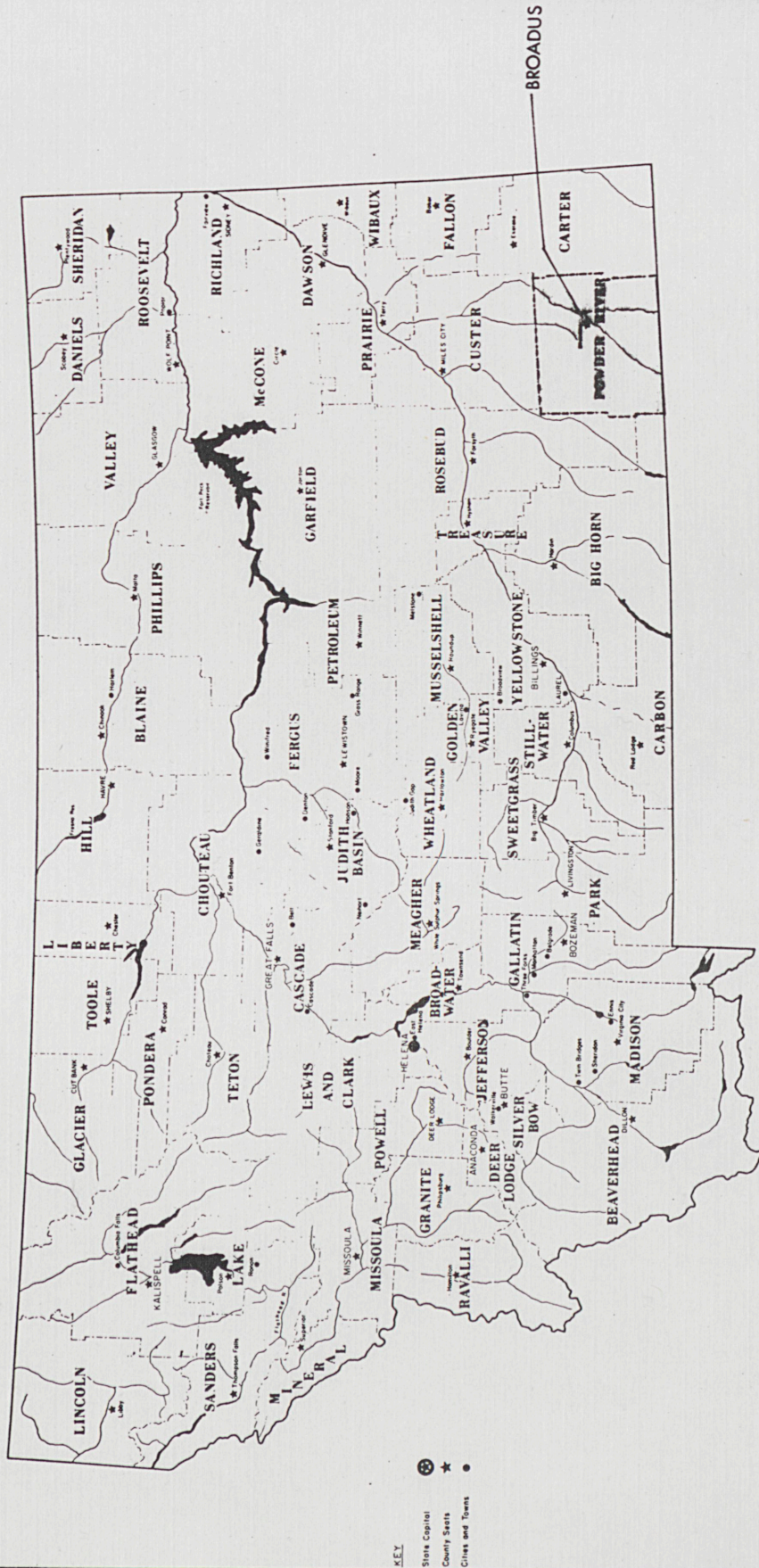
The image of a farmyard becomes appropriate in the creation of an outdoor common space within the fairground. Spaces created by the surrounding of the service buildings, the barns and a house, form a sense of enclosure, privacy, and place. This same sense of place can be created within the fairground by the placement of the exhibition buildings, the arena, and other facilities.

There are many images which are prevalent in the agricultural communities of southeastern Montana: the use of metal buildings in the more recent agricultural facilities; the traditional, simple and functional shapes in agricultural buildings; the use of trees and shrubs in hedge rows; the defined areas within small towns, forming spaces such as town squares; the use of low-rise buildings and false-front facades; etc.. These are just a few of the images which are common to each individual, and all can be appropriately incorporated into the design of the park.

The total movement system becomes very fitting to a somewhat complex facility like a Powder River County Recreation Park. It creates an overriding image quality both for the park and surrounding community, first through directional movement, the sense of organization; secondly through sequential movement, the sense of perception; and thirdly through transitional movement, the sense of interest and involvement in the participants.



powder river county recreation park



POWDER RIVER COUNTY, MONTANA

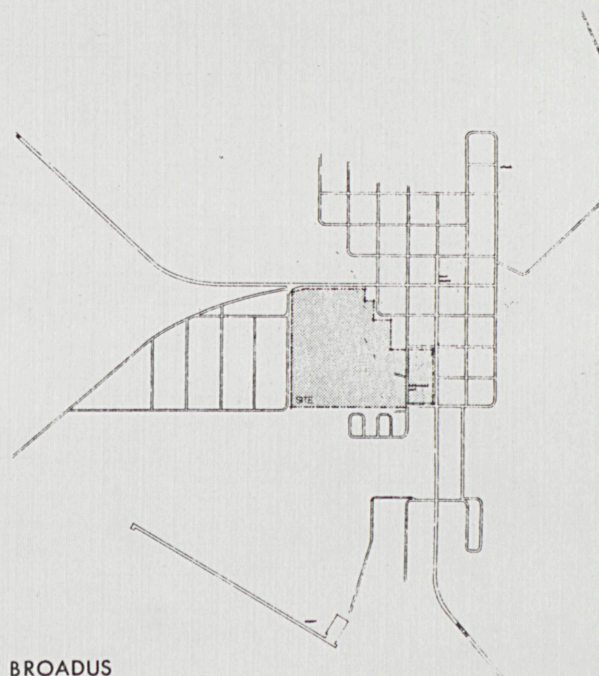
POWDER RIVER COUNTY RECREATION PARK

Powder River County, in southeastern Montana, presently has an agriculturally based life-style, and is sitting on vast coal reserves. Up until now, most of the population was agriculturally oriented, being either rural or catering to the rural. Now with the discovery of coal, and the present need for energy, a mine oriented population is growing at a staggering rate in all of southeastern Montana.

Being very agriculturally oriented, the fair each year and the activities which take place at the fairground day-to-day, are very important parts of the culture, interests, and livelihoods of most of the people. In a county of this type, the fairground becomes a cultural center of sorts for the citizen.

The fairground is appropriately situated in Broadus, the county seat. Broadus lies in the center of this very large county, and is the focus of most of the activities. It is the major business hub for the area, with the county's only high school, bank, library, and clinic.

A fairground is a people space, where people come to interact for a multitude of reasons. They are primarily there for recreation, but also for exhibiting their goods, or observing or learning new things of interest. It becomes a place which exhibits the cultural norms, traditions, and lifestyles of a community.



BROADUS

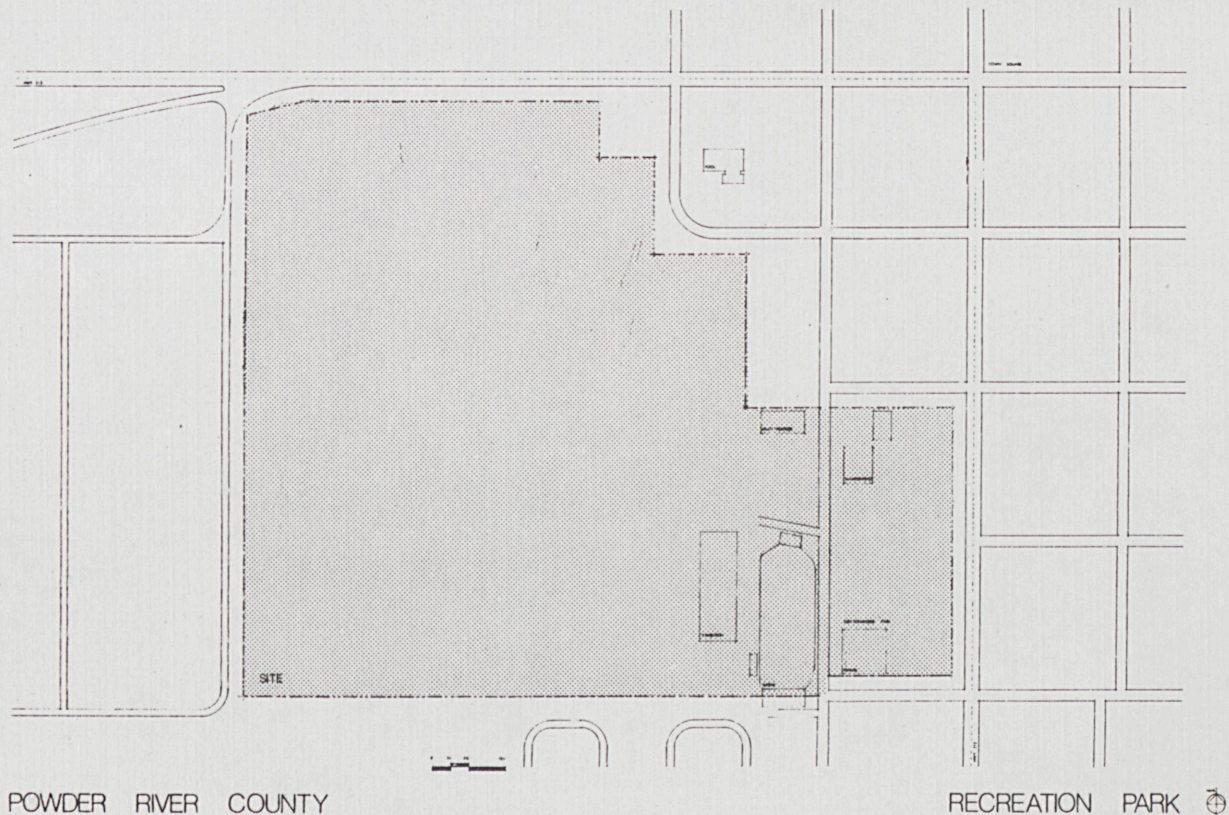
In Powder River County, a fair is primarily focused on ranching, farming, rodeo, and homemaking activities, thus the fairground must cater to these needs. Until now, those were the primary interests, but with this new population, there are growing new interests, so the fairground must now start taking these into consideration.

The present fairground is becoming outgrown, and will even worsen more so in the near future because of this vast growth in population. There are also parts of the facility which need to be replaced. With this in hand, a new facility can be built. Taking the present fairground, and incorporating Cottonwood Park to the east and a large undeveloped piece of property to the west, a new cultural center for the county can be created. This new center will be built around the primary interests; ranching, farming, rodeo, and homemaking, as well as the new interests. It will become a year-round social center for all types of activities.

The present population of Powder River County is a little over 3,000 people, but is expected to triple within the next ten years. Currently the County Fair (the major attendance event of the year) has an attendance of approximately 1,500 to 1,800 people. Many of these people are from outside of the community, but the majority are local. With a population growth of up to 10,000 people by 1990 an approximate maximum would be 3,500 to 4,000 people. Taking into consideration that the new population is not likely to be as fair oriented as the present population, the attendance ratio will be lower

in 1990 (2:1 presently and approximately 3:1 in 1990). Though the attendance will become greater, the amount of livestock and animals exhibited will remain relatively unchanged, but probably will have some growth. This is due to the fact that the new population is not agriculturally oriented and the agricultural populace will remain fairly constant.

This new facility will now be catering to a multitude of interests, and must now include new facilities, as well as the important old facilities, to become a year-round cultural center. It will be a recreation park for the people, in the center of Broadus, with a primary objective of retaining the images of what Powder River is (and was), as new images in time grow around it.



goals

GOALS

The primary purpose of the county recreation park is to be responsive to the community needs. These needs are: recreation, cultural outlet, educational experience, image for the community, and usefulness towards community operations. For it to be successful in these needs, it must become a memorable and enlightening space for its participants.

For the complex to be a prosperous and purposeful venture for the community, it must become a usable and viable year-round facility. To accomplish this, there must be additional activities added, with their needs, to the normal fairground activities and facilities. This is done through the use of more multi-use facilities, in which an array of activities can take place within a few buildings.

The following are other major concerns and goals which are desired to enhance the success of the complex:

- To use movement and transition in an efficient way towards the final design

- To serve the agricultural public and agricultural business

- To become responsive towards local businesses and organizations

- To produce a productive relationship with the citizens of the community

- To create the park as a people space

- To maximize site development opportunities

- To consider phase development

- To create the park as a central and significant element in the community

program

PROGRAM

The primary objectives of creating a recreational park, is to make use of a basic fair-ground facilities on a more year-round basis and to create a memorable and enlightening space for the participant. This is accomplished by offering, and encouraging, an additional assortment of interest activities which the citizens of the community find appropriate, enjoyable, and needed. So the basic facility is now expanded to include new facilities which will accommodate those interests.

The facilities which will be included in the recreational park:

- Exhibition Hall
- Exhibition Barn
- Arena
- Outdoor Exhibition Space
- Multi-purpose Building
- Park/Large open space
 - Natural park
 - Landscape park
- Camping facility
- Parking
- Maintenance Facility

The following is a description of each facility, type of activities to take place, spaces needed, considerations, area requirements, and functional relationships.

Exhibition Hall

It is to be a large enclosed year-round building which will be heated.

Activities which will take place:

- Home Economics Exhibits and Workshops
- Art Exhibits and Workshops
- Hobby & Craft Exhibits and Workshops
- Commercial Exhibits
- Agricultural Shows
- Vehicle/Machinery Exhibits
- Livestock Products Shows
- Meeting Space/Government, Business, Professional, Clubs, etc..
- Conferences/Classes/Seminars
- Social Events
- Religious Events
- Family Gatherings
- Administrative Offices for park

The major aspect in the building's design is the efficiency of movement of people through the building, and connecting to outdoor circulation and exhibition spaces. Also, ease in access for the exhibitors getting their goods in and out of the building.

There is a need to have flexibility in the interior space, due to the different sizes and kinds of events which will be taking place. It must be able to accomodate small groups of people, as well as large groups up to 100 comfortably, for meeting purposes. This meeting area should relate to the entry of the building.

It must be reached directly by automobile, and have an efficient connection to service system and parking area. There also should be a good connection to the outdoor exhibition space.

The administrative offices should have access into the central area of the fair complex and relate to the main entry of the building itself.

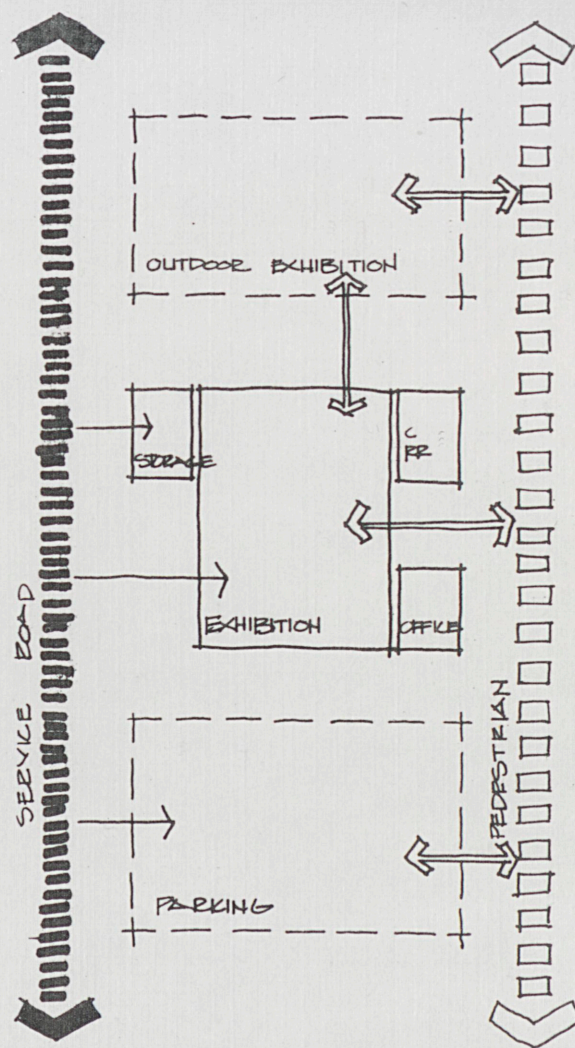
The interior should have a hard surfaced floor which can be hosed down after events. The main exhibition space should have a clear ceiling height of 15 to 20 feet, with overhead doors (in relation to service system) for the movement of exhibitions in and out of the building.

Space Requirements

The present space used for these activities is 12,000 to 15,000 square feet. With the projected large population growth within the next ten years, an approximate 25,000 square feet will be needed.

Total space of building:

Exhibition	20,000 sq. ft.
Offices	800 sq. ft.
Restrooms	600 sq. ft.
Concessions	400 sq. ft.
Storage	1,000 sq. ft.
Circulation/Mechanical	<u>2,000 sq. ft.</u>
TOTAL	24,800 sq. ft.



Exhibition Barn

The exhibition barn will be a large, partially enclosed year-round facility, which will be heated. It will serve to board and show a variety of cattle and animal types, with open spaces within the building to accomodate animal shows, live-stock auctions, and roping events (which will take place during the winter months).

Types of animals to be exhibited:

- Beef and Dairy Cattle
- Horses
- Sheep/Goats
- Swine
- Small Animals/poultry
- fowl
- rabbits

The barn area serves to both board and show the cattle and animals. Movement from the point of delivery to the stalls, and from there to the show and sales area, becomes an important consideration.

There will be two interior open spaces. A larger one used for livestock shows and sales, and indoor roping in the winter months. This open space should have an efficient relationship to the larger animal stall areas. A second smaller open space is to be used primarily for the showing of small animals, swine, and sheep/goats. There should also be an efficient movement between the horse and beef cattle stall areas, to the outdoor exhibition area.

One of the most important design considerations for the barn is adequate ventilation. Possibly removable side walls could accomodate good venti-

lation in the summer, and protection from the cold in the winter. Details and siting of the building becomes a major consideration in relation to effects of direct sunlight and the utilization of wind direction for ventilation purposes.

The building will not require any floor paving due to its use.

Portable stalls should be used around the open spaces to allow for expansion in area. This will enable flexibility in use (such as different types of activities, or used as storage spaces for both the county and rental, when not needed for activity use). Portable seating should also be available for spectator use.

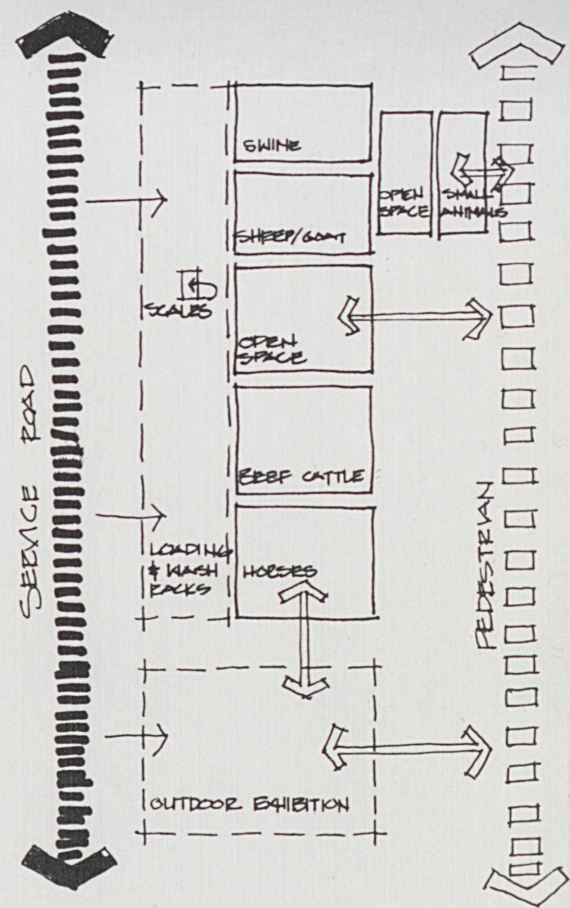
There should be a clear ceiling height of 12 to 15 feet in stall areas, and 15 to 20 feet in open spaces.

Provisions for solid waste removal and storage on site are necessary.

In relation to the service system there, should be an area for loading and unloading animals, wash racks, and scales. The scales should be in a convenient space near the large open space.

Space Requirements

The horses, beef cattle, sheep/goats, and swine are all boarded in stalls. There should be double-loaded 15 foot aisles along the front of stalls,



with 15 foot cross aisles every 70 to 100 feet.
In the small animal area, the animals are kept in cages stacked two and three high on tables.

Area needed per stall for each type of animal:

Horses:

Stall space needed	10 X 10 ft.
Area per stall w/circulation	190 sq. ft.
Projection	100 stalls
TOTAL AREA	19,000 sq. ft.

Beef Cattle:

Tie stall space needed	4 X 10 ft.
Area per stall w/circulation	70 sq. ft.
Projection	150 stalls
TOTAL AREA	10,500 sq. ft.

Sheep/Goats and Swine:

Stall space needed (2 animals)	6 X 6 ft.
Area per stall w/circulation	70 sq. ft.
Projection	200 stalls (100 sheep/goats & 100 swine)
TOTAL AREA	14,000 sq. ft.

Small animals:

Total area needed for tables and circulation	2,000 sq. ft.
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The large open space should be approximately 10,000 square feet. Within this space, portable seating for 150 spectators (7 sq. ft. per spectator, totaling 1,050 sq. ft.) and 200 sq. ft. for judging and announcer area should be provided.

Total space of building:

Horse area	19,000 sq. ft.
Beef cattle area	10,500 sq. ft.
Sheep/goats area	7,000 sq. ft.
Swine area	7,000 sq. ft.
Small animal area	2,000 sq. ft.
Large open space	10,000 sq. ft.
Small open space	<u>2,000 sq. ft.</u>

TOTAL	57,500 sq. ft.
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Arena

The arena is the major outdoor event area of the complex. This will be the facility which will handle most sporting activities, most importantly the rodeo events.

Activities which will take place:

- Rodeo events
- Livestock and Horse Shows
- Concerts
- Parades
- Tractor Pulls
- Horse Pulls
- Athletic Competition

The major aspects around this facility are the operations involving the spectators and activities. There must be efficient access for spectators and participants; proper siting of concessions, ticket booths, and restrooms; appropriate siting for sun and wind orientation; security; and ability to accomodate different types of events.

There should be some connection to the exhibition barn, in the event livestock and horses needed for showing, are being boarded there.

The arena should be properly sited so the spectators will not be looking into direct sun, with a portion of the stands being covered for protection from the sun and bad weather. The bucking events should take place towards the spectators, while roping events occur across their field of vision. The announcer's booth should be near the bucking chutes (possibly above), so as to have a good view of all the events taking place in the arena. Proper light-

ing in the arena is necessary for night events.

There should be holding pens at both ends of the arena, one for holding bucking stock and roping stock, and the other for holding preparatory roping stock.

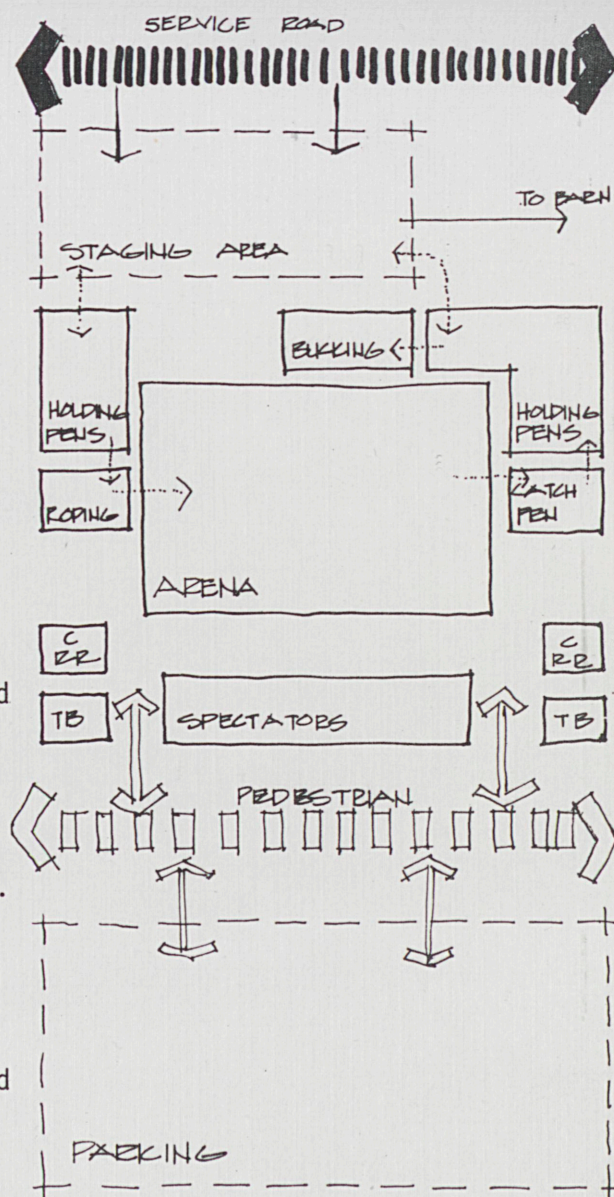
There should be a large gate to get participants, animals, and equipment in and out of the arena space.

Space Requirements

For rodeo events, the arena space size can range from 85 X 200 feet to 135 X 240 feet. There should be five bucking chutes (needed for preparation time), approximately 4 X 10 feet in size.

The projection for the maximum attendance is 2,500. Allowing 4 square feet per spectator, the seating area will take 10,000 square feet.

An approximate area of 30,000 square feet is needed for the pens.



Outdoor Exhibition Space

The primary use for this space will be for the exhibition of livestock, mainly horses and beef cattle, and machinery. It is very important to consider efficient movement and connection to the exhibition buildings.

Activities which will take place:

- Livestock Exhibition
- Vehicle/Machinery Exhibition and Demonstration
- Sporting Events
- Club Activities
- Flea Markets
- Commerical Exhibits
- Concerts
- Meetings/Revivals

There should be efficient pedestrian movement through this outdoor space to the exhibition buildings and other main activity areas within the complex. Also, of prime concern, is the efficient movement of exhibitions and livestock in and out of the space.

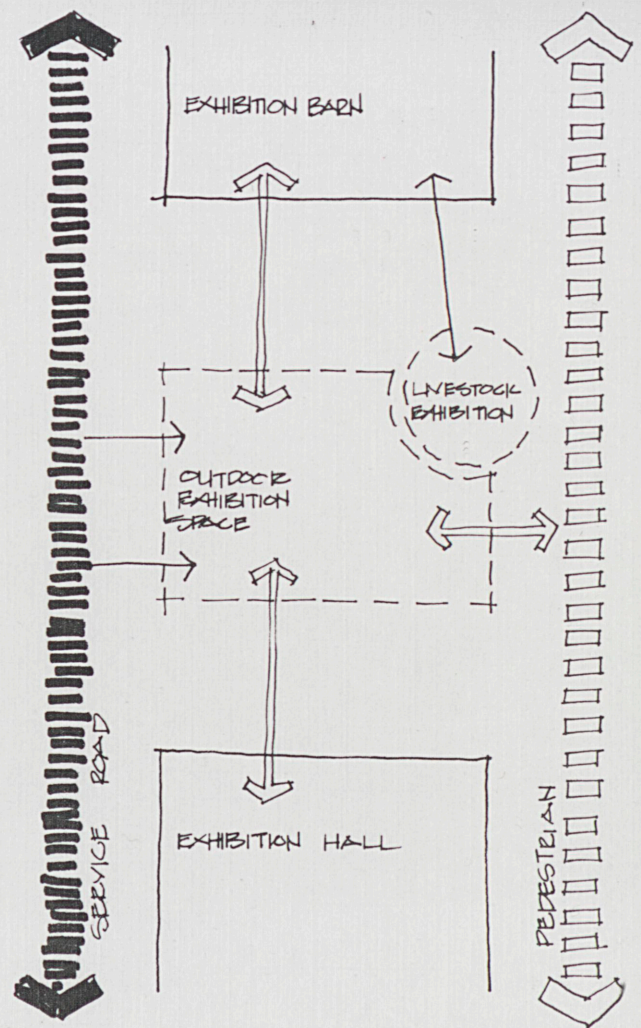
The space should be very informal, with allocated areas for different types of activities. These areas can be differentiated by the use of vegetation and landscaping.

There should be one large area for exhibition and sporting type events. An area for livestock exhibition should be located in an area near the exhibition barn for efficient movement of the boarded livestock. This exhibition space should have a grass slope, for spectator seating, surrounding a central area for animal exhibition.

Space Requirements

To enable flexibility in activity use, the large area should be at least 200 X 300 feet. The livestock exhibition area should have a central showing of approximately 3,000 square feet, which will allow several animals to be exhibited at once. Seating should be provided for 200 spectators. Allowing 7 square feet per spectator, the total area needed will be 1,400 square feet.

There should also be an appropriate amount of area left for the efficient flow of pedestrian traffic through the site.



Multi-Purpose Building

This building will serve as the community activity center, accomodating many functions and events. It will be a year-round building and more finely finished than the Exhibition Hall. The use of the building is on a more day-to-day basis, and will have the capacity to accomodate many of the acitivites which will take place in the Exhibition Hall.

Activities which will take place:

- Dances
- Shows
- Banquets
- Social Events
- School Activities
- Meetings
- Conferences/Classes/Seminars
- Exhibits

The major operational aspect of this building is its need to accomodate the many different types of activities which will be functioning in it. It should be easily accessible by automobile, with convenient parking nearby.

The building will need an entrance lobby to function as a monitor to the particular events taking place. There will be a need for flexibility within the main multi-purpose space to accomodate the different sizes of groups and activities comfortably. It should have a clear ceiling height of 15 to 18 feet, with overhead doors to allow large objects and equipment in and out. The main space will also need a small stage (possibly portable).

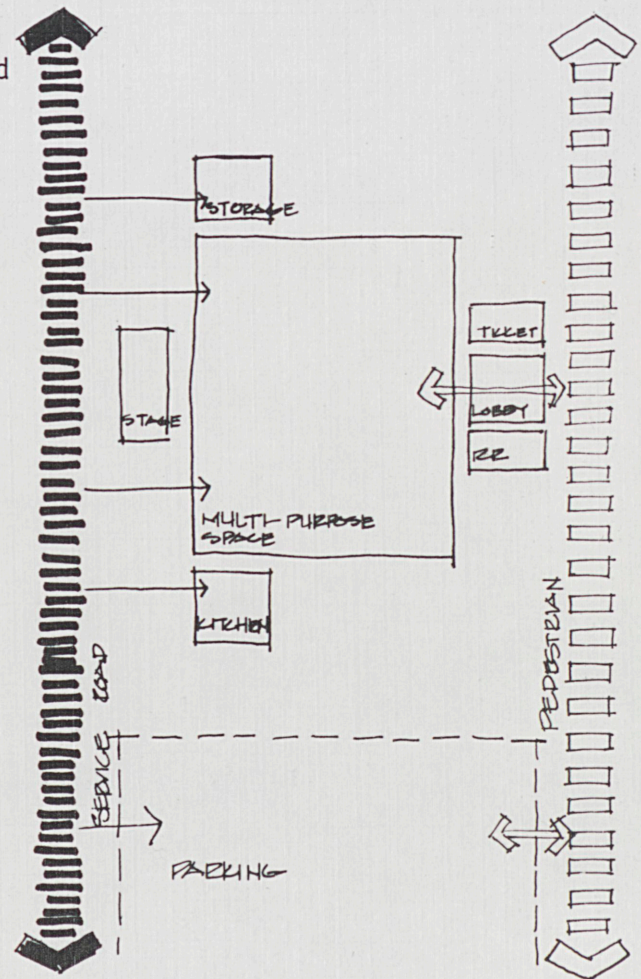
The building will need a kitchen, to be used for banquets and catering meetings. It will also need a storage area for the facility equipment (such as chairs, tables, exhibit panels, etc.).

Space Requirements

The present space used for these activities is 12,000 square feet. With the projected large population growth within the next ten years, an approximate 20,000 square feet will be needed.

Total space of building:

Multi-purpose space	15,000 sq. ft.
Stage	500 sq. ft.
Kitchens	1,000 sq. ft.
Restrooms	600 sq. ft.
Storage	1,000 sq. ft.
Lobby	500 sq. ft.
Circulation/Mechanical	<u>1,500 sq. ft.</u>
TOTAL	21,500 sq. ft.



Park

The primary purpose of the park is to facilitate an activity and recreation area for the community. It will be an area where the community residents can come to relax, picnic, play sports, and view scenery of the park and valley. It also becomes a buffer zone between the residential area of the community and the activity area of the fair facility.

The three primary types of park spaces to be utilized:

- Large open space area
- Natural park area
- Landscape park area

The large open space should be relatively flat and near the main fair facility. It can be planted with natural grasses and should be mowed periodically (possibly used for hay). This space is to be used for such events as carnivals and sporting activities (stock races, snowmobile races, motorcross, etc.). It will also be used for the overflow parking when needed.

The natural park is primarily an image area. As the town grows around the park, it keeps a touch of the natural prairie within the community itself. It also allows for a minimal amount of maintenance.

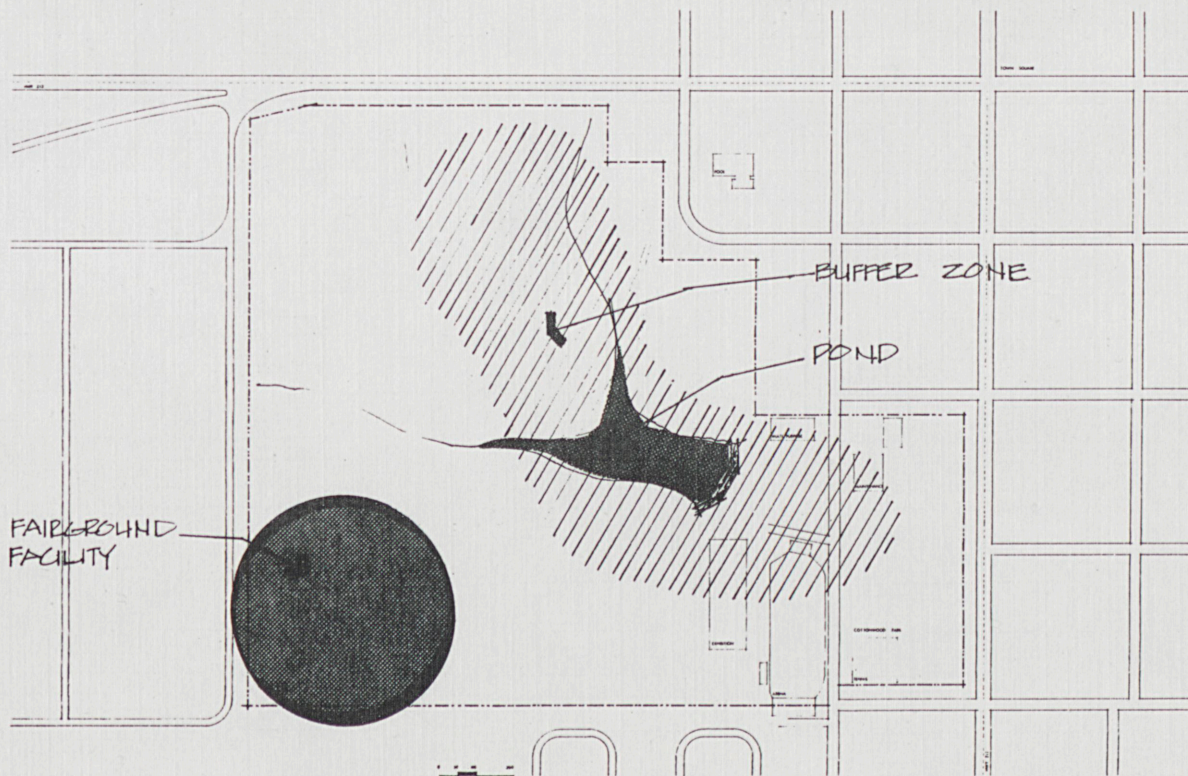
The landscaped area is basically created as a buffer zone between the community residential and fair facility. It is to be done primarily with vegetation, but with some landscape work. This is

the area of the recreational park where the majority of the pedestrian connection between the community and the fair facility will take place.

A pond is to be built along the creek for both summer and winter activity (fishing and playing in the water in the summer and ice skating in the winter).

There should be the appropriate number of rest-rooms along the pedestrian paths, as well as seating areas and gazebos for relaxation.

In all areas of the park views of the valley, the park itself, and the immediate community, should be taken into account. There should be efficient movement on paths of both the automobile and pedestrian.



Camping Facility

The facility will primarily be used to accomodate a camping area for those people participating in acitvities at the park, such as fairs. When there are no activities taking place, it will be open to the tourist to use. This will allow for a year-round facility and a form of revenue generation for the park.

It should be located near the main fair facility, and most preferably off the service road, away from the recreational activity area.

There should be the appropriate number of men's and women's toilet and shower facilities. Also, all utilities should be available at each camp site.

Space Requirements

Toilet/Shower facilities	400 sq. ft. each
Camp Sites	40

Parking

The projected maximum attendance for the park at any one time will be 4,000. This increase from present attendance is attributed to the large projected growth in the population in the next ten years. Due to the array of activities taking place throughout the park, and the need for convenience parking, there will have to be several parking areas.

Facilities needing parking:

Main Fair Facility	300 spaces
Multi-Purpose Building	200 spaces
Exhibitor Parking	50 spaces
Participant Parking (near Arena)	50 spaces

The majority of the parking areas will be gravel and grass. In the event there is a need for overflow parking during peak events, off-street parking and the large grass open space will be used. It is felt to create enough parking for peak events, would be a waste of land for other activities when not needed for parking.

Maintenance Facility

It is proposed that the maintenance of the park be shared with the town of Broadus. The maintenance facility, for both town and park, could be placed in the present exhibition building, after the appropriate renovations.

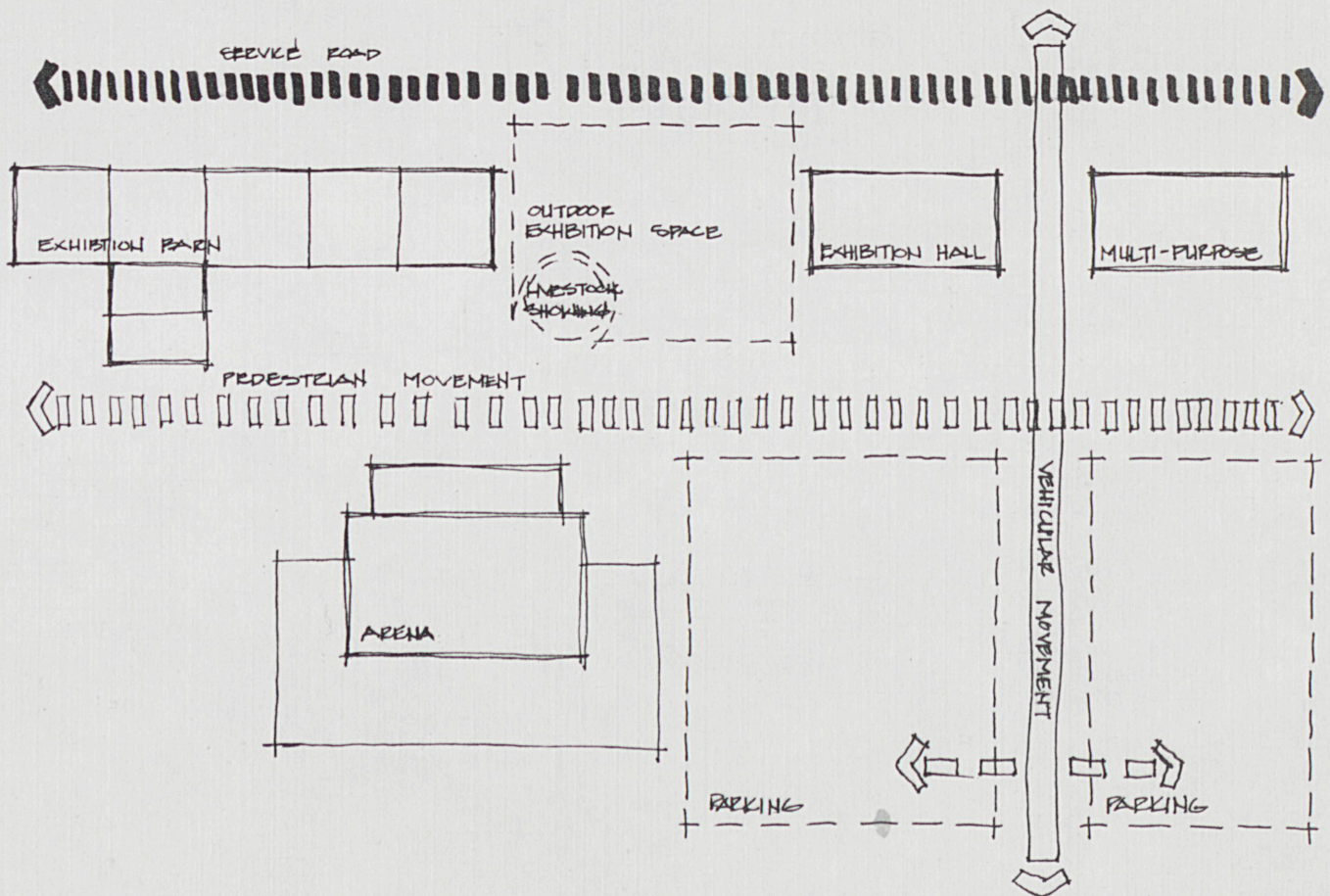
Spaces needed:

- Area for the storage of equipment
- Workshop
- Offices
- Storage area

PROGRAM SUMMATION

The following are the proposed buildings for the fairground complex and their respective square footages.

Exhibition Hall	24,800 sq. ft.
Exhibition Barn	57,500 sq. ft.
Multi-Purpose Building	21,500 sq. ft.
 TOTAL	 103,800 sq. ft.



BUILDING CODES

The following codes are in appliance with those set forth in the Uniform Building Code. All buildings are zoned for public use and one within Fire Zone 3.

REQUIREMENTS BASED ON OCCUPANCY

Occupancy	Group (Table 5-A)	Separation (Table 5-B)	Live Loads (Table 23-A)
Exhibition Hall	A-3	none	100 lbs/sqft.
Exhibition Barn	A-4	none	100 lbs/sqft.
Multi-Purpose Building	A-3	none	125 lbs/sqft.
Offices	B-2	1 hr. between A-4	50 lbs/sqft.
Storage	B-4	1 hr. between A-4	125 lbs/sqft.

ALLOWABLE FLOOR AREAS

Occupancy Group	TYPES OF CONSTRUCTION									
	I A-3 FR	II FR	II 1 HR	II N	III 1 HR	III N	IV HT	V 1 HR	V N	
Basic Allowable Area	UNLM	22,500	10,100	6,800	10,100	6,800	10,100	7,900	4,500	
Increase for Fire Zone 3 1/3	UNLM	7,650	3,430	2,310	3,430	2,310	3,430	2,690	1,530	
Increase for Fire Extinguishing System	UNLM	67,500	30,300	20,400	30,300	20,400	30,300	23,700	13,500	
Total Allowable Building Area	UNLM	97,600	43,800	29,500	43,800	29,500	43,800	34,300	19,500	

Total area of proposed building: 24,800 sq.ft.

REQUIREMENTS FOR GROUP OCCUPANCY

Special Provisions: A fire-resistive ceiling shall not be required in one-story building of Type II, II-Fr, II, One-hour, II-N, III, IV, or V construction having an open frame roof.

Location on Property: All buildings housing Group A Occupancies shall front directly upon or have access to public streets, no less than 20 ft. in width.

Light, Ventilation and Sanitation: A portion of Group A Occupancies customarily used by human beings and all dressing rooms shall be provided with natural or artificial light.

STAIRS, EXITS, AND CIRCULATION

Use	Area	Sqft./ Occupant	Number Occupants	Min. Exits Required
Exhibition Hall	20,000	100	200	2
Exhibition Barn	30,000	120	250	2
Multi-Purpose Building	16,000	55	300	2

If only two exits are used they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exits. Where three or more exits are used, they shall be arranged a reasonable distance apart so that if one becomes blocked, the others will be available.

Minimum Width of exits ($\frac{\text{occupant load}}{50}$) = 6'-0"

Distance to exits shall not exceed 150 ft. or 200 ft. in a building equipped with an automatic fire-extinguishing system throughout.

Exit Doors:

Width and Height: not less than 3'-0" X 6'-8"
Swing: 90° in direction of exiting

Exit Corridors:

Width: 44"
Dead End: not to exceed 20'
Fire Resistance: 1 hour

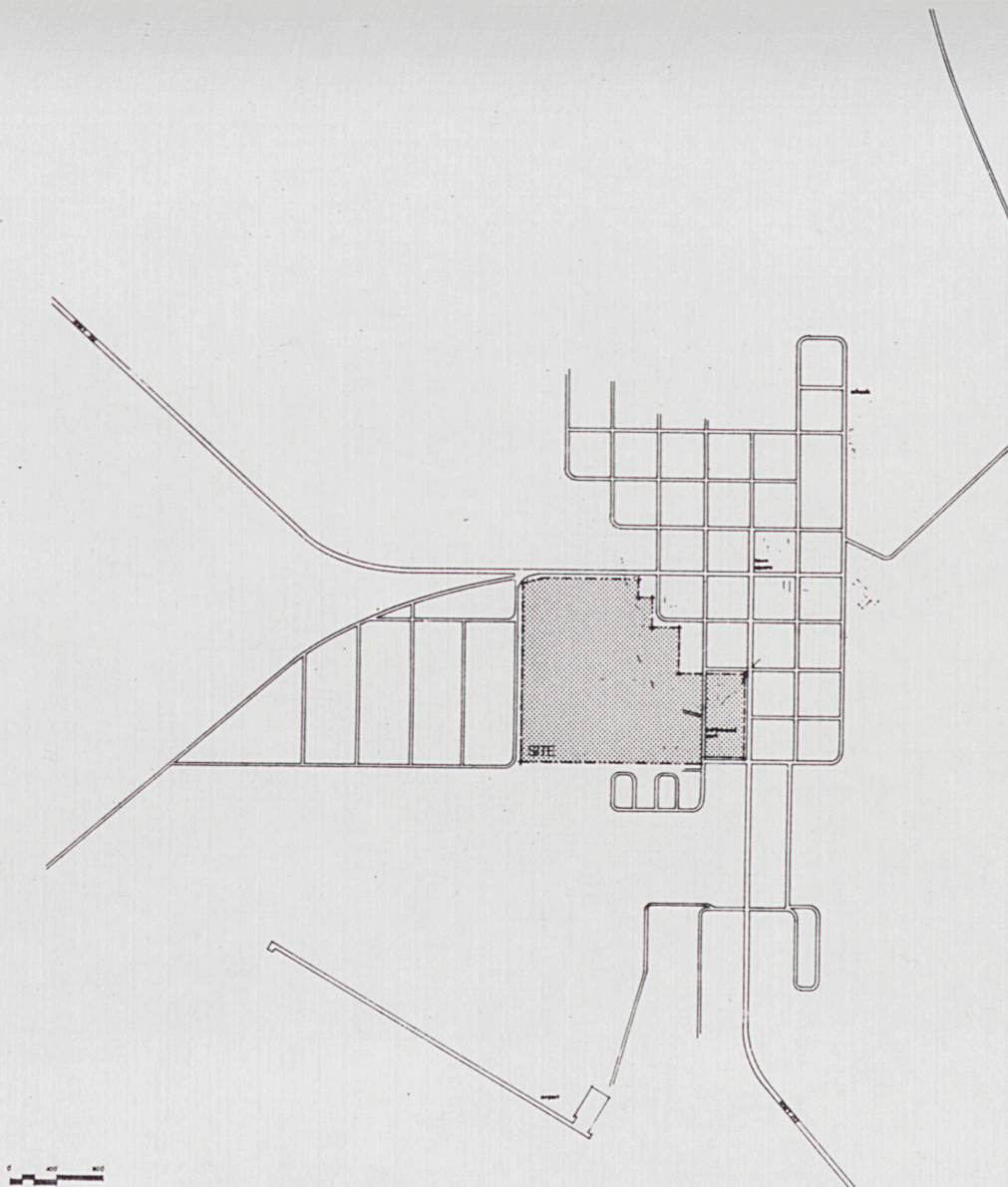
Stairways:

Width: 44"
Rise: not less than 7½"
Run: not less than 10"
Landings: 44" X 88"
Exit Enclosure: 1 hour

RESTRICTIONS IN FIRE ZONES

Any structure meeting U.B.C. requirements can be built in Fire Zone 3.

site



POWDER RIVER COUNTY

RECREATION PARK



The site chosen for the recreation park is in the center of Broadus. It is incorporating the existing fairground, Cottonwood Park (east of the existing fairground), and a large parcel of undeveloped land (west of the existing fairground), creating a site of approximately 56 acres. This expansion is in keeping with the plans set forth in the Powder River County-Broadus, Montana Comprehensive Plan. As the town of Broadus grows according to plan, the site will gradually be surrounded, becoming a major central element, along with the town square, for the community.

The following are the primary reasons for the chosen site:

- Adjacency to present amenities
- Land was presently available
- Compatible to growth plans of the community
- Central element within the community
- Good accessibility for both vehicular and pedestrian movement
- Good site characteristics
- Better accessibility for demand and use/ within walking distance from community and visible from vehicular thoroughfare.
- Profitable gains for community in its siting
- Adjacency to existing services

The adjacency to existing amenities becomes a great advantage to the success, efficiency, and convenience of the park. The following are the principal amenities to the chosen site:

Cottonwood Park, which is to the east of the present fairground and borders Highway 212, can be incorporated into the recreational park. It has an established growth of lawn grass and is wooded with large, mature cottonwood trees, which create a well defined edge along the highway.

The enclosed public pool borders the northeast corner of the site. It can become a

major interaction and activity point with the park.

There is a metal exhibition building (100 X 300 feet) on the present fairground site, which can either be renovated into a new use, such as a maintenance facility for the park and community, or be easily dismantled and moved to a new site.

The chosen site is close and within easy access to most of the community businesses. The most important businesses to the participant in the park, restaurant, stores, and gas stations, would be within a convenient distance when desired.

The park site would be bordered on two sides by the major circulation route through the county, Highway 212. This allows for good visibility and access from the secondary circulation of the residential areas. These routes will provide for good pedestrian (most pedestrian movement takes place along the streets) and vehicular movement into and within the park.

The site becomes a central element within the community, creating an image and implied landmark for the area. As the town grows according to a set plan, more emphasis will be put on the park as the community gradually grows to surround it. Being centrally located, it also becomes easily accessible for demand and use. It is within walking distance from all points of the town, and has good visibility from the major auto thoroughfares.

The businesses of the community will prosper and profit from being conveniently located near the park. Large attendance to park events will bring in revenue and possibly encourage new businesses.

Utilities and services are within easy access to the site. The principle utilities and services are water, electricity, sewer, phone, fire protection, and police protection. There may possibly be a need for more water supply, due to the irrigation requirements of the park.

There are many site characteristics which can be used to the benefit of the park.

Good slope over the major portion of the site, which will accomodate good drainage. Approximately a 22 foot rise in 1,800 feet.

A small creek passes through the middle of the site, which flows most of the spring and early summer. It can become a great interest generator and visual amenity to the park.

No outstanding man-made or terrain changes to be made, which would require considerable alterations.

Good views of the river, valley basin, and rugged hills to the north, on most all portions of the site.

Excellent solar access.

No existing buildings on roadways on the undeveloped parcel of land.

Well established growth of lawn grass and large, mature cottonwood trees in existing park.

Climatic Conditions

Powder River County has a continental climate that is cold in the winter, is warm in the summer, and has large variations in seasonal precipitation. In a normal year, most of the annual precipitation falls from April to September, with May

and June being the wettest months. The average total annual precipitation is $13\frac{1}{2}$ inches, with an average winter snow fall of three feet.

The temperature ranges from the extreme of -20° to -30° in the winter, to above $+100^{\circ}$ in the summer.

The following is the average daily temperatures for each month⁷:

January	20°
February	20°
March	30°
April	45°
May	55°
June	60°
July	70°
August	70°
September	60°
October	50°
November	35°
December	25°

In mid-summer, the sunrise is approximately 4:00 a.m. and sunset is 8:00 p.m., and in mid-winter sunrise is approximately 8:00 a.m. and sunset is 4:00 p.m.. During winter solstice the sun angle is $20\frac{1}{2}^{\circ}$, equinoxes it is 44° , and summer solstice it is $67\frac{1}{2}^{\circ}$.

The following is the mean percentage of possible sunshine for each month⁸:

January	50%
February	60%
March	60%
April	60%
May	60%
June	60%
July	80%
August	70%
September	60%
October	60%
November	50%
December	40%
Annual	60%

The prevailing wind direction becomes very important in the location of facilities which house animals. One should use wind to its advantage in ventilating and carrying smells away, but must consider where the smells are being blown. The annual prevailing wind direction is from the southeast, at an average speed of 10 m.p.h.. The following are the prevailing directions and mean speeds for each month⁹:

MONTH	DIRECTION	MEAN SPEED (mph)
January	Northwest	9
February	Northwest	9
March	Southwest	11
April	Northwest	11
May	Northwest	10
June	Southeast	10
July	Southeast	10
August	Southeast	10
September	Northwest	10
October	Southeast	10
November	Southeast	10
December	Southeast	10

Site Analysis

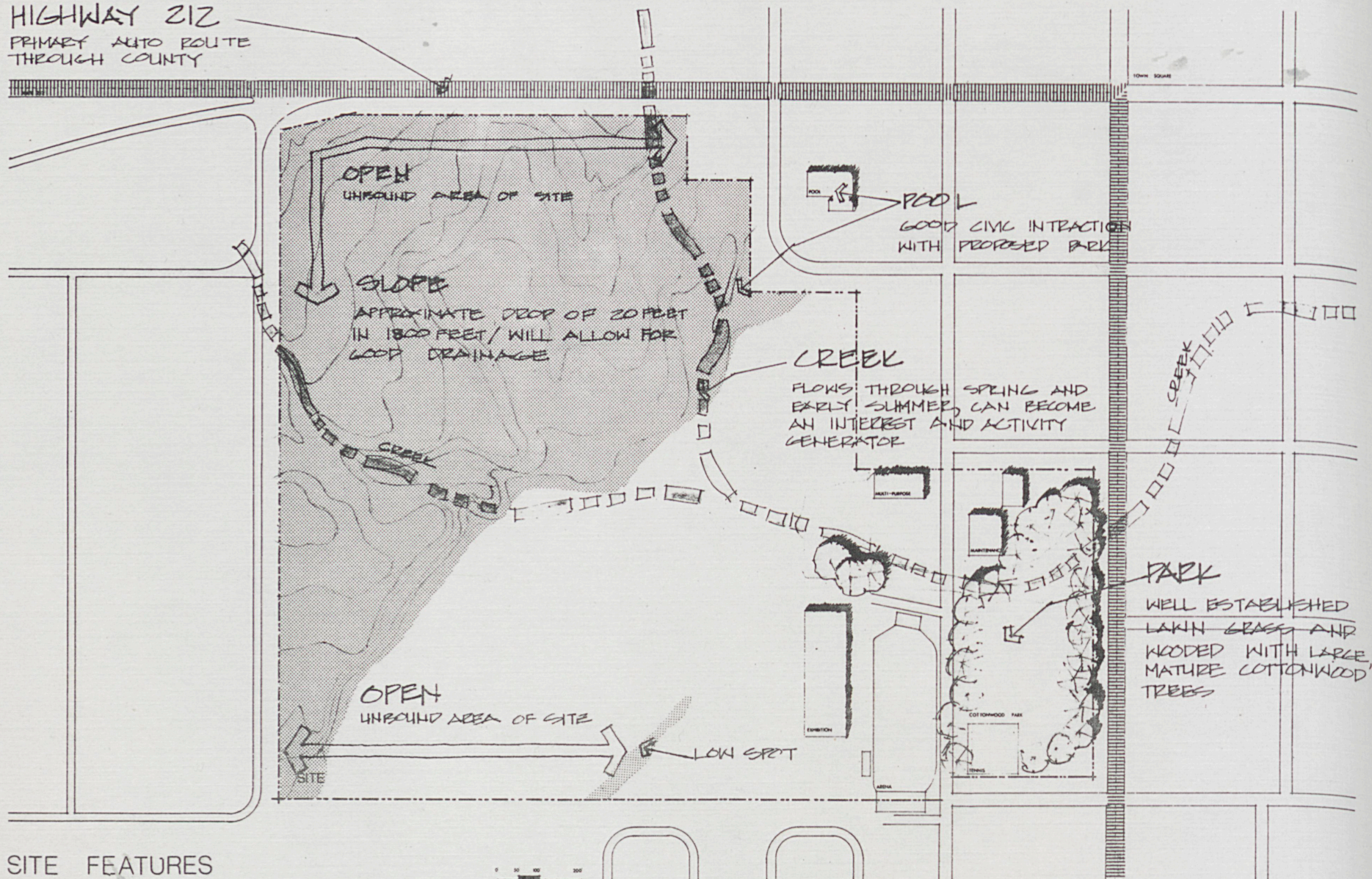
The following is a graphic analysis of the site characteristics and surrounding area.

It includes:

- Site Features
- Environmental Conditions
- Structure
- Site Context
- Visual Interest
- Circulation
- Site Definition
- Phase Growth
- Site Considerations

The last study being a summation of ideas considering the previous eight studies.

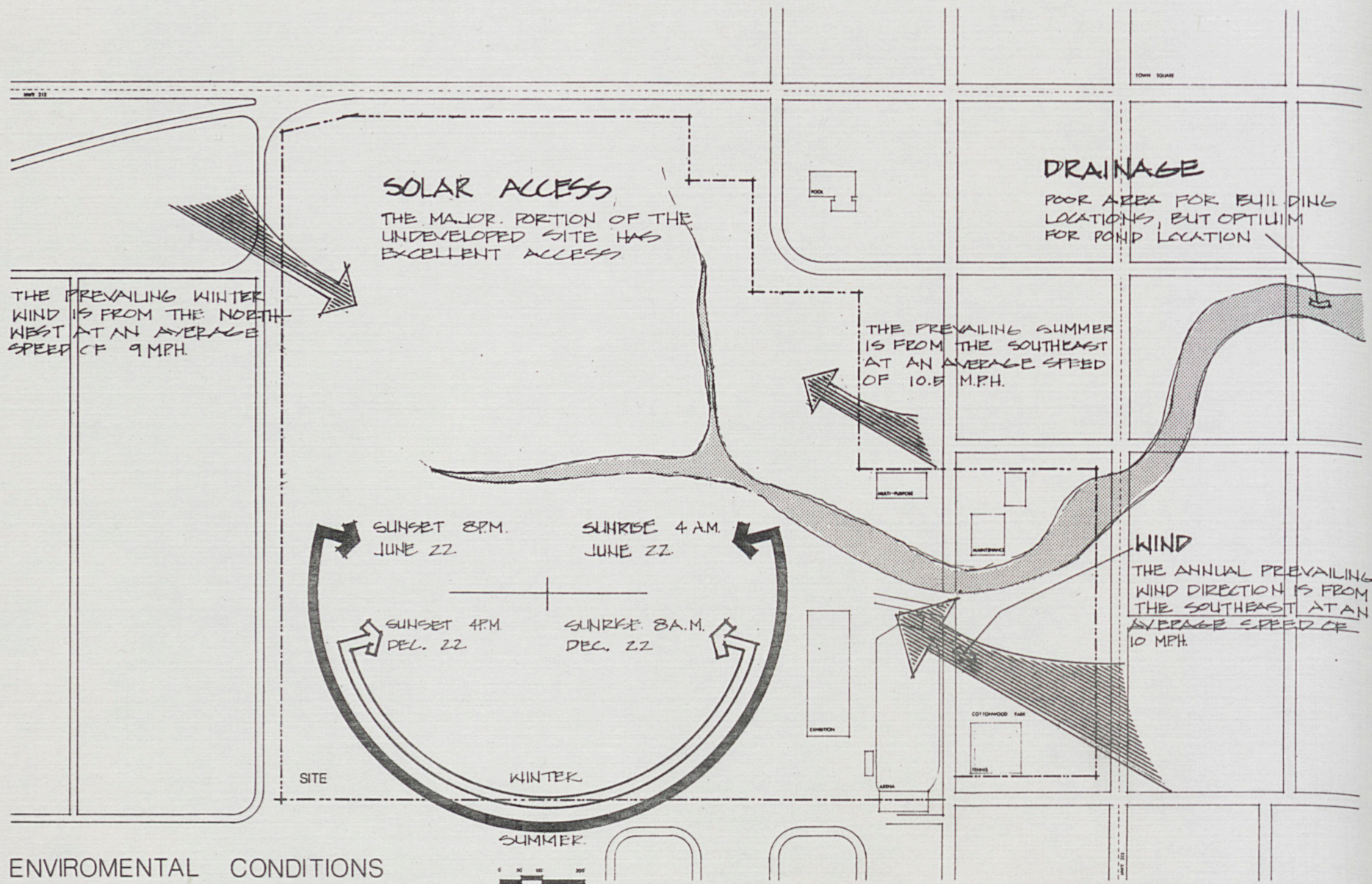
HIGHWAY 212
PRIMARY AUTO ROUTE
THROUGH COUNTY



SITE FEATURES

POWDER RIVER COUNTY

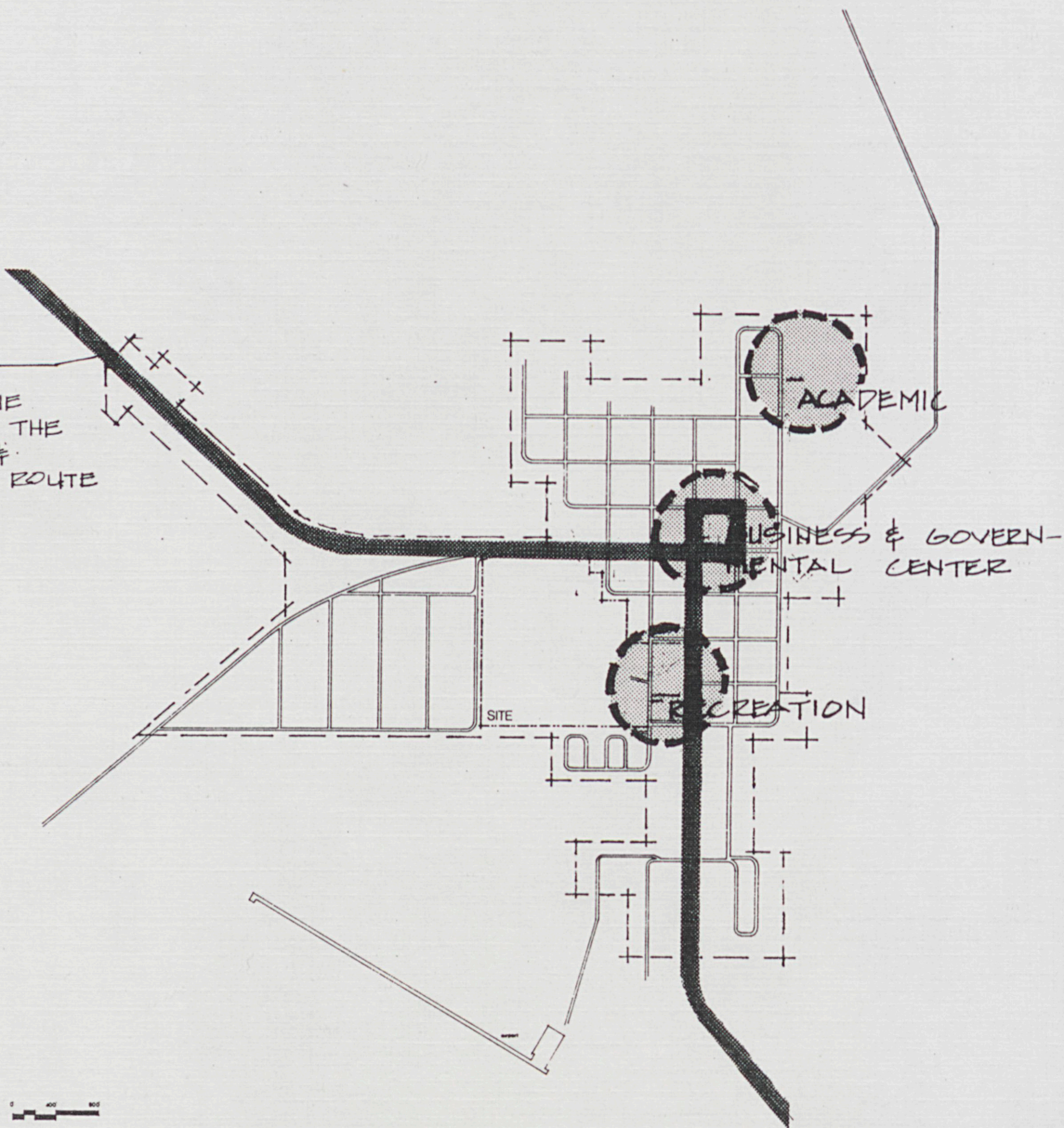
RECREATION PARK



ENVIROMENTAL CONDITIONS
POWDER RIVER COUNTY

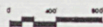
RECREATION PARK

SPINAL STRUCTURE
HIGHWAY 212 ACTS AS THE
STRUCTURING DEVICE FOR THE
TOWN & IS THE PRIMARY &
DOMINANT CIRCULATION ROUTE



STRUCTURE

POWDER RIVER COUNTY



RECREATION PARK

THE MAJORITY OF THE RESIDENTIAL IS IN THE NORTHERN PORTION OF TOWN AND IS PREDOMINATELY MEDIUM DENSITY HOUSING

HIGH SCHOOL AND GRADE SCHOOL

GAS STATIONS, MAINTENANCE FACILITIES, AND AGRICULTURALLY ORIENTED COMMERCIAL

LOWER DENSITY HOUSING IN THE ENTIRE WESTERN SECTION OF TOWN, AND TENDS TO BE SOMEWHAT DISORDERLY

THE PRIMARY TYPES OF COMMERCIAL, (STORES, RESTURANTS, AND BARS) ARE CENTERED AROUND THE TOWN SQUARE

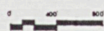
GAS STATIONS, MAINTENANCE FACILITIES, AND AGRICULTURALLY ORIENTED COMMERCIAL

SITE
PUBLIC USE
COMMERCIAL
RESIDENTIAL



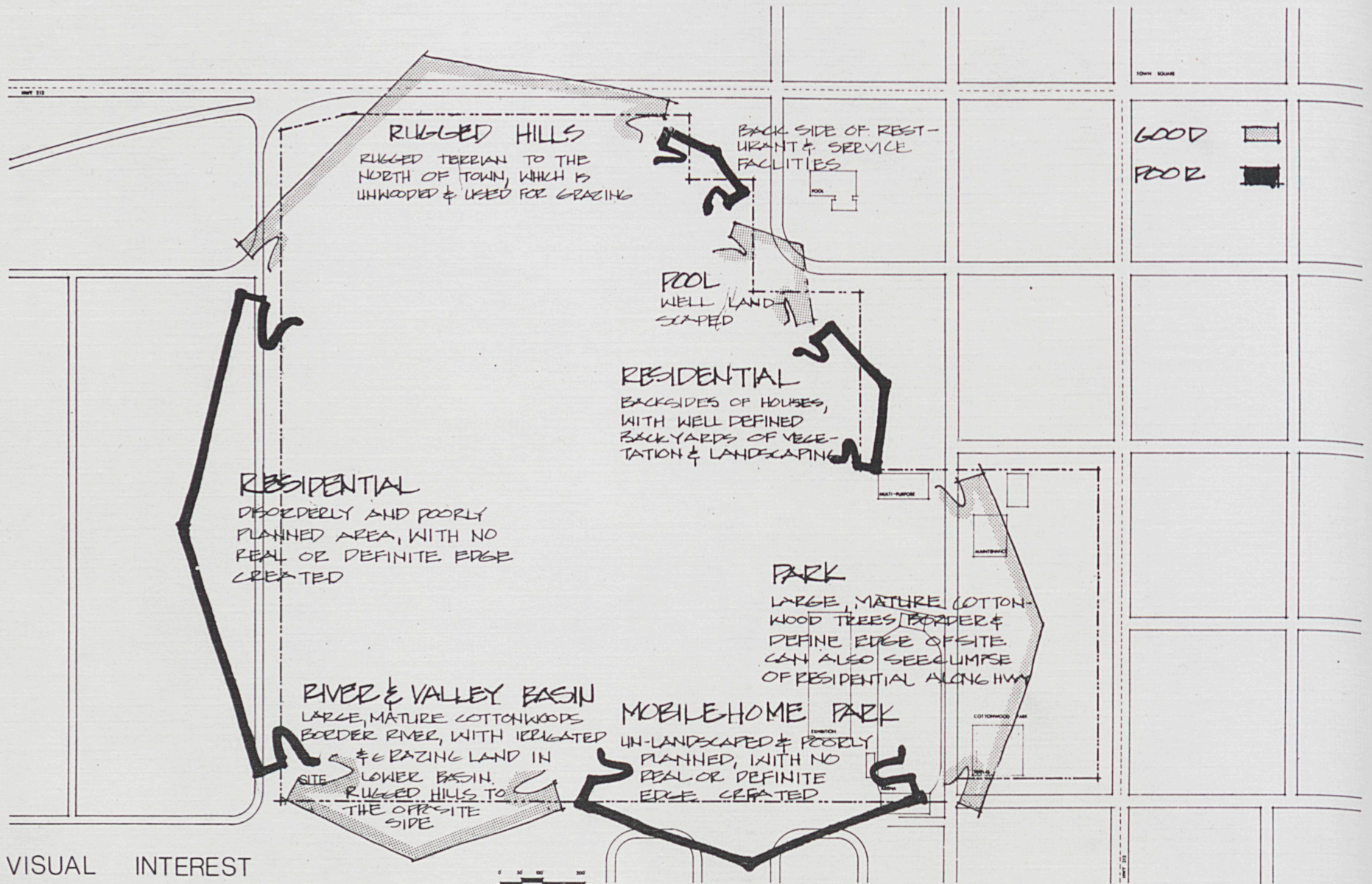
SITE CONTEXT

POWDER RIVER COUNTY



RECREATION PARK





HIGHWAY 212 IS THE PRIMARY CIRCULATION THROUGH THE COUNTY, AND BORDERS TWO SIDES OF THE SITE.

THE ONLY ESTABLISHED SIDEWALKS, EXIST AROUND THE TOWN SQUARE

PRIMARY ENTRANCE POINT

SECONDARY ENTRANCE POINT

AVOID USING SECONDARY ENTRANCE POINTS AS MAJOR OR IMPORTANT ENTRIES FOR SECONDARY CIRCULATION IS PRIMARILY RESIDENTIAL

PEDESTRIAN MOVEMENT

THE MAJORITY OF THE PEDESTRIAN MOVEMENT WOULD COME FROM THIS GENERAL DIRECTION, OUT OF THE MAJOR POPULATION AND ACTIVITY AREA OF THE TOWN. MOST OF THE PEDESTRIAN MOVEMENT FOLLOWS THE STREETS.

PRIMARY ENTRANCE POINT

PRIMARY ENTRANCE POINT

MAJOR PRIMARY CIRC. MINOR PRIMARY CIRC. SECONDARY CIRC.

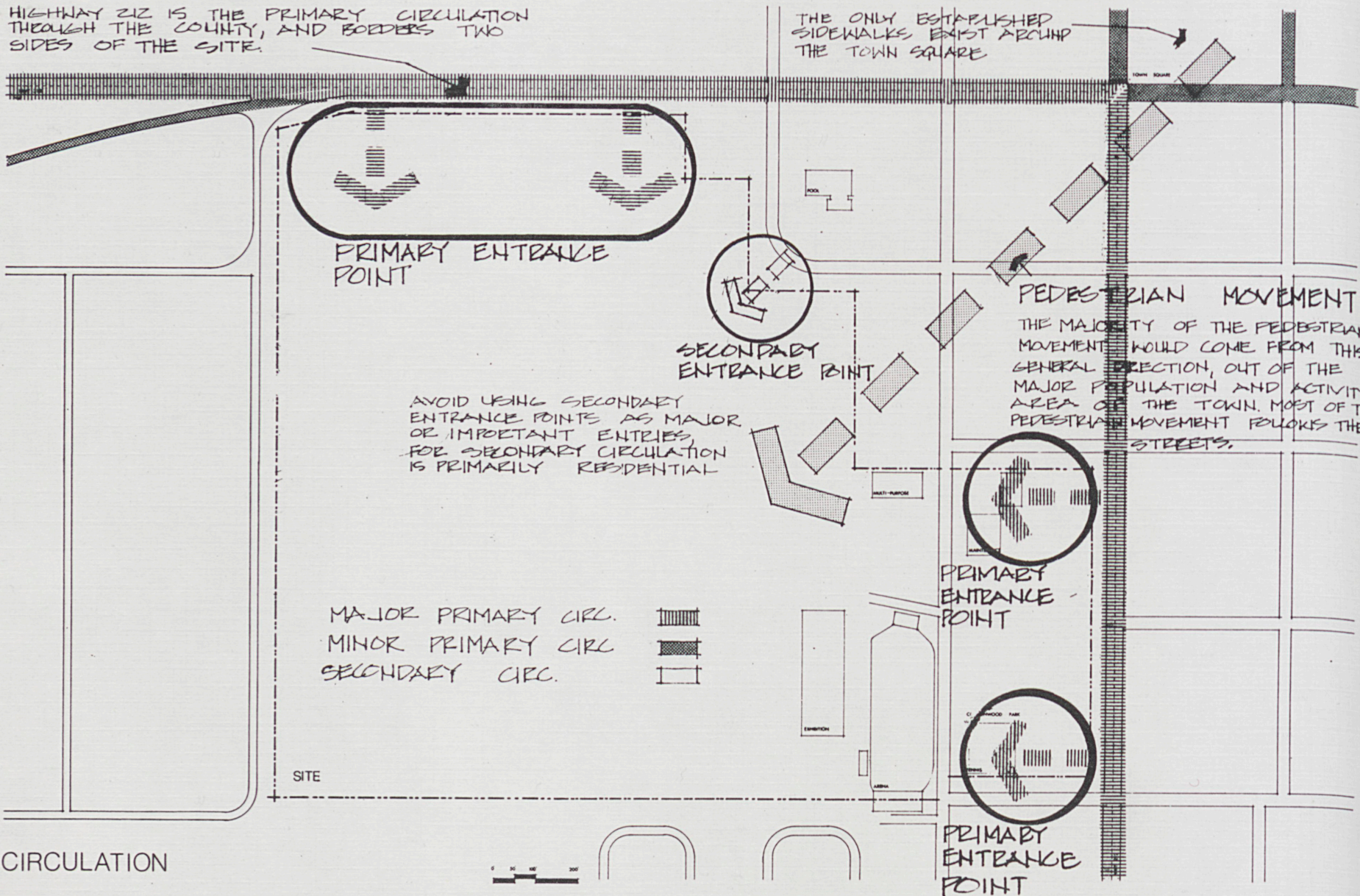
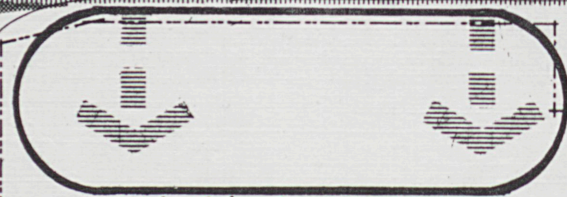


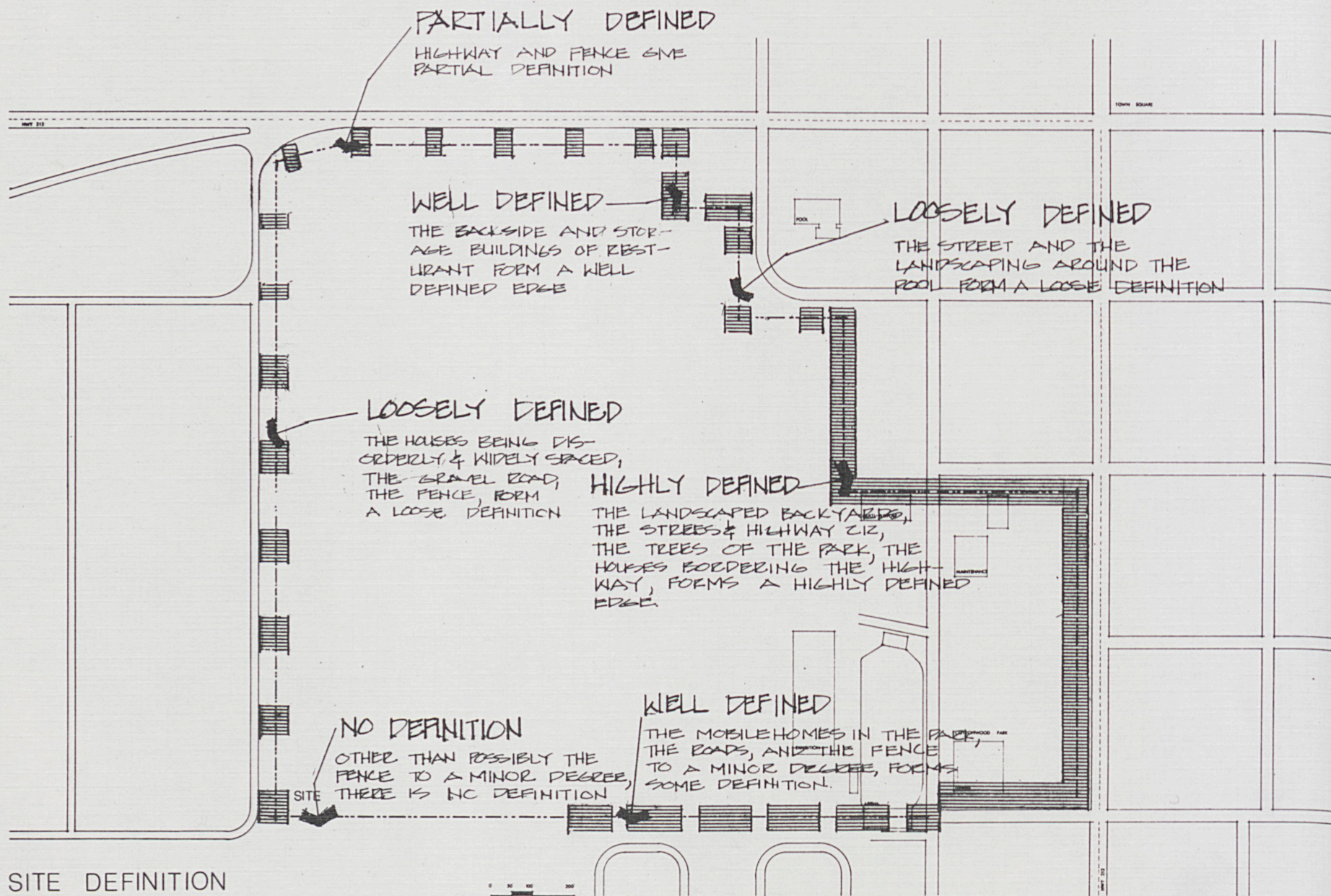
SITE

CIRCULATION

POWDER RIVER COUNTY

RECREATION PARK





SITE DEFINITION

POWDER RIVER COUNTY

RECREATION PARK

PHASE I

IT WILL HAVE WITHIN IT
THE MAJOR PORTION OF
PUBLIC FACILITIES AND
SERVICES. MY PROPOSED
SITE IS IN LINE WITHIN
EXISTING TOWN PLANS
OF GROWTH

PHASE II

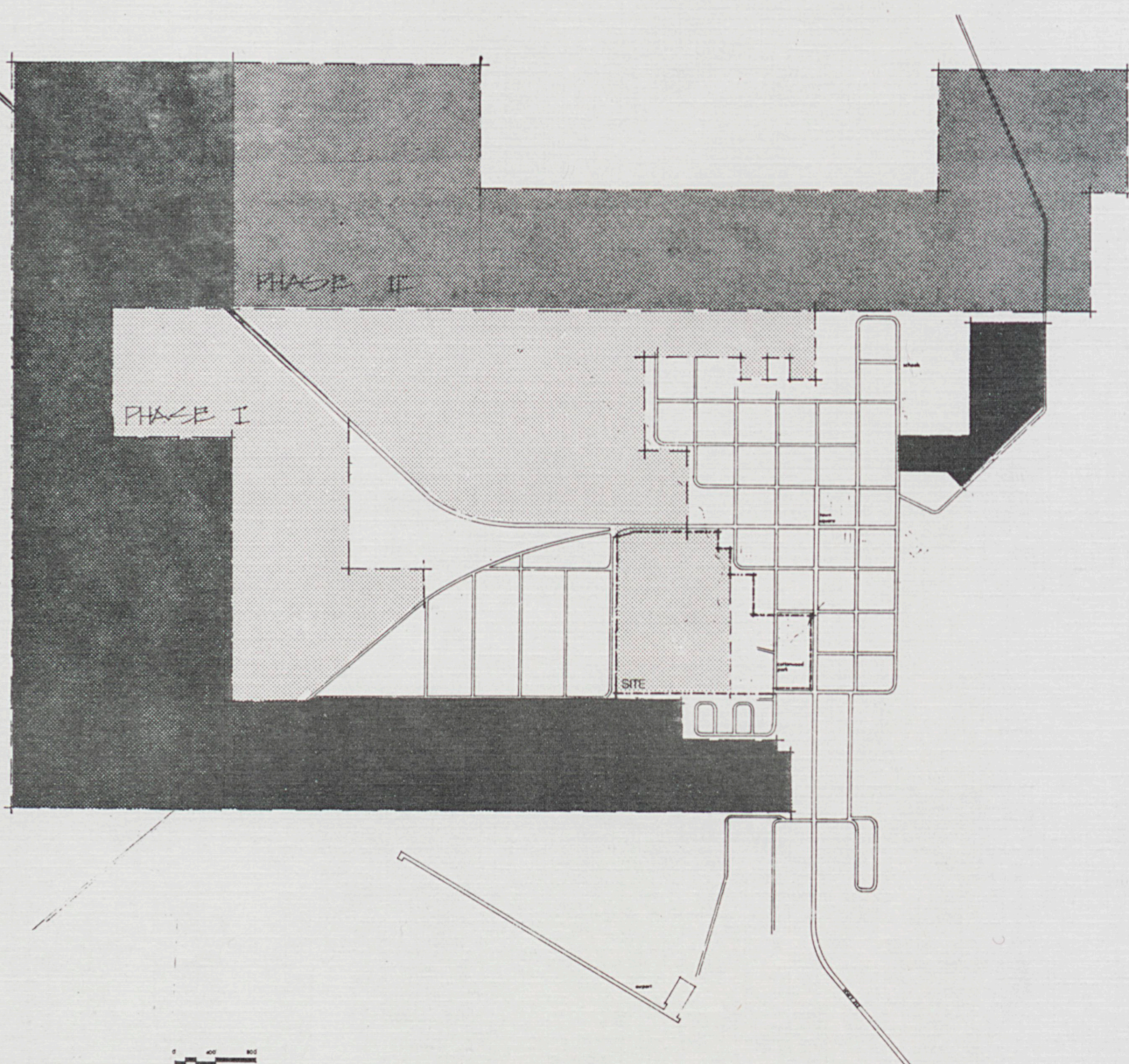
DESIGNED FOR SINGLE-
FAMILY, MULTI-FAMILY,
AND MOBILE HOME, AND
ALSO SOME NEIGHBOR-
HOOD COMMERCIAL

PHASE III

WILL BE SIMILAR TO
PHASE II, AND DEVELOP-
ED WITH NEED

PHASE IV

WILL BE SIMILAR TO
PHASES II AND III, AND
DEVELOPED WITH NEED



PHASE GROWTH
POWDER RIVER COUNTY

RECREATION PARK

PRIMARY VEHICULAR ENTRY POINT

LARGE OPEN SPACE
TO BE OPPOSITE THE RESIDENTIAL AND FUNCTIONALLY NEXT TO FAIRGROUND FACILITY. TO TAKE ADVANTAGE OF SOUTH-EAST SUMMER WIND TO DISPERSE DUST INTO THE VACANT LAND.

SCREEN
TO ACT AS A SHIELD FOR THE PARK FROM THE OVERLYING RESIDENTIAL, AS WELL AS CREATE PRIVACY FOR RESIDENTS

FAIRGROUND FACILITY
BEING SITED AWAY FROM MAJOR RESIDENTIAL AREA, SEPARATED BY BUFFER ZONE. SITED TO TAKE ADVANTAGE OF THE VIEW OF RIVER AND VALLEY BASIN. SMALL ORIENTED FACILITIES & USES SHOULD BE PLACED ALONG SOUTH-EASTERN EDGE OF FAIRGROUND AREA TO TAKE ADVANTAGE OF SOUTH-EAST SUMMER WIND ARENA GRANDSTAND SHOULD FACE INTO SOUTHEAST, SO AS NOT TO GET DIRECT AFTERNOON SUN

SCREEN
TO SHIELD PARK FROM BACKSIDE OF RESTAURANT

PRIMARY PEDESTRIAN ENTRY
PRIMARY ENTRY POINT FOR MAJOR PEDESTRIAN MOVEMENT FROM THE CONCENTRATED AREA OF TOWN, IN WHICH MOST OF THE MOVEMENT TAKES PLACE ALONG THE STREET

SCREEN
TO ACT AS A PRIVACY SHIELD FROM THE PARK, FOR THE RESIDENTIAL

POND
TO BE BUILT ALONG THE CREEK TO BECOME AN INTEREST AND ACTIVITY GENERATOR

BUFFER ZONE
TO ACT AS A BARRIER BETWEEN THE MAJOR RESIDENTIAL AREA OF TOWN AND THE MAIN FAIRGROUND FACILITY

PRIMARY VEHICULAR ENTRY POINT

SCREEN
TO ACT AS A SHIELD FOR THE PARK FROM THE DISORDERLY MOBILE HOME PARK, AS WELL AS CREATE FOR THE RESIDENTS

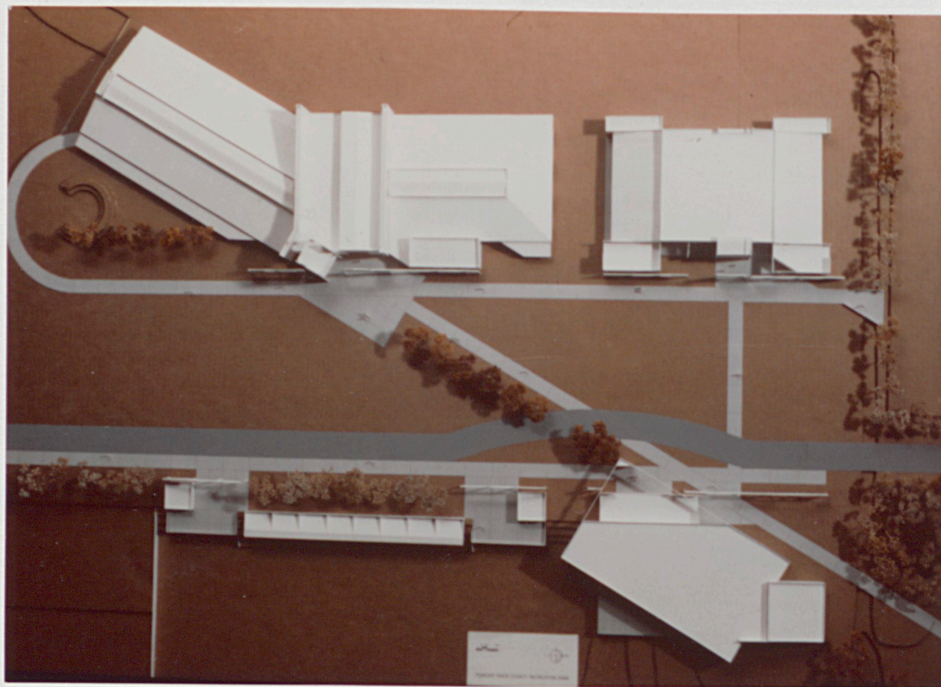
SITE CONSIDERATION

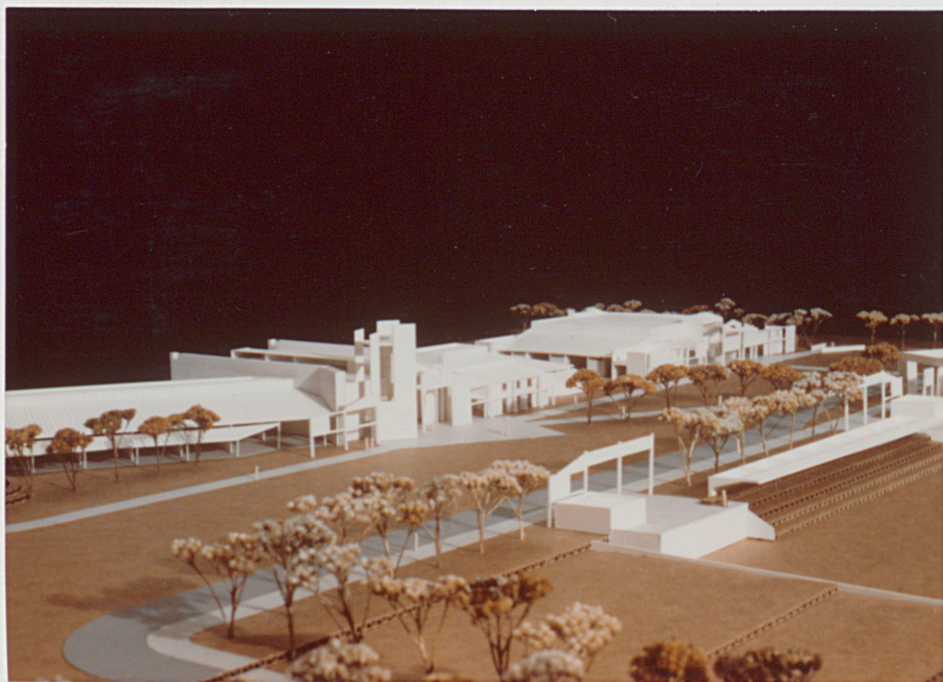
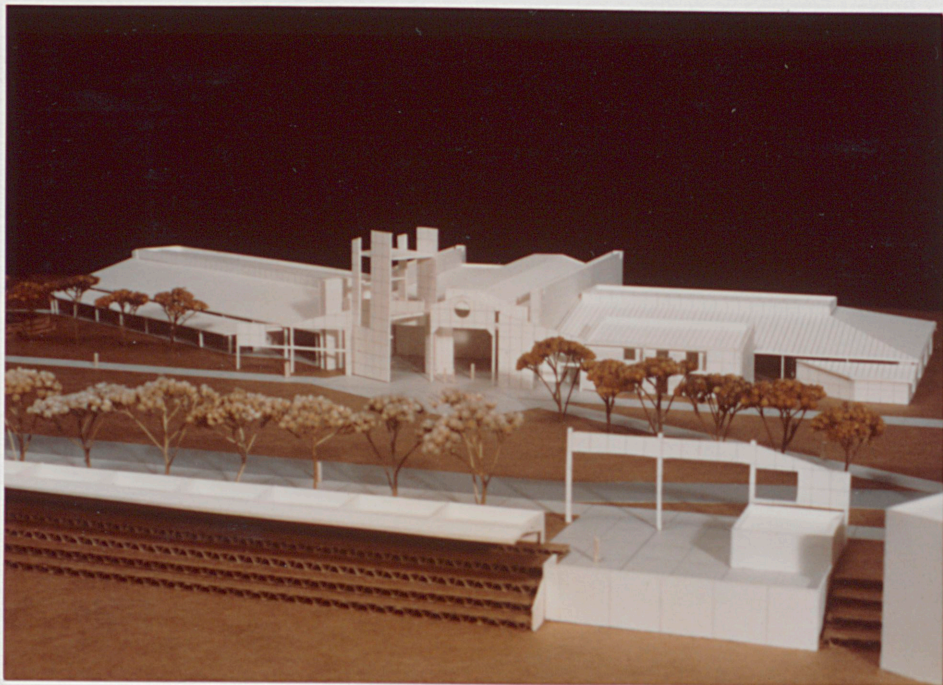
The diagram is a hand-drawn site plan for a park or fairground facility. It features several key elements and labels:

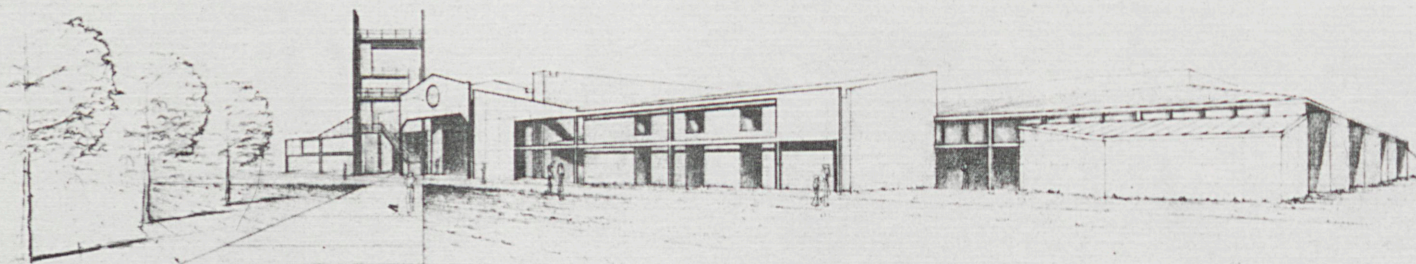
- Primary Vehicular Entry Point:** Indicated at the top left and bottom right of the main area.
- Large Open Space:** Located opposite the residential area, designed to take advantage of the south-east summer wind to disperse dust.
- Fairground Facility:** Situated away from the major residential area, separated by a buffer zone. It includes facilities like the arena grandstand, which should face southeast to avoid direct afternoon sun.
- Screening Elements:** Multiple "SCREEN" labels indicate areas where vegetation or structures are used to shield the park from surrounding residential areas, the backside of a restaurant, and a mobile home park.
- Primary Pedestrian Entry:** The main entry point for pedestrian movement from the town, located along a street.
- Buffer Zone:** Acts as a barrier between the major residential area of the town and the main fairground facility.
- Pond:** To be built along a creek to serve as an interest and activity generator.
- Vehicular Circulation:** Shown as a winding path through the central part of the site.
- Site Consideration:** A note at the bottom left regarding the orientation of the grandstand and the impact of the summer wind.

POWDER RIVER COUNTY

RECREATION PARK 

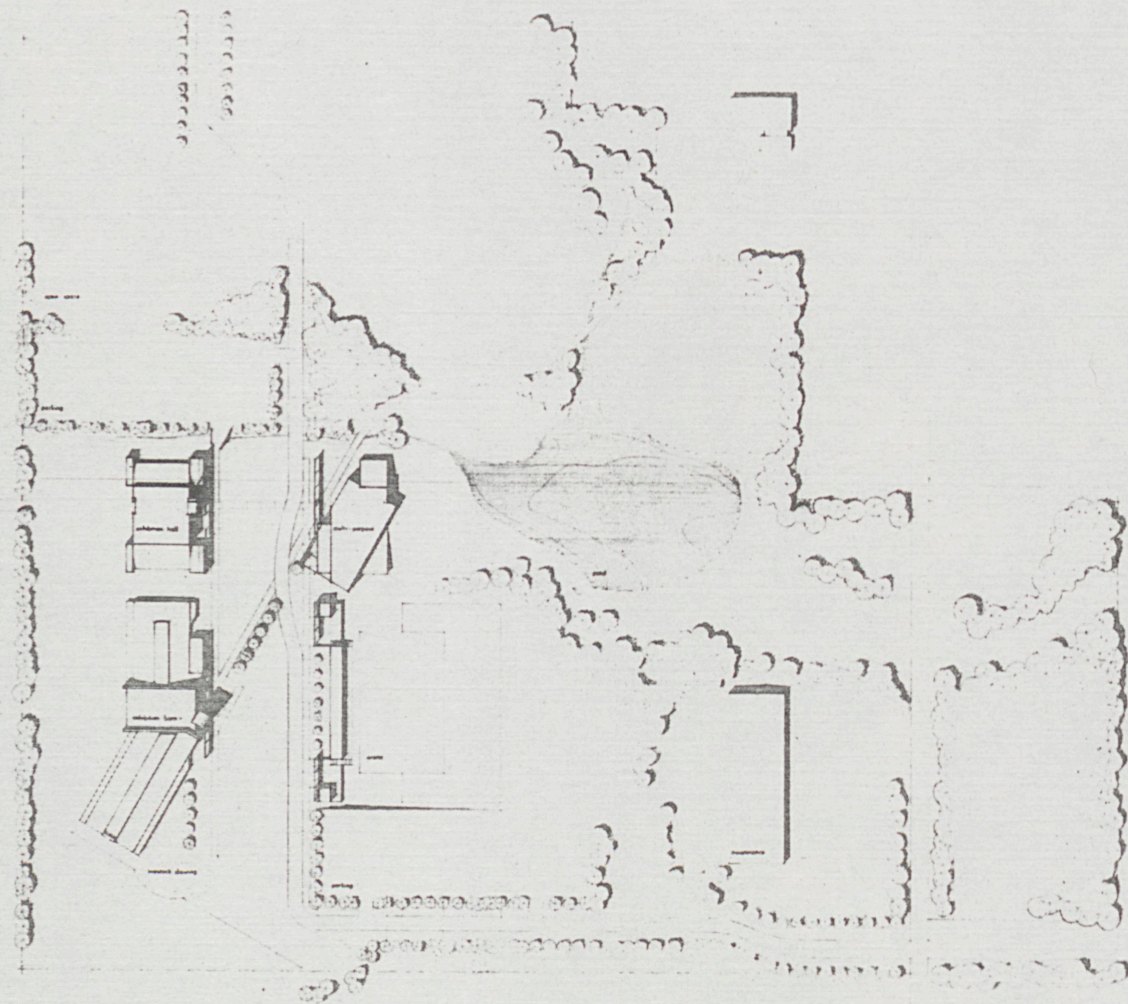




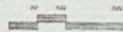


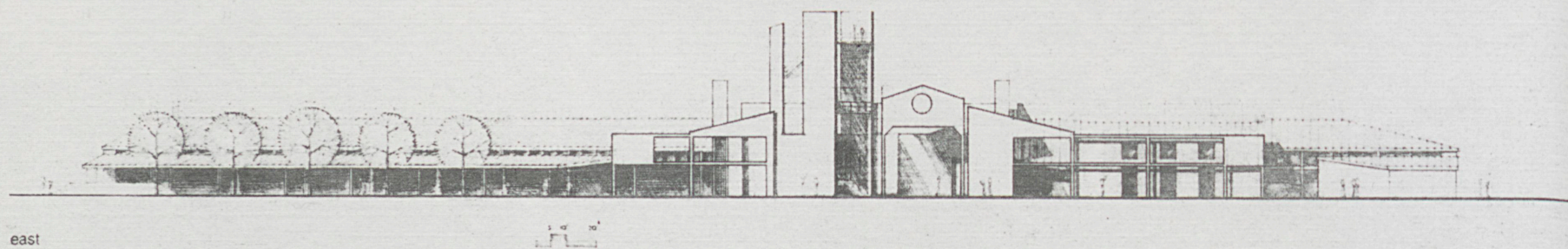
powder river county

recreation park

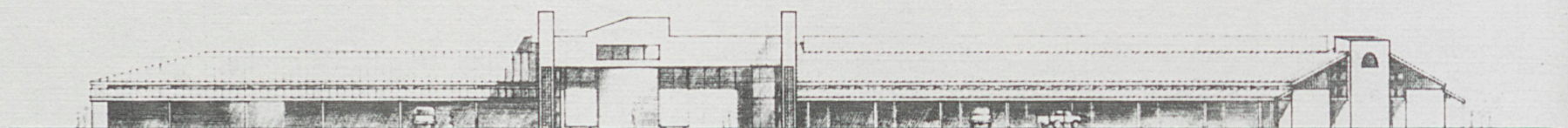


site plan

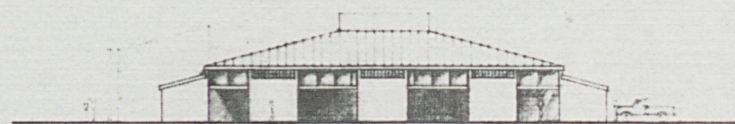




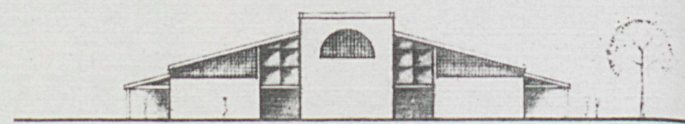
exhibition barn



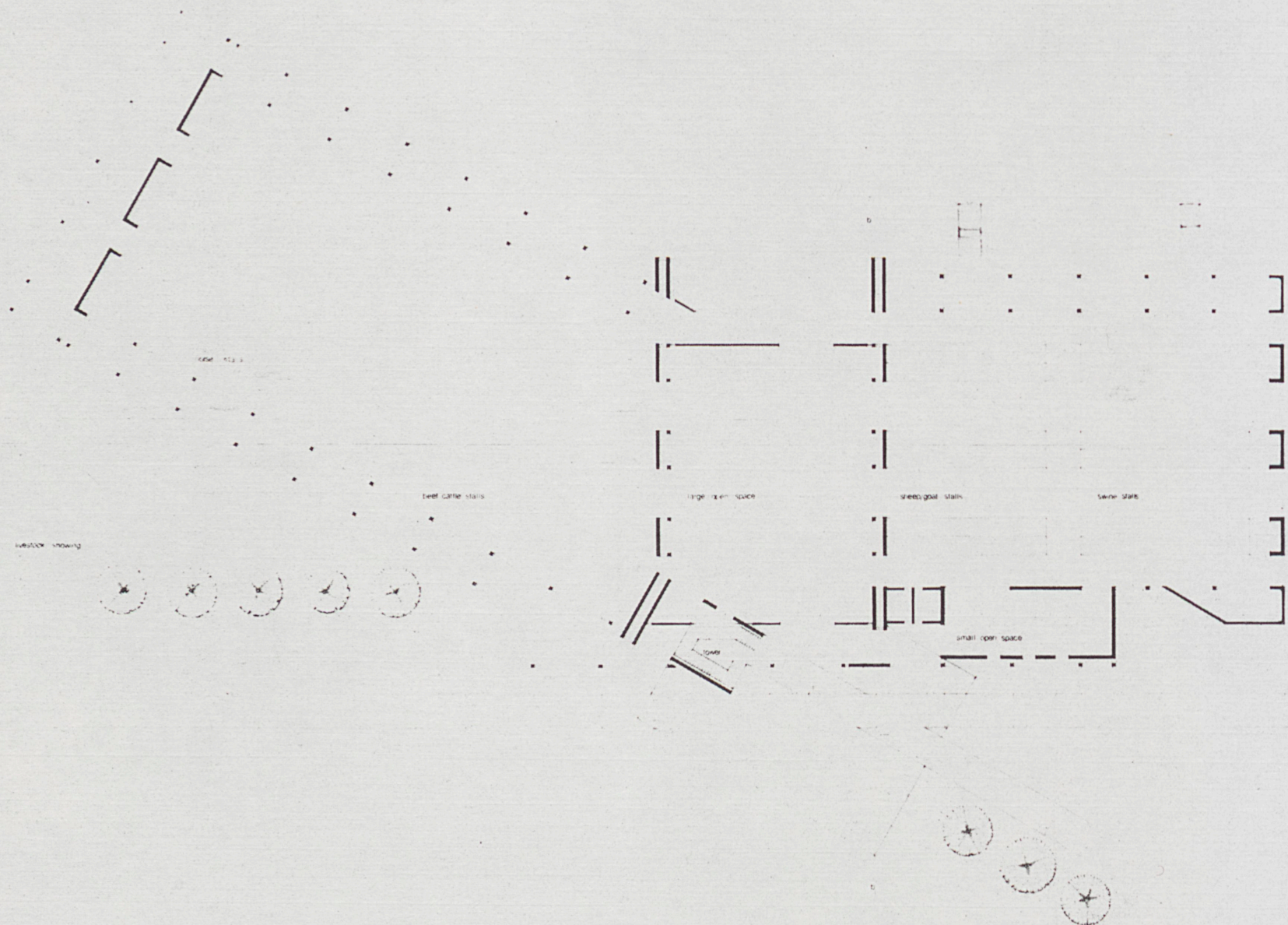
west



north

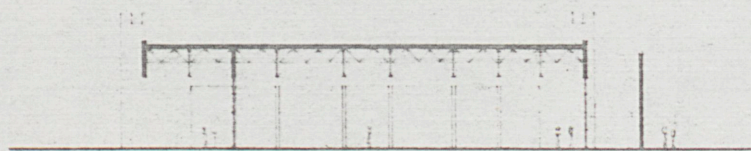


south

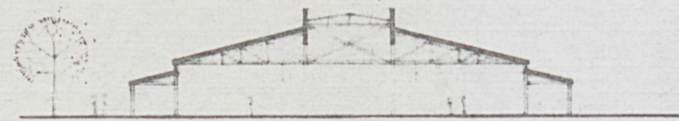




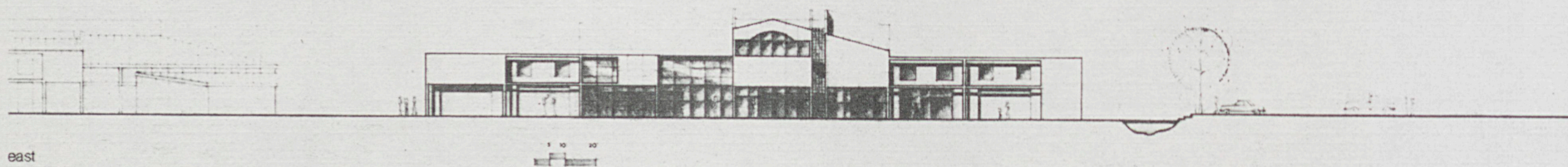
section a



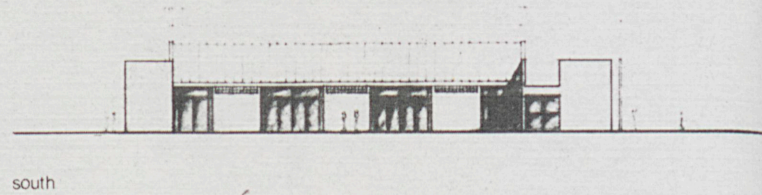
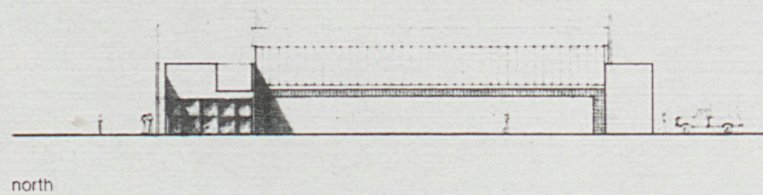
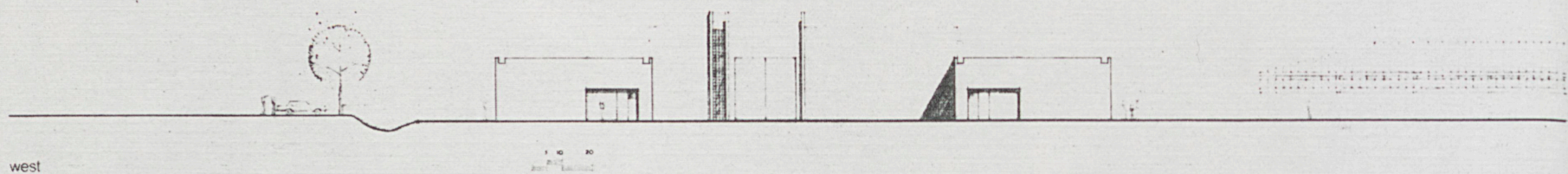
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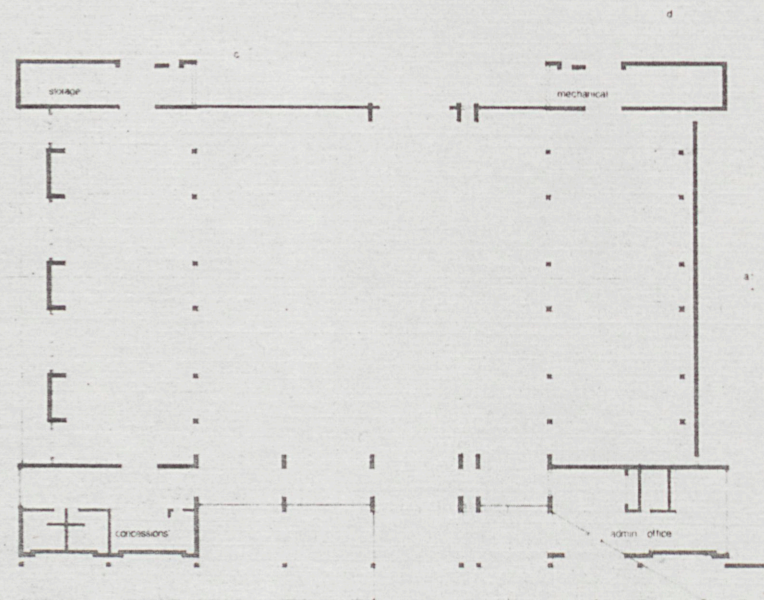


section c



exhibition hall





plan



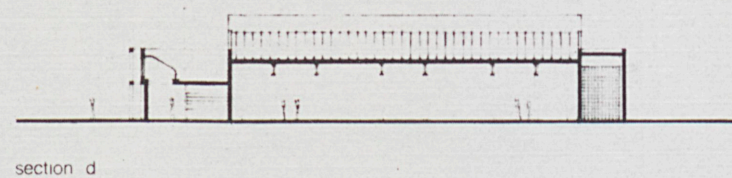
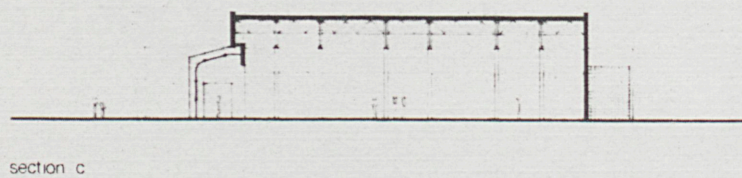
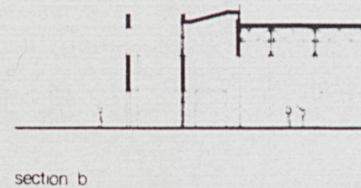
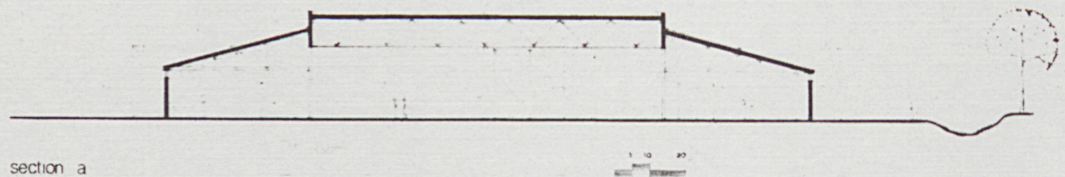


ILLUSTRATION CREDITS

¹Francis D.K. Ching, Architecture: Form, Space and Order (New York: Van Nostrand Reinhold Company, 1979) p. 252.

²Francis D.K. Ching, p. 334.

³Francis D.K. Ching, p. 152.

⁴Francis D.K. Ching, p. 158.

⁵Gorden Cullen, Townscape (New York: Van Nostrand Reinhold Company, 1961) p. 185.

⁶Francis D.K. Ching, p. 78.

⁷Edmund N. Bacon, Design of Cities (New York: Penguin Books, 1974) p. 253.

⁸Stanford Anderson, On Streets (Cambridge: The MIT Press, 1978) p. 27.

⁹Stanford Anderson, p. 27.

¹⁰Stanford Anderson, p. 27

¹¹Francis D.K. Ching, p. 251.

¹²Francis D.K. Ching, p. 158

¹³Francis D.K. Ching, p. 158.

¹⁴Francis D.K. Ching, p. 158.

¹⁵Edmund H. Bacon, p. 131.

¹⁶Edmund H. Bacon, p. 71.

¹⁷Francis D.K. Ching, p. 120.

¹⁸Francis D.K. Ching, p. 158.

FOOTNOTES

¹Christian Norberg-Shulz, Existence, Space, and Architecture (New York: Praeger Publishers, Inc., 1971), p. 9.

²Philip Thiel, "Processional Architecture," AIA Journal, February 1964, p. 24.

³Kent C. Bloomer, Charles W. Moore, and Robert J. Yudell, Body, Memory, and Architecture (New Haven: Yale University Press, 1977), p. 59.

⁴William C. Ellis, "The Spatial Structure of Streets," On Streets, ed. Stanford Anderson (Cambridge: The MIT Press, 1978), pp. 26-28.

⁵Kevin Lynch, The Image of the City (Cambridge: The MIT Press, 1960), p. 92.

⁶"Movement Systems as Generators of Built Form," Architectural Record, November 1975, p. 105.

⁷U.S. Department of Commerce, Climatic Atlas of the United States (Washington: U.S. Government Printing Office, 1968), pp. 3-23.

⁸U.S. Department of Commerce, pp. 65-66.

⁹U.S. Department of Commerce, pp. 73-74.

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- Norberg-Shulz, Christian. Existence, Space, and Architecture. New York: Praeger Publishers, Inc., 1971.
- Thiel, Philip. "Processional Architecture," AIA Journal, February 1964, p. 24.
- U.S. Department of Commerce. Climatic Atlas of the United States. Washington: U.S. Government Printing Office, 1968.
- "Movement Systems as Generators of Built Form," Architectural Record, November 1975, p. 105.
- Boulder County Rural Resource Park Study.

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