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A COMMUNITY DEVELOPMENT

FOR COEUR D'ALENE, IDAHO

prepared for

Mr. Nick Shrauger

and

The School of Architecture
Montana State University
Bozeman, Montana

Architecture 550

prepared by

Andrew J. Wick
213 Perkins Place
Bozeman, Montana

March, 1971

call
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Mr. Nick Shrauger

owner and developer, for his assistance in
my research

Presented in partial fulfillment
of the requirements of The School of
Architecture

for the degree of
Bachelor of Architecture

Mr. James Barbra

Professor of Architecture 550, Thesis Writing
and faculty advisor

Mr. David Fessel

Professor of Architecture and
committee member

Dr. George Mc Clure

Professor of Architecture and
committee member

Mr. Paul Nordstrom

graduate student in recreational management

Andrew Wick 10 March 71

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Idaho Fish and Game

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ecology

Dr. John P. Parker

Professor of English 409, Report Writing

Mr. James Barnes

Professor of Architecture 550, Thesis Writing
and faculty advisor

Mr. David Wessel

Professor of Architecture and
committee member

Dr. George Mc Clure

Professor of Architecture and
committee member

Mr. Paul Nordstrom

graduate student in recreational management

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1.0 Creating The Need

The rapid expansion of complex, industrialized cities and the resultant decrease in quality of life has led to a growing demand for recreational and residential facilities outside but close to urban economic and employment facilities. Perhaps however, the greatest reason for the shift in population trend is the impersonality and lack of interaction among individuals in an absolute urban environment. The concept of suburban or rural living has definite merits. However, I question the ultimate value of expanding suburban areas by our present and often haphazard method. The reason I question the present method of suburban expansion is the unfailing way that unplanned suburban areas manage to become developed into semi-urban or absolute urban areas.

"Absolute urban" and "semi" urban areas are terms used here to define the relative scale of an urban area with a large enough population density to be defined as an urban area. An absolute urban area defines a city with a population

of one million or greater. A semi-urban area is an area with a population between 100,000 and one million. Below 100,000 population, I do not classify the area as urban.

A solution to the suburban problem then may very well be the secluded recreational and residential community which is designed to exist at a predetermined scale based on projected population trends and adjacent land use. Ideally, these communities would be within weekend distance or daily commuting distance or possibly purely summer use depending upon the desires of the clientel. The distance from the urban area where the intended user is employed will undoubtedly predetermine what the nature of his individual use will be.

The scale of the community will indicate the nature and quantity of the services that the community will require. The services will be evaluated on a two fold basis:

1. The services the community inhabitants will require to maintain a desired quality of life.
2. The ability by volume or value of the community inhabitants to guarantee the developers their economic goals

for providing the service.

Developments of the community nature are increasing in both quantity and diversity of facilities. For example, a common development grouping has become condominium apartments in conjunction with swimming pools, golf courses, and in some cases a shopping center. One familiar example of a community development is the Big Sky Project being planned for Gallatin Canyon. Each example of the above mentioned development type has advantages and disadvantages. Scale and economic return again and again become the deciding factors in community design.

I as a designer find developments of this nature challenging and possible solutions to the previously mentioned problems of suburban and urban residential sprawl.

2.0 The Problem

The problem I intend to study for my terminal project is the planning and design of a recreational community. The project is to be done on a 240 acre site near Coeur d' Alene, Idaho. See the enclosed maps and legal description (Appendix B) for the actual site location. I intend that the project will include site planning and design of the entire project.

The basic components of the total design are as follows :

1. A private residence area which will be developed under the assumption that persons occupying the site will be tenants in common and will build under established parameters. The possibility also exists that if it is deemed desirable to actually subdivide the various build-

ing sites into lots which can be sold to various individuals retaining portions of the site as communal space.

2. A transient trailer facility for overnight, weekend, or long term (summer) camping is being considered for a portion of the site.

3. A facility on Lake Coeur d' Alene for docking boats, swimming, and other recreation will be included in the design. Showers and locker facilities will also be provided in this area.

4. The mechanical system, pipe lines, electrical service, roads, and water service will be considered and hopefully at least partially designed to some degree during the time allowed.

Various other recreational facilities are planned as a major part of the total design in addition to the lake facility. Decisions to be made concerning what facilities can be offered are based mainly on land available and compatability

with the other functions the site must contain. Economics will be another major determinant as in any building or land use project. Further, I feel it would be highly undesirable to "overload" the site by consuming all the available natural space with man-made development. I intend to preserve a portion of the natural environment and accent it whenever possible in my architectural development.

Each item noted in conjunction with existing site conditions deserves extensive consideration. It is my intention to pursue in research and design development each subject during the course of the design process.

I see this problem as both planning and architectural in nature. I intend to develop both aspects of the design, site planning and actual building design during the time allotted. The planning for the architecture and the architecture itself are interrelated in their ultimate use so I feel it would be an error to isolate each in the design process.

3.0 The Site

The site as previously described is located on Lake Coeur d' Alene. There are two separated parts of the site which are connected by a right-of-way for both water and pedestrian access. The actual location of the right-of-way is not yet resolved due to development under way on the property over which it passes. There is some additional dispute as to whether or not a right-of-way actually exists due to an error in deed transfer. It is my opinion that such a right-of-way is a vital part of the proposed development. For the purposes of this project then the existence of the right-of-way is assumed. I will attempt to propose a location for the right-of-way which seems reasonable based on existing land and boundary conditions.

3.1 The Lake Lot

SIZE : 100 feet on the lake by approximately
150 feet deep

TOPOGRAPHY : The property is shown in approximate section (west-east) below. The section is typical through out.

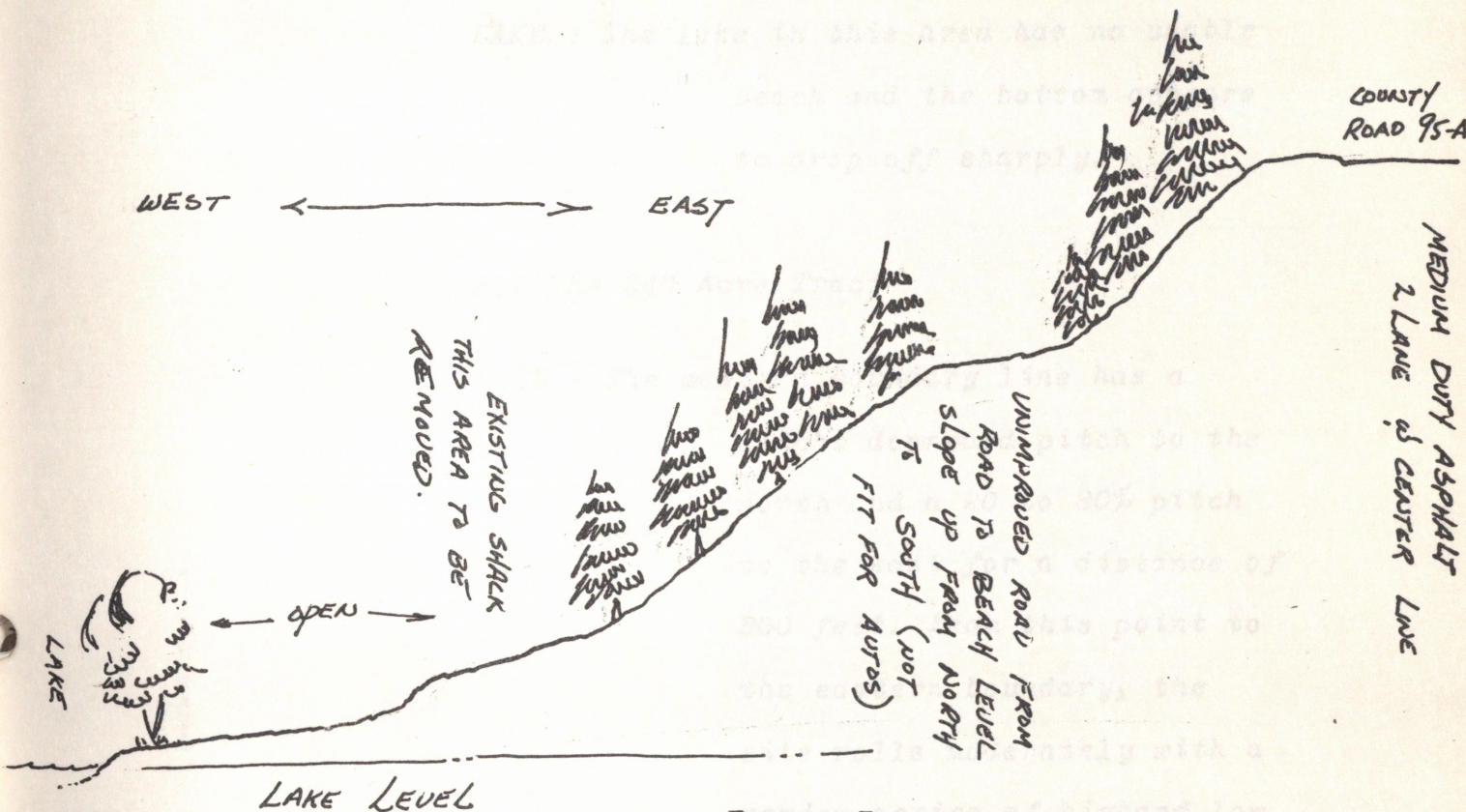


Figure I

FOLIAGE : There is a row of deciduous trees at the lake's edge. The approximate average height is 14 feet. As shown above, the lot is open until the steep slope begins. From that point to the road's edge there is a stand of pine trees which range from 30 to 50 feet in height. There is little or

no growth beneath the pine trees in this area.

Refer to Appendix B for an ecological survey of an adjacent area for tree identification.

LAKE : The lake in this area has no usable beach and the bottom appears to drop off sharply.

3.2 The 240 Acre Tract

SIZE : The western boundary line has a slight downward pitch to the north and a 20 to 30% pitch to the east for a distance of 300 feet. From this point to the eastern boundary, the site rolls moderately with a random series of high and low areas. Water from melting snow tends to accumulate in the low areas in some cases.

At a future time, I hope to build an accurate contour model to fully explain the site topography.

FOLIAGE : There is a small orchard of about two acres on the western boundary of the site. The orchard is predominantly

apple and cherry trees. The remainder of the site is a combination of pine and fir trees with intermittent open areas. (See Appendix B).

There is little growth under the coniferous trees on the site. Walking under the pine trees is therefore a very pleasant experience in many areas. There are, however, certain timbered areas which are very dense with solid growth near the ground. The possibility then exists of using the timber for a screen as well as a connecting element.

EXISTING BUILDINGS : There is one building on the proposed site which will be preserved and used in a communal capacity.

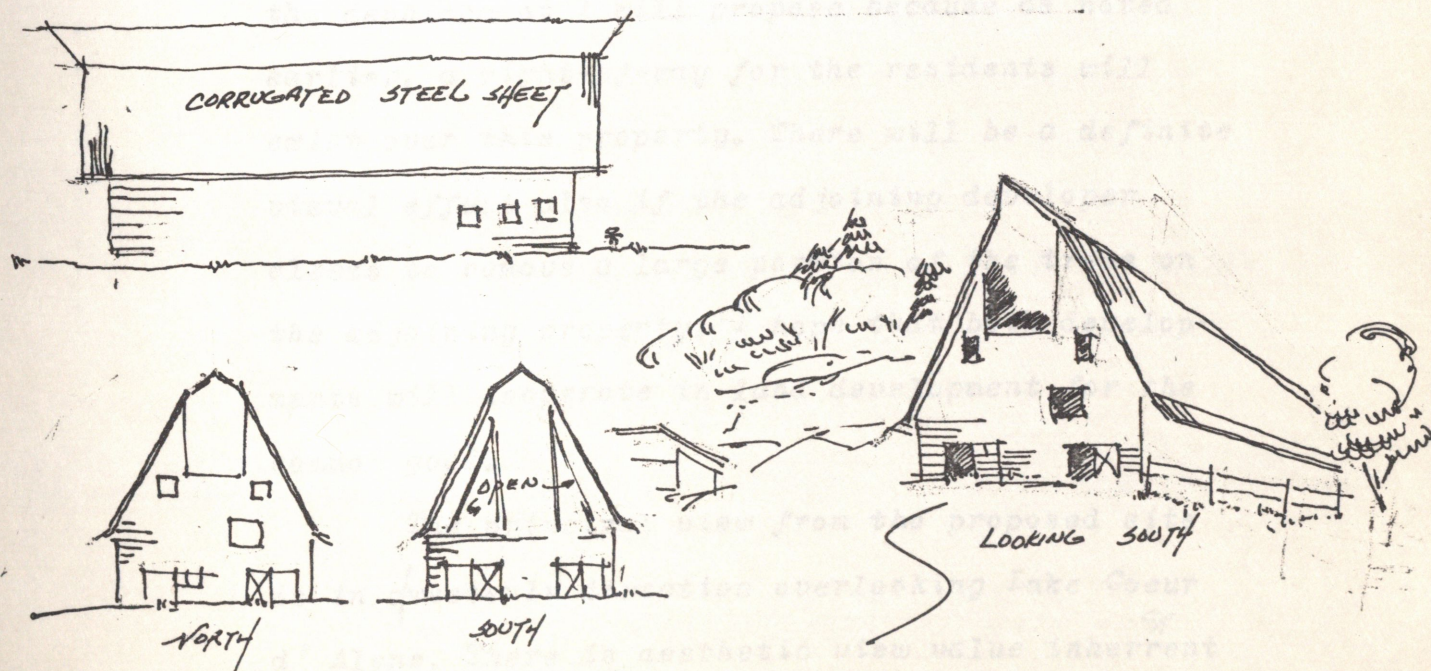


Figure II

Structurally, the barn is in excellent condition; needing only minor foundation work in one area. The siding is rough 1 inch by 10 inch boards butt joined with a red finish.

UTILITIES : There are no developed utilities on the site. It is my intention that all utilities to be installed be buried.

3.3 Adjoining Developments

There is a development planned for the area separating the 240-acre tract from the lake lot. This development will undoubtedly have an effect on the development I will propose because as noted earlier, a right-of-way for the residents will exist over this property. There will be a definite visual effect also if the adjoining developer elects to remove a large portion of the trees on the adjoining property. I hope that both developments will cooperate in land development for the common good.

The principal view from the proposed site is in a westerly direction overlooking Lake Coeur d' Alene. There is aesthetic view value inherent in the site itself which will be exploited.

4.0 Functions

In a community development problem, the functions of all the interrelated elements must be considered. Several facilities must function individually and as a group in order for the project to be successful. The facilities of interest here are :

1. The residence area
2. The transient facility
3. The lake development
4. Recreational facilities
5. The automobile and inter-development travel

Each element will be considered to determine both detailed functional aspects of the building or facility and a general idea of how much of the site the facility should occupy.

4.1 The Residence Area

The full time or weekend residence area will undoubtedly be the highest value land on the

site. It will cover a select area on the site map and should produce a high economic return. The residence area should be secluded to some degree from the transient area. Hopefully, a lake view can be provided for a majority of the building sites. I see this portion of the development as occupying 35% to 40% of the total site acreage.

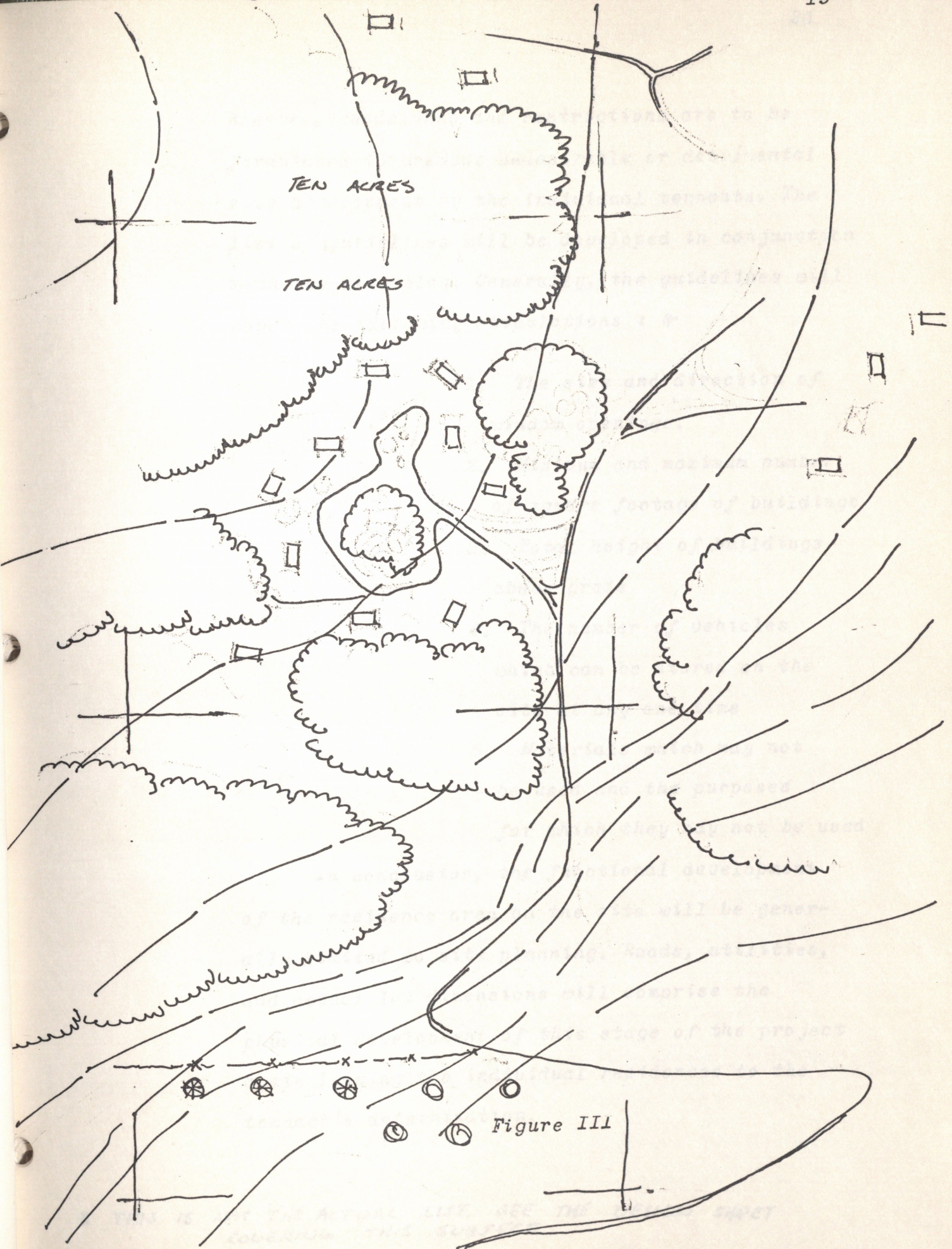
The goal for the residential development is 70 building sites. My initial concept is for cluster type developments of ten or so homes in a cluster. I intend to use one acre per building site as a guideline for establishing the size of each cluster. THIS WILL BE PURSUANT TO AN ACTUAL SITE STUDY FOR OPTIMUM DENSITY

* "By applying the cluster principle, developers can put up the same number of houses but on a portion of the tract, with the bulk of the land left for open space and recreation. ...the individual subdivisions can become far better places to live in..."

Illustration III is a schematic example of one possible cluster. Note that each unit is not on an acre site, but rather, ten units occupy ten acres. The drawing is purely illustrative and in no way indicates at this time the final proposed solution.

The functioning of the individual residences are to be left to the individual tenants.

* Whyte, William H. Cluster Development.
New York : American Conservation Assoc.,
1964.



However, guidelines and restrictions are to be formulated to prevent undesirable or detrimental site development by the individual tenants. The list of guidelines will be developed in conjunction with the site plan. Generally, the guidelines will cover the following stipulations : *

1. The size and direction of window openings.
2. Minimum and maximum number of square footage of buildings
3. Total height of buildings above grade
4. The number of vehicles which can be stored on the site at any one time
5. Materials which may not be used and the purposes for which they may not be used

In conclusion, the functional development of the residence area on the site will be generally limited to site planning. Roads, utilities, and actual lot dimensions will comprise the physical development of this stage of the project again leaving the individual residences to the tenant's determination.

* THIS IS NOT THE ACTUAL LIST, SEE THE DESIGN SHEET COVERING THIS SUBJECT.

4.2 Transient Facility

The transient facility will require primarily easy access, pleasant surroundings, necessary water and sewer and electrical services; and indoor recreation for inclement weather. The enclosed pamphlet by the U.S. Public Health Service (Appendix C) recommends a density no greater than twenty-five units per acre to include a recreational area or areas. I see the facility on the site as covering two acres. The design solution for this stage of the problem will include a total site plan showing unit locations, roads, utility services, and design of administrative structure. The administration building will include attendant housing, showers, laundry facilities, indoor recreation, and perhaps automotive service. **THE FIGURES HERE ARE PRELIMINARY AND SUBJECT TO FURTHER SITE ANALYSIS**

4.3 The Lake Facility

The lake facility is to be built on a lake lot which is separate from the 240-acre tract. It will include a resident docking facility, a visiting boat docking facility, and a swimming area. The arrangement of the various components is the first step in solving the design problem. Here as in any other design problem, some relationships become immediately obvious. For example, the docking facilities must be separated from the

swimming area and the common building would be best overlooking the lake.

4.4 Recreational Facilities

Recreational facilities on the site will include a children's playground, a small golf course, an open field for any number of activities, and tennis courts. Perhaps the indoor recreational facilities can be expanded to provide useable space for the residents also. **INDOOR RECREATION IS NECESSARY FOR TRANSIENTS BUT WOULD BE AN ASSET FOR OTHERS.**

The large red barn on the site is tentatively going to be maintained to perform some site function. Perhaps indoor recreation can occur within this space. I intend also to use the lower area of the barn for storage of off-season recreational equipment. Boats and campers would be stored there during the winter months and snow machines during the summer.

4.5 The Automobile

The automobile on the site poses an interesting design problem. The road system must be extensive enough to provide easy access to all areas of the site, yet limited enough to keep costs down and prevent an unpleasant feeling in the natural spaces that the automobile is everywhere and the site is extensively subdivided to accom-

odate it rather than the pedestrian. The site should provide for easy walking distance between the various areas. However, the design will provide for the possible need for vehicular transportation during either bad weather or periods of personal disability. My initial concept of a perimeter road system for both isolation of pedestrian from automobile and as a buffer from adjoining developments seems to be economically unsound. The ultimate solution may, however, for reasons of economy use a more direct route.

5.0 Economics

Economics is the major factor when considering feasibility of a project. In a community development such as the one being proposed, the initial cost will be high due to the amount of work required to ready the site for occupancy. Roadwork, construction of the lake facility, and installation of utility services will in addition to their normal high cost show the added cost of shipping building materials from Coeur d' Alene or Spokane to the remotely located site.

In that the text of this report is preliminary to the actual design, I feel a discussion of comparative systems of construction would be beneficial. Further, unit costs vary greatly from area to area and fluctuate with supply and demand. This section of the text then will attempt to treat the costs of development by considering the problems involved with comparable systems of construction and suggesting approximate unit costs.

Basic to all construction costs is labor rates per hour. Labor cost increases not only with

total hours, but complexity and the skill required to execute the proposed design. Briefly, mechanical trades as electricians and plumbers have the highest cost per hour. Carpenters and laborers are generally the lowest in cost per hour per man. I have no specific information as to the labor scale in Coeur D' Alene. However, the information presented is offered as a relative scale and is useful in determining construction costs and systems from a labor cost standpoint.

The implications of this are simple. For example, if carpenters are low in cost it would be beneficial to remember that ^{LABOR-WISE,} a wood structure would cost less than a steel structure.

The systems of construction will be compared in this section with respect to total costs.

5.1 Site and Roadwork

Earthwork as for example, excavation and backfill is often contracted by the cubic foot or cubic yard. Ten dollars a cubic yard for excavation and backfill is a reasonable figure if total excavation requires moving approximately twenty yards of material within a reasonable degree of work tolerance. A second way of contracting earthwork is to hire the equipment with operator on a daily basis. A piece of earth-

moving equipment of the size this project will require will average at around \$125. per day. All equipment includes travel time at the leasee's expense.

Roadwork requires a varying amount of equipment and man hours depending on the type of road desired. A comparison of several systems is shown here :

SYSTEMS COMPARISON - ROAD WORK		
SYSTEM	COST/YD of SURFACE	CHARACTERISTICS
gravel	\$ 1 ⁰⁰ 62 yd	simple crushed stone on graded surface. Freq. maint. Undesirable & very noisy.
asphalt or oil penet.	\$ 3 ²⁰ - \$ 4 ⁰⁰ 50 yd	installed hot on gravel bed - more durable. av maint. good solution. quiet.
concrete	\$ 8 ⁰⁰ \$ 10 ⁰⁰ 50 yd	poured in place on gravel. reinfrc. steel mesh excellent surface. expensive when used extensively
brick or stone	\$ 20 ⁰⁰ min 50 yd	laid in mortar bed & cemented joints. on gravel & concrete bed. eye appealing. For limited use only - very expensive
BASED ON PERSONAL EXPERIENCE, EAST COAST.		

Figure IV

Finished sitework as lawns, shrubs, and non-masonry walks is difficult to predetermine. Maintenance often overtakes initial cost in a few years if pruning and extensive cutting and weeding is necessary. For this project I do not envision much development of this nature other than as included with the recreational facilities. I hope to retain where ever possible the natural aspects of the site. **HUMAN IMPACT ON THE SITE WILL NATURALLY BE A DESIGN CONSIDERATION.**

5.2 Buildings

Construction costs vary from simple wood frame which costs about fifteen dollars a square foot to structural steel and concrete work which costs twenty to thirty dollars a square foot. There are exceptions to the above; very intricate wood work can double or triple the cost of wood frame construction when used extensively. Fire ratings and building codes often specify the type of construction based on building occupancy. At this time, I imagine a wood frame structure with laminated wood or light steel supports. I base this decision on the following :

1. The structure(s) will not exceed two stories
2. All buildings will open directly on the outside

3. The availability of wood products in Coeur d' Alene
4. The low labor costs of wood frame construction
5. Eliminates the need for a large quantity of heavy equipment during the construction process

A further justification for this system of construction is the ease with which the building can be altered. Steel and concrete are far more expensive to tearout and replace than is wood frame.

5.3 The Recreational Facilities

Recreational facilities may vary in cost much in the same way that other construction does. The more deluxe the facility, the higher the cost. Figure five illustrates this.

The lake facility, if built from floating rather than fixed docks can be greatly reduced in cost.

I estimate a 20 foot section of floating dock to cost \$350 including installation. The driving of wood restraining piles to resist lateral movement would cost around \$45 each pile.

RECREATIONAL FACILITIES COST COMPARISON		
FACILITY	COST	CHARACTERISTICS
tennis courts	\$7000 ea	delux with multi colored courts
	\$6000 ea	one color court. (complete) deduct \$1000 - from price per court when more than three are installed at one time.
indoor swimming pool	\$15,000 -	minimal concrete pool with filters & pumps 25 x 10 yards.
	\$80,000 -	heated water, fully tiled, diving board, lights, apron (heated) - delux, 25 yds by 12 yds complete
golf	\$1000 - \$7000	per hole based on complexity, topography, size of green, grass, etc. Frequent maint. when in use. Does not include cost of maint. equipment or maint. man hours

Figure V

5.4 Mechanical Services

The mechanical services; as electricity, water, and sewer, are determined by the lengths of the runs required, the depths, and the relative topography that the contractor must contend with. Sewer and sanitary drainage also require pitch to function properly. This means that costly pumps and collection tanks must be provided if the topography is not favorable to natural flow. At

this time, due to the uncertainty of ground conditions, I do not wish to venture a guess as to the cost of installing the mechanical services. Refer to the section on earth work for an estimate of trenching costs in favorable soil. I might add also at this point that in my limited experience, the cost of a mechanical and drainage system will usually amount to 30% to 45% of the total development cost. As a comparison to the above mentioned trenching cost I would add a figure quoted me in Coeur d' Alene of \$10 per linear foot as a minimum for trenching in solid rock which may exist in certain areas of the site. Needless to say, an effort will be made to avoid such areas whenever possible.

5.5 The Return

The most important economic consideration is whether or not the investor can realize a return on the initial investment. I would assume that a project such as this is a long term investment. To justify the work required, I would imagine that the the owner as a minimum must be assured of a better than bank rate interest return. However at the present land market, I am sure a much higher rate of return will be realized when the project is completed.

When the preliminary design is completed, a cost estimate can be made and the percent return per facility per year can be more realistically determined.

Implications of a Design Implication

Cost data provides useful information when deciding the relative merit of the various elements in the design. This gives unit costs another dimension for their consideration other than cost alone as mentioned in section five. When relative importance among relative sites in relation to unit costs, the actual cost becomes less important than the percentage difference between or among the alternatives for developing a particular part of the design.

The goal of this discussion is to provide a basis for decision making. After considering unit costs and relative developmental substitutes, there is to begin to evolve a more concise plan for the development of the site which should be allocated for the intended site facilities.

To begin, I shall list the unit costs for each type of development suggested in section

five.

6.0 Economics as a Design Implication

Unit costs become useful information when deciding the relative sizes of the various elements in the design. This gives unit costs another reason for serious consideration other than cost estimation as mentioned in section five. When considering ~~considering~~ relative sizes in relation to unit costs, the actual cost becomes less important than the percentage difference between or among the cost figures for developing a particular area of the design.

The goal of this discussion is to provide a useful aid in decision making. After considering unit costs and relative developmental substitutions, I hope to begin to evolve a more concise feeling for percentages of the site which should be allocated for the intended site facilities.

To begin, I shall list the unit costs for each type of development suggested in section five.

Interior building space development...\$25s.f.

Exterior sidewalk facilities.....\$12s.f.

*brick paving (limited)

to include *concrete walks

*planters

Residential sites @ 1 acre per site...\$700.
(each)

*survey and location

*mechanical

to include

*drives

*outdoor development

Paved asphalt road surface.....\$.45s.f.

Tennis courts and swimming pools are omitted in that these are "fixed costs per development" of each item. See section five for cost figures.

The above figures indicate an interesting pattern. For example, \$20 will provide for one square foot of developed interior space or 45 square feet of asphalt pavement for parking or driving on the site.

Information such as this is valuable when establishing design priorities as when working under a limited economic condition. With this information it is possible to establish priorities as to what developmental aspects should be retained and which should be omitted to allow more of another type of development.

7.0 Aesthetics

Aesthetics or visual quality of the project is difficult to define in general terms. Le Corbusier worked with a "humanistic" mathematical modular unit and scale which developed the aesthetics of his work in a very regimented, organized fashion. Frank Lloyd Wright on the other hand worked with the natural surroundings of the site. There ^{are} many examples of this ranging from the prairie homes to the Falling Water house which was built in a densely wooded area.

Wood is a building material which when used with natural stone can create a naturalness with the site. At this time I envision the site as a series of cluster type of developments with a great deal of open area for common use. This I feel is a far better system than the conventional rectilinear and fenced acres of each individual stretching across the site.

The residential clustered areas will cover a large percentage of the site but will be spread out to demphasize the "development" which can

reduce the naturalness I hope to achieve.

Perhaps the aesthetic attribute I hope to achieve can be summarized^m very briefly; naturalness, quiet, fun, yet not totally isolated from the total surrounding environment.

All too often, an architect writing about what he has done is not presenting a true indication of the actual product. I do not wish to design the project in words. However, some of the important elements of the aesthetics I hope to achieve have been clarified.

ORDER OF DEVELOPMENT IS TO BE
COVERED GRAPHICALLY IN THE DESIGN STAGE

Andrew J. Wick
213 Fernside Drive
Bozeman, Montana 59717

Professor James D. Gough
Director
School of Architecture
Montana State University
Bozeman, Montana 59717

Appendix A

Correspondance during the project

Dear Sir:

1. Professor James D. Gough
introduction of the project
2. Chamber of Commerce, Coeur d' Alene, Idaho
3. Idaho Fish and Game
with reply
4. Lepard and Frame, Civil Engineers
5. National Park Service
Nebraska reply
San Francisco reply (source of Appendix C)

The natural surroundings, potential development of adjoining areas, and determination of all design criteria relative to the nature of the project and the area under consideration.

by the development of a total design concept to include planning of land use, the location and type of enclosed space, and building design.

presentation of the design concept in the form of a design proposal to include an overall site plan and building design.

Sincerely,
Andrew J. Wick

Andrew J. Wick

November 4, 1970

Andrew J. Wick
213 Perkins Place
Bozeman Mont. 59715

Professor James D. Gough
Director
School of Architecture
Montana State University
Bozeman Montana 59715

Dear Sir:

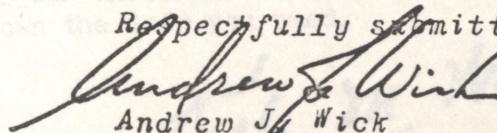
I have developed my terminal project around the desires of an engineering staff member to develop a 240 acre wooded site 28 miles east of Coeur d'Alene Idaho. Following several discussions and area photograph study, I have arrived at the following proposal...

The development and design of a small, semi-secluded, non self contained community of private residences and recreational services.

The project as I see it will consist of several stages, they are as follows:

- 1) extensive research into all aspects of the natural surroundings, potential development of adjoining areas, and determination of all design criteria relative to the nature of the project and the area under consideration.
- 2) the development of a total design concept to include planning of land use, the location and type of enclosed space, and building design.
- 3) execution of the design concept in the form of a design proposal to include an overall site plan and building design.

Respectfully submitted


Andrew J. Wick

November 4, 1970

213 Perkins Place
Bozeman, Montana 59715
November 10, 1970

The Chamber of Commerce
Coeur d'Alene, Idaho

Dear sir:

I am a senior in architecture at Montana State University. I am contemplating a thesis design problem to be done on a tract of land east of Lake Coeur d'Alene near Turner Bay.

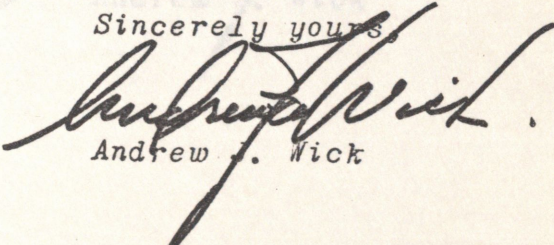
The problem I am considering is a low density non-self-sufficient resort community. The concept of the problem will be aimed at preservation of the natural surroundings and the non-destructive utilization of the existing geography.

I would be most grateful for any general information you could supply me with concerning the city and the surrounding areas concerning zoning (being contemplated or existing), surrounding landmarks, points of interest, recreation areas, national forests, etc.

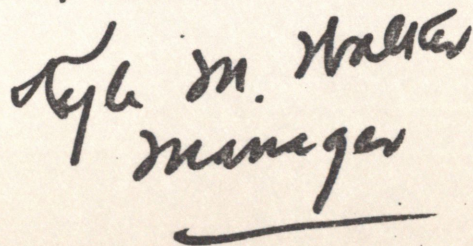
I would also naturally be very interested in any specific information concerning the actual site you feel would be helpful to me on this project.

Thank you very much for your time and effort.

Sincerely yours,


Andrew J. Wick

Sorry this is out of the scope of our information and with a small staff we do not have the time to run down the info you need.


Lyle M. Walker
Manager

213 Perkins Place
Bozeman, Montana 59715
November 10, 1970

Department of Fish & Wildlife
Coeur d'Alene, Idaho

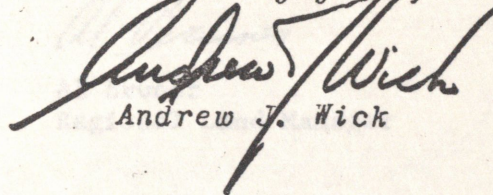
Dear sir:

I am a senior in architecture at Montana State University. I am contemplating a thesis problem in the area shown on the enclosed map. The concept of the project will hopefully enhance the area while respecting the existing wildlife and other ecology in the area. To achieve this I am in need of information concerning wildlife, natural plant growth, etc.

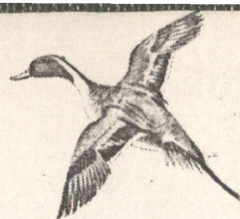
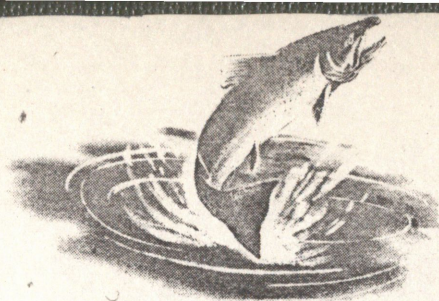
I would be most grateful if you could supply me with such information and indicate directly on the map, if you wish, any information which can more easily be shown in such a manner.

Thank you very much for your time and assistance.

Sincerely yours,


Andrew J. Wick

enclosure



IL D. ANDRUS, Governor
COMMISSION
BERT G. KALB, Sandpoint
JL C. KEETON, Lewiston
IN EATON, Cascade
HOLMES, Twin Falls
ENN STANGER, Idaho Falls

JOHN R. WOODWORTH, Director

IDAHO FISH AND GAME DEPARTMENT

Box 549, Coeur d'Alene, Idaho
January 7, 1971

POST OFFICE BOX 25
600 SOUTH WALNUT STREET
BOISE, IDAHO 83707

Mr. Andrew J. Wick
213 Perkins Place
Bozeman, Montana 59715

Dear Mr. Wick:

Please excuse the delay in answering your letter of November 10, 1970 and in providing you with the information you requested.

The reason for my not having the information available even now is simply a matter of not having had time to personally inspect the area in question.

I could probably give you a good general idea of the information you requested; however, the fact that you have identified the area by a definite legal description leads me to believe you need specific, accurate information. Unfortunately, a rather full schedule has prohibited my obtaining such facts.

I will locate and inspect the area and forward the information you requested as soon as possible.

Sincerely,

Al Bruner
Regional Land Manager

AB/lb

M. S. U. BOOKSTORE, INC.

M. S. U. BOOKSTORE, INC.

213 Perkins Place
Bozeman, Montana 59715
November 10, 1970

LePard and Frame
Civil Engineers
Coeur d'Alene, Idaho

Dear sirs:

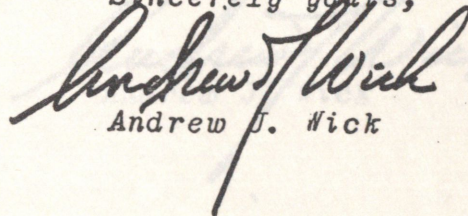
I am a fifth year senior in architecture at Montana State University. I intend to do my undergraduate thesis on a tract of land east of Lake Coeur d'Alene near Turner Bay.

I understand that you are intending to develop an area directly adjoining the site I am planning to do my thesis on.

For purely academic purposes in determining and relating my land use, I would like to inquire what form of development you are considering in this area.

Thank you very much for your time and consideration.

Sincerely yours,


Andrew J. Wick

213 Perkins Place
Bozeman, Montana 59715
November 10, 1970

Regional Director
Midwest Region
National Park Service
1709 Jackson Street
Omaha, Nebraska 68102

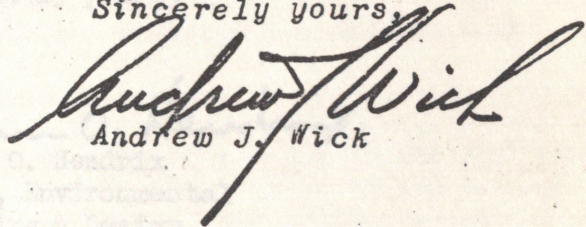
Dear sir:

I am a senior in architecture at Montana State University. I am contemplating a thesis problem including a trailer campground as a part of the total solution.

I understand that your department is planning to lease land in Yellowstone National Park for such development. For the purpose of designing my trailer campground, I am interested in obtaining a copy of your codes and regulations concerning building and developing within the park.

Thank you very much for your time and consideration.

Sincerely yours,



Andrew J. Wick



UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

WESTERN SERVICE CENTER

450 GOLDEN GATE AVENUE, BOX 36025

SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:

KL4(WSC)PDP

December 16, 1970

Mr. Andrew J. Wick
213 Perkins Place
Bozeman, Montana 59715

Dear Mr. Wick:

Your letter of November 10 to the Midwest Regional Director has been forwarded to us for any additional information we might be able to provide for your trailer campground thesis.

Enclosed are two publications which may be of interest and assistance to you:

Environmental Health Guide for Mobile Home Parks

and

Environmental Health Guide for Travel Trailer Parking Areas

These have been prepared by the U. S. Department of Health, Education, and Welfare and are published as a public service by the Mobile Homes Manufacturers Association, 20 North Wacker Drive, Chicago, Illinois 60606.

Very truly yours,

Glenn O. Hendrix

Glenn O. Hendrix
Chief, Environmental
Planning & Design

In duplicate

Enclosures



United States Department of the Interior

NATIONAL PARK SERVICE

MIDWEST REGION

1709 JACKSON STREET

OMAHA, NEBRASKA 68102

IN REPLY REFER TO:

K14 MWR(PS)

December 1, 1970

Mr. Andrew J. Wick
213 Perkins Place
Bozeman, Montana 59715

Dear Mr. Wick:

Your recent letter was referred to my office, and I will give you what information I can.

It is encouraging to us to have architectural students interested in our National Parks, and I do hope you pursue your thesis problem on a trailer campground.

In trailer campgrounds we include permanent buildings which provide shower and laundry facilities, rest rooms, recreation facilities and ranger quarters for supervision, fee collection and first aid. We design these permanent structures to conform to the requirements of the Uniform Building Code, National Electric Code and National Plumbing Code. You should be able to obtain copies of these Codes.

Design in our National Parks is a real challenge, for in addition to normal site planning problems, we must consider the conservation of our natural resources and protection of our environment. Water, sewer and electrical systems, sewage and trash disposal and road systems as well as site preparation must be planned and designed with these important considerations in mind. In an area such as Yellowstone we must design our structures also to withstand heavy snow loads and for sub-zero temperatures. These are some basic considerations.

In Yellowstone National Park there is presently a concession-operated trailer campground within the Fishing Bridge development. I know of no additional facilities of this kind being planned in the Park but if any are constructed they, too, would be operated by the present concessioner rather than leased to another party. The present concessioner has the franchise rights to operate such facilities in the Park during the period of his contract with the National Park Service.

If you have additional questions, please feel free to write to me.

Very truly yours,

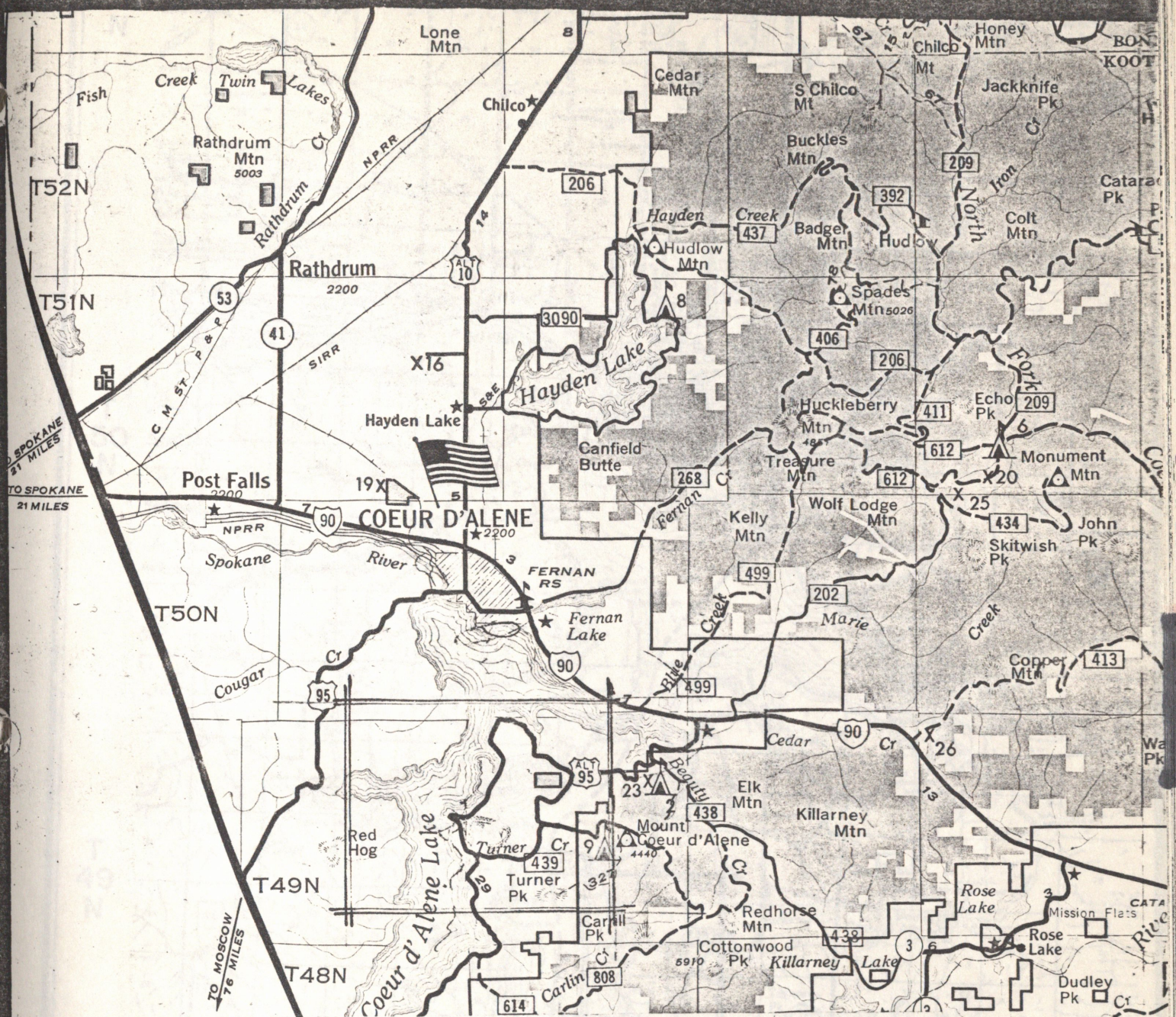
Vance L. Kaminski
Regional Architect

P.S. I have sent your letter to my Design office in San Francisco and asked them to send additional information and plans of trailer developments recently completed. V.L.

Appendix B

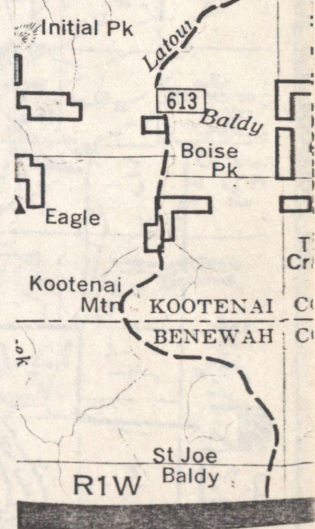
Local Information

1. Map
2. Map showing township and section *where is the site?*
3. Legal Description *needs identify*
4. General information
5. " " taken from " City Directory
6. " " "
7. " " "
8. Proposed development to adjoining property
9. Ecological survey - Idaho Fish and Game
10. " " "
11. ZONING
12. SOILS INFORMATION
 1. U.S. DEPT. OF AGRICULTURE
SOIL CONSERVATION SERVICE
 2. MR. PAUL NORDSTROM
MONTANA STATE UNIVERSITY
PLANT AND SOIL SCIENCE



LEGEND

- | | |
|---------------------------|--|
| U.S. Routes | Improved Recreation Site |
| Interstate Highway | Supervisors Headquarters |
| State Routes | Ranger Station |
| Improved Motor Roads | Forest Service Lookout |
| Secondary Motor Roads | Work Center |
| Trails | Coeur d'Alene National Forest Boundary |
| Point of Interest | Coeur d'Alene National Forest Land |
| Mileage Between Red Stars | Boat Access |



1967

Scale

1 1/2 0 1 2 3 4 5 Miles

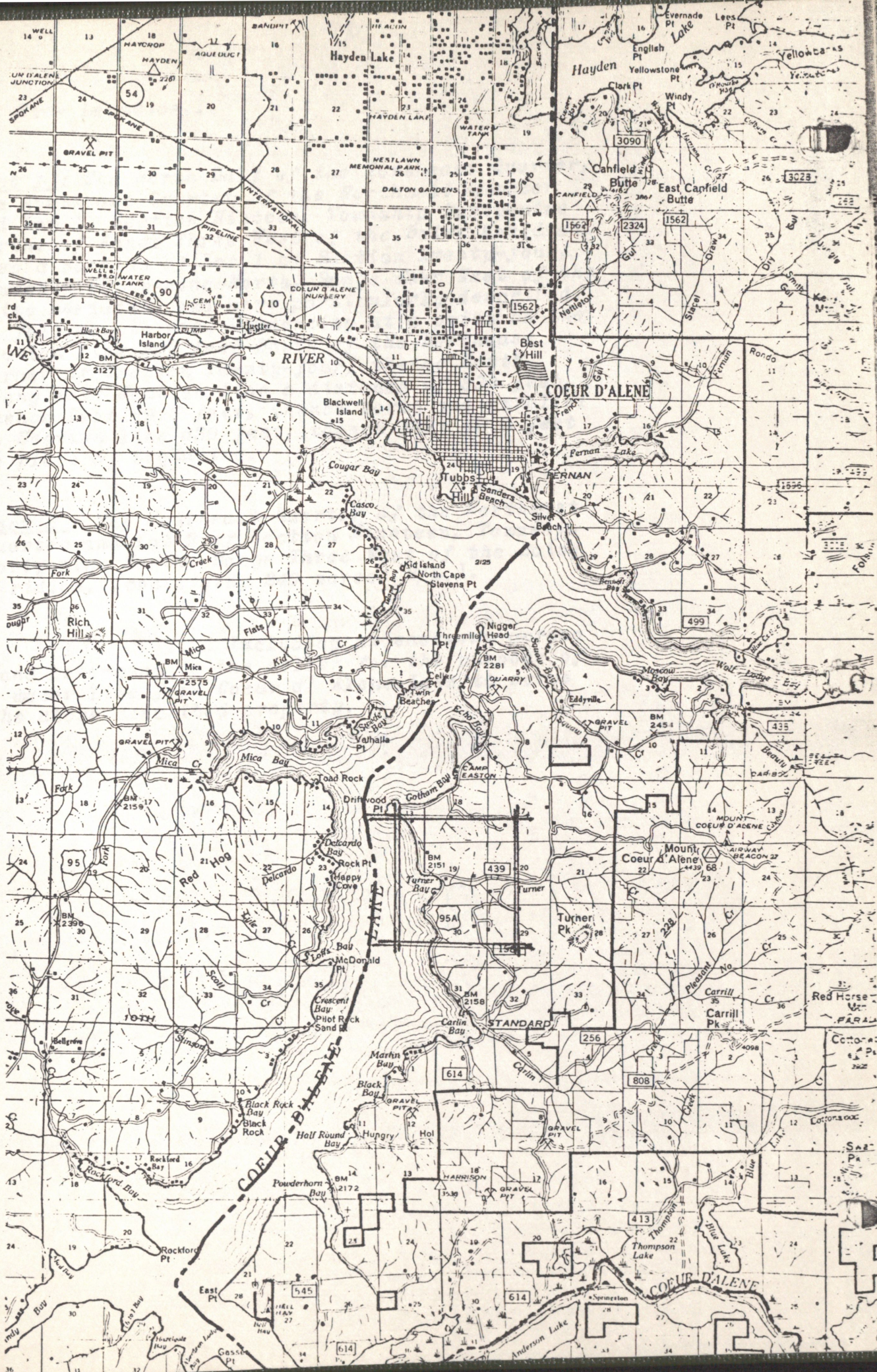
ST MARIES
20 MILES

T 51 N

T 50 N

T 49 N

T 48 N



Site Location...

Tract 1 : The North Half of the Northeast Quarter, the Northeast Quarter of the Northwest Quarter and Lot 1, Section Nineteen, Township Forty-nine North, of Range Three West of the Boise Meridian. Also a portion of Lot 1 of Section Twenty-four, Township Forty-nine North, Range Four West of the Boise Meridian, and more particularly described as follows, to wit: Commencing at a point on the Section line 581 feet South of the Northeast Corner of Section Twenty-four, thence South along said Section line a distance of 330 feet, thence West 49.5 feet, thence North and parallel to Section line 330 feet, thence East 49.5 feet to place of beginning.

Tract 2 : The Southeast Quarter of the Northwest Quarter and Lot 2 of Section Nineteen, Township Forty-nine North, Range Three West of the Boise Meridian, (containing 240 acres, M/L.).

Including an easement across land belonging to the seller for the purpose of a water line from Coeur d' Alene Lake to serve the above described property.

COEUR D'ALENE is the county seat of Kootenai County in the Northern Panhandle of Idaho.

LAKE AREA: 77.3 square miles--shoreline, 109 miles.

POPULATION: 1960 census, 14,291--1970 estimate, 17,500.

ELEVATION: 2152 feet above sea level.

TEMPERATURE MEAN: Summer, 59.8 deg.--Winter, 36 deg.

AVERAGE PRECIPITATION: 26.13 inches--Snowfall, 48.8 inches.

CITY AREA: 5.5 square miles, 200 miles of streets.

SITUATED: On the north shore of Lake Coeur d'Alene.

CLIMATIC CONDITIONS: The area has four distinct seasons with few extremes, providing excellent living conditions. The region has been designated as one of the areas in the United States most free from ragweed and other pollen-bearing plants which aggravate hay fever.

HOUSING: There are, normally, a number of homes for sale, many of which are new. Price ranges, depending on many factors, are from \$6,000. to \$35,000. or more. Rental houses are in short supply, with apartments being more plentiful, but not always available. Many apartments are rented only to couples with no children. In addition to city property, there are some tracts of irrigated land, medium and large farms devoted to the production of crops, dairy and beef cattle, that may be purchased. For County Tax information write County Assessor, Court House.

UTILITIES: Washington Water Power (electricity, natural gas) 501 E. Lakeside, P.O. Box 760. General Telephone Co. 2115 Government Way, P.O. Box 1058. Idaho Water Co. 414 Coeur d'Alene Ave., P.O. Box 746.

TAXES: Idaho has a graduated state income tax and a 3% sales tax. The current real property tax for the city of Coeur d'Alene is at the rate of \$15.12 per \$100 of assessed valuation. Assessed valuation is at the rate of 14% of real value. Taxes outside the city are somewhat lower but because of the many taxing units in various areas, one rate would not be applicable to all areas.

EMPLOYMENT: Occasionally jobs in the service fields are available (clerks, etc.); however, employment is usually hard to come by in an area which is devoted mainly to lumbering, agriculture and tourist business and any available employment is usually geared to these three industries. Spokane, 33 miles to the west, offers a better labor market and many people prefer to live in Coeur d'Alene and commute back and forth to Spokane. With present trends there is not too much encouragement for gainful employment in the immediate vicinity of Coeur d'Alene. For fuller information on employment contact: The Idaho Dept. of Employment, P.O. Box 339, Coeur d'Alene, Id., 83814, or visit the office, 515 North Fourth Street.

NEWSPAPER, RADIO AND TELEVISION: The Coeur d'Alene Press, 2nd & Lakeside, is a daily, except Sunday. Subscription is \$26. per year or \$3 per month by mail outside the Panhandle. The Kootenai Co. Leader, same address, is a weekly publication and the rate is \$3.50 per year. Radio station KVNI, operating on 1240 kc, 7 A.M. to 11 P.M. Ten radio stations and four television channels are received from Spokane. A community television cable will be in operation soon.

HOSPITAL: Kootenai Memorial Hospital, 2003 Lincoln Way is a new 126 bed hospital.

NURSING HOMES: Pinewood Manor, 2514 N. 7th St. and Sunset Terrace, 210 W. LaCrosse, Ron Morris is manager of both units. Coeur d'Alene Homes, 1320 N.W. Boulevard, Arthur Olson, Superintendent.

SCHOOLS CHURCHES, LIBRARY, PARKS AND RECREATION: There are 14 public schools, School Dist. #271, Clay Coy Supt., 725 Hazel Ave. Catholic parochial grade and high school, 311 N. 10th St., Seventh Day Adventist School, 111 Locust Ave., North Idaho Junior College, Barry Schuler, Pres., 1000 Garden Ave. W. There are 19 churches, a public library with 27,500 catalogued volumes, a 12-acre city park with public beach and amusement pier, and numerous playfields and recreation areas, three standard 18-hole and one par 3 nine-hole golf courses in the area.

Coeur d'Alene

(Courtesy Chamber of Commerce)

Statistical Review

"COEUR d'ALENE"—A French name meaning sharp pointed heart.

FORM OF GOVERNMENT—Mayor and Councilmanic.

POPULATION—15,000.

AREA—5.6 square miles.

ALTITUDE—2,152 feet.

BUS LINES—Intercommunity, Greyhound, Empire.

BUS LINES—City 1, 1 scheduled bus, hourly service.

CHURCHES—19.

CLIMATE—Mean annual temperature, 47.3; average rainfall, 23.98 inches.

CITY BONDED DEBT—\$70,000 general; \$418,020.00 L. I. D.

PARKS—1 with 12 acres.

FINANCIAL—Four federal reserve banks, one state bank and one savings and loan association.

POST OFFICE RECEIPTS—\$299,345.60, 1965.

TELEPHONES IN SERVICE—Telephone in corporate limits 7,566. An additional 2,217 are in the Coeur d'Alene dialing area (Rural, Hayden Lake and Post Falls).

TRADE TERRITORY—70,651 population.

HOTELS—3 having 150 rooms.

✓ MOTELS AND MOTOR COURTS—60 in the area.

AIR SERVICE—1 interstate, West Coast Airlines, 2 private charter, Seaplane base.

NEWSPAPERS—1 daily and 1 weekly.

RADIO STATIONS—1, KVNI, 1230 k.c.

AMUSEMENTS—1 motion picture theatre, 2 drive-in theatres, several night clubs with entertainment, 1 amusement pier, and 2 bowling alleys.

RAILROADS—4 branch lines (freight only) Great Northern, Northern Pacific, Milwaukee and Spokane International.

MOTOR FREIGHT—3, Garrett Freightliners, Inc., Wallace Motor Freight and Coeur d'Alene Motor Freight.

HOSPITALS—1 new hospital with 88 beds, and 1 nursing home.

Wonder if this includes snow!

EDUCATION—13 public schools, including 1 junior college and 1 high school, 1 junior high, 2 parochial schools, including 1 grade school and 1 high school (Roman Catholic denomination), Seventh Day Adventist School.

LIBRARY—1, with 27,500 catalogued volumes.

INDUSTRIES—(Manufacturing) 4 lumber saw mills and 2 stud mills, 2 sash and door and box factory, 1 ready mix concrete plant, 2 bottling plants, 1 electronic switch manufacturing plant.

LAKE STATISTICS—1 commercial tug line, licensed as a transcontinental carrier and operating 12 tugs; 3 privately owned and 1 municipal boat harbor accommodating 500 pleasure craft; 1 sea plane. Two commercial passenger boat lines, operating on regular schedules during summer months and several charter taxi boats.

CITY STATISTICS—Total street mileage, 100. Privately owned and operated waterworks, 18 million gallon capacity and fifty-four miles of mains. 1 fire department with 2 trucks and 5 engines. Police department with 12 policemen, 3 desk clerks and 1 police matron, 3 cars, 2 motorcycles. Sewerage disposal system.

General Review

The city of Coeur d'Alene, the County seat of Kootenai County, is located on the north shore of Lake Coeur d'Alene, in the northern part of the State of Idaho, on U. S. Highway No. 10 (Interstate 90), 33 miles east of Spokane, Washington. Idaho's North-South Highway No. 95 passes through the city.

Public passenger carriers serving the city are the Northwest Greyhound Lines and Empire Lines. Daily freight service over branch railroad lines, the Great Northern, Northern Pacific, Milwaukee and Spokane International, is maintained. Auto freight lines, The Garrett Freightlines, Wallace Auto Freight and Coeur d'Alene Motor Freight, serve the district daily. The West Coast Airlines maintains four daily flights to and from Coeur d'Alene to the southern part of the state, west coast cities, Calgary, Alberta and connections to the Northwest Airlines and the United Airlines.

Lake Coeur d'Alene, on the north shore of which the city is situated is one of the most beautiful of the many mountain lakes of the Northwest. Its area is 77.3 square miles, twenty five miles in length, the average width being two miles and has 109 miles of shore line.

Its clear water, its delightful coves and bays, and its setting in the forest-covered hills annually attracts thousands of tourists and persons on vacation. Many fine summer homes and a number of resorts have been built along its shores. Because of this holiday spirit and tourist traffic, the city of Coeur d'Alene, though set in an industrial environment, during the summer months acquires a summer resort atmosphere, and is fast becoming one of the outstanding tourist centers of the Northwest. The recent development of winter attractions and catering to night club life informs the community of a new addition to its economy.

a small docking & marina facility is contemplated for this project

site overlooks this!

★

✓

Climate-Altitude

The climate of the region is healthful. Summers have warm days and cool nights, winters are comparatively moderate. Average mean temperature is 43.7 degrees. The altitude of the surface of the lake is 2,126 feet above sea level, the altitude of the comparatively level plateau upon which the city of Coeur d'Alene is built rises gradually from the lake to about 2,152 feet.

An Industrial City

Being situated in the center of what is said to be the world's largest White Pine timber belt (estimated to be over 23 billion board feet) Coeur d'Alene is quite naturally an industrial city. Its principal manufacture is White Pine lumber, a considerable output of lumber products, such as fruit packing boxes, shingles, match wood and railroad ties. Upwards of 3,000 persons find employment in the lumber mills, logging camps and allied concerns adjacent to or in the city. Kootenai County is the largest lumber producer of all the State's 44 counties. A new plant, Clare-Pendar Corp., established in 1963 is a growing manufacturer of component electronic parts. The Trentwood Aluminum rolling mill, is located 22 miles from Coeur d'Alene, and pays salaries to around 1,000 of the city's population.

Kootenai County

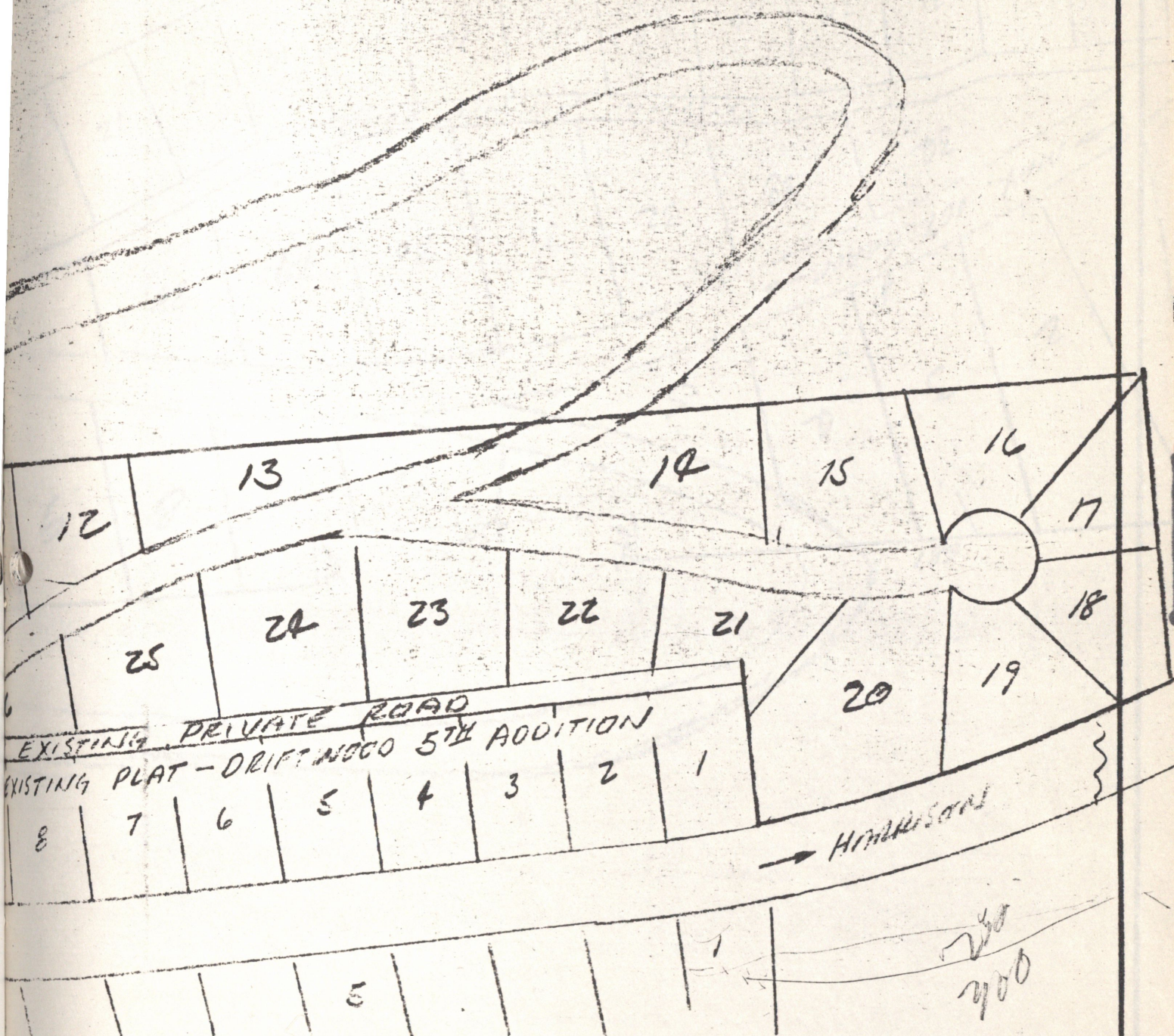
Kootenai County is made up of a variety of farming with approximately 5,000 acres under irrigation producing root and grass crops. Much dairying is carried on, supplying the complete needs of the community and shipping daily to outside markets. This district is known as a Grade A Milk district. Stock breeding, fruit growing and truck gardening add materially to the farm wealth.

Information concerning Coeur d'Alene City or the surrounding community will be courteously furnished upon request made to the Coeur d'Alene Chamber of Commerce.

Homes-Schools-Churches

Approximately 85 per cent of the householders of Coeur d'Alene own or are purchasing their homes. This high percentage is, in a great measure, attributable to factors—to the steady industrial, amusement and recreational expansion, the large number of retired people who have selected Coeur d'Alene as their home, and being a trading center for the farming population neighboring the city.





DRIFTWOOD POINT 6TH ADDITION

FOR HARRISON & CAIN

SCALE

1" = 160'

DRAWN BY

REVISED

SKETCH PLANS - GOV'T LOTS 1 & 2 SECTION 22, TWP

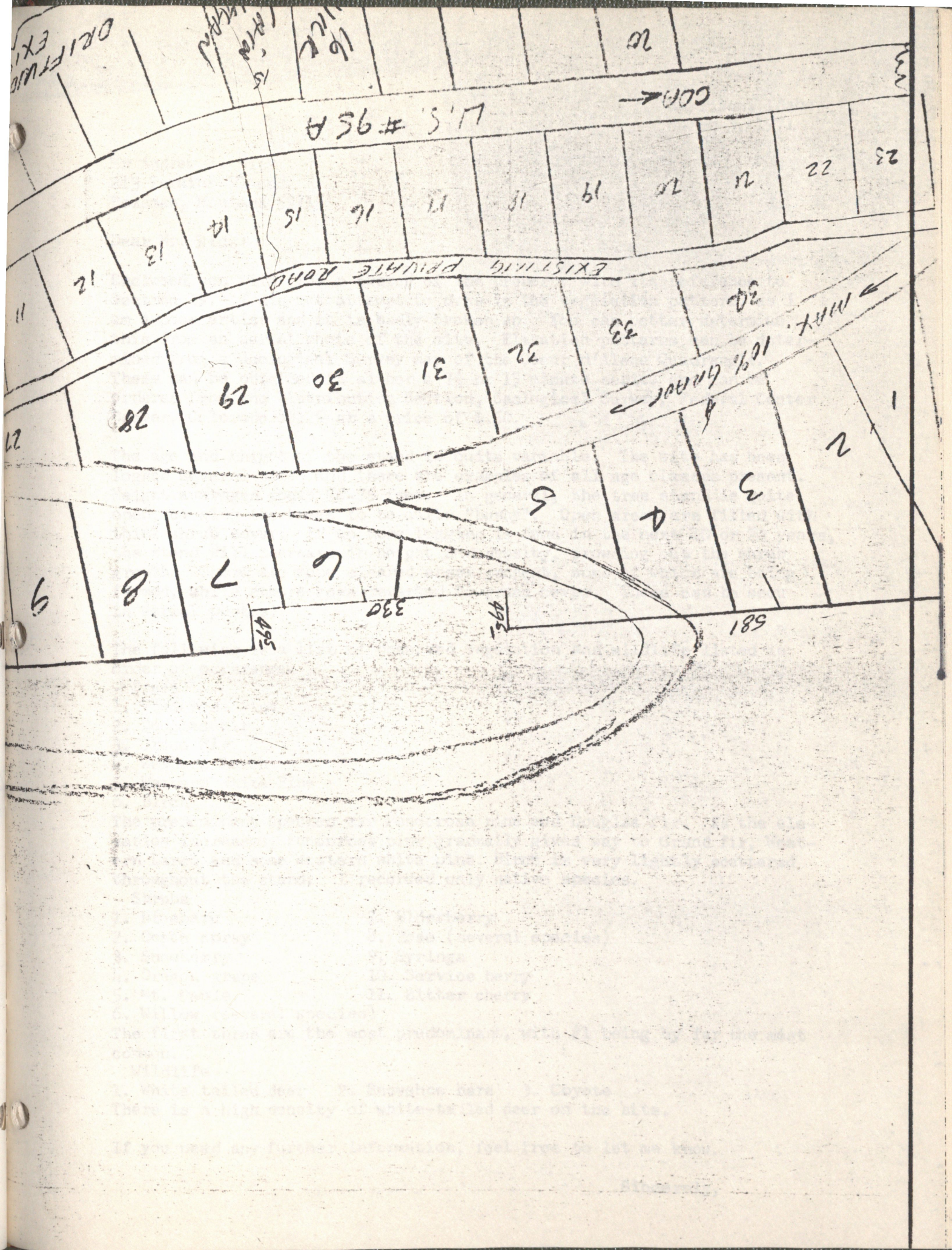
DATE

AUG 25-70

APPROVED BY

APPROXIMATELY 22 AC

DRAWING NUMBER



Box 71
Harrison, Idaho
March 3, 1971

Mr Andrew J. Wick
213 Perkins Place
Bozeman, Montana 59715

Dear Mr. Wick:

Enclosed you will find a sketch of the property with its reference to Section 19. I did not attempt to draw in the vegetation pattern, as I am a poor artist and it is badly broken up. You can better determine this from an aerial photo of the site. Elevation patterns can be determined from a Geological Survey map of the Coeur d'Alene Quadrangle. These can be obtained in either a 7½ or 15 minute series and can be ordered from the Distribution Section, Geological Survey, Federal Center Denver, Colorado 80225 at a price of \$.50.

The age and height of the stand is quite variable. The site has been logged several times and there are examples of all age classes present. Height averages about 50-75 feet. In general, the tree stand is quite open, causing the trees to be quite "bushy". Open areas are filled with thick shrub cover. If no more logging is done in the next 10 or 20 years, the stand will increase in height and density, crowding out the shrub growth. There are some cleared areas present, some of which are being farmed, while others have reverted to grass cover. These can be seen in aerial photos.

The following is a list of observed vegetation and wildlife listed in order of occurrence.

- Trees

1. Ponderosa Pine
2. Douglas Fir
3. Grand Fir
4. Western Larch
5. Western White Pine
6. Birch

The predominant species are Ponderosa pine and Douglas fir. As the elevation increases, Ponderosa pine gradually gives way to Grand fir, Western Larch and some Western white pine. Birch is very lightly scattered throughout the stand. I recorded only native species.

Shrubs

- | | |
|-----------------------------|---------------------------|
| 1. Ninebark | 7. Elderberry |
| 2. Ocean spray | 8. Rose (several species) |
| 3. Snowberry | 9. Syringa |
| 4. Oregon grape | 10. Service berry |
| 5. Mt. Maple | 11. Bitter cherry |
| 6. Willow (several species) | |

The first three are the most predominant, with #1 being by far the most common.

Wildlife

1. White tailed deer
 2. Snowshoe hare
 3. Coyote
- There is a high density of white-tailed deer on the site.

If you need any further information, feel free to let me know.

Sincerely,



KOOTENAI COUNTY

COEUR D'ALENE, IDAHO

83814

OFFICE OF

County Commissioners

April 29, 1971

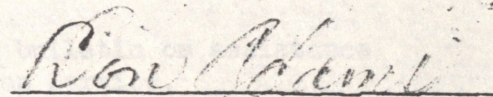
Mr. Andrew Wick
213 Perkins Place
Bozeman, Montana 59715

Dear Sir:

Pursuant to your telephone call of April 28, 1971, Kootenai County does not, at this time, have a zoning ordinance. The planning process is currently underway and it may be anticipated that the zoning ordinance will be adopted before the end of the year.

Inquiries relative to that subject matter can be addressed to Mr. James McKinnon, Planning and Zoning Commission Chairman, in care of the Kootenai Electric Cooperative, 117 Coeur d'Alene Avenue, Coeur d'Alene, Idaho, 83814.

Very truly yours,



Don Adams, Commissioner

DA/sy

cc: James McKinnon

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P. O. Box 730
Coeur d'Alene, Idaho 83814

April 29, 1971

Mr. Andrew J. Wick and Mr. Nick Shrauger
213 Perkins Place
Bozeman, Montana 59715

Gentlemen:

Enclosed is the information you requested on the telephone April 28, 1971. As I indicated on the phone, since we do not have the exact cadastrals or legal description of your property, some portion may be excluded from the enclosed information. I am also enclosing soil mapping unit descriptions for the soils that occur on the enclosed maps. I have underlined portions you may be especially interested in.

As I pointed out on the telephone, we work primarily with soil conservation districts and district cooperators. You indicated an interest in becoming a district cooperator; therefore, I am enclosing cooperator agreement forms. If you are interested, sign the forms and return them to us.

I am also enclosing an information bulletin on assistance available from the Soil Conservation Service.

If we can be of further assistance, please let us know.

Sincerely,

Elbert Moore

Elbert Moore, Soil Scientist
Coeur d'Alene, Idaho

cc: M. Freckleton, District Conservationist
Enc.

EM:lf

April, 1969

EM

LACY SERIES

The Lacy series consists of well or somewhat excessively drained, medium textured soils developed in basalt with an admixture of loess. The soils occupy gentle to very steep basaltic uplands. The native vegetation is mostly ponderosa pine, occasional Douglas fir, Idaho fescue, snowberry balsamroot, and phlox. Elevations range from 1,500 to 3,000 feet. The mean annual precipitation ranges from 22 to 28 inches, and the frost free-season 100 to 140 days. These soils are associated with Joel, Taney, Blinn and Bobbitt series.

The surface layer is dark brown stony loam 4 to 12 inches thick. Subsoil is dark brown to brown; substratum is fractured basalt and colluvium.

The soil is used mainly for grazing and timber production.

Lacy-Bobbitt stony loams, 0 to 35 percent slopes (LylAG)

These soils developed chiefly in residuum weathered from basalt bedrock, with Bobbitt having a greater admixture of loess than Lacy, the complex is associated with south and west slopes.

Representative profile of Lacy stony loam: Kootenai County, Idaho; 0.4 miles north of road SE $\frac{1}{4}$, sec.33, T.48N., R.5W.

01	1-0"	Undecomposed pine needles and grass leaves.
All	0-1.5"	Dark-brown (10YR 4/3) stony loam; very dark brown (7.5YR 2/2) moist; weak, thin platy, parting to moderate, very fine granular structure; soft, very friable, slightly sticky, slightly plastic; abundant fine and very fine roots; many micro interstitial pores; medium

- acid (pH 6.0); smooth boundary.
- A12 1.5-3.5" Dark-brown (7.5YR 4/4) stony loam; very dark brown (7.5YR 2/2) moist; few basalt fragments; moderate, thin platy structure; soft, friable, slightly sticky, slightly plastic; abundant fine and very fine roots; common fine pores; slightly acid (pH 6.2); All abrupt smooth boundary.
- A13 3.5-7" Dark-brown (7.5YR 4/3) stony loam; dark brown (7.5YR 3/2) moist; few basalt fragments; weak, medium platy, parting to weak, fine granular structure; slightly hard, friable, sticky, plastic; plentiful fine and medium roots common fine pores; medium acid (pH 5.8); clear smooth boundary.
- B1t 7-14" Dark-brown (7.5YR 4/3) stony light clay loam; dark reddish brown (5YR 3/2) moist; moderate, fine and medium, subangular blocky structure; slightly hard, sticky, plastic, plentiful roots; common fine pores; thin, continuous clay films on rocks and in pores; slightly acid (pH 6.4); clear smooth boundary.
- B2t 14-20" Brown (7.5YR 4/4) extremely stony light clay loam; dark reddish brown (5YR 3/2) moist; moderate, fine and medium, subangular blocky structure; slightly hard, sticky, plastic; plentiful roots; common fine pores; medium, continuous clay films on rocks and in pores; about 60 percent basalt fragment; strongly acid (pH 5.4); clear irregular boundary.

R 20"+ Fractured basalt bedrock.

The thickness of the sola range from 10 to 20 inches. Loam is the principal type, and most areas are stony or very rocky. The A1 ranges in hue from 7.5YR to 10YR, in value from 3.5 to 4.5 dry and from 2 to 3 moist, and in chroma from 2 to 4. The B2t is dominantly a clay loam but ranges to heavy loam (26 to 35 percent clay), and all or part of the Bt contains from 50 to 80 percent of angular or sub-angular basalt fragments of gravel, cobblestone, or stone size. The B2t is dominantly 7.5YR in hue but ranges from 9YR to 5YR; its chroma range from 2.4 to 4.

Lacy and Bobbitt soils are so intricately mixed they cannot be mapped separately at the 4 inch per mile scale. The major difference between the soils in the complex is the depth to underlying basalt. Lacy series has depths less than 20 inches, and occurs on nearly level to steep convex slopes. Bobbitt series is more than 20 inches and usually less than 40 inches, stone content increases with depth. Bobbitt occupies shallow basins and concave positions on the landscape conducive to accumulation of materials. Lacy series constitute 50 to 75 percent of the delineation with Bobbitt occupying 20 to 40 percent. Larkin, Joel and Blinn may be inclusion in the mapping unit. All these soils occur in areas receiving more effective precipitation than the dominant soils in the complex. Larkin and Joel are developed in deep loess and are free of coarse fragments. Blinn occurs on west slopes and in footslope positions. These soils may occupy from 10 to 15 percent of the area.

Lacy and Bobbitt soils are well drained and subsoil permeability

is moderate. Runoff under natural cover is medium, and erosion hazard on bare soil is moderate. The total available moisture holding capacity is 1 to 3 inches for Lacy and 3 to 6 inches for Bobbitt. The effective soil depth is less than 20 inches for Lacy and 20 to 40 inches for Bobbitt.

Lacy soil: Capability unit VI_s4; woodland suitability group 10.

Bobbitt soil: Capability unit VI_e3; woodland suitability group 13.

Lacy - Bobbitt stony loam, 35 to 65 percent slopes (Ly3HJ)

These soils occur on very steep colluvial slopes and escarpments. Rockland and Blinn may be inclusions in this mapping unit, and may occupy from 10 to 15 percent of the delineation. These soils are somewhat excessively drained, and subsoil permeability is moderate. Runoff is rapid under natural cover, and erosion hazard on bare soil is severe. The total available moisture holding capacity is 0.5 to 1 inch for Lacy and 2 to 5 inches for Bobbitt.

Lacy soil: Capability unit VII_s1; woodland suitability group 10.

Bobbitt soil: Capability unit VII_e1; woodland suitability group 13.

Lacy very rocky loam - Rockland complex (Ly2AG)

This unit occurs on gentle to steep basaltic uplands in ravine or canyon positions where basalt bedrock outcrops. Slopes range from 0 to 35 percent, and the dominant aspects are south and west in the ponderosa pine vegetative zone. Lacy very rocky loam comprises 50 to 60 percent of the delineation, whereas Rockland may occupy from

30-35 percent of the area. Lacy Bobbitt stony loams, 0 to 35 percent slopes may be an inclusion. These soils occur in areas of greater loess accumulation, and may occupy from 10 to 15 percent of the mapping unit.

0 to 10 inches, dark brown, very friable granular silt loam, very strongly acid (pH 4.5 - 5.0).

10 to 20 inches, dark brown, weak blocky silt loam, very strongly acid (pH 4.5 - 5.0).

20 to 30 inches, grayish brown, weak blocky silt loam, very strongly acid (pH 4.5 - 5.0).

30 to 40 inches, grayish brown, weak blocky silt loam, very strongly acid (pH 4.5 - 5.0).

The Lacy Series is a very recent deposit of loess, 5 to 15 inches thick, which is mostly composed of silt and clay. The texture is very fine, and the color is light gray to light brown. The soil is very friable and breaks apart easily. It is not very fertile and is not suitable for agriculture. It is found in areas of recent loess accumulation, and is usually found in areas of recent loess accumulation.

The Lacy Series is a very recent deposit of loess, 5 to 15 inches thick, which is mostly composed of silt and clay. The texture is very fine, and the color is light gray to light brown. The soil is very friable and breaks apart easily. It is not very fertile and is not suitable for agriculture. It is found in areas of recent loess accumulation, and is usually found in areas of recent loess accumulation.

0 to 10 inches, dark brown, very friable granular silt loam, very strongly acid (pH 4.5 - 5.0). This soil is very similar to the representative profile described above. It is found in areas of recent loess accumulation, and is usually found in areas of recent loess accumulation.

10 to 20 inches, dark brown, weak blocky silt loam, very strongly acid (pH 4.5 - 5.0). This soil is very similar to the representative profile described above. It is found in areas of recent loess accumulation, and is usually found in areas of recent loess accumulation.

20 to 30 inches, grayish brown, weak blocky silt loam, very strongly acid (pH 4.5 - 5.0). This soil is very similar to the representative profile described above. It is found in areas of recent loess accumulation, and is usually found in areas of recent loess accumulation.

30 to 40 inches, grayish brown, weak blocky silt loam, very strongly acid (pH 4.5 - 5.0). This soil is very similar to the representative profile described above. It is found in areas of recent loess accumulation, and is usually found in areas of recent loess accumulation.

THE SANTA series (mapping symbol Sa) consists of woodland soils with a nearly impermeable subsoil. They are formed in weathered loess deposits and may have some influence of other parent materials in the lower subsoil. The annual precipitation is 28 to 32 inches and includes 5 to 7 feet of snowfall.

A representative profile: Santa silt loam

A thin litter of partially decomposed leaves and twigs.

0 to 14 inches, dark brown, very friable granular silt loam, very strongly acid (pH 4.6 - 5.0).

14 to 22 inches, dark brown, weak blocky silt loam, very strongly acid (pH 4.6 - 5.0).

22 to 28 inches, grayish brown, weak blocky light silt loam, very strongly acid (pH 4.6 - 5.0).

28 to 48 inches plus, dark brown, prismatic, silty clay loam, roots only in cracks, strongly acid (pH 5.1 - 5.5).

The depth to the prismatic layer varies from 23 to 45 inches but is mostly less than 35 inches. The organic matter content is 4 to 6 percent. The available moisture capacity is about 2 inches per foot. Root penetration is hampered by the prismatic silty clay loam subsoil and the permeability is slow in this layer. The soil is moderately well drained.

The Santa series is well suited for timber production. Some areas have been cleared and grow pasture and hay well with good management. The original native vegetation consisted of grand fir, Douglas-fir, western larch with an understory of serviceberry, ninebark, ocean spray and twin flower.

Sa1A Santa silt loam, 0 to 5 percent slopes. This soil is very similar to the representative profile described above. It is located on the broad tops of ridges and near drainageways. Surface runoff is medium and the erosion hazard is moderate when the vegetation is removed.

Sa1BD Santa silt loam, 5 to 20 percent slopes. This soil is very similar to the representative profile described above. Surface runoff is moderately rapid and erosion hazard is high when the vegetation is removed.

Sa1EG Santa silt loam, 20 to 35 percent slopes. This soil is similar to the representative profile described above. Surface runoff is rapid and erosion hazard is very high.

Sa3BD Santa silt loam, heavy subsoil variant, 5 to 20 percent slopes. This soil is similar to the representative profile described above except a heavy silty clay loam subsoil is present near 24 inches depth. Surface runoff is moderately rapid and erosion hazard is high.

THE PEND OREILLE series (mapping symbol Po) consists of woodland soils with slow to rapid permeable subsoils. They are formed in wind-blown silty materials over thinly stratified lacustrine sediments. The annual precipitation is about 26 to 28 inches.

A representative profile: Pend Oreille silt loam
(cultivated)

0 to 8 inches; brown friable silt loam,
slightly acid reaction.

8 to 17 inches; light yellowish brown friable
silt loam, slightly acid reaction.

17 to 26 inches; pale brown friable loam,
strongly acid reaction.

26 to 48 inches; light gray to brown friable,
thinly stratified sandy materials

This soil is over 60 inches deep. Some areas have water worn gravel and cobbles on the surface (0 to 17 inches) and in the subsoil (17 to 48 inches). The organic matter content is low (below 2 percent). The available moisture holding capacity is about 2 inches per foot of soil (0 to 26 inches) and about 1.5 to 2 inches per foot of subsoil (26 to 48 inches).

The Pend Oreille series is well suited for timber production and on gentle slopes to pasture. The original native vegetation consists of grand fir, white pine, Douglas-fir, western larch, ponderosa pine and lodgepole.

PolAD Pend Oreille silt loam, 0 to 20 percent slopes.
This soil is similar to the representative soil profile described above. Surface runoff is slow to medium. The erosion hazard is high.

PolEG Pend Oreille silt loam, 20 to 35 percent slopes.
This soil is similar to the representative soil profile described above. Surface runoff is medium to rapid. The erosion hazard is high.

THE HELMER series (mapping symbol Hr) consists of woodland soils with restricted water movement in its lower subsoil. They are formed from very deep, silty wind deposited materials (loess). The annual precipitation is from 28 to 38 inches.

A representative profile: Helmer silt loam

A thin mat of slightly decomposed needles and twigs.

0 to 21 inches, dark yellowish brown, very friable, fluffy silt loam, slightly acid (pH 6.4 - 6.5).

21 to 34 inches, grayish brown, firm, massive to blocky, silt loam, slightly acid (pH 6.2 - 6.4).

34 to 60 inches plus, dark yellowish brown, firm, blocky, heavy silt loam, medium to slightly acid (pH 6.0 - 6.2).

Depth of soil is more than 48 inches. No areas are stony. The organic matter content of the surface soil is 4 to 7 percent and fertility is medium. The permeability of the lower subsoil is moderately slow, but the upper subsoil has good water movement. The available water-holding capacity is about 2 inches per foot of soil.

The Helmer series is well suited for timber production and on gentle slopes, to hay and pasture. The original native vegetation consisted of western red cedar, western white pine, grand fir and a few scattered Douglas fir.

HrlAD Helmer silt loam, 0 to 20 percent slopes. This soil is very similar to the representative profile described above. Surface runoff is medium to slow and erosion hazard is low.

A typical soil description (64-12) has been taken in the area and is on file in the soils handbook.

July 1964

THE CARLINTON SERIES

THE CARLINTON series (mapping symbol Cn) consists of woodland soils with a somewhat restrictive subsoil. They are formed in weathered silty wind-lain materials. The annual precipitation is 28 to 32 inches and includes 5 to 7 feet of snowfall.

A representative profile: Carlinton silt loam.

0 to 18 inches, dark brown, friable, granular silt loam, medium or slightly acid (pH 5.6 - 6.2).

18 to 30 inches, brown, friable, blocky silt loam, medium to slightly acid (pH 5.8 - 6.2).

30 to 58 inches plus, dark brown, firm light silty clay loam, slightly acid (pH 6.1 - 6.6),

The depth to the somewhat restrictive subsoil varies from 24 to 36 inches. The organic matter content is 4 to 6 percent. The available water-holding capacity is about 2 inches per foot of root zone. Root penetration is slowed in the subsoil. Permeability is slow in the subsoil. The soil is moderately well drained.

The Carlinton series is well suited for timber production. Some areas have been cleared and grow pasture and hay well with good management. The original native vegetation consisted of grand fir, Douglas-fir, lodgepole pine, western larch, and white pine with understory shrubs.

Cn1A Carlinton silt loam, 0 to 5 percent slopes. This soil is very similar to the representative profile described above. Surface runoff is medium and the erosion hazard is moderate when the vegetation is removed.

Cn1BD Carlinton silt loam, 5 to 20 percent slopes. This soil is similar to the representative profile described above. Surface runoff is moderately rapid and the erosion hazard is high when the vegetation is removed.

Cn1EG Carlinton silt loam, 20 to 35 percent slopes. This soil is similar to the representative profile described above. In places, stones are present in the lower profile. Surface runoff is rapid and the erosion hazard is very high when the vegetation is removed.

B R O D Y S E R I E S

THE BRODY series (mapping symbol B_y) consists of medium textured woodland soils. They are formed in a thin covering of silty wind deposited material over decomposing basalt. The annual precipitation is 24 to 30 inches and includes 5 to 9 feet of snowfall.

A representative profile: Brody loam

A thin litter of partially decomposing needles, leaves and twigs.

0 to 14 inches, brown when dry, very friable loam, crumb structure, medium acid (pH 5.9 to 6.1).

14 to 26 inches, dark grayish-brown when dry, friable gravelly loam, blocky, medium acid (pH 5.9 to 6.1).

26 to 34 inches plus, very dark brown when moist, very friable gravelly sandy loam, blocky, medium acid (pH 5.9 to 6.1).

Bedrock begins at 1.5 to 4 feet, and there are a few rock outcrops. The organic matter content of the surface layer is 3 to 6 percent, and the fertility is moderate. These soils are moderately permeable throughout. The available water-holding capacity is about 2 inches per foot of soil.

The Brody series is very well suited for timber production. Cleared areas quickly grow back to a dense stand of tall brush. The original native vegetation includes western red cedar, grand fir, Douglas-fir, and western white pine.

~~B₂H₃~~

B_yAG

⁰⁻³⁵
~~Brody extremely stony loam, 35 to 65 percent slopes.~~ This soil is shallower to bedrock than the representative profile described above (1½ to 2 feet), and is ~~extremely~~ stony in the surface soil. Surface runoff is high and the erosion hazard is severe when the vegetation and litter are removed.

August 1964

THE BLINN series (mapping symbol Bi) consists of moderately shallow, stony forested soils, formed in weathered basalt. The annual precipitation is 25 to 30 inches.

A representative profile: Blinn stony loam

- 0 to 9 inches, Pale brown, slightly stony, granular loam, neutral, (pH 6.6 - 7.0).
- 9 to 24 inches, Pale brown, stony subangular blocky loam, neutral, (pH 6.6 - 7.0).
- 24 to 30 inches, very pale brown, very stony, massive loam, neutral, (pH 6.6 - 6.8).
- 30 inches + Angular basalt fragments with some material.

Depth of the basalt is from 22 to 36 inches. Most areas are slightly to moderately stony and there may be a few rock outcrops. The organic matter content of the surface soil is from 3 to 5 percent and the fertility is moderate. The permeability is good and roots will penetrate into the stony subsoil. The available water-holding capacity is about 1.5 inches per foot of soil.

The Blinn soils are used mainly for timber and lakefront homesites. Some areas are cleared for hay or pasture. The native vegetation includes grand fir, Douglas-fir, western larch, oceanspray, pachistima and other tall shrubs and forbs with a few grasses.

BiAG Blinn stony loam, 0 to 35 percent slopes. This soil on north and east slopes is very similar to the profile described above. Surface runoff is slight to medium and the erosion hazard is slight to moderate.

BiHJ Blinn stony loam 35 to 65 percent slopes. This soil is similar to the above profile except there will be more stones in the profile. Surface runoff is moderate to rapid and the erosion hazard is severe if the soil surface is not protected by vegetation.

February 1966

Andy

Impact may be controlled generally by:

- 1) Complete barriers - pedestrian & vehicular.
- 2) Spacing of units.
- 3) No. of persons using the facility
- 4) "Hardening" of sections of the site - e.g. pavement
- 5) Designing for use - paths etc.

The SCS (Soil Conservation Service)

should (as stated before) have some soils data for you on recreation limitations based on soils.

The Forest Service has some studies (you may be interested in) concerning impacts on recreation sites - but their standards for use are very vague & general

(I believe they quote 3 campgrounds / acre as a general standard)

Studies: 1) Instructions for Recreation Site Carrying Capacity Study - Howard Orr.

2) Recreation Carrying Capacity - Problem

Analysis - U.S.D.A. (Code # 2320 Wilderness & Primitive Area)

~~Should be checked with~~

Also Robert Wagner in *Plant & Soil Science*

^{M.S.}
did an evaluation of impact on native vegetation
in Campgrounds, 1970 (he's still on
campus) His study may lack any
value in your case but he does cite
references, as does #2 on the previous
page.

Tennis Courts - Keep them away from trees
both from a freeze-thaw effect on the
asphalt surface & a litter problem on the
court. A "total asphalt" ^{thicker asphalt - no gravel.} type construction
does have merit in more recent tennis court
construction.

A recommended "base" you might use
(used in Oklahoma City, Okla)

was 1 Court / 2000 pop. (some say 1500 pop)

(used in Lubbock, Texas

was for a Tennis, outdoor Basketball, & other
court sports 2 acres are ideal
or 1 acre / 5000 pop

Golf Courses. - Size depends upon terrain,
vegetation, and shape of site. Generally 75 to 90 acres
of land are required for 9 holes. However, a
par 3, 9 holes course can be done on 15-25 acres

Use capacity for golf courses range from
350-400 golfers/day

Gently rolling areas w/ some trees are preferred
layout of course is dependent upon terrain

Greens have to be constructed - so fairways
would be your main resource concern

The ~~soils~~ soils should have the characteristics
of high water holding capacity, good drainage,
low compaction (good consistency).

For dry land conditions (non irrigated) on fairways
you might use crested wheat grass
(Agropyron cristatus "Fairway Strain")
or possibly Buffalo Grass (Buchloe dactyloides)

Picnic → a possible standard - used in
some cities. (Texas)

2 acres / 1000 pop

8 units / acre.

Need trees for shade (evergreens aren't
much good for that)

Sanitary facilities must be provided.

Also parking should be provided for.

These areas should be buffered from

any surrounding conflicting uses
(evergreens are good here. - but using

limbs for firewood is a hazard.

Boat ramps.

2 linear ft / 1000 pop - users.

Minimum facility - 200'

Beaches

2 acres of sand (if possible)

50' of ~~shore~~ shore line / 1000 pop.

These ^{standards} are just "rules of thumb."

Hope this is the info you want - need!

Paul N.

Added notes.

- 1) More trails will discourage impact.
- 2) Better built trails will encourage people to stay ^{on them}.
- 3) Educate the using public - signs, literature, etc.
- 4) Need a master plan to prevent imbalance between user & natural bota (which I will provide you client for a \$).
- 5) A recreation site falls down physically when it loses its vegetative cover (what you have ^{up there} I don't know) - because of exposed bare ground & susceptibility to erosion.

Carrying Capacity - depends upon (1) use (2) Soil Characteristics (3) Slope (4) Vegetative data (5) Resource data - Slope, precip, etc (6) Site Design

Andy:

There appears to be 4 soils that you wish to have appraised Sal BD, Hrl AD, By AG, and Ly1 AG

Soils
limitations will be (1) None to Slight (2) Moderate or (3) Severe

Recreation
Use will be (1) Camp areas, (2) bldgs. in rec areas, (3) play areas, (4) paths & trails and (5) picnic areas.

Soil Sal BD Slow permeability, Slope 5-20%

CAMP AREAS - slow perm - gives severe limit.

Slope ~~8-15%~~ 8-15% - mod. 15%+ severe.

Bldgs - Same as above.

Play Areas - Slope 8% + Severe.

Paths - Trails - None - normally - however the erosion hazard in this area makes this type use a problem

Picnic Areas 8-15% mod 15%+ Severe.

The most apparent limitation here is the high % of slope - and the ^{high} erosion hazard when vegetation is removed. Over use in rec. can certainly remove veg. if not planned for.

SOIL HRLAD

Very generally, the ~~same~~ same comment can be made here as the SABD said with the following exceptions.

- 1) This soil has only a moderate limit for permeability in camp areas
- 2) The slope hazard here is not quite as critical because of a reduced surface run off & low erosion hazard.

SOIL BYAG

Camp - Stoniness (? how much is stony) gives mod. limit.

Bldgs - The depth to bed rock - gives severe limit.

Here again the slopes (what ever they might be in the area you have) and the %'s mentioned in the 1st Soil - are of critical consequence.

The erosion hazard here is SEVERE! and

loss of veg can cause you real problems -

However a positive note here is the quick growth of brush veg. - again, proper planning would be an advantage.

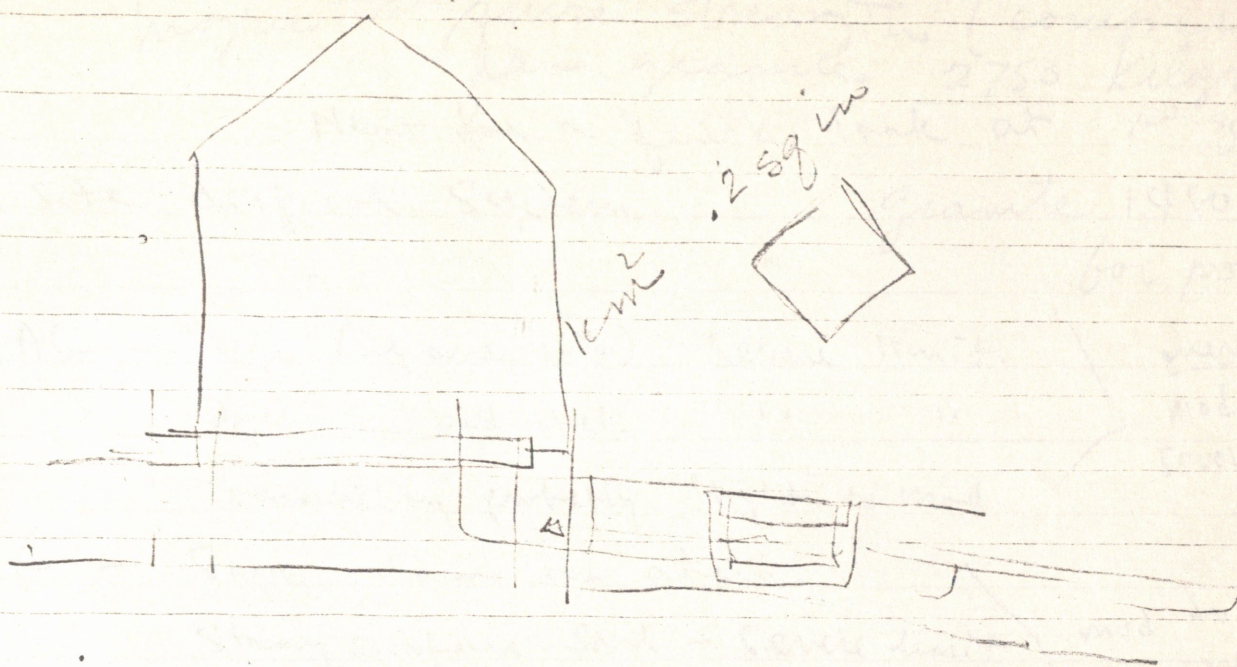
Soil L41 AG

Permeability here is good

Slope may cause problems (0-35%)

Again a severe limit for bdgs due
to shallow bedrock (20") layer.

It should be noted on those soils where the bedrock
layer is less than 3' - a generally would have
a severe limit. - that lack of basement type
structures or underground utilities would
reduce these limitations.



2.2

49

~~Chlorine~~

Chlorine

~~16240~~

igneous Basalt has
higher rupture strength (compression
than granite 2750 Kilograms
per sq. cm

On site disposal System.

granite 1480 x 11
for psi.

L41AG - Slope. (if over 10%) Severe limit.

Depth to bed rock " "

Permeability probably Slight to mod.

overall
mod to
severe limit

B4AG - Slope - same as above.

Stony surface Soil - Severe limit

Permeability - OK (slight)

mod to
severe

S41BD - Below 2 1/2 ft the permeability becomes a Severe limit.

Slope - same as above.

slight
to
mod
overall

H41AD - slope same as above.

Permeability OK.

Slight
(maybe mod - depends
on slope)

The biggest problem here is depth to bedrock
& slope. Depth to BR being the biggest problem
for a 12' deep tank

From the material given me - I can determine
no great problem with high water table.

only

I would suggest Sewage disposal system (b) Figure 6.4 pgs 87

— the other (a) has a problem with bed-rock depth. The disturbing of natural area that would be caused by (b) is not ~~that~~ great — providing you make a concentrated effort to miss the trees.

This is ~~200~~ brief effort — a more detailed & esthetically beautiful presentation would cost you some \$.

Hope this helps.

Paul N.

Appendix C

1. *Environmental Health Guide For Travel
Trailer Parking Areas*
U.S. Dept. Health Education Welfare

MONTANA STATE UNIVERSITY LIBRARIES
stks 720.6.M76W632 CA
A community development for Coeur d'Alen

3 1762 00159217 7

720.6
M76W632
CA
A community development for Coeur d'Alen

~~LIB. USE ONLY~~

