

A MUSEUM AND CONTROL BUILDING FOR JEMEZ CANYON LAKE

by

RUSSELL P. WEEMS

A THESIS

IN

ARCHITECTURE

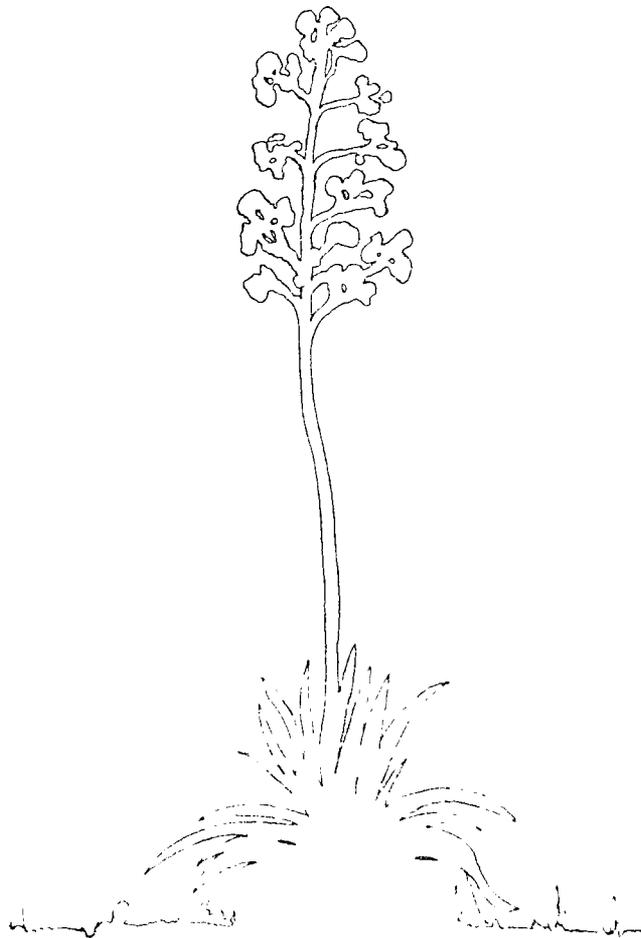
Submitted to the Faculty of
Texas Tech University in
Partial Fulfillment of
the Requirements for
the Degree of

BACHELOR OF ARCHITECTURE

December 15, 1971

I would like to express my deep appreciation to my Mother and brother, Reggie, for their encouragement through the years.

PREFACE



As a native New Mexican, I find the integral setting of Indian and Spanish culture in North Central New Mexico vital and stimulating. I feel that the "Land of Enchantment" provides a setting for an architectural statement which has unique as well as courageous qualities. The integrity of this statement should be an expression of the history and tradition of the region. The designer should also strive to bring nature and its environs into an integral relationship with architecture.

Architecture in this area is so closely related to its surroundings that it would be futile to approach a solution before certain observations and basic considerations are made. This investigation should include an analysis of the natural, as well as the man made environment, the cultural setting, the relationship of the Jemez Recreational Area to the museum and visitor control building, and the significance of history and tradition on an architectural solution.

I will also make a quantitative as well as a qualitative analysis of such things as economic feasibility, user demand, and management of the museum and visitor control building. Financial studies of tourism and recreation will be analyzed so that concrete development proposals can be made. These proposals should create conducive activities to stimulate growth and prosperity for the Jemez Region.

Today, as never before, the Southwest is being opened up to travelers and explorers. It is fun to explore old Indian ruins and try to find things of value. As more people become aware of the old ruins, more attention has to be paid to the preservation of cultural and scientific values.

The state of New Mexico has a law entitled the Cultural Properties Act, passed April 3, 1969, that sets forth the following:

The legislature hereby declares that the historical and cultural heritage of the state is one of the state's most valued and important assets; that the public has an interest in the preservation of all antiquities, historic and pre-historic ruins, sites, structures, objects and similar places and things for their scientific and historical information and value; that the neglect, desecration, and destruction of historical and cultural sites, structures, places and objects results in an irreplaceable loss to the public; and that, therefore, it is the purpose of the cultural properties act to provide for the preservation, protection and enhancement of structures, sites and objects of historical significance within the state, in a manner conforming with, but not limited by, the provisions of the National Historic Preservation Act of 1966.¹

The Museum of New Mexico is designated as being responsible for administering, developing and maintaining all registered cultural properties which belong to the state. It is, therefore, possible to preserve historical ideas, values, and properties in a museum at Jemez Canyon Lake by authority of the state and under the jurisdiction of the Museum of Albuquerque, a subsidiary of the Museum of New Mexico.

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GENERAL CONDITIONS



History and Tradition

Pueblo is not the name of an Indian tribe but, rather, a Spanish word meaning "community" or "village."

Bertha Dutton

Although the Pueblo Indians have a long and colorful prehistory dating back to the "Basket Makers" of about 3000 B.C., the proposed museum at Jemez Canyon Dam will not deal with this aspect of the Pueblo Indians.

The museum will primarily deal with the period from A.D. 1300 until the arrival of the Spaniards in 1540, which is considered a time of maximum development of the Pueblo Indian cultures. It will also deal with the Pueblo Indian and his relationship with the Spaniards after 1540.

The period from A.D. 1300 to 1540 is known as the Rio Grande Classic period. During this period new pottery shapes and designs were conceived, cotton was introduced, bone implements were made in wide array, and more efficient axe forms were adopted and ground to smooth perfection. Stone and pottery pipes for ceremonial smoking became more elaborate. The farmers raised corn, beans, and squash, and the introduction of irrigation may have resulted in greater food production. Irrigation brought with it new social controls and "signifies an increasing complexity of behavioral codes and ceremonial organization."² Proof of expanding population is abundant.³

In the fall of 1540 the expedition of a Spanish explorer, Francisco Vasquez de Coronado, reached the Rio Grande Valley near Albuquerque. The intrusion and eventual settlement by Europeans brought new crops and domesticated animals to the Indians. The introduction of horses allowed

the Indians to go farther to hunt. Eventually, horses and guns found their way into the hands of non-Pueblo Indians. This combination greatly increased the fighting ability of the aggressive Indian bands. Pueblo and Spaniard alike soon felt the impact of the European gifts. The period during and after the Spanish Conquest is known as the Historic Period.⁴

The early Spanish explorers came in contact with people from seventeen pueblos which have been classified in linguistic families, as follows:

<u>KERES</u>	<u>TIWA</u>	<u>TEWA</u>	<u>TOWA</u>
Acoma	Isleta	Nambe	Jemez
Santa Ana	Picuris	Santa Clara	Pecos
Cochiti	Sandia	San Ildefonso	
Santo Domingo	Taos	San Juan	
San Felipe		Tesuque	
Zia			

Early Spanish chronicles provide a substantial account of life in the river pueblos in the sixteen century. Spanish explorers reported that the pueblos were clean and well ordered and that the people were hospitable. A complex and highly developed secular and religious organization governed pueblo life.⁵

The primary means of subsistence for the pueblos was farming, basic food crops being corn, squash and beans. The diet was supplemented with wild animals and plants. Tobacco was also grown, and cotton provided a means for making clothing. Animal skins were used for footgear, shirts, robes,

and other small items. Jewelry was made of shells, bones, turquoise, and other materials.⁶

Despite the absence of the potter's wheel, excellent pottery was produced. The pottery was brightly colored, glazed-decorated vessels, as well as simple, undecorated ware for cooking and storage.⁷ The tradition of making fine pottery is still being carried on among the Pueblo people.

Early Spanish records, along with a number of Kiva and ceremonial rooms with mural depictions, are evidence of the extent of religious involvement of the Pueblo Indians. Pueblo dead were buried in abandoned rooms or beneath the house floors, usually in a flexed position, wrapped in cloth or matting and accompanied by grave offerings for use in the next life. The plazas were once crowded with dancers participating in ceremonies focused on seasonal events and the elements of nature. In the past, their entire way of life was closely related to their surroundings and to natural phenomena.⁸ Dances and ceremonies quite similar to those in the past can still be seen among the modern pueblos.

Following entry of the Spanish, the pattern of Pueblo life was seriously disrupted, resulting in the abandonment of many settlements. Of the Tiwa-speaking pueblos in the vicinity of Kuaua (Coronado State Monument, just south of Jemez Canyon Dam), only two survive; Sandia

Pueblo north of Albuquerque and Isleta Pueblo to the south of Albuquerque. Residents of Santa Ana Pueblo, a nearby Keres-speaking pueblo, claim descent from the people of Kuaua.⁹

The Santa Ana Pueblo, as it now exists, is the main home of the Keresan Indians. Originally, the Indians lived in the ancient pueblo of Tamaya located on the north bank of the Jemez River, at the head of Jemez Canyon Lake.

Today, the Indians of Santa Ana, or "Santana" as it is commonly pronounced, live in the villages of Chical, Rivijana and Ranchito. These villages are on the Ranchitos Grant, north of Bernalillo. They are among the poorer of the modern pueblos, with virtually no income from tribal lands.

Tamaya is still cared for today. Most Santa Ana families own and keep up a house in the old pueblo. The people gather at the old pueblo for ceremonial occasions. The families take turns living at the pueblo as caretakers.¹⁰

This site was probably first occupied in the 1690's after the pueblo wars of revolt. Prior to 1687, when the pueblo was destroyed by the Spaniards, Tamaya was located on the Mesa de Santa Ana.¹¹

The first Europeans to view Santa Ana were from Coronado's party in 1541-42 when Coronado wintered at Tigex, a now extinct pueblo in the vicinity of the present day Bernalillo.¹²

The strain of understanding each other's way of

life initially was too great for the Spaniard and Indian, and in 1680 the Santa Ana Pueblo joined with other Indians and drove the Spaniards out of New Mexico.¹³

In 1687, Pedro de Posada, governor of El Paso, attacked and burned Santa Ana in one of the Spaniards' forays into New Mexico preceding De Vargas' reconquest of the area. The Indians that escaped Posada's attack joined survivors from the Zia Pueblo and established a village on Red Mesa near Jemez.¹⁴

In 1692, De Vargas persuaded both tribes to return and reestablish Zia and Santa Ana Pueblos. Santa Ana sided with the Spaniards from then on.¹⁵

In 1694, the Spanish joined the Santa Ana, Zia and San Felipe Pueblos in attacks on the desert pueblos of La Cienequilla de Cochiti, Zuni, Hopis and the Apaches. These attacks culminated the hostilities between Indians and the Spaniards.¹⁶

As well as being warriors, the Keresans have two historical traits which make them unique among pueblo Indians.

First, their modern villages are located on a tract of land which their forefathers purchased from the Spanish colonists in the eighteenth century. Between 1709 and 1763, the Santa Ana purchased tracts of land which now make up their present land holdings. It was around the time of these land purchases that the Santa Anas began moving away

from Tamaya to the villages on the Ranchitos Grant.¹⁷

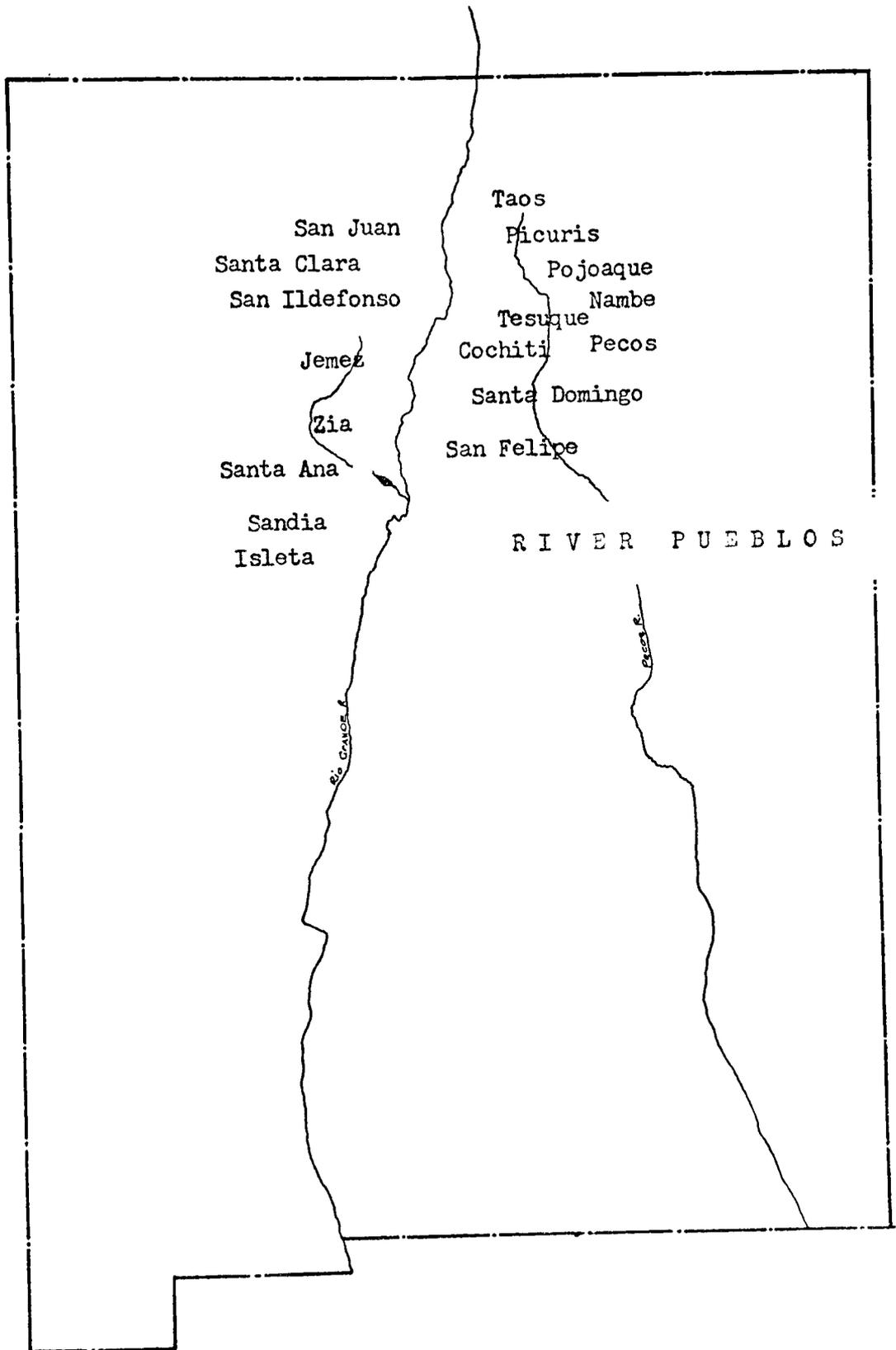
Today, the prehistoric land holdings of Santa Ana, surrounding the old pueblo and about half of Jemez Canyon Lake, and the Ranchitos Grant are held as tax free Indian land by Santa Ana.

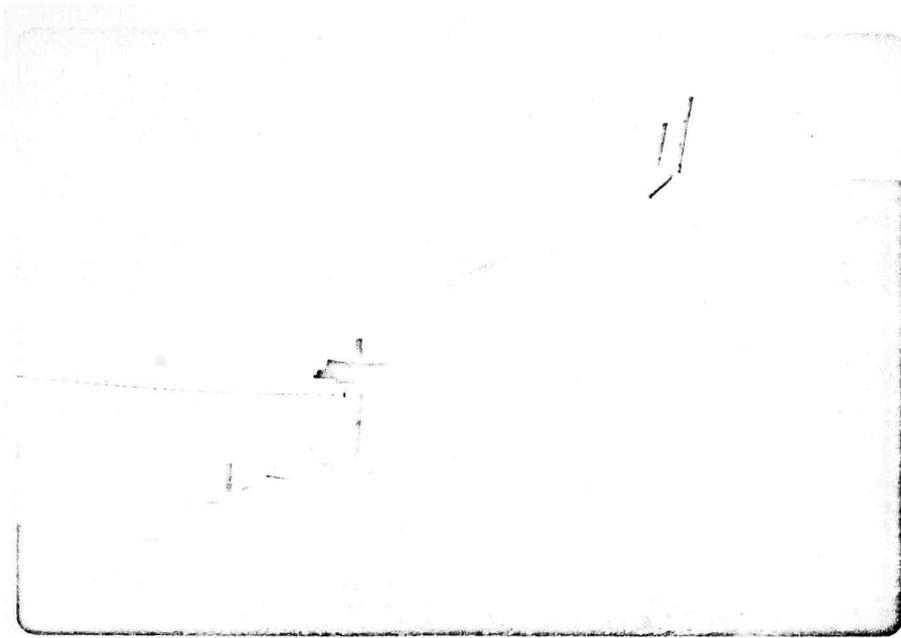
The second unique feature of the Keresans is that they are the only pueblo group known to have used boats before the arrival of the Spaniards.¹⁸

Before the deterioration of the old farmlands, the Santa Ana lived at Tamaya, and crossed the Jemez River in canoes to get to their fields on the south bank. Legend says the old Santa Anas used to make boats of fir to cross the river, but when the river finally subsided, they dismantled the boats and built a bridge.¹⁹

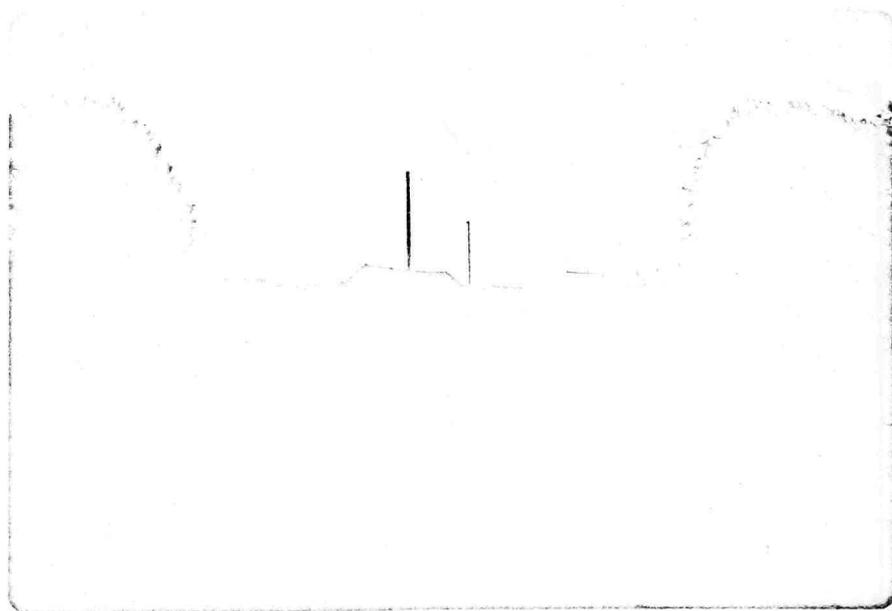
Today, plans to fill the Jemez Canyon Dam and Reservoir for recreational purposes are underway. This will mean that a lake more than five miles long will extend its shores to the foot of the old pueblo. This will provide an opportunity to enhance the economic base of the Santa Ana Pueblo by capitalizing on such tourist features as the old mission at Tamaya. The mission was built by Fray Diego Arias de Espinosa in 1734 and probably includes parts of an earlier church built in 1706. A bell hanging in the church bears the date 1710.²⁰ The museum planned for this area will emphasize the historic background of approximately fifty thousand River Pueblo people who

inhabited the area before the Spanish Conquest. It will also serve as a historical center for the seventeen pueblos that exist today. History of the pueblos in general, with emphasis on the many missions built by the Franciscan Order during the sixteenth and seventeenth centuries will also be covered in displays in the museum complex.

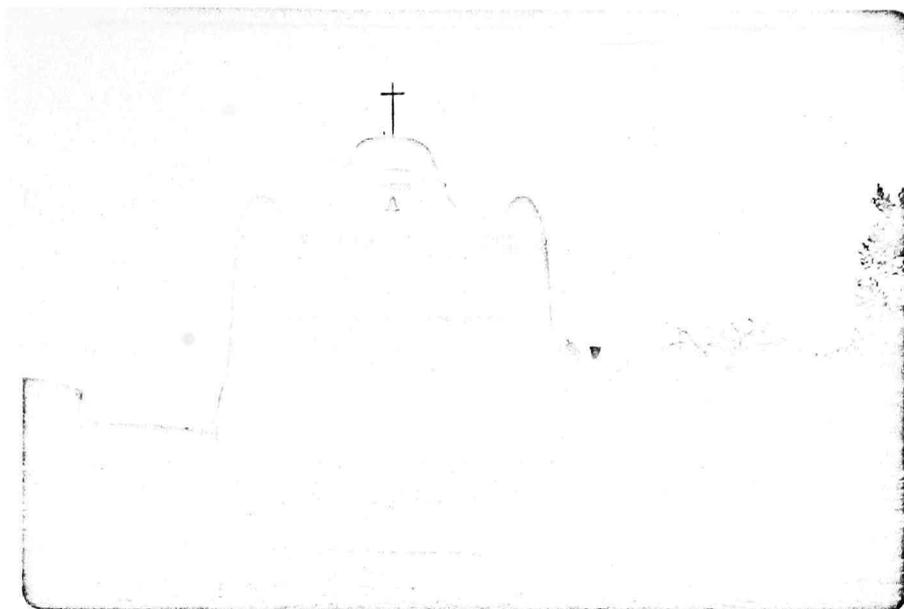




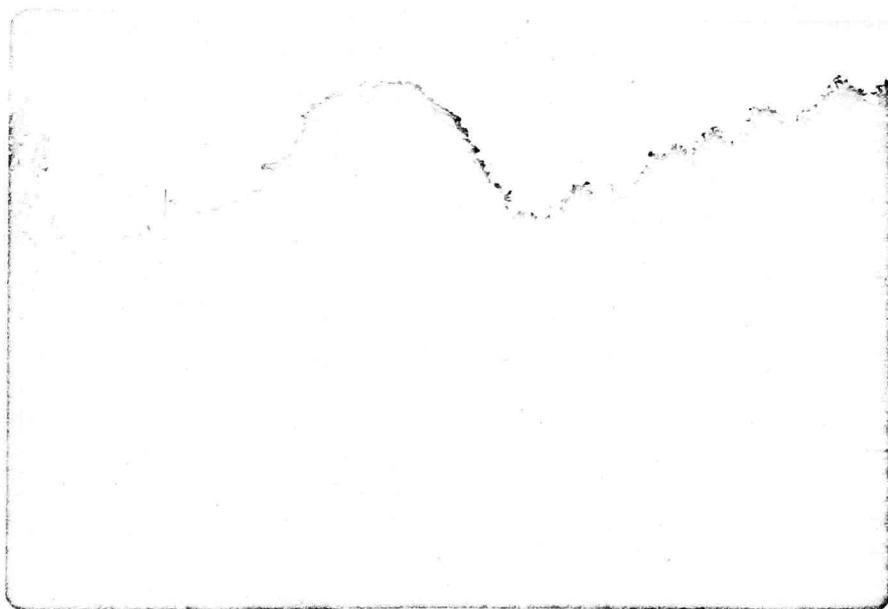
ZIA PUEBLO -- a lookout used to fight the Spaniards.



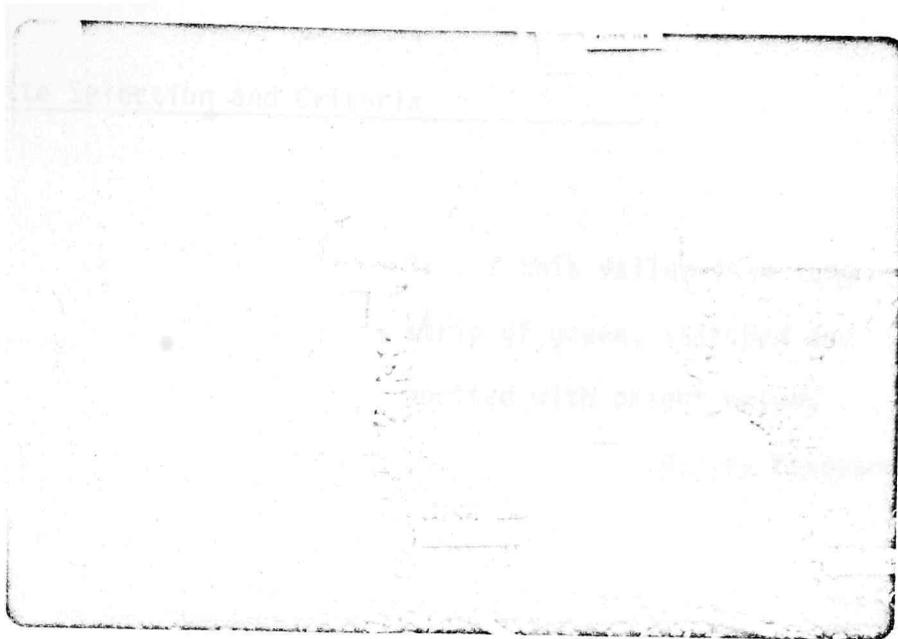
SAN ILDEFONSO -- very little has changed since the sixteenth century.



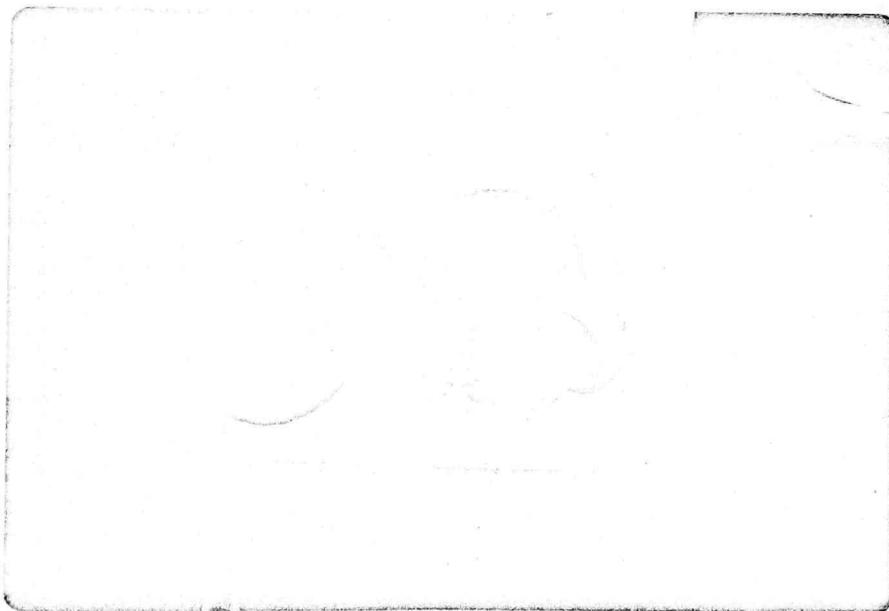
SAN ILDEFONSO MISSION (remodeled)



SAN JOSE DE LOS JEMEZ MISSION (1621)



Pueblo Indian Artifacts (Historic Period)



Pueblo Domestic Artifacts (Historic Period)

Site Selection and Criteria

". . . this valley is a long
strip of green, stitched and
spotted with bright waters . . ."

Harvey Ferguson

The site for the Museum and Control building will be located at the Jemez Canyon Dam and Reservoir. The Jemez Canyon Dam project is one unit of a general comprehensive plan for flood control on the Rio Grande and tributaries in New Mexico. The project is located on the Jemez River in Sandoval County, New Mexico, approximately two miles upstream from the confluence of the Jemez and Rio Grande rivers. The lake project is five miles northwest of Bernalillo and seventeen miles north of Albuquerque. Ownership of the upper part of the reservoir resides in the Santa Ana Pueblo Grant and is used by the Army Corps of Engineers under easement. The lower part of the lake is on county lands and is also controlled by the Corps.²¹

The primary purpose of the dam project is to trap sediment and detain and regulate floods on the Jemez River, thereby aiding in the prevention of flood damages and streambed aggradation in the Rio Grande Valley. The project is authorized by the Flood Control Act of June 30, 1948 and also the Flood Control Act of May 17, 1950. Construction started in 1950 and the project became operational in 1953.²²

Jemez Canyon Dam is an earthfill structure, seven hundred and eighty feet long, rising to a height of one hundred and thirty-six feet above streambed. The width of the dam at the crown is twenty-eight feet, width at the base is eight hundred feet. Flood control is regulated by

two gate-controlled intakes, six and five-tenths feet wide and thirteen feet high, and one circular discharge conduit thirteen feet in diameter. The dam is protected against overtopping by an uncontrolled off-channel spillway located about a mile south of the dam. The reservoir controls the runoff from a mountainous watershed area of about 1,034 square miles. The reservoir has a storage capacity of 113,874 acre feet at spillway crest.²³

Today the reservoir is only partially filled because the proposed recreational facilities have not been completed. When filled to the proposed level, the recreation pool will have a surface area of 1,443 acres and a volume of 37,316 acre feet. It will stretch up the canyon approximately five miles and be an average of one mile wide. Average depth of the recreation pool along the stream bed, with an elevation of 5,197 feet, will be thirty-seven feet. Maximum depth at the dam is sixty-five feet.²⁴

Access to the site is quite easy from Albuquerque or Santa Fe. If a visitor is coming from Albuquerque he has only a twenty-one minute trip by automobile. If proceeding north on interstate twenty five, the approach to the site is from the northwest on New Mexico 44 to Cuba. A few miles past this turnoff there is an access road leading directly to Jemez Canyon Lake. The road is black top and in good condition. Access to the upper part of the reservoir is by access road which belongs to the Santa Ana Pueblo.

At this time, complete utilities are not available at the site. There is, however, a 7.2 / 12.47 KV power line running to the dam area. No portable water or sewage facilities are present at the site; but, according to the Corps of Engineers, water is easily accessible. A water well and also a septic system will soon be completed. The accompanying site map indicates the location of the water well and the septic tank locations. The septic tanks will be the container type (to prevent seepage into the lake) and will be emptied periodically.

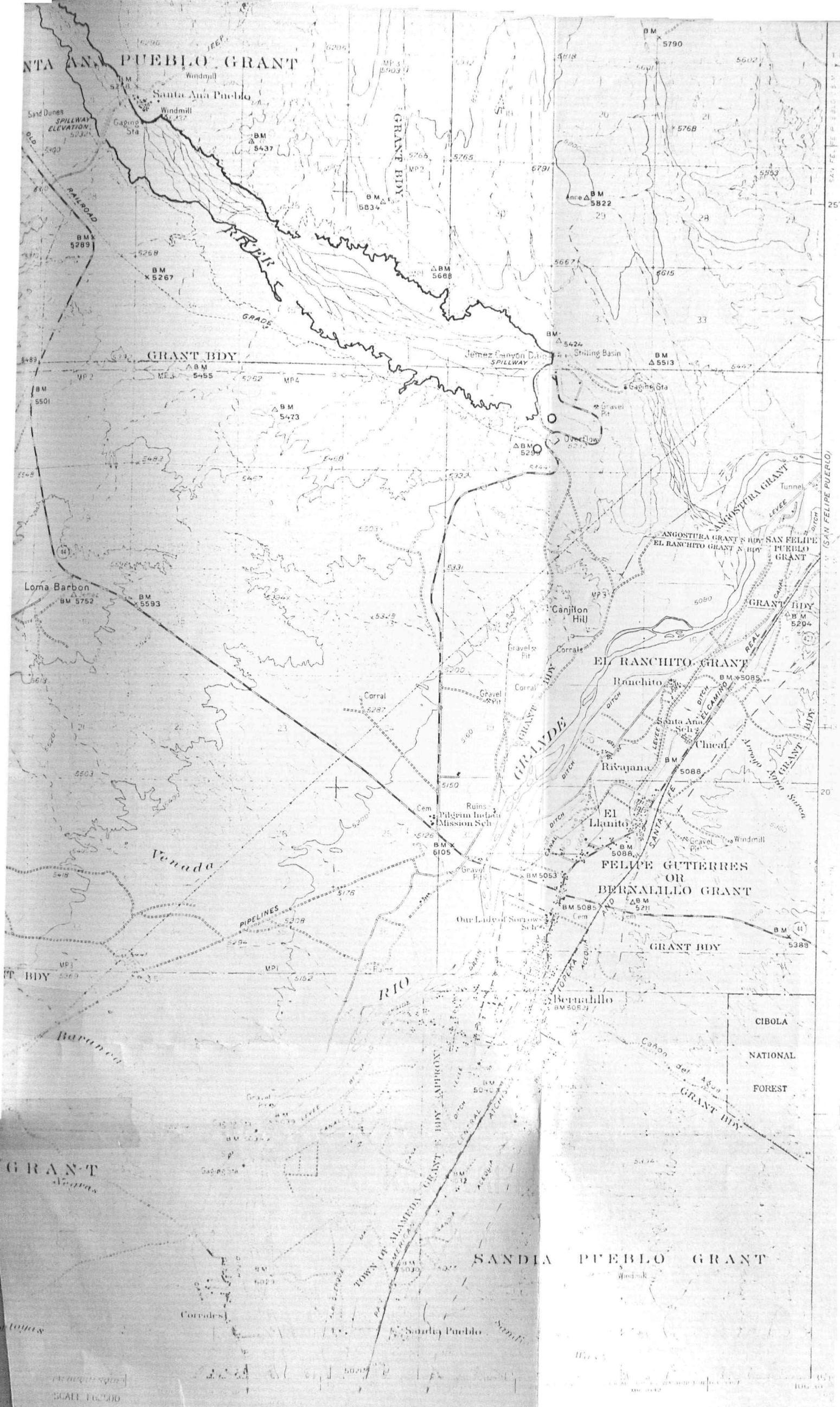
The location for the Museum and the Visitor Control building is quite interesting. Because it is in a semi-arid climate with an annual precipitation of 7.9 inches, few large trees will grow. However, among the vegetation that will succeed are: gamma grass, rabbit brush, blue-stem, thistle, locoweed, milkweed, prickly pear, soapweed, cholla and blue sagebrush.²⁵ With proper watering, the soil adjacent to the lake is conducive to growing a variety of plant life.

Jemez Canyon is composed of deep cliffs of volcanic origin. Many of the cliffs are black basalt, others are buff-colored volcanic ash. The canyons are lightly spotted with blue sagebrush and stretch endlessly downward to the Rio Grande Valley. From the lookout one can see the Jemez Valley stretching to the northwest. Most of the lower valley will be filled with water in the near future,

thus providing a tremendous view for the visitor. The view south and east from the lookout is one of scenic volcanic canyons with the Rio Grande Valley far below. In the background one views the rugged Sandia Mountains.

In the summer season, the temperature averages in the middle eighties in the daytime and drops off to the sixties at night. During the winter months, the temperature is a little more severe, with the temperature staying in the sixties and low seventies in the daytime and generally in the low forties at night.²⁶

The summer breezes are a factor that should be considered. The wind usually is quite mild, but around the canyons and ridges of the Rio Grande Valley the wind sometimes has a swirling action which makes buildings vulnerable to sand and dirt deposits.



NTA ANA PUEBLO GRANT

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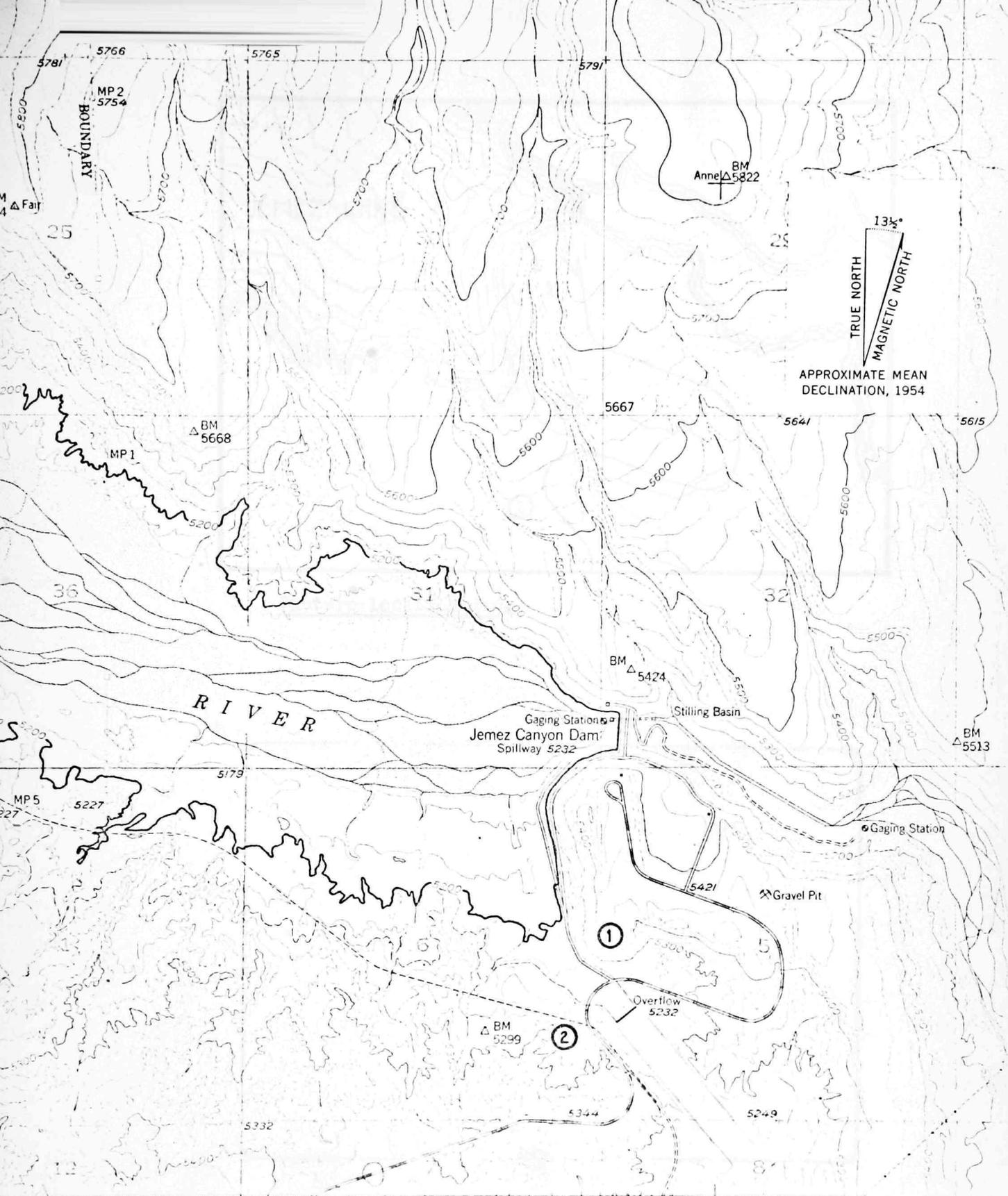
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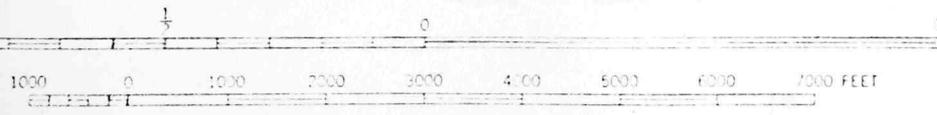
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 MAGNETIC NORTH
 APPROXIMATE MEAN
 DECLINATION, 1954

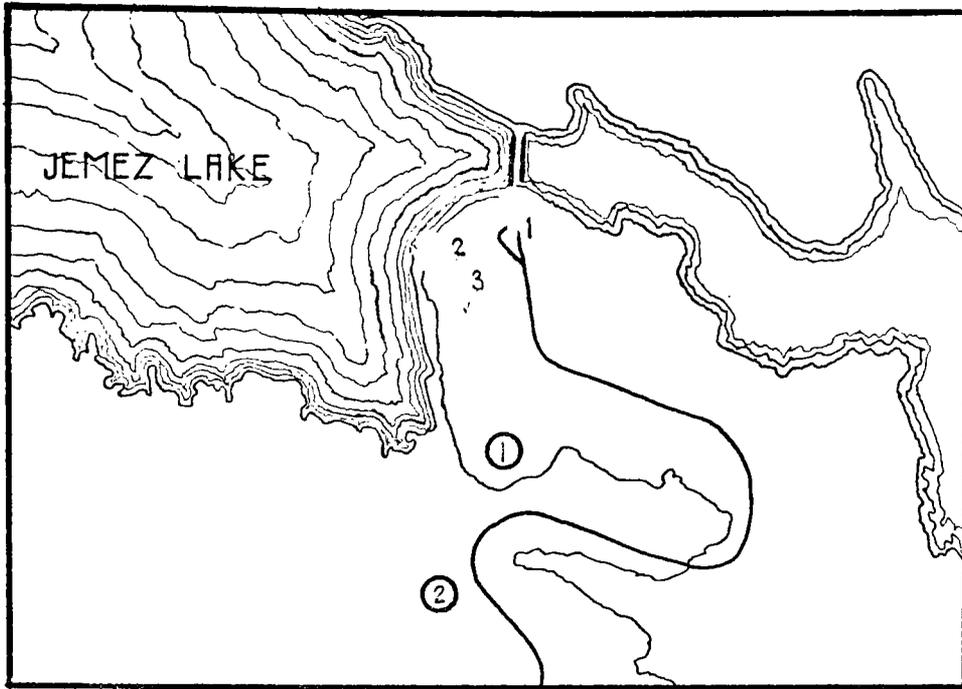
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- ① Museum
- ② Control Building



CONTOUR INTERVAL 20 FEET

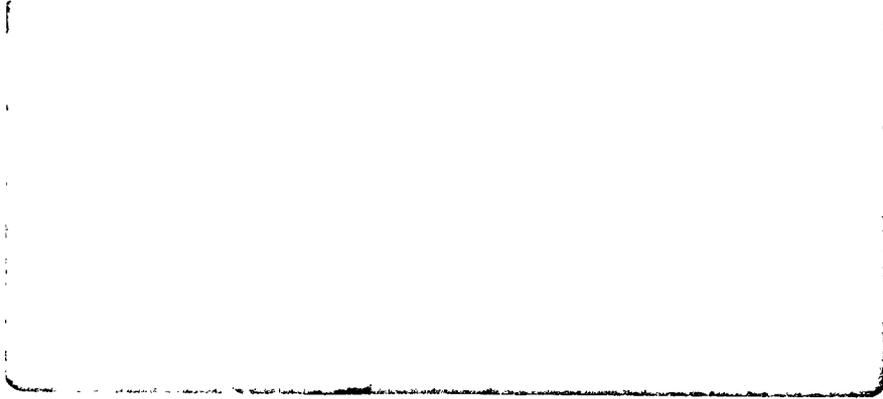




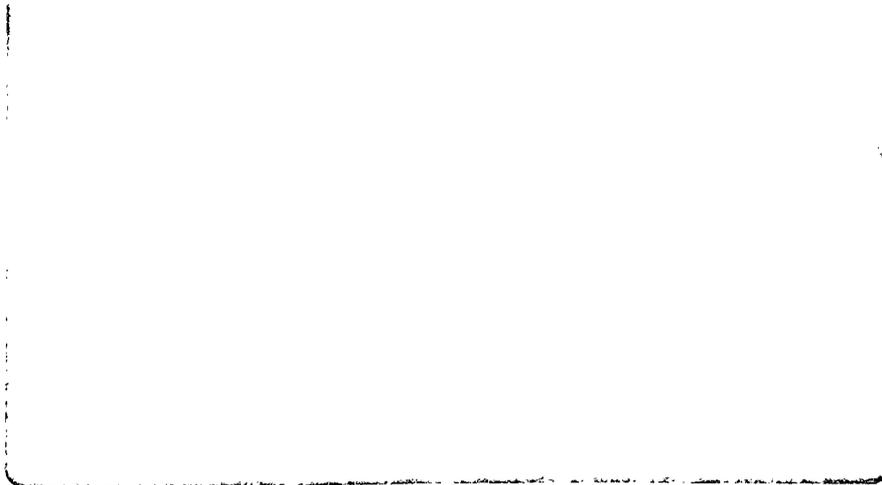
Picture location map.



1-- Jemez Canyon Dam (Unfortunately, the lake is empty at this time.)



2-- Jemez Canyon (This area will soon be filled.)



3-- The Museum will be near the point where the red car is parked. The Control Building will be to the right of the road below.

Area Population and an Inventory of Demand Potential

"New Mexico's population will increase in future years, and its tourism business will rise to new heights."²⁷ This quote is taken from a master plan of the Rio Grande Valley. It suggests, and accurately so, that these increases should mean greater demands for tourism facilities, and with it, a greater income for the area. This increase should also make it desirable, economically feasible, and even necessary to develop the Jemez Canyon Dam and its related facilities.

This section deals with an analysis of the potential usage for the proposed facilities. It describes the numbers and types of people who can be expected to use the area.

It is difficult to estimate numbers and percentages of tourist and local people that will theoretically use the area. Therefore, use has been made of information from a previous study of the entire Rio Grande Area. This is helpful because it serves as an overall picture of tourism and its potentials. This overall picture makes it easier to visualize and analyze use demands on a smaller scale.

It is also necessary to note that conservative estimates of demands have been made where possible. It also seems unwise to inflate data, but efforts to take an optimistic viewpoint have been made.

According to available data, the proposed facilities will attract persons from many different areas. Some

of the demand will be for local usage. Others will come from the state and also the southwest region. In a smaller proportion, tourists will be from throughout the nation.

The primary demand will come from the area immediately adjacent to the project. The residents of Bernalillo, Sandoval, Santa Fe and Los Alamos counties make up the largest concentrated number of people in New Mexico. As of 1970, four hundred thousand people lived in this area, and the population is expected to increase to one million by the year two thousand.²⁸

According to a report made by the Outdoor Recreation Resources Review Commission, people in the western portion of the United States will "have an average of eighty-seven recreational experiences per year in 1970. This annual per capita participation increases to one hundred and seventeen experiences by the year two thousand."²⁹ The demand for tourist facilities in the Albuquerque area alone is obvious. The local market of four hundred thousand persons can be expected to have 34,800,000 recreational experiences in 1970. Only a portion of this can be supplied by the Jemez Canyon Dam Project and its proposed facilities.

The second demand should come from residents of New Mexico not residing in the Albuquerque area. In a growing state such as New Mexico, the population is

expected to increase substantially in the near future. This increasing population should create even more demand for tourism and related facilities.

"The Marplan Division of Communications Affiliates, Inc. has prepared a Study of Recreational and Tourism in New Mexico in which they determined that approximately twelve percent of the people in the state spend their vacations within the boundaries of New Mexico.

The Marplan study also determined that approximately forty-three percent of all New Mexicans who would go on a vacation within the state expressed an interest in the Albuquerque area.³⁰ These figures clearly show that there is a demand for facilities to handle the tourist trade in the state.

The second category, non-local New Mexicans, can be broken up into people taking weekend trips and those who will visit the area in the course of normal business and travel. It is difficult to estimate the numbers of weekend travelers except to say that in 1970 visitors to the Rio Grande study area amounted to approximately 186,000 people; and it is estimated that this number will increase to 639,000 per year by the year 2,000. About thirty-seven percent of these weekend travelers are campers.³¹ It is reasonable to say that a substantial number of these travelers should visit the Jemez Recreation Area.

According to previous studies, New Mexico is not the most popular tourist state in the Southwest. Many

out-of-state visitors are interested in sightseeing in New Mexico, but the state has not provided good access roads to many points of interest. Information, hospitality, accommodations, and general service are also at a low point compared to Colorado and Arizona. Certainly, the image the state projects could stand work and improvement. An effort is being made in this direction. The consultants for the Rio Grande Valley State Park and the State Parks and Recreation Department are making many good suggestions for improvement of the tourist industry. One of the first projects to be completed should be the Jemez Canyon Lakes Project. Certainly, the development of facilities at this site should have a significant effect on the area.

The total anticipated demand for the proposed facilities will be a combination of the local, non-local state residents, and out-of-state visitors. In the preceding pages, this demand is analyzed on a comparison basis. The comparison is made using figures projected for the Rio Grande recreation area and was prepared by Chambers, Campbell, Isaacson, and Chaplin, Inc. An analogy is made between total projected visitors to the area and those who will filter into the Jemez project. The analogy is conclusive in that it projects a staggering demand for increased tourism facilities. The projected demand is more than the Jemez Canyon Lakes project can

satisfy. Therefore, it appears that the entire project should be managed as a highly intensified, multiuse project. Certainly, in terms of use potential, ample justification for the proposed control building and museum is presented.

POPULATION IN THE LOCAL MARKET AREA

County	1970	1973	1976	1980	2000
Bernalillo	342,000	373,000	400,000	442,000	792,000
Sandoval	13,000	14,000	15,000	15,000	22,000
Valencia	35,000	39,000	42,000	48,000	72,000
Total	390,000	426,000	457,000	505,000	886,000
Over 12 Yrs.	300,000	328,000	352,000	389,000	682,000
New Mexico	1,090,000	1,165,000	1,250,000	1,350,000	2,300,000

POPULATION PROJECTIONS FOR JEMEZ CANYON LAKE

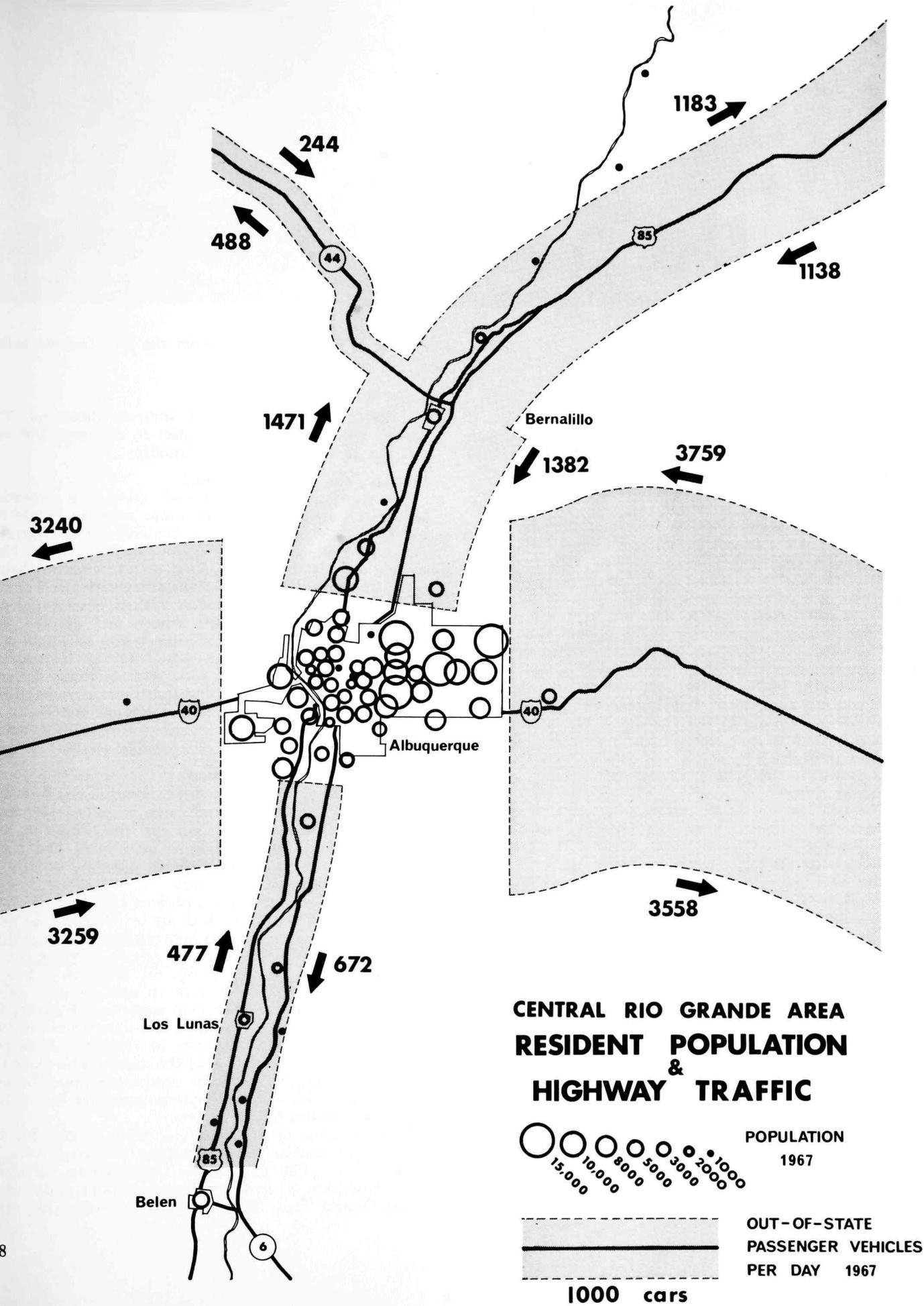
County	1970	1973	1976	1980	2000
Bernalillo	342,000	373,000	400,000	442,000	792,000
Los Alamos	21,000	24,000	26,000	29,000	47,000
Sandoval	13,000	14,000	15,000	22,000	25,000
Santa Fe	53,000	57,000	68,000	68,000	148,000
Total	429,000	468,000	503,000	554,000	1,009,000
Over 12 years (70.8%)	304,000	331,000	356,000	392,000	714,000

EXPECTED LOCAL RECREATION DEMAND

Local population	Parti. freq.	Local activity occasions	Occasions in proposed facilities, study area 18%	Local park visitors	
1970	390,000	87	33,930,000	6,107,000	3,054,000
1973	426,000	90	38,430,000	6,901,000	3,451,000
1976	457,000	94	42,958,000	7,732,000	3,866,000
1980	505,000	98	49,490,000	8,908,000	4,454,000
1990	674,000	107	72,118,000	12,981,000	6,491,000
2000	886,000	117	103,662,000	18,659,000	9,330,000

Assumption: Each visitor engages in two activities.
 (This recreation demand is for the Rio Grande study area, and is used as a comparison to expected demand at Jemez Canyon Lake.)

Sources: Outdoor Recreation Resources Review Commission, Bureau of Business Research, URM; adapted to medium projection by this programmer.





Sandia Mountains in winter, as seen from the Rio Grande valley.

the table.

The third potential user group from the non-local New Mexico population is those individuals who will visit the central New Mexico area in the normal course of business or travel. Although this group is not outdoor recreation oriented, it is conceivable that they may use some of the proposed facilities. The user pressure from this portion of the traveling public is almost impossible to determine, and the report is not using their potential visits in the market analysis. It need only be recognized that there is a potential group of visitors into the study area who could contribute to the usage of the facilities, and that group is undefinable at the present time.

The total non-local New Mexico visitors to the Rio Grande study area amount to 186,000 in 1970 (see Table 3.10), including both vacation and weekend trip experiences; and it is anticipated that this number will increase to 639,000 per annum by the year 2000. The number of campers is slightly over 30% of the total for 1970, and increases to about 37% by the year 2000 due to anticipated growth in the popularity of camper-trailers by the end of the century.

The next step is to determine what portion of the non-local New Mexico visitors will use the facilities proposed for the Rio Grande area. Table 3.11 gives the breakdown of probable usage in two main categories, campers and non-campers. As the actions of each group will tend to be different it is necessary to make separate evaluations for analysis in later paragraphs.

The non-local New Mexico campers who will be in the study area in 1970 will be approximately 56,000 per year. Interest in the proposed developments as well as other factors discussed in preceding chapters indicates that 1 out of 5 campers into the area will be interested in camping in the river area. The facilities in the study area can then expect 11,000 campers per year or 3,143 camping parties by the year 1970. The increase in camping popularity as well as other factors such as family size, income, and leisure time will result in the camping demand on the study area swelling to 69,000 annually by the year 2000, or 18,400 camping parties annually.

The non-local New Mexico non-camping group will provide 26,000 visitors to the proposed recreation facilities in 1970. Table 3.11 shows that the amount of participation in outdoor activities as well as the number of

visitors to the study area will increase thereafter. The resulting demand on the facilities in the year 2000 will amount to 114,000 visitors annually.

Out-of-State Market Demand

The analysis of the potential out-of-state recreation market must differ from the above analysis. While the local and New Mexico markets are difficult to determine because little past work (with the exception of the Marplan study) has been completed on the vacation habits of our local residents, the actions of New Mexico's out-of-state visitors have been carefully studied. Recent in-depth studies such as the ORRRC reports and the Marplan investigations offer excellent information on out-of-state visitors. By combining the actual survey information prepared by the Marplan study with Highway Department traffic counts, and using the forecast probabilities and propensities contained in ORRRC reports, it is possible to predict current and future visitor habits with a reasonable amount of probable accuracy.

Out-of-State Visitor Interests

Before going into the market evaluation and probable usage of the Rio Grande study area by out-of-state tourists and recreation seekers, some of the comments and figures from the three surveys mentioned above are worth repeating to establish the background criteria of later assumptions in this report.

The concept of recreation planners that New Mexico is a travel corridor, is backed up by Highway Department information that shows between half and two-thirds of the average daily traffic on Interstate 40 alone is out-of-state travelers. Of this group, the majority of people were passing through the state enroute to some other vacation terminal. The Marplan suggests that except for the winter traffic, the visitors to the state were attracted to our recreation opportunities in relatively small percentages. The main purpose of the visitors who made the state their destination was the sightseeing opportunities. These general ideas and interpretations have been recognized by planners for some time.

The interest or attractions of New Mexico for the majority of tourists are not Indians, historical ruins, or even scenery. The tourists are interested in the cities, with Albuquerque as the leading contender, followed by Santa Fe and Taos. This fact is rather surprising when

Jemez Canyon Lake, as an overall project, is a cooperative venture between the City of Albuquerque and the Corps of Engineers. The proposal for a recreation area arises from the fact that water for such a reservoir can rather easily be obtained from the City of Albuquerque's allotment of water under the San Juan-Chama Division Project. The current situation is this: the City has contracted with the Department of Interior for 48,200 acre-feet of water annually from the San Juan-Chama Project. But it will be several decades before the City needs all the water it has contracted for. Consequently, the San-Juan Chama water which is not being used by the City is being diverted for use at the Jemez Canyon Dam for recreational purposes.³²

Because water and recreation facilities are available at the site, several methods of developing and operating the Museum and Visitor Control buildings are possible. First, the facilities could be developed by the City's Parks and Recreation Department. The City could establish entrance or user fees to recover the cost of operations and maintenance of the Museum and Visitor Control buildings. This use fee would be good for the entire recreational area, but a small additional fee would be established for museum visitation. The operation of the dam would continue to be handled by the Corps of Engineers, so that the entire lake operation would be an

arrangement between the City and the Corps.

As a second possibility, the control building and museum could be constructed by the City with help from various state and federal agencies. The control building would then fall under the control of the City's Parks and Recreation Department. The museum could be leased to the Santa Ana Pueblo and run by them as a commercial operation. The commercial operation of the museum by private sectors, however, is not desirable. It is possible, however, for the Santa Ana Pueblo people to create income from the area. They should be leasing land to the Corps of Engineers for the lake. They should also supply much of the manpower to build the structures. The museum should also have areas designed to permit local Pueblo Indians to exhibit and sell their crafts to tourists. It is also desirable and feasible to establish a summer-time dance or drama area to illustrate their dances and their long pre-history.

In this regard, a trend in the commercialization of Indian drama and pageantry has been established. In the Indian Village developed by the Cherokee Tribe at Cherakee, North Carolina, adjacent to Great Smokey Mountains National Park, a commercial venture has been successful.³³ Therefore, a similar endeavor is planned for the Museum at Jemez Canyon Lake.

This program recommends a combination of the two proposals. It is recommended that facilities at the Jemez Canyon Lake be undertaken as a municipal endeavor under the direction of the City's Parks and Recreation Department. An operation of this kind is appropriate for the simple reason that if the City is to pay for the water, the City should have an opportunity to recuperate part of its costs by means of admission fees. It is also felt that more efficient operation of the museum can be maintained if control is turned over to the Museum of Albuquerque and is run as a subsidiary or branch museum.

In developing a museum and a visitor control building at the dam, the City should obtain the full cooperation of the Corps of Engineers, which built and operates the dam and has jurisdiction over the lands in and around the reservoir. This cooperation should consist of a lease agreement with the Corps to utilize the property. The facilities built and operated by the City should also generally conform to criteria for design and construction such as the Corps uses on its own projects. Cooperation with the Corps is also necessary if access roads to the site are to be improved and then kept in proper condition.

The City of Albuquerque has been established as the owner and proprietor of the Visitor Control Building and the Museum. Therefore, it is necessary to examine the various methods of financing the facilities.

Financing involves two general topics: first, financing construction; and second, financing operation and maintenance. As previously discussed, leasing of land from the Corps has been done and should not be included in the cost. It has also been established that the Corps be responsible for access road condition and the implementation of a water and sewer system to be used by the entire Jemez Canyon Lake area. This leaves only the proposed building complexes and adjacent parking and landscaping to be considered.

At this time, there are several general sources of funds appropriate for financing the construction of the museum and visitor control building. The first way is to acquire money from federal agencies and federal grants. The federal government has several programs under which local governments may receive assistance in construction of recreational facilities.

One of these programs is The Land and Water Conservation Fund Act.

It authorizes matching grants to assist state and local governments in acquiring and developing public outdoor recreation areas and facilities. The basic eligibility requirement is that the state must develop a comprehensive statewide outdoor recreation plan and update and refine the plan on a continuing basis.³⁴

The New Mexico State Parks and Recreation Department has done this.

Unfortunately, the Land and Water Fund has limited resources available. At the present rate, the state receives just over five hundred thousand dollars per year. Therefore, because the fund is divided so many ways, it would be difficult to obtain substantial federal assistance from this fund.

Another way to receive federal money is through the Economic Development Administration Programs. Residents of Sandoval County and the pueblo lands are eligible for EDA funds because the primary purpose of EDA assistance is "to develop employment." Such assistance is available because the facilities do create jobs for local people. EDA grants can only be used for construction. It usually expends about ten thousand dollars per resultant job.³⁵

The Supplementary Grants for Planned Metropolitan Development Program also provides a financial source. It provides federal grants for, among other things, "acquisition and development of lands and waters for recreational purposes, and for urban beautification and improvement and historic preservation."³⁶

The combination of these three federal agencies will be responsible for the major share of the construction cost of the Museum and Visitor Control building. The remainder of the cost will be absorbed by the City of Albuquerque.

To make funds available for the remaining financial

obligation for leasing the land, construction cost, and initial operation and maintenance cost, the City should float bonds. Bond financing is an equitable means to distribute the cost of public facilities to present and future users. Bonds issued for construction of such facilities have proven successful.

There are three different types of bonds that could be used for financing the facilities: general obligation bonds, limited obligation bonds, and revenue bonds. Because they are the most acceptable, only revenue bonds are covered in this program.

Revenue bonds are obligations used to finance supposedly self-supporting and self-sustaining user-fee facilities. The bonds are secured only by the fees, charges, and other earnings of the project. Should these earnings prove inadequate, an upward adjustment in fees must be made to balance out net income and overhead.³⁷

In conclusion, it is proposed that the Museum and Visitor Control building, along with the adjacent activities of Jemez Canyon Lake, should be self-supporting. Fees for the general use of the recreational area should be charged. In addition, there should be a separate charge to visit the museum. The Santa Ana Pueblo should also share in the income from tourist business. The income from these fees should be used for paying off the revenue bonds floated by the City. After repayment of the initial debts

incurred by the facilities, the Museum and the related support facilities should be self-sustaining.

DEVELOPMENT PROPOSALS

The Museum

"Museums need not, and probably should not, be sterilised in cultural centers isolated in cultural parks."

Michael Brawne

CONCEPT

"The need is to upset convention
in order to close the gap between
what museums are doing and what
the world expects of them."

After analyzing the ideology of a museum, it is apparent that the word museum has many connotations. A considerable number of books have been written about museums and their objectives. It has been said that a museum is a "place to communicate, to enhance one's awareness of things, places, and events which form a cultural society in which to exist."³⁸ Some have described a museum as a "depository" devoted to the preservation and conservation of objects of particular value. Many look at a museum as purely an exhibition space, designed to let the viewing public see objects of interest.

Surely all of these definitions, and many more, are accurate descriptions of that place called museum. But, in my opinion, a space that reflects the past, present and the future of man can and should be more than a place to deposit relics of a prehistoric culture. A museum should stimulate the inquisitive instincts of men and women. It should be more than a box of exhibits arranged by a display designer to create conducive crowd control. It must go beyond the quality of spatial correctness and liberate man from the drudgery of walking and seeing without really feeling. It must stimulate one's awareness of a particular social and cultural setting.

Museums are, by definition, "man made institutions" in the service of man. They are not, however, isolated spaces with oneness of purpose or function. Museums are

vital tools for men who seek a more mature appreciation of man's uniqueness as a social creature. The museum should be concerned with more than what lies within its walls. It is essential that the museum enhance man's ability to recognize his potentials as an individual and the potential of society in the future.

The museum should offer a uniqueness that creates an atmosphere for the appreciation of objects that matter. The quality of the museum rests upon the use of materials that stimulate the eye and the touch. It is important to realize that only objects that relate directly to an overall scheme hold the layman's attention. It is the ability of the museum to stimulate interest for people lacking background information on the subject matter that determines its success or failure as an educational and recreational facility.

The most important part of a museum, and certainly the hardest to achieve, is its ability to express change through flexibility. It is irresponsible to believe that learning and stimulation just naturally follow exposure. If one looks at our public school system, with its many discontents and dropouts, one realizes that mere exposure to facts does not create interest. If a museum is to survive, it must show an ability to excite and inform the public. Every museum must show man that in change lies the future of mankind. By seeing, perceiving, and studying

the past, man may somehow arrive at a workable future.
The museum should be flexible enough to present a variety
of ideas, for ideas are the measure of mankind and the
foundation of a museum.

Introduction

It is my job to create a place which embodies the ideas expressed in the concept statement. It is well known that processes concerning the achievement of design goals are handed down from generation to generation by imitation. Naturally, the outcome of a complete design rests upon an understanding of a design process which dictates a written expression of functional relationships and aesthetic qualities. Therefore, it should be emphasized that although I imitate a process, this process should not dictate a design. Hopefully, the final design should assimilate the forthcoming facts and also exhibit ideas and historic artifacts in a flexible environment.

Basic Considerations

Lighting* To be seen, objects require light. The amount of light which is required varies and is dependent on the particular situation within the museum. But what really matters in museum lighting is the relative brightness of objects, which is directly related to the quality of the light.

Light, and particularly ultra-violet light, has a deteriorating effect on most museum items, with the possible exception of metal, stone and glass. Therefore, it is important that the lowest possible illumination levels be maintained. This means that the light levels should become progressively lower as the transition is made from outdoors to indoors.

There is also a very close relation between the levels of brightness which is desirable and the prevailing colour temperature.

Fluorescent tubes are available in three ranges of colour temperature; the upper range is equivalent to north light at over 6000°K and a lower range of around 3000°K which is meant to equal tungsten. Fluorescent lighting in the middle range is generally considered the most suitable for museum illumination because of its

*Information taken from The New Museum and also from the I.E.S. Code, 1961.

warmer tone at lower intensities. When objects are considered sensitive to light, a warmer tone tungsten lamp should be used.

When daylight is used, the openings admitting it should be designed so that the light is graded and glare is avoided. Openings should be placed in such a position or screened in such a manner so that the eye does not see the sky or other bright areas.

Climate Control Every museum is responsible for making certain that the objects in its care survive and remain intact to communicate in the future. The mere fact that they are in a museum does not insure this. On the contrary, the switch from one environment to another environment may cause considerable damage. Furthermore, the conditions within the museum, with its emphasis on lighting and the need for public access, are not always ideal for the preservation of certain exhibits.

Deterioration is caused mainly by two factors: the action of the atmosphere and the effect of light. Most of the atmospheric action is dependent on the effects of humidity and the lack of stable conditions. Clean air and a uniform environment with the correct relative humidity give the best conditions for the largest variety of items.³⁹

The relative humidity in the Jemez area, averaging 35%, is about right for most items. Therefore, it will be necessary to provide a mechanical system that will control ventilation and room temperature in the museum.

Security The museum collections, like other valuables, should be protected from loss or accidental destruction. This means devising security arrangements that protect objects from theft or fire.

Although the museum is located in a rather isolated area, it is felt that no unusual steps be taken to prevent loss from theft. The reason for this decision is that no extremely valuable items (such as rare paintings) will be exhibited in the museum. As far as theft from persons visiting the museum during daily operation periods, design decisions and employee observation should prevent display items from being removed.

Fire protection is an essential item in design criteria. There should be adequate smoke and fire detection equipment available. It should be connected to a sprinkler system in the museum. The detection equipment should also be connected to the alarm switchboard at the Bernalillo Fire Station. The museum should have its own fire extinguishing apparatus distributed throughout the building. Fire protection should follow the National Building Code provisions.

Display There are many acceptable ways of displaying objects of interest. Some objects should be touched, others should be viewed from close up, others from a distance.

Putting an object or series of objects within the field of vision of a standing observer, who may be an adult or a child, the designer has at his disposal the use of walls, panels, cases and supports. These can be used as portable or stationary objects. They can protect the exhibits, support lighting, or subdivide spaces.

Only a limited area, approximately a cone of forty degrees at ten feet away, is seen at any one time by an observer. This makes it possible to position the exhibits so that only a single object or a related group of objects is seen within the field of vision. Head movement or movement of the entire body to a new position should bring other objects into view. There is also an advantage in terms of visual comfort if succeeding objects are not always at the same distance, but the distance between objects in depth should not be too great.⁴⁰

Space Requirements

Entrance The entrance or transition space should serve several purposes. As the first and last museum space seen, it should serve a certain symbolic function. The entire flavour of the museum is suggested by the character of the entrance. It also serves as a service zone for the museum. In this spot notices are displayed, directions are given and background information is obtained.

To enable the entrance space to function correctly, approximately three hundred and fifty square feet of floor space should be provided. The space should have only a minimum amount of furniture and counter space.

Management of the entrance should consist of an attendant to answer questions and prevent congestion. A second attendant should be provided to assist in selling small trinkets and cards and collecting the entrance fee.

Exhibition As previously stated, the museum at Jemez Canyon Lake is concerned with three phases of history:

Phase I - A.D. 1300 to 1540, the Rio Grande Classic Period.

Phase II - 1540 to 1720, the Historic Period.

Phase III - the significance of history on the future of man.

Each of these phases should be provided with a separate space in which to exhibit items of interest. The control of each space should be accomplished by two attendants who are well versed in the subject matter presented.

Phase I, the Rio Grande Classic Period, should have adequate space to present a systematic display of life during this period. Since there is only a limited amount of information and artifacts available, flexibility is not the most important characteristic of this space. It is, however, necessary to create interest by presenting a variety of illustrations and exhibits. Approximately nine hundred and fifty square feet of floor space should be provided.

Phase II, the Historic Period, is a period with a more diverse character. It is desirable to create a space that is flexible, yet retaining adequate flow control. This space should have approximately one thousand square feet of floor space.

Phase III will require a space that reflects the concept of change. It should be designed to create an atmosphere for learning. Through the proper use of exhibits, it should relate man to history, man to man, and man to his environment. This space should have approximately one thousand square feet of floor space.

Office Space It has been established that the Museum of Albuquerque is responsible for the overall management of the Museum at Jemez Canyon Lake. Only the smaller scale functions of operating the museum should be done at the Jemez site. These functions require a space for a museum manager. The manager serves as coordinator of activities and exhibits and should be responsible for determining items and ideas for presentation.

The museum manager should have a secretary to do clerical and reception work. The space for the secretary and the museum manager should be closely related. The area required to perform these functions is approximately two hundred square feet of floor space.

Lounge Space In order to provide adequate space for the relaxation of museum employees and visitors at the museum, a lounge space should be incorporated into the museum complex.

The space should be simple. It should have comfortable seating space for eight to ten people and have approximately two hundred square feet of floor space.

There should be no refreshments available in the lounge or the museum.

The lounge should be easily accessible from anywhere in the museum but should not be in the main traffic pattern. It should be in the immediate proximity of the

rest-rooms. It is also desirable to incorporate the natural surroundings into the space, possibly by direct access to the outside.

Rest-Rooms The museum complex should have separate toilet facilities for men and women. The facilities should be of adequate quality and functional design to permit usage by the young and the old and also the handicapped. The facilities should be located in an appropriate location to create easy access to them from any place in the museum complex.

The women's toilet should consist of four or five waterclosets with inclosures. It should also have a large mirror and several lavatories. Adequate lighting and ventilation should be provided. Approximately one hundred and forty square feet of floor space is required.

The men's toilet should also be properly lighted and ventilated. It should consist of three or four water-closets and approximately the same number of lavatories and mirrors. It, too, should require approximately one hundred and forty square feet of floor space.

Storage and Workshop The museum storage area and workshop should occupy an important proportion of the total floor area and its design must make efficient use of the allocated space. The material in this area should

be orderly arranged and properly labeled.

The museum workshop, which is a service area, should not be a neglected portion of the building. Work of a precise nature is performed in this space, and its quality and size should reflect this.

These two spaces should be combined into one area, requiring adequate lighting, humidity and temperature control to insure that the exhibits are kept intact.

The space should have a keel, paint and layout tables, double sink, and a considerable amount of shelves and storage space. Approximately eight hundred square feet of floor space should be provided.

Outdoor Exhibition and Ceremonial "Dancing plays a social as well as a religious role in the pueblo. Ceremonial dancing concludes all important religious ceremonies. Such dances may be held within or outside the Kiva."⁴¹

Religious dance is an invocation to the gods and nature. Most ceremonial dancing is directed toward the growth of corn, squash and melons, and nearly all religious dances reflect some aspect of agriculture.

It is recommended that a space be provided for ceremonial dances. The dancing should be on a relatively small scale, preferably six to ten Pueblo Indian Dancers. There should also be a space to exhibit and sell pottery,

jewelry, paintings and leather crafts to the public. It is desirable to provide a covered, or partially covered, area of approximately nine hundred square feet.

Storage and Janitorial It is recommended that a space be provided for the purpose of storing cleaning equipment and articles used in maintenance and repair of the museum complex and the surrounding grounds. The space should be used as a general utility room by the janitor and the maintenance man. It should provide approximately eighty square feet of floor space. It should contain a sink, shelves, and storage space.

Mechanical It is recommended that a space of approximately sixty square feet be provided for the placement of mechanical equipment to serve the museum complex.

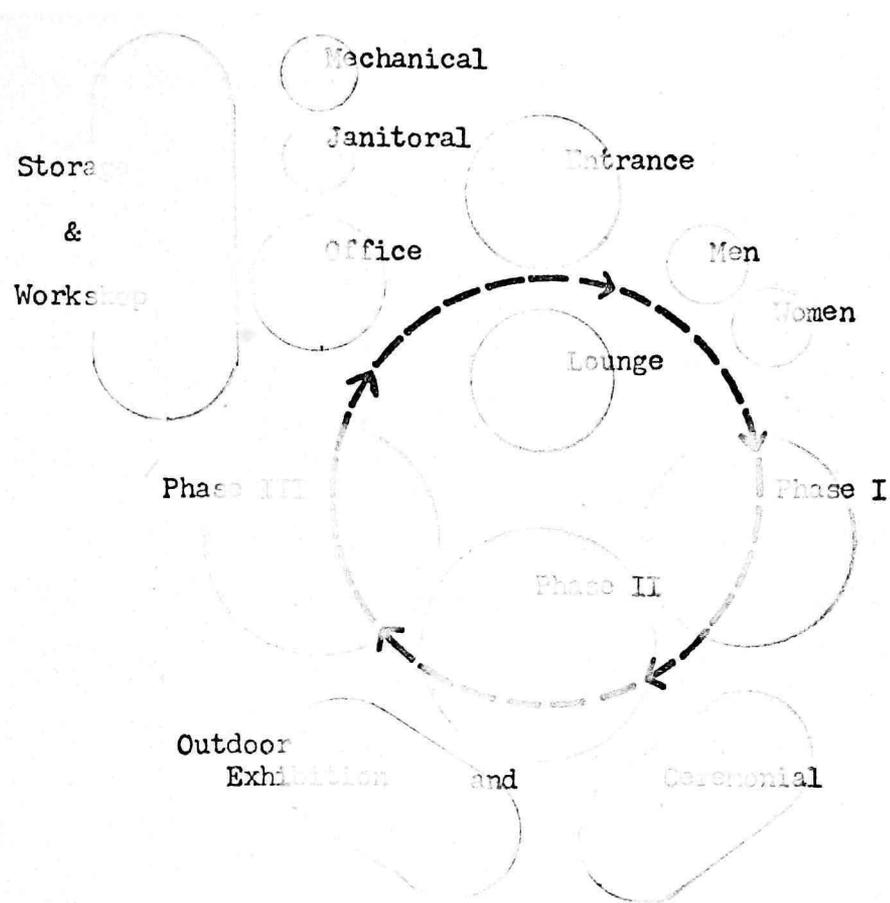
It is also recommended that the museum complex use LP gas for heating and air conditioning purposes. The museum should be a closed system utilizing the same ducts, fresh air vents, mechanical unit, etc. to maintain proper temperature control.

The mechanical room should also contain a hot water heater and a water softener. The water system should be a gravity feed system from an elevated storage tank in the vicinity.

Museum Parking It is recommended that parking facilities be provided for the museum complex.

Analyzing the design load for approximately 1,115 persons visiting Jemez Canyon Lake per day in 1973, and dividing this figure by four persons per car, yields a need for two hundred and seventy-nine parking spaces. If one-fourth of these persons are visiting the museum complex at any one time, approximately seventy parking spaces should be provided. This should also be adequate to handle future increases.

It is also recommended that private parking spaces be provided for the museum director and his staff. This brings the total number of spaces required to approximately seventy-five. These spaces should be designed to be functional as well as being unobtrusive.



FLOW DIAGRAM: This diagram illustrates some of the functional relationships that should exist in the museum complex. The diagram is not a floor plan, as there would be many possible ways of achieving the relationships shown.

The Visitor Control Building

Introduction

The volume of visitor usage at Jemez Canyon Lake by waterskiers and boaters, people fishing and picnicking, and people visiting the museum and outlook makes it necessary to provide a visitor center to help inform the recreationist, to provide necessary services, and to provide a sense of unity, character, and order to the entire park facility.

Although the demand for such a center is hard to determine, the design load figures indicate that two hundred persons should use the center in one hour's time on a peak day.

The control building should provide a variety of functions and services. These functions and their spatial relationships are described in the following section.

Space Requirements

Information The information portion of the building should be of adequate size and functional design to enable two attendants to answer questions and sell the standard tourist items.

It is desirable to have a concession type booth with ample storage space for excess merchandise. The area should have approximately two hundred and fifty square feet of floor space. It should be adjacent to, or part of, the entrance of the control building.

Administration Office space should be provided for the manager of Jemez Canyon Lake Recreational Area and its related facilities. The manager is responsible for the management, maintenance, and promotion of the recreation area. He is in charge of all employees except the museum director and his secretary and attendants.

The lake manager should be provided with an office space for himself and a secretary. This space should be of adequate size to enable the lake employees to consult with the manager in small groups. The space should have reception and secretarial space provided to handle the volume of work required to manage a recreation area.

The manager's office and small group consultation space should be related to the reception space. The

office should be in a position to enable the manager to see the lake and its activities. The space required for these functions is approximately three hundred square feet of floor space.

Maintenance It is necessary to provide an area for maintenance employees to construct or recondition various items for the recreation area. This space should be of adequate size and functional design to enable workers to lay out and cut wood and metal. It should provide storage space for lumber and pipe, saws and other ground maintenance equipment.

The space should have toilet facilities for the employees. It should also have a space for the storage of janitorial equipment. The approximate size of the space should be seven hundred square feet of floor space.

There should also be provided a covered space for storage of a small tractor mower used in the area. There should be a storage space connected to this covered area to store tractor accessories and other small lawn mowers.

First Aid Because the Jemez Canyon Lake area serves a large number of people performing a variety of recreational activities, it is necessary to provide a space for first aid facilities.

The first aid area should be staffed with at least one full-time attendant. This person should be qualified in all first aid techniques. The first aid room should have a place for direct access by an ambulance. It should also have at least two beds, cabinet space for equipment, and a sink. It should have at least two hundred square feet of floor space.

Snack Bar and Outdoor Patio It should not be the purpose of the Visitor Control Building to serve as a restaurant, but rather to provide only secondary food service to the tourists. The reason for this is that a large restaurant and marina should be built in a later phase of the lake development.

The snack bar should provide such small food items as hot dogs, hamburgers, grill cheese sandwiches, french fries, ice cream, soft drinks, etc. The space should be provided with the necessary cooking equipment, refrigerator, storage space, and cash register. The indoor space should have a counter to separate the outdoor patio area from the concession area. The space should have approximately three hundred and fifty square feet of floor space. Three attendants should run the snack bar.

The outdoor patio should have adequate seating for approximately thirty-five people and should have a view of the lake.

Rest-Rooms It is necessary to provide toilet facilities for the public and also for the control building employees.

One small rest-room should be provided inside the building complex and restricted to employee use only. The facility should be of proper design to enable both men and women to use it. The space should contain one watercloset and one lavatory. It should be properly ventilated and lighted to be comfortable. It should have approximately fifty square feet of floor space.

There is also a need for a men's and women's rest-room outside for use by the tourists. The rest-rooms should have outside entrances only, which is a desirable feature of this kind of building. The facilities should be close to the entrance of the main building complex. They should be designed for a large usage load, probably twenty or thirty people an hour for both sexes.

The men's toilet should have approximately four waterclosets, four urinals, and four lavatories with mirrors. It should have enough space, approximately two hundred square feet of floor space, to enable proper circulation. It should be well-ventilated and lighted. It should be built to sustain a heavy load and a great deal of cleaning.

The women's toilet should have approximately six waterclosets and five lavatories with mirrors. It should

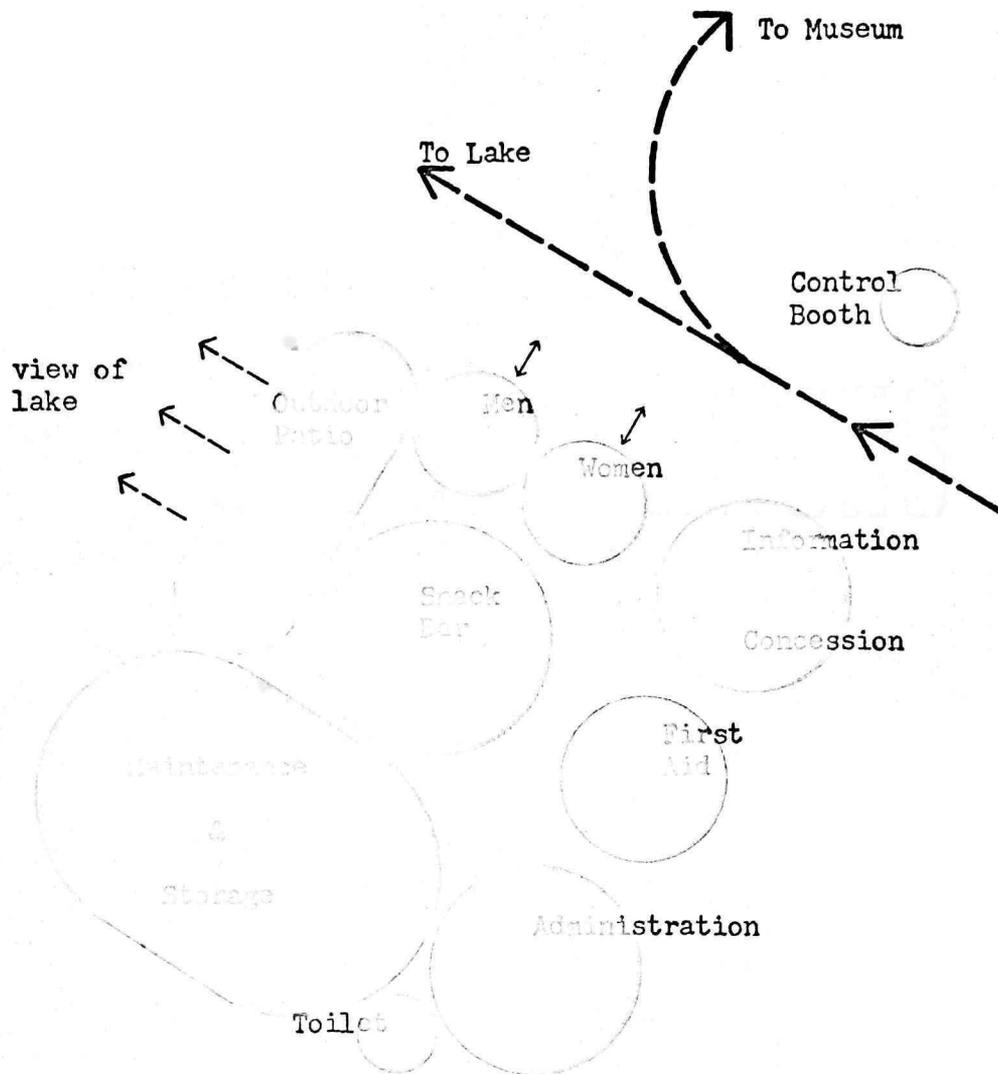
have all the desirable elements of the men's toilet. Space required is approximately two hundred square feet of floor space.

Control Booth It is desirable to have a small control booth to receive tourists and collect the entrance fee. The space should be manned by only one attendant. It should be only large enough to allow for easy movement inside. It should have a cash register and small storage space.

The control booth should be close to, but not connected to the control building complex. It should require only about twenty-five square feet of floor space. It should be heated and ventilated with its own unit.

Parking Since there is a predicted user demand of approximately two hundred visitors an hour at the control building, there is a need for approximately sixty parking spaces for tourist use. These spaces should be designed to properly control circulation into and out of the parking area.

There is also a need for approximately twelve spaces for employee parking. This space should be adjacent to, but not part of the tourist spaces.



FLOW DIAGRAM: This diagram illustrates some of the functional relationships that should exist in the Visitor Control Building. The diagram is not a floor plan, as there would be many possible ways of achieving the relationships shown.

ENGINEERING
CONSIDERATIONS

Introduction

Any recreation and tourist facility must be based on the considerations and criteria described in the preceding sections. These development proposals, combined with the general considerations, emphasize the desirability and feasibility of such facilities.

The evaluation of all these matters has been done, and it is now necessary to evaluate certain specific proposals. These specific proposals are presented in the following section and they represent the final detailed recommendations in this program. Taken together, they constitute a complete plan for the development of a Museum and Control Building for Jemez Canyon Lake.

The proposals are grouped in three categories:
A. Cost of the facilities; B. Income produced by the facilities; and C. Management of the facilities.

Cost of the Museum and Control Building

The anticipated construction cost of the Museum and Control Building is a substantial amount. Naturally, any preliminary cost estimate must be considered as tentative figures to establish the magnitude of the various parts of the development. They should not be considered as an absolute or concrete cost estimate, but rather a guide to probable construction cost based on reasonable assumptions. One must also realize that the cost of construction at the present time is increasing between eight and ten percent per year. This makes it very difficult to make an accurate estimate.

It is never easy to estimate construction cost, and it is even harder to figure probable cost on structures that are not built close to a metropolitan area. It should also be recognized that there are a number of methods used to determine cost. In this program the cost is determined by estimating the dollars per square foot and adding this to professional fees and a contingency figure.

On the following page is an approximate cost analysis of the facilities.

Museum

Total square footage -- 6,000
 @ \$35.00 a sq. foot.....\$210,000.00
 plus 75 cars @ \$100.00 ea.....218,300.00
 plus landscaping @ \$5,000.00.....223,300.00
 plus 15% contingency.....256,795.00
 plus professional services @ \$48,400.00....approx...305,195.00

Control Building

Total square footage -- 2,300
 @ \$35.00 a sq. ft.....\$ 80,500.00
 plus 72 cars @ \$100.00.....87,700.00
 plus outdoor storage shed.....89,200.00
 plus landscaping and patio.....94,200.00
 plus 15% contingency.....108,330.00
 plus professional services @ \$21,660.00....approx...129,990.00

Approximate total cost of the Museum and Control Building:

\$435,185.00*

*This figure does not include land cost, access road improvement, water, sewer, or power cost.

Income Produced by the Facilities

For the most part, estimates of probable income or revenue stimulated by the museum and the control building seem predictable. But, in a recreational area such as Jemez Canyon Lake, it is desirable to have a number of revenue-producing facilities. This makes an estimate more difficult to make. Consequently, this program is not concerned with precise figures for the entire park. It is desirable, however, to record the nature of the other facilities so that a perspective of the total income can be seen.

It should be emphasized that the entire recreational park should function as a unified body when it comes to financial burdens. The City should expect the facilities to function in a profitable manner. Naturally, the income produced should be applied to pay off the revenue bonds floated to pay for construction cost. After the bond debt is paid, the income should be applied to the park for improvement and maintenance.

On the following page is a partial breakdown of some of the probable income-producing facilities at Jemez Canyon Lake. These figures should only be taken as an estimate, and only fees directly related to the museum and control building appear.

Types of income

- (1). Entrance and Activity Fees (accruing to the City)

Entrance fee	\$.50 per car
Entrance to Museum	.25 per person
Boating and water skiing	
Camping	
Picnicking	

- (2). Concession Sales (accruing to concessionaire with 10% of gross going to the City)

Snack Bar	cost of items plus 30% profit margin
Tourist Items Sale	cost of items plus 30% profit margin
Restaurant Sales	
Marina Sales	
Gasoline Sales	
Boat Rentals	

- (3). Indian Crafts Sale (accruing to the Santa Ana Pueblo or to individual Indians)

Management of the Museum and Control Building

The proposed park should be capably managed so that the many different facilities, recreation activities, and concession efforts described in the preceding section become efficient and profitable enterprises.

The entire park should be managed by a competent staff employed by the City's Parks Department and supervised by the Director. The entire Canyon Lakes staff is not germane to this program. The staff of the Museum and Control Building is, however, of concern.

The staff and management of the programmed facilities and the concessionaires include the following:

<u>Number</u>	<u>Name</u>
1	Museum manager
1	Secretary
6	Attendants
2	Workshop employees
1	Maintenance man (janitor)
6	Indian concessionaires
1	Park manager
1	Secretary
6	Attendants
1	First aid attendant
<u>6</u>	Park maintenance man
30	Staff members (approximate figure)

All of the above staffing should be considered very general. In actual operation, it might be necessary to shift personnel around or hire more employees during peak times of the year. The park director and the two managers should be in charge of this operation.

Although it is important to consider publicity and advertising as a management function, it is not possible for the staff to handle such matters. Hopefully, the museum and recreational facilities should sell themselves. All other large scale promotion should be handled by the City.

It is necessary to make visitors aware of the products and attractions in the park area. This function should be served by the information desk in the visitor control building, the control booth, and the entrance space in the museum.

FOOTNOTES

FOOTNOTES

¹Bertha P. Dutton, "Let's Explore Indian Villages - Past and Present," Tour Guide for Santa Fe Area, December, 1970, p. 15.

²Ibid., p. 13.

³Ibid.

⁴Woodbury Lowery, The Spanish Settlements (New York: Russell & Russell, Inc., 1959), p. 283.

⁵Ibid., p. 282.

⁶William Whitman, The Pueblo Indians (New York: Ama Press, 1969), p. 76.

⁷Ibid., p. 77.

⁸Lowery, The Spanish Settlements, p. 285.

⁹Museum of New Mexico, "Coronado State Monument," 1970, p. 2.

¹⁰Interview, Jerry Tuttle, Coordinator of Santa Ana Pueblo, October 5, 1971.

¹¹Lowery, The Spanish Settlements, p. 286.

¹²Ibid.

¹³Ibid., p. 287.

¹⁴Ibid.

¹⁵Ibid., p. 288.

¹⁶Ibid., p. 289.

¹⁷Interview, Jerry Tuttle.

¹⁸Lynn I. Perrigo, The American Southwest (New York: Holt, Rinehart and Winston, Inc., 1971), p. 327.

¹⁹Ibid., p. 328.

²⁰Fr. Angelico Chavez, Coronado's Friars (Academy of American Franciscan History: William Byrd Press, Inc., 1968), pp. 9-10.

²¹Corps of Engineers, "New Mexico 1971," Water Resources Development (January, 1971), pp. 20-21.

²²Ibid., p. 20.

²³Ibid.

²⁴Ibid.

²⁵Ibid., p. 21.

²⁶Ibid.

²⁷Chambers and Campbell, Inc., Rio Grande Valley State Park (University of New Mexico Press, 1969), p. 29.

²⁸Ibid.

²⁹Ibid.

³⁰Ibid., p. 31.

³¹Ibid., p. 32.

³²Corps of Engineers, Water Resources Development, p. 21.

³³Museum of New Mexico, "Coronado State Monument," p. 2.

³⁴Chambers and Campbell, Inc. Rio Grande Valley State Park, p. 123.

³⁵Ibid.

³⁶Ibid., p. 124.

³⁷Ibid., p. 125.

³⁸James Edwin Pearce, Museums--Their Use and Place in Learning and in the Transmission of Culture (University of Texas, 1921), p. 13.

³⁹Michael Brawn, The New Museum (New York: Frederick A. Praeger, Inc., 1965), p. 178.

⁴⁰Ibid., p. 179.

⁴¹Mary Evans, "The Southwest Indian," American Home, March, 1970, p. 77.

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- Jerry Tuttle, Coordinator of Santa Ana Pueblo. Telephone conversation October 16, 1971.

CORRESPONDENCE

September 13, 1971

Corps of Engineers
Civil Works Planning
Albuquerque, New Mexico

Dear Sir:

I am a fifth year student in Architectural Engineering at Texas Tech University. This year I am doing my thesis project and I am interested in information concerning the Jemez Canyon Dam and Reservoir and its facilities planned for the future.

I understand that the Corps has administrative jurisdiction over the dam and reservoir area. Ownership of the upper part of the reservoir resides in the Santa Ana Pueblo Grant, and is used by the Corps under easement. Consequently, I hope you can help me in obtaining information which is pertinent to both the present dam and its future potential.

It would be extremely helpful if you could provide me with topographical, climatic, demographic, and other general information and maps which would assist me in compiling data.

Sincerely yours,

Russell Weems

September 15, 1971

Bureau of Indian Affairs

Area Director

1st National Bank Bldg.

Dear Sir:

I am a fifth year student in Architectural Engineering at Texas Tech University. This year I am interested in information concerning the Jemez Canyon Dam and Reservoir and its facilities planned for the future.

I understand that the upper part of the reservoir resides in the Santa Ana Pueblo Grant, and is used by the Corps of Engineers under easement.

Naturally the design of facilities in the area, of which a museum is planned, should be influenced by the Indian culture which is prevalent in the area. For this reason I hope that your department could help me in compiling data for my thesis. At this time I am particularly interested in the history and tradition of the Indian people who have and will inhabit this area.

If your department can be of any assistance it will be greatly appreciated.

Sincerely yours,

Russell Weems



IN REPLY REFER TO:
SUPERINTENDENT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Southern Pueblos Agency
P. O. BOX 1667
1000 INDIAN SCHOOL ROAD, N. W.
ALBUQUERQUE, NEW MEXICO 87103

September 22, 1971

Mr. Russel Weems
1001 University 709-B
Lubbock, Texas

Dear Mr. Weems:

In answer to your letter regarding the Jemez Canyon Dam and reservoir near Santa Ana Pueblo, we are providing you information that has been published in our local newspapers. As you may determine a great deal of interest and potential for change lies with this proposed project.

Also enclosed is a write-up of Santa Ana history as prepared by a writer for the Albuquerque Journal. I hope this will met your needs.

Sincerely,

Jerry Tuttle,
Coordinator, Pueblo of Santa Ana

Enclosure

September 28, 1971

Mr. Jerry Tuttle
Coordinator, Pueblo of Santa Ana
1000 Indian School Road, N. W.
Albuquerque, New Mexico

Dear Mr. Tuttle:

I would like to thank you for your letter of September 22, 1971,
and the information which you sent.

I would also like to ask another favor of you at this time. In
programing a museum for this area I have become interested in the
old pueblo at Ta-Ma-Ya. I understand that the proposed lake will
extend its shores to the foot of the old pueblo, making this a likely
location for a museum.

Unfortunately, I have read that outsiders may visit the old pueblo
only during open dance days, and that picture taking is prohibited.
For these reasons I am writing you to ask permission to visit the
area and, if possible, take photographs. I assure you that if you
allowed me to visit the area I would be most considerate of the
area and its people.

If this request can not be granted, I would sincerely appreciate
any available information which you might have on the area.

Sincerely yours,

Russell Weems



IN REPLY REFER TO.
SUPERINTENDENT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

Southern Pueblos Agency

P. O. BOX 1667

1000 INDIAN SCHOOL ROAD, N. W.
ALBUQUERQUE, NEW MEXICO 87103

October 28, 1971

Mr. Russel Weems
1001 University 709-B
Lubbock, Texas

Dear Mr. Weems:

I have tried to reach you by phone in the response to your letter of September 28, 1971, but have been unsuccessful.

Your requested to visit Ta-Ma-Ya. This could possibly be by Christmas, dances are open to the public. However, as you are aware photographs will be impossible at this time. You had projected a museum at Ta-Ma-Ya, I feel that you might make a contribution if you could take this opportunity to met with the people and share some of your ideas.

Please write me and let me know when I can call you are your office and discuss this with your further.

Sincerely yours,

Jerry Tuttle,
Coordinator, of Santa Ana

November 8, 1971

Mr. Jerry Tuttle

1000 Indian School Rd.

Albuquerque, New Mexico

Dear Mr. Tuttle:

As you know, for my thesis project I had projected a museum for the area. Unfortunately, I did visit the Jemez area before I received your last letter. Because of the time factor, I decided on an alternate location.

I would, however, like to visit Ta-Ma-Ya around Christmas. I feel that meeting the people would be very beneficial to me. Again, thank you for your concern.

Sincerely yours,

Russell Weems

CONCEPT

The primary emphasis in the design of this museum is to create an esthetically pleasing container for the display of Indian and Spanish culture. The museum must incorporate design features and functional relationships which create a vital and stimulating atmosphere for the museum visitor and the Indian personnel working there every day.

The major design considerations of the museum at Jemez Canyon Lake are three fold. First, the museum creates a permanent display center for the fifty thousand River Pueblo Indians who inhabited the area from A.D. 1300 to A.D. 1540. The museum explains the Indian culture during the Rio Grande Classic Period. It traces the development of their culture and the significance of religious activities on their life style. Second, the museum emphasizes the importance of the Spanish conquest and resulting development of the Indian and Spanish culture during the Historic Period (1540-1710). Finally, the museum serves as a cultural center for the seventeen existing River Pueblo tribes that currently inhabit the area along the Rio Grande River and the Jemez River from just south of Albuquerque to just north of Santa Fe. In this capacity the museum will stimulate some economic growth for people who presently have no income from their tribal lands.

During the design process it is important to feel the significance of history and tradition as it relates to the final design statement. The integrity of the solution is one

of a vital and stimulating space which has the qualities of permanence as well as flexibility. Naturally, the interior and exterior spaces are workable and pleasing. Consideration of the structure, proper circulation and arrangement of displays, placement of visual and physical barriers to lead the museum visitor through the spaces is done to create a comfortable and functional environment that is easy to maintain and durable under heavy usage.

SPATIAL VALUES

The primary emphasis in the design process was to create uniform flow from display to display. I felt that this flow should not be blocked by doors or walls. The visitor is allowed to walk through at his own speed. The visitor is pulled along by stimulating visual experiences that make the visitor desire to go farther and see more displays. These experiences inform the visitor as well as stimulate him to know more about the Indian and Spanish culture.

Controlled flow is the basic criteria for the display of articles in Phase I (Rio Grande Classic Period). The flow is achieved using visual emphasis which draws the viewer through a chronological series of displays. In Phase I the viewer must follow a designed path. The most important feature of this area is the ability of the space to force the visitor along a path without using closures. Naturally, the space gives the visitor a feeling of being in one big space in which he can move at his leisure. But in fact, the viewer is blocked at different viewing angles and his flow is controlled.

A feeling of openness with controlled flow is also the design criteria for Phase II (Historic Period). The visitor makes an easy transition from Phase I through the Kiva. One is then permitted to skip a series of displays or continue. Although one can skip a series of displays, the flow is such that the viewer does not immediately recognize his freedom unless he suddenly desires to leave the museum tour.

Change of lighting, ceiling height, texture, and display technique is the criteria for Phase III. The viewer has an opportunity to choose what he wants to see and in what fashion he prefers to do so. In this area Indians work at their craft. The viewer is allowed to observe the Indians at their work, and also see his handywork on display. In this area personal contact is extremely important.

Auxiliary facilities such as the observation deck, lobby, Indian sales, and the ceremonial dance area are also important. These areas are positioned to break up the pattern of the museum and provide a change of environment and activity for the visitor. One can relax and enjoy these areas. It is important that the visitor feel a part of the history and tradition of the area.

STRUCTURE

To achieve the desired circulation and ease of movement in the museum, I felt that walls could be minimized. To gain the desired effect of openness I found that the post and beam system adapted itself to design principles and goals which are desirable in a building of this kind.

The walls of the museum are constructed of eight inch concrete masonry units and are used in several places as load bearing walls. The non-load bearing walls rest on continuous spread footings and along the south and west walls of Phase III the walls rest on continuous footings and bell piers. The floor system is a six inch concrete slab. In positions where heavy timber columns bear on the slab, the slab has a spot footing to support the load. All non-load bearing interior walls are constructed of four inch concrete masonry units.

The entire roof structure is constructed utilizing laminated wood beams which bear on C.M.U. walls and also heavy timber columns. The beams are exposed on the interior and also project through the walls on the exterior. Decking for the structure is of two by six inch wood deck. Two to three inches of light weight fiber insulation is then applied and built-up roofing is applied over the insulation.

MECHANICAL & ELECTRICAL

A museum requires a mechanical system that keeps spaces at a constant temperature and humidity regardless of exterior weather conditions. To fill these requirements, a perimeter-loop heating and air-conditioning system is used.

The perimeter-loop system consists of a downflow L.P. gas furnace with the supply plenum in a pit in the concrete slab. From the plenum, radial ducts laid in the slab feed a large loop duct which is continuous around the perimeter. The loop duct contains floor diffusers which throw a blanket of air vertically over the bottom of the display cases or over exterior walls. The top of the furnace is a central return point. The return air intake is through a suspended grill which also contains lighting for a portion of Phase II.

By using an air mixer the perimeter heating system is used for summer air-conditioning. Air is introduced 15⁰ to 20⁰ F below room temperature. Naturally, the small operating temperature rise requires a larger rate of air flow in the summer.

Cooling equipment added to the furnace includes an evaporator coil in the supply plenum, a compressor, and an air-cooled condenser.

The museum is also provided with a water pump placed outside and adjacent to the condenser. The pump supplies water to a pressure tank which then supplies the museum facilities with a static pressure head at each fixture.

Lighting in the museum is of several varieties to create efficient and pleasing interior spaces. The lighting techniques are selected to produce a variety of spatial qualities and to emphasize the display items.

The museum utilizes three types of lighting to achieve the particular lighting quality desired. First, the major portion of the museum lighting is handled by ceiling mounted direct fluorescent fixtures. These fixtures are positioned to achieve a constant illumination level at the floor with a low level lighting condition at the ceiling. Second, incandescent down lighting suspended from metal ceiling tracks is used to achieve direct illumination of openly displayed articles. This down lighting creates a dark ceiling and a visual emphasis on the displayed item. The third type of lighting is in the display cases. The cases utilize incandescent tubes inside the case to illuminate the display items and also to produce indirect light on the wall surfaces above the case.

The transformer for the museum operation is placed adjacent to the condenser and is enclosed on three sides and the top for protection. It is louvered on the side next to the museum wall for ventilation.

The electrical panel, breaker box, and meter are wall mounted in the mechanical room.

MATERIALS

To achieve a natural texture throughout the museum a cementitious wall coating is utilized. The coating is used for both interior and exterior surfaces. It is applied by spraying the material directly to the concrete masonry units or the exterior gypsum panels. The resulting surface is moderate in cost and has tremendous durability. The surface is almost maintenance free and makes excellent display panels when wood or metal runners are recessed.

In Phase II and Phase III portions of several wall surfaces are covered with cork board panels with wood accent. This material provides a functional as well as an esthetic surface.

Several visual screens are provided in the museum. The screens are cloth woven murals with Indian decoration and symbolism as their decor. The large mural in the lobby area is wall hung and has incandescent cove lighting above. The remaining murals are suspended from the ceiling and serve as visual barriers across spaces and also as interesting displays.

The floors are of redish brown quarry tile squares. Quarry tile provides a long lasting surface which is easy to maintain.

SITE

The museum location is on a plateau approximately one hundred and forty feet above Jemez Canyon Lake. The plateau is approximately six hundred feet wide and nine hundred feet long.

The west side of the plateau overlooks the lake. The view westward is along the lake which stretches up the Jemez Canyon for five miles. At the end of the lake is the ancient Indian village of Ta-ma-ya. One can also observe the recreational activities at the lake from the west side of the plateau.

For these reasons the museum is located on the southwest corner of the plateau overlooking the lake. This placement provides space for parking seventy five automobiles. Parking is also provided for ten cars pulling trailers and a parking space for one full sized chartered bus.

Access to the site is from an existing black top road. An addition to the road of approximately one quarter of a mile is necessary to reach the parking area.

Adjacent to the museum structure and paving the site is left in its natural state. No landscaping, and consequently no maintenance except clean up activities will be necessary at the site.

CHANGES

In the original program the emphasis was upon the design of two different structures. One of these, the Visitor Control Center, was to be located at the recreational portion of the lake and would provide tourist information and administration services for the area.

After analysis of the museum and the control building during the design phase I decided to concentrate exclusively on the design of the museum. Naturally, for one to solve a specific design problem, strict concentration is required. I believe that the control center was only a small portion of the overall project and the distraction should not be incorporated into the project.

Changes in the original program are minor. The specific changes needed to refine the design and make it more complete are primarily associated with size and scale of spaces. Modifications of some square footage estimates have been made.

The only other modification of the program is the addition of the basement space. This extra space is used for storage of museum items which overflow from the main storage area.