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Design Character Guidelines

September 1993

LAKE MEREDITH NATIONAL RECREATION AREA TEXAS



SCANNED
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Draft Design Character Guidelines

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Lake Meredith National Recreation Area
Texas

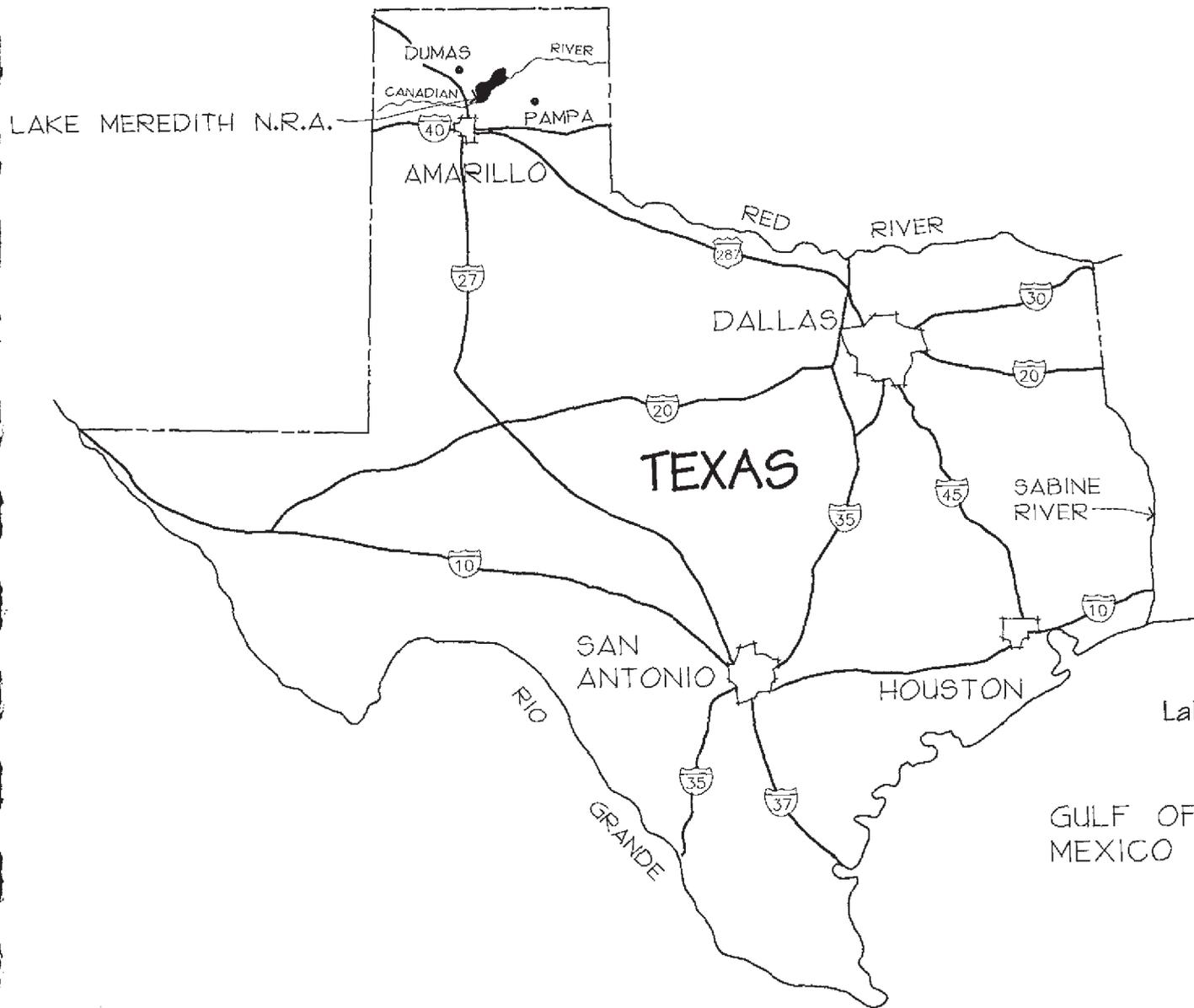
United States Department of the Interior • National Park Service • Denver Service Center

CONTENTS

INTRODUCTION	1
PURPOSE	2
DESIGN PHILOSOPHY	3
LANDSCAPE TYPES	6
CANYON RIM	6
CANYON WALL	6
CANYON FLOORS	7
RIPARIAN/FLOODPLAIN	8
LAKESHORE	8
DESIGN ELEMENTS AND PERCEPTIONS	9
DISTANT VIEW	9
MIDDLE GROUND VIEW	10
FOREGROUND VIEW	10
LAND USE GUIDELINES	12
USE AREAS	12
GRADING	12
DRAINAGE	13
LANDSCAPING AND VEGETATION	14
ROADS	16
PARKING	17
CAMPGROUNDS	18
TRAILS	19
SITE FURNITURE	19
SIGNS	20
LIGHTING	20
VIEWS	21
ARCHITECTURAL CHARACTER GUIDELINES	22
ROOFING	22
WALLS	22
FACADES	23
WINDOWS AND DOORS	23
ENGINEERING DESIGN GUIDELINES	24
WATER	25
POWER	25
SEWER	26
FISH-CLEANING STATIONS	27
TELEPHONE	28
CONCEPTUAL DESIGNS	29
HIGH USE AREAS	33
FRITCH FORTRESS	33
BLUE WEST	39
CEDAR CANYON	40
SPRING CANYON (Stilling Basin)	50
HARBOR BAY	56
SANFORD-YAKE	58
PRIMITIVE AREAS	60
MCBRIDE CANYON / MULLINAW CREEK	60
PLUM CREEK	62
BUGBEE	64
CHIMNEY HOLLOW	65
BIBLIOGRAPHY	67
PREPARERS AND CONSULTANTS	68

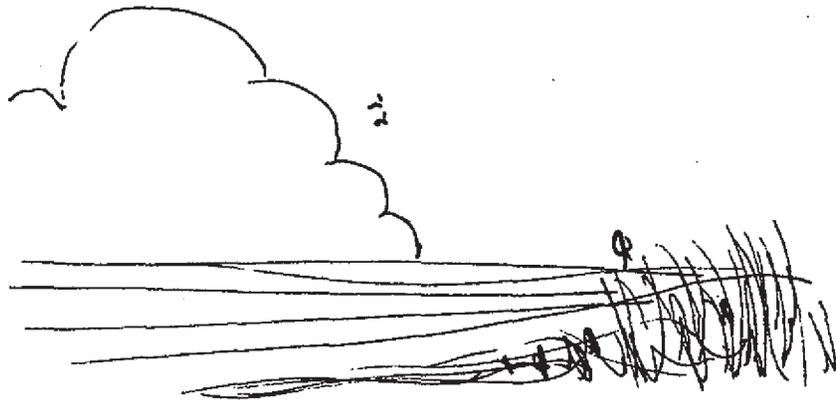
MAPS

Texas	vii
Project Location	31
Existing Conditions / Site Analysis, Fritch Fortress	35
Preliminary Design, Fritch Fortress	37
Existing Conditions / Site Analysis, Blue West	41
Preliminary Design, Blue West	43
Existing Condition / Site Analysis, Cedar Canyon	45
Preliminary Design, Cedar Canyon	47
Existing Conditions / Site Analysis, Stilling Basin	51
Preliminary Design	53



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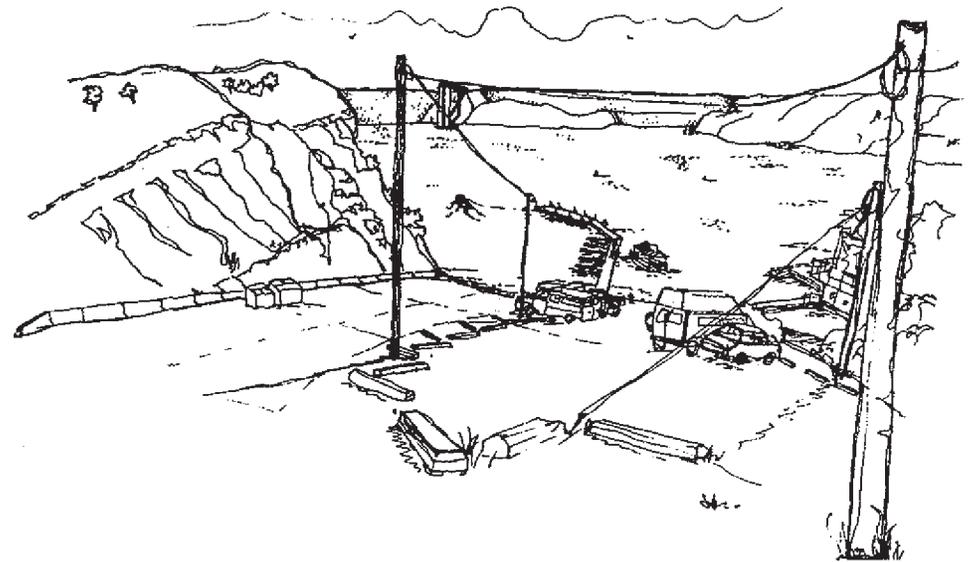
INTRODUCTION

Lake Meredith National Recreation Area is located in the vast, flat, and treeless prairie of the Texas Panhandle – one of the nation's largest remaining tracts of mixed grass prairie.

The landscape surrounding Lake Meredith was referred to as Llano Estacado or stacked plain by early Spanish explorers. This large prairie expanse is dramatically broken by the Canadian River, which carves a broad canyon 0.5 to 2 miles wide. Many smaller side canyons called breaks, are formed by the Canadian River's tributaries. Vegetation ranges from the shortgrass prairie of the high plains to wetland species along the river.

In 1963 the Canadian River was impounded by the Bureau of Reclamation in conjunction with the Canadian Municipal Water Authority to create a large reservoir named Lake Meredith. This project set aside a 45,000-acre area to provide drinking water for the people of the arid Texas Panhandle. The project's secondary benefits – resource preservation and recreational opportunities – led to National Park Service involvement.

During the first 25 years of operation, the Bureau of Reclamation turned over the management of the recreation facilities to the National Park Service. During this period the recreation facilities have had up to 1.5 million users annually, with visitation concentrated during the summer because of the many water-based recreational activities; however, visitation combined with insufficient capital improvements has also resulted in impacts on resources. To remedy this situation, Lake Meredith was elevated to national status as Lake Meredith National Recreation Area in 1991, and the National Park Service is preparing guidelines to set the theme for future development.

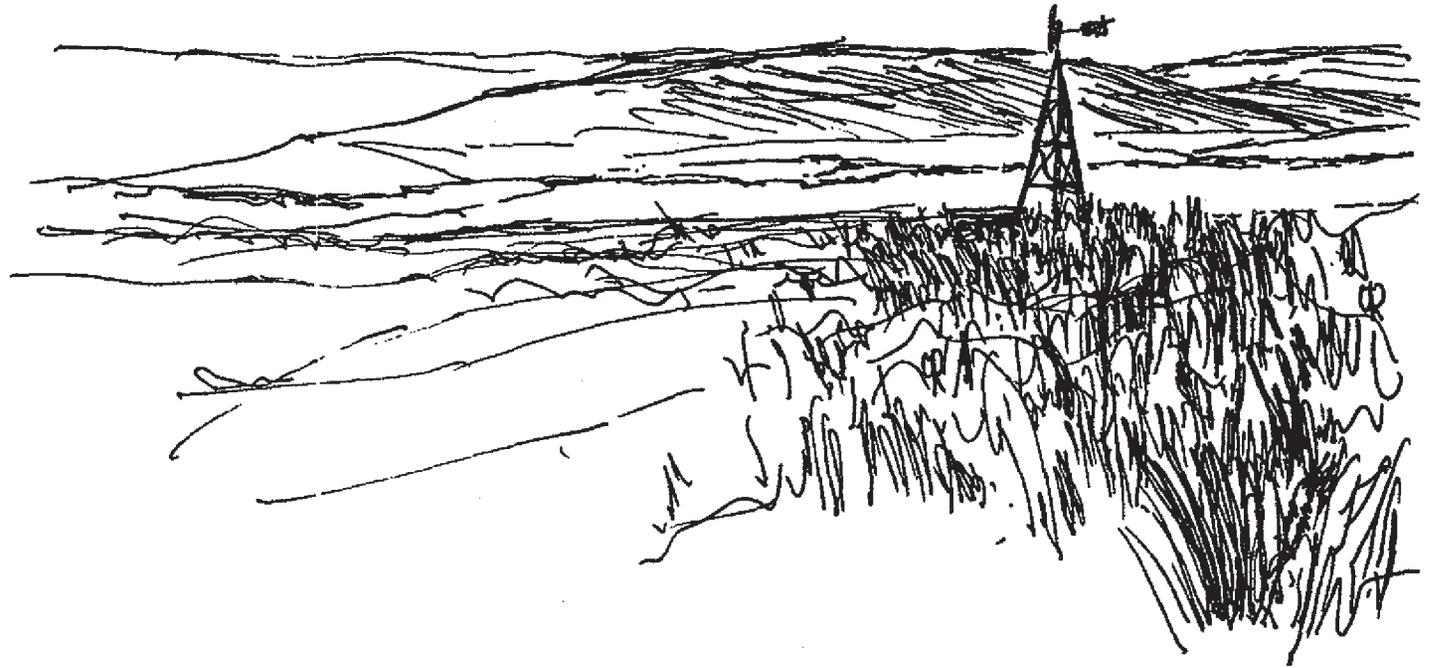
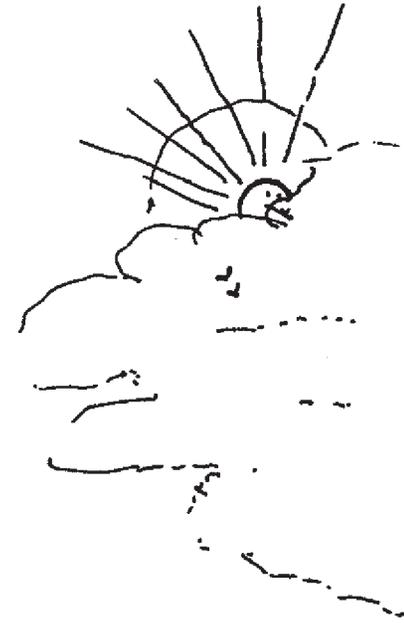


PURPOSE

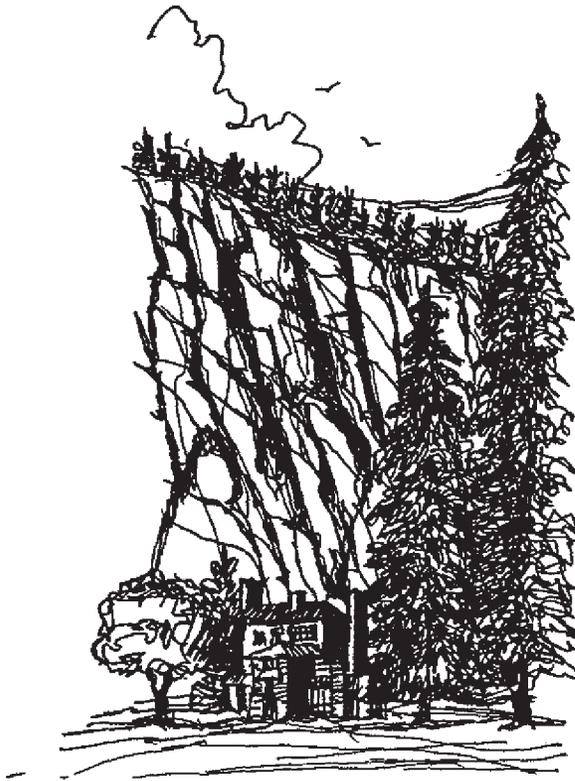
The recommendations made in this plan will guide National Park Service staff throughout each phase of a project.

The objectives of this development guideline are to

- ensure that development is in harmony with the two dominant landscape types at Lake Meredith – the prairie and the canyon
- establish design guidelines for future development in the recreation area
- establish rehabilitation criteria for the existing developed areas
- recommend the use of sustainable design concepts in all new development as well as during the rehabilitation of existing facilities
- guide the development of alternative engineering systems for use throughout the recreation area



DESIGN PHILOSOPHY



The National Park Service traditionally designs facilities that blend into the natural landscape. By using sensitive site plans, indigenous materials, and appropriate massing, the Park Service is able to construct facilities that do not intrude on the scenery of an area. This creates a strong sense of place that is reflected in designs throughout the national park system.

A variety of design principles from other parks and landscapes have been adopted to create the design guidelines for Lake Meredith National Recreation Area.

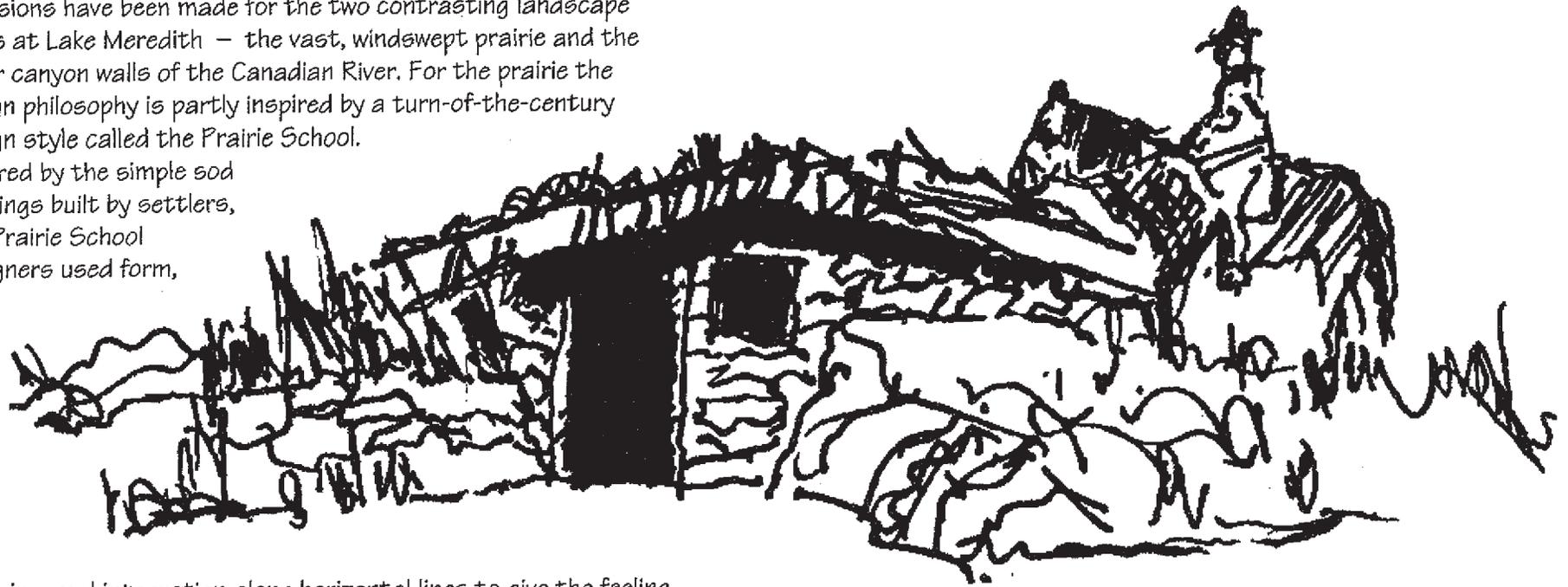
The design philosophy for Lake Meredith addresses two key elements: the existing landscape character and sustainable design concepts.

The first element – Lake Meredith’s landscape – is dominated by the yellow of the prairie, the red of the soil, and the blue of the sky and water. The incorporation of these common hues into the architecture at Lake Meredith is an important part of the design philosophy.

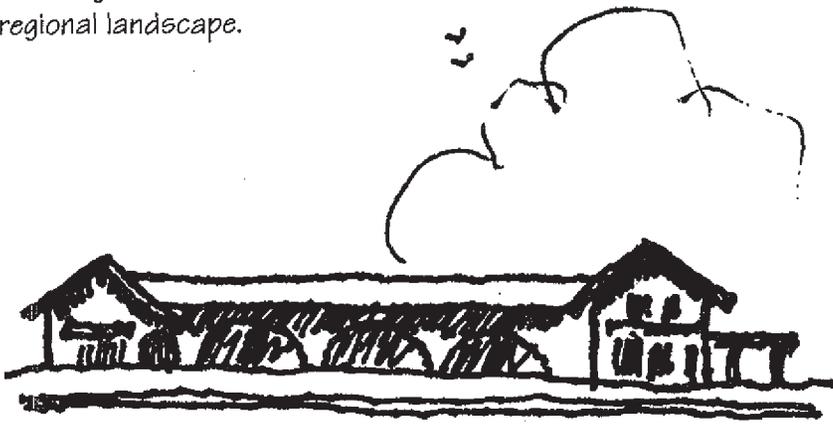


Provisions have been made for the two contrasting landscape types at Lake Meredith – the vast, windswept prairie and the sheer canyon walls of the Canadian River. For the prairie the design philosophy is partly inspired by a turn-of-the-century design style called the Prairie School.

Inspired by the simple sod dwellings built by settlers, the Prairie School designers used form,

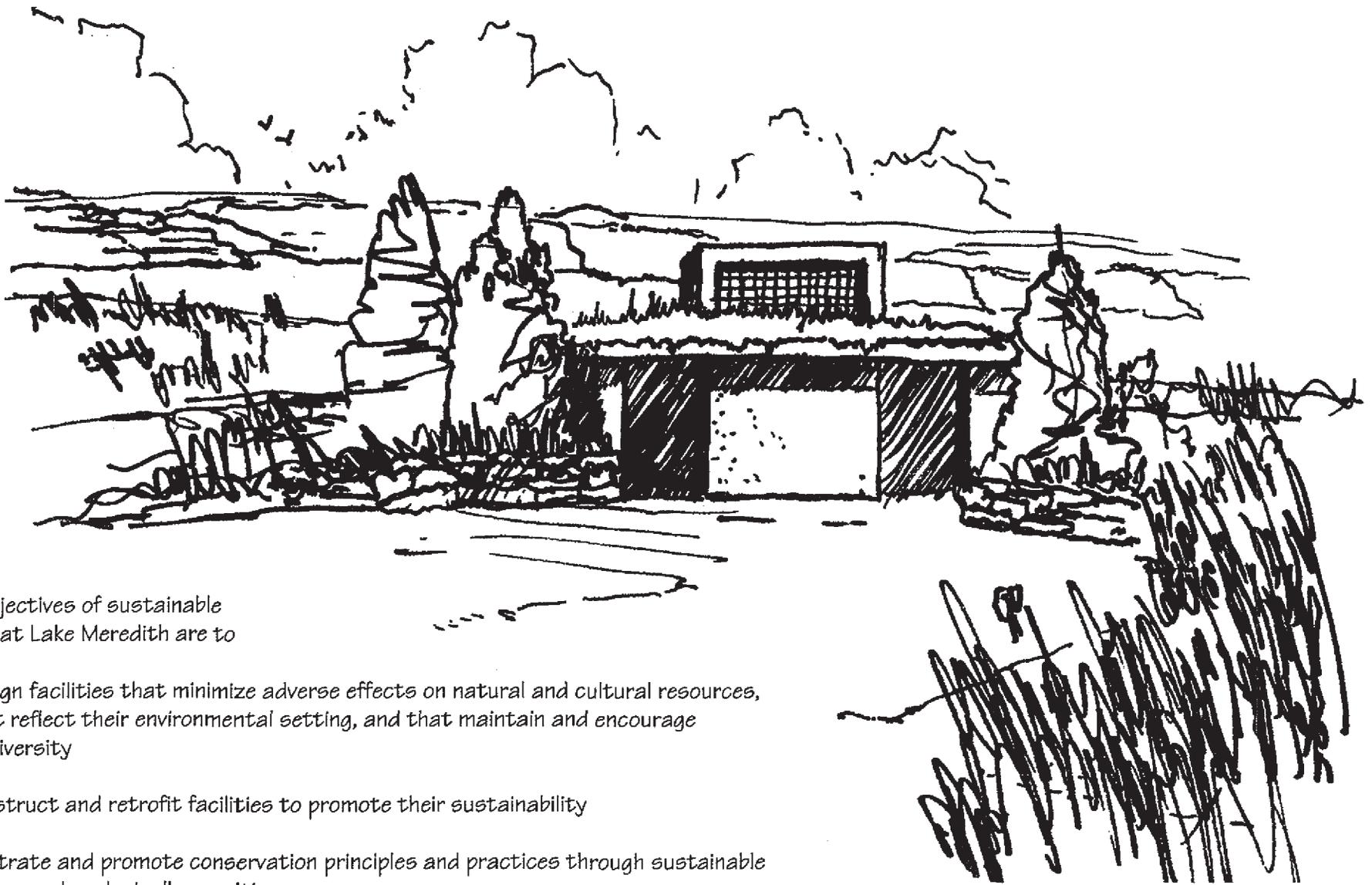


massing, and integration along horizontal lines to give the feeling of a structure growing out of the flat, open prairie. By using low-slung buildings with simple geometric forms and large roof overhangs, the Prairie School designers were able to create buildings that were beautiful, practical, and in harmony with the regional landscape.



Buildings in canyon areas will use vertical accents, such as chimneys and structural elements to blend in with the steep canyon walls.

The second element of the design philosophy for Lake Meredith is sustainable design. The long-term goal of sustainable design is to minimize resource degradation and consumption on a global scale. Technologies exist that offer cost-effective alternatives to conventional power, water, and waste management systems. These alternatives, combined with the use of renewable onsite energy, will help maintain the quality of air, water, and soils.



The objectives of sustainable design at Lake Meredith are to

- design facilities that minimize adverse effects on natural and cultural resources, that reflect their environmental setting, and that maintain and encourage biodiversity
- construct and retrofit facilities to promote their sustainability
- illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use

These design guidelines will show that the use of solar power, water conservation methods, indigenous and sustainable materials, recycling centers, and composting toilets is not only cost-effective but can inspire developments that capture the spirit of the prairie as well.

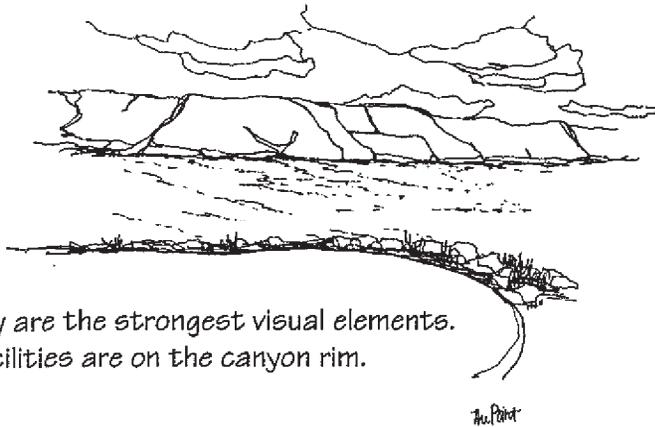
LANDSCAPE TYPES

The design guidelines for Lake Meredith described in this plan accommodate recreation while minimizing impacts on the natural environment. Aesthetic considerations in the guidelines will encourage the construction of new facilities that have minimal visual impacts.

Lake Meredith National Recreation Area is characterized by five landscape types, delineated by differences in terrain and vegetation. Specific design guidelines have been developed for each type.

CANYON RIM

The canyon rim is dominated by the shortgrass prairie. The vast plain and the big sky are the strongest visual elements. Many recreation facilities are on the canyon rim.



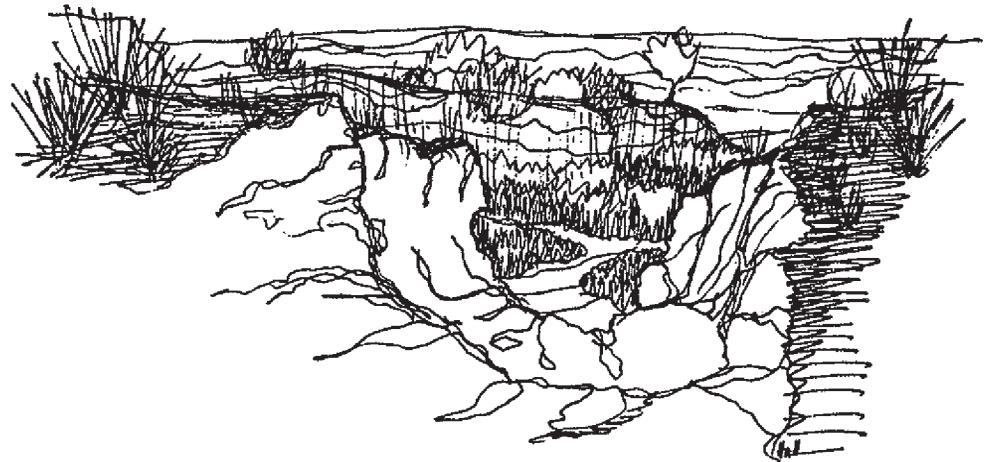
- Design low-profile, simple building forms that blend into the horizontal landscape.
- Use light earth tone materials and colors. Accentuate with the primary colors of red and blue to match the color of the soil and the sky. Ensure materials are fire resistant.
- Orient facilities such as picnic shelters or parking lots to allow for unobstructed natural views of the canyon floor and the lake.
- Screen new facilities with vegetation and natural or man-made landforms to minimize visual intrusion.

CANYON WALL

The canyon wall of the Canadian River is steep and rocky. The primary rock is a cream-colored dolomite with red soils exposed by erosion. Vegetation consists of a mixture of grasses, forbs, and low-growing shrubs and trees. Dominant plants vary according to aspect – north-facing slopes are dominated by cedar, three-leaved sumac, and large mesquite; the drier, south-facing slopes are dominated by grasses such as little bluestem, grama grass, and yucca. Woody plants are less common on the hot, dry slopes.

Only minimal construction will take place on these geologically unstable formations; however, overlooks and shade shelters are appropriate facilities.

- Design vertical structures and trails to follow the contours and to step down the hillside. This technique will reinforce the image of steep canyon walls.



- Use cream-colored and deep earth tone red materials of stone or tinted concrete to blend structures and trails with natural rock and earth formations.
- Orient facilities carefully to maintain uncluttered natural views of the canyon rim, the canyon floor, and the lake.
- Use retaining walls to limit the necessary area of disturbance during construction. Erosion control techniques are required to stabilize all disturbed areas; care must be taken to minimize impacts on natural drainages.
- Revegetate disturbed areas with native plant species in appropriate moisture regime zones.

CANYON FLOORS

The main and side canyon floors contain the greatest diversity of plants. There is mixed-grass prairie and several stands of tallgrass mesic prairie that are typically found 500 miles to the east. Groves of giant plains cottonwood grow along the streams within the side canyons.

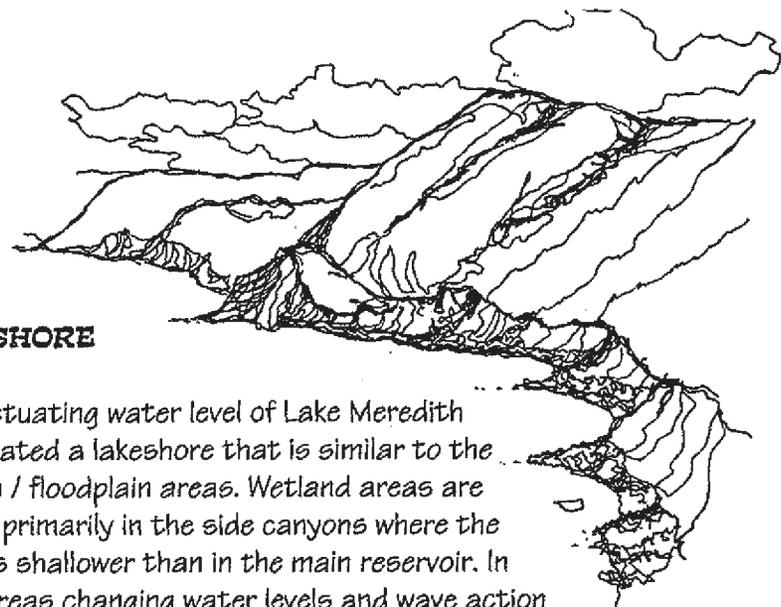
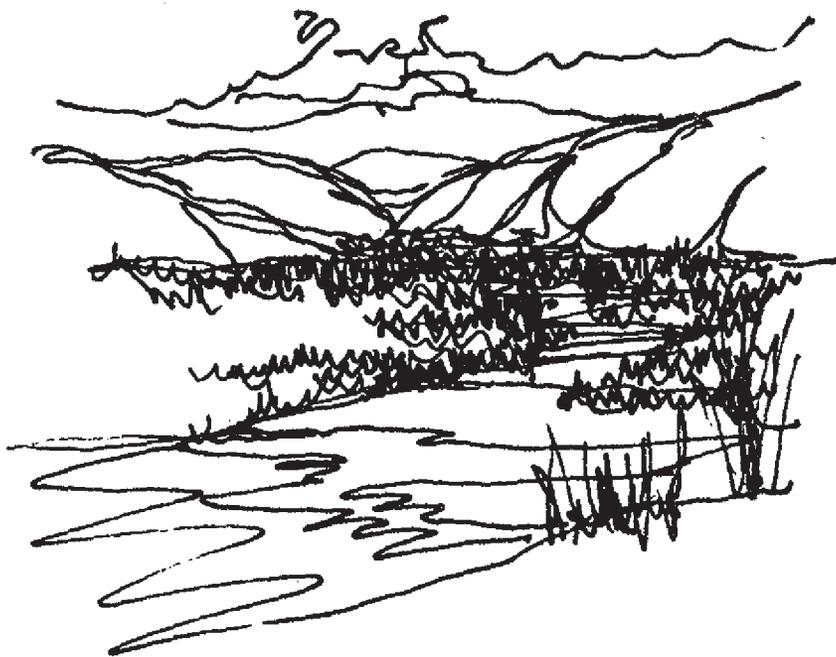
- Design structures that are low profile and dug into the earth.
- Use cream-colored and deep earth tone red materials of stone or tinted concrete to blend structures and trails with natural rock and earth formations.
- Screen new structures with vegetation and natural or man-made earthforms to minimize visual intrusion.
- Avoid development in open prairies and natural drainages.



RIPARIAN / FLOODPLAIN

The Canadian River forms a wide, braided channel. The level riparian landscape is dominated by willows, cottonwoods, and sandbars.

- Minimize infrastructure development in floodplains (excepted development includes roads, trails, and parking areas that meet appropriate state and federal regulations).
- Use light-colored earth tone materials; accentuate with red and blue primary colors. Ensure building materials are flood resistant.
- Revegetate disturbed areas with native trees, shrubs, and grasses. Mass together new vegetation to simulate the naturally occurring floodplain thickets common in riparian areas.



LAKESHORE

The fluctuating water level of Lake Meredith has created a lakeshore that is similar to the riparian / floodplain areas. Wetland areas are formed primarily in the side canyons where the water is shallower than in the main reservoir. In some areas changing water levels and wave action have eroded the canyon walls to the high water mark; in other areas sandy beaches have formed. Nonnative plant species are abundant along the lakeshore, with salt cedar the most common.

- Build permanent structures outside the conservation pool level. Terracing will make it possible to build facilities such as comfort stations and fish-cleaning stations closer to the highly used beach areas. Facilities allowed within the conservation pool level, in high use areas, include roads, boat access points, trails, and parking areas. Development must meet appropriate state and federal regulations.
- Use light-colored earth tone materials; accentuate with red and blue primary colors. Ensure materials are fire and flood resistant.
- Revegetate disturbed areas with native trees, shrubs, and grasses. Mass together new vegetation and plant it in locations similar to the floodplain and lowland areas of the riparian landscape.

DESIGN ELEMENTS AND PERCEPTIONS

How an object is perceived is based greatly on where the viewer is standing in relation to it. Complete design expression is important at all distances. The basic elements of design can be best understood by breaking views into three distinct categories, based on how far the viewer is from the structure. The three categories of views, and the important related elements, are

- distant view – elements of form, massing, and shape
- middle ground view – scale
- foreground view – materials and finishes

DISTANT VIEW

A structure viewed from a distance becomes a sculptural, three-dimensional form that is a small element of the overall landscape. This distant view sets the context and is devoid of detail. Instead, light and shadow along with form set the tone of the structure or the landscape. The size and form of buildings should reflect the landforms and be compatible with the native vegetation.

Combining the functions of several small buildings into one larger building reduces environmental impacts and cost; however, large buildings can be visually intrusive. By constructing a building into the ground, much like an early sod house, and maintaining a low-profile—with simple forms and large roof overhangs—the building mass can be diminished. Architecture can be further softened by extending walls and using natural earthforms to strengthen the building's relationship to the site.

The common architecture of the Texas Panhandle is made up of buildings that have a low-pitched gable roof with large eave overhangs and heavy shadow masses, which are created by porches, terraces, and large, deeply inset windows. Contrast is created by vertical elements such as chimneys, contrasting colors, and structural elements like large columns and beams.

Sunlight and the predominant prairie colors (yellow, red, and blue) influence structural appearances. Buildings can be viewed from many different angles, at different times of day, and in a variety of light conditions. The underlying colors of the prairie have a warm hue that is especially evident in the late-evening sun. These common colors will make up the palette for all development at Lake Meredith.





MIDDLE GROUND VIEW

The open prairie landscape is virtually without scale and was often compared to the sea by early settlers. The strongest element of the prairie is the seemingly endless sky. Other elements are the lack of enclosure and the constant wind. These environmental elements greatly influence the scale of prairie architecture.

There are two approaches to architectural scale in the prairie. One approach, taken by the early European settlers, was to use a heavy, rustic architecture where the major components were overscaled to give the building a sense of permanence. The other approach is characterized by temporary or nomadic structures similar to the Native American tent structures. This approach allows buildings to be moved in response to visitor use patterns and changing environmental elements, like fluctuating water levels.

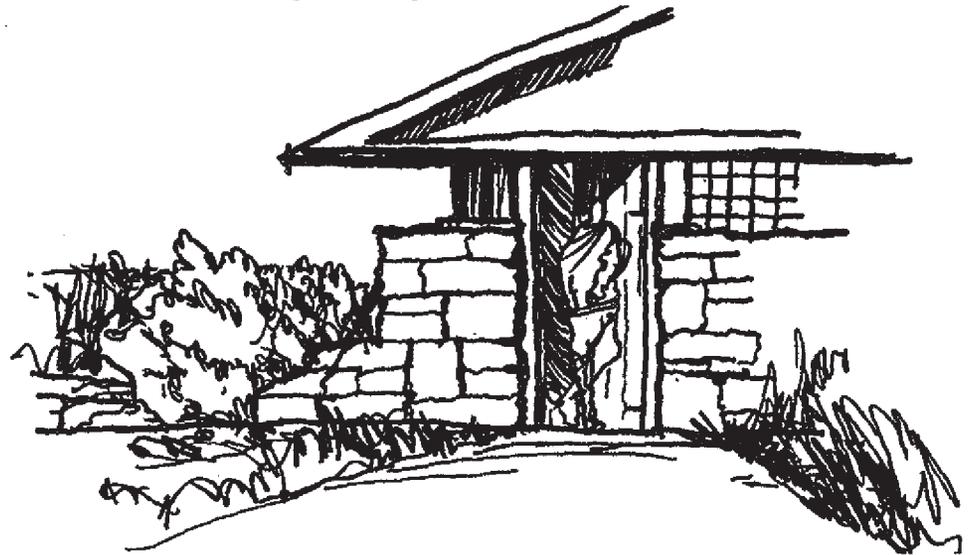
Both approaches have a place in the recreation area. Existing picnic shelters convey an open feeling that is appropriate when providing temporary shelter for campers and day users, whereas comfort stations need to convey a sense of permanence because they will serve many functions, from providing restrooms to emergency shelter. It is important to create built forms where the scale is appropriate to the function. The end result is a visual character that highlights the qualities of the landscape.

FOREGROUND VIEW

In keeping with the NPS sustainable design philosophy of preserving and protecting resources, careful selection of materials that contribute to those ideas should be used. Additionally, sustainable design requires that the environmental ramifications of any material be considered, from source to installation.

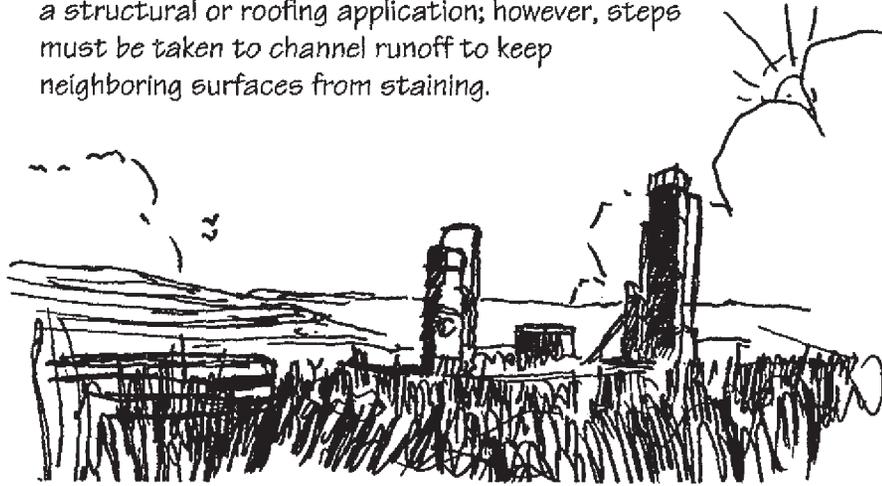
Native materials such as stone and wood blend well with the surrounding landscape. The colors of these materials, from the pinkish beige of the dolomite to the weathered gray of the cedar fence post, are dominant on the prairie landscape of Lake Meredith.

Simple applications of concrete, brick, stucco, steel, and glass are appropriate. Only when a material obviously tries to simulate a natural one is the visual effect offensive. Finally, any large expanse of material needs to be relieved by details, openings, or shadows. Conversely, the use of too many materials or poor detailing can cause a building to look garish.



A material that is able to withstand harsh weather and vandalism, that has a low life-cycle cost, and that is fire resistant limits the palette when coupled with the visual requirements outlined above. Materials that are functional and attractive include the following:

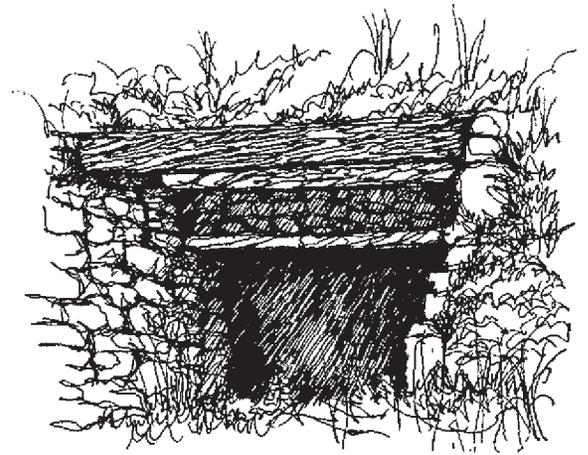
- Concrete tinted pink or warm gray blends well with the natural landscape. A deeper tint is appropriate next to the native red soils because the bright sun washes out colors in the open prairie.
- Stucco is a building finish created from native material. The coloration tends to be warm and includes reds, oranges, and yellows. This material ages well and acts as a contrasting element in prairie architecture.
- Steel is another material used extensively. The gas and oil industry in the region has traditionally used steel as a building material for wells, pipelines, and refineries. These aging facilities have taken on a rust patina that helps to blend them into the landscape. Through controlled oxidation, weathering steel allows surfaces to rust, creating a low-maintenance finish because it does not need to be painted. Steel can be used successfully for a structural or roofing application; however, steps must be taken to channel runoff to keep neighboring surfaces from staining.



- Native stone was the primary building block of early Native American structures and of the original ranch dwellings because of its availability and durability. The McBride ranch house is an example of this vernacular style of architecture. Native stone is functional because of its low-maintenance requirements and high aesthetic appeal. Stone is especially appropriate as foundation or wall material where it is in direct contact with the surrounding landscape.



- Concrete block with a split-face finish or a natural earth tone tint is also a cost-effective and appropriate material in the prairie. Used in combination with stone or stucco, this material can create a strong visual interest, and it withstands the harsh climate.
- Wood has a natural and weathered appearance that blends well with the warm prairie colors. The biggest drawback of this material is the high maintenance. Transparent finishes can be used to protect wood from the elements and enhance its natural finish; however, wood is still susceptible to fire. The use of wood at Lake Meredith would primarily be for structural timbers and trim.



LAND USE GUIDELINES

Facilities that are properly located, well designed, and sustainable are cost-efficient to maintain, and they add to a visitor's appreciation of the landscape. Conversely, poor site design can have an adverse effect on the environment, detract from the natural beauty of the recreation area, and be extremely costly to build and maintain.

USE AREAS

Development sites in the recreation area are designated as either high use areas or as primitive areas. Design recommendations support the designated activity levels and the natural character of the areas.



High Use Areas

Recreational activities in high use areas focus on motorized enjoyment of the resource, which includes boating activity on Lake Meredith and utility-dependent camping. High use areas are designed to accommodate large numbers of people and their vehicles.

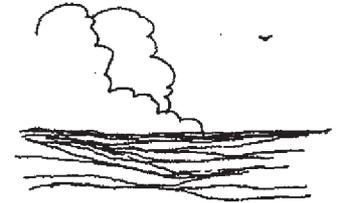


Primitive Areas

Recreational activities in primitive areas focus on nonmotorized enjoyment of the resource, which includes hiking, bicycling, horseback riding, hunting, and soft-shell tent camping. Primitive areas will be developed to provide access to the natural backcountry areas and to limit visitor impacts to designated areas.

GRADING

Any required grading will be done to produce graceful, flowing contours that look like the natural prairie landforms.



Screening

Natural landforms will be used where ever possible to conceal built structures within the natural landscape. Visually intrusive developments like parking lots can be effectively screened by lowering grades and gently berming around the lot.

- Use landforms and subtle grading to define use areas and eliminate the need for walls and guardrails.

Slopes

Slopes will be regraded to match the existing character of the prairie landscape and to prevent the effects of erosion.

- Vary the slope ratio to produce a gently rolling grading scheme. A varied ratio will appear more natural than a constant slope ratio.
- Create transition zones at the heads and toes of slopes to make the grades appear more natural.



- Use a slope ratio of 5:1 or less in open areas. This will require more immediate disturbance during construction than a steeper grade; however, once the slope has been revegetated, it will be more stable over the long term.

Erosion Control

Erosion is a common problem at Lake Meredith; listed below are recommendations to improve the existing conditions.

- Revegetate graded banks to reduce long-term erosion effects.
- Preserve the topsoil to provide a natural growing environment.
- Stabilize slopes with erosion blankets and natural materials, such as boulders and rock outcrops and vegetation.

DRAINAGE

Existing drainage patterns are the result of the site's topography and vegetation. Wherever possible, the natural drainage pattern should be preserved. Improper drainage affects not only the development at hand but also the adjoining sites and thereby must be avoided.

Transition Zones

Transition zones – the rounding of the cut angles between new and old grades – reduce the velocity and the way that water flows over a slope, thereby reducing its erosion potential.



- Use transition zones between graded areas and natural grades to prevent raveling or gullying, which occurs when water drains from a flat surface, over an angled cut, and down the slope.

Detention Basins

Detention basins catch water and reduce its velocity as it flows downhill. These basins will detain stormwater runoff and will create habitat for plants and wildlife.



- Contour detention basins to appear as natural basins.

Retaining Walls

Engineered retaining walls minimize the amount of slope disturbance. They require less cut and fill, which reduces grading.

- Incorporate retaining walls with existing terracing and rock outcrops to stabilize the slope.
- Restore any area disturbed by grading to natural conditions.

Terraces

Terraces are stepped areas formed behind or in front of retaining walls.



- Construct terraces to slow the velocity of runoff and to provide places for the runoff to pool, thereby reducing its erosion potential. Terraces also provide favorable locations for plant revegetation.

Drainageways

Construction in drainageways such as slopes, washes, and creeks will be avoided whenever possible. However, drainageways that are interrupted by development will be regraded to promote natural drainage.

- Regrade to preserve the condition of the natural terrain; use drainage channels to direct water and prevent erosion when this is not possible.
- Create pools or terraces within the drainage channels to slow the velocity of water.
- Line drainageway channels with a durable material to protect them from erosion (tinted concrete and native rock are recommended for functional and aesthetic reasons to resemble the natural landscape).



LANDSCAPING AND VEGETATION

Three key issues are addressed in this section: the protection of existing vegetation, the maintenance of vegetation in use areas, and the revegetation of disturbed areas. The revegetation guidelines address types of vegetation as well.

Existing Vegetation

Existing stands of high-quality prairie, shrub masses, and trees will be protected.

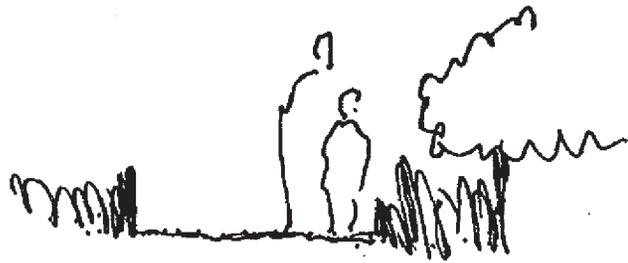
No grading will take place within the dripline of trees and shrub masses because of the risk of compaction to the sensitive root zones.

- Build retaining structures such as walls and tree wells if grades need to be modified around trees or large shrub masses.
- Use temporary fencing around the dripline to protect existing vegetation from disturbance during construction.
- Minimize impacts on cottonwood groves by placing facilities outside driplines, thereby reducing root compaction.



Vegetation in Use Areas

Site vegetation can be maintained to define use areas. The amount of maintained turf will help direct use because visitors will, for the most part, stay in the turf areas.



- Place turf areas near user facilities, and keep the number of turf areas to a minimum.
- Use a native turf mix of buffalo and gramma grass.
- Limit mowing to reduce maintenance requirements and to protect trees and shrubs from soil compaction and damage from maintenance equipment. Mowing that does occur will follow natural contours and help maintain a natural appearance.

Revegetation

Existing vegetation patterns and species composition will be determined before an area is disturbed. This analysis will be the basis for developing a replanting scheme.

- Analyze the soil prior to any disturbance to indicate which soil amendments are needed before replanting. A minimum of 12 inches of topsoil will be removed and windrowed, and then replaced after final grading.
- Emulate natural vegetation patterns in all revegetated areas so that the restored area blends into the surrounding landscape.

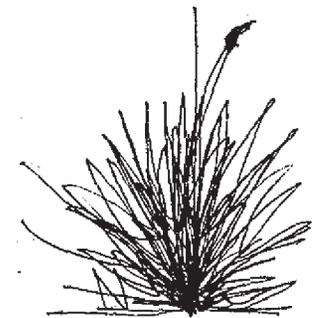
- Use plants and seeds collected from nearby undisturbed areas as sources for revegetation materials wherever possible. Plants for revegetation can be either transplanted directly or propagated from nursery stock. The Soil Conservation Service has been used by the park for previous federal highways projects and may be a possible manager of future nursery operations.

Trees and Shrubs. To establish healthy new plantings or to preserve existing trees and shrubs, habitats must be carefully maintained or created. The species of trees and shrubs should be selected based on their natural habitat and the availability of moisture, which can be affected by drainageways, north-facing slopes, underground springs, or other environmental variations.

- Mass native trees and shrubs together in drainage areas with care taken to preserve existing masses of mesquite.
- Restore animal habitat when the natural environment has been adversely affected by development.

Prairie. The goal of the revegetation plan is to establish a complete prairie community in areas that have been disturbed by prior visitor use or construction activities. A complete prairie community would include various grasses and forbs that would replicate the natural vegetation of the area.

- Identify the habitat prior to any treatment methods. Prairie restoration should follow similar habitat selection as trees and shrubs, with care taken in understanding the moisture regime and aspect.



- Prepare soil properly for seeding; seeding in spring is preferred.
- Till disturbed soil lightly several times on a two-week interval to prevent weed infestation. This will remove any weeds which may have grown.
- Use indigenous seeds collected from the site for the best growth results and for preservation of the gene pool of the park. Seeding rate and other planting details should be confirmed with either local Soil Conservation Service (SCS) personnel or NPS revegetation specialists.

ROADS

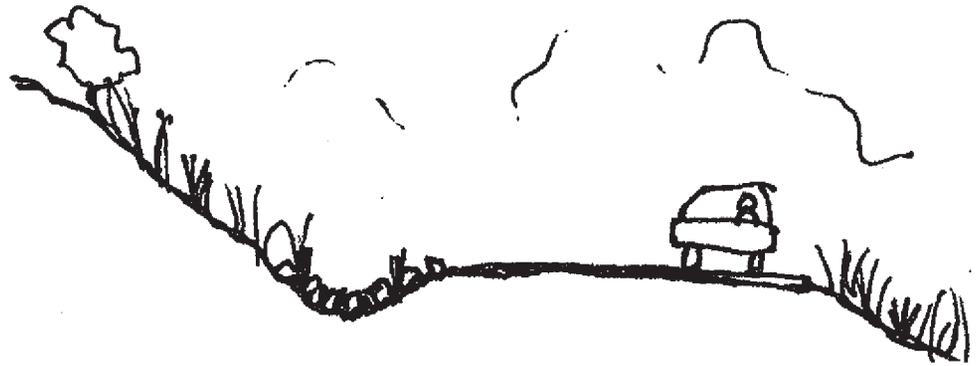
Road design in the National Park Service has traditionally been guided by resource and aesthetic considerations. The goal of road design at Lake Meredith is to provide visitors safe and enjoyable access to public facilities with minimal effects on the environment. Road design will vary depending on the amount of visitor use an area receives.



Alignment

- Align roads along natural contours wherever possible – meandering around and between existing vegetation and rock outcrops, and taking scenic routes. Routes with short tangents and generous curves will slow down traffic and require less grading.

Site Details



- Construct walls, culverts, and other structures using native materials and appropriate colors to blend into the natural landscape.
- Build drainage ditches on the uphill side of the road and line them with rock or other native materials to prevent erosion.
- Provide guardrails according to current safety standards, and use weathering steel to blend them into the natural landscape.

High Use Areas

Proposed roadways in high use areas will follow NPS road standards.

- Design asphalt-surfaced roads to have a 22-foot travel surface and a 1-foot stabilized turf shoulder.
- Plant native grasses and forbs along the right-of-way to reduce the visual impact of the road. These species will not obstruct drivers' field of vision and will be low maintenance.

Primitive Areas

Access to primitive areas will be by existing dirt and gravel roads.

- Design primary roads to be 20 feet wide, including shoulders.
- Build a structural turf shoulder, using a mixture of gravel and soil, to allow native vegetation to grow to the side of the road and to provide a functional road edge.
- Use and maintain existing roads wherever possible; close all unnecessary ranch and oil industry roads, and restore them to natural conditions.
- Use structural gravel on primitive roads that pass through wet areas.

PARKING

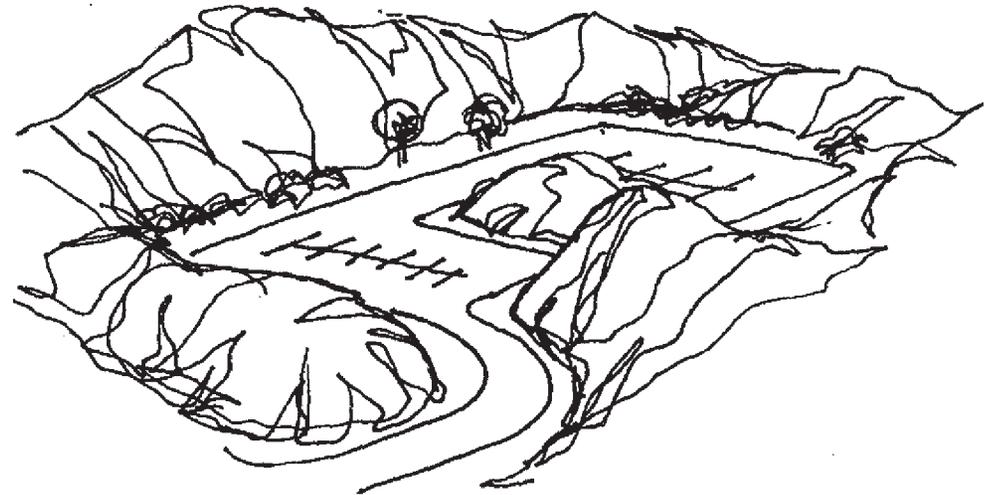
Indiscriminate parking creates environmental impacts and is visually intrusive. Large areas of asphalt pavement prevent water

absorption, and surface runoff causes erosion. Unpaved parking areas create soil compaction and promote erosion. Sunlight reflects off parked vehicles, and large groupings of the vehicles themselves, intrude on the natural scenery of the recreation area.

The drawbacks of parking lots can be alleviated through site design and screening. Dividing large parking lots into smaller parking areas allows them to be more easily integrated into the landscape by following natural contours. Smaller parking areas also reduce concentrations of water runoff. Earthforms and vegetation can provide visual screens.

The method of parking layout also affects the size of parking areas. Linear parking, for example, along roads with 90° parking stalls, can accommodate both cars and large RVs. Parallel parking along roads is another method that can accommodate automobiles as well as RVs and trailers.

Surface materials and containment of vehicles in designated parking areas will be accomplished by one of two methods, based on the amount of use an area receives.



High Use Areas

- Pave high use parking areas with asphalt surfacing.
- Use concrete curbs and gutters to contain traffic.

Primitive Areas

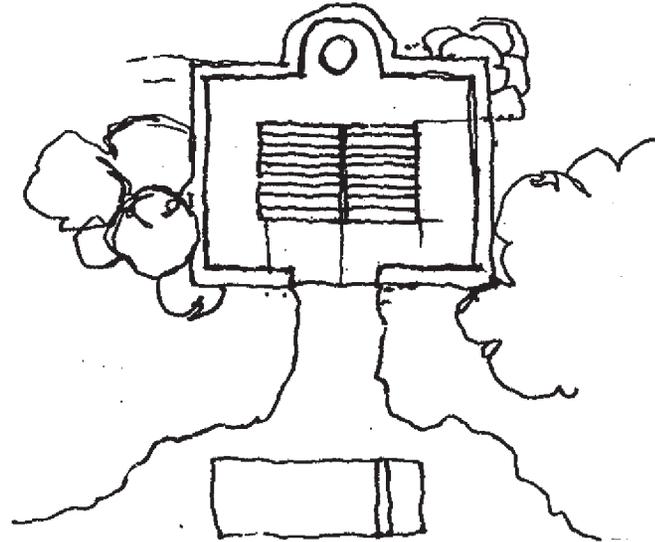
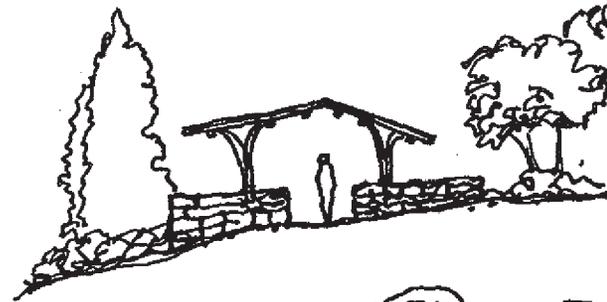
- Use gravel or earth surface materials to match proposed road surfaces.
- Use native stone bollards to prevent vehicles from driving off designated surfaces.

CAMPGROUNDS

Campground circulation and access to the individual sites will be defined according to the materials specified for roads in high use and primitive areas.

High Use Areas

- Provide RV hook-ups, a picnic shelter, grill, picnic table, and native landscaping for privacy and shade at each campsite. The campground should include a centrally located composting comfort station.
- Orient campsites to maximize views of the lake and to increase camper privacy.
- Provide designated group sites.



Primitive Areas

Campgrounds in primitive areas will include drive-in, walk-in, and group campsites.

- Provide a tent pad, picnic table, and a permanent fire ring in each campsite unit.
- Maintain all natural vegetation. Locate all developed areas outside of the dripline of vegetation in order to minimize root compaction. Restore any disturbed areas with native species.
- Drill wells to provide a water source.

- Design each new drive-in campsite to accommodate the size of a recreational vehicle.
- Provide a designated parking area for walk in sites.

TRAILS

Lake Meredith National Recreation Area has no designated trails; however, some social trails have developed with the most common routes connecting a parking or use area to the reservoir. Such trails may follow the shoreline, or they may lead down from the canyon rim to the lake. These trails have not been constructed to withstand erosion and are sometimes in dangerous locations.

High Use Areas

Trails in high use areas will comply with all Uniform Federal Accessibility Standards (UFAS).

- Surface trails to make them more durable and to accommodate more visitors. Surfacing may vary from tinted concrete to stabilized soil depending on use, access, and cost considerations. Asphalt and other oil-based products should not be used because they are not sustainable.

Primitive Areas

Access for visitors with physical disabilities will be limited in primitive areas because of restrictions on possible surfacing materials and grade excavation that would be needed to provide access.

The riparian/lakeshore topography might allow accessible trails, and no extensive cuts and fills would be required because the grade is fairly constant. The trail width would be wide enough to accommodate disabled visitors; however, the soil on the trail surface could become inaccessible during inclement weather because no constructed materials will be used to surface trails in primitive areas.

- Use appropriate drainage techniques to reduce erosion of the trail and nearby surfaces.
- Develop challenge trails with natural surface materials, such as crushed gravel or stabilized soil from campgrounds or picnic areas to provide backcountry experiences for disabled visitors.

SITE FURNITURE

The park has no common theme for site furniture. Existing site furniture is mass-produced and inconsistent between sites. A consistent furniture style will tie together the design elements developed for architecture and building materials, and it will enforce the image of the recreation area.

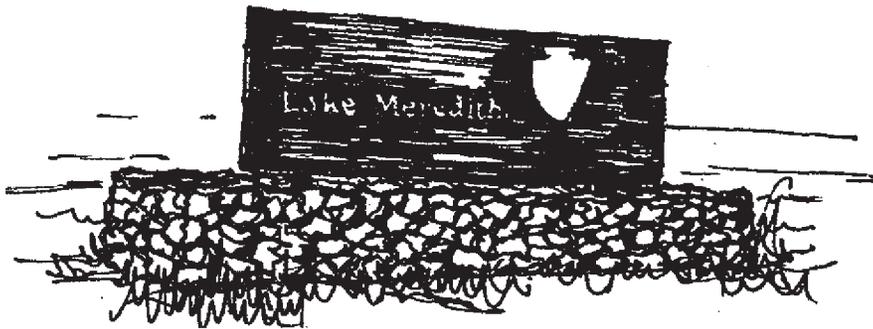
- Use similar styles consistently throughout park. Variance of materials may occur between primitive and high use areas; however, materials should not vary within the same type use area.
- Design site furniture to match architectural styles.
- Alter existing picnic shelters to appear more rustic and to blend into the surrounding landscape.

- Incorporate moveable furniture, such as garbage cans, into stylistically developed permanent holders made of native materials.

SIGNS

The existing entrance signs for the recreational area are successful. The native stone and brown wood finish convey a regional sense as well as enforces an identity with the National Park Service.

- Continue to use the existing entrance sign styles.
- Design directional signs to match entrance sign styles.
- Incorporate sign rockwork into other facility development to promote design cohesiveness.



LIGHTING



National parks are some of the few remaining areas in the country where visitors can observe the night sky without intrusion from human sources. The night sky is considered a major resource, and the Southwest Regional Office of the National Park Service is undertaking a program called the "nighttime initiative" to minimize light pollution. The goal of this program is to provide light only in locations and amounts where needed for the convenience and safety of visitors – to mark entries, to ensure safe passageways, and to allow safe movement, not to illuminate whole areas. Lighting should be unobtrusive and generated by photovoltaic power where possible.

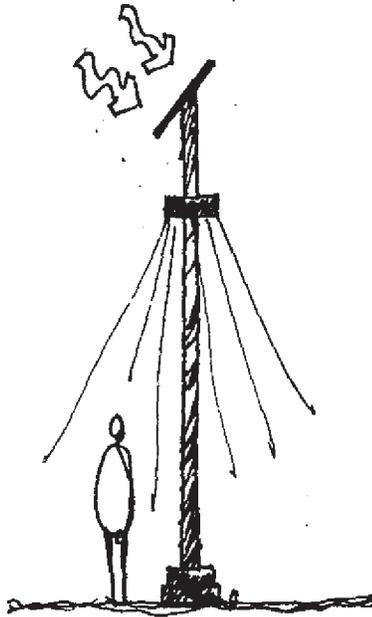
Visibility

Areas of heavy nighttime use include boat ramps, nearby parking lots, and associated facilities. It is important that the lighting for these facilities be visible from the lake, especially during inclement weather. Safe lighting levels will allow for quick emergency exits from the lake by nighttime boaters.

- Use shielding and screening techniques properly to limit the amount of light needed to safely illuminate a use area, thereby minimizing light pollution.

Fixtures

Light fixtures will be appropriate to the task and will reinforce the architectural style of the development. Fixtures with self-contained photovoltaic units can minimize environmental impacts and will allow the lights to be placed almost anywhere.

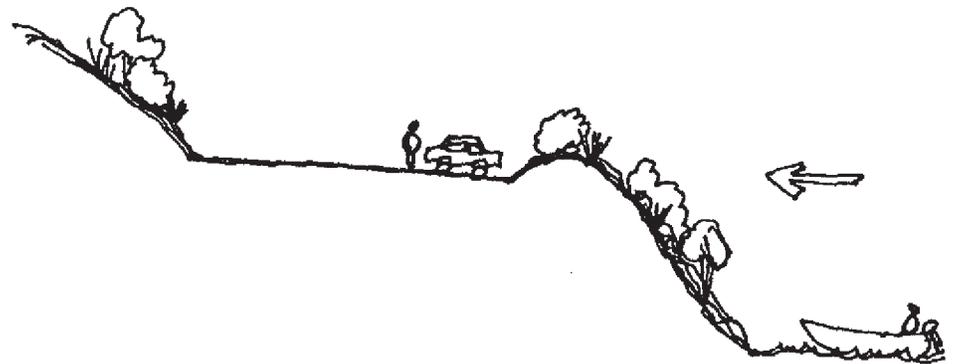


- Use the lowest possible fixture height while maintaining a functional light cone.

VIEWS

Lake Meredith is set in the open prairie landscape, which offers many spectacular vistas from the canyon rim and from within the river canyon.

- Locate facilities to take advantage of lake and prairie vistas.
- Use natural features to help direct views to the landscape and to screen views of other developed areas.
- Locate visually intrusive facilities away from the canyon rim unless they are screened with vegetation or earthforms to prevent them from being seen from the lake.



ARCHITECTURAL CHARACTER GUIDELINES

ROOFING

In the prairie the roof is the most dominant architectural element and sets the theme for the building. The roof's primary function is to protect the building and its inhabitants from the harsh weather. But in addition, the roof is the visual terminus of the building and its connection to the sky.

A low-profile or flat roof pitch was used by the Prairie School to integrate the building into the landscape. A roof pitch of 3:12 on a gable or hip roof lowers the building profile. The low profile also decreases building mass, reducing construction and maintenance costs. The roof can also be used as a platform so visitors can view the landscape.

Sod Roof

Early settlers sought a shelter that would withstand the extremes of weather, from blazing heat to howling blizzards. The form they developed was the dugout shelter with a sod roof that provided insulation and protection.

Metal Roof

Another common roof material in the region is metal, which is used extensively on the gable roofs of barns and farmhouses. A metal roof withstands strong winds and hail, and also has a natural rust patina that visually blends into the prairie landscape.

Gable Roof

Gable roofs with large overhangs protect the walls from heavy rains and provide cooling shade in the summer. The large shadow masses created by the overhangs also add visual interest to simple geometric forms.

Roof Ventilation

An important roof design element is venting, which helps reduce heat and moisture buildup in the ceiling/roof area. Ridge vents combined with a cupola allow natural convection to help ventilate the building. This is extremely important in the design of comfort stations to reduce odor buildup.

WALLS

Walls separate exterior from interior space. It is important that the walls be proportioned to convey a feeling of strength and permanence. Openings in the wall allow space to flow from the outside to the inside. Horizontal lines and massing help reinforce the flat nature of the prairie landscape. Structural supports and wall openings create vertical lines that contrast with the horizontal forms. Additionally, walls are the structural support of the roof. Careful thought should be given to how the wall meets the ground so that the structure is visually connected to the surrounding landscape.

- Extend the base of the wall into the landscape by means of walls, porches, and plazas.

- Use impervious materials such as concrete or stone to strengthen the visual connection between the wall and the ground. Impervious materials will also minimize water damage.

FACADES

Building facades should be made of materials that can withstand the harsh prairie climate. Low-maintenance materials that weather to a rich patina are more suitable than materials that need to be painted or constantly maintained. Concrete, concrete block, stucco, and stone all withstand the harsh environment and are fire and vandal resistant.

- Integrate any exterior signs or furniture needed for the architecture into the facade, using materials and forms compatible with the overall architectural design of the building.

WINDOWS AND DOORS

Sunlight, through strategically placed windows and doors, will naturally light the interior and should be considered in all designs at Lake Meredith. Careful placement of windows and doors can also help with energy conservation.

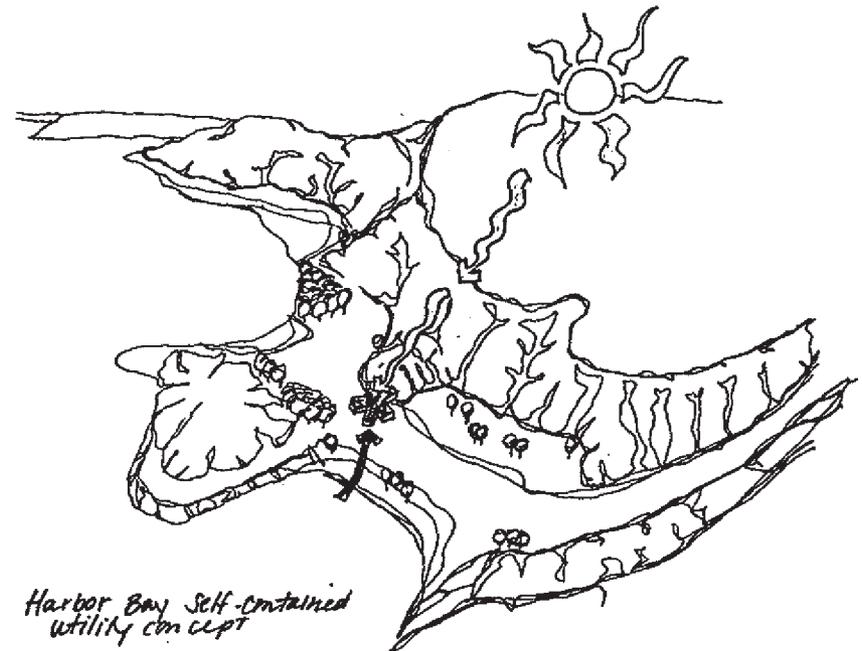
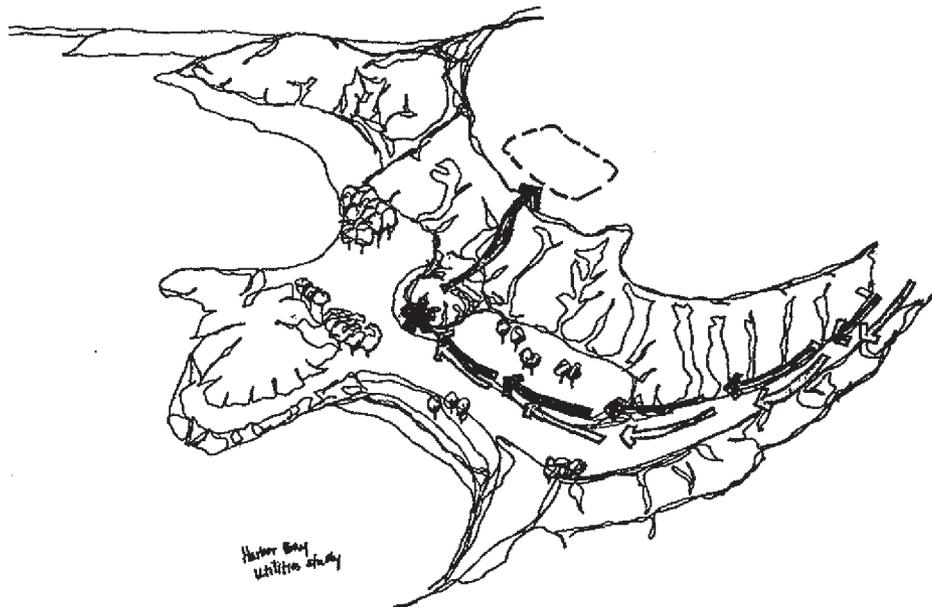
- Design south-facing windows and doors. Windows on the south-side that are properly shaded in the summer will provide passive energy gain in the winter.
- Avoid north-side windows and doors where possible to protect against energy loss from cold northern winds.

ENGINEERING DESIGN GUIDELINES

Sustainable design concepts will be incorporated through the application of current state-of-the-art engineering principles. This will be accomplished by using renewable energy sources, recycling site waste, and conserving water. The application of these principles will reduce the initial impact on resources from construction and also reduce long-term annual maintenance requirements and energy costs. Proposed facility layouts and projected visitor use must be determined for each area. With this

information the size of each facility can then be closely estimated and compared with existing utilities to develop a list of possible engineering alternatives. The alternatives must be compared through a life-cycle cost analysis. This should include initial construction costs, annual maintenance and energy costs, monthly service costs, and periodic replacement costs over a 20-year period, using class C estimate figures.

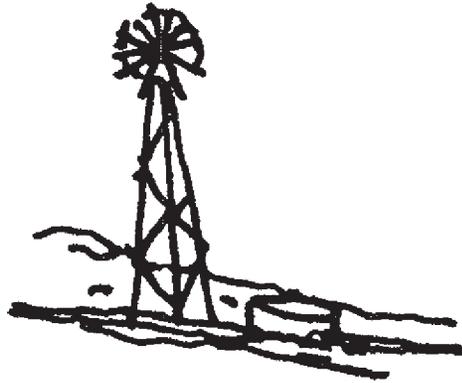
The following recommendations are based on studies made during the writing of these guidelines. These recommendations must be considered among other alternatives by using the methods described above.



WATER

Potable Water (suitable for human consumption)

- Continue the use of the water at sites where it is currently treated and piped in from the city of Fritch.



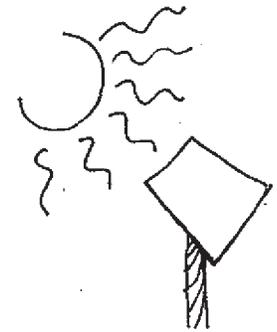
- Drill wells at areas where supply is required and there is no existing potable water. Water high in mineral content may require additional treatment.
- Use alternative energy sources for well pumps where commercial power is not available.

Nonpotable Water (unsuitable for human consumption)

- Drill wells for nonpotable water for flushing RV waste into dump stations. These wells will be located at remote equestrian areas.
- Use alternative energy sources for well pumps.
- Label nonpotable water sources to prevent human consumption.

POWER

Wherever power is required, the alternative power sources must be compared through the method described above. Generally, $\frac{1}{2}$ mile of buried, or $\frac{3}{4}$ mile of overhead powerline is the break-even point for PV systems to pay back over conventional utility system powerlines.



Existing Electrical Service

- Place all overhead powerlines underground.

Alternative Energy Sources

The two sources considered in these guidelines are wind power and photovoltaic (PV). At this time PV seems the most cost-effective alternative because of its wide range of uses.

- Use alternative energy sources for sites without existing electrical services.
- Evaluate alternative energy sources for powering parking lot lighting, sign lighting, comfort station lighting and ventilation, and RV battery system charging.
- Use freeze-resistant, gel-filled, lead-acid storage batteries where storage for a PV system is required.

SEWER

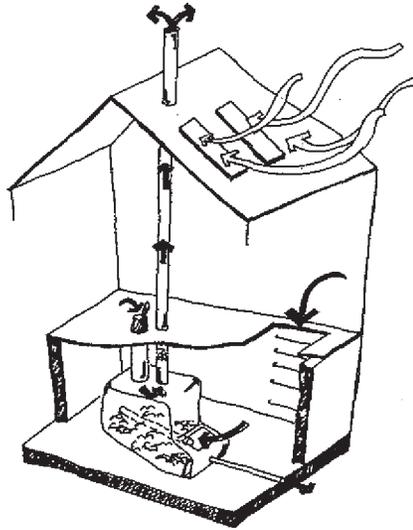
The proposed sewer system will provide visitors with comfortable toilet facilities wherever possible, onsite waste disposal and treatment will avoid dependency on offsite (outside park boundaries) treatment and disposal. A guide for dealing with treatment and disposal of waste takes into account natural processes that have recycled organic waste for millions of years without the use of fossil fuels or concentrated chemicals.

Flush System Toilets

Flush toilet systems are used in some developed areas. The waste from these systems is pumped to the city of Fritch for treatment through an aged sewer system or emptied into a septic tank with the remaining liquids disposed of through an absorption field. Septic tank solids must be periodically pumped and trucked to the city for treatment and disposal. No additional flush toilets should be installed at Lake Meredith.

Composting Toilet Systems

Composting toilet systems decompose waste in an aerobic chamber. The decomposition process reduces the volume of organic material, produces an end product that is a good soil conditioner, and creates little objectionable odor. Excess liquid is discharged to an absorption field or holding tank. The compost pile must be maintained on a regular basis.



- Evaluate composting toilet systems for all areas.
- Use at remote sites that are inaccessible to a pumper truck.
- Provide each system with a method of eliminating excess liquid.

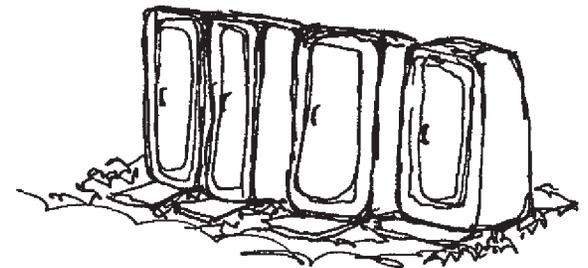
Vault Toilets

Vault toilet systems require pumping and proper disposal of concentrated waste. When not properly designed they may be unpleasant for public use because of offensive odors. They may be appropriate where frequent servicing of composting is not feasible.

- Use facilities based Forest Service ventilated vault toilet design (Briar Cook, *In-depth Design and Maintenance Manual for Vault Toilets*).
- Install vault toilets in remote areas that are accessible to a pumper truck.

Chemical Toilets

Chemical toilets are used extensively in the park. Flexibility and ease of installation are reasons for their widespread use; however, high maintenance, chemical requirements, and disposal of the concentrated waste are all inhibiting features.



- Use only with proper justification and prior arrangements for treatment of waste.

RV Sanitary Dump Stations

Two types of dump stations are proposed at Lake Meredith - standard dump stations and a dump stations with holding tanks.

Standard Dump Station.

- Use in areas where potable water is available.
- Install two septic tanks in series with a minimum detention time of 5 days to allow formaldehyde from RVs to break down.

Dump Station with holding tank.

- Use only in remote areas with nonpotable water.

Solid Wastes from Septic Tanks or Holding Tanks

- Treat and dispose of waste materials onsite wherever feasible.
- Evaluate natural processes to breakdown organic solids from septic tanks, holding tank, and vault toilets.
- Use anaerobic digestion processes, wherever possible, that do not require energy input from the burning of fossil fuels.

- Use solar energy to dry the digested solids, and explore the possibility of also using solar power to heat the digesting materials thereby accelerating the process.

- Use digested, dried solids as a soil conditioner and as a fertilizer to enhance vegetation growth.

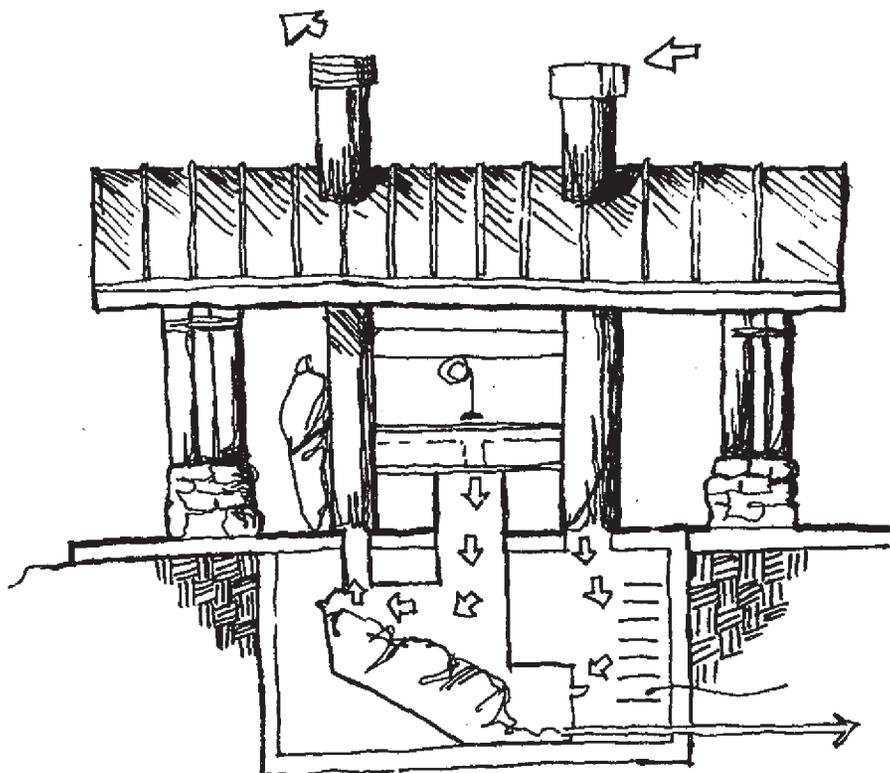
Liquid Effluent

- Either dispose of through a subsurface absorption field or a mound system,
- or treat effluent by a submerged, constructed wetland, and then dispose of treated effluent through a drip irrigation system.

FISH-CLEANING STATIONS

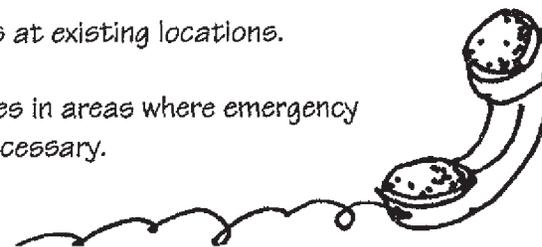
The quantity of waste a fish-cleaning station will produce is difficult to estimate. It is recommended that a test installation be provided with two sinks and a single compost tank. If the amount of waste material becomes more than the composting tanks can fully process, then it is anticipated that the partially decomposed material could be removed to an open air decomposition area, where it could be mixed with additional wood curl material to further decompose the fish waste prior to use as landscape fertilizer. A fish-cleaning station with composting vault is recommended.

- Install in areas where potable water is available.
- Provide method for treatment and disposal of the liquid waste.
- Use the decomposed waste products for landscape fertilizer.



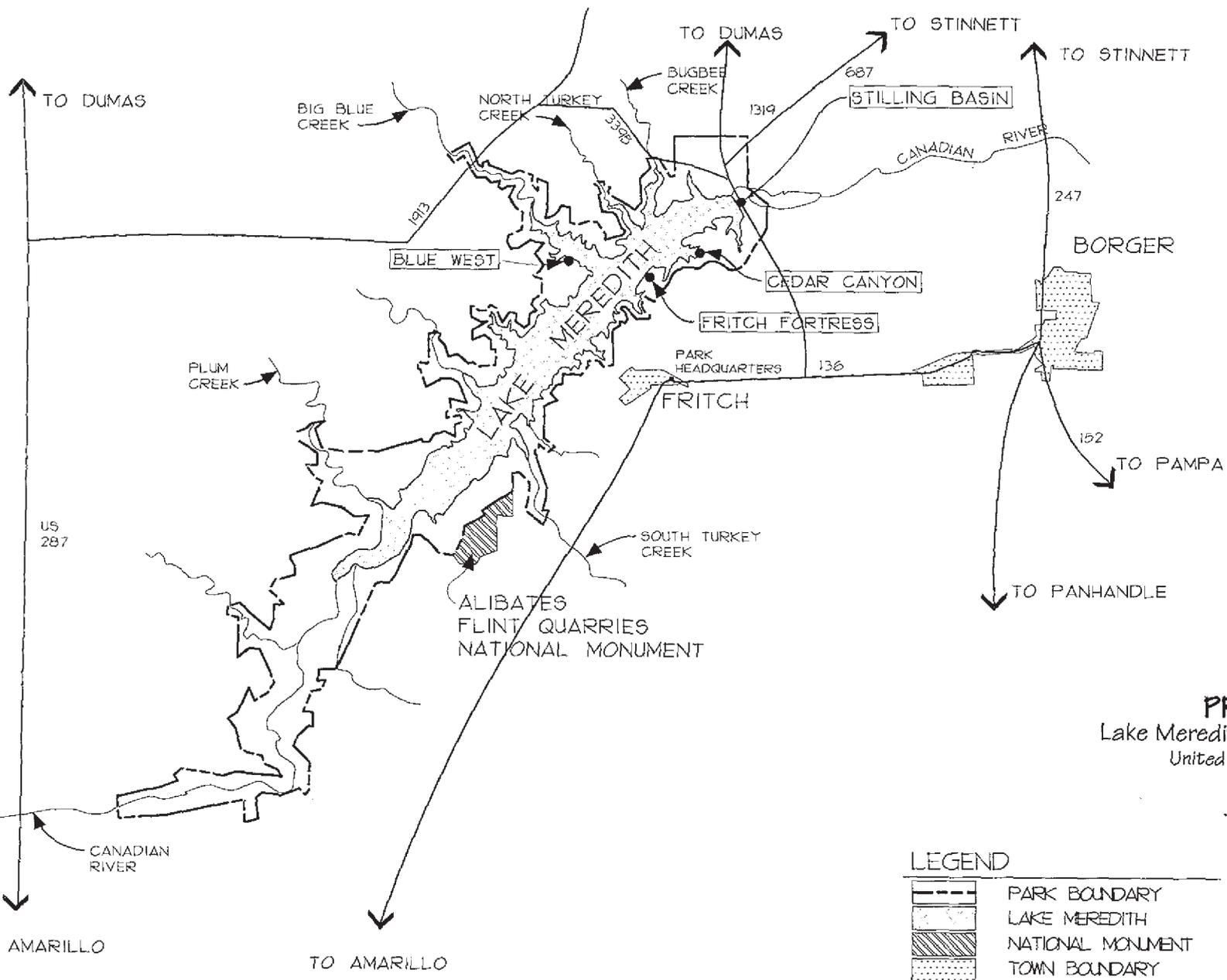
TELEPHONE

- Maintain pay phones at existing locations.
- Provide PV pay phones in areas where emergency communication is necessary.



CONCEPTUAL DESIGNS

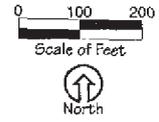
The "Conceptual Designs" section presents site design alternatives for individual areas within Lake Meredith National Recreation Area. The criteria presented in the Design Guidelines have been incorporated into the site design alternatives. The design alternatives encourage recreational activity yet constrain it within specified areas to reduce the impact upon the natural areas. The design proposals have been categorized into high use and primitive areas, based on the specified activity type. Each area will need to be carefully studied to ensure compliance with all previous plans and local codes before site designs can be implemented. Existing NPS plans for Lake Meredith may need to be amended.



PROJECT LOCATION MAP
 Lake Meredith National Recreation Area
 United States Department of the Interior
 National Park Service
 D5C / 618 / 41043 / AUG 93

LEGEND

	PARK BOUNDARY
	LAKE MEREDITH
	NATIONAL MONUMENT
	TOWN BOUNDARY



HIGH USE AREAS

The overall goal within high use areas is to redirect the impact of visitor use to designated areas. The existing site problems have resulted from years of uncontrolled use. Vehicles are driven off the designated roads to reach campsites, picnic shelters, or other chosen social sites. These actions impact the resource by destroying the vegetation and creating routes that easily erode. These additional routes are sometimes in dangerous locations near the canyon rim, which jeopardizes visitor safety. These additional routes also contribute to an increasing circulation problem throughout the recreation area because it is difficult for visitors to tell which roads are designated park roads and which are social routes that have developed from uncontrolled use. Designated access points to the lake are limited, which has resulted in a number of social trails that frequently erode. The lake and other designated areas should be better defined to create a strong sense of arrival so visitors know when they have entered a specific area.

The following are considered high use areas:

- Fritch Fortress
- Blue West
- Cedar Canyon
- Spring Canyon
- Harbor Bay
- Sanford-Yake

FRITCH FORTRESS

Fritch Fortress is a heavily used visitor access point on the south side of the lake, and north of the town of Fritch. The area is on the canyon rim. The area's location, existing access to the lake,

and its large, level, buildable area make it an ideal site for new facilities.

Under the original *Master Plan* for Lake Meredith, Fritch Fortress was chosen for major development, including a hotel, golf course, and marina. To implement this plan, sewer, water, and electricity were provided. Under the approved 1985 *Development Concept Plan*, the proposed development was downgraded to maintain and rehabilitate the existing facilities. This conceptual design plan proposes an amendment to the approved *Development Concept Plan* and recommends using the existing infrastructure to support new facilities at Lake Meredith. Pedestrian access to the lake is limited, sanitary facilities are inadequate, and visitor support facilities are poorly placed in relation to use patterns.

The design concept is to protect the resource and natural beauty of Fritch Fortress by realigning and improving the access road, defining circulation routes, upgrading visitor facilities, and providing visitor information.

Road Alignment

The existing road alignment has led to two major problems that need to be addressed. First, the slopes of the steep road cuts are eroding and will need to be stabilized. Second, visitors tend to speed.

A new road alignment will create more space to allow the existing campground to be expanded, and a new route will blend into the landscape and create a smoother transition to the boat ramp area. The road to the ramp area will follow the existing route; however, the steep banks along the road will be stabilized wherever possible. Drainage problems will be corrected based on recommendations in the *Land Use Guidelines*.

- Redesign the road alignment to have long tangents and short curves with a design speed of 20 miles per hour, which will create a safer and more enjoyable driving experience for visitors.
- Replace the T Intersection with a gentle curve to eliminate confusion, and allow traffic going to the boat ramp and campground to proceed without stopping.
- Construct a new road along the canyon rim along an existing trace to provide visitors with spectacular views of the lake.
- Construct waysides with interpretive signs to highlight the native prairie of Lake Meredith.
- Create additional parking areas.
- Connect the road to the existing RV sanitary dump station.

Boat Ramp

Improvements to the boat ramp area will be limited to the parking lot.

- Restructure the steep concrete retaining slope to incorporate landscaping, which will improve the visual quality.
- Provide access from the upper parking area to the boat ramp and to the fishing pier.
- Build a visitor information station and recycle center, combined with a comfort/fish-cleaning station above the conservation pool level on the upper parking terrace; remove the existing chemical toilets.

- Maintain existing telephone.

Campground / Picnic Area

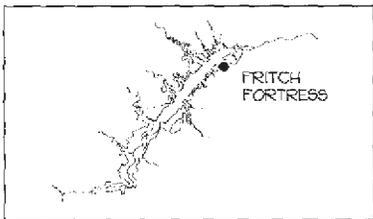
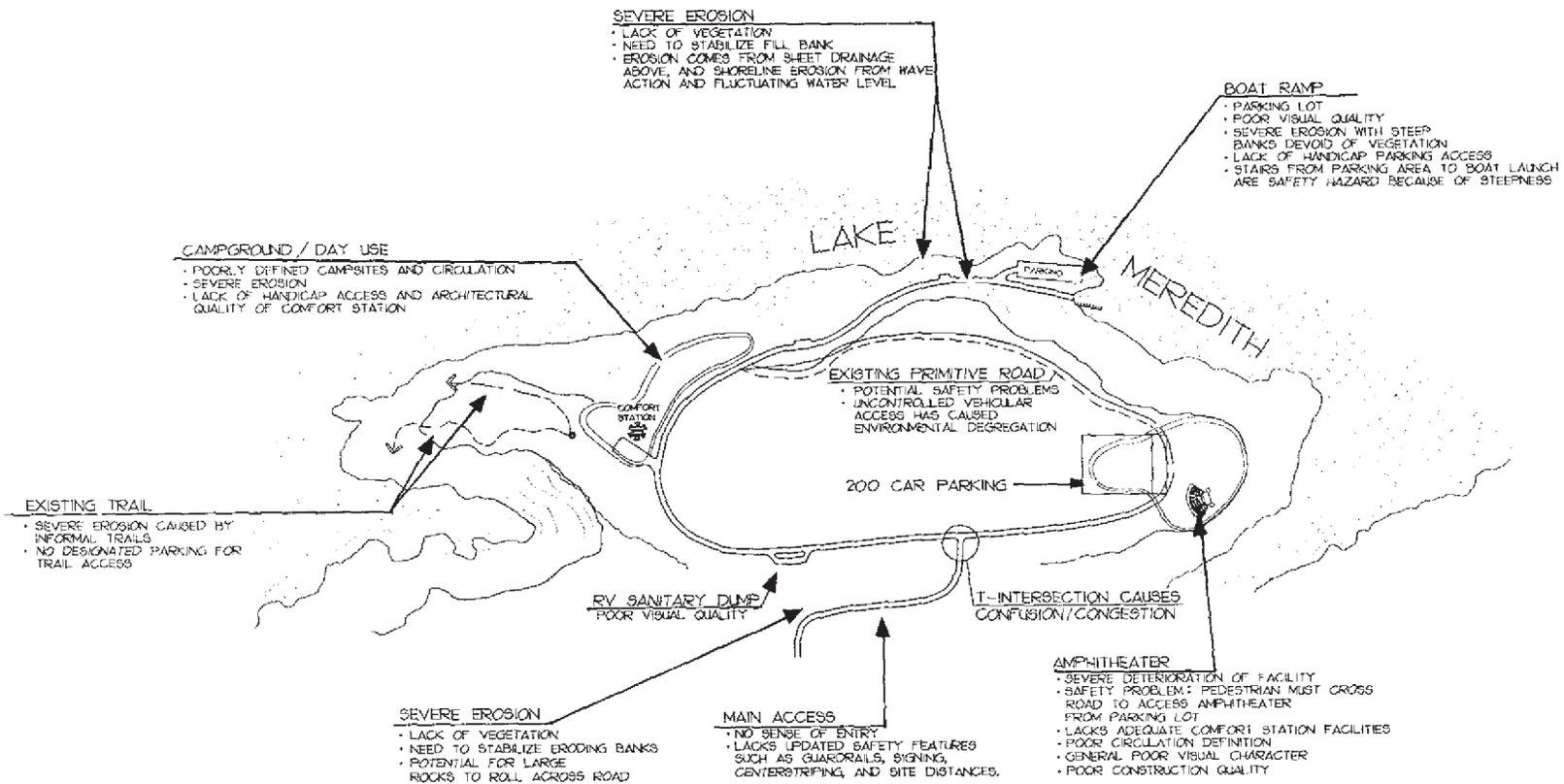
The campground/picnic area will occupy the same general location. The main emphasis will be on defining circulation and expanding the campground.

- Expand the existing campground from 10 sites to approximately 25 sites.
- Build a central composting comfort station to replace the existing chemical toilets.
- Construct a trailhead and an improved trail west of the campground to provide lake access for anglers and hikers.

Amphitheater

A large parking lot is bisected by the road to the amphitheater, which creates a conflict between vehicles and pedestrians, especially when pedestrians attempt to cross the street. The amphitheater itself has a strong tie to the local community. It was constructed by the Young Adult Conservation Corps and has been used for local programs since its construction. The amphitheater will either be renovated or replaced, depending on the findings of a detailed engineering study.

- Relocate the amphitheater access road to avoid the large parking area so as to remove the existing conflict between vehicles and pedestrians.



LOCATION MAP

EXISTING CONDITIONS / SITE ANALYSIS FRITCH FORTRESS

Lake Meredith National Recreation Area
United States Department of the Interior
National Park Service

DSC / 618 / 41043 / AUG 93

0 100 200

Scale of Feet



LAKE MEREDITH

- CAMPGROUND AND COMPOSTING TOILET**
- USE NATIVE TURF
 - 20 - 25 SITE CAMPGROUND
 - DEFINED CAMPSITE
 - GRILL
 - SHELTER
 - TABLE
 - VISITOR INFORMATION (UNMANNED)
 - RECYCLE CENTER
 - DRINKING WATER

- TRAILHEAD**
- FISH / LAKE ACCESS
 - 20 CAR PARKING

- COMFORT STATION**
- 10 CAR PARKING
 - REMOVE AND REVEGETATE EXISTING PARKING AREA

- STABILIZE SLOPE**
- REVEGETATE WITH NATIVE VEGETATION
 - REMOVE HAZARDOUS ROCKS FROM SLOPES

- REHABILITATE EXISTING ACCESS ROAD**
- IMPROVE ROAD SURFACE DRAINAGE, SHOULDERS, AND GUARDRAILS

- RE ENGINEER INTERSECTION TO IMPROVE TRAFFIC FLOW AND SAFETY**

- IMPROVE PARKING / HANDICAP ACCESS**
- HANDICAP - ACCESS TO RAMP AND COURTESY DOCK
 - IMPROVE VEHICLE / TRAILER PARKING CIRCULATION
 - IMPROVE DRAINAGE / SHOULDERS
 - CONSTRUCT 10 VEHICLE COMFORT STATION PARKING

- PAVE EXISTING DIRT ROAD INTO ONE WAY LOOP ROAD**

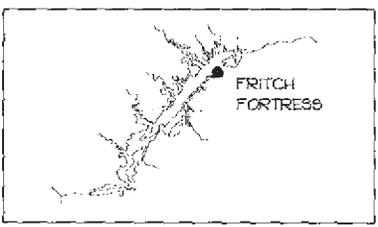
- CONSTRUCT 10-VEHICLE OVERLOOK**

- HANDICAP ACCESS AND SERVICE ROAD TO AMPHITHEATER**

- RENOVATE AND EXPAND AMPHITHEATER**
- COMFORT STATION
 - SHELTER
 - GRASS / SEATING
 - CHANGING ROOMS
 - STAGE
 - NEW SCREENS / PROJECTION

- 150 - 200-CAR PARKING LOT**

- REBUILD PARKING LOT**
- SCREEN FROM ROAD AND LAKE



LOCATION MAP

PRELIMINARY DESIGN FRITCH FORTRESS

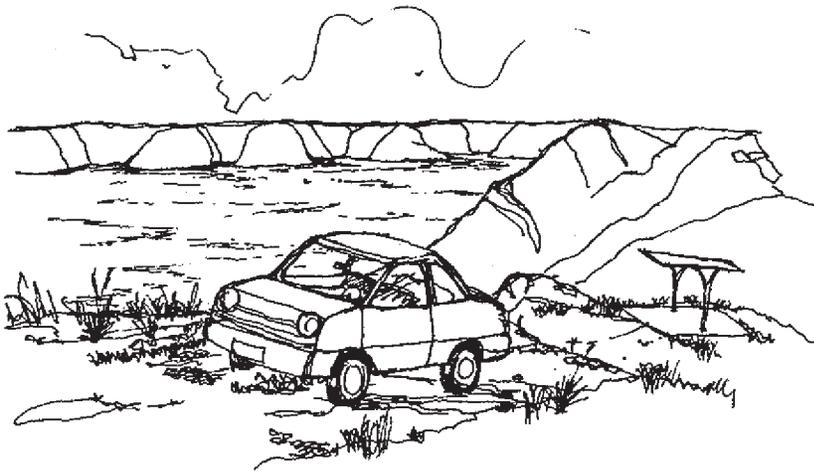
Lake Meredith National Recreation Area
United States Department of the Interior
National Park Service

D9C / 618 / 41043 / AUG 83



- Build a new parking lot into the slope to visually screen it from the amphitheater and from boaters on the lake.
- Create a new picnic area near the amphitheater complex, and provide drinking water and a composting comfort station.

BLUE WEST



Blue West, located on the canyon rim, is the only high use area on the north side of Lake Meredith. This area serves as the primary lake access point for the town of Dumas. Existing facilities date from the original development 30 years ago and have been adversely affected by heavy use.

The design concept is to protect the resources and natural beauty of Blue West by simplifying circulation and access patterns and by restoring unused areas to natural conditions.

Boat Ramp

The boat ramp improvements will be limited to the parking lot and turning movement modifications at the ramp. The large, 115-car asphalt parking lot is 200 feet above the boat ramp and is typically not used by park visitors. Additionally, there is a shortage of parking at the boat ramp itself.

- Build a comfort/fish-cleaning station at the trailhead to the upper parking lot to replace the existing chemical toilets.
- Build an additional parking area with improved drainage north of the boat ramp.
- Provide a mobile traffic sign device to regulate additional parking on the ramp itself. This device will be moveable by area staff, based on the fluctuating water level.
- Redesign the existing courtesy dock/pier to be accessible to boaters and anglers with physical disabilities.
- Reduce the upper parking lot from 115 to 30 spaces, using the existing topography as a screen; restore the excess area to natural conditions.

Campground / Picnic Area

The campground area has inadequate facilities that detract from the visitor experience. The campground/picnic area will remain at its current location. The main emphasis will be on defining circulation and removing sites that are not usable because of steep terrain.

- Improve existing campsites by providing each with an RV hookup, a shelter, grill, table, and native landscaping.
- Build a central comfort station to replace the existing chemical toilets.
- Build a trailhead to allow access to the lake for anglers.
- Relocate and upgrade the sanitary dump to provide better access for campground users.

CEDAR CANYON

Cedar Canyon is a popular day use and lakeshore camping area on the south side of the lake. This area is heavily used by families, more than other areas, because it has a large swimming beach and alcohol is prohibited. The existing facilities are either poorly located or too small for current use. There is inadequate parking for day use visitors and boat trailers; a weak relation between the boat ramp and courtesy dock, which creates a conflict between boat traffic and beach users; a comfort station that is too far from the majority of users; and beach erosion caused by unrestricted vehicle use.

The design concept is to develop the use areas at Cedar Canyon into three terraces to separate conflicting uses and more clearly define the circulation system.

Upper Terrace

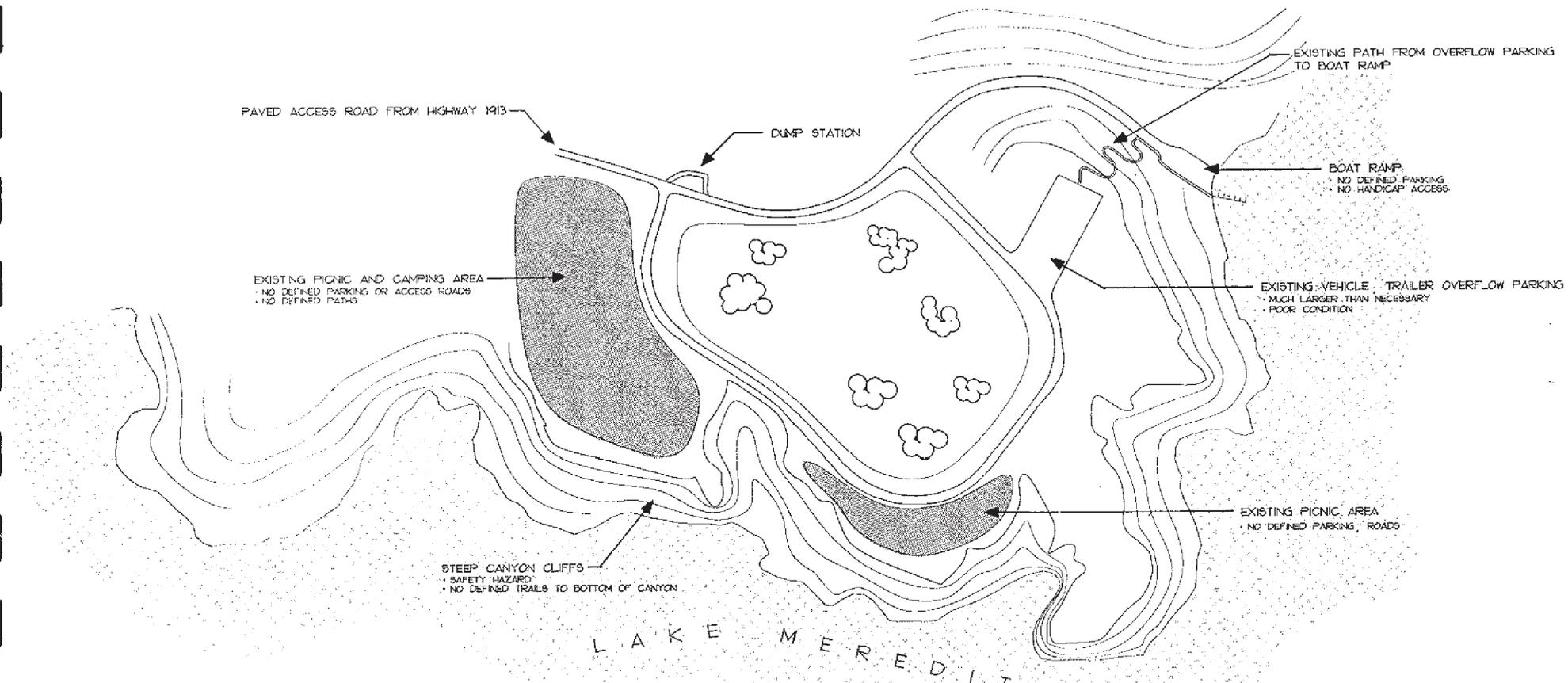
The upper terrace will provide for parking and vehicle circulation. Vehicles will be restricted from the lower levels to eliminate safety hazards resulting from conflicts between boating activities and beach use and to diminish shoreline impacts.

- Expand the existing parking lot from 50 spaces to 100 spaces, including boat and trailer parking.
- Redesign the parking lot to increase circulation efficiency and to eliminate direct vehicle access to the beach.

Middle Terrace

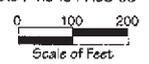
The middle terrace is designated as a picnic area.

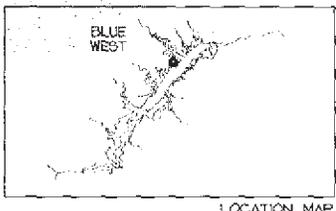
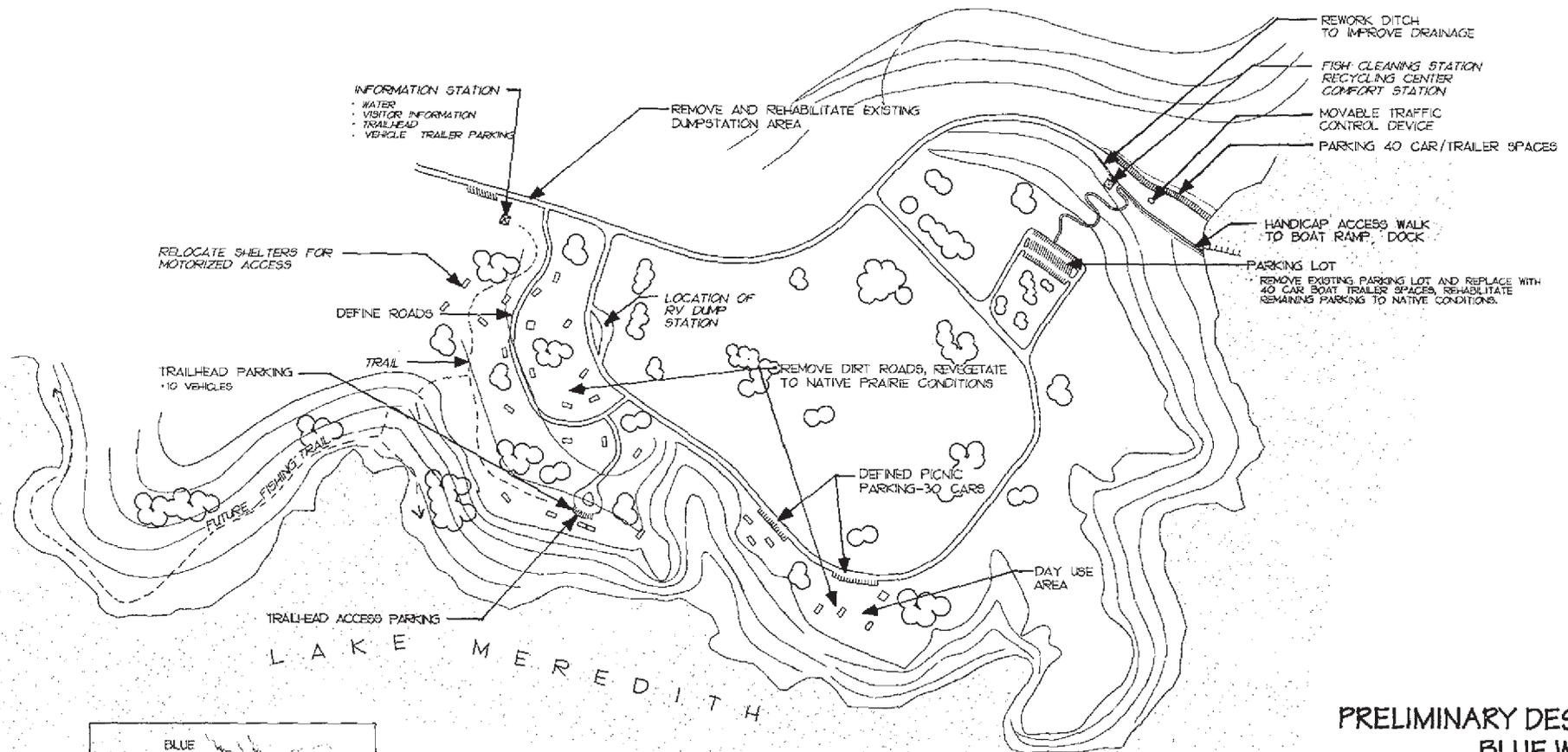
- Revegetate the middle terrace with native cottonwood trees and irrigated buffalo/grama grass turf. This will make the area similar in character to natural groves found throughout the recreation area and will provide shelter and shade from the sun.
- Build a comfort station with a recycling center and visitor information station to replace the existing chemical toilets.



**EXISTING CONDITIONS / SITE ANALYSIS
 BLUE WEST**

Lake Meredith National Recreation Area
 United States Department of the Interior
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L A K E M E R E D I T H

PRELIMINARY DESIGN
BLUE WEST
 Lake Meredith
 National Recreation Area
 United States Department of the Interior
 National Park Service

DSC / 618 / 41043 / AUG 93
 0 100 200
 Scale of Feet



L
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COURTESY DOCK
• NO HANDICAP ACCESS

BOAT RAMP
• NO PEDESTRIAN ACCESS FROM BEACH OR DOCK AREA

BEACH AND PICNIC AREA
• NO DEFINED PARKING OR PICNIC AREAS
• HIGH USE AREA
• LACK OF HANDICAP ACCESS
• HIGHLY CONGESTED WITH CONFLICTS BETWEEN VEHICLES AND SWIMMERS
• LACK OF SANITARY FACILITIES FOR SWIMMERS AND BEACH CAMPERS
• POLLUTION TO LAKE FROM VEHICLES, CAMPFIRES, ETC.

EXISTING PARKING LOT
• APPROXIMATELY 75 VEHICLE / TRAILER SPACES
• NO DEFINED PEDESTRIAN WALK TO BEACH AND PICNIC AREAS
• INSUFFICIENT PARKING TO MEET DEMAND

EXISTING DRAINAGE

NO DEFINED CIRCULATION FOR PEDESTRIANS, VEHICLES, OR CAMPING / PICNICING
• EXISTING TERRACE AREA HAS POTENTIAL FOR DEFINED PARKING

NONVEGETATED PARKING AREA
• NEEDS TO BE STABILIZED, REVEGETATED, AND TERRACED

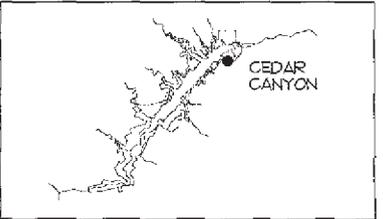
MAJOR DRAINAGE SWALE

ENTRANCE ROAD

EXISTING COMFORT STATION
• LACK OF DIRECT ACCESS FROM PARKING
• POOR ORIENTATION AND SITING IN RELATIONSHIP TO WHERE PEOPLE ARE (I.E. THE WATER'S EDGE)
• NEEDS LIFT STATION TO LIFT SEWAGE TO SEPTIC FIELD ON TOP OF THE CANYON

SEPTIC TANK FIELD

STEEP TOPOGRAPHY



LOCATION MAP

EXISTING CONDITIONS / SITE ANALYSIS CEDAR CANYON

Lake Meredith National Recreation Area
United States Department of the Interior
National Park Service

DSC / 019 / 41043 / AUG 93

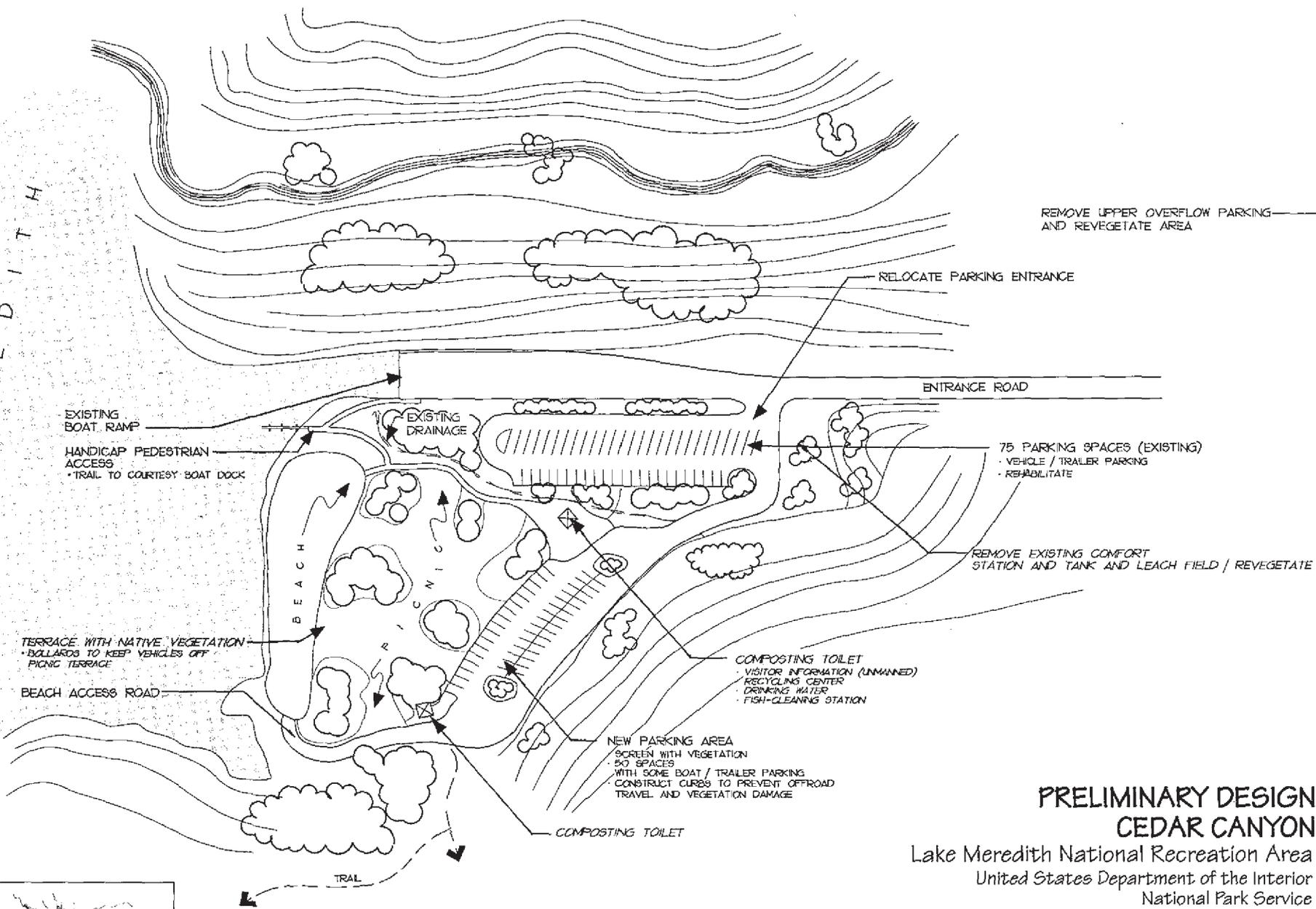
0 100 200

Scale of Feet



North

L A K E M E R E D I T H



REMOVE UPPER OVERFLOW PARKING AND REVEGETATE AREA →

RELOCATE PARKING ENTRANCE

ENTRANCE ROAD

EXISTING BOAT RAMP
HANDICAP PEDESTRIAN ACCESS
*TRAIL TO COURTESY BOAT DOCK

EXISTING DRAINAGE

75 PARKING SPACES (EXISTING)
- VEHICLE / TRAILER PARKING
- REHABILITATE

REMOVE EXISTING COMFORT STATION AND TANK AND LEACH FIELD / REVEGETATE

TERRACE WITH NATIVE VEGETATION
- BOLLARDS TO KEEP VEHICLES OFF
- PICNIC TERRACE

BEACH ACCESS ROAD

COMPOSTING TOILET
- VISITOR INFORMATION (UNMANNED)
- RECYCLING CENTER
- DRINKING WATER
- FISH-CLEANING STATION

NEW PARKING AREA
- SCREEN WITH VEGETATION
- 50 SPACES
- WITH SOME BOAT / TRAILER PARKING
- CONSTRUCT CURBS TO PREVENT OFFROAD TRAVEL AND VEGETATION DAMAGE

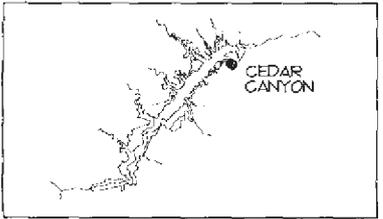
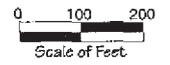
COMPOSTING TOILET

TRAIL

**PRELIMINARY DESIGN
CEDAR CANYON**

Lake Meredith National Recreation Area
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LOCATION MAP

Lower Terrace

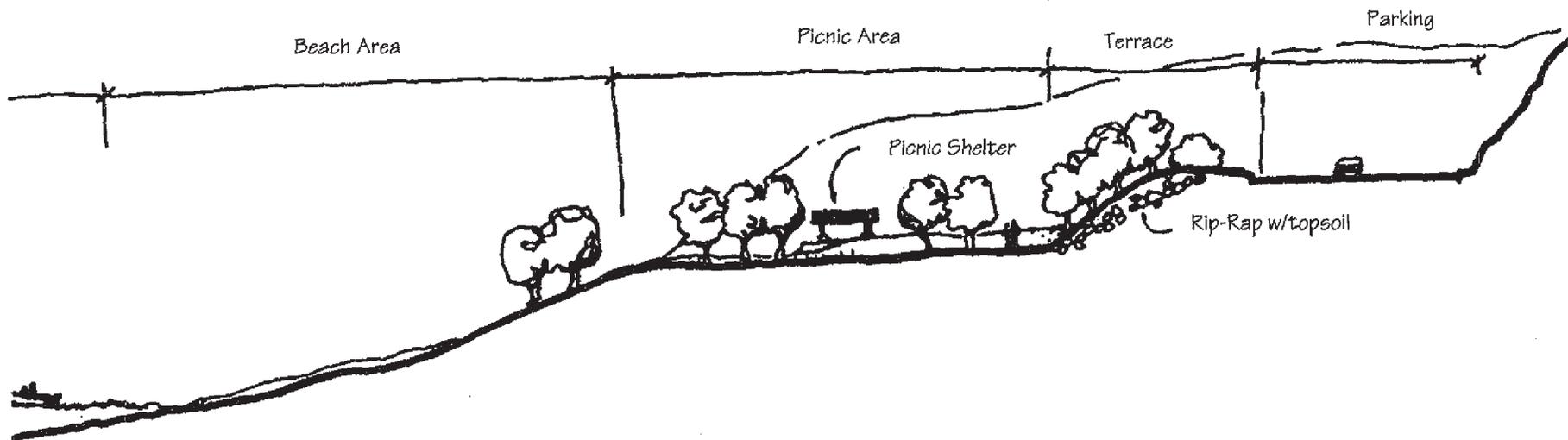
The lowest terrace is the beach area. It will have no permanent facilities because of the fluctuating water level. The primary uses will be swimming and shoreline tent camping.

- Improve access from the boat ramp to the courtesy dock/fishing pier.
- Construct an all-weather path for visitors with physical disabilities to link the courtesy dock/fishing pier and the three terrace levels.

- Remove existing chemical toilets at the beach area.

Utilities

- Continue use of single-phase power.
- Maintain city of Fritch water.
- Maintain existing pay phones.



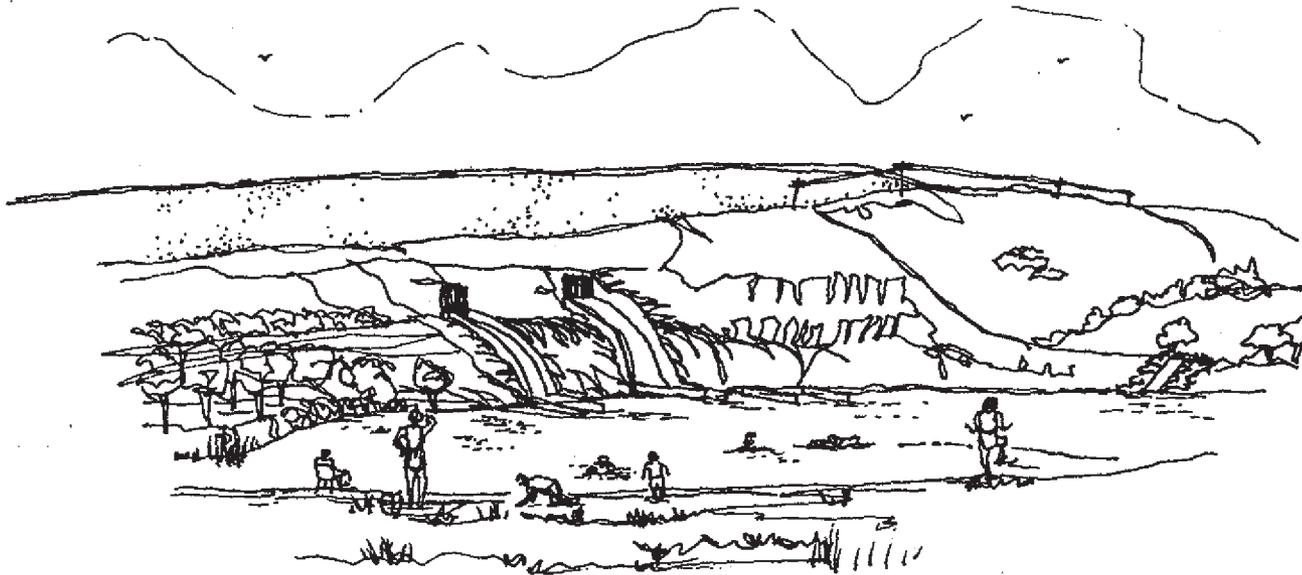
SPRING CANYON (Stilling Basin)

Spring Canyon (Stilling Basin) is in riparian wetlands directly downriver of the Sanford Dam. The area includes the dam stilling basin, which functions to slow the rush of water discharged from the dam before it continues downriver. The basin's clear cool water and sandy beach make it ideal for swimming, and the area is the designated swimming location for Lake Meredith, making it is very popular on hot summer days. The area also provides excellent habitat for trout, and its lack of turbidity has made the area a favorite for scuba divers.

The design concept is to integrate the natural features and unique recreational opportunities offered at Spring Canyon to increase public enjoyment. This will be accomplished by establishing a grove of native cottonwoods, improving circulation and parking facilities, upgrading the swimming area, renovating the picnic areas, and establishing an interpretive wetland trail.

Circulation

The road to Stilling Basin turns off Texas 1319 (which crosses Sanford Dam). It is steep and narrow, with several sharp curves that limit sight distance and present some potential traffic hazards. The access road separates the parking lot from the swimming area, which causes conflicts between pedestrians and automobiles. The parking lot itself also adds to the congestion because of inadequate parking space and poor configuration.



- Realign sections of the existing access road to increase the visual quality of the road and improve visitor safety.
- Reroute the existing road so that it does not separate the parking lot from the swimming area.
- Expand the existing parking lot by 150 spaces to provide adequate parking for the beach and picnic areas.

TO SANFORD

LAKE MEREDITH

TEXAS 1319

TO STINNETT

SANFORD DAM

PARKING AREA
• NO DEFINED PARKING
• NO HANDICAPPED ACCESS TO FISHING PIER

PARKING AREA
• SAFETY HAZARD
• POOR CIRCULATION

STILLING BASIN

SPILLWAYS FROM DAM

SPRING CREEK SPILLWAY

SERVICE ROAD - CLOSED TO PUBLIC

FENCE

SERVICE ROAD - CLOSED TO PUBLIC

SHARP CURVE
• NO SUPERELEVATION

PARKING AREA
• NO DEFINED PARKING

PICNIC AREAS
• POOR CIRCULATION
• POOR PICNIC SHELTER LOCATIONS
• NO DEFINED PARKING
• NO TREES OR LANDSCAPING
• POOR QUALITY TURF
• SAFETY PROBLEM FOR PEDESTRIANS CROSSING ROADWAY

BEACH AREA
• UNMAINTAINED BEACH
• HEAVILY USED
• NO DEFINED WALK TO PARKING AREA
• NO PERMANENT COMFORT STATION

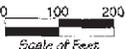
WETLAND AREA

UNCONTROLLED ACCESS OVER WETLAND

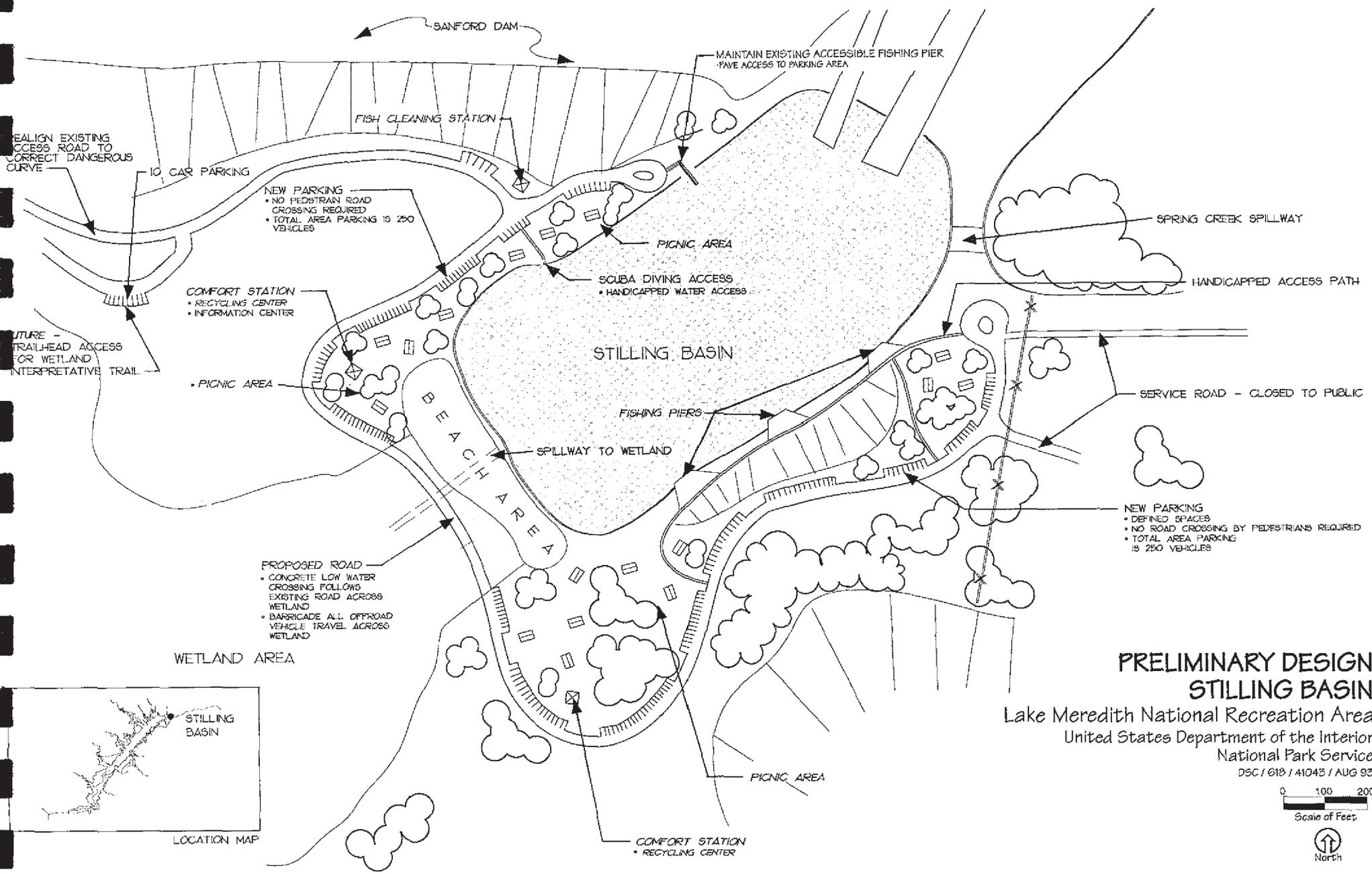
EXISTING CONDITIONS / SITE ANALYSIS STILLING BASIN

Lake Meredith National Recreation Area
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LOCATION MAP



REALIGN EXISTING ACCESS ROAD TO CORRECT DANGEROUS CURVE

COMFORT STATION
• RECYCLING CENTER
• INFORMATION CENTER

NEW PARKING
• NO PEDESTRIAN ROAD CROSSING REQUIRED
• TOTAL AREA PARKING IS 250 VEHICLES

• PICNIC AREA

PROPOSED ROAD
• CONCRETE LOW WATER CROSSING FOLLOWS EXISTING ROAD ACROSS WETLAND
• BARRICADE ALL OFFROAD VEHICLE TRAVEL ACROSS WETLAND

WETLAND AREA



SANFORD DAM

FISH CLEANING STATION

MAINTAIN EXISTING ACCESSIBLE FISHING PIER
• PAVE ACCESS TO PARKING AREA

PICNIC AREA

STILLING BASIN

FISHING PIERS

SPILLWAY TO WETLAND

BEACH AREA

COMFORT STATION
• RECYCLING CENTER

PICNIC AREA

SPRING CREEK SPILLWAY

HANDICAPPED ACCESS PATH

SERVICE ROAD - CLOSED TO PUBLIC

NEW PARKING
• DEFINED SPACES
• NO ROAD CROSSING BY PEDESTRIANS REQUIRED
• TOTAL AREA PARKING IS 250 VEHICLES

PRELIMINARY DESIGN STILLING BASIN

Lake Meredith National Recreation Area
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National Park Service

DSC / 618 / 41043 / AUG 93



Swimming Area

Stilling Basin was once one of the most popular recreation access points at Lake Meredith; however, the facility has become less popular with the public in recent years. The area staff has attributed this drop in use to the poor condition of the existing facilities and the persistent weed problem on the beach.

- Install a weed-barrier fabric beneath the beach at the swimming area.
- Build a combination comfort and changing station near the beach at the swimming area to replace existing chemical toilets.

Picnic Area

There are no trees in the use areas for shade, nor is there turf in the picnic area. Chemical toilets provide the only sanitary facilities. The fishing pier is not truly accessible to disabled visitors because of a gravel parking area and trail.

- Plant native cottonwoods and irrigated grama grass at the day use picnic grove near the swimming area.
- Renovate the existing picnic shelters and place them closer to use areas to make them easier to get to.

- Redesign the existing parking lot to facilitate access for disabled visitors to the fishing pier, to define the limits of vehicle access, and to provide additional parking for the pier and scuba diving area.
- Design a trail that would provide fishing access to the small prairie pothole ponds interspersed throughout the wetland.
- Drill a well to provide water.

Interpretive Trail

The area's high water table, which is indicated by the large riparian wetland east of the facility, is essential to the health and growth of cottonwood groves. This occurrence is indicative of the natural systems throughout the Canadian River valley.

- Create an interpretive trail system linking the picnic area to the large wetland, which would allow visitors to view the wetland ecology and increase their appreciation and understanding of this type of landscape.
- Build a 10-car parking lot with an interpretive trailhead off the access road.

HARBOR BAY

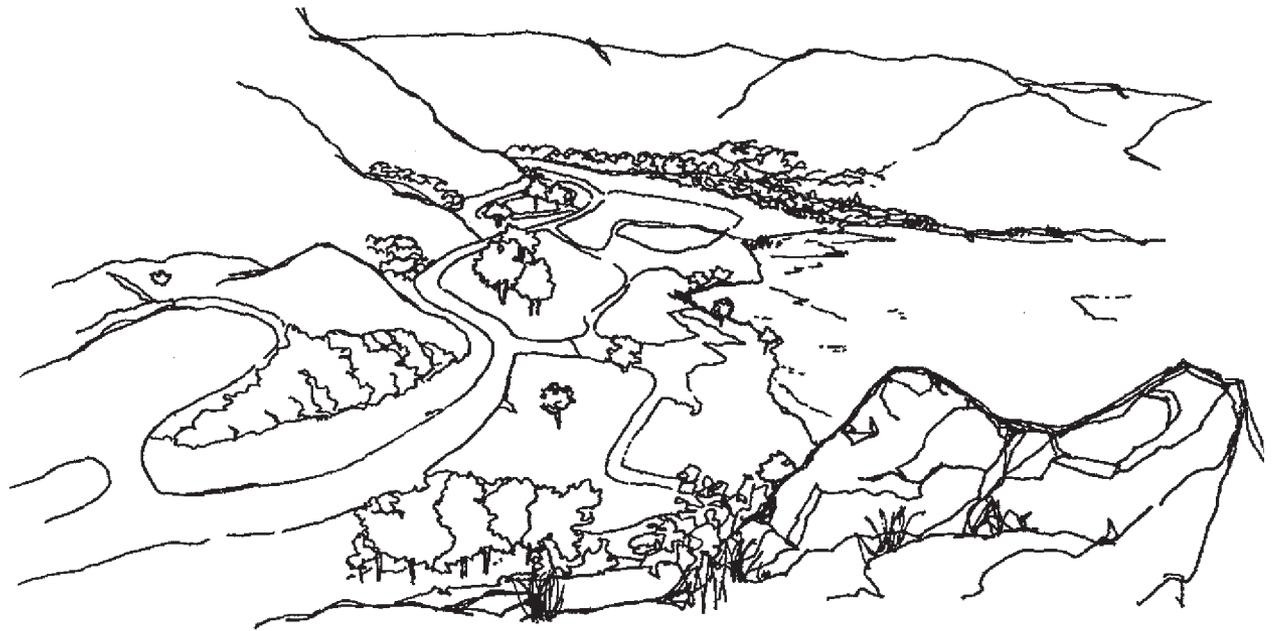
Harbor Bay, located just a short drive from the town of Fritch, is a popular and heavily used access point for boaters and campers along the lakeshore. The area provides visitors with access to views from the canyon walls and smaller hills.

- The design concept is to protect the resources and natural beauty of Harbor Bay by defining circulation, expanding the existing parking, improving facilities, and providing visitor information.
- Build a picnic shelter; vegetate the area with native trees and irrigated turf.
- Build a toilet/fish-cleaning station and recycling center near the pier to replace existing chemical toilets.

Circulation

There is inadequate parking for both day visitors and boat trailers. Poorly defined circulation has allowed unrestricted vehicle use, which is causing beach erosion. A weak relationship between the boat ramp and a courtesy dock creates a conflict between boat traffic and beach users.

- Build a new asphalt parking area near the existing fishing pier.
- Build an access road to the new parking area.



- Expand the existing dirt parking lot by 35 spaces, including boat and trailer parking.
- Build a 20-car parking lot at the northern point of land, which serves as a windsurfing access point.
- Eliminate drive-up shoreline access to the windsurfing area to prevent beach erosion.

Beach Area

The beach area will have no permanent facilities because of the fluctuating water level. The primary uses will be swimming and shoreline tent camping.

Sanitary Facilities

The few facilities that exist at this area are poorly located or undersized for current use.

- Build a comfort station with a recycling center and visitor information at the parking lot to replace the existing chemical toilets.
- Build an RV sanitary dump station on the Harbor Bay access road.

Boat Ramp

The boat ramp itself will not be altered.

- Build a fish-cleaning/comfort station near the parking area to replace the existing chemical toilets; locate the facility above the ordinary high water level.
- Improve access from the boat ramp to the courtesy dock/fishing pier.
- Build an all-weather path that is accessible to visitors with physical disabilities to link the boat ramp parking area and the courtesy dock/fishing pier.



SANFORD-YAKE

Sanford-Yake is a heavily used picnic and camping area on the south side of the lake, just north of Fritch. Its location along the canyon rim provides views of the lake and the Sanford Dam. A concessioner-run marina is near the boat ramp, and the infrastructure (including sewer, water, and electricity) supports the existing marina and campground comfort station. These facilities date from the original development 30 years ago and have been adversely affected by heavy use.

The design concept is to protect the resource and natural beauty of Sanford-Yake by improving circulation and access patterns, expanding the existing campground/picnic area and parking, revegetating disturbed areas, and building new visitor facilities. This conceptual design proposes to use the existing infrastructure to support new facilities. The marina will not be addressed because it is beyond the scope of this project.

Circulation

The current circulation system does not direct traffic; consequently, off-road vehicle use is causing erosion. A network of unnecessary roads has caused resource degradation and poses safety hazards to the users because of their proximity to the canyon wall. Pedestrian access to the lake is limited, sanitary facilities are inadequate, and visitor support facilities are poorly placed in relation to use patterns.

- Redesign the access road to create a smoother transition to the boat ramp area and to blend in with the landscape.
- Remove all unnecessary roads, and restore disturbed areas to natural conditions.

- Create a designated campground circulation system to replace existing dirt roads.
- Correct drainage problems.

Boat Ramp

The boat ramp area improvements will be limited to the parking lot. The boat ramp parking lot is in an area above the ramp itself. The stairway that provides access from the 100-car parking area to the boat ramp is steep and unsafe. This route limits accessibility between the two. In addition, the slope that separates the two is eroding and undercutting the facilities.

- Expand the existing 100-car parking lot by 50 spaces.
- Build a lower parking lot with six spaces for disabled visitors and a loading/unloading area to provide disabled visitors access to the boat ramp.
- Replace the existing stairway access with a safer series of steps and landings. Access for disabled visitors will not be provided from the upper parking area because accessible stalls have been included at the lower parking area.
- Revegetate the area around the stairway access with native grasses, which will stabilize the soil, reduce erosion, and improve the visual quality of the area.

Campground/Picnic Area

The campground/picnic area will occupy the same general area.

- Expand the existing campground from 50 sites to approximately 75 sites.
- Build a central comfort station to replace the existing chemical toilets.
- Build a trailhead west of the campground and an improved trail to provide lake access for anglers and hikers.
- Build a visitor information station and recycle center, combined with a comfort/fish-cleaning station above the conservation pool level on the upper parking area; remove the existing chemical toilets.

Utilities

- Maintain water service from the city of Fritch.
- Continue to use the single-phase power currently available at the site.
- Analyze existing sewer hookup to determine the feasibility of continued use.
- Continue to use the RV dump station, with the sewer connected to the city of Fritch.
- Maintain the existing pay phone.

PRIMITIVE AREAS

The design proposals for primitive areas consider problems of existing use. Existing impacts are caused primarily by undirected vehicular travel and human use at campsites. Each area includes oil well access and social roads that depart from the designated circulation route. These roads promote erosion and destroy natural habitat. Impacts on campground areas include soil compaction, vegetation damage, free-form fire rings, and unconfined trampling where the campground size is adjusted to fit users' preferences. These areas also lack sanitary facilities and potable water sources.

The following are considered primitive areas:

McBride Canyon/Mullinaw Creek
Plum Creek
Bugbee
Chimney Hollow

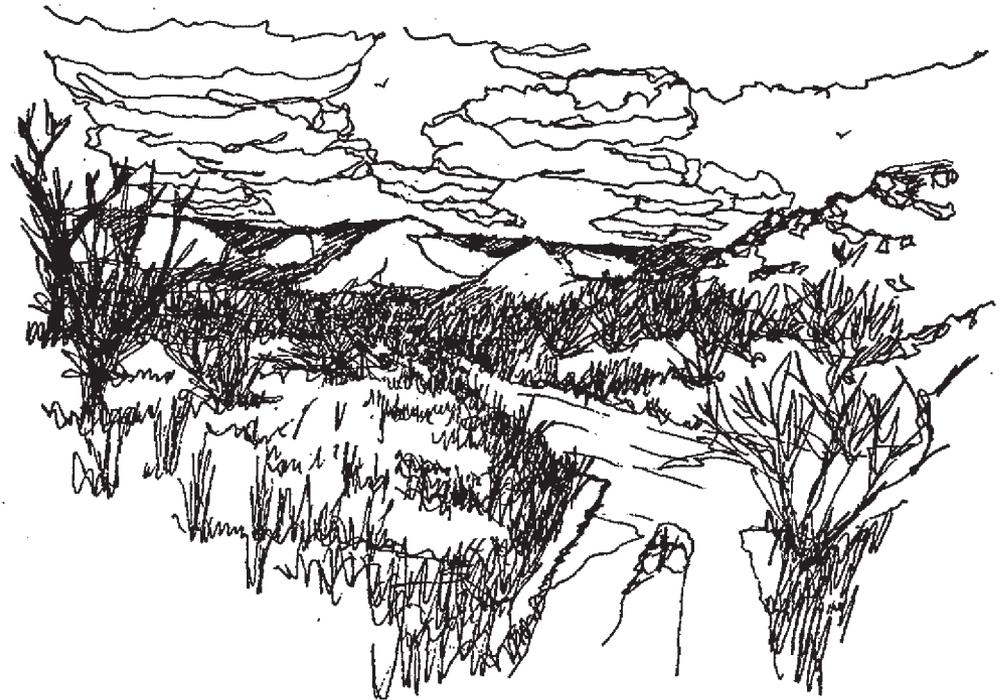
MCBRIDE CANYON / MULLINAW CREEK

McBride Canyon is a beautiful side canyon where camping, hiking, and hunting are popular activities. Sheltered by giant cottonwood trees, this enclosed canyon contrasts with the open prairie and waters of the recreation area. The canyon was sought out as a homestead site by the McBride family. The original homestead, which has been recently renovated, gives the area a strong historic character. The stone house is on the National Register of Historic Places and is much the same as it was 100 years ago, offering a unique interpretive opportunity. The ranch house and mature cottonwood grove are the essential elements in setting the theme for development. The landscape needs to be studied to determine if it is eligible for listing as a cultural landscape on the

National Register of Historic Places. Mullinaw Creek is located further into the canyon area. It is characteristic of canyon floor and canyon wall landscape types. Campsites at Mullinaw Creek are heavily used during hunting season.

Existing facilities look temporary and are of poor quality, seriously affecting the fragile landscape and the area's historic character. A 6-foot chainlink fence surrounding the McBride ranch house further detracts from the scenic and historic quality of the area.

The design concept is to maintain the primitive nature of McBride Canyon and Mullinaw Creek while protecting the natural and cultural resources. This can be accomplished by rehabilitating existing facilities and building limited new facilities, providing visitor interpretation, improving circulation, and providing year-round access to the area.



Interpretation

As visitors enter McBride Canyon, they should be aware that the area is historically valuable and ecologically fragile.

- Study the possibility of adaptively using the McBride ranch house as a visitor contact station and interpretive center. Because the ranch house is at the entry to the canyon, it is in a good location to serve as an interpretive center.
- Provide interpretive information on the trail systems to educate visitors about the historic character and natural systems of the area.

Circulation

The heaviest impact to Mullinaw Creek is the network of oil well access roads and four-wheel-drive roads that cause serious erosion, are visually intrusive, and disturb wildlife habitat.

- Redesign the dirt access road to facilitate year-round access to the area.
- Replace the existing network of dirt roads with a designated gravel road system and barriers to contain traffic.
- Install a permanent RV sanitary dump station to replace the existing facility.
- Build a corral for horses.
- Consolidate duplicate roads at Mullinaw Creek and remove any roads not essential to the area's operation. A study is needed before this recommendation is implemented.

- Build a trailhead at the intersection of the road that leads from McBride to Mullinaw Creek.
- Create a designated trail system at Mullinaw Creek, using some existing dirt roads as pedestrian, horseback, and bicycle trails.

Campground

The cottonwood grove, which is an integral element of the McBride Canyon landscape, is being heavily affected by the constant use of scattered campsites. The grove is severely scarred by uncontrolled use, fire-rings, and heavy traffic. Compounding these impacts is the haphazard layout and the lack of temporary facilities, such as chemical toilets.

- Redevelop the existing campground/picnic area as a defined campground with 30-40 permanent campsites that are sensitively located to benefit from the cottonwood groves.
- Minimize impacts on the cottonwood grove by placing facilities outside driplines, thereby reducing root compaction.
- Build two comfort stations with recycle centers and visitor information stations to replace existing chemical toilets.
- Drill a well to provide drinking water for the area.
- Build a water storage tank.
- Develop 6-10 designated campsites in the least sensitive locations in the Mullinaw Creek area.
- Construct a vault toilet at the Mullinaw Creek area.

PLUM CREEK



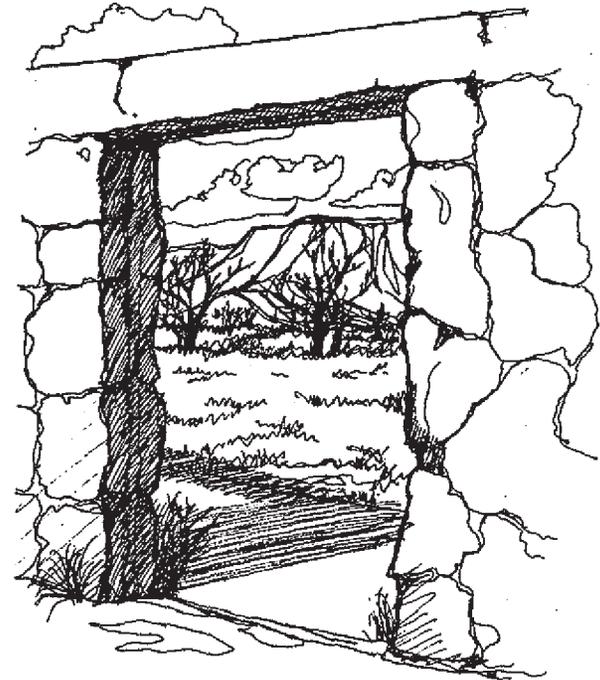
Plum Creek is a large primitive area on the north side of the lake, east of Dumas. The landscape is visually striking because of the steep canyon walls that contrast with Plum Creek. The creek, which is lined with cottonwoods, flows into the northern end of the lake. This canyon floor area is popular for horseback riding, picnicking, and hunting. In addition to the scenic beauty of the area there are old foundations and walls from ranch buildings.

The design concept is to maintain the primitive nature of Plum Creek while protecting the natural resource. This can be accomplished by rehabilitating existing facilities and building limited new facilities, providing year-round access, improving circulation, and defining the use areas.

Facilities

Existing facilities look temporary and are of poor quality, which affects the fragile landscape and historic character of Plum Creek.

- Study alternatives to either use or remove the present ranch structures.
- Install a permanent RV sanitary dump station to replace the existing temporary facilities.
- Develop new structures to match existing architectural styles and materials.
- Build a corral for horses.



Circulation

The heaviest impact to this area is the extensive road network for oil well access and four-wheel-drive vehicles. The roads cause serious erosion, are visually intrusive, and disturb wildlife habitat.

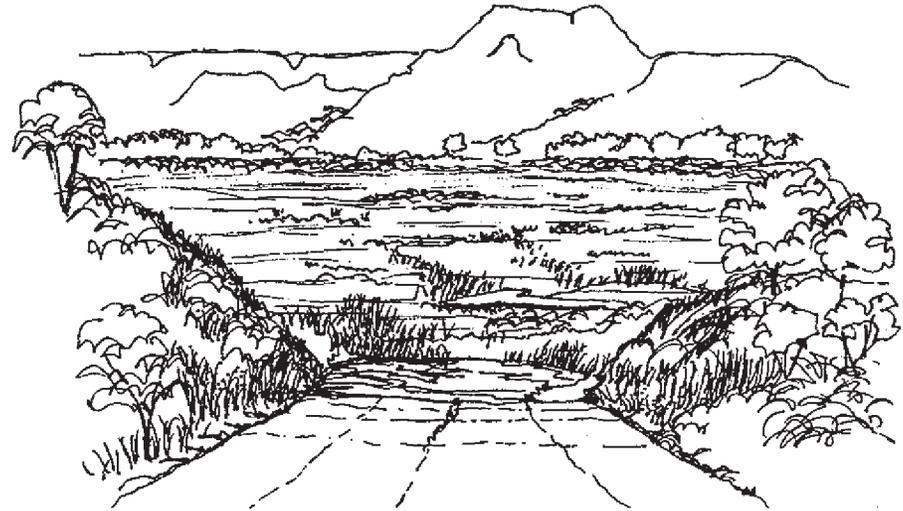
- Replace the existing dirt road network and implement a designated gravel road system with barriers to contain traffic.
- Redesign the existing access road to facilitate year-round access.
- Build a trailhead at the intersection of the dirt road and asphalt access road.
- Create a designated trail system, using existing dirt roads as pedestrian, horseback, and bicycle trails. This system would include an interpretive wetland trail.

Boat Ramp

The existing boat ramp is above the ordinary high water level of the lake and was used only for a short period during the early 1970s when the historic high water level was reached. While it is hard to predict future water levels, this conceptual design has designated 2,920.0 as the ordinary high water level. The boat ramp is just below this level. This means the boat ramp will only be usable for short periods of time once every 20 years if past water levels are used as a guide. Improvements to the boat ramp area will be limited to the parking lot.

- Downsize the existing asphalt parking area and resurface with gravel.

- Build a trailhead at the existing asphalt parking area to serve a trail that traverses the Plum Creek area and the proposed wetland interpretive trail.



Campgrounds

- Redevelop the existing campground/picnic area into a defined campground, including 30 - 40 permanent campsites. Sensitive locate the sites to benefit from the shade provided by the cottonwood grove.
- Build two comfort stations, with recycle centers and visitor information stations, to replace the existing chemical toilets.
- Drill a well to provide drinking water for the area.

BUGBEE

Bugbee is a popular lakeshore area in an undeveloped box canyon on the north side of the lake. Numerous deadwood snags line the lake channel and provide excellent fish habitat. The abundance of fish combined with easy shoreline access make the area popular with anglers. The area's primitive quality and the high canyon walls add to visitor enjoyment.

The design concept is to maintain the primitive nature of the Bugbee area. This can be accomplished by rehabilitating existing facilities and building minimal new facilities, avoiding sensitive cottonwood groves, improving circulation and parking, and defining use areas.

Circulation

The current use pattern is fairly light, and most of the impacts occur along the shore.

- Define parking areas near the lake.
- Define parking areas near the camping/picnic areas along the canyon access road.
- Create a system of designated internal campground roads to replace the existing roads.
- Close redundant or unnecessary roads, and restore them to natural conditions.

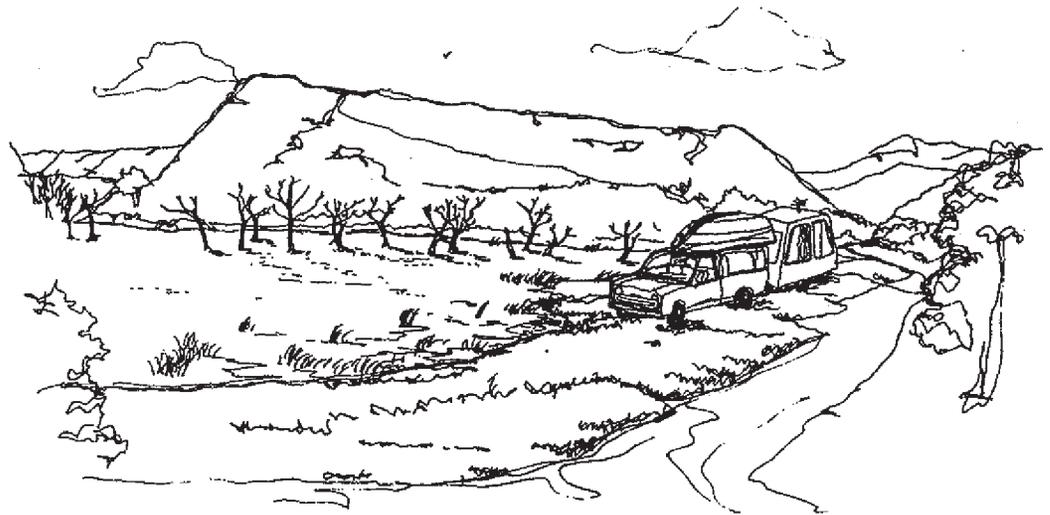
Campground / Picnic Area

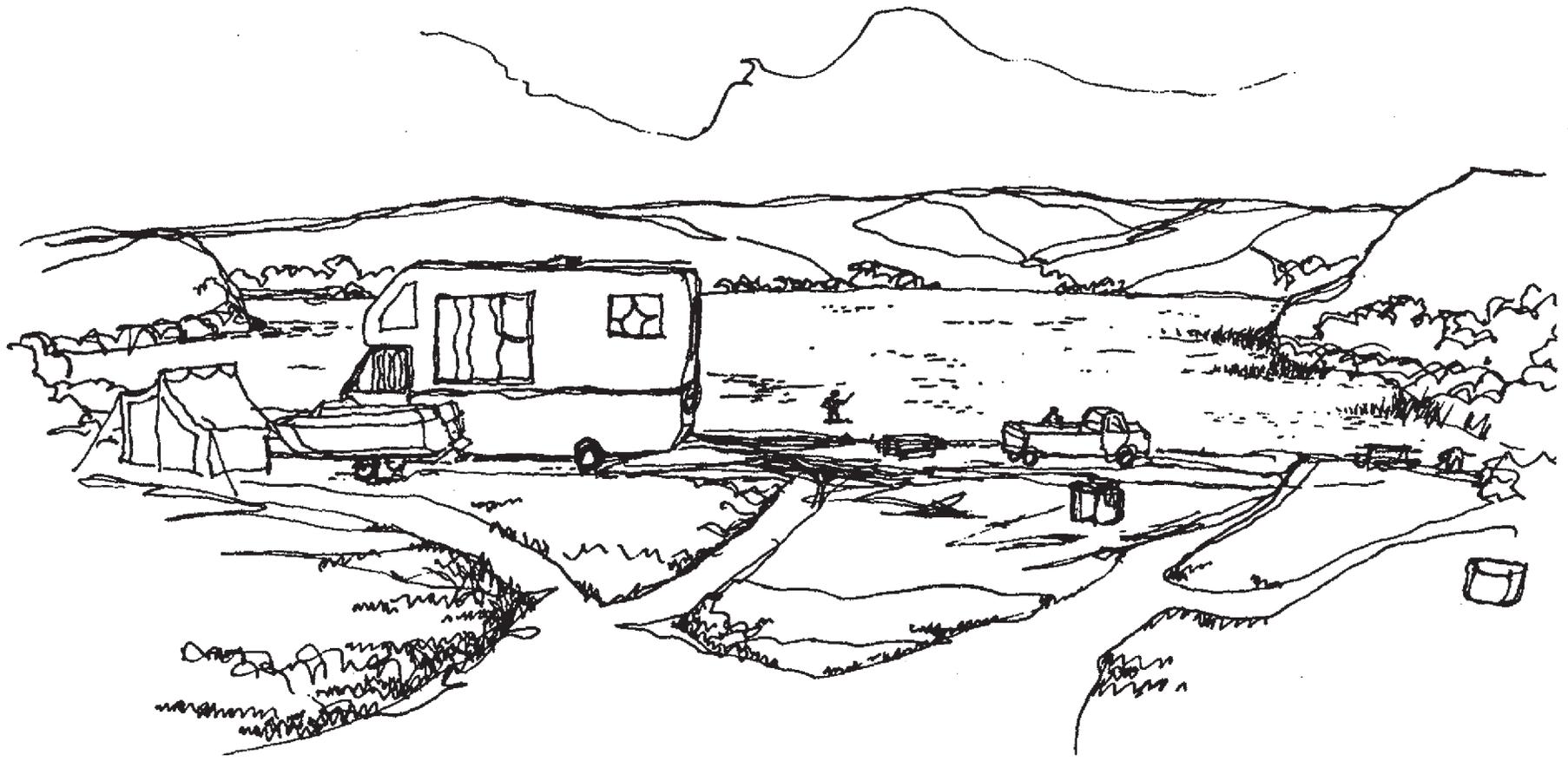
- Create a permanent designated campground in the box canyon area, near the asphalt access road. Sensitive locate campsites to benefit from the cottonwood grove and prominent landforms that surround the canyon.
- Build a central comfort station with a recycle center and visitor information station to replace existing chemical toilets.
- Build a permanent comfort station on the landform to the north, which is above the ordinary high water level of the lake.

Lakeshore

The lakeshore, which serves as a fishing access area, will continue to be a primitive area with minimal facilities because it is subject to periodic inundation.

- Provide a fish-cleaning station outside the flood level.





CHIMNEY HOLLOW

Chimney Hollow is a heavily used camping and boating area next to Blue West. The landscape of Chimney Hollow is characterized by mature vegetation, strong landforms, and large, flat areas next to the lake, which provide excellent campsites. The area also provides direct boating access by way of a protected harbor. With the proper planning and siting of facilities, Chimney Hollow could offer one of the highest quality camping experiences in the park. This area was not studied under the current conceptual design

plan; therefore, an environmental assessment/development concept plan for Chimney Hollow must be completed before any of the recommendations from this study can be implemented.

The design concept is to offer a unique and high-quality camping experience that highlights and protects the natural beauty of Chimney Hollow. This can be accomplished by defining an access road, improving existing camping areas, and building new camping areas with sanitary facilities.

Circulation

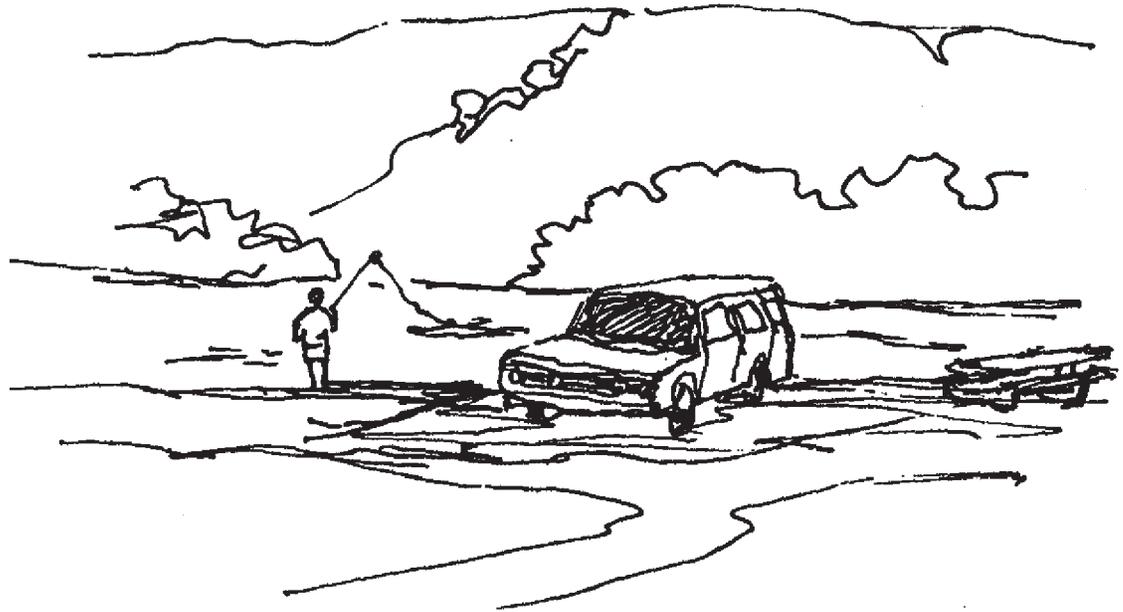
The access road is a dirt trail from the Blue West access road, which provides adequate access to the area in good weather. However, because the current alignment follows a steep ridge the road is visually intrusive and highly susceptible to erosion. The configuration of graded camp roads has impacted the natural areas.

- Define a permanent access road that will blend into the natural landscape.
- Create a system of designated internal campground roads to replace existing roads.
- Close redundant or unnecessary roads, and restore them to natural conditions.

Campground / Picnic Area

The two areas currently being used for camping will continue to be used for that purpose. The first area is near the lake in a large, grassy field that is subject to occasional lake flooding. The other area is in a box canyon. This area has 10 designated campsites interspersed with groves of mesquite. There has been some degradation due to indiscriminate mowing. This area is above the high water level of the lake; however, campsites are still relatively close to the water. The current camping use has not been planned, and the only provided facilities include picnic tables, fire-rings, and chemical toilets.

- Create a permanent designated campground in the box canyon area, near the shoreline camping area. The campground needs to be sensitively located to take advantage of the mesquite groves and prominent landforms that surround the canyon.
- Continue to maintain the shoreline camping area with primitive area facilities because of periodic flooding.
- Build a central comfort station with a recycle station and visitor information to replace the existing chemical toilets.
- Build permanent comfort facilities on the landform to the north, which is above the ordinary high water level of the lake.



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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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