

Joseph S. & Lucie H. CULLINAN PARK

MASTER PLAN REPORT

Prepared for
The City of Houston
Department of Parks and Recreation
&
The Houston Parks Board

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INTRODUCTION

THE SITE

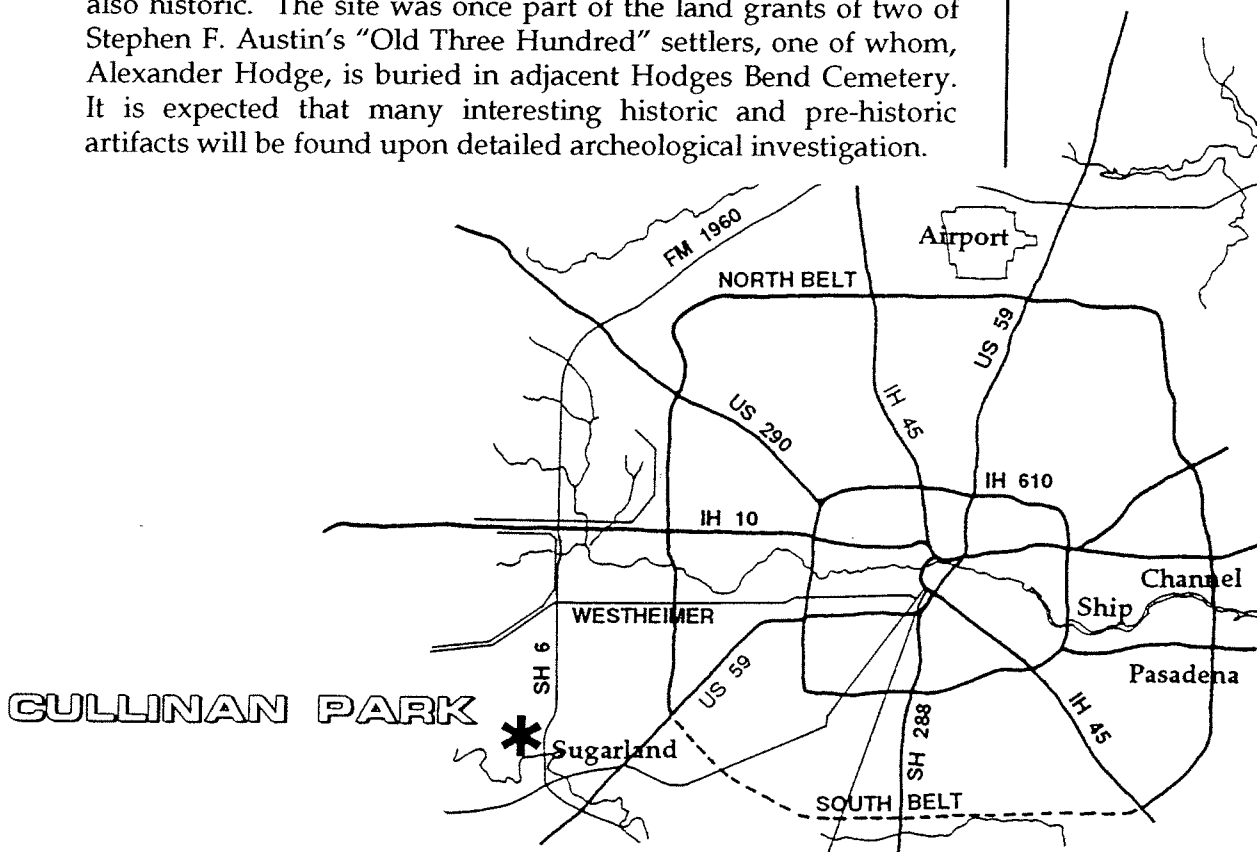
At 754 acres, Cullinan Park ranks in size between Hermann and Memorial Parks. When fully developed, the park will be a major recreational resource in a portion of the Houston metropolitan region which needs more public facilities. The site is located twenty-two miles southwest of downtown Houston and one mile northwest of Sugar Land in Fort Bend County. This places the park outside Houston's city limit but within its extraterritorial jurisdiction. From its frontage along State Highway 6 at Oyster Creek, the site wraps around the north and west sides of Hull Airport to its southern boundary formed by Oyster Creek and the Texas Central Prison Farm.

Cullinan Park's greatest asset is its rich variety of natural environments. Vegetation types range from bottomland forests and Pecan woodlands to forested wetlands and rolling grasslands. Major water features include two large lakes totaling 70 acres, Oyster Creek which passes through the park, and Red Gully which crosses the site before intersecting with Oyster Creek. Grand vistas from vantage points throughout the park allow the observer to see many of these features in a single view.

The park site is more than a magnificent natural environment; it is also historic. The site was once part of the land grants of two of Stephen F. Austin's "Old Three Hundred" settlers, one of whom, Alexander Hodge, is buried in adjacent Hodges Bend Cemetery. It is expected that many interesting historic and pre-historic artifacts will be found upon detailed archeological investigation.

MAJOR NATURAL SITE FEATURES

- Oyster Creek
- Red Gully
- White Lake
- Pumpkin Lake
- Wetlands
- Bottomland Forest
- Pecan Woodland
- Grassland



THE DEVELOPMENT CONCEPT

Two alternative master plan concepts have been prepared for the park. They have evolved in response to the rich variation in recreational potential available on the site. Since both master plan options seek to emphasize the park site's natural characteristics, very active and noisy facilities such as ball fields have been excluded.

Park facilities can be loosely grouped into three major activity zones: White Lake and the forest environs to the east, the open and rolling central grasslands, and the large mixed grassland and wooded wetlands surrounding Pumpkin Lake south of Red Gully. In both master plan options, facilities in the White Lake and Pumpkin Lake zones remain the same. Only the central portion of the park is different.

One of the recreational activities suggested for the park's central activity zone in master plan option one is golf. Because of various site conditions, the area seems best suited for a par 3 and 4 "executive" type of course. However, since a market study to determine the economic viability of this type of golf course in the Cullinan Park area has not been conducted, a second master plan option has been developed. Option two replaces the golf course with a set of facilities similar to those in other portions of the park (hiking and jogging trails, picnic, playground) and adds some new ones.

POTENTIAL RECREATIONAL ACTIVITIES

- Wildlife Observation
- Nature Study
- Boating
- Fishing
- Picnicking
- Bicycling
- Hiking
- Jogging
- Golf

EXISTING CONDITIONS

This section describes the conditions existing on and around the Cullinan Park site. It is an updated version of the original analysis report previously submitted.

CIRCULATION

SITE ACCESS

State Highway 6, which is adjacent to the park's northeastern boundary, is the principal access route to the park site. Richmond-Gaines Road, which parallels a portion of the northern boundary, provides secondary access.

MAJOR THOROUGHFARES

Prior to the beginning of the master planning process, two proposed major thoroughfares which would have bisected the park were shown on Houston's official "Major Thoroughfare and Freeway Plan." The Houston City Planning Commission, at their July 26, 1990 meeting voted to remove these thoroughfares from the plan. These modifications were part of the annual review of thoroughfare alignments by the Commission. The modified plan was ratified by the Houston City Council in September, 1990.

HIGHWAY 6 IMPROVEMENTS

The Highway Department proposes to widen the existing pavement from 82 feet to 106 feet centered on the present roadway centerline. All construction will remain inside the existing right-of-way. In order to facilitate access to the park and improve traffic safety for park visitors, the Highway Department has agreed to provide a southbound deceleration lane at the park entrance at no cost to the City of Houston. Since the right-of-way will not change, these improvements should have no physical effect on the park site.

PUBLIC TRANSPORTATION

Currently, no public transportation facilities serve the Cullinan Park area. Houston's Metro bus lines do not extend into Fort Bend County, and neither Fort Bend County nor the City of Sugar Land have public transportation systems.

For additional site analysis information, refer to the "Oyster Creek Site Assessment" prepared by PRL Associates, Inc., December 1988.

Figure 1, Appendix A

STATE HIGHWAY 6 PROPOSED PAVEMENT SECTION

Central left turn lane	14'
Travel lanes, north	36'
Travel lanes, south	36'
Shoulders, 10' each side	20'
Total = 106'	

UTILITIES

All utilities necessary for park facilities are available along Richmond-Gaines Road. Because of the expected modest needs of the park, utility availability should not be a limiting factor.

Figure 2, Appendix A

AREA AND COMMUNITY FACTORS

PARK SITE TRACT OWNERSHIP

Ownership of land within the park is currently divided between the City of Houston and the Houston Parks Board. Tracts one, two, and four are owned by the Parks Board and tract three by the City of Houston.

Figure 3, Appendix A

SURROUNDING LAND USES

All current and probable future surrounding land uses except Hull Airport are compatible with the objectives of the park. The airport, which is adjacent to the park on the east, presents some particular problems.

Figure 3, Appendix A

AIRPORT PROPOSAL

In late 1990 the City of Sugar Land purchased the privately owned Hull Airport, assuring its continuation in some capacity into the future. The Hull Airport Master Plan, prepared for the City of Sugar Land in 1989, called for acquisition of Clear Zone rights and the placement of navigation lights and equipment on what is now park land north of the runway.

Figures 4 & 5, Appendix A

The Airport Master Plan also recommended acquisition of what is now park land between the airport and Oyster Creek (tract four) for an airport related development. The City of Sugar Land is, indeed, interested in purchasing this tract. The Houston Parks Board has also expressed interest in the sale and is currently pursuing negotiations.

NOISE

Moderately high levels of noise generated by Hull Airport activities exist over some northeastern portions of the park and are expected to increase as airport facilities and usage expand. Noise levels of 65dB and greater affect a significant area southeast of White Lake. In a 65dB noise zone, a speaker generally cannot be heard at a normal voice level more than 3 feet from a listener.

Figure 6, Appendix A

Fortunately, the highest noise levels are generated by aircraft taking off and are only periodic.

Noise generated by traffic on Highway 6 currently is noticeable, though not particularly objectionable, within the far northeastern portion of the park site. When the highway is enlarged, noise levels will increase and impact a greater area.

AREA RECREATIONAL FACILITIES

The only significant recreational facility within several miles of the park is the Old Orchard Golf Course, a new 27 hole course to the west along FM 1464. This course is open to the public.

The nearest general park facilities of significant size are approximately 6 miles north in Harris County's Cullen Barker Park. The planned facilities for that park, however, will be of a significantly different type than are envisioned for Cullinan Park.

DEVELOPMENT RESTRICTIONS

When tracts one and three were purchased, they each contained a portion of the same drill site. In accordance with the purchase agreement, the lessee released his rights to the drill site on December 28, 1990 with no drilling activity having occurred on the site.

Of the four tracts that comprise the park, tracts one and two were purchased with funds donated by the Nina J. Cullinan Estate. As a condition of the donation, certain use restrictions were applied to these tracts. The types of uses allowed, however, are the uses to which the tracts seem naturally best suited because of their existing character or location. Therefore, the restrictions should not be a limiting factor in the development of the park.

USES NOT ALLOWED ON CULLINAN TRACTS

- ☐ Golf course
- ☐ Swimming Pool
- ☐ Playgrounds or exercise equipment
- ☐ Camping
- ☐ Baseball, softball, football, polo, soccer or other sport fields
- ☐ Tennis, badminton, handball or other sport courts
- ☐ Roller or ice skating rink
- ☐ Bicycle or motorcycle trails or tracks

Figure 7, Appendix A

- ❑ Any other use that would "... detract from the Restricted Property's being a place of beauty and peacefulness for enjoyment by the public."

USES SPECIFICALLY ALLOWED ON CULLINAN TRACTS

- ❑ Placement of art
- ❑ Benches
- ❑ Picnic tables and grills
- ❑ Botanical Gardens
- ❑ Fish ponds
- ❑ Gazebos
- ❑ Restrooms
- ❑ Refreshment stands
- ❑ Paved parking or interior roads for cars and bicycles
- ❑ Informal games of frisbee, softball, touch football "... when no facility specially promoting that use has been provided by the City of Houston."
- ❑ "... any other improvements which are usually situated in parks to enhance the public's enjoyment thereof (but which would not detract from the Restricted Property's being a place of beauty and peacefulness, as distinguished from recreational acreage)..."

CULTURAL RESOURCES

The park site has significant historical interest in that it was part of the homestead land grants of two of Stephen F. Austin's "Old Three Hundred" settlers in the early 1800's. This aspect of the park should be incorporated in some manner into the design of the park, perhaps as an interpretive plaque.

In addition to two known archeological sites which were discovered and registered during site analysis, there are potentially many areas of archeological interest throughout the park. Further on-site study should be conducted prior to construction.

VISUAL FEATURES

The Cullinan Park site offers a variety of visual experiences. There are many large open grasslands with outstanding long vistas, Pecan woodlands filled with magnificent mature Pecan trees, and intimate closed forests. Facilities, roads and trails should be designed to take advantage of these features.

Figure 8, Appendix A

See the Cultural Resources Assessment in Appendix B for more details on the park's history and archeology.

Figure 9, Appendix A

NATURAL ENVIRONMENT

SOIL TYPES

A large number of soil series can be found on the park site. Soil types range from sandy alluvial soil through fine sandy loam to heavy clay. Two of the soil series listed by the U.S. Soil Conservation Service as hydric (Roebuck Clay and Beaumont Clay) exist on site but in relatively small areas. Hydric soils are those that remain saturated for at least fourteen days with a depth of saturation of at least 18 inches. A hydric soil classification is one of three criteria used in designating an area as a wetland.

Figure 10, Appendix A

SURFACE FAULTS

An investigation of geotechnical data has revealed no record of surface faults on or significantly near the park site.

FLOODING AND WETLANDS

Approximately two-thirds of the park falls within the 100 year flood plain although only a few feet deep at most. The 100 year flood plain is defined as the area having a 1% chance of being inundated during any year. Since White Lake and Red Gully have large, mostly undeveloped watersheds, the flood plain area can be expected to increase somewhat with future development upstream. Most of the uses planned for the park's flood plain areas are inherently resistant to flood damage. Those that are not can be constructed to minimize such damage.

Figures 11 & 12, Appendix A

Detailed identification of wetland areas within the park is yet to be accomplished. However, preliminary indications suggest that approximately twenty-five percent of the park could be designated as wetlands. Since the park's natural environment is to be featured, the protection of valuable wetlands is an important objective of the master planning process.

STORM WATER DETENTION

According to the Fort Bend County Drainage District, no on-site detention of storm water will be required of the park. The county uses overflow diversion ditches at various locations along Oyster Creek for flood control instead of detention facilities and will continue to do so for the foreseeable future.

RED GULLY

Red Gully travels for three quarters of a mile generally southeast across the park and intersects with Oyster Creek. It is deep enough to retain several feet of water even during drought

periods. During these times, however, floating aquatic vegetation often covers significant areas.

The gully's natural channel has been modified by the Fort Bend County Drainage District within their 220 foot wide easement through the park. Additional development in the watershed upstream of the park will require, at some time in the future, an increase in the gully's carrying capacity within the park. Current information from the District indicates that the easement will need to increase in width to 290 feet at Richmond-Gaines Road and 270 feet at the Oyster Creek end in order to accommodate an enlarged channel. A study presently being conducted for Fort Bend County by Jones and Carter, Inc., Consulting Engineers, will update these widening and right-of-way requirements. The construction schedule for accomplishing the widening has not been established.

OYSTER CREEK

Oyster Creek is a continuously flowing stream which travels through and adjacent to the park site for about three miles and extends many miles both east and west of the park. The creek is designated as "navigable" by the U.S. Corps of Engineers only as far north as Angleton, about 35 miles southeast of the park site. However, according to the General Land Office, the waters of Oyster Creek are public and only the banks are under private ownership.

The Brazos Valley Irrigation Company holds an irregularly shaped canal easement for the length of Oyster Creek's passage through the park. According to the Fort Bend County Drainage District, there are no plans for channel improvements to Oyster Creek, since the County will continue to use diversion channels for flood control.

LAKES

Of the park's two lakes, White Lake is the largest at about 40 acres. It is also the deepest, varying from 2 to 3 feet in the west to about 8 feet in the southeastern portion. During drought periods, the western half dries out almost completely while the eastern and southeastern portions retain significant amounts of water. During flood periods, water backs into White Lake from drainage areas and lakes to the east of Highway 6 and flows back out the same direction as the flood water recedes.

Pumpkin Lake, with about 30 acres of water surface, is only a few feet deep and dries out completely in periods of severe drought. During flooding, water from Oyster Creek backs into Red Gully and subsequently into Pumpkin Lake through the lake's normal

outfall channels. The primary water inflow for Pumpkin Lake during normally rainy periods historically has been from the west. However, the adjacent property owner has cut off the natural flow in order to retain water in his portion of the lake thus increasing seasonal drying within the park.

AQUATIC LIFE

White Lake and Oyster Creek are known by area residents as good fishing locations with Oyster Creek being the better of the two. The substantial length of shoreline available within the park will provide abundant fishing opportunities thus eliminating the need for any artificially created fishing ponds.

WILDLIFE

Animal species found in the park are typical for the region. The most interesting is the Gray Fox which has been observed in the northern portion of the site. Birdlife is quite varied, with twenty-four species having been observed in a three hour period. Another one hundred twenty species are known to inhabit the region and might exist on site or use the site during migration seasons. Because of the abundance of water areas within the park, waterfowl should be particularly prevalent. Consequently, the park appears to be a good place for bird watching.

ENDANGERED SPECIES

The Texas Parks and Wildlife Department and the U.S. Fish and Wildlife Service have indicated that two species of endangered wildlife and one endangered plant species are listed for Fort Bend County. None of the wildlife are known to exist on the park site, and it seems unlikely that any will be found.

A botanical survey has shown that the Prairie Dawn Plant and two threatened plant species, Houston Machaeranthera and Texas Windmill Grass, do not exist in the Phase 1 and 2 areas.

EXISTING FISH SPECIES

Blue Catfish
Bluegill
Buffalo
Channel Catfish
Crappie
Flathead Catfish
Gar
Gaspergou
Largemouth Bass

WILDLIFE EXISTING IN THE PARK

Abundant birdlife (see Appendix D)
Armadillo
Copperhead
Cottonmouth Moccassin
Cottontail Rabbit
Coyote
Feral cat
Field mouse
Gray Fox
Miscellaneous reptiles
Opossum
Raccoon
Squirrel
Deer are not known to be on-site

ENDANGERED SPECIES - FORT BEND COUNTY

Attwater's Prairie Chicken
Bald Eagle
Prairie Dawn Plant (*Hymenoxys texana*). Recently found in Cullen Barker Park in Harris County.

THREATENED PLANT SPECIES - FORT BEND COUNTY

Houston Machaeranthera
(*Machaeranthera aurea*)
Texas Windmill Grass
(*Chloris texensis*)

VEGETATION

The site contains a rich variety of both woody and herbaceous plants. Bottomland forest covers major portions of the northern section of the park from Highway 6 west to Richmond-Gaines Road and surrounds most of White Lake. Isolated forest areas occur at and near Red Gully, Pumpkin Lake, and along both sides of Oyster Creek for large portions of its passage through the park. Large grassland areas, which occur throughout the park, contain a wide variety of grasses and wildflowers.

Figure 13, Appendix A

PLANT SPECIES CASUALLY OBSERVED

Trees

American Elm
American Planetree
Bois D'Arc
Cedar Elm
Chinese Tallow
Green Ash
Hackberry
Hawthorn
Hickory
Huisache
Live Oak
Loblolly Pine
Mockernut Hickory
Pecan
Roughleaf Dogwood
Smooth Sumac
Texas Forestiera
Texas Honeylocust
Water Oak
Western Soapberry
White Oak
Willow

Shrubs:

American Beautyberry
Button Bush
Coral Bean
Indian Currant
Possumhaw Holly
Trifoliate Orange
Turks Cap
Woolly Rose-Mallow
Yaupon Holly

Vines:

Curly Clematis
Grape
Maypop
Peppervine
Poison Ivy
Supple-Jack
Trumpet Vine
Virginia Creeper

Wildflowers (June)

Eryngo
Evening Primrose
Horsemint (abundant)
Indian Blanket
Nightshade
Wild Petunia (abundant)

Aquatic

Yellow Lotus

DESCRIPTION OF FACILITIES

The master plans described in this report are guides for future action but are based on current ideas and goals. These ideas and goals may change during the course of the park's development requiring corresponding modifications to the master plan. With this in mind, the following descriptions are offered as explanation of the design intent for each facility. In order to provide a more complete understanding, specific details have been included as examples of what might be done.

The first twenty-two facilities described below are common to both master plan options. The numbers for each entry refer to corresponding numbers on the accompanying master plan drawings.

OPTIONS 1 AND 2

1 • MAIN PARK ENTRANCE

2 • FISHING ACCESS PARKING LOT

3 • MAIN PARK ROAD

As a major artery connecting to the Houston metropolitan region, State Highway 6 provides primary access to the park. The main park entrance from Highway 6 (#1) is located so as to avoid the low lying, heavily forested area to the north yet still take advantage of its southern edge. At the same time, the entrance is as far as possible from the Oyster Creek bridge railing. The southbound deceleration lane being provided by the Highway Department on Highway 6 will simplify visitor access from the north, while the central left turn lane will accommodate arrivals from the south.

The main park road (#3) is divided by an esplanade as it enters the site, with the roadways independently aligned to preserve large existing Pecan trees. A park identification sign with colorful surrounding groundcover and shrub plantings would be located in the tip of the esplanade at Highway 6. Colorful native trees could be planted along the road as it passes through the woodland area. The roadways join shortly after leaving the woodland setting of the entrance and continue as a single road across an open grassland with a view of White Lake. The road ends at Red Gully, leaving the large southern portion of the park unencumbered by roads and accessible only by foot.

The park road will be 24 feet wide and constructed of concrete with concrete curbs pierced at regular intervals for drainage. The

Option 1: Figure 15, Appendix A
Option 2: Figure 16, Appendix A

See drawing on next page

SUGGESTED TREE ADDITIONS

Eastern Redbud
Flowering Dogwood
Little Hip Hawthorn
Possumhaw Holly
Prairie Flame Leaf Sumac
Sassafras
Sweet Gum

adjoining native grassland would act as a filter to clean the runoff before it reaches drainage channels or lakes.

The area under and adjoining the Oyster Creek bridge has long been a popular fishing spot and is likely to remain so, particularly when the park is closed. In order to accommodate this recreational activity and at the same time maintain an attractive park entrance, a portion of the park would remain outside the perimeter fence. Part of the barbed wire fence that parallels Highway 6 would be removed and replaced with a new rustic rail fence inset into the park. A small parking area for seven cars would be constructed outside the fence (#2).

4 • FOREST NATURE TRAIL

The northeastern portion of the park is the most heavily forested, making it a logical place to establish an interpretive trail highlighting the forest habitat. The area has two distinctly different forested environments. South of the drainage channel is a woodland composed almost entirely of large, mature Pecan trees with very little woody undergrowth. On the north side is a mixed bottomland forest on sloping land with an elevation differential of 7 to 8 feet.

In order to increase the variety of plant species available for study and enjoyment, native shrubs, understory trees, and herbaceous perennials could be planted and labeled along with existing species. Interpretive plaques describing the flora and fauna of the forest could be strategically placed along the trail.

The one-half mile interpretive loop which connects with the larger park trail system would be constructed of asphalt with elevated wooden boardwalks crossing drainage channels and other low areas. Parking and restroom facilities serving the nature trail are located at the nearby Forest Picnic Area (#5).

See Figure 13 in Appendix A for a partial listing of existing plant species

SUGGESTED PLANT ADDITIONS

Trees:

American Holly
Carolina Buckthorn
Eastern Redbud
Flowering Dogwood
Rusty Blackhaw Viburnum
Sweet Bay Magnolia

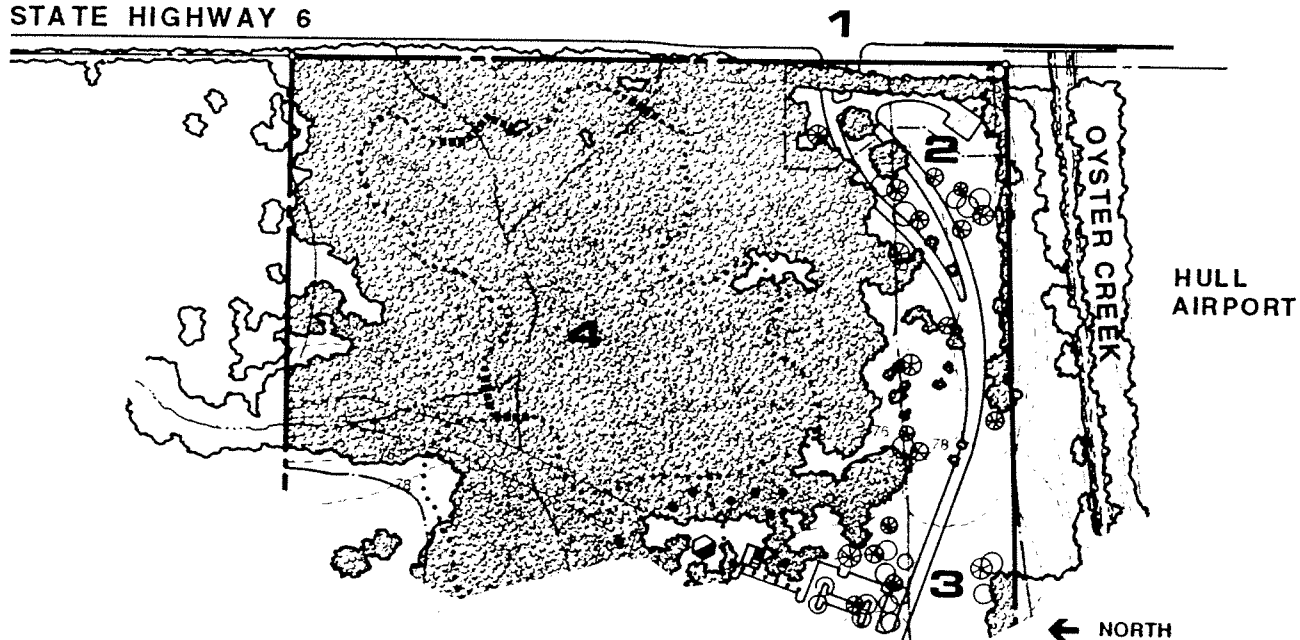
Shrubs:

American Beautyberry
American Cyrilla
Flameleaf Sumac
Red Buckeye
Virginia Sweetspire

Perennials:

Cardinal Flower
Sensitive Fern
Virginia Iris
Wood Fern

STATE HIGHWAY 6

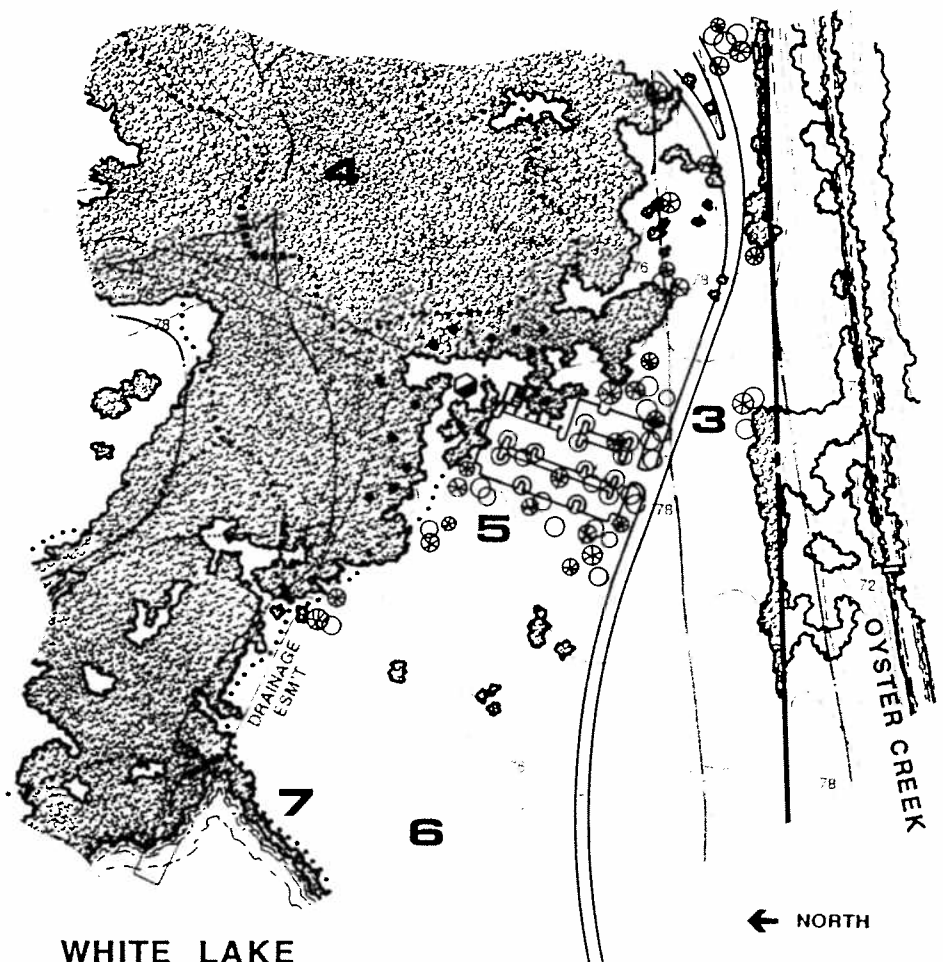


5 • FOREST PICNIC AREA

Each of the major picnic areas within the park are located so as to provide access to a different natural environment. The Forest Picnic Area is closely associated with the adjacent bottomland forest. Individual picnic tables and grills are scattered throughout the Pecan woodland. Trails within the picnic area connect directly to the Forest Nature Trail as well as to the general park trail system. Native understory trees and shrubs could be added to enhance the enjoyment of the area.

Other facilities include a covered group picnic pavilion, a play structure, restrooms, an interpretive historical and archeological plaque, and parking. Since the entire picnic area is within the 100 year flood plain, the restroom building floor elevation would be raised to prevent flooding.

The Cullinan Park site presents a unique opportunity to portray to the public a portion of the history of southeast Texas. A prominently displayed plaque would tell of the site's role in early Texas settlement and describe native Americans who lived on or traversed the site. Archeological artifacts found in the park would be described with text and, perhaps, illustrations.



SUGGESTED ADDITIONS TO FOREST

American Cyrilla
Eastern Redbud
Parsley Leaf Hawthorn
Possumhaw Holly

SUGGESTED TREES FOR PARKING LOT

Cedar Elm
Green Ash
Live Oak
Pecan
Shumard Red Oak

UTILITIES REQUIRED

(See Figure 15, Appendix A)

Water: From meter #1W
Sanitary: To lift station east of Canoe Pier (#11)
Electricity: From Maintenance Yard (#22)

See the Cultural Resources Assessment in Appendix B for more details on the park's history and archeology.

6 • WILDFLOWER MEADOWS

Open grasslands cover major portions of the park site. Views across these gently sloping and undulating areas are long and pleasantly terminated by large tree masses or bodies of water. Although a rich variety of grasses and wildflowers already exist in these areas, the addition of new species would extend the period of bloom, and augmentation of existing species would increase the mass effect. Observation through a year's period would identify the major species present and form the basis for selecting species to be added.

7 • HIKING TRAILS

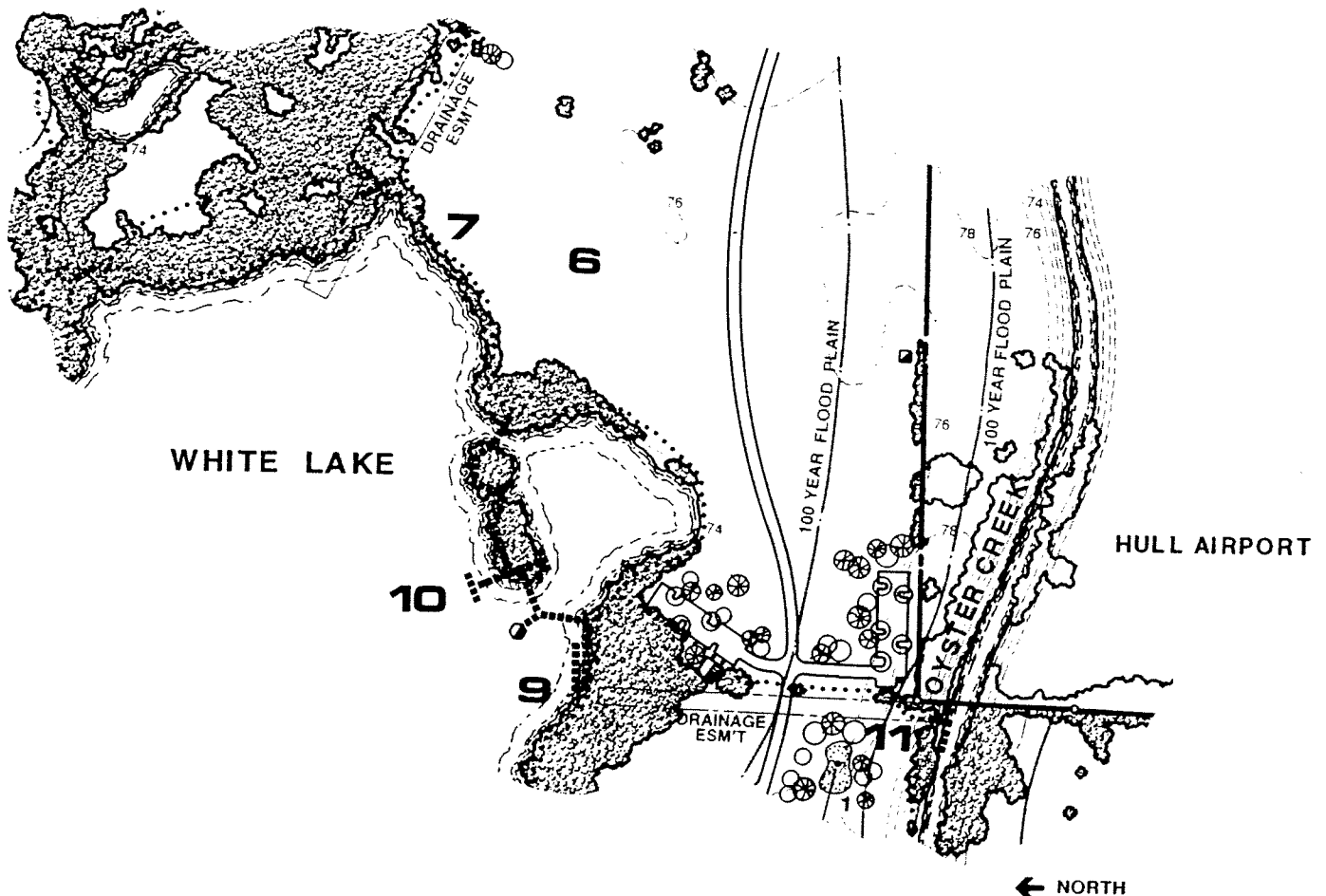
With a total length of eleven miles in master plan option one and thirteen miles in option two, the trail system passes through all of the park's diverse environments and connects all facilities. The all-weather trails would provide general hiking experiences as well as opportunities for nature study and access to fishing.

EXISTING WILDFLOWERS CASUALLY OBSERVED IN JUNE

Eryngo
Evening Primrose
Horsemint (abundant)
Indian Blanket
Mexican Hat
Nightshade
Verbena
Wild Petunia (abundant)

SUGGESTED WILDFLOWER ADDITIONS

Black-Eyed Susan
Blue Mistflower
Bluebonnet
Drummond Phlox
Evening Primrose
Gayfeather
Indian Blanket
Indian Paintbrush
Meadow Pink
Plains Coreopsis
Purple Horsemint
Rain Lily
Swamp Sunflower
Tickseed



8 • LAKE PICNIC AREA

Although similar to the Forest Picnic Area (#5) in available facilities, the Lake Picnic area is more closely associated with the White Lake environs. Picnic tables and grills are located in wooded areas in order to preserve a central meadow for unstructured play. Trails within the picnic area connect to the general park system as well as to a nearby boardwalk which crosses a small cove of the lake. Native understory trees and shrubs could be added to enhance the area.

Other facilities include two covered group picnic pavilions, a play structure, restrooms, parking, and an interpretive historical and archeological plaque identical to the one in the Forest Picnic Area. Since the entire picnic area is within the 100 year flood plain, the restroom building floor elevation would have to be raised to prevent flooding.

SUGGESTED ADDITIONS TO FOREST

American Cyrilla
Eastern Redbud
Fringe Tree
Parsley Leaf Hawthorn
Possumhaw Holly

SUGGESTED TREES FOR PARKING LOT

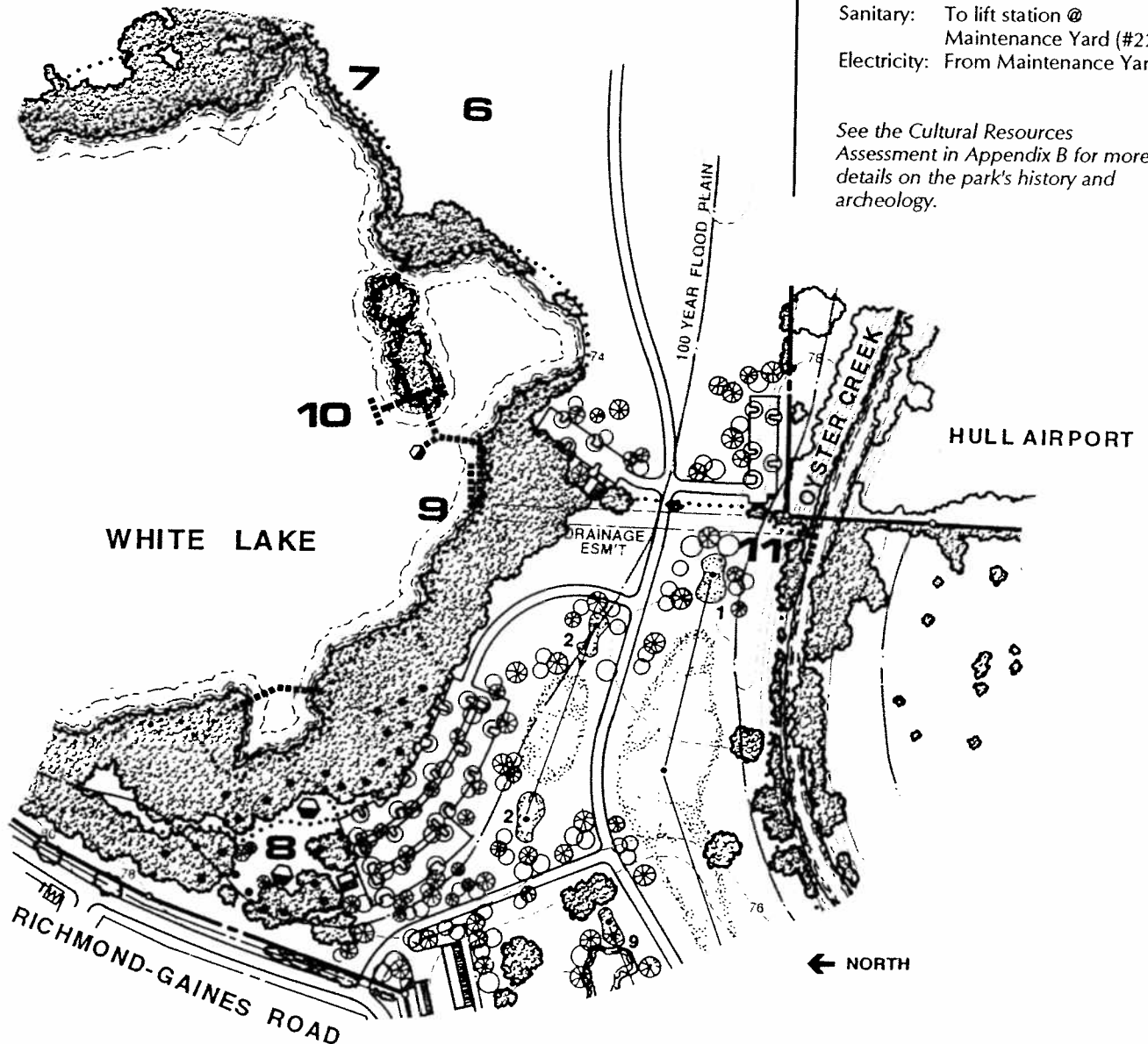
Cedar Elm
Green Ash
Live Oak
Shumard Red Oak

UTILITIES REQUIRED

(See Figure 15, Appendix A)

Water: From meter #1W
Sanitary: To lift station @
Maintenance Yard (#22)
Electricity: From Maintenance Yard

See the Cultural Resources
Assessment in Appendix B for more
details on the park's history and
archeology.



9 • BOAT PIER

10 • BOARDWALKS, FISHING PIER, OBSERVATION SHELTER

The park's major water recreation area at the southern end of White Lake includes facilities for both passive and active recreation. A system of elevated boardwalks connect to two islands in the lake with three separate activity areas extending from the boardwalks. A nearby parking lot and restroom building would serve all facilities.

A boat pier along the main shoreline could house paddleboats for rent. Portions of the lake could be deepened in order to maintain navigability of as large an area as possible during dry summers.

A multi-level observation shelter is located in the lake just off the main boardwalk. The main purpose of the structure would be general observation of White Lake activities and of the surrounding parkland, but it could also provide wildlife observation opportunities at those times when boating activity on the lake was minimal.

A T-head fishing pier extends into the lake from the boardwalk on the largest island. Although game fish already exist in the lake, additional stocking could improve fishing quality.

11 • CANOE AND FISHING PIER

Oyster Creek, which passes through the park and forms a substantial portion of the southern boundary, is a major resource for water-oriented recreation. Although the lengthy shoreline offers abundant fishing opportunities, the addition of a pier on the banks of the creek would enhance fishing access. An adjacent canoe launching facility would provide easy access to many miles of canoeable water in Oyster Creek and Red Gully, both inside and outside the park.

Oyster Creek courses for almost three miles within the park and is navigable by canoe for another five miles to the east. A low bridge at Highway 90A in the city of Sugar Land prevents further travel downstream. However, a nearby Sugar Land city park, which has water access to Oyster Creek, could provide a suitable terminus. Although no boating facilities exist in the city park, a cooperative effort with the City of Sugar Land would be mutually beneficial. The creek is also navigable by canoe for many miles to the west, though a suitable terminus is not immediately evident.

See drawing on previous page

FISH SPECIES EXISTING IN WHITE LAKE

Bluegill
Buffalo
Catfish
Gar
Largemouth Bass

SUGGESTED FISH ADDITIONS

Blue Catfish
Channel Catfish
Largemouth Bass

UTILITIES REQUIRED (See Figure 15, Appendix A)

Water: From meter #1W
Sanitary: To lift station east of
Canoe Pier (#11)
Electricity: From Maintenance Yard
(#22)

See drawing on previous page

EXISTING OYSTER CREEK FISH SPECIES

Blue Catfish
Bluegill
Buffalo
Channel Catfish
Crappie
Flathead Catfish
Gar
Gaspargou
Largemouth Bass

UTILITIES REQUIRED (See Figure 15, Appendix A)

Electricity: From Maintenance Yard
(#22)

12 • NATURE TRAILHEAD

One of the primary functions of Cullinan Park is to provide opportunities for public enjoyment of nature. Several significant areas within the park are set aside for this purpose. The 310 acre portion south of Red Gully is by far the largest, occupying fully 40% of the entire park. Within this vast area, seven miles of interlaced trails would accommodate hikers and joggers and provide opportunities for fishing and nature study as well. Facilities other than trails would be kept to a minimum in order to preserve the experience of "getting away from it all."

Foot access across Red Gully is provided at one location by an existing wooden bridge near the confluence of the gully and Oyster Creek. The bridge would be modified to improve its appearance. A small kiosk near the southern end of the bridge would house a map of the trail system. With the addition of a few benches, this location could serve as a gathering place. Parking and restroom facilities would be available on the north side of Red Gully.

13 • WILDFLOWER AND NATIVE GRASS TRAIL

Interpretive trails are usually designed to identify woody trees and shrubs and, occasionally, herbaceous plants. Such trails would be an important part of Cullinan Park. Wildflowers and native grasses, however, are seldom the subject of an interpretive trail. The abundance of large open areas within the park offers the opportunity to fill this gap.

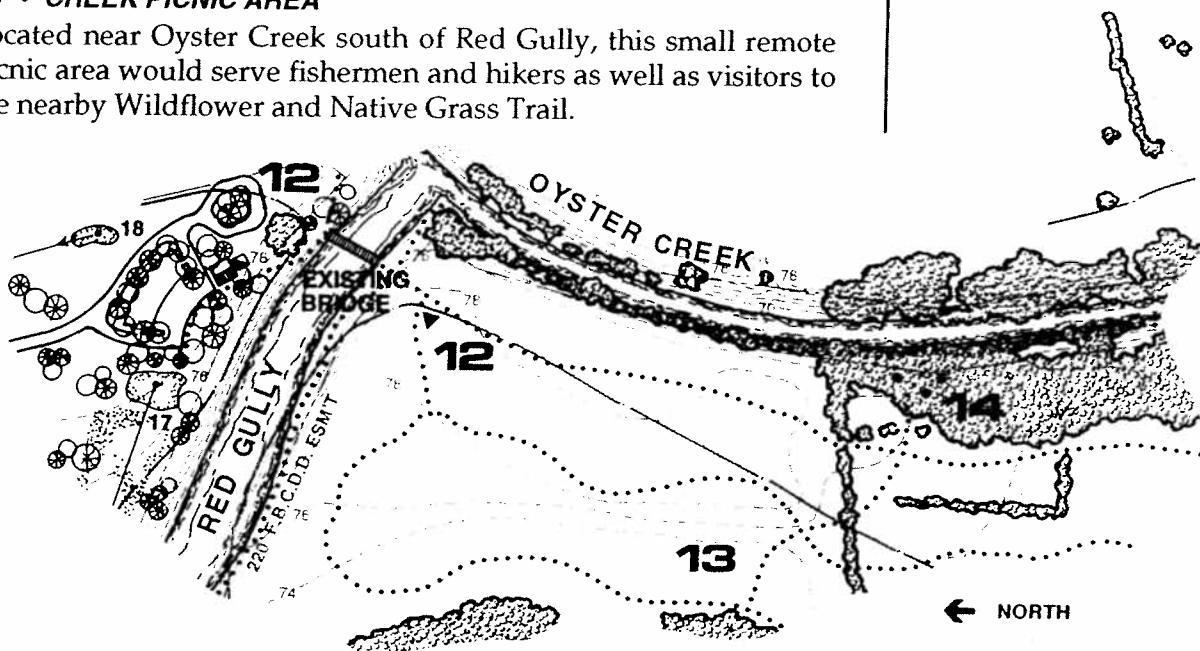
Wildflower and native grass plantings would be extensive – not just a few plants but masses of one species – making identification easier and the area more attractive. A loop trail one mile long and a shorter one-half mile loop would provide visitors a choice of experiences.

14 • CREEK PICNIC AREA

Located near Oyster Creek south of Red Gully, this small remote picnic area would serve fishermen and hikers as well as visitors to the nearby Wildflower and Native Grass Trail.

UTILITIES REQUIRED (See Figure 15, Appendix A)

Water:	Option 1 - From meter #2W
	Option 2 - From meter #3W
Sanitary:	To lift station near restroom
Electricity:	From Maintenance Yard (#22)



15 • WETLAND NATURE TRAIL

There are several large wetland areas within the park. This is the largest and most diverse with the greatest amount of permanently standing water. An interpretive trail would meander through the area with labels identifying forest plant species, water-loving vegetation, and animal habitats. A combination of dry land trails and boardwalks crossing wet areas would provide a variety of experiences within the framework of the wetland environment.

In the center of the area is a pond which could be enriched with Wood Duck nesting boxes and water-loving plants. An expanded boardwalk touches one edge of the pond providing a place to stop and observe wetland creatures and plant life. Most of the pond edge would remain inaccessible and undisturbed.

16 • RED GULLY ENHANCEMENT

Red Gully, which extends for three-fourths of a mile across the park, is a rectified but not concrete-lined drainage channel. Both shorelines are parallel and have engineered, unnatural-looking side slopes along many portions.

In order to modify the rigid look of the gully, the south shoreline would be re-worked to have a more undulating edge. At one location, the gully would be expanded into a small cove with an island where native trees and shrubs could be planted to provide an undisturbed bird nesting habitat. The area around the cove could also be planted with trees and shrubs to provide fall and winter color as well as berries for wildlife food. Both edges of the gully would be regraded to lessen slopes in order to prevent erosion and give a more natural appearance.

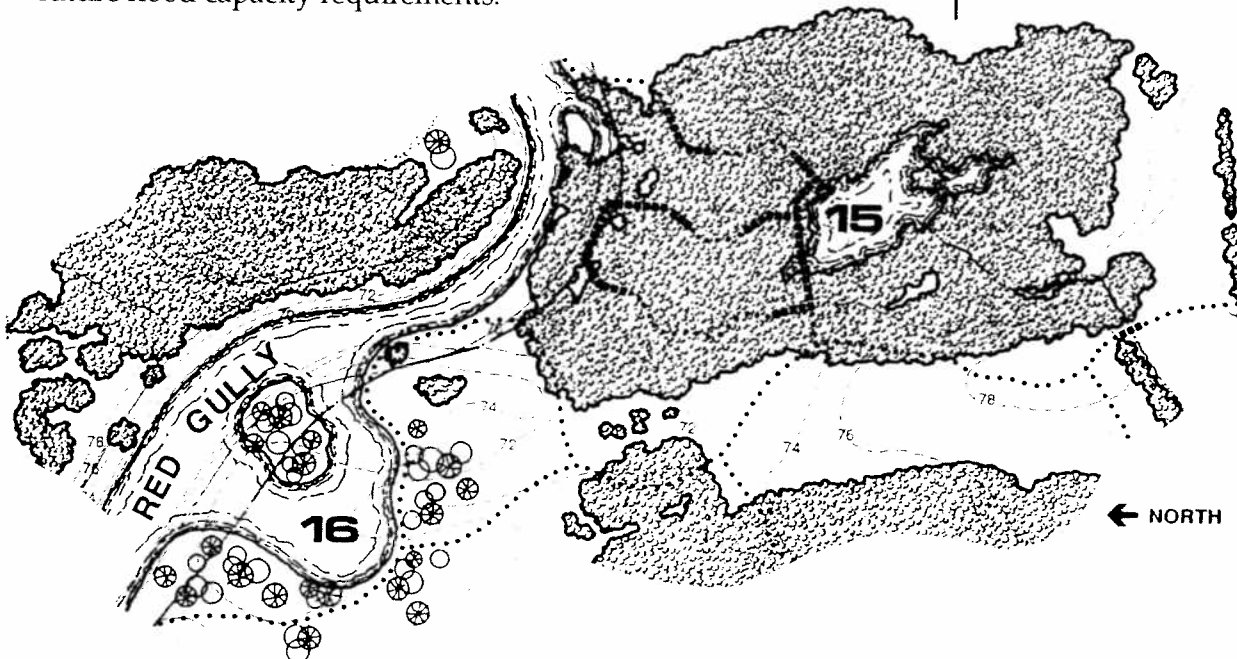
Through coordination between the City of Houston and the Fort Bend County Drainage District, the same enhancements that improve the appearance of Red Gully could also accommodate future flood capacity requirements.

SUGGESTED PLANT ADDITIONS

American Cyrilla
Dahoon Holly
Pickerel Weed
Sensitive Fern
Water Canna
Water Primrose
White Milkweed

SUGGESTED PLANT ADDITIONS

Bald Cypress
Common Persimmon
Dahoon Holly
Farkleberry
Hawthorn
Possumhaw Holly
Prairie Flame Leaf Sumac
Red Oak
Sweetgum
Yaupon Holly



17 • JOGGING AND HIKING TRAIL

Although joggers and hikers certainly can coexist on a trail system, there are some areas that should be reserved solely for hiking in order to allow a quieter, more relaxed nature experience. The trails in these areas would be designed with sharper curves and angles to discourage joggers. Other trails would be specially designed for jogging with smoother curves and longer straight sections. Strategically placed signage would help maintain the separation. Approximately two and three-fourths miles of the trail system in this portion of the park would be available to both joggers and hikers with about another four miles restricted to hiking only.

18 • RESERVABLE GROUP PICNIC AREA

Although the park's two major picnic areas would have reservable pavilions, they would accommodate only moderately sized groups. This facility, however, would be able to accommodate a greater variety of groups, including large corporate gatherings. It could be implemented in stages as user demand increases.

A controlled entry from Richmond-Gaines Road would allow access only for the group or groups scheduled to use the facility. In the center of the picnic area is a combination restroom building and covered barbecue pavilion. A large barbecue pit at one end would face an area of picnic tables. The barbeque pavilion is oriented to take advantage of long vistas available from this area of the park. Smaller group picnic pavilions, without barbecue pits, are separated from the main structure. Walks within the area connect to the lengthy trail system south of Red Gully.

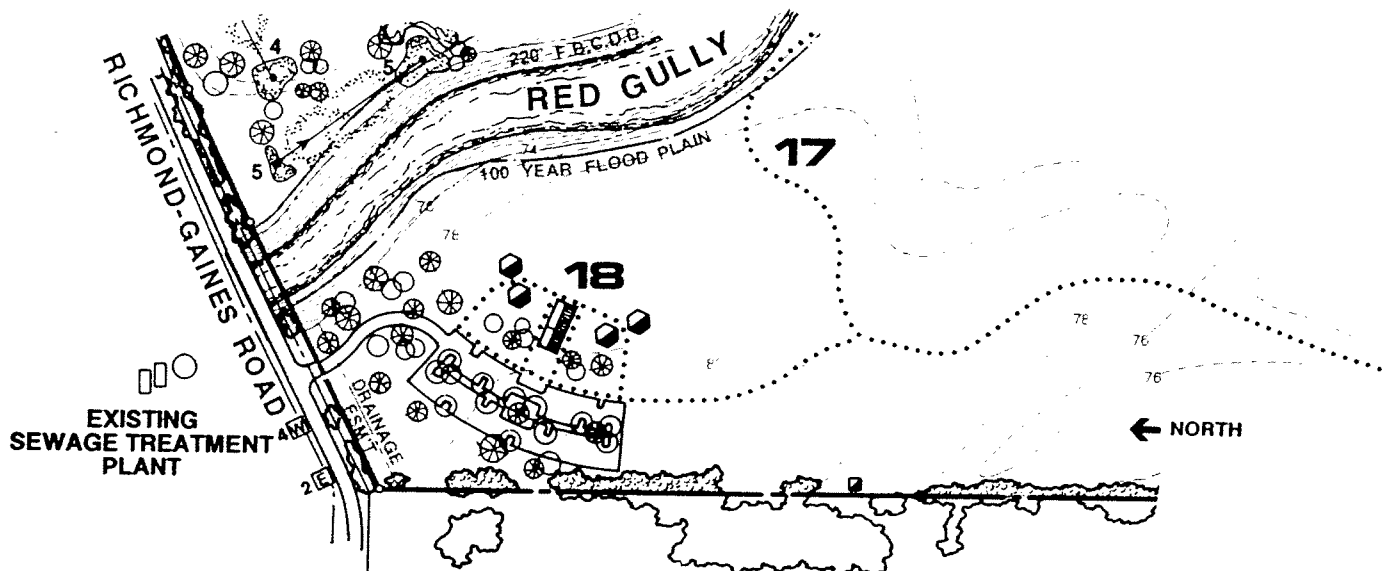
Since this portion of the park is treeless, except along fence lines, significant numbers of trees would be planted within the picnic area and in the parking lot. Wildflowers could be added to some of the grasslands to further enhance the area.

SUGGESTED TREE ADDITIONS

Cedar Elm
Green Ash
Hawthorn
Live Oak
Pecan
Red Oak

UTILITIES REQUIRED (See Figure 15, Appendix A)

Water: From meter #4W
Sanitary: To lift station on western
park boundary
Electricity: From panel @ northwest
property corner



19 • PUMPKIN LAKE WILDLIFE OBSERVATION AREA

Pumpkin Lake offers a nature experience distinctly different from White Lake. It is more remote and will be less crowded. Consequently, wildlife is likely to be more abundant, particularly if the lake is deepened to retain more water during dry summers.

A multi-level observation shelter is located in the deepest portion of the lake. Interpretive plaques could be placed in the shelter to identify the wildlife most likely to be seen. Restrooms are nearby.

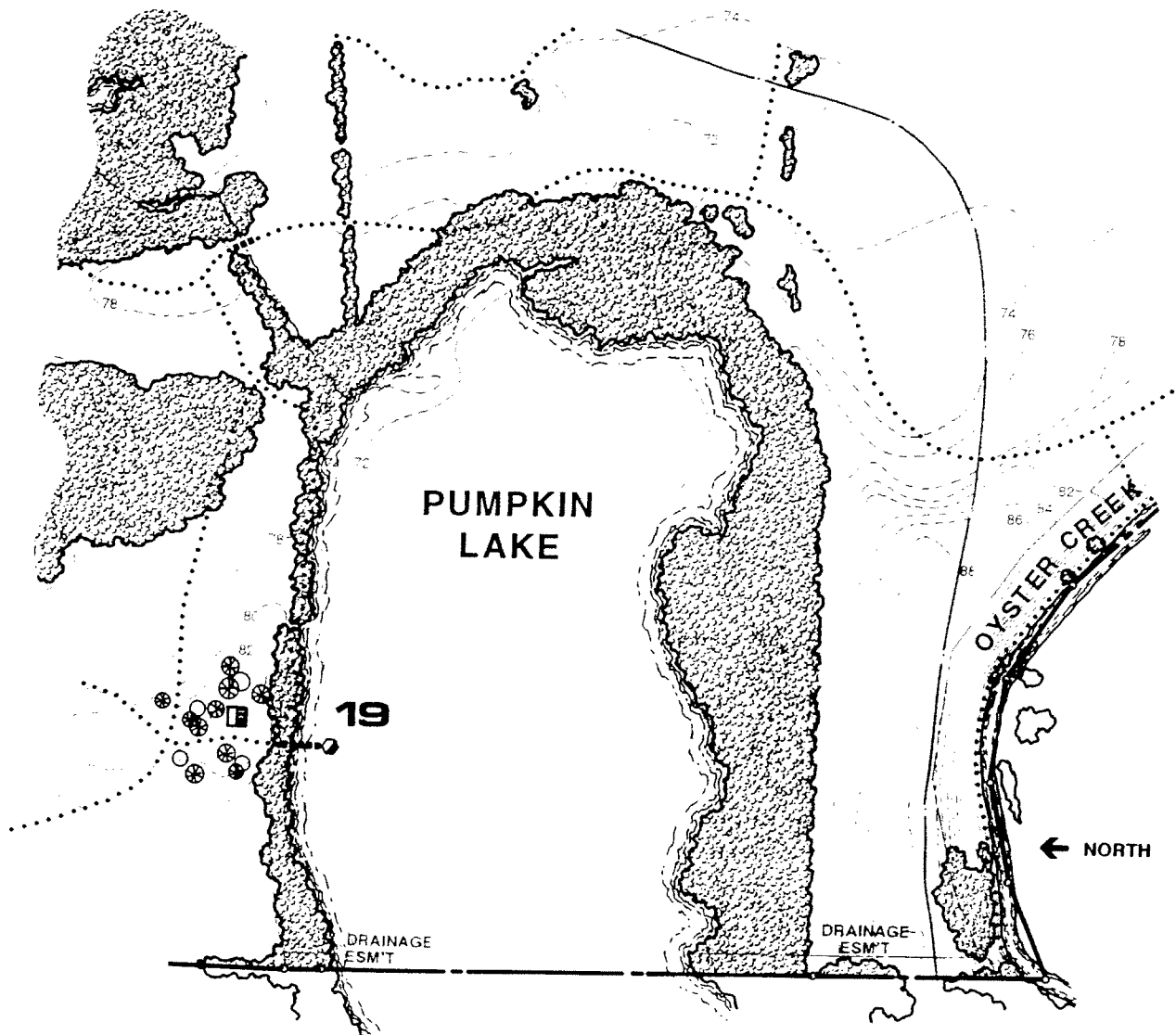
The primary water inflow for Pumpkin Lake during normally rainy periods should be from the west. However, the adjacent property owner has cut off the natural flow in order to retain water in his portion of the lake. This results in a dry lake bed within the park during drought periods. Consequently, some portions of the lake should be deepened to retain water for habitat enhancement. Other portions should be left alone to dry out in a natural wet/dry cycle.

SUGGESTED WILDLIFE FOOD PLANT ADDITIONS

Hawthorn
Selected native grasses
Swamp Sunflower
Texas Forestiera
Yaupon Holly

UTILITIES REQUIRED (See Figure 15, Appendix A)

Water: From meter #4W
Sanitary: To lift station on western
park boundary
Electricity: From panel @ northwest
property corner



20 • USE TO BE DETERMINED

Negotiations are currently underway to sell the portion of the park site between Oyster Creek and Hull Airport to the City of Sugar Land for airport related development. If the entire tract is sold, provision should be made in the contract for the retention of a buffer zone of several hundred feet in width along Oyster Creek. If only a portion of the tract is sold, this same buffer zone should be excluded from the sale.

In the event the tract is not sold, park facilities could be expanded into the area.

21 • SECONDARY PARK ENTRANCE

Although most visitors will use the main park entrance at Highway 6, the secondary entrance would be convenient for golfers and those using facilities at the Lake Picnic Area. This entrance also provides direct access to park maintenance facilities and could serve as a late exit point for golfers if the road to the Highway 6 exit were closed. A park sign similar in design to the one at the main entrance, though smaller, would identify the park. Short sections of decorative rail fence would enhance the entrance.

22 • MAINTENANCE YARD

Location of the maintenance yard in this corner of the park allows direct access for outside services (trash removal, materials delivery) without the need to pass through the park. At the same time maintenance access to the park road system is easy. The main building would provide space for a small maintenance office, equipment storage, and an enclosed vehicle service bay. Covered vehicle parking (including golf carts), bulk material storage bins, and a general outdoor work area are also provided. The yard is fenced and would be screened from public view by a dense perimeter planting of native trees and shrubs.

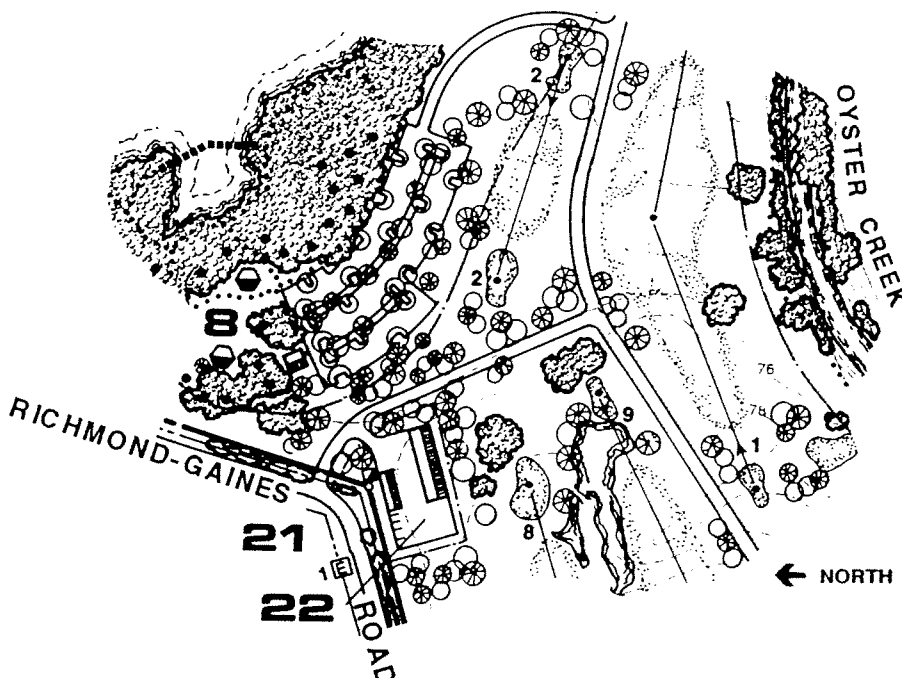
Figure 15, Appendix A

SUGGESTED SCREENING PLANTS

Green Ash
Hawthorn
Southern Wax Myrtle
Spruce Pine
Yaupon Holly

UTILITIES REQUIRED (See Figure 15, Appendix A)

Water: From meter #2W
Sanitary: To lift station @
Maintenance Yard (#22)
Electricity: From panel @
Maintenance Yard
Telephone: From Maintenance Yard



OPTION 1 ONLY

23 • EIGHTEEN HOLE EXECUTIVE GOLF COURSE

The rolling central portion of the park site is very open and well suited to golf. The area available, however, is too small for a standard length course but just right for a par 3 and 4 "executive" type course.

An executive golf course appeals to a large segment of golfers. Beginners, younger as well as senior players, and casual players of all ages find the easier, shorter course enjoyable. Even accomplished golfers will use an executive course occasionally to practice their game when they have a limited amount of time available. The inclusion of a driving range makes the course even more useful as a practice and teaching facility.

The golf club house, situated in the trees overlooking Oyster Creek, could include locker rooms, a snack bar and lounge, a practice putting green, and parking.

HOLE PAR YARDS

1	4	355
2	3	165
3	5	455
4	3	190
5	3	135
6	4	380
7	3	95
8	4	340
9	4	300
33		2415

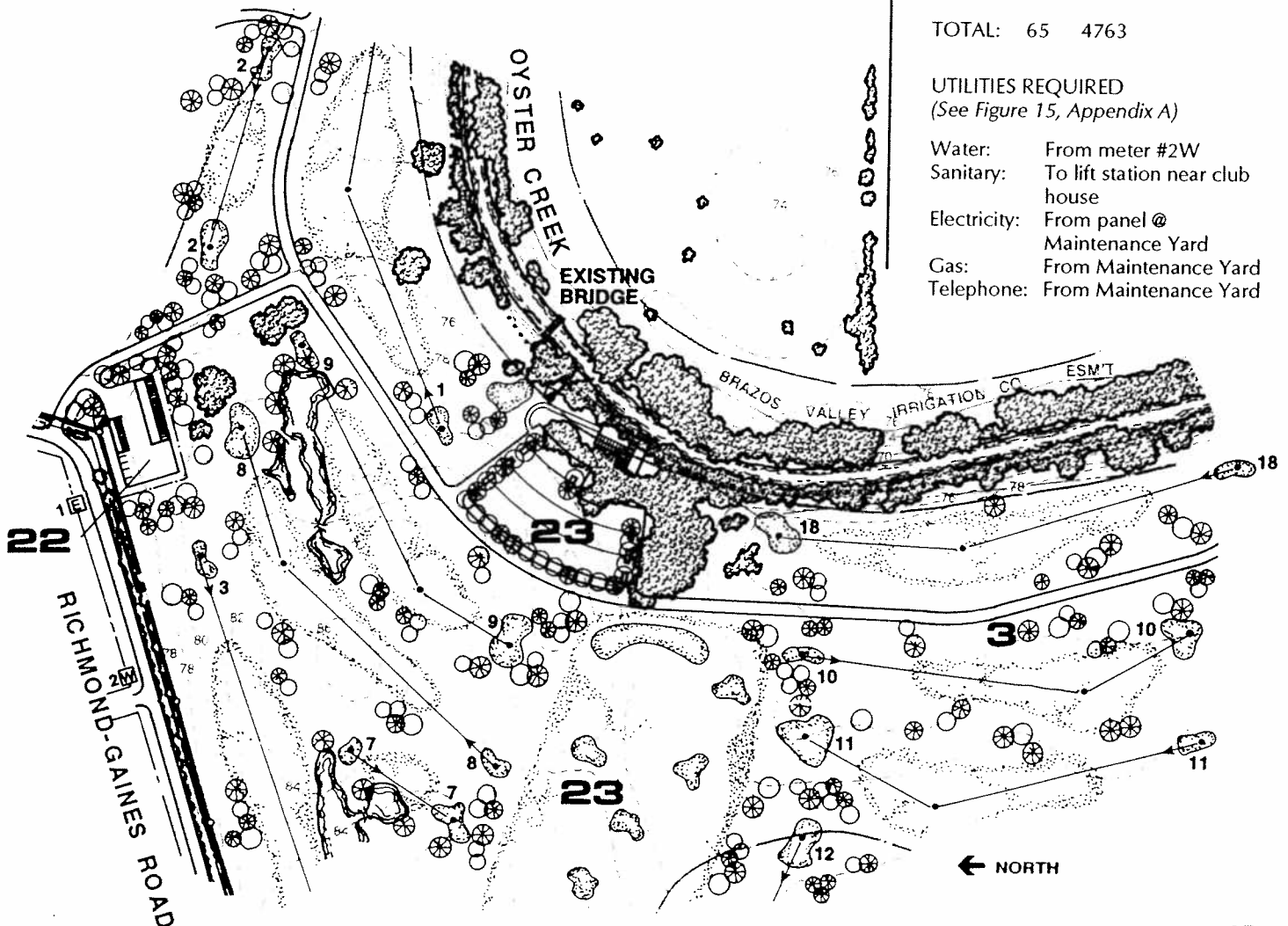
10	4	315
11	4	320
12	4	415
13	3	173
14	3	170
15	3	115
16	4	335
17	3	125
18	4	380
32		2348

TOTAL: 65 4763

UTILITIES REQUIRED

(See Figure 15, Appendix A)

Water: From meter #2W
 Sanitary: To lift station near club house
 Electricity: From panel @ Maintenance Yard
 Gas: From Maintenance Yard
 Telephone: From Maintenance Yard



OPTION 2 ONLY

A market study concerning the viability of an executive type of golf course in the Cullinan Park area has not yet been made. If it is determined that an executive course is not economically feasible, an alternate development scheme for the golf course area could be implemented. The golf course in option one (#23) would be replaced with the following in option two:

23 • HILLTOP OBSERVATION AREA

Prominently situated on a low hill and centrally located within the park, a multi-level observation shelter would command a scenic view of the park site and surrounding land. With a permanently mounted map of the park and an interpretive historical and archeological plaque similar to those at the major picnic areas (see #5), this facility could serve as an orientation point for the first time visitor.

24 • PARKING FOR HIKING AND FISHING TRAILS

In combination with parking at the Nature Trailhead (#12), this parking area provides easy access to the Oyster Creek hiking and fishing trail and the balance of the park trail system.

See the Cultural Resources Assessment in Appendix B for more details on the park's history and archeology.

UTILITIES REQUIRED
(See figure 16, Appendix A)

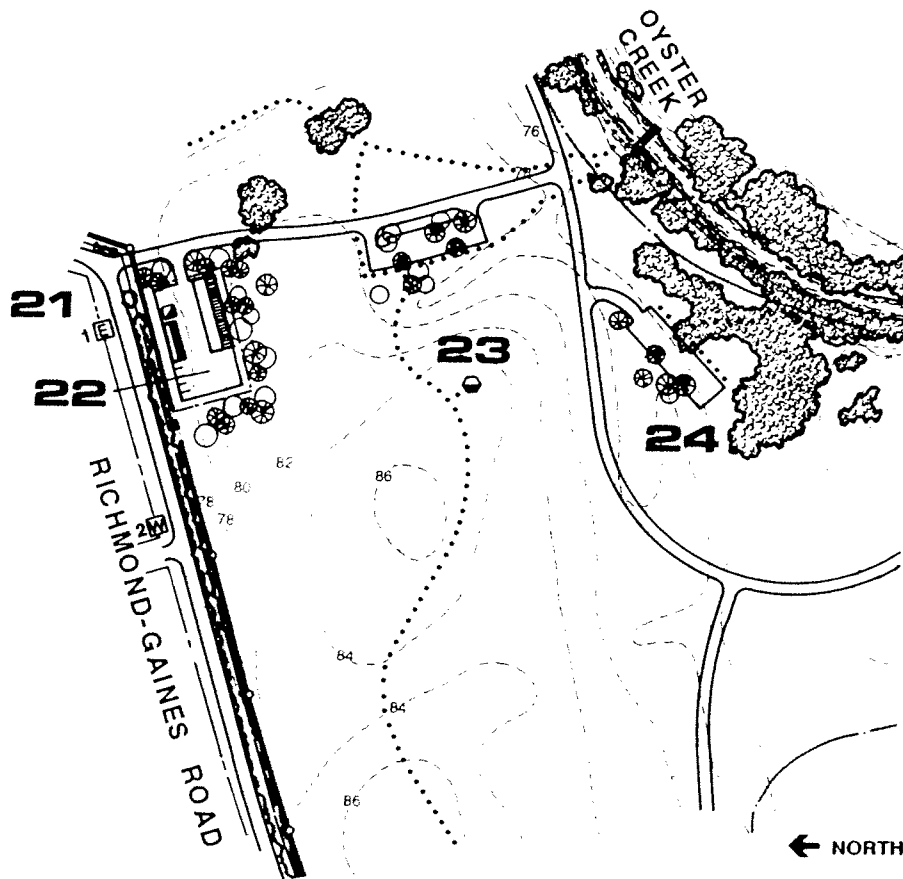
Electricity: From panel @
Maintenance Yard

SUGGESTED
PARKING LOT TREES

Cedar Elm
Green Ash
Live Oak
Shumard Red Oak

UTILITIES REQUIRED
(See Figure 16, Appendix A)

Electricity: From panel @
Maintenance Yard



25 • OVERLOOK AND REST AREA

On top of the hill in the northern portion of the site is the only stand of Pines in the park. This unique spot overlooks much of the park north and south of Red Gully including the Red Gully Picnic Area (#26). A small gazebo near the edge of the Pine grove would provide a rest stop along the hilltop trail as well as an interesting destination point for hikers coming from the Red Gully Picnic Area. Additions of native plants associated with Pine forests would further enrich the area.

26 • RED GULLY PICNIC AREA

27 • WETLAND BOARDWALK

As with the other major picnic areas in the park, the Red Gully Picnic Area would provide access to a particular natural environment — in this case, Red Gully and its associated wetland. Trails along the gully would connect to the general park trail system and to a boardwalk which crosses the adjacent wetland. Native understory trees and shrubs could be added to enhance the area.

Picnic facilities would include a covered group picnic pavilion, restrooms, an interpretive historical and archeological plaque (see description at #5), and parking. Since the entire picnic area is within the 100 year flood plain, the restroom building floor elevation would be raised to prevent flooding.

This picnic area would be different from others in the park because it would include a major playground. Various types of play equipment appealing to different age groups would be arranged among the Pecan trees. All play equipment would be installed within geometrically shaped sand areas to provide a safe cushion for children using the equipment. The nearby overlook and rest area on top of the hill (#25) would provide yet another different dimension to this facility.

SUGGESTED ADDITIONS TO PINE GROVE

American Beautyberry
Coral Bean
Turks Cap
Wood Fern

SUGGESTED PLANTS FOR PICNIC AREA

American Cyrilla
Eastern Redbud
Parsley Leaf Hawthorn
Possumhaw Holly

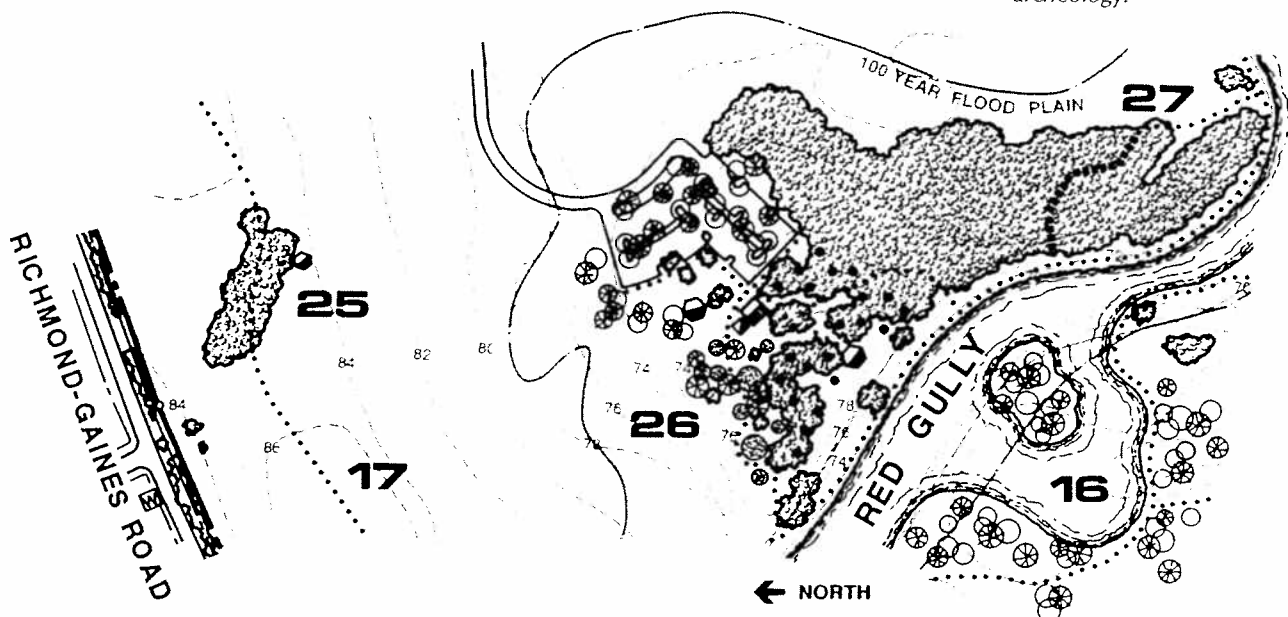
SUGGESTED PARKING LOT TREES

Cedar Elm
Green Ash
Live Oak
Shumard Red Oak

UTILITIES REQUIRED (See Figure 16, Appendix A)

Water: From meter #3W
Sanitary: To lift station near
restroom
Electricity: From panel @
Maintenance Yard (#22)

See the Cultural Resources
Assessment in Appendix B for more
details on the park's history and
archeology.



UTILITIES

Although there are two utility districts within the park boundaries, Fort Bend County Municipal Utility District (FBCMUD) #73 and FBCMUD #74, both are inactive. They have not sold bonds or levied taxes, and neither have any facilities. The park site comprises most of the land within these districts, joined by smaller undeveloped tracts to the north and west. Since the water and sewer needs of the park will be modest, the most economical solution to obtaining these utilities would be to negotiate an "Out of District Services Agreement" with FBCMUD #25 which serves the Pheasant Creek Subdivision across Richmond-Gaines Road from the park. The water supply and sewage capacity needed by the park are within the district's capability to provide.

Water supply and distribution would be as follows:

- Meter #1W: Richmond-Gaines Road at Aprilmont Drive.
Serves: Lake Picnic Area (#8), Forest Picnic Area (#5), Boat Pier, Fishing Pier, Observation Shelter (#9 & 10).
- Meter #2W: Richmond-Gaines Road at Rippling Mill Drive.
Serves: Maintenance Yard (#22), Golf club House (#23), Nature Trailhead (#12), Hilltop Observation Area (#23 - option two).
- Meter #3W: Richmond-Gaines Road at Tranquil Drive.
Serves (Option two only): Red Gully Picnic Area (#26), Nature Trailhead (#12).
- Meter #4W: Richmond-Gaines Road across from Reservable Group Picnic Area.
Serves: Reservable Group Picnic Area (#18), Pumpkin Lake Observation Area (#19).

Wastewater would be collected as follows:

All force mains from new lift stations within the park would connect to existing sanitary sewer lines on the north side of Richmond-Gaines Road leading to the existing FBCMUD #25 sewage treatment plant just west of Red Gully. Master plan option one would have two connection points: south of Aprilmont Drive and west of Red Gully. Option two would have three connection points: south of Aprilmont Drive, west of Tranquil Drive, and west of Red Gully.

Options 1 and 2:

- ❑ From the Forest Picnic Area (#5) and White Lake Boat Pier (#9), gravity flow to a lift station east of the Canoe Pier

*Utility information supplied by
Terra Associates, Inc.*

Figure 2, Appendix A

LIFT STATIONS

Options 1 & 2:

East of Canoe and Fishing Pier (#11)
Maintenance Yard (#22)
Nature Parking (#12)
Reservable Group Picnic Area (#18)

Option 1 only:

Golf Club House (#23)

Option 2 only:

Red Gully Picnic Area (#26)

parking (#11), then by force main to a lift station at the Maintenance Yard (#22) and on by force main to the connection at Aprilmont Drive.

- ❑ From the Lake Picnic Area (#8) and Maintenance Yard (#22), gravity flow to a lift station at the Maintenance Yard and on by force main to the connection at Aprilmont Drive.
- ❑ From the Reservable Group Picnic Area (#18) and Pumpkin Lake Wildlife Observation Area (#19), gravity flow to a lift station on the western park boundary 1,000 feet south of the northwest property corner and on by force main to the connection west of Red Gully.

Option 1 Only:

- ❑ From the Golf Club House (#23), gravity flow to a nearby lift station, then by force main to a lift station at the Maintenance Yard (#22) and on by force main to the connection at Aprilmont Drive.
- ❑ From the Nature Trailhead parking area (#12), gravity flow to a nearby lift station, then by force main to a lift station at the Golf Club House (#23), subsequently by force main to a lift station at the Maintenance Yard (#22), and on by force main to the connection at Aprilmont Drive.

Option 2 Only:

- ❑ From the Red Gully Picnic Area (#26), gravity flow to a nearby lift station and on by force main to the connection at Tranquil Drive.
- ❑ From the Nature Trailhead parking area (#12), gravity flow to a nearby lift station then by force main to a lift station at the Red Gully Picnic Area (#26) and on by force main to the connection at Tranquil Drive.

Electrical service is available along Richmond-Gaines Road and would be provided to two locations in the park. The main panel boxes serving most of the park would be located at the Maintenance Yard (#22). A smaller panel box serving the Reservable Group Picnic Area (#18) and the Pumpkin Lake Wildlife Observation Area (#19) would be located at the northwest property corner near the picnic area. All electrical lines within the park would be underground.

Telephone service and natural gas are also available along Richmond-Gaines road and would enter the park at the Maintenance Yard (#22). The golf club house snack bar would be the only facility that might need natural gas whereas both the club house and maintenance office would require telephone service.

IMPLEMENTATION

With an expected total development cost of about \$8.2 million (option one), it is apparent that Cullinan Park must be completed in phases over a period of several years. The facilities to be included in the first two phases have already been selected and will be built with funding assistance from the Texas Parks and Wildlife Department. The facilities to be built in each of the remaining phases will be determined by availability of funds from year to year and the nature of public demand. The following is one possible development scenario for each of the master plan options which attempts to maintain a reasonable balance of facilities in each phase.

Refer to Figures 15 & 16, Appendix A

See Appendix F for a detailed cost estimate of each phase

MASTER PLAN OPTION 1

Total Cost of Option 1: \$8,156,539

OPTION 1 – PHASE 1

Initial development will provide several water-oriented activities and will be accomplished with Texas Parks and Wildlife Department funding. Facilities will include the following:

Cost of Phase 1 = \$500,000

- ☐ A park identification sign at the *Main Park Entrance* (#1) with decorative planting and irrigation.
- ☐ The *Main Park Road* (#3) as far as the parking lot for the White Lake boat pier (#9) with native trees planted along the road.
- ☐ The *Boat Pier, Boardwalks, Fishing Pier, and Observation Shelter* (#9 & 10), one-half of the ultimate parking with native trees in and around the parking lot, and a trail from the parking to the facilities.

OPTION 1 – PHASE 2

Funding for Phase two will also be provided by the Texas Parks and Wildlife Department. Facilities will include:

Cost of Phase 2 = \$500,000

- ☐ Additional *Main Park Road* (#3) from the end of phase one to the Lake Picnic Area parking lot (#8).
- ☐ The gates and rail fencing at the *Main Park Entrance* (#1).
- ☐ A portion of the *Lake Picnic Area* (#8) including the restroom building, playground, approximately one-half of the picnic and parking facilities, and a sanitary sewer lift station at the future Maintenance Yard site (#22).
- ☐ *Hiking Trails* (#7) within the picnic area and connecting to the Boat Pier (#9).

- ❑ The *Canoe and Fishing Pier* on Oyster Creek (#11) with half of the parking and native tree plantings. This facility was not included in the original Texas Parks and Wildlife grant application.

Upon completion of this phase, Cullinan Park will have enough facilities to be an interesting, viable park. Activity will be concentrated around White Lake although intrepid nature lovers, hikers, and fishermen could roam well beyond the confines of the developed area.

OPTION 1 – PHASE 3

Development of the golf course and its associated facilities in this phase would substantially complete the second of the park's three major activity zones. Other facilities would also be constructed. Facilities would include:

- ❑ The *Maintenance Yard* (#22) which should be built early in this phase to provide a staging area for the remainder of Phase 3 construction.
- ❑ The *Secondary Park Entrance* (#21) with a park sign, rustic rail fence, and gates.
- ❑ Completion of the *Main Park Road* (#3).
- ❑ *18 Hole Executive Golf Course*, driving range, and club house with its associated sanitary sewer lift station (# 23).
- ❑ Parking for the *Nature Trailhead* (#12) including trees. With the development of this facility, the natural area south of Red Gully would be made easily accessible even though improved trails would not yet be installed.
- ❑ *Red Gully Enhancements* including tree planting (#16). Excavated soil would be used for golf course construction.
- ❑ Completion of the parking and native tree plantings at the *Canoe and Fishing Pier* on Oyster Creek (#11).
- ❑ A restroom building at the *White Lake Boat Pier* (#9) with a sanitary sewer lift station, completion of the parking lot and tree planting, and a trail to the *Canoe and Fishing Pier* (#11).
- ❑ *Hiking Trails* (#7) along Oyster Creek from the *Canoe and Fishing Pier* (#11) to the *Nature Trailhead* parking area (#12) and around White Lake.
- ❑ The *Fishing Access Parking Lot* (#2) at the main park entrance .

Cost of Phase 3 = \$4,764,833

OPTION 1 – PHASE 4

The major thrust of this phase would be the development of the park's third major activity zone, the natural area south of Red Gully, plus additions to development begun in previous phases. Facilities would include:

Cost of Phase 4 = \$1,489,459

- ☐ The complete trail system south of Red Gully including the interpretive *Wetland Nature Trail* (#15), the *Wildflower and Native Grass Trail* with its associated plantings (#13), and the *Wildflower Meadows* (#6).
- ☐ The *Creek Picnic Area* (#14).
- ☐ The *Pumpkin Lake Wildlife Observation Area* and restroom building (#19).
- ☐ A restroom building at the *Nature Trailhead* parking area and an information kiosk south of Red Gully (#12).
- ☐ A portion of the *Reservable Group Picnic Area* (#18) including the Restroom and Barbecue Pavilion, the entry road and part of the parking lot, a sanitary sewer lift station, tree plantings, and a trail connecting to the general park trail system.
- ☐ Completion of the *Lake Picnic Area* (#8) including an historical and archeological plaque, and the remaining picnic tables, grills, picnic pavilion, parking, and trees.

OPTION 1 – PHASE 5

The final development phase would complete the park's facilities for the foreseeable future. They would include:

- ☐ All facilities in the *Forest Picnic Area* (#5).
- ☐ Extension and completion of the *Hiking Trail* system east of White Lake including the *Forest Nature Trail* (#4).
- ☐ Completion of the *Reservable Group Picnic Area* (#18) including more parking, four covered picnic pavilions, and additional trees.

Cost of Phase 5 = \$902,247

MASTER PLAN OPTION 2

Total Cost of Option 2: \$7,190,823

OPTION 2 – PHASES 1 AND 2

The first two phases of master plan option two are the same as for option one.

Cost of Phase 1 = \$500,000

Cost of Phase 2 = \$500,000

OPTION 2 – PHASE 3

Facilities would include:

Cost of Phase 3 = \$1,798,332

- ☐ *Maintenance Yard* (#22).
- ☐ The *Secondary Park Entrance* (#21) with a park sign and a rustic rail fence.
- ☐ Extension of the *Main Park Road* (#3) from the end of phase two to the *Nature Trailhead* parking lot (#12).
- ☐ *Nature Trailhead* parking lot and restroom building (#12). With the development of this facility, the natural area south of Red Gully would be made easily accessible even though improved trails would not yet be installed.
- ☐ *Parking for Hiking and Fishing Trails* (#24).

- ❑ *Hilltop Observation Area* (#23) with parking and trails connecting to the Lake Picnic Area and Oyster Creek fishing trail.
- ❑ Completion of the *Lake Picnic Area* (#8) including an historical and archeological plaque and the remaining picnic tables, grills, picnic pavilion, parking, and trees.
- ❑ A restroom building at the *White Lake Boat Pier* (#9) and its required sanitary sewer lift station.
- ❑ Completion of the parking and native tree plantings at the *Canoe and Fishing Pier* on Oyster Creek (#11).
- ❑ *Hiking Trails* (#7) along Oyster Creek from the Canoe and Fishing Pier (#11) to the Nature Trailhead parking area (#12) and around White Lake.

OPTION 2 – PHASE 4

The major thrust of this phase would be development of the natural area south of Red Gully. Facilities would include:

Cost of Phase 4 = \$2,081,822

- ❑ *Red Gully Enhancements* including tree planting (#16).
- ❑ The *Nature Trailhead* kiosk (#12), *Wildflower and Native Grass Trail* (#13) with its associated plantings, *Creek Picnic Area* (#14), and the interpretive *Wetland Nature Trail* (#15).
- ❑ All *Hiking and Jogging Trails* south of Red Gully (#7, 17).
- ❑ A portion of the *Reservable Group Picnic Area* (#18) including the Restroom and Barbecue Pavilion, the entry road and part of the parking lot, a sanitary sewer lift station, and a trail connecting to the general park trail system.
- ❑ The *Pumpkin Lake Wildlife Observation Area*, restroom building, and associated plantings (#19).

OPTION 2 – PHASE 5

This phase completes the central portion of the park. Facilities would include:

Cost of Phase 5 = \$1,591,431

- ❑ The *Main Park Road* (#3) access to the Red Gully Picnic Area with a *Wildflower Meadow* (#6).
- ❑ All facilities at the *Red Gully Picnic Area* (#26).
- ❑ The *Overlook and Rest Area* (#25)
- ❑ Completion of the *Reservable Group Picnic Area* (#18) including more parking, four covered picnic pavilions, and additional trees.
- ❑ *Hiking and Jogging Trails* (#17) connecting to the Hilltop Observation Area, Red Gully Picnic Area and the Nature Trailhead parking.
- ❑ The *Wetland Boardwalk* (#27) near the Red Gully Picnic Area.

OPTION 2 – PHASE 6

The final development phase of master plan option two would complete the park's facilities for the foreseeable future. They would include:

- ☐ All facilities in the *Forest Picnic Area* (#5).
- ☐ Extension and completion of the *Hiking Trail* system east of White Lake including the *Forest Nature Trail* (#4).

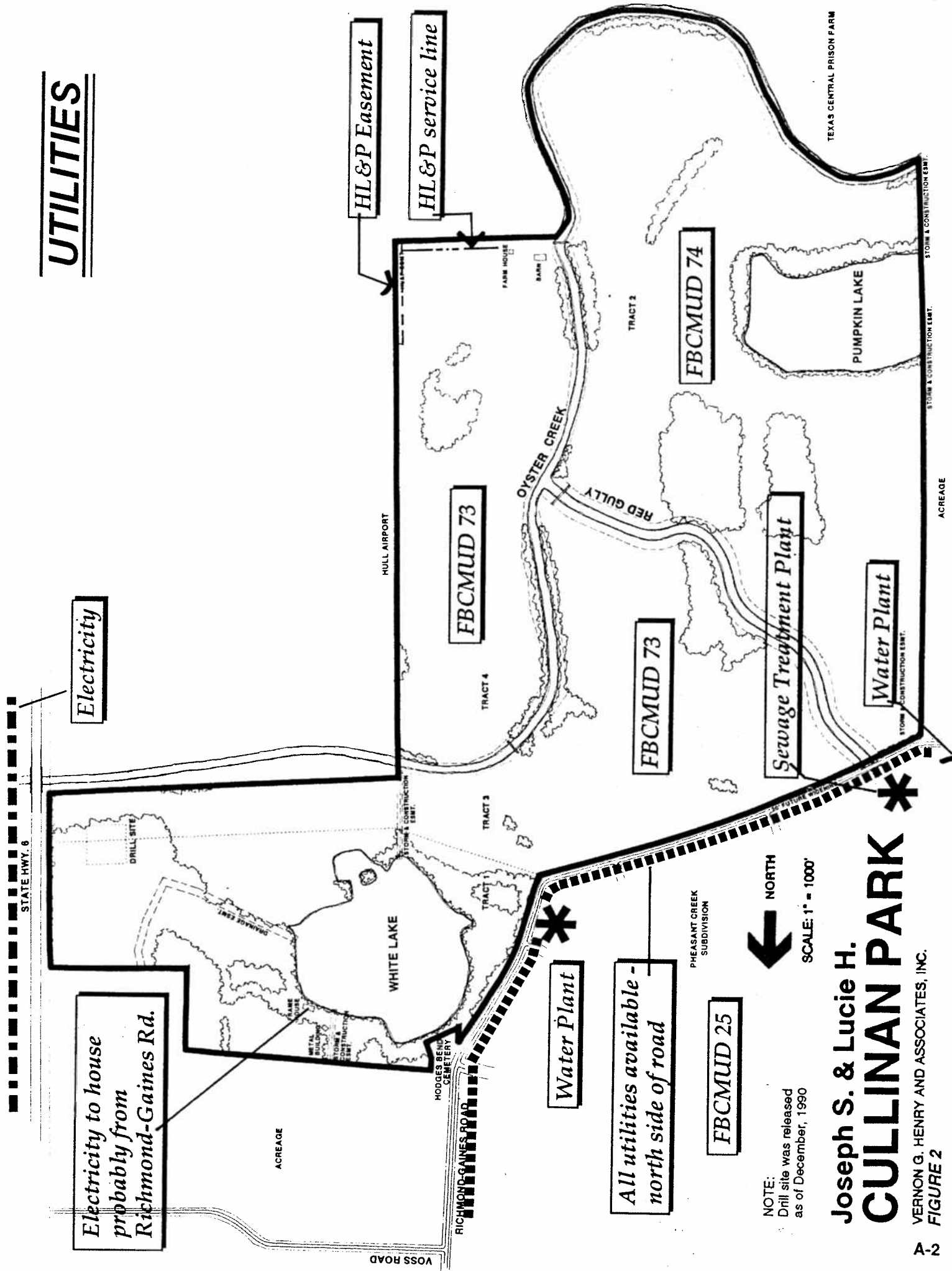
Cost of Phase 6 = \$719,236

APPENDIX A

FIGURES

1.	Circulation: Major Thoroughfares.....	A-1
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UTILITIES



NOTE:
Drill site
as of Dec

SCALE: 1" = 1000'

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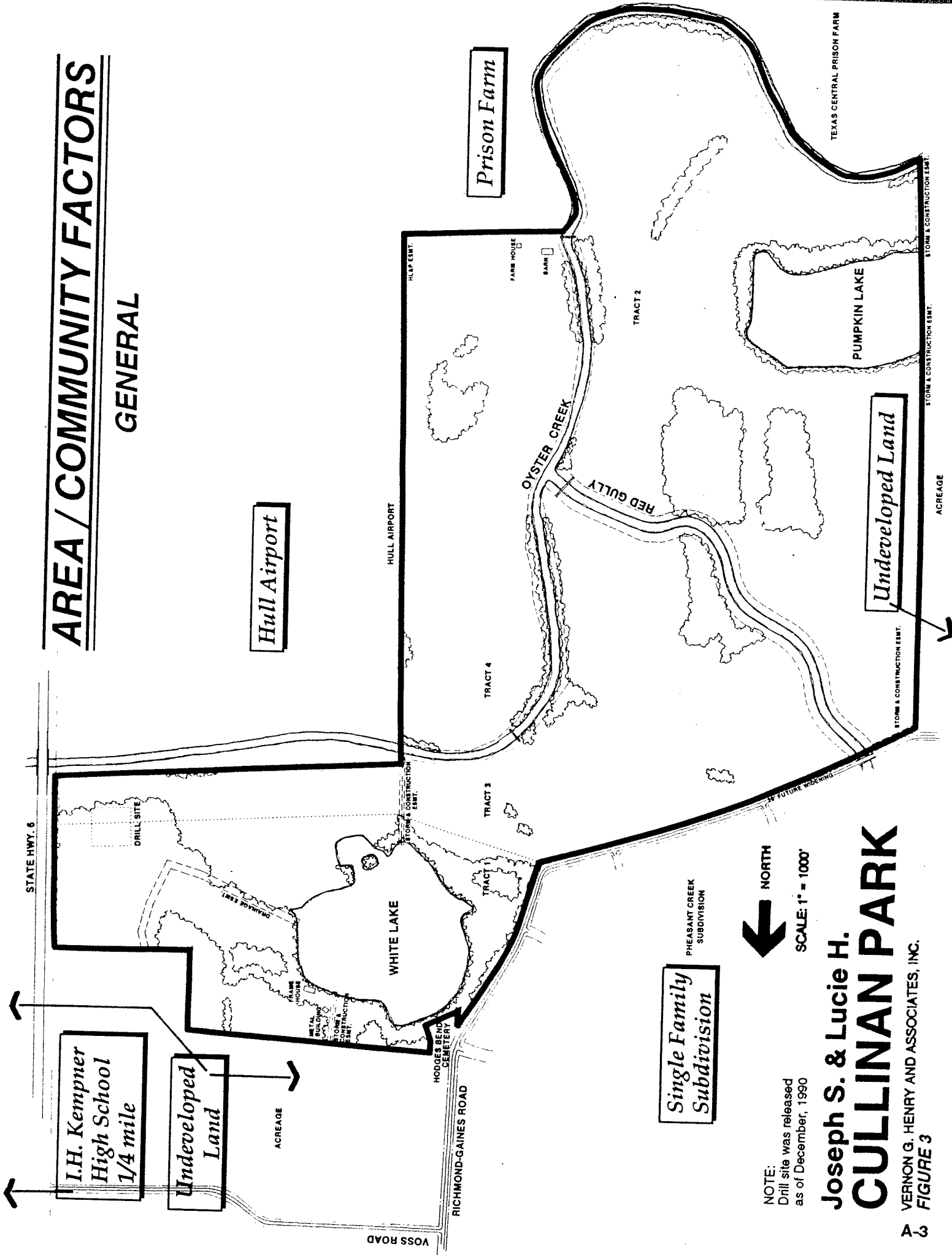
CULLINAN PARK

VERNON G. HENRY AND ASSOCIATES, INC.

FIGURE 2

AREA / COMMUNITY FACTORS

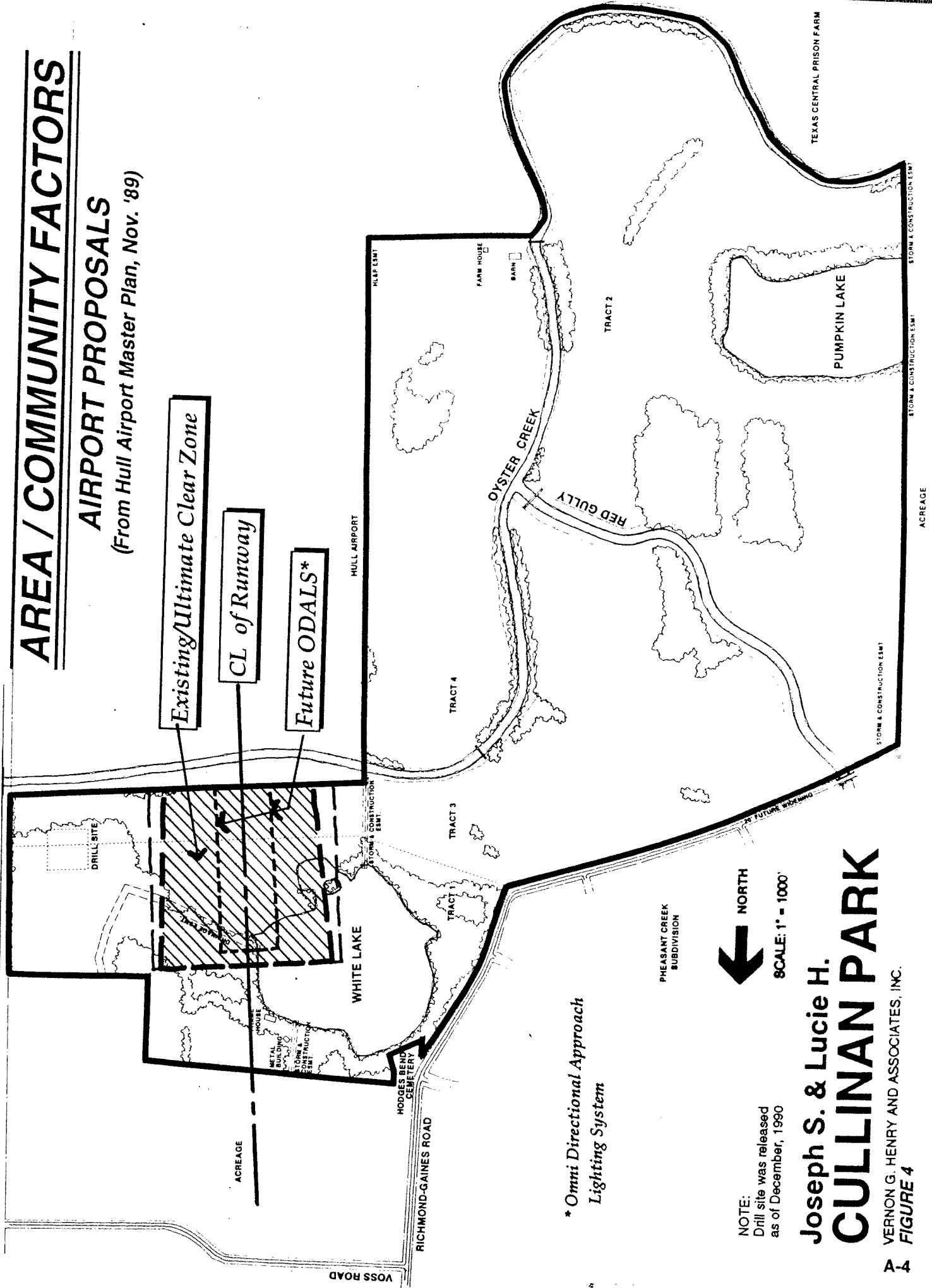
GENERAL



AREA / COMMUNITY FACTORS

AIRPORT PROPOSALS

(From Hull Airport Master Plan, Nov. '89)



NOTE:
Drill site was released
as of December, 1990

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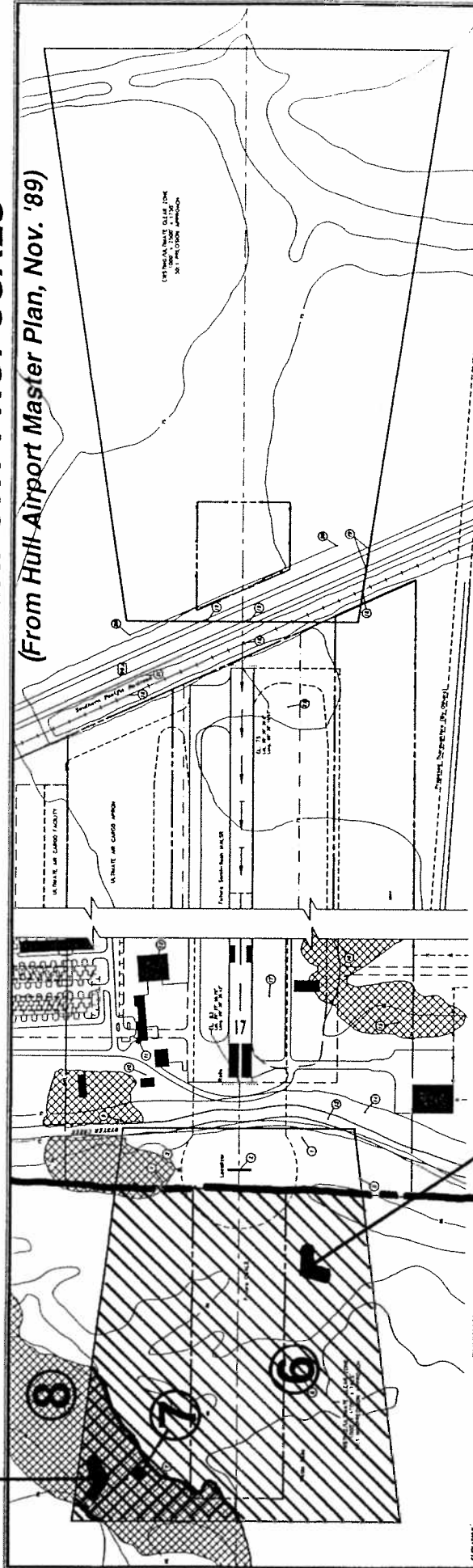
VERNON G. HENRY AND ASSOCIATES, INC.

AREA / COMMUNITY FACTORS

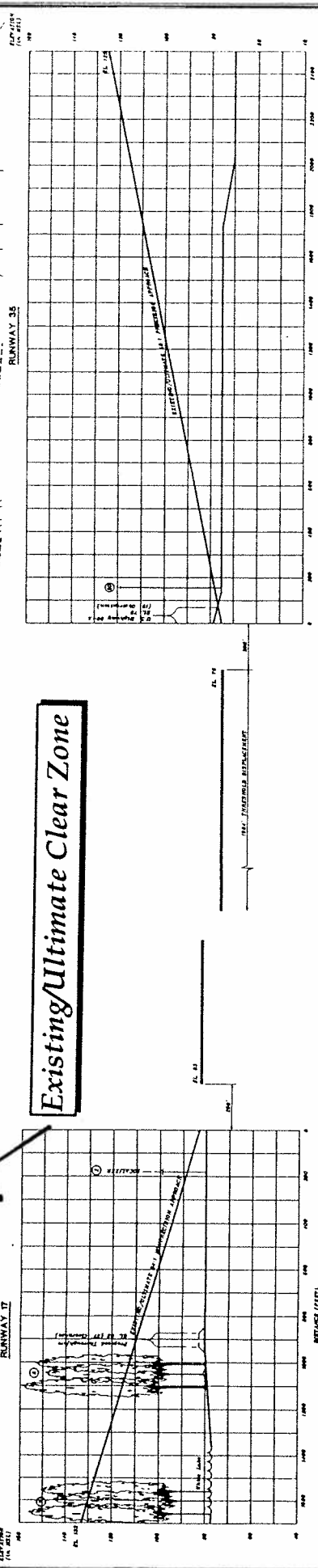
AIRPORT PROPOSALS

(From Hull Airport Master Plan, Nov. '89)

Trees to be Removed



Existing/Ultimate Clear Zone



Runway 17-35 Clear Zone



Obstruction Table			
Description	Elevation (MSL)	Obstruction	Recommendation
① Tree	100	27' obstruction to 147'	REMOVE
② Building	100	27' obstruction to 147'	REMOVE
③ Tree	100	27' obstruction to 147'	REMOVE
④ Tree	100	27' obstruction to 147'	REMOVE
⑤ Tree	100	27' obstruction to 147'	REMOVE
⑥ Tree	100	27' obstruction to 147'	REMOVE
⑦ Tree	100	27' obstruction to 147'	REMOVE
⑧ Tree	100	27' obstruction to 147'	REMOVE
⑨ Tree	100	27' obstruction to 147'	REMOVE
⑩ Tree	100	27' obstruction to 147'	REMOVE
⑪ Tree	100	27' obstruction to 147'	REMOVE
⑫ Tree	100	27' obstruction to 147'	REMOVE
⑬ Tree	100	27' obstruction to 147'	REMOVE
⑭ Tree	100	27' obstruction to 147'	REMOVE
⑮ Tree	100	27' obstruction to 147'	REMOVE
⑯ Tree	100	27' obstruction to 147'	REMOVE
⑰ Tree	100	27' obstruction to 147'	REMOVE
⑱ Tree	100	27' obstruction to 147'	REMOVE
⑲ Tree	100	27' obstruction to 147'	REMOVE
⑳ Tree	100	27' obstruction to 147'	REMOVE
㉑ Tree	100	27' obstruction to 147'	REMOVE
㉒ Tree	100	27' obstruction to 147'	REMOVE
㉓ Tree	100	27' obstruction to 147'	REMOVE
㉔ Tree	100	27' obstruction to 147'	REMOVE
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㉖ Tree	100	27' obstruction to 147'	REMOVE
㉗ Tree	100	27' obstruction to 147'	REMOVE
㉘ Tree	100	27' obstruction to 147'	REMOVE
㉙ Tree	100	27' obstruction to 147'	REMOVE
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㉞ Tree	100	27' obstruction to 147'	REMOVE
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㊼ Tree	100	27' obstruction to 147'	REMOVE
㊽ Tree	100	27' obstruction to 147'	REMOVE
㊾ Tree	100	27' obstruction to 147'	REMOVE
㊿ Tree	100	27' obstruction to 147'	REMOVE

Joseph S. & Lucie H.
CULLINAN PARK
VERNON G. HENRY AND ASSOCIATES, INC.

Coffman Associates
Landscape Architects & Planners, Inc. / LA
1101 17th St., Suite 1000
New York, NY 10036
Tel: (212) 691-1000
Fax: (212) 691-1001
E-mail: info@coffman.com

Clear Zones Plan
Hull Airport
Master Plan, Nov. '89
Project No. 11111
Sheet No. 4 of 6

AREA / COMMUNITY FACTORS

NOISE

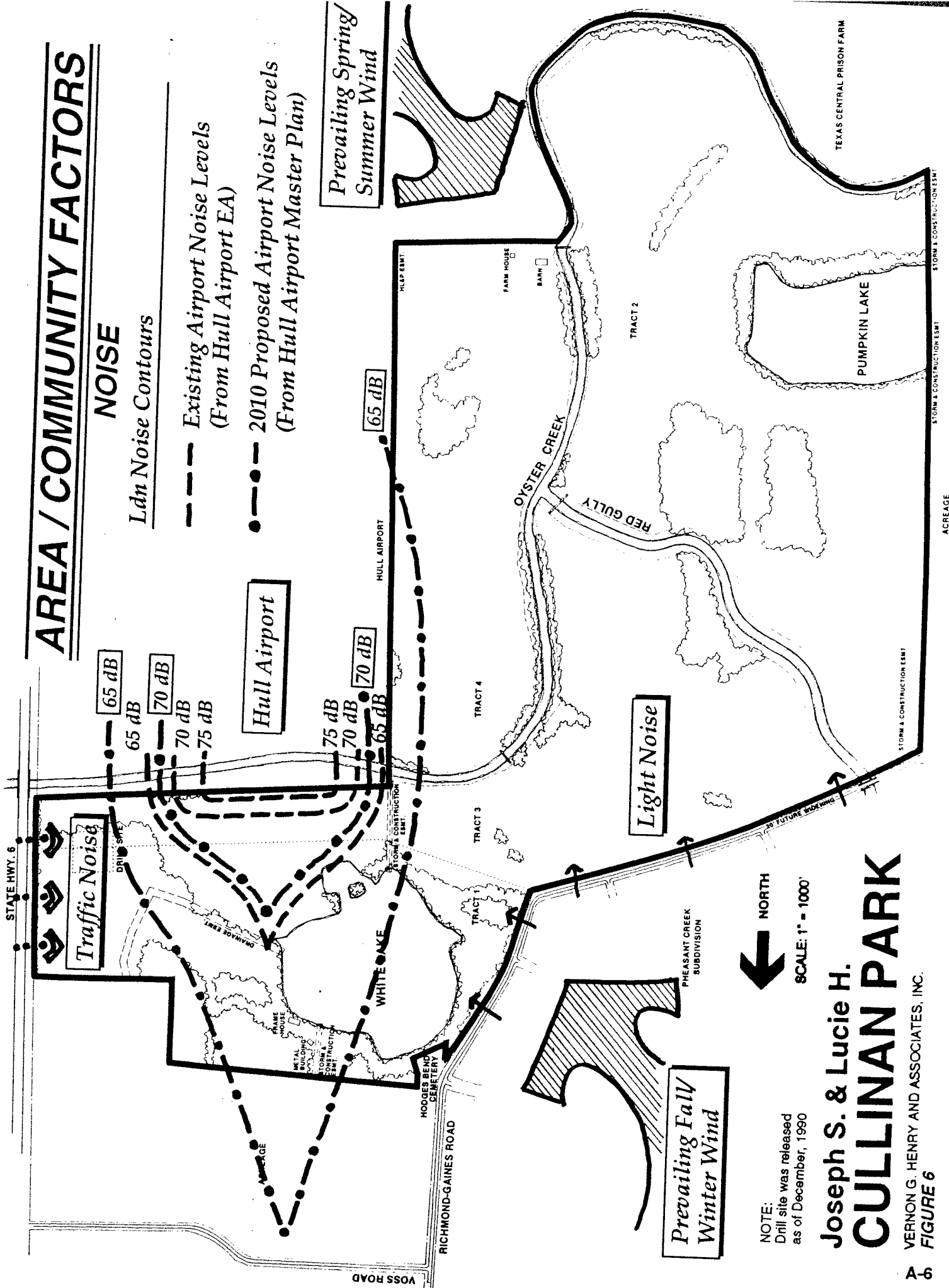
Ldn Noise Contours

--- Existing Airport Noise Levels
(From Hull Airport EA)

●--- 2010 Proposed Airport Noise Levels
(From Hull Airport Master Plan)

Prevailing Spring/
Summer Wind

Prevailing Fall/
Winter Wind

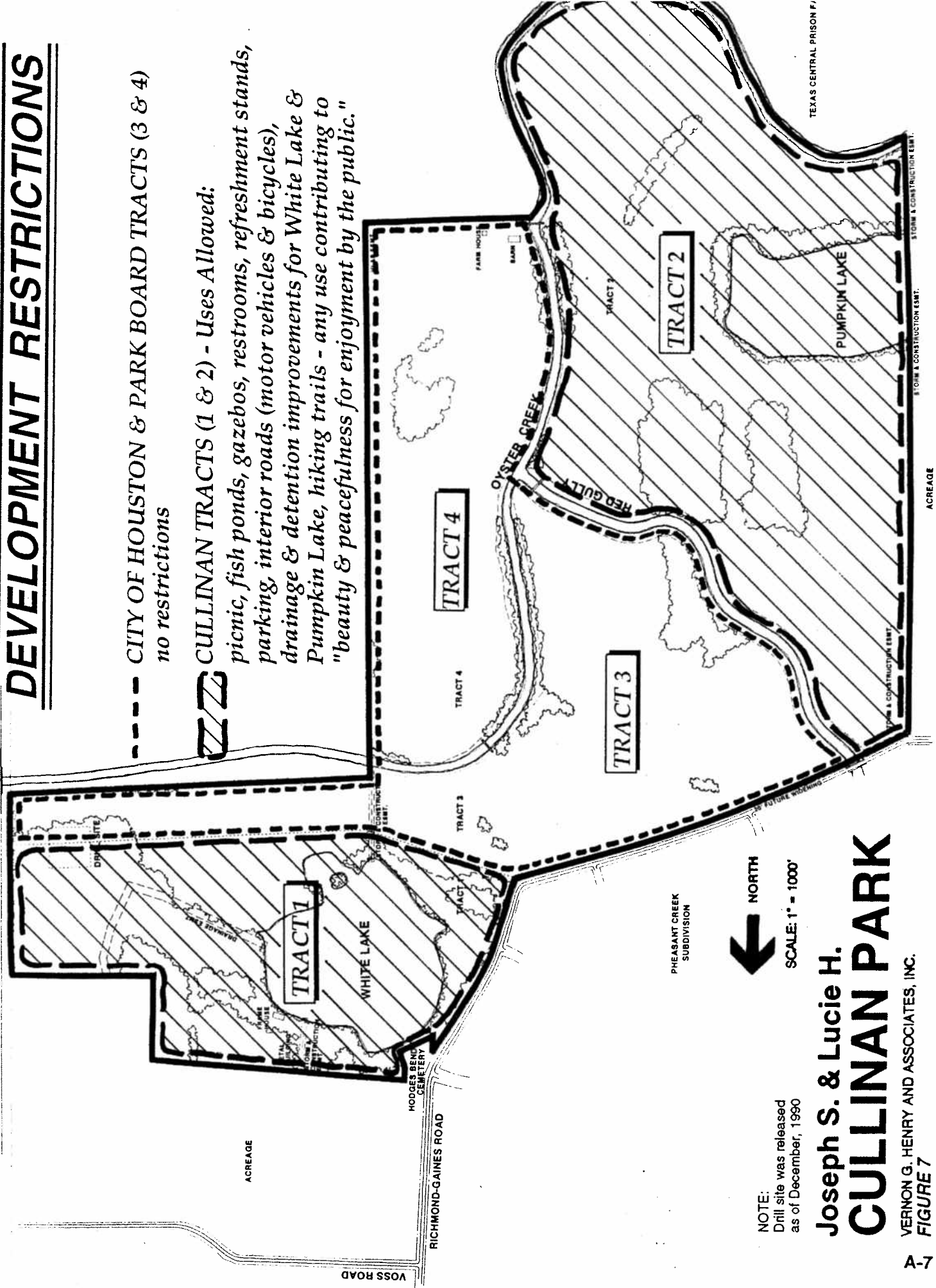


DEVELOPMENT RESTRICTIONS

--- CITY OF HOUSTON & PARK BOARD TRACTS (3 & 4)
no restrictions

/// CULLINAN TRACTS (1 & 2) - Uses Allowed:

picnic, fish ponds, gazebos, restrooms, refreshment stands,
parking, interior roads (motor vehicles & bicycles),
drainage & detention improvements for White Lake &
Pumpkin Lake, hiking trails - any use contributing to
"beauty & peacefulness for enjoyment by the public."



NOTE:
Drill site was released
as of December, 1990



SCALE: 1" = 1000'

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CULLINAN PARK

VERNON G. HENRY AND ASSOCIATES, INC.

FIGURE 7

CULTURAL RESOURCES



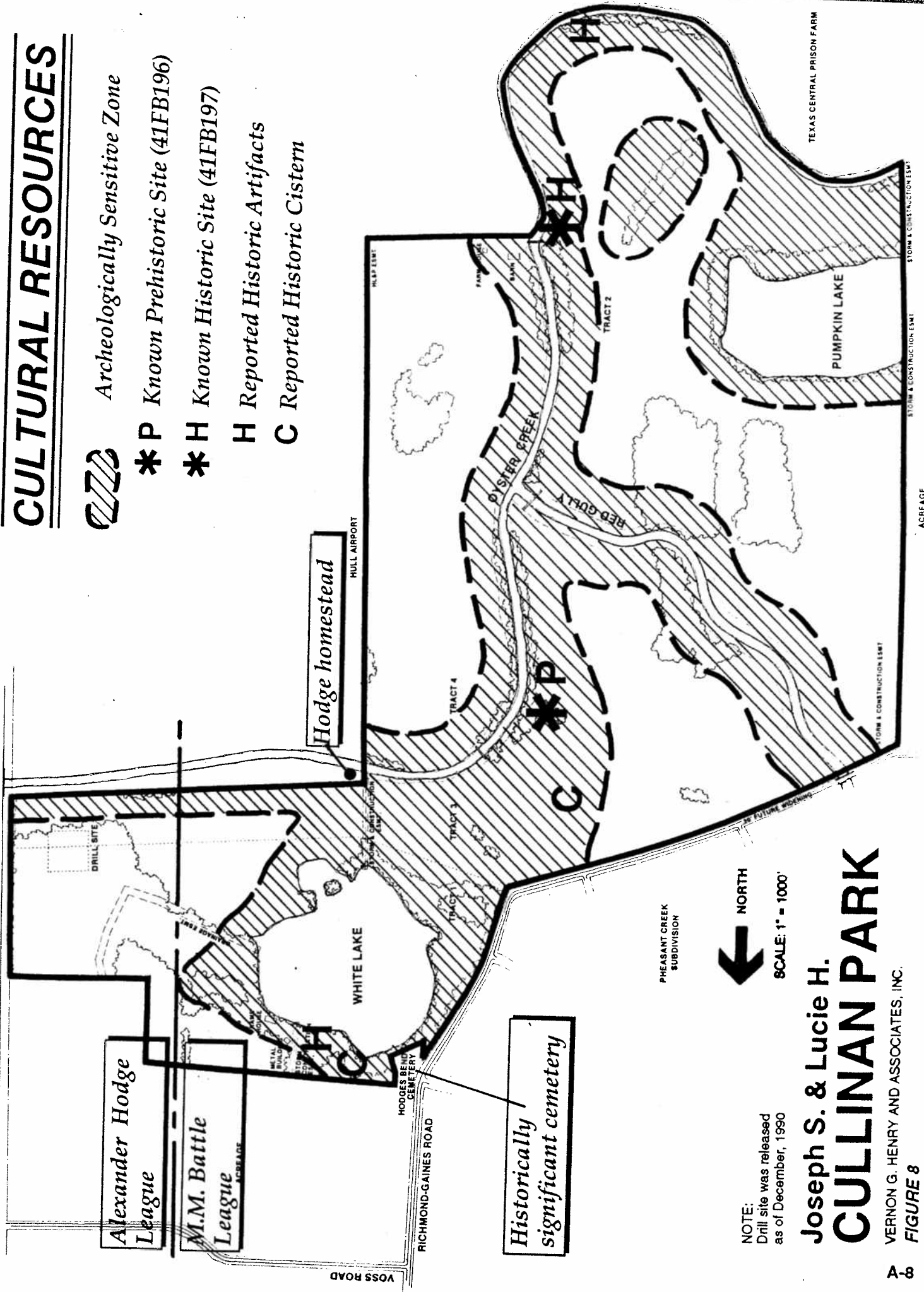
Archeologically Sensitive Zone

*P Known Prehistoric Site (41FB196)

*H Known Historic Site (41FB197)

H Reported Historic Artifacts

C Reported Historic Cistern



NOTE:
Drill site was released
as of December, 1990



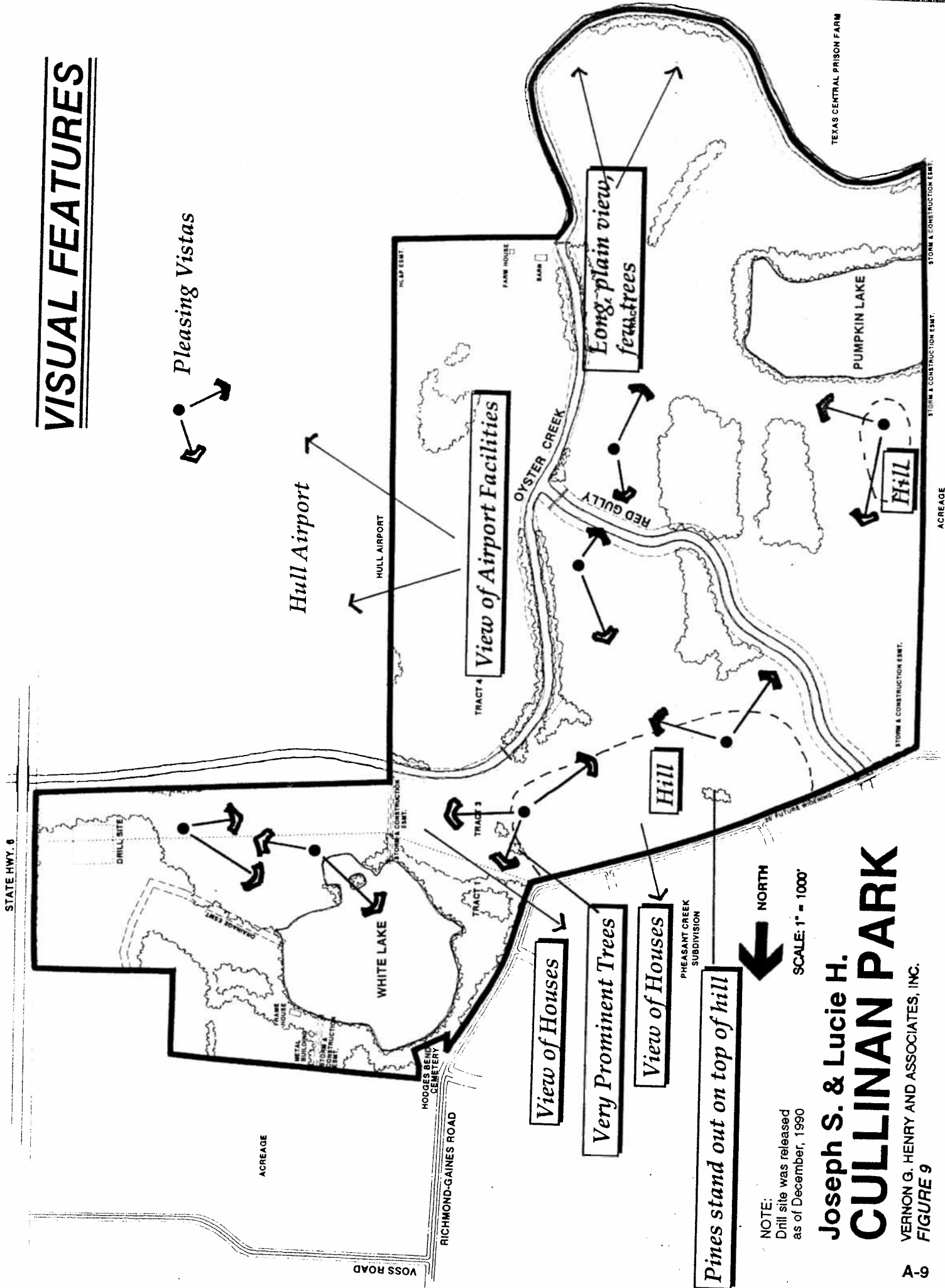
SCALE: 1" = 1000'

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FIGURE 8

VISUAL FEATURES




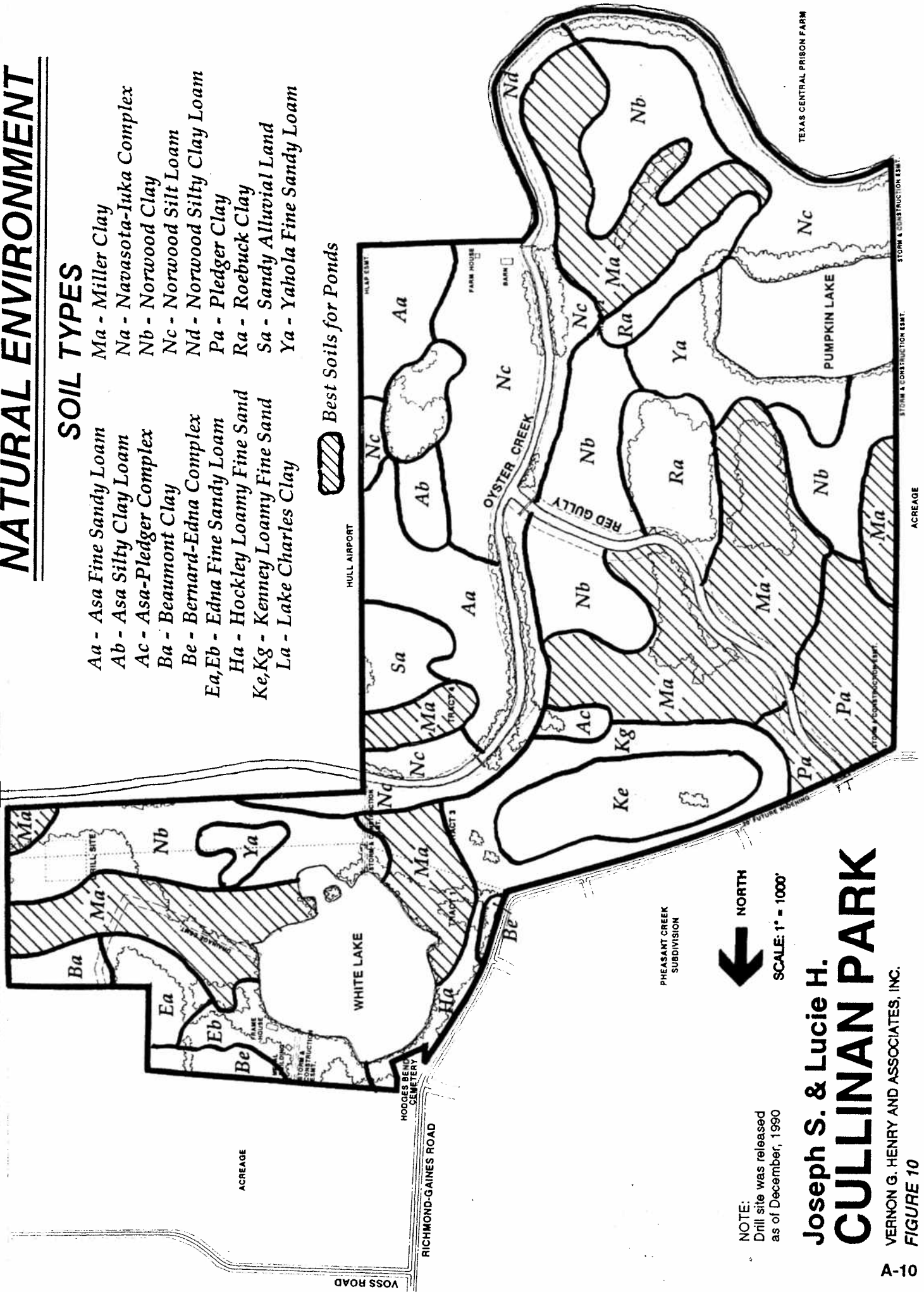
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 VERNON G. HENRY AND ASSOCIATES, INC.
FIGURE 9

NATURAL ENVIRONMENT

SOIL TYPES

Aa - Asa Fine Sandy Loam	Ma - Miller Clay
Ab - Asa Silty Clay Loam	Na - Navasota-Iuka Complex
Ac - Asa-Pledger Complex	Nb - Norwood Clay
Ba - Beaumont Clay	Nc - Norwood Silty Loam
Be - Bernard-Edna Complex	Nd - Norwood Silty Clay Loam
Ea, Eb - Edna Fine Sandy Loam	Pa - Pledger Clay
Ha - Hockley Loamy Fine Sand	Ra - Roebuck Clay
Ke, Kg - Kenney Loamy Fine Sand	Sa - Sandy Alluvial Land
La - Lake Charles Clay	Ya - Yahola Fine Sandy Loam

 Best Soils for Ponds



NOTE:
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 NORTH
SCALE: 1" = 1000'

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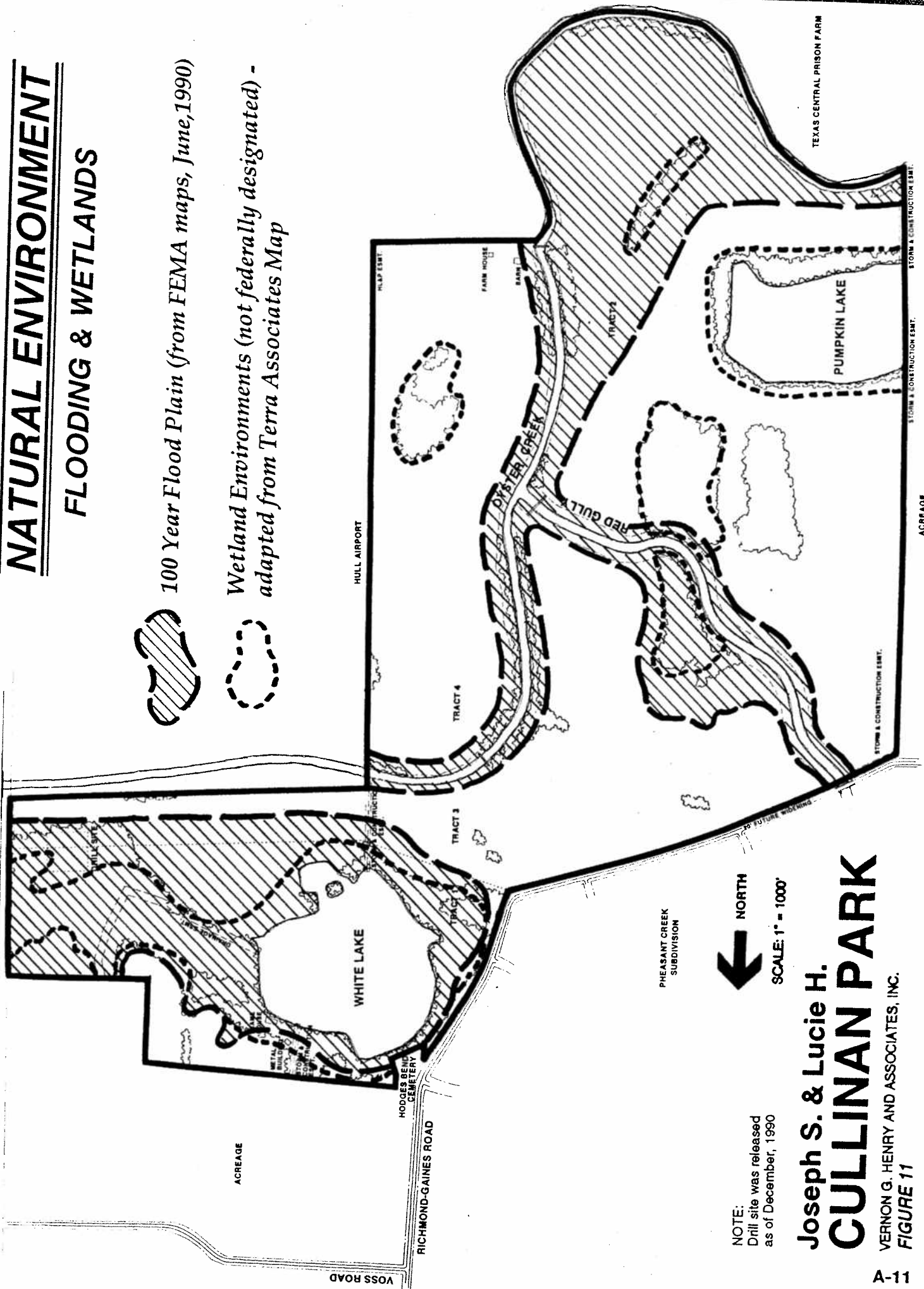
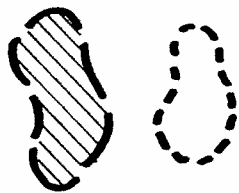
VERNON G. HENRY AND ASSOCIATES, INC.
FIGURE 10

NATURAL ENVIRONMENT

FLOODING & WETLANDS

100 Year Flood Plain (from FEMA maps, June, 1990)

*Wetland Environments (not federally designated) -
adapted from Terra Associates Map*



NOTE:

Drill site was released
as of December, 1990

SCALE: 1" = 1000'

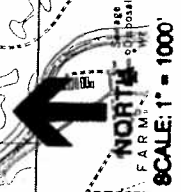
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VERNON G. HENRY AND ASSOCIATES, INC.
FIGURE 11

NATURAL ENVIRONMENT

WATERSHED

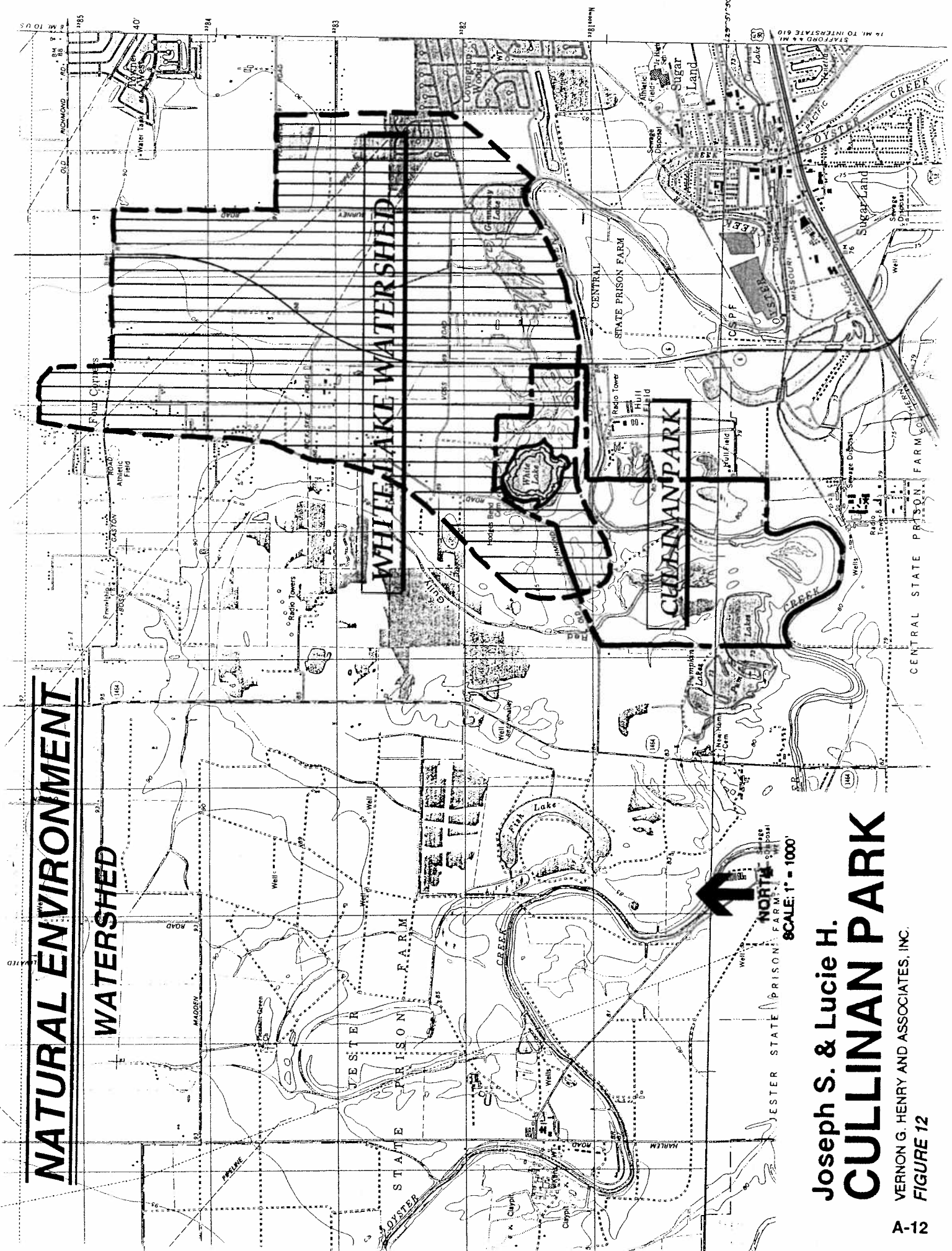
WHITE LAKE WATERSHED

CULLINAN PARK



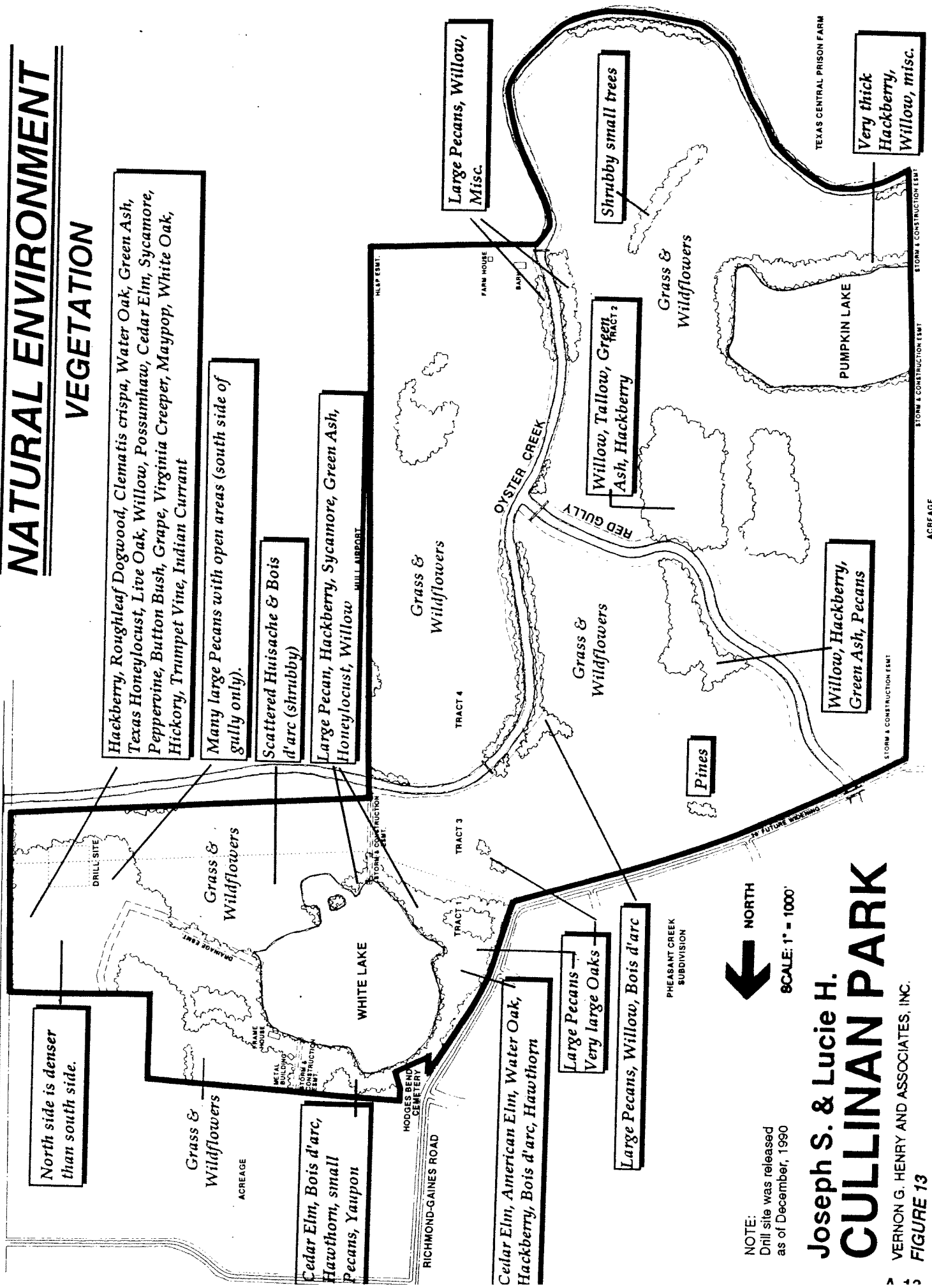
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FIGURE 12



NATURAL ENVIRONMENT

VEGETATION



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as of December, 1990

← NORTH
SCALE: 1" = 1000'

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