



DRAFT STILLHOUSE HOLLOW LAKE MASTER PLAN

Lampasas River
Brazos River Basin

Bell County, Texas

2021

STILLHOUSE HOLLOW LAKE VISION

"The land, water, and recreational resources at Stillhouse Hollow Lake are managed to protect, conserve, and sustain natural and cultural resources, especially environmentally sensitive resources, and provide outdoor recreation opportunities that complement overall project purposes for the benefit of present and future generations."



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EXECUTIVE SUMMARY

PURPOSE

The revision of the *Stillhouse Hollow Lake Master Plan* (hereafter Plan or Master Plan) is a framework built collaboratively to serve as a guide toward appropriate stewardship of U.S. Army Corps of Engineers (USACE) administered resources at Stillhouse Hollow Lake over the next 25 years. The 1975 Stillhouse Hollow Lake Master Plan Revision (Design Memorandum [DM] 11c) is a revision to the January 1965 Plan (DM 11b, supplemented in February 1966 and October 1970) and has served well past its intended 25-year planning horizon. The Master Plan is primarily a land use and outdoor recreation strategic plan. The lake and dam's primary purposes are flood risk management, water supply, recreation, and fish and wildlife enhancement.

The 1975 Master Plan classifies a total of 15,363 acres of USACE land, which includes 6,430 acres of surface water at conservation pool (622.0 feet National Geodetic Vertical Datum [NGVD]) within the fee boundary. Due to land changes from erosion and sedimentation, as well as more advanced measurement technology, these numbers have changed¹. Currently, Stillhouse Hollow Lake encompasses 8,757 acres of land and 6,430 acres of surface water for total fee lands of 15,230 acres, protecting the areas below the dam, including the city of Belton, TX. This Plan and supporting documentation provide an inventory, analysis, goals, objectives, and recommendations for USACE lands and waters surface at Stillhouse Hollow Lake, Texas.

PUBLIC INPUT

Stillhouse Hollow Lake is a federally owned and managed public property, and it is USACE's goal to be a good neighbor, as well as steward for public interest as it concerns Stillhouse Hollow Lake. As such, USACE is bound to the equal enforcement of policies and fees for this publicly held national asset and must balance the needs of the recreating public with the needs associated with the flood control and water supply aspects of Stillhouse Hollow Lake and stewardship of natural resources on Federal lands.

Public and agency input toward the Master Plan was obtained to ensure a balance between operational, environmental, and recreational outcomes. An Environmental Assessment (EA) was completed in conjunction with the Master Plan Revision to evaluate the impacts of alternatives. The EA is included in Appendix B.

Due to the COVID 19 pandemic outbreak, no members of the public attended the public meeting held March 12, 2020 at the Harris Community Center in Belton, Texas. However, USACE received 21 comments from eight (8) members of the public in the 30-

¹ These figures are for planning purposes only and differ from the official real estate records.

day public comment period. Issues that were addressed in the comments included environmental stewardship and preservation; hunting; facilities conditions; access for fishing and boating; and hike and bike trails. Table 7.1 in Section 7 provides a summary list of the comments received during the initial scoping comment period for the Master Plan, followed by the USACE response.

Second Public meeting information will be included in final draft.

RECOMMENDATIONS

The following land classifications changes (detailed in Chapter 8, Table 8.2) resulted from the inventory, analysis, and synthesis of data, documents, and public and agency input. In general, 3,473 total acres were updated to the new classification nomenclature or were reclassified, with fee and conservation pool acreage changes due in part to siltation and improvements in measurement technology using Geographical Information System (GIS) technology. This software allows for more finely tuned measurements and thus acreages may vary slightly from official land acquisition records.

Table ES.1 Land Use Acreage Changes

Prior (1975) Land Classifications	Acres	2021 Land Classifications	Acres
Project Operations ¹	627	Project Operations (PO)	500
Recreation Intensive Use (Includes 236 acres Allocated as Separable Recreation Lands)	1,934	High Density Recreation (HDR) ²	982
Natural Areas	230	Environmentally Sensitive Areas (ESA) ²	625
Recreation Low Density	2,416	Multiple Resource Management – Low Density Recreation (MRML-LDR)	55
Wildlife Areas	3,726	Multiple Resource Management – Wildlife Management (MRML-WM) ²	6,178
	0	Future/Inactive Recreation ²	414
Total Fee Land 1975	8,933	Total Fee Land 2021	8,754
Prior (1975) Water Surface Classifications	Acres	2021 Water Surface Classifications	Acres
Water Surface*	6,430	Restricted	23
		Designated No-wake	75
		Open Recreation	6,375

Total Water Surface 1975			
1975 Flowage Easement	882	2021 Flowage Easement	914
1975 Shoreline Miles	58	2021 Shoreline Miles ³	71.8

Conservation Pool 622.0 NGVD29

*Acreage differences from the 1975 total to the 2021 totals are due to improvements in measurement technology, siltation and erosion.

¹ Includes 26 acres of Project Operations by Others (Water intakes managed by Brazos River Authority and others)

² These classifications include a portion of the Separable Recreation Lands as follows: HDR, 65 acres; WMA, 13 acres; ESA, 93 acres; and Future Recreation, 65 acres.

³ 1975 Master Plan did not include a good portion of the Lampasas River on USACE lands.

PLAN ORGANIZATION

Chapter 1 of the Master Plan presents an overall introduction of Stillhouse Hollow Lake. Chapter 2 consists of an inventory and analysis of project resources. Chapters 3 and 4 lay out management goals, resource objectives, and land allocation and classification. Chapter 5 is the resource plan that identifies how project lands will be managed through a resource use plan for each land use classification. This includes current and projected park facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management. Chapter 6 details topics that are unique to Stillhouse Hollow Lake. Chapter 7 identifies the coordination efforts and stakeholder input gathered for the development of the Master Plan, and Chapter 8 gives a summary of the changes in land classification from the previous Master Plan to the present one. Finally, the appendices include information and supporting documents for this Master Plan revision, including Land Classification and Park Plate Maps (Appendix A).

An EA analyzing alternative management scenarios for Stillhouse Hollow Lake has been prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality; and USACE regulations, including Engineer Regulation 200-2-2: Procedures for Implementing NEPA. The EA is a separate document that informs this Master Plan and can be found in its entirety in Appendix B.

The EA evaluated two alternatives as follows: 1) No Action Alternative and 2) Proposed Action. The EA analyzed the potential impact the No Action and Proposed Action would have on the natural, cultural, and human environments. Because the Master Plan is conceptual, any action proposed in the plan that would result in significant disturbance to natural resources or result in significant public interest would require additional NEPA documentation at the time the action takes place.

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CHAPTER 1: INTRODUCTION

1.1 OVERVIEW

Stillhouse Hollow Lake (formally Lampasas Lake) is a multipurpose water resources project constructed and operated by the U.S. Army Corps of Engineers (USACE), Fort Worth District. The lake and associated federal lands are located in Bell County, Texas (TX). Stillhouse Hollow Lake is situated on the Lampasas River in the Brazos River Basin located two miles south of U.S. 190 on Farm to Market (FM) 1670 in Belton, TX. The dam and associated infrastructure as well as all lands acquired for the Stillhouse Hollow Lake project are federally owned and administered by the USACE.

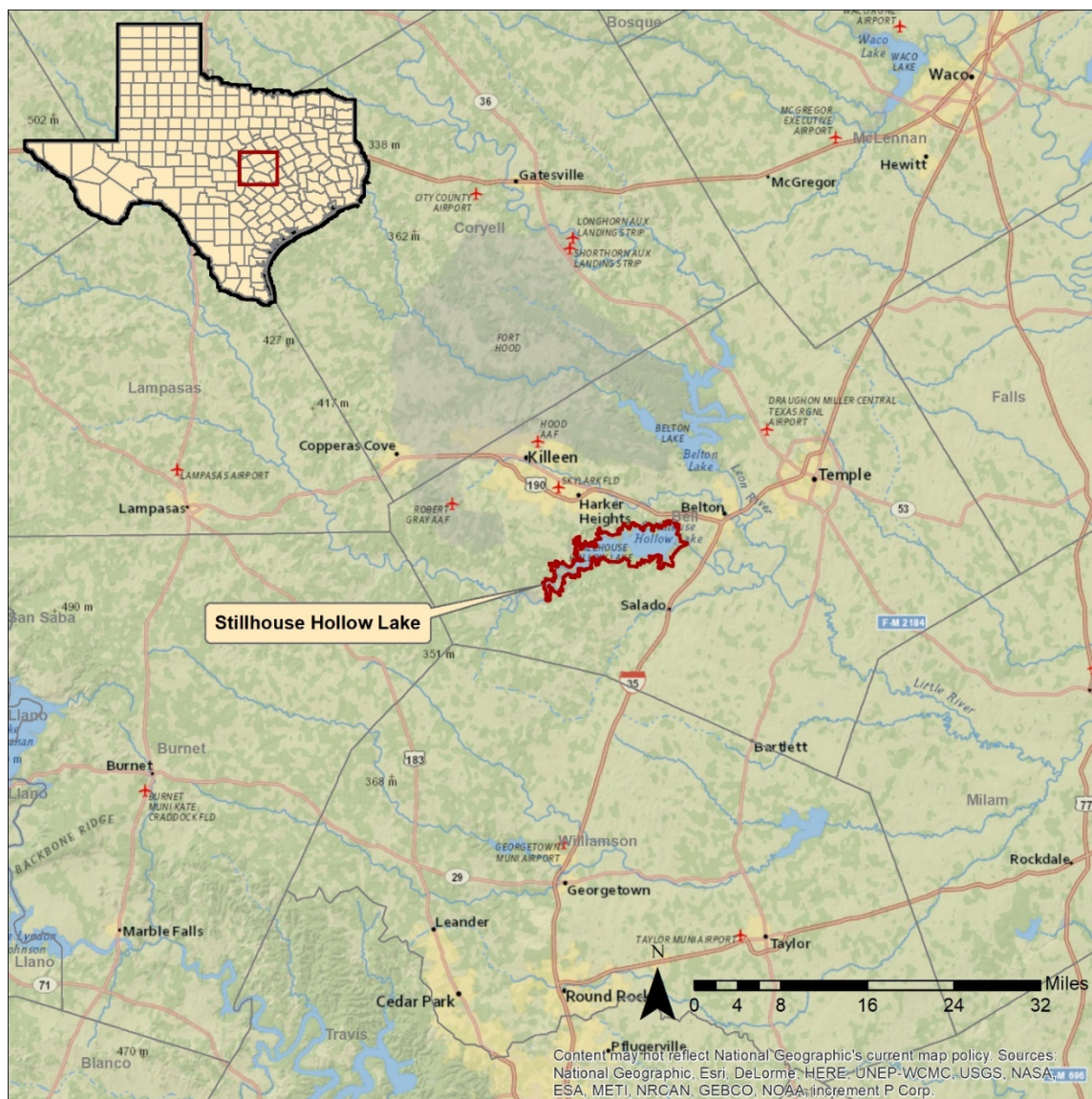


Figure 1.1 Stillhouse Hollow Lake Vicinity Map

The Stillhouse Hollow Lake Master Plan (hereafter Plan or Master Plan) is a revision of the 1975 Master Plan, Design Memorandum (DM) 11c, revised from the 1965 DM 11b, and is intended to serve as a comprehensive land and recreation management guide with an effective life of approximately 25 years. The focus of the Plan is to guide the stewardship of natural and cultural resources and make provision for outdoor recreation facilities and opportunities on federal land associated with Stillhouse Hollow Lake. The Plan does not address the flood risk management or water supply purposes of Stillhouse Hollow Lake (the Water Control Manual [WCM] for Stillhouse Hollow Lake describes these purposes. Some information from the WCM could be made available upon written request through the Freedom of Information Act).

National USACE missions associated with water resource development projects may include flood risk management, water conservation, navigation, recreation, fish and wildlife conservation, and hydroelectric power generation. Most of these missions serve to protect the built environment and natural resources of a region from the climate extremes of drought and floods. This creates a more resilient and sustainable region for the health, welfare, and energy security of its citizens. Mitigation, while not a formal mission at USACE lakes, may be implemented to achieve the fish and wildlife and recreation missions. Maintaining a healthy vegetative cover, including a tree canopy where ecologically appropriate, on federal lands within the constraints imposed by primary project purposes helps reduce stormwater runoff and soil erosion, mitigates air pollution, and moderates temperature. To this end, USACE has developed the following statements.

The USACE Sustainability Policy and Strategic Plan states that:

“The U.S. Army Corps of Engineers strives to protect, sustain, and improve the natural and man-made environment of our Nation, and is committed to compliance with applicable environmental and energy statutes, regulations, and Executive Orders. Sustainability is not only a natural part of the Corps' decision processes, it is part of the culture.”

Sustainability is an umbrella concept that encompasses energy, climate change and the environment to ensure today's actions do not negatively impact tomorrow. The Corps of Engineers is a steward for some of the Nation's most valuable natural resources and must ensure customers receive products and services that provide sustainable solutions that address short and long-term environmental, social, and economic considerations.”

The USACE mission of the Responses to Climate Change Program is:

“To develop, implement, and assess adjustments or changes in operations and decision environments to enhance resilience or reduce vulnerability of USACE projects, systems, and programs to observed or expected changes in climate.”

1.2 PROJECT PURPOSE AND AUTHORIZATION

Stillhouse Hollow Lake is a multipurpose water resource project constructed and operated by USACE for the purpose of flood risk management, water supply, recreation and fish and wildlife. Environmental stewardship, though not listed as a primary project purpose, is a major responsibility and inherent mission in the administration of federally owned lands.

Congressional authority for the construction of the Lampasas Lake, now Stillhouse Hollow Lake, is contained in The Flood Control Act September 03, 1954 (Public Law 83-780). The name was changed by Public Law 86-307, approved September 21, 1959.

Congressional authority for the recreational program at Stillhouse Hollow Lake is contained in the December 1944 Flood Control Act Section 4 (Public Law 534, 78th Congress, 2nd Session) as amended, and the May 1963 Outdoor Recreation Act (Public Law 88-29) which designates recreation as an authorized project purpose. Congressional authority for the fish and wildlife program at reservoir projects under the control of the Department of the Army is contained in Fish and Wildlife Coordination Act of 1958, as amended, Public Law 85-624 (72 Stat 563), approved August 12, 1958, and Public Law 89-669 (80 Stat 926), approved October 15, 1966.

Land acquisition for Stillhouse Hollow Lake was authorized under the Rivers & Harbor Act of March 1945 (Public Law 14; 79th Congress, 1st Session); Engineer Regulation 405-1-1, Planning and Project Authorization of October 1952; and Engineer Regulation 405-1-620, Acquisition by Purchase, Donation and Transfer, February 1974.

Several laws place emphasis on environmental stewardship of federal lands. These laws, including but not limited to Public Law 91-190, National Environmental Policy Act of 1969 (NEPA) and Public Law 86-717, Forest Cover Act, place emphasis on the environmental stewardship of federal lands and USACE-administered federal lands, respectively.

1.3 MASTER PLAN PURPOSE AND SCOPE

In accordance with Engineering Regulation (ER) 1130-2-550 Change 07, dated January 2013 and Engineering Pamphlet (EP) 1130-2-550 Change 05, dated 30 January 2013, Master Plans are required for most USACE water resources development projects having a federally owned land base. The Master Plan revision is intended to bring the MP up to date to reflect current ecological, socio-demographic, and outdoor recreation trends affecting the lake, as well as those anticipated to occur within the planning period of 2021 to 2046 (i.e., 25 years).

The Stillhouse Hollow Lake Master Plan is the strategic land use management document that guides the efficient, cost-effective, comprehensive management, development, and use of recreation, natural resources, and cultural resources throughout the life of the Stillhouse Hollow Lake project. It is a vital tool for responsible stewardship and sustainability of the project's natural and cultural resources and makes provision for outdoor recreation facilities and opportunities on federal land associated with Stillhouse

Hollow Lake for the benefit of present and future generations. The Plan guides and articulates USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources. It is a dynamic and flexible tool designed to address changing conditions. The Plan focuses on carefully crafted resource-specific goals and objectives. It ensures that equal attention is given to economy, quality, and needs in the management of Stillhouse Hollow Lake resources and facilities, and that goals and objectives are accomplished at an appropriate scale and rate.

The Master Planning process encompasses a series of interrelated and overlapping tasks involving the examination and analysis of past, present, and future environmental, recreational, and socio-economic conditions and trends. With a generalized conceptual framework, the process focuses on four primary components, as follows:

- Regional and ecosystem needs
- Project resource capabilities and suitability
- Expressed public interests that are compatible with Stillhouse Hollow Lake authorized purposes
- Environmental sustainability elements

It is important to note what the Master Plan does not address. As noted in Section 1.1, the Plan does not address the flood risk management or water supply purposes of Stillhouse Hollow Lake. The Plan also does not address details of design, management, administration, or implementation of the project, as these are addressed in the Stillhouse Hollow Lake Operational Management Plan (OMP). In addition, the Master Plan does not address the specifics of regional water quality or shoreline management with respect to private actions conducted by adjoining landowners such as vegetation modification. The operation and maintenance of primary project operations facilities, including but not limited to the dam, spillway, and gate-controlled outlet, are also not included in this Plan.

The 1975 Master Plan was sufficient for prior land use planning and management. Changes in outdoor recreation trends, regional land use, population, current legislative requirements, and USACE management policy have occurred over the past decades. Additionally, increasing fragmentation of wildlife habitat, national policies related to land management, climate change, and growing demand for recreational access and protection of natural resources are all factors affecting Stillhouse Hollow Lake and the region in general. In response to these continually evolving trends, USACE has determined that a full revision of the 1975 Plan is required as set forth in this Plan.

1.4 BRIEF PROJECT AND WATERSHED DESCRIPTION

Stillhouse Hollow Lake (formerly Lampasas Lake) was initiated in the summer of 1962 with the deliberate impoundment of water beginning February 19, 1968. The Stillhouse Hollow Dam site is located on the Lampasas River 16.0 river miles upstream from the confluence of the Lampasas and Leon Rivers, and is in the central part of Bell County about five miles southwest of Belton, Texas (Figure 1.1). The reservoir area lies entirely within Bell County.

The Lampasas River is in segment 1217 of the 45,000 square mile Brazos River Basin, which is the second largest river basin by area within Texas. The Lampasas River rises in western Hamilton County 160 miles west of Hamilton and flows southeast for 75 miles, passing through Lampasas, Burnet, and Bell Counties. In Bell County the river turns northeast and is dammed five miles southwest of Belton to form Stillhouse Hollow Lake (segment 1216). Below Stillhouse Hollow Lake, the Lampasas River flows to its confluence with Salado Creek and the Leon River to form the Little River.

Stillhouse Hollow Lake has a drainage area of 1,318 square miles. The dam is rolled earth filled, approximately 15,624 feet in length including the spillway and dike, is 200 feet high and has a top width of 42 feet, with the dike at 10 feet. The spillway is a broad-crested weir at elevation 1,650 feet NGVD. The outlet works consist of one gate-controlled conduit with two hydraulically operated slide gates and invert elevation of 515.0 feet NGVD².

1.5 PROJECT ACCESS

State Highway Farm to Market 1670 crosses the main embankment. This highway intersects U.S. Highway 190 approximately three miles southwest of Belton, TX, and leads to Interstate 35 approximately three miles southeast of the main embankment. Access to government property and public use areas is also available over existing improved and unimproved county roads (Figure 1.2).

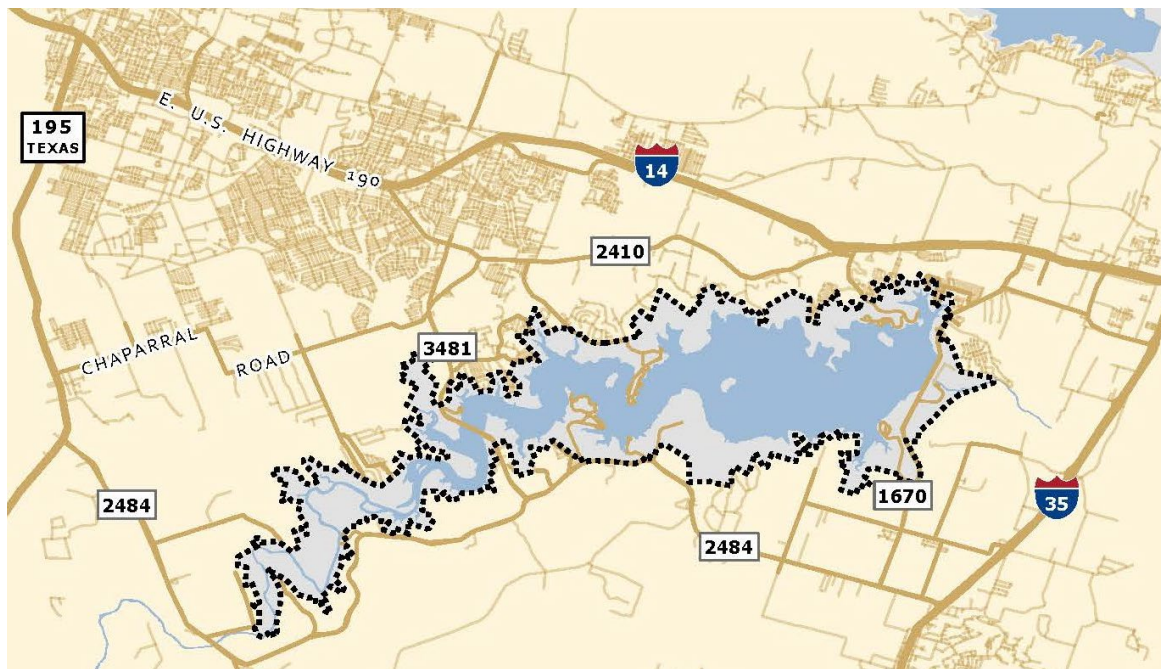


Figure 1.2 Road Network at Stillhouse Hollow Lake 2020

² TWDB 2015 Volumetric and Sedimentation Survey

1.6 PRIOR DESIGN MEMORANDUMS

Design Memorandums were prepared from 1956 thru 1970 setting forth design criteria for all aspects of the project including the prime flood risk management facilities, real estate acquisition, road and utility relocations, reservoir clearing, and the master plan for recreation development and land management. Table 1.1 list of the Design Memoranda for Stillhouse Hollow Lake.

Table 1.1 Design Memorandums

DM #	Title	Date
	Interim Report on Brazos River	Dec 1945
	Report on Survey of Brazos River and Tributaries, Texas - Oyster Creek, Texas, and Jones Creek, Texas	Aug 1947
	Horizontal and Vertical Control for Dam Site Work Areas and Reservoir Area, Lampasas Reservoir, Belton, Texas	Jun 1959
1	Stillhouse Hollow Reservoir - Hydrology, Supplement No. 1	Jul 1959 Rev. Jan 1960
1	Stillhouse Hollow Reservoir - Hydrology, Supplement No. 1	Rev. Jul 1963
2	Stillhouse Hollow Reservoir - Site Selection (Geology Only)	Dec 1958
4	Stillhouse Hollow Reservoir - Relocations, Part II – F.M. Road 1670, Vol. 10-3	Jul 1962
4	Stillhouse Hollow Reservoir - Relocations, Part I - Bell County Roads	May 1963
5	Stillhouse Hollow Reservoir - General	Mar 1960
6	Stillhouse Hollow Reservoir - Availability of Materials	Dec 1960
7	Stillhouse Hollow Reservoir - Clearing	Mar 1963
8	Stillhouse Hollow Reservoir - Part I - Dike	Jun 1960
8	Stillhouse Hollow Reservoir - Part II - Earth Dam and Spillway	Jul 1962
9	Stillhouse Hollow Reservoir - Maintenance Facilities, Access Road and Visitors' Overlook	Apr 1962
10	Stillhouse Hollow Reservoir - Outlet Works Vol. 10 - 12	Aug 1962
11A	Stillhouse Hollow Reservoir - Preliminary Master Plan Part of the Master Plan For Stillhouse Hollow Reservoir Lampasas River, Texas	Apr 1961
11B	Stillhouse Hollow Reservoir - Master Plan Revision and supplement	Feb 1965, 1966 and Oct 1970
11C	Stillhouse Hollow Reservoir - Master Plan Revision	Jan 1975
12	Stillhouse Hollow Reservoir - Channel Improvement Vol. 10-14	Apr 1962

1.7 PERTINENT LAWS

Numerous public laws apply directly or indirectly to the management of federal land at Stillhouse Hollow Lake. Listed below are several key public laws that are most frequently referenced in planning and operational documents. Refer to Appendix G for a more comprehensive listing.

- Public Law 78-534, Flood Control Act of 1944. - Section 4 of the Act, as last amended in 1962 by Section 207 of Public Law 87-874, authorizes USACE to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to federal, state, or local governmental agencies.
- Public Law 85-624, Fish and Wildlife Coordination Act 1958. - This Act, as amended in 1965, establishes the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources, and adverse effects on these resources, shall be examined along with other purposes which might be served by water resources development.
- PL 89-665, Historic Preservation Act of 1966. - This Act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; (3) a program of grants-in-aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 that requires the President's Advisory Council on Historic Preservation to have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.
- Public Law 86-717, Forest Conservation. - This act provides for the protection of forest and other vegetative cover for reservoir areas under the jurisdiction of the Secretary of the Army and the Chief of Engineers.
- Public Law 89-72, Federal Water Project Recreation Act of 1965. - This act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at federal reservoir projects shall be borne by a non-federal public body. A HQUSACE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.
- Public Law 91-190, National Environmental Policy Act of 1969 (NEPA). - NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a *"continuing policy of the Federal Government... to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."* Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations,

and public law of the United States shall be interpreted and administered in accordance with the policies of the Act. It is Section 102 that requires consideration of environmental impacts associated with federal actions. Section 101 of NEPA requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony.

Specifically, Section 101 of the National Environmental Policy Act declares:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
 - Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
 - Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
 - Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;
 - Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
 - Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.
- Public Law 101-601, Native American Graves Protection and Repatriation Act (16 November 1990), requires federal agencies to return Native American human remains and cultural items, including funerary objects and sacred objects, to their respective peoples.

1.8 REAL ESTATE

1.8.1 Project Land Acquisition

The Flood Control Act September 03, 1954 (Public Law 83-780) authorized acquisition of land at Stillhouse Hollow Lake. Initially, 15,404 acres of fee simple land and 915 acres of easement were acquired. Since that time, 123 acres of fee and 1 acre of easement have been disposed, leaving a current total of 15,281.50 acres of fee and 913.57 acres of flowage easement. These are official acres and are slightly different than the planning acres derived using GIS computations. Additionally, the fee simple and easement acreage identified in this master plan was obtained from the Real Estate Management Information System (REMIS) and is subject to change as the acquisition documents are audited.

1.8.2 Outgrants

Real Estate outgrants at Stillhouse Hollow Lake include easements, licenses, leases, and other formal real estate documents. A summary of outgrants at Stillhouse Hollow Lake is as follows:

- Total Easements: 17
- Total Leases: 3 (2 Recreation, 1 Water Supply)

- Licenses: 0
- Consents/Other: 2

The Fort Worth District Real Estate Division and Operations Division, in coordination with Operations Division staff at Stillhouse Hollow Lake, conduct annual compliance inspections of all major outgrants. Inspections of leased areas are conducted annually, while park and recreation leases issued to the state are conducted no more than once every three years. All easement inspections are conducted on a five-year rotating schedule.

Individuals and entities interested in lease acquisition to provide services to the public on USACE fee lands should be aware that specific restrictions and procedures apply to such leases. In many cases, individuals or entities will be encouraged to pursue a sublease with an existing lessee, such as with a marina. Any leases for new services are subject to a competitive bidding process following market studies and a determination by USACE that the prospective service or product relies on the project's natural resources, supports water-based activities, and would be beneficial to users at Stillhouse Hollow Lake. Further, recreational leases are typically only allowed on High Density Recreation Lands (see Appendix A for maps). Questions regarding this topic can be directed to the lake office.

1.8.3 Trespass and Encroachment

Government property is monitored by Stillhouse Hollow Lake USACE personnel to identify and correct instances of unauthorized use, including trespasses and encroachments. The term “trespass” includes unauthorized transient use and occupancy, such as mowing, tree cutting and removal, livestock grazing, cultivation and harvesting crops, and any other alteration to government property done without USACE approval. Unauthorized trespasses may result in a Title 36 citation to appear in Federal Magistrate Court, which could subject the violator to fines or imprisonment (See 36 Code of Federal Regulations (CFR) Part 327 Rules and Regulations Governing Public Use of Water Resources Development Projects Administered by the Chief of Engineers). More serious trespasses will be referred to the USACE Office of Counsel for enforcement under state and federal law, which may require restoration of the premises and collection of monetary damages.

The term “encroachment” pertains to an unauthorized structure or improvement on government property. When encroachments are discovered, lake personnel will attempt to resolve the issue at the project level. Where no resolution is reached, or where the encroachment is a permanent structure, the method of resolution will be determined by USACE Real Estate Division, with recommendations from Operations Division and Office of Counsel. USACE’s general policy is to require removal of encroachments, restoration of the premises, and collection of appropriate administrative costs and fair market value for the term of the unauthorized use.

Additional rules exist for flowage easement lands. While not owned by the Federal Government, these lands have special rules for activities on these lands. See Section 4.3 of this Master Plan for more details on flowage easement lands.

1.9 PERTINENT PROJECT INFORMATION

Table 1.2 outlines pertinent project information such as key elevations, water storage, and spillway flow capacity at Stillhouse Hollow Lake. A contract with the Brazos River Authority (BRA) was approved on Apr 13, 1962 for 13 percent (26,740 acre-feet [ac-ft]) as future supply of the conservation storage below elevation 622.0 feet NGVD29.

Table 1.2 Pertinent Data

Feature	Elev Feet* (NGVD29)	Reservoir Area (acres)	Reservoir Capacity		Total Spillway Capacity (cfs)	Outlet Works Capacity (3 Gates)
			Accumulative (ac-ft)	Runoff (inches)		
Top of Dam	698.0	16,800	1,053,800	14.98		
Max. Design Water Surface (1963 Study)	693.2	16,310	1,800,700	14.33	673,500	6,500
Top of Flood Control pool & Spillway Crest (1983 Study)	666.0	11,830	630,400	8.96		7,400
Top of Conservation Pool	622.0	6484	227,825	3.35		6,200
Shoreline at Designed Conservation Pool – approximately 58 miles (1975 Plan and Pertinent Data Table)						
* The elevation listed on the pertinent data sheet is based on the datum of NGVD29. The datum conversion from NGVD29 to NAVD88 is NGVD29+.0.2 feet = NAVD88						

CHAPTER 2: PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT

2.1 PHYSIOGRAPHIC SETTING

Physiographic settings are the Earth's distinct landform regions defined in a three-tiered system of (1) physiographic divisions; (2) physiographic provinces; and (3) physiographic sections. Stillhouse Hollow Lake is in the Edwards Plateau section of the Great Plains province of the Interior Plains division. The Interior Plains cover a vast area of central North America, extending from the Gulf Coast to the Arctic Ocean along the east flank of the Rocky Mountains. The Great Plains is the broad expanse of flat land, much of it covered in prairie, steppe, and grassland. The Edwards Plateau is a region of west-central Texas, which is bounded by the Balcones Fault to the south and east, the Llano Uplift and the Llano Estacado to the north, and the Pecos River and Chihuahuan Desert to the west.

2.1.1 Ecoregion Setting

Ecoregions are major ecosystems within physiographic regions defined by geographically distinct plant and animal species, natural communities, and environmental conditions. There are 12 different Level III and 56 Level IV ecoregions in Texas. Stillhouse Hollow Lake, like Belton Lake, is within the far southern end of the Level III Ecoregion known as Cross Timbers and the Level IV region known as Limestone Cut Plain. Early settlers coined the name Cross Timbers due to their repeated crossing of the timbered areas that impeded their prairie crossing. The Cross Timbers region extends from central Texas to southern Kansas; however, its vegetation has undergone significant changes over the past 150 years, and only small pockets of the ancient Cross Timbers remain intact.

The Limestone Cut Plain is a broader, southern extension of the Grand Prairie, found only in Texas. Geologically, it is underlain by limestone rather than sandstone, and serves as a physiological and vegetation transition to the Edwards Plateau, which lies on the southern edge of the region. The region encompasses all of Hamilton and Coryell counties, large parts of Bell, Lampasas, Mills, Erath, and Bosque counties, and smaller parts of Williamson, Burnet, Brown, Comanche, Hood, Somervell, and McClennan counties, and includes Fort Hood Army Base.

To help understand the region and guide future management of the USACE lands at Stillhouse Hollow Lake, the following sections reflect conditions that are both typical of the Cross Timbers region and unique to Bell County and Stillhouse Hollow Lake. While Section 2.1 covers the specifics of the region, Section 2.2 covers the natural resources specific to the region, its watershed, and the lake.

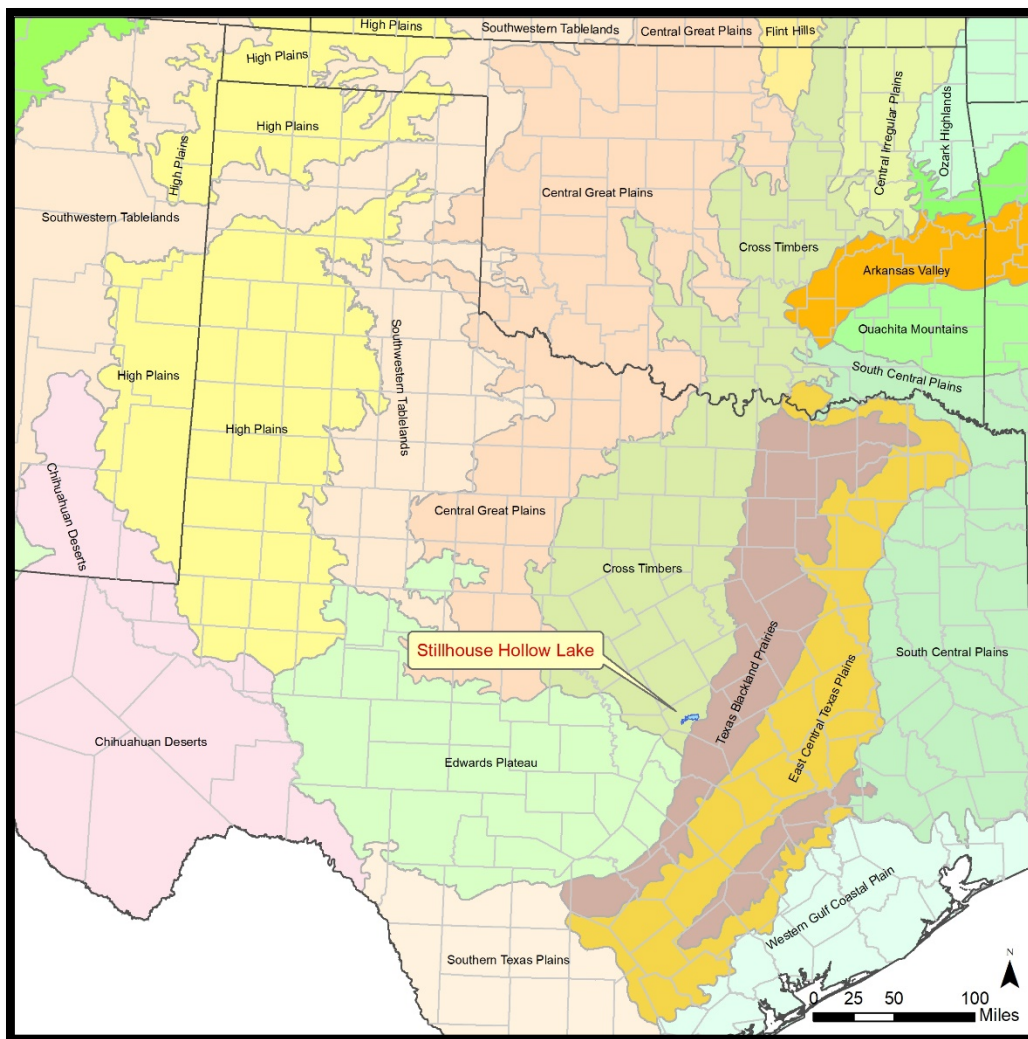


Figure 2.1 Stillhouse Hollow Lake Ecoregion

2.1.2 Climate

Stillhouse Hollow Lake lies in a moderately humid region of the southwest United States where the temperature is generally mild. Summer temperatures are generally hot during the day and warm at night, while winter temperatures are generally mild, with occasional cold periods, including some freezing temperatures of short duration. Sub-zero temperatures are very rare. While the mean annual temperature is about 67 degrees Fahrenheit (°F), the maximum recorded temperature was 112°F in August 2011, and the minimum recorded temperature was -2°F in January 1949. The growing season between killing frosts is normally from mid-March to late-November.

The average annual precipitation over the watershed above the dam since 1963 is about 35.88 inches. Table 2.1 below shows the highest precipitation by month and annual accumulation of precipitation recorded at Stillhouse Hollow Lake from 1963 - 2016. This table shows the record daily precipitation was 14.57 inches in October 2015, and the minimum daily precipitation of 0.0 in both July and August 1993. The record maximum and minimum annual precipitation were 56.77 in 2007 and 20.47 in 1988, respectively. Areas highlighted in orange

represent the month's record lowest precipitation, and the areas highlighted in blue are the highest precipitation recorded for the month from 1963 to 2016. As can be seen, there have been more months of exceptionally high and low rainfall from 1996-2016 than in 1963-1995, which is likely due, in part, to the negative effects of climate change.

Table 2.1 Stillhouse Hollow Lake Area 1963-2016 Monthly Record and Annual Accumulated Precipitation in Inches

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
1963							0.37	0.72	1.11	0.47	2.97	1.73	
1964	3.45	2.29	3.38	2.57	1.68	11.01	T	3.62	6.18	1.50	3.45	1.24	40.37
1965	4.49	3.84	1.30	1.38	12.63	2.65	0.33	0.47	4.42	1.74	3.50	3.94	40.69
1966	1.98	4.04	0.80	5.88	2.18	1.55	0.85	2.48	4.56	0.29	0.11	0.86	25.58
1967	0.45	0.54	0.95	1.66	5.69	0.14	0.18	1.16	3.18	4.86	3.16	3.02	24.99
1968	9.46	2.31	2.70	2.84	7.26	3.46	3.55	0.82	3.27	0.52	3.29	2.20	41.68
1969	0.61	3.00	3.78	4.04	2.38	0.74	0.55	3.30	1.70	3.86	2.06	2.66	28.68
1970	1.44	3.92	4.10	1.82	4.74	0.81	0.64	1.28	7.45	3.38	0.04	0.44	30.06
1971	T	1.75	0.17	2.14	4.58	1.21	5.21	2.67	1.76	6.78	2.96	3.91	33.14
1972	1.27	0.39	0.53	1.88	4.72	2.98	2.41	4.04	3.46	5.55	3.68	1.32	32.23
1973	4.57	2.36	2.86	2.83	2.23	3.52	4.93	0.94	6.84	7.29	1.13	0.44	39.94
1974	1.71	0.56	0.93	1.22	4.00	0.60	2.17	10.15	5.48	8.57	3.21	2.29	40.89
1975	1.33	3.48	1.77	1.39	9.97	5.50	1.09	3.93	2.55	2.59	0.88	1.58	36.06
1976	0.08	1.13	3.99	9.80	3.98	4.38	4.99	2.09	7.55	4.86	1.54	2.64	47.03
1977	1.96	4.15	2.43	7.01	2.36	2.87	0.11	0.56	0.52	1.89	1.44	0.33	25.63
1978	1.51	3.69	2.17	1.33	2.03	1.84	0.98	0.34	2.45	1.23	5.64	2.31	25.52
1979	2.57	3.19	5.64	5.47	8.65	5.06	5.33	3.37	2.75	1.38	0.64	2.99	47.04
1980	1.01	1.96	2.13	2.75	8.32	1.67	0.00	0.52	4.24	0.63	3.49	1.49	28.21
1981	1.00	3.30	3.40	2.95	3.79	13.91	0.60	1.55	2.79	7.95	1.29	0.56	43.09
1982	1.34	1.52	1.88	3.97	5.08	3.62	0.42	2.55	0.25	2.26	5.19	1.91	29.99
1983	1.62	3.10	4.18	0.14	7.66	1.17	1.61	4.14	4.06	1.34	2.03	0.61	31.66
1984	1.69	0.20	3.11	0.55	1.54	7.01	1.86	2.61	1.55	6.54	2.68	2.90	32.24
1985	1.55	3.77	3.62	3.53	3.94	3.12	0.43	1.62	4.94	5.45	5.66	2.48	40.11
1986	0.33	6.15	0.47	1.61	5.69	6.05	0.09	2.21	7.39	6.32	2.96	5.63	44.90
1987	1.00	3.33	1.33	1.20	3.66	6.85	1.60	0.63	2.62	0.35	4.77	3.47	30.81
1988	0.41	1.17	2.46	1.41	1.07	3.36	4.15	0.61	1.04	1.53	1.21	2.05	20.47
1989	4.71	4.33	3.12	0.59	5.46	4.68	0.92	3.03	0.27	1.94	0.71	0.40	30.16
1990	1.21	2.51	4.24	3.69	4.18	0.47	4.20	0.45	7.11	5.12	3.47	1.47	38.12
1991	4.99	1.56	1.21	1.92	11.65	5.83	1.15	1.38	5.60	5.19	1.68	9.78	51.94
1992	4.49	7.39	3.09	1.65	8.00	2.66	2.38	2.83	1.42	0.25	5.01	3.29	42.46
1993	3.60	2.74	5.27	4.64	4.86	3.29	0.00	0.00	4.57	3.50	1.46	2.08	36.01
1994	1.49	2.39	1.68	2.51	7.36	3.46	0.65	1.80	0.34	4.73	2.51	5.55	34.47
1995	0.74	1.44	3.02	4.21	4.29	5.80	1.77	2.30	3.50	0.96	1.74	1.13	30.90
1996	0.24	0.15	1.41	1.59	3.58	2.91	1.52	6.87	7.38	1.62	5.11	2.79	35.17
1997	2.43	5.67	3.55	7.37	4.78	5.72	1.67	0.53	3.15	3.58	4.94	7.37	50.76

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
1998	4.28	4.22	2.61	2.11	1.31	0.76	1.20	2.09	5.14	10.26	3.02	2.22	39.22
1999	0.96	0.22	2.84	2.06	4.58	2.36	3.01	0.13	4.81	1.84	0.20	2.18	25.19
2000	2.10	2.23	3.35	4.53	4.80	3.56	0.06	0.14	5.42	4.12	8.32	3.21	41.84
2001	6.61	1.61	4.56	1.85	7.11	2.62	1.37	14.5	2.18	2.54	5.92	3.39	54.20
2002	0.88	1.48	1.52	1.90	2.43	3.68	4.86	0.43	1.46	8.14	1.87	5.10	33.75
2003	1.07	5.27	1.88	0.57	1.26	4.81	0.80	1.79	3.10	4.28	1.33	0.72	26.88
2004	3.01	4.26	1.89	5.37	1.55	11.83	0.34	2.30	0.86	4.95	8.66	1.14	46.16
2005	2.97	2.93	2.23	0.88	3.71	2.91	4.93	5.43	1.07	1.42	1.31	0.22	30.01
2006	1.66	0.93	3.46	5.20	4.27	3.05	1.74	0.21	2.75	5.01	0.20	2.86	31.34
2007	7.15	0.20	8.71	1.64	11.34	10.99	7.44	0.53	4.54	0.71	1.66	1.86	56.77
2008	0.91	0.59	5.47	3.06	6.51	0.49	1.79	4.57	0.38	1.05	0.77	0.24	25.83
2009	1.04	0.92	4.03	5.12	2.65	0.02	1.14	0.38	10.75	12.22	1.70	1.84	41.81
2010	3.84	3.11	4.33	2.56	0.05	2.24	4.11	0.02	11.90	0.53	1.46	1.08	35.23
2011	3.47	1.09	0.21	0.32	4.13	0.74	0.15	0.00	0.36	2.87	1.13	6.01	20.48
2012	2.93	4.10	7.35	0.15	3.07	1.85	3.61	2.04	4.72	0.30	0.15	0.41	30.68
2013	4.95	1.43	1.42	1.36	6.73	1.06	2.42	1.91	2.98	7.14	2.72	1.18	35.30
2014	0.44	0.46	1.99	1.10	7.59	2.49	2.95	0.29	4.00	3.65	3.60	0.61	29.17
2015	3.91	1.26	2.74	2.69	9.14	5.87	0.33	1.45	0.99	14.6	7.23	2.12	52.30
2016	0.45	2.12	5.23	6.48	5.98	2.03	0.91	10.46	0.93	0.44	2.78	1.80	39.61
Average (in)	2.37	2.49	2.88	2.80	4.95	3.65	1.92	2.34	3.63	3.74	2.77	2.35	35.88

Source: NOAA Climatological Annual Summary

The U.S. Global Change Research Program (USGCRP) looks at potential impacts of climate change globally, nationally, regionally, and by resource (e.g., water resources, ecosystems, human health). Stillhouse Lake lies within the Great Plains region of analysis. The Great Plains region has already seen evidence of climate change in the form of rising temperatures and population growth leading to increased demand for water and energy as well as having a negative impact on agricultural practices. Over the last few decades, the Great Plains region has experienced more frequent climate extremes of heat, drought, and precipitation, with a decrease in the number of cold days, which results in an overall lengthening of the frost-free season by one to two weeks.

Within this region there has been a 1.5 °F increase in average temperatures from a 1960 baseline to the year 2000 (USGCRP, 2014). In addition to more extreme rain events, the region is experiencing more frequent extreme heat events. The increased severity and frequency of climate events has been connected to human activity, specifically the increase in greenhouse gas (GHG) due to human use of fossil fuels (USGCRP, 2014). Since 2000, the longest duration of drought in Texas lasted 271 weeks beginning on May 4, 2010 and ending on July 7, 2015. The most intense period of drought occurred the week of October 4, 2011 where it affected 87.99 percent of Texas land (National Integrated Drought Information System, 2020). This was followed by massive flooding and major storm events across the state of Texas beginning May 22, 2015.

This trend of rising temperatures and more frequent extreme climate events such as heat waves, drought, and heavy rainfall is predicted to continue (USGCRP 2014). The USGCRP

looks at two potential future conditions as part of its predictive modeling process; lowering GHG emissions and continued current high GHG emissions. Under conditions of lower GHG emissions, the average temperature in the Great Plains region may increase as much as 4°F by 2020, 6°F by 2050, and 8°F by 2090 from averages observed in 2000. Under conditions of higher continuous GHG emissions, potential increase is greater in the long-term, and may be as much as 13.5°F by 2090. This will dramatically affect water and land usage throughout the region including Stillhouse Hollow Lake. Thus, maintaining a healthy natural environment is paramount to future sustainability and resilience in operations and recreation.

2.1.3 Geology and Topography

The Limestone Cut Plain of the Cross Timbers Ecoregion is underlain by Lower Cretaceous limestone, including the Glen Rose Formation and Walnut Clay, which are older than the limestone of the neighboring Edwards Plateau. The Glen Rose Formation has alternating layers of limestone, chert, and marl that erode differentially and generally more easily than the Edwards Limestone. The effects of increased precipitation and runoff are also apparent in the increased erosion and dissolution of the limestone layer.



Photo 2.1 Typical Geology and Topography at Stillhouse Hollow Lake (USACE Photo)

The Limestone Cut Plain has flatter topography, lower drainage density, and a more open woodland character than does the Balcones Canyonlands, which lies further to the south of the Lake. The Stillhouse Hollow Lake topography is characterized by buttes, mesas, and divides.

2.1.4 Hydrology and Groundwater

The 45,573 square mile Brazos Basin, which feeds Stillhouse Hollow Lake, is the second largest river basin by area within Texas. The total basin is 840 miles long with an annual flow of 6,074,000 ac-ft per year, most of which is in Texas. The basin's namesake river was coined Los Brazos de Dios, "the arms of God," by early Spanish explorers. The Brazos River flows from the confluence of its Salt and Double Mountain forks in Stonewall County, Texas to the Gulf of Mexico. It is the state's third longest river and has the largest average annual flow volume of any

river in the state. Other streams in the basin include the Salt, Double Mountain, and Clear forks of the Brazos River; Gabriel, Lampasas, Little, Leon, Navasota, Nolan, Paluxy, Sabana, and White rivers; and many creeks such as Big Sandy, Cedar, Millers, Salt, Sweetwater, and Yegua creeks. One of the issues in this basin is the increasing demand on surface water resources in the upper basin as groundwater supplies decline, particularly in the Ogallala Aquifer, which has historically supplied most of the water in the upper basin.

The two primary sources of groundwater in the Stillhouse Hollow Lake area are the Edwards Balcones Fault Zone (BFZ) Aquifer and the Trinity Aquifer (TWDB, 2015). The Edwards BZF forms a narrow belt extending through most of the southwestern part of the state of Texas, through thirteen counties from a groundwater divide in Kinney County, Texas through the San Antonio area, northwestward to the Leon River in Bell County. Water in the aquifer occurs in fractures, honeycomb zones, and solution channels in the Edwards and associated limestone formations of Cretaceous age. Water quality for the Edwards (BFZ) ranges from fresh to slightly saline as it approaches the west side of the Trinity Group, with total mineral dissolve ranging from 100 to 3,000 milligram per liter. Water from the Edwards (BFZ) is primarily used for municipal, irrigation, and recreational purposes.

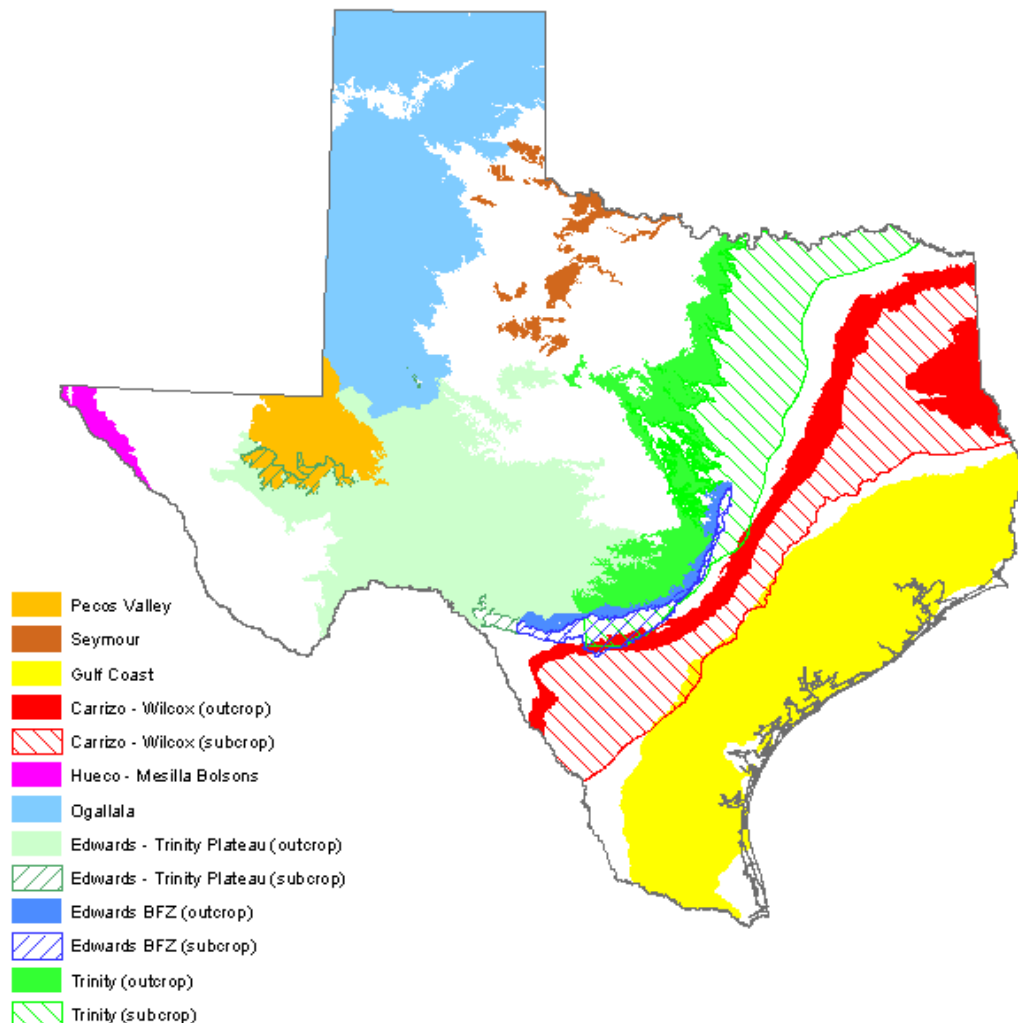


Figure 2.2 Groundwater Map of Texas (Courtesy TWDB)

The Trinity Aquifer consists of basal Cretaceous-age Trinity Group formations extending across much of the central and northwest parts of the state of Texas, through 61 counties. From the Red River in North Texas to the Hill Country of Central Texas, the aquifer is comprised of the Antlers, Twin Mountains, Glen Rose, Paluxy, Hosston, Travis Peak, and Hensell formations. In general, groundwater in the Trinity Aquifer is fresh but very hard in the outcrop. The dissolved solids increase from 1,000 - 5,000 milligram per liter, and slightly to moderately saline as the depth of the aquifer increases. Sulfate and chloride concentrations increase in the aquifer as depth increases. The Trinity Aquifer is mostly used for municipalities, irrigation, and livestock and is one of the most used groundwater resources in the state of Texas.

The Stillhouse Hollow Lake area is administratively under the Groundwater Management Area (GMA) 8 as designated by Texas Water Development Board (TWDB). In 1993, the Edwards Aquifer Authority (EAA) was created by the legislature to regulate aquifer pumpage to benefit all users. Texas Water Code (TWC) Section 36.0015 states that groundwater conservation districts (GCDs) are the state's preferred method of groundwater management and establishes that GCDs will manage groundwater resources through rules developed and implemented in accordance with TWC Chapter 36. Chapter 36 gives directives to GCDs and the statutory authority to carry out such directives, so that GCDs are provided the proper tools to protect and manage the groundwater resources within their boundaries. The ground water in and around Stillhouse Hollow Lake is primarily managed by the Clearwater Underground Water Conservation District.

The estimates of the annual amount of recharge to the groundwater resources that are recognized as Major Aquifers by TWDB are based on the Groundwater Availability Models (GAM) simulations provided by TWDB are:

1. Edwards BFZ Aquifer Recharge - 27,565 ac-ft per year
2. Trinity Aquifer Recharge - 2,816 ac-ft per year

The estimates of the annual amount of water discharged to surface water systems by the groundwater recognized as Major Aquifers by TWDB are based the GAM simulations provided by TWDB are:

1. Edwards BFZ Aquifer - 27,556 ac-ft per year
2. Trinity Aquifer - 11,131 ac-ft per year

2.1.5 Soils

Soil type and condition are an important component affecting the lake mission in terms of erosion and sedimentation, recreation options, and environmental stewardship. The Stillhouse Hollow Lake area has thin limestone soils in the hilly portion, which are timbered with oak, elm, mesquite, juniper, and ash. Alluvial soils along the streams support pecan, willow, and hackberry trees.

Soils in the Stillhouse Hollow Lake area are naturally susceptible to soil erosion. The major soil series found in the area are Topsey Clay Loam, Doss-real Complex, Eckrant-Rock Outcrop Complex, Real-Rock Outcrop Complex, and Sony Silty Clay Loam. The soils in general

SOIL ASSOCIATIONS*

- 1 Houston Black-Heiden-Branyon association: Nearly level to sloping, deep, clayey soils over clayey material, shale, or marl; on uplands.
- 2 Speck-Tarrant-Purves association: Gently sloping to sloping and undulating to rolling, very shallow to shallow, gravelly, loamy and clayey soils over limestone, on uplands.
- 3 Austin-Stephen-Altoa association: Gently sloping to strongly sloping, very shallow to deep, clayey soils over chalk or chalky marl, on uplands.
- 4 Denton-Purves association: Nearly level to sloping, very shallow to moderately deep, clayey soils over limestone, on uplands.
- 5 Trinity-Frio-Bosque association: Nearly level, deep, loamy to clayey soils formed in alluvium, on flood plains.
- 6 San Saba-Crowford association: Nearly level to gently sloping, moderately deep, clayey soils over limestone, on uplands.

* Texture terms refer to the surface layer unless otherwise stated.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TEXAS AGRICULTURAL EXPERIMENT STATION
GENERAL SOIL MAP
BELL COUNTY, TEXAS

Scale 1:253,440

1 0 1 2 3 4 Miles

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

A soil survey by the Natural Resource Conservation Service (NRCS) shows there are eight possible general classifications (Classes I through Class VIII) occurring in the reservoir area. The erosion hazards and limitations for use increase as the class number increases. Class I has few limitations, whereas Class VIII has many. The soil class data for project lands is provided in Table 2.2 This data is compiled by the NRCS and is a standard component of natural resources inventories on USACE lands. This, and other inventory data, is recorded in the USACE Natural Resource Management Assessment Tool (NRM).

Table 2.2 Soil Classes

Soil Class	Acreages
Class I	0
Class II	328
Class III	935
Class IV	476
Class V	153
Class VI	024
Class VII	806
Class VIII	119

Source: 2019 NRM website

A general description of the soils and the land capability classes are described below.

- *Class I* soils have slight limitations that restrict their use.
- *Class II* soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
- *Class III* soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- *Class IV* soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
- *Class V* soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
- *Class VI* soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
- *Class VII* soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.
- *Class VIII* soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for aesthetic purposes.

Detailed information on all soil types surrounding Stillhouse Hollow Lake is available on websites maintained by the NRCS, U.S. Department of Agriculture.

2.2 ECOREGION AND NATURAL RESOURCE ANALYSIS

2.2.1 Vegetative Resources

USACE regulations and policy require a basic inventory of the vegetation at all operational projects. This inventory, referred to in EP 1130-2-540 as a Level 1 inventory, classifies the vegetation in accordance with the National Vegetation Classification System (NVCS) down to the Sub-Class level which is a very broad classification level. The inventory data, presented in Table 2.3, is recorded in the USACE national database referred to as the NRM Assessment Tool and is useful in providing a general characterization of the vegetation on all operational projects. Daily management of USACE lands requires more detailed knowledge of the vegetation down

to the Association level within the NVCS, and for most management prescriptions, down to the individual species level of dominant vegetation.

Table 2.3 Vegetation Classification and Condition

Division	Order	Class	Sub-Class	Total Sub-Class Acres	Sustain-able Areas	Transitioning Acres	Degraded Acres
Non-Vegetated	Non-Vegetated	Non-Vegetated	Non-Vegetated	6,947	6,947	0	0
Vegetated	Herb Dominated	Herbaceous Vegetation	Perennial gramimoid vegetation	2,650	265	530	1,855
Vegetated	Scrub Dominated	Shrubland (Scrub)	Mixed evergreen deciduous shrubland (scrub)	1,459	145	876	438
Vegetated	Tree Dominated	Closed Tree Canopy	Mixed evergreen-deciduous closed tree canopy	1,442	70	219	1,153
Vegetated	Tree Dominated	Open Tree Canopy	Mixed evergreen-deciduous open tree canopy	2,329	460	1,390	479
Vegetated	Vegetation Not Dominant	Sparse Vegetation	Bolder gravel cobble or talus sparse vegetation	444	30	294	120
Stillhouse Hollow Lake Totals				15,271	7,917	3,309	4,045

Note: Classification information is derived from the National Vegetation Classification System

The vegetation of the Cross Timbers section of the Limestone Cut Plain is composed numerous tree species including those listed in Table 2.4. A denser woody understory forms in the absence of fire.

Table 2.4 Cross Timbers Common Tree Species

TREE SPECIES	
Common Name	Scientific Name
Post oak*	<i>Quercus stellata</i>
White shin oak	<i>Quercus sinuata</i> var. <i>breviloba</i>
Cedar elm	<i>Ulmus crassifolia</i>
Texas ash	<i>Fraxinus albicans</i>
Plateau live oak	<i>Quercus fusiformis</i>
Bur oak	<i>Quercus macrocarpa</i>
Blackjack oak*	<i>Quercus marilandica</i>
Hickories*	<i>Carya spp</i>

*Primary species of the Cross Timbers wooded areas

Although the grasslands of the Limestone Cut Plain are a mix of tall, mid, and short grasses, some consider it a westernmost extension of the tallgrass prairie, which distinguishes this ecoregion from the Edwards Plateau Woodland. Grasses includes those listed in Table 2.5.

Table 2.5 Cross Timbers Common Grass Species

GRASSLAND SPECIES	
Common Name	Scientific Name
Big bluestem	<i>Andropogon gerardi</i>
Little bluestem	<i>Schizachyrium scoparium</i>
Yellow Indiangrass	<i>Sorghastrum nutans</i>
Silver bluestem	<i>Bothriochloa saccharoides</i>
Texas wintergrass	<i>Nassella leucotricha</i>
Tall dropseed	<i>Sporobolus compositus</i>
Sideoats grama	<i>Bouteloua curtipendula</i>
Common Curly mesquite	<i>Hilaria belangeri</i>

A Wildlife Habitat Appraisal Procedure (WHAP) was completed in conjunction with the Stillhouse Hollow Lake Master Plan and associated EA (see Appendix E for a detailed description). USACE looked at major habitat types throughout USACE lands at Stillhouse Hollow Lake, as shown in Figure 2.4, and scored them based on their value for terrestrial wildlife habitat.

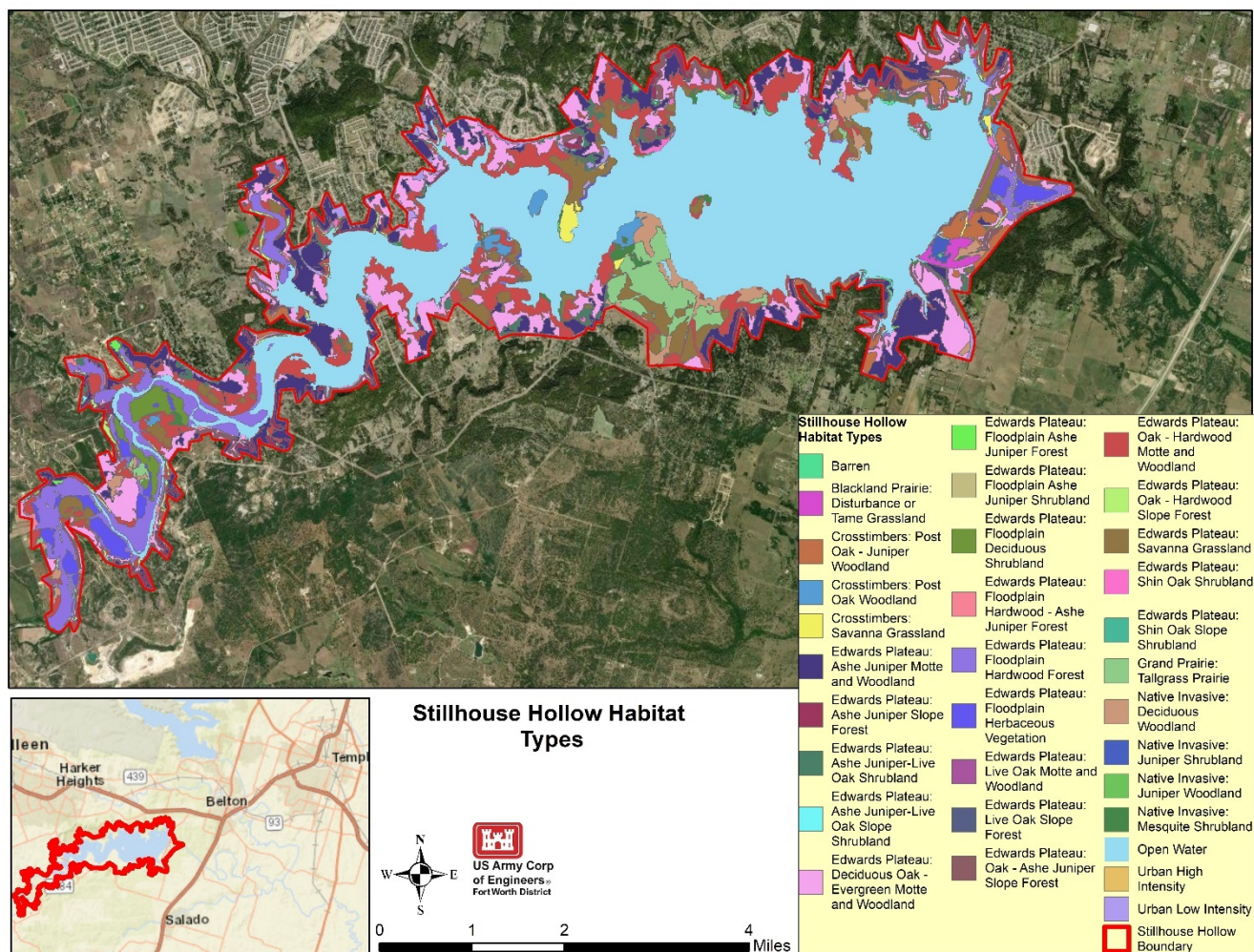


Figure 2.4 Habitat Types at Stillhouse Hollow Lake

A total of 81 WHAP points around the lake were selected, all within USACE fee property. The major habitat types selected and assessed were Grasslands, Upland Forest, and Riparian Forest. The following is a summation of the findings derived from the WHAP. The WHAP report and results can be found in Appendix E of this Plan.

Grassland: There were 20 Grassland sites assessed. WHAP scores for these areas ranged from a low of .47 to a high of .88. The average score for this habitat type was .67. Table 2.6 list the major species observed in these areas.

Table 2.6 Grassland Species at Stillhouse Hollow Lake

COMMON NAME	SCIENTIFIC NAME
Prairie verbena	<i>Glandularia bipinnatifida</i>
Hedge parsley	<i>Torilis arvensis</i>
Johnson grass	<i>Sorghum halepense</i>
Hairy vetch	<i>Vicia villosa</i>
Texas thistle	<i>Cirsium texanum</i>
Yellow wood sorrel	<i>Oxalis stricta</i>

COMMON NAME	SCIENTIFIC NAME
ragweed	<i>Ambrosia spp</i>

Some of the woody species observed during the WHAP are listed in Table 2.7.

Table 2.7 Woody Species at Stillhouse Hollow Lake

COMMON NAME	SCIENTIFIC NAME
Ashe juniper	<i>Juniperus ashei</i>
prickly pear	<i>Opuntia macrorhiza</i>
cedar elm	<i>Ulmus crassifolia</i>
Texas persimmon	<i>Diospyros texana</i>
pecan	<i>Carya illinoensis</i>



Photo 2.2 Site 9, Grasslands

Upland Forest: There were 47 Upland Forest sites assessed that had WHAP scores ranging from a low of .34 to a high of .72. The average score for this habitat type was .54. Generally, the Upland Forest sites observed around Stillhouse Hollow Lake are in good condition. The major vegetation species observed are listed in Table 2.8.

Table 2.8 Upland Forest Species at Stillhouse Hollow Lake

COMMON NAME	SCIENTIFIC NAME
Yellow wood sorrel	<i>Oxalis stricta</i>
Hairy vetch	<i>Vicia villosa</i>
Hedge parsley	<i>Torilis arvensis</i>
Rosette grass	<i>Dichanthelium acuminatum</i>
Dewberry	<i>Rubus trivialis</i>
Ashe juniper	<i>Juniperus ashei</i>

COMMON NAME	SCIENTIFIC NAME
Live oak	<i>Quercus fusiformis</i>
Hackberry	<i>Celtis occidentalis</i>
Greenbrier	<i>Smilax rotundifolia</i>
Texas persimmon	<i>Diospyros texana</i>
Cedar elm	<i>Ulmus crassifolia</i>
Shumard oak	<i>Quercus shumardii</i>
Red oak	<i>Quercus buckleyi</i>



Photo 2.3 Site 2, Upland Forest

Riparian Forest: There were 14 Riparian Forest sites assessed that had a WHAP score ranging from a low of .43 to a high of .78. The average score for this habitat type was .59. Generally, the Riparian Forests observed around Stillhouse Hollow Lake were in good condition. The dominant vegetation species observed are listed in Table 2.9

Table 2.9 Riparian Forest Species at Stillhouse Hollow Lake

COMMON NAME	SCIENTIFIC NAME
Woodland lettuce	<i>Lactuca floridana</i>
Johnson grass	<i>Sorghum halepense</i>
Yellow wood sorrel	<i>Oxalis stricta</i>
Hairy vetch	<i>Vicia villosa</i>
Hedge parsley	<i>Torilis arvensis</i>
Catchweed bedstraw	<i>Galium aparine</i>

The dominant woody species in the Riparian Forest observed are listed in Table 2.10.

Table 2.10 Riparian Woody Species at Stillhouse Hollow Lake

COMMON NAME	SCIENTIFIC NAME
Greenbrier	<i>Smilax rotundifolia</i>
Dewberry	<i>Rubus trivialis</i>
Ashe juniper	<i>Juniperus ashei</i>
Cedar elm	<i>Ulmus crassifolia</i>
Live oak	<i>Quercus fusiformis</i>
Poison ivy	<i>Toxicodendron radicans</i>
Box elder	<i>Acer negundo</i>
Button bush	<i>Cephalanthus occidentalis</i>
Mustang grape	<i>Vitis mustangensis</i>



Photo 2.4 Site 5, Riparian Forest

2.2.2 Wetland Resources

Waters of the United States are defined within the Clean Water Act (CWA), and jurisdiction is addressed by USACE and the United States Environmental Protection Agency (EPA). Wetlands are a subset of the waters of the United States that may be subject to regulation under Section 404 of the Clean Water Act (CWA) (40 CFR 230.3). The Section 404 definition of wetlands states that wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. In addition to the wetland definition specified under Section 404 of the CWA, the USFWS has prepared a National Wetlands Inventory using what is referred to as the Cowardin system of wetland classification. For the purpose of inventorying wetlands that occur on USACE-administered Federal lands, the USFWS system is used. Figure 2.5 illustrates the different wetland types and locations around Stillhouse Hollow Lake.

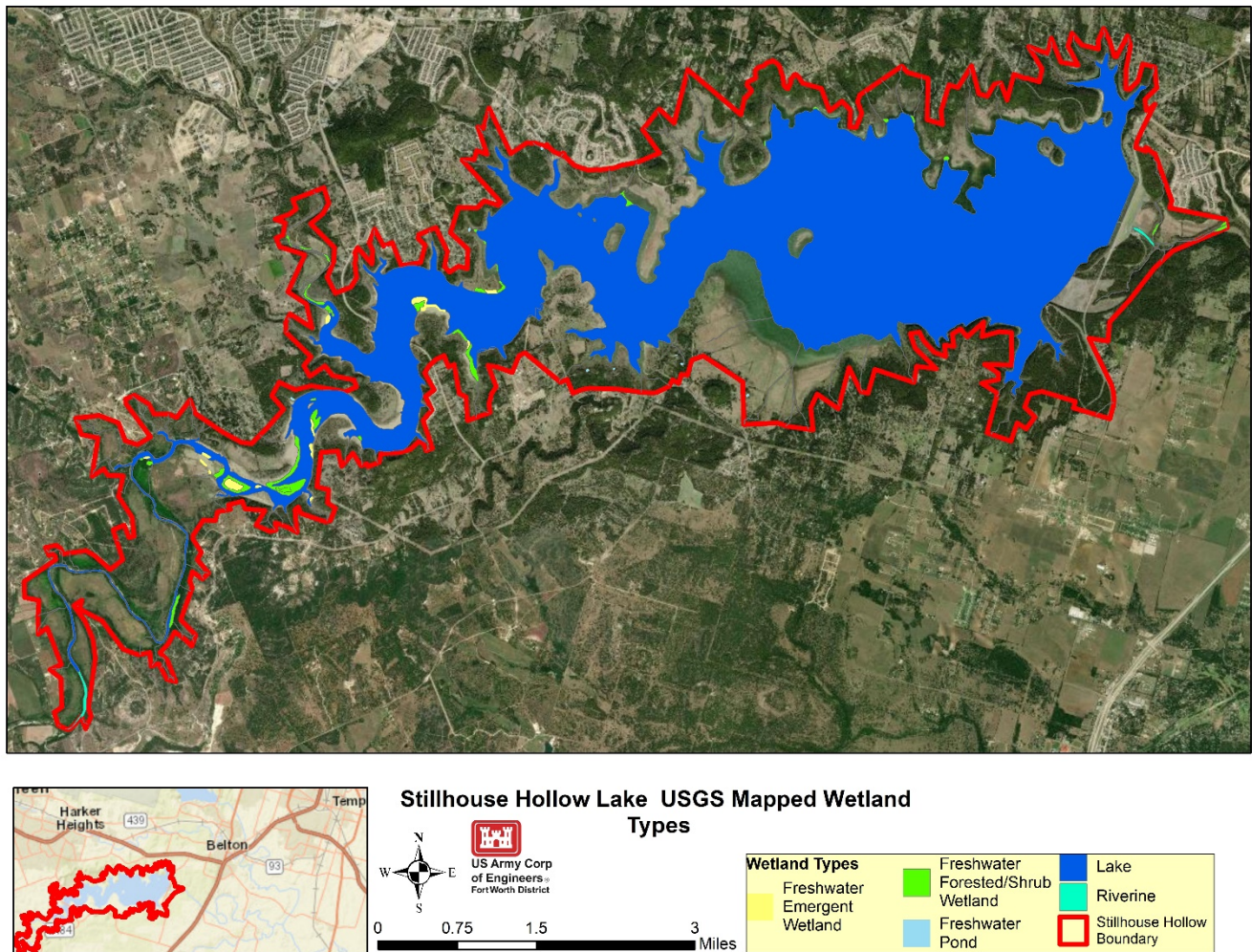


Figure 2.5 Stillhouse Hollow Wetland Resources

Table 2.11 lists the acreages of various types of wetlands present at Stillhouse Hollow Lake. Wetland classifications presented are derived from the U.S. Fish & Wildlife Service's (USFWS) Trust Resource List generated using the Information, Planning, and Conservation (IPAC) System decision support system.

Table 2.11 Wetland Resources

Wetland Inventory Complete	System	SubSystem	Class	Class Acres
No	Palustrine	NO SUB-SYSTEM	Unconsolidated Shore	1
No	Riverine	Lower Perennial	Unconsolidated Bottom	12
No	Lacustrine	Littoral	Emergent Wetland	25
No	Palustrine	NO SUB-SYSTEM	Scrub-Shrub Wetland	44
No	Lacustrine	Limnetic	Unconsolidated Bottom	6277
No	Palustrine	NO SUB-SYSTEM	Forested Wetland	71

Note: These acres are from NRM and vary from USFWS acres.

2.2.3 Fish and Wildlife Resources

Stillhouse Hollow Lake provides habitat for an abundance of fish and wildlife species. The lake provides a quality fishery, as well as quality wildlife habitat on public land associated with the project. The resources are further described in the following sections.

2.2.3.1 Fish Resources

Stillhouse Hollow Lake provides fishing opportunities for both boater and bank angler. Table 2.12 lists the fish species found at Stillhouse Hollow Lake.

Table 2.12 Fish Resources at Stillhouse Hollow Lake	
Sport Fish Species	
Striped bass	<i>Morone saxatilis</i>
White bass	<i>Morone chrysops</i>
Largemouth bass	<i>Micropterus salmoides</i>
Smallmouth bass	<i>Micropterus dolomieu</i>
Spotted bass	<i>Micropterus punctulatus</i>
White crappie	<i>Pomoxis annularis</i>
Channel catfish	<i>Ictalurus punctatus</i>
Blue catfish	<i>Ictalurus furcatus</i>
Flathead catfish	<i>Pylodictus olivaris</i>
Other Species	
Sunfish	<i>Lepomis spp.</i>
Bluegill	<i>Lepomis macrochirus</i>
Redear	<i>Lepomis microlophus</i>
Warmouth	<i>Lepomis gulosus</i>
Carp	<i>Cyprinus carpio</i>
Drum	<i>Aplodinotus grunniens</i>
Gizzard shad	<i>Dorosoma cepedianum</i>

USACE is committed to continued cooperation with Texas Parks and Wildlife Department (TPWD) in developing fish resources, whose management strategies include:

- Manage sport fishes at Stillhouse Hollow Lake with statewide regulations.
- Stock smallmouth bass to supplement low natural reproduction.
- Stock Florida largemouth bass.
- Install artificial reefs in upper half of the lake.
- Maintain invasive species signage at boat ramps and inform the public about the negative impacts of aquatic invasive species when meeting with Stillhouse Hollow Lake user groups.
- Continue educating marina owners about zebra mussels and other invasive species, and provide them with posters, literature, etc. so that they can in turn educate their customers.
- Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

- Conduct access and vegetation surveys.
- Conduct surveys with trap nets, gill nets, and electrofishing.

2.2.3.2 Wildlife Resources

Stillhouse Hollow Lake provides habitat for an abundance of wildlife species, including game and non-game species, migratory waterfowl, resident and migratory songbirds, wading birds, reptiles, amphibians, and insects. The area offers a mixture of geologic features, riparian forest, grasslands, springs, and river habitats. Table 2.13 lists some of the species supported at Stillhouse Hollow Lake.

Table 2.13 Wildlife Resources at Stillhouse Hollow Lake

Common Name	Scientific Name	Common Name	Scientific Name
Virginia opossum	<i>Didelphis virginiana</i>	white-tailed deer	<i>Odocoileus virginianus</i>
nine-banded armadillo	<i>Dasypus novemcinctus</i>	eastern gray squirrel	<i>Sciurus carolinensis</i>
eastern cottontail rabbit	<i>Sylvilagus floridanus</i>	fox squirrels	<i>Sciurus niger</i>
swamp rabbit	<i>Sylvilagus aquaticus</i>	southern flying squirrel	<i>Glaucomys volans</i>
gray fox	<i>Urocyon cinereoargenteus</i>	North American river otter	<i>Lontra canadensis</i>
red fox	<i>Vulpes vulpes</i>	eastern wild turkey	<i>Meleagris gallopavo</i>
coyote	<i>Canis latrans</i>	several species of bats	Order Chiroptera
striped skunk	<i>Mephitis mephitis</i>	owls	Order Strigiformes
bobcat	<i>Lynx rufus</i>	over a hundred other species of birds	Class Aves
bald eagles	<i>Haliaeetus leucocephalus</i>	ospreys	<i>Pandion haliaetus</i>

Waterfowl, wading birds, bald eagles and ospreys can be viewed from several vantage points around the lake. These birds are most likely seen during winter as well as during the fall and spring migrations.

USACE currently allows hunting at Stillhouse Hollow Lake in specified areas and in accordance with specific restrictions on allowable game species and means and methods of hunting. Hunting at Stillhouse Hollow Lake is subject to the rules and regulation promulgated by the Texas Parks and Wildlife Department (see Section 6.2 for more information). USACE Fort Worth District publishes a Public Hunting Guide listing each USACE lake in the Fort Worth District. The guide is updated each year to address any changes in State wildlife/hunting rules that may affect hunting at USACE lakes, as well as any changes in the management of USACE land at each lake. Hunters are advised to obtain a copy of the guide and to visit with USACE lake staff when planning to hunt.

2.2.4 Threatened and Endangered Species

The federal government and state agencies both list threatened and endangered species. Threatened species are those that are likely to become endangered within the foreseeable future, while endangered species are in danger of extinction throughout all or a significant portion of their range. Additionally, USFWS identifies species that are candidates for listing as a result of identified threats to their continued existence. The Candidate designation includes those species for which USFWS has sufficient information to support proposals to list as endangered or threatened under the Endangered Species Act; however, proposed rules have not yet been issued because such actions are precluded at present by other listing activity. The USFWS Information for Planning and Conservation (IPaC) identified several species of birds, flowering plants, insects, and reptiles listed by the USFWS as Threatened, Endangered, or Candidate species that could potentially be found at Stillhouse Hollow Lake listed in Table 2.14 (See Appendix C for the IPAC report for Stillhouse Hollow Lake). Further information on specific species of concern can be found in Section 6 of this plan.

Table 2.14 Federal and State-Listed Threatened and Endangered Species with Potential to Occur at Stillhouse Hollow Lake

Common Name	Scientific Name	State Status	Federal Status
Amphibians			
Houston toad	<i>Anaxyrus houstonensis</i>	Endangered	Not listed
Salado Salamander	<i>Eurycea chisholmensis</i>	Not listed	Threatened
Birds			
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	*BCC
Black-capped vireo	<i>Vireo atricapilla</i>	Vulnerable	Not listed
Golden-cheeked warbler	<i>Setophaga chrysoparia</i>	Endangered	Endangered
Interior least tern	<i>Sternula antillarum athalassos</i>	Endangered	Delisted
Piping plover	<i>Charadrius melodus</i>	Threatened	Threatened
Red Knot	<i>Calidris canutus rufa</i>	Not listed	Threatened
White-faced ibis	<i>Plegadis chihi</i>	Threatened	Not listed
Whooping crane	<i>Grus americana</i>	Endangered	Endangered
Wood stork	<i>Mycteria americana</i>	Threatened	Not listed
Zone-tailed hawk	<i>Buteo albonotatus</i>	Threatened	Not listed
Reptiles			
Texas horned lizard	<i>Phrynosoma cornutum</i>	Threatened	Not listed
Mollusks			
Smooth pimpleback	<i>Quadrula houstonensis</i>	Threatened	Not listed

*BCC – Birds of Conservation Concern (Source: TPWD 2020 USFWS 2020)

2.2.5 Invasive Species

Invasive species are any kind of living organism which, if uncontrolled, causes harm to the environment, economy, or human health. Invasive species generally grow and reproduce quickly and spread aggressively. Non-native, or exotic, species have been introduced, either intentionally or unintentionally, and can out-compete native species for resources or otherwise alter the ecosystem. Native invasive species are those species that spread aggressively due to

an alteration in the ecosystem, such as lack of fire or the removal of a predator from the food chain. Table 2.15 lists the primary invasive and exotic species that occur at Stillhouse Hollow Lake identified by TPWD and USACE. Further information on specific species of concern can be found in Section 6 of this plan.

Table 2.15 Invasive Species Found at Stillhouse Hollow Lake

Common Name	Scientific Name	Prevalence
Argentine ant	<i>Linepithema humile</i>	
Armored catfish	<i>Hypotomus plecostomus</i>	Moderate
Castor beans	<i>Ricinus communis</i>	Slight
Chinaberry	<i>Melia azedarach</i>	Major
Chinese tallow tree	<i>Triadica sebifera</i>	Moderate
Feral hog	<i>Sus scrofa</i>	Moderate
Giant reed	<i>Arundo donax</i>	Slight
Hydrilla	<i>Hydrilla verticillata</i>	Moderate
King ranch bluestem	<i>Bothriochloa ischaemum</i>	Slight
Nutria	<i>Myocastor coypus</i>	Slight
Red imported fire ant	<i>Solenopsis invicta</i>	Slight
Tree-of-heaven	<i>Ailanthus altissima</i>	Slight
Willow baccharis	<i>Baccharis salicina</i>	Major
Zebra mussel	<i>Dreissena polymorpha</i>	Significant/Major

Source: TPWD 2018 and NRM USACE 2020

2.2.6 Visual and Scenic Resources and Interpretation

Stillhouse Hollow Lake includes many acres of scenic shorelines, lake views, and wildlife viewing areas providing high visual and scenic qualities. Some areas are admired for their scenic attractiveness (intrinsic scenic beauty that evokes a positive response), scenic integrity (wholeness of landscape character), and landscape visibility (how many people are able to view the landscape, for what reasons, and for how long). Some areas have been designated as Wildlife Management or Environmentally Sensitive Areas to preserve specific animal, plant, or environmental features that also add to the scenic qualities at the lake. Parks have been designed on USACE lands to provide public access to the lake, allow access to hiking trails, and take advantage of scenic qualities at the lake and surrounding areas.

Interpretive programming is a systematic approach to providing information and education services to Stillhouse Hollow Lake visitors. The primary objective is to tell the USACE story, inform visitors of the park rules, and provide educational opportunities for visitors to develop intellectual and emotional connections to the resources found at Stillhouse Hollow Lake. A variety of interpretive techniques are used including personal visitor contacts, public speaking engagements, and hosting grade school students through college groups. In addition, the staff uses print, video, and various forms of social media to keep the visiting public informed.

Interpretive programming also includes the management of public affairs, community relations, marketing, publications, special events, and cooperation with civic groups and

resources partners. A variety of physical components such as signs and posters are used to enhance the interpretive programming effectiveness.

To protect the inherent beauty of Stillhouse Hollow Lake, adjacent landowners are informed that removing trees to obtain a view of the lake not only destroys wildlife habitat but also lowers the scenic quality of the shoreline when viewed by the general public from the water surface. Additionally, reasonable measures must be taken to ensure that damage to the natural landscape from invasive species and catastrophic wildfire are minimized. Vegetative management, mowing permits, debris removal, and other shoreline issues are addressed through the Stillhouse Hollow Lake Shoreline Management Policy. The Shoreline Management Policy has details concerning permits for vegetation manipulation. Adjacent landowners are advised to contact USACE lake staff prior to conducting any vegetation manipulation on USACE land.

2.2.7 Sedimentation and Shoreline Erosion

Based on two methods for estimating sedimentation rates, the 2005 TWDB sedimentation survey estimates Stillhouse Hollow Lake has 1.3 percent more capacity than the 1995 revised survey would indicate. Comparison of the TWDB 2005 Survey to the USACE original design capacity of 235,700 acre-feet and a surface area of 6,430 acres, results in a 3.3 percent loss in volume, and an 0.8 percent increase in surface area in 2005. Figure 2.6 illustrates the depths at Stillhouse Hollow Lake.

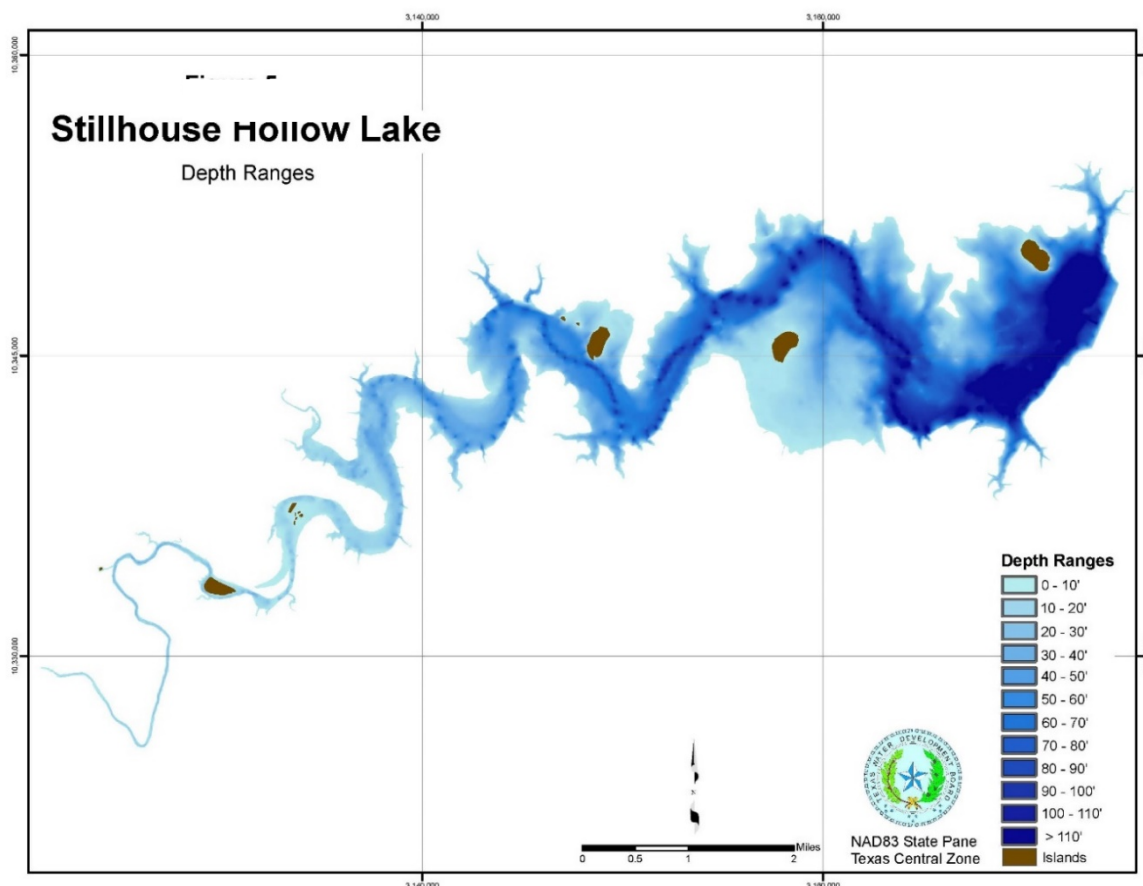


Figure 2.6 Stillhouse Hollow Lake Depth Ranges (Source: 2005 TWDB Volumetric Survey)

2.2.8 Water Quality

The Lampasas River above Stillhouse Hollow Lake is listed as impaired on the Texas Water Quality Inventory and 303(d) list due to elevated bacteria levels. Surface water quality monitoring also indicates a dissolved oxygen concern on North Fork Rocky Creek. In addition, population growth and rapid urbanization is occurring in the lower portion of the watershed, further stressing the need to protect the chemical, physical, and biological integrity of the river.

2.2.9 Air Quality

The Clean Air Act, last amended in 1990, requires the EPA to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and the environment. NAAQS standards specify maximum permissible short- and long-term concentrations of various air contaminants including primary and secondary standards for six criteria pollutants: Ozone (O₃), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrogen Oxide (NO), particulate matter (PM₁₀ and PM_{2.5}), and Lead (Pb).

Primary standards provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. If the concentrations of one or more criteria pollutants in a geographic area is found to exceed the regulated “threshold” level for one or more of the NAAQS, the area may be classified as a non-attainment area. Areas with concentrations that are below the established NAAQS levels are considered either attainment or unclassifiable areas. Based on monitoring data, the EPA has determined that the Stillhouse Hollow Lake area is currently in attainment, meaning that it meets standards.

2.2.10 Health and Safety

The USACE, with some assistance from the TPWD and USFWS, has established public outreach programs to educate the public on water safety and conservation of natural resources. In addition to the water safety outreach programs, the USACE staff at Stillhouse Hollow Lake has established recreation management practices to protect the public. These include safe boating and swimming regulations, and speed limit and pedestrian signs for park roads. Stillhouse Hollow Lake also has solid waste management plans in place for camping and day use areas. Any leaseholder operating on USACE land at Stillhouse Hollow Lake is responsible for implementing basic health and safety practices within their respective leasehold area.

2.3 CULTURAL RESOURCE AND ANALYSIS

2.3.1 Prehistoric

The earliest well-documented evidence of human occupation in the Stillhouse Hollow Lake area is the Clovis culture, which dates to about 13,000 years before present (B.P.). Recent claims of an earlier pre-Clovis occupation (ca. 16,000 B.P.) have been made for the Gault Site

in far southern Bell County. Prehistory is divided generally into three broad time periods: Paleo-Indian (13,000-8,500 B.P.), Archaic (8,500-1,250 B.P.), and Late Prehistoric (1,250-300 B.P.).

Evidence for Paleo-Indian period occupation is relatively rare in the Stillhouse Hollow Lake area and is known primarily from distinctive projectile point styles dating to this time period found in surface collections or in mixed multi-component sites. It is likely that intact Paleo-Indian camp sites may be buried deeply beneath Holocene floodplain alluvium. South of Stillhouse Hollow Lake in Bell County, where a Clovis period occupation is well-represented by a major component at the Gault Site. Evidence suggests that the region was occupied by small groups of highly mobile hunter-gatherers that traveled over very large territories. Traditionally thought of as mammoth and bison hunters, more recent evidence indicates Paleo-Indians exploited a much broader range of animal and plant resources.

The Archaic period is divided into Early (8,500-6,000 B.P.), Middle (6,000-3,500 B.P.), and Late (3,500-1,250 B.P.) sub periods. During this long time period, a generalized hunting and gathering subsistence strategy is indicated. Trends through time suggest increasing population density and decreasing group mobility within smaller territories. Sites with Late Archaic components are well represented in the Stillhouse Hollow Lake area and in Central Texas generally. Archaic period sites at Stillhouse Hollow Lake include open campsites and burned rock midden features.

The Late Prehistoric Period (1,250-300 B.P.) is marked by the presence of the bow and arrow and pottery. During the early portion of this time span, subsistence strategies remained similar to those of the preceding Late Archaic. The Late Prehistoric period is divided into early Austin phase (1,250-650 B.P.) and late Toyah phase (650-300 B.P.) sub periods, both of which have been documented at Stillhouse Hollow Lake archeological sites. The Toyah phase differs from the preceding Austin phase in terms of technology and subsistence strategies. Bison became an important economic resource. Evidence of horticulture also appears but was of only minor importance to overall Toyah phase subsistence.

2.3.2 Historic

When Anglo settlers were beginning to occupy what is now Bell County in the 1830s, Native American tribes reported in the area included the Tonkawa, Lipan Apache, Waco, Kiowa, and Comanche. The present area of Bell County was included in Robertson's Colony, and Anglo-American colonists began settling there in the 1830s. Following the annexation of Texas by the United States in 1845, Bell County was formed in 1850 with a population of 660. The economy was dominated by farming and cattle ranching.

Population growth in the area accelerated following the arrival of the railroads in 1881. This improved access to major markets and led to a dramatic increase in the numbers of local farms and ranches. Most of the historic period resources at Stillhouse Hollow Lake are expected to be the archeological remains of house sites and outbuildings associated with farms and ranches dating from the late 19th century through the mid-20th century.

2.3.3 Previous Investigations at Stillhouse Hollow Lake

Studies related to the construction of Stillhouse Hollow Lake began with a preliminary survey in 1960 and 1961 by the Texas Archeological Salvage Project (TASP) that recorded 11

archeological sites. TASP recorded 27 additional sites in 1964, and excavations were conducted at two sites in 1964 and 1966. These were the Landslide Site (41BL85) and the Evoe Terrace Site (41BL104). The results of these excavations were used to define a detailed temporal sequence of projectile point types for Central Texas.

In 1994, the Texas Archeological Research Laboratory relocated and evaluated 28 previously recorded sites, and six new sites were recorded. Most recently, in 2009-2010, 2,570 acres of fee property managed by USACE was surveyed for cultural resources. This resulted in the recording of 38 new sites and 21 previously known sites.

2.3.4 Recorded Cultural Resources

Currently, 86 archeological sites have been recorded at Stillhouse Hollow Lake. Three of these sites have been determined to be eligible for the National Register of Historic Places (NRHP) and 16 have been determined to be ineligible. The remaining 67 archeological sites have not yet been formally evaluated for NRHP eligibility. At this time, 2,570 acres of Stillhouse Hollow Lake fee property located above the Conservation Pool elevation now have been inventoried to current archeological survey standards.

2.3.5 Long-term Cultural Resources Objectives

As funding allows, a Cultural Resources Management Plan (CRMP) shall be developed and incorporated into the Operational Management Plan (OMP) in accordance with EP 1130-2-540. The purpose of the CRMP is to provide a comprehensive program to direct the historic preservation activities and objectives at Stillhouse Hollow Lake. A full inventory of cultural resources at Stillhouse Hollow Lake needs to be completed in compliance with Section 110 of the National Historic Preservation Act (NHPA). In consultation with the Texas State Historic Preservation Officer (SHPO), all currently known sites must be evaluated to determine their eligibility for the NRHP. In accordance with Section 106 of the NHPA, any proposed ground-disturbing activities or projects, such as those described in this master plan or as may be proposed in the future by others for right-of-way easements, will require coordination with the SHPO to locate and evaluate potential impacts to historic and prehistoric resources. Resources determined eligible for the NRHP must be protected from proposed project impacts, or the impacts must be mitigated. All future cultural resource investigations at Stillhouse Hollow Lake must be coordinated with the SHPO and federally-recognized Tribes to insure compliance with the NHPA, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.

2.4 DEMOGRAPHIC AND ECONOMIC ANALYSIS

The following information covers the current demographic and economic data for communities near Stillhouse Hollow Lake (Zone of Interest). This basic information gives a snapshot of the current population and looks at growth trends for the area.

2.4.1 Zone of Interest

Stillhouse Hollow Lake lies completely within Bell County in Central Texas. The zone of interest for the socio-economic analysis of Stillhouse Hollow Lake is defined as the county in which the lake lies, Bell County, as well as the seven additional surrounding counties, which are

Burnet, Coryell, Falls, Lampasas, McLennan, Milam, and Williamson counties as illustrated in Figure 2.7.

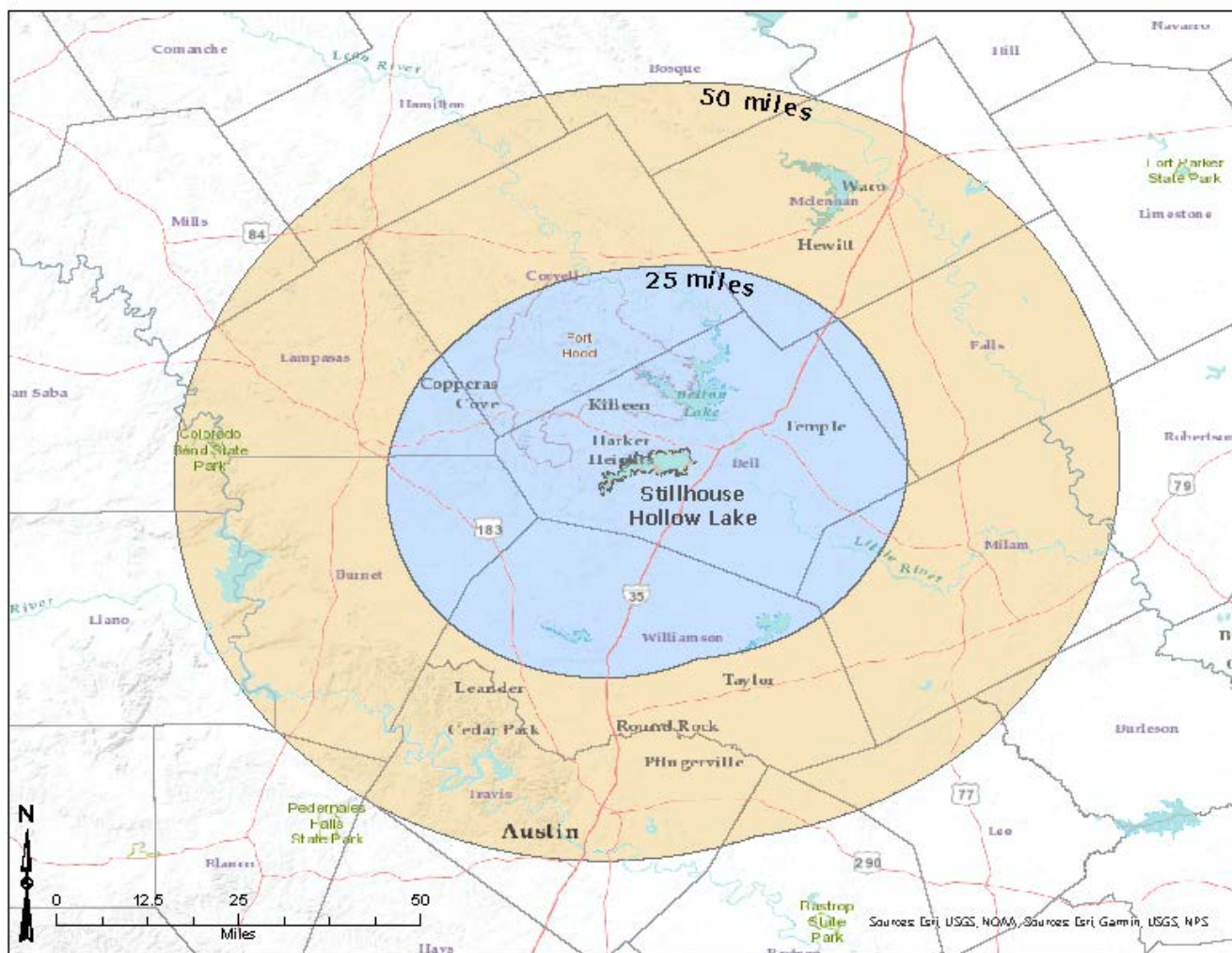


Figure 2.7 Zone of Interest for Stillhouse Hollow Lake

2.4.2 Population

The total population for the zone of interest in 2018 was 1,301,464, as shown in Table 2.16. Most of the zone of interest's population (approximately 41 percent) resides in Williamson County, 26 percent in Bell County, 19 percent in McLennan County, six percent in Coryell County, and four percent in Burnet County. The remaining counties in the zone of interest each account for two percent or less of the zone of interest's population.

The zone of interest's population makes up approximately five percent of the total population of Texas. From 2018 to 2045, the population in the zone of interest is expected to increase to just under two million from 1.3 million, an annual growth rate of 1.6 percent. By comparison, the population of Texas is projected to increase at a rate of 1.2 percent per year, and the national growth rate is expected to be 0.6 percent per year between 2018 and 2045. During this timeframe, all counties within the zone of interest are projected to have growth, with Bell County and Williamson County growing the most at 1.7 percent and 2.1 percent, respectively.

The distribution of the population among gender, as shown in Table 2.16, is approximately 49 percent male and 51 percent female in the zone of interest, similar to the overall gender distribution in Texas.

Table 2.16 Population Estimates 2000, 2018 and 2045 Projections

Geographical Area	2000 Population Estimate	2018 Population Estimate	2045 Population Projection
Texas	20,851,820	27,885,195	38,499,538
Bell County	237,974	342,236	524,806
Burnet County	34,147	45,750	58,349
Coryell County	74,978	75,389	107,138
Falls County	18,576	17,299	18,823
Lampasas County	17,762	20,640	27,062
McLennan County	213,517	248,429	298,063
Milam County	24,238	24,664	29,535
Williamson County	249,967	527,057	908,070
Zone of Interest Total	871,159	1,301,464	1,971,846

Source: U.S. Census Bureau, Population Division (2000 Estimate); U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates (2017 Estimate); Texas State Data Center, The University of Texas at San Antonio (2045 Projections)

The distribution of the population among gender, as shown in Table 2-17, is split evenly in the zone of interest, which is similar to the overall gender distribution in Texas.

Table 2.17 Percent of Population Estimate by Gender 2018

Geographical Area	Male	Female
Texas	13,849,775	14,035,420
Bell County	170,918	171,318
Burnet County	22,642	23,108
Coryell County	37,630	37,759
Falls County	8,189	9,110
Lampasas County	10,187	10,453
McLennan County	121,359	127,070
Milam County	12,343	12,321
Williamson County	259,443	267,614
Zone of Interest Total	642,711	658,753

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate)

Figure 2.8 displays the population by age group. The distribution of age groups between the zone of interest and the state of Texas is similar, with the largest deviation being in the 25 to 34 and the 45 to 54-year-old age groups. The zone of interest has 3.2 percent more people in the 25 to 34 age group and 2 percent less in the 45 to 54 group when compared to Bell County. Figure 2.8 shows the zone of interest's population by age group in 2017 compared to the

population projections by age group for 2045. The forecast shows that the population ages 0 to 54 will decrease while ages 55 and over will increase between 2017 and 2045.

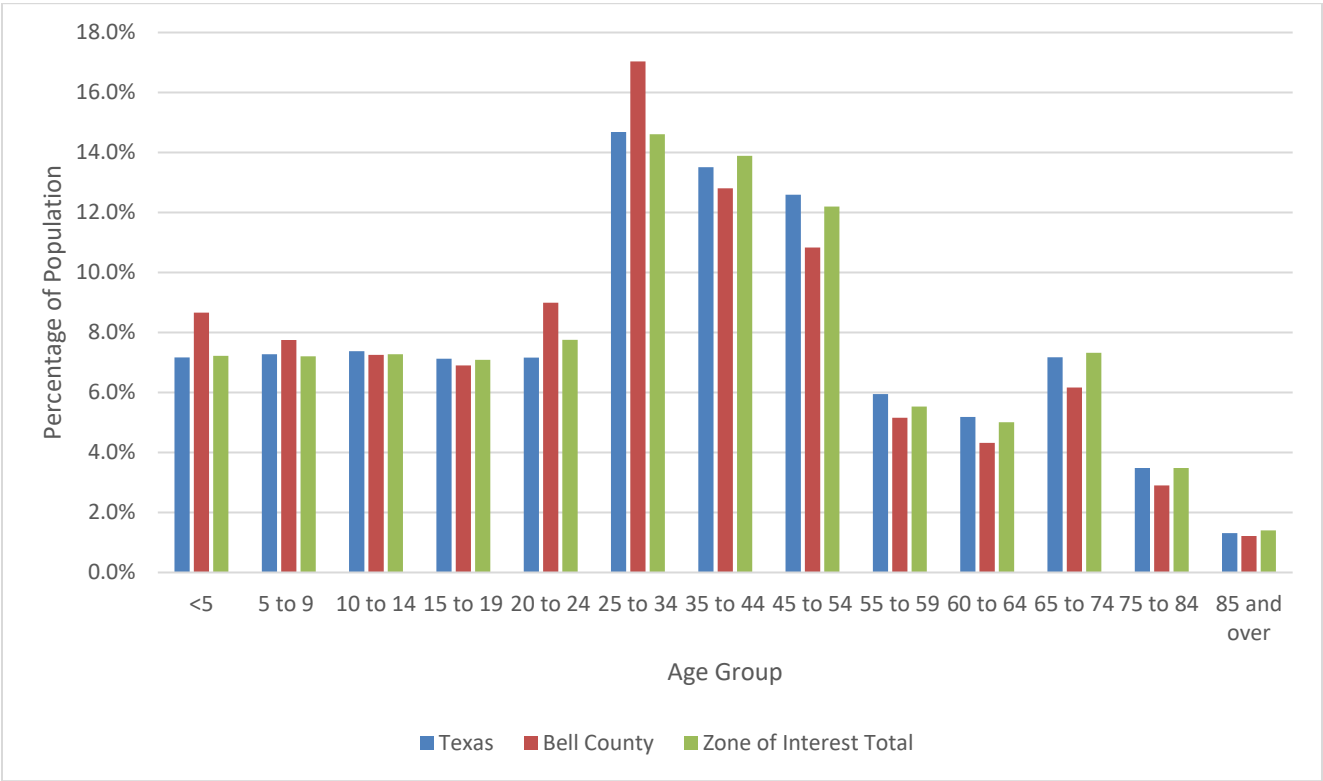


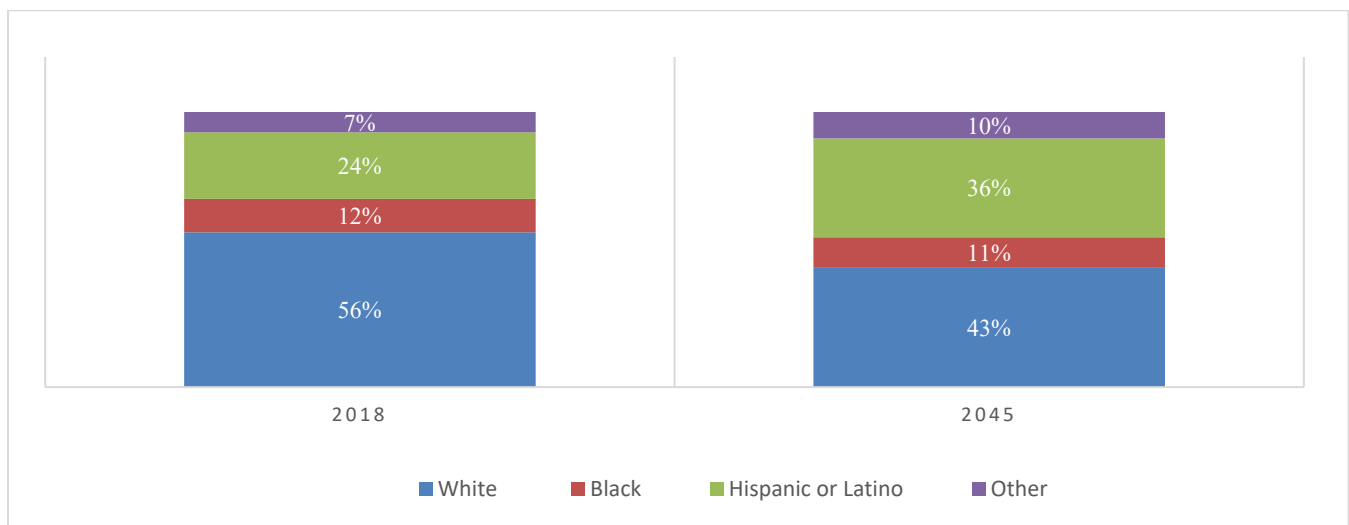
Figure 2.8 2018 Percent of Population by Age Group
(Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate))

Population by race and Hispanic Origin is displayed in Table 2.18. The zone of interest is approximately 56 percent White, 12 percent Black, and 24 percent Hispanic or Latino. The other race categories account for less than four percent each of the population. By comparison, the state’s population is approximately 42 percent White, 12 percent Black, and 39 percent Hispanic or Latino. Figure 2.9 shows the 2018 estimate and the 2045 projections of race/ethnicity in the zone of interest distributed between four categories, White, Black, Hispanic and Other. The two graphs show that the Hispanic and Other categories are expected to increase by 13 percent and three percent respectively, while the White category decreases by 14 percent and the Black category decreases by one percent.

Table 2.18 2018 Population Estimate by Race/Hispanic Origin

Area	White	Black	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
Texas	11,807,263	3,269,253	68,452	1,292,813	20,381	42,354	463,123	10,921,556
Bell County	158,804	72,677	1,066	9,767	2,156	286	13,850	83,630
Burnet County	33,745	831	292	383	0	0	379	10,120
Coryell County	44,478	9,991	472	1,476	569	0	4,772	13,631
Falls County	8,878	4,153	57	73	7	0	144	3,987
Lampasas County	14,980	903	25	208	63	78	358	4,025
McLennan County	139,766	35,575	418	3,957	30	304	3,646	64,733
Milam County	15,426	2,093	28	121	0	12	525	6,459
Williamson County	316,640	31,855	866	33,636	366	1,198	14,363	128,133
Zone of Interest Total	732,717	158,078	3,224	49,621	3,191	1,878	38,037	314,718

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate)

**Figure 2.9 Zone of Interest Population Estimate and Projection by Race/Ethnicity**

(Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate); Texas State Data Center, The University of Texas at San Antonio (2045 Projections))

2.4.3 Education and Employment

Table 2.19 displays the highest level of education attained by the population ages 25 and over. In the zone of interest, four percent of the population has less than a 9th grade education, and another six percent has between a 9th and 12th grade education; 25 percent has a high school diploma or equivalent, and another 25 percent has some college and no degree; 10% has an Associate's degree; 20 percent has a Bachelor's degree; and 10 percent has a graduate or professional degree. In Texas, eight percent of the population has less than a 9th grade education; another eight percent has between a 9th and 12th grade education; 25 percent has at

least a high school diploma or equivalent; 22 percent has some college; seven percent has an Associate's degree; 19 percent has a Bachelor's degree; and 10 percent has a graduate or professional degree. Thus, the education level in the zone of interest is slightly higher than that of the state of Texas.

Table 2.19 2018 Population Estimate by Highest Level of Educational Attainment, Population 25 Years of Age and Older

Area	Highest Level of Educational Attainment							
	Population 25 years and over	Less than 9th grade	9th to 12th grade, no diploma	High school graduate (includes equivalency)	Some college, no degree	Associate's degree	Bachelor's degree	Graduate or professional degree
Texas	17,815,359	1,506,111	1,487,321	4,448,881	3,892,527	1,261,050	3,409,836	1,809,633
Bell County	206,845	8,130	11,374	53,563	60,328	22,680	33,194	17,576
Burnet County	32,115	1,550	2,263	9,992	7,764	2,474	5,482	2,590
Coryell County	47,257	2,266	3,343	13,217	15,831	5,198	5,339	2,063
Falls County	12,035	1,124	1,639	4,562	2,343	814	1,252	301
Lampasas County	14,416	532	830	4,052	4,043	2,078	1,933	948
McLennan County	150,034	9,370	14,205	41,380	34,621	14,966	22,940	12,552
Milam County	16,546	1,118	1,824	6,320	3,565	1,434	1,695	590
Williamson County	346,522	10,851	12,584	70,838	79,994	29,687	94,573	47,995
Zone of Interest Total	825,770	34,941	48,062	203,924	208,489	79,331	166,408	84,615

(Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate))

Employment by sector is presented in Figure 2.10 and Table 2.20. Figure 2.10 shows that the largest percentage of the zone of interest is employed in the *educational services, and health care and social assistance* sector at 23 percent, followed by 12 percent in *retail trade*, 11 percent in the *professional, scientific, and management, and administrative and waste management* services. The remainder of the employment sectors each comprise nine percent or less of the zone of interest's labor force.

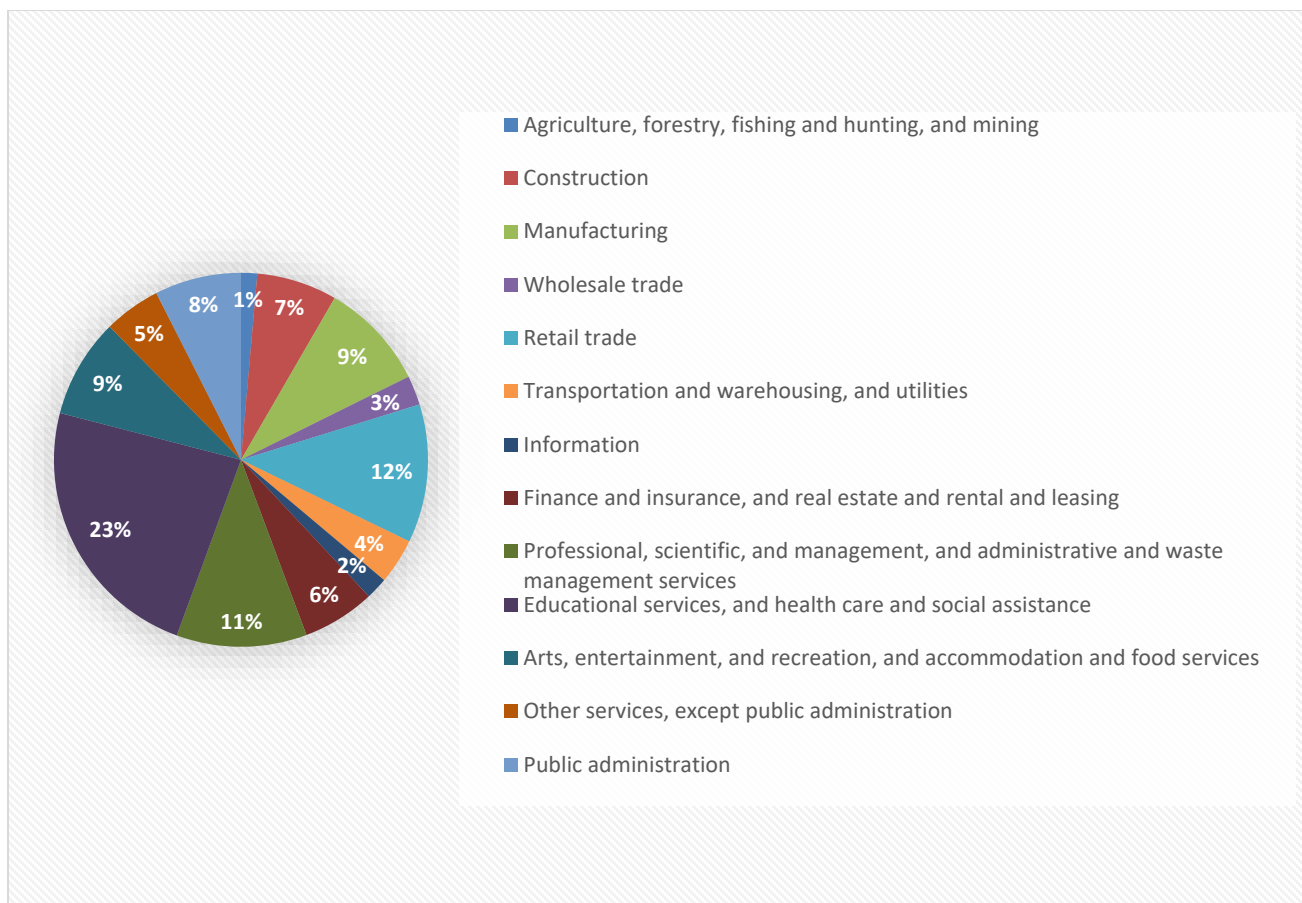


Figure 2.10 Zone of Interest Employment by Sector

(Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate))

Table 2.20 Annual Average Employment by Sector

Employment Sector	Geographic Area									
	Texas	Bell County	Burnet County	Coryell County	Falls County	Lampasas County	McLennan County	Milam County	Williamson County	Zone of Interest Total
Civilian employed population 16 years and over	12,985,624	139,158	20,303	23,340	5,809	8,776	113,281	9,931	266,094	586,692
Agriculture, forestry, fishing and hunting, and mining	407,019	1,215	778	247	471	312	1,467	1137	2,387	8,014
Construction	1,088,705	9,843	2,787	1,701	319	970	8,631	708	18,324	43,283
Manufacturing	1,116,997	7,792	1,364	1,143	1054	569	13,130	930	27,240	53,222
Wholesale trade	380,277	3,021	495	470	172	117	2,821	146	6,525	13,767
Retail trade	1,483,375	16,687	2,789	2,782	661	1,143	14,192	1142	30,132	69,528
Transportation and warehousing, and utilities	741,256	6,497	800	1,071	345	321	5,226	820	8,656	23,736
Information	229,841	2,020	372	379	41	76	1,464	152	6,979	11,483
Finance and insurance, and real estate and rental and leasing	862,041	6,817	1,151	1,078	265	395	6,791	453	20,259	37,209
Professional, scientific, and management, and administrative and waste management services	1,480,493	13,185	1,809	2,299	222	721	9,074	446	40,428	68,184

Employment Sector	Geographic Area									
	Texas	Bell County	Burnet County	Coryell County	Falls County	Lampasas County	McLennan County	Milam County	Williamson County	Zone of Interest Total
Educational services, and health care and social assistance	2,805,186	37,101	3,711	5,576	1,286	2,043	28,944	2,194	57,015	137,870
Arts, entertainment, and recreation, and accommodation and food services	1,192,224	13,392	2,366	1,971	374	695	10,495	700	21,629	51,622
Other services, except public administration	673,193	6,741	944	1,028	293	644	6,011	544	12,226	28,431
Public administration	525,017	14,847	937	3,595	306	770	5,035	559	14,294	40,343

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate)

The civilian labor force in the zone of interest accounts for less than five percent of the civilian labor force of the state of Texas. As shown in Table 2.21, the zone of interest had an unemployment rate of 3.5 percent in 2018, slightly lower than that of the state of Texas, which had an unemployment rate of 3.8 percent that same year. Within the zone of interest, Bell, Coryell, Falls, and Milam counties all had higher or slightly higher unemployment rates than the state of Texas.

Table 2.21 Labor Force, Employment and Unemployment Rates, 2018 Annual Averages

Geographic Area	Civilian Labor Force	Number Employed	Number Unemployed	Unemployment Rate
Texas	13,816,690	13,285,118	531,572	3.8%
Bell County	142,598	136,734	5,864	4.1%
Burnet County	22,921	22,264	657	2.9%
Coryell County	23,895	22,900	995	4.2%
Falls County	6,513	6,261	252	3.9%
Lampasas County	9,150	8,810	340	3.7%
McLennan County	118,211	114,001	4,210	3.6%
Milam County	9,887	9,347	540	5.5%
Williamson County	304,215	294,970	9,245	3.0%
Zone of Interest Total	637,390	615,287	22,103	3.5%

Source: Bureau of Labor Statistics, 2018 Annual Averages

2.4.4 Households, Income and Poverty

Table 2.22 displays the number of households and average household sizes in the state and zone of interest. There were approximately 9.5 million households in the state of Texas with an average household size of 2.86 in 2018. The zone of interest contained approximately 445,500 of those homes with an average household size of 2.92.

Table 2.22 2018 Households and Household Size

Area	Total Households	Average Household Size
Texas	9,553,046	2.86
Bell County	120,241	2.76
Burnet County	16,849	2.68
Coryell County	22,314	2.72
Falls County	5,237	2.96
Lampasas County	7,738	2.63
McLennan County	89,034	2.69
Milam County	9,381	2.58
Williamson County	174,754	2.99
Zone of Interest Total	445,548	2.92

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate)

The median household income in the zone of interest ranged from \$38,032 in Falls County to \$83,679 in Williamson County in 2018, as displayed in Table 2.23. Per capita income in the zone of interest was \$29,518 in 2018, comparable to the state of Texas, which had a per capita income of \$30,143.

Table 2.23 2016 Median and Per Capita Income

Geographic Area	Median Household Income	Per Capita Income
Texas	\$59,570	\$30,143
Bell County	\$54,184	\$25,911
Burnet County	\$59,238	\$30,507
Coryell County	\$51,440	\$21,507
Falls County	\$38,032	\$17,830
Lampasas County	\$58,194	\$28,158
McLennan County	\$48,199	\$24,826
Milam County	\$47,081	\$24,015
Williamson County	\$83,679	\$35,825
Zone of Interest Total	N/A	\$29,518

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate)

Table 2.24 displays the percentage of persons and families whose incomes fell below the poverty level in the past twelve months as of 2018. There were less persons in the zone of interest with incomes below the poverty level in 2018 (12 percent) as compared to the state of Texas (15.5 percent). Falls County had the most persons with incomes below the poverty level at 25.5 percent, followed by McLennan County at 19.3 percent. Bell, Burnet, Coryell, Lampasas, and Milam counties each had between 11 and 15 percent of individuals below the poverty level. Williamson had the least poverty, with 6.7 percent of the population below the poverty level. The only counties with a greater percentage of families below the poverty level than that of the state of Texas were Falls County at 21.8 percent and McLennan County at 13 percent. The remainder of the counties in the zone of interest had between 4.5 percent and 11.8 percent of families below the poverty level in 2018.

Table 2.24 Percent of Families and People Whose Income in the Past 12 Months is Below the Poverty Level (2018)

Geographic Area	All Persons	All Families
Texas	15.5%	11.9%
Bell County	13.9%	11.1%
Burnet County	11.0%	7.8%
Coryell County	13.5%	10.9%
Falls County	25.5%	21.8%
Lampasas County	11.3%	7.3%
McLennan County	19.3%	13.0%
Milam County	14.6%	11.8%
Williamson County	6.7%	4.5%
Zone of Interest Total	12.0%	N/A

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates (2018 Estimate)

2.4.5 Social, Environmental and Environmental Benefits

Though not a mission of Stillhouse Hollow Lake, USACE recognizes the importance of Stillhouse Hollow Lake and the activities on USACE lands and waters as being an important part of the local economy. Besides the obvious economic savings through flood risk management and development advantages through water supply, businesses can see investment opportunities, and people are drawn to the natural areas surrounding USACE lakes, as is evidenced by the growing number of residents adjacent to USACE properties. Nationally, USACE lakes attract about 335 million recreation visits every year, with direct economic benefits on local economies within a 30-mile radius. Tables 25-27 describes some of the extended social, environmental, and economic benefits of Stillhouse Hollow Lake for the surrounding communities for 2019.

Table 2.25 Stillhouse Hollow Lake Social Benefits 2019

Facilities in FY 2019
9 recreation areas • 83 picnic sites • 73 camping sites • 2 playgrounds • 3 swimming areas • 10 trails • 27 trail miles • 3 fishing docks and piers • 5 boat ramps • 148 marina slips
Visits (person-trips) in FY 2019
486,475 in total • 91,744 picnickers • 15,601 campers/overnight visitors • 151,029 swimmers • 98,454 walkers/hikers/joggers • 88,979 boaters • 156,312 sightseers • 47,699 anglers • 15,399 special event attendees • 22,188 others
Public Outreach in FY 2019
1,470 public outreach contacts
Benefits in Perspective
<p>By providing opportunities for active recreation, USACE lakes help combat one of the most significant of the nation's health problems: lack of physical activity.</p> <p>Recreational programs and activities at USACE lakes also help strengthen family ties and friendships; provide opportunities for children to develop personal skills, social values, and self-esteem; and increase water safety.</p>

Table 2.26 Stillhouse Hollow Lake Economic Benefit 2019

Economic Data in FY 2016
<p>Visitation per year resulted in:</p> <ul style="list-style-type: none"> • \$19,486,584 in visitor spending within 30 miles of the USACE lake • \$10,186,260 in sales within 30 miles of the USACE lake • 137 jobs within 30 miles of the USACE lake • \$4,317,355 in labor income within 30 miles of the USACE lake • \$6,339,795 in value added within 30 miles of the USACE lake • \$4,365,409 in National Economic Development Benefits • With multiplier effects, visitor trip spending resulted in: • \$15,289,653 in total sales • 174 jobs • \$5,908,287 in labor income • \$9,151,685 in value added (wages & salaries, payroll benefits, profits, rents, and indirect business taxes)
Benefits in Perspective
<p>The money spent by visitors to USACE lakes on trip expenses adds to the local and national economies by supporting jobs and generating income. Visitor spending represents a sizable component of the economy in many communities around USACE lakes.</p>

Table 2.27 Stillhouse Hollow Lake Environmental Benefit 2016

Resources Data in FY 2016
8,841 land acres 6,430 water acres 58 shoreline miles
Benefits in Perspective
Recreation experiences increase motivation to learn more about the environment; understanding and awareness of environmental issues; and sensitivity to the environment.

Source: <https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll2/id/6227>

2.5 RECREATION FACILITIES, ACTIVITIES, AND NEEDS

2.5.1 Zone of Influence and Visitation Statistics

The primary Zone of influence for Stillhouse Hollow Lake encompasses Burnet, Coryell, Falls, Lampasas, McLennan, Milam, and Williamson counties. These are the primary areas from which visitors to Stillhouse Hollow Lake originate, thus have the most impact and are impacted the most from activities at the lake.

2.5.2 Visitation Profile

The majority of visitors to Stillhouse Hollow Lake come from a 100-mile radius of the reservoir, with a greater concentration of visitors from a 50-mile radius. These visitors are a diverse group of people with a wide variety of interests. Examples of visitors include campers who utilize the campgrounds around the reservoir and in the county and federally operated parks; adjacent residents; hunters and anglers who utilize hunting grounds and participate in fishing tournaments; and day users who picnic, hike, bird watch, bicycle, and ride horses. Stillhouse Hollow Lake is a significant resource for water-related recreation in the region, providing the public with a location for boating, sailing, canoeing/kayaking, paddle boarding, and swimming in the area.

In 2016, Stillhouse Hollow Lake entertained almost 400,000 visitors, with the peak visitation months running from March through September. Figure 2.11 depicts a 2016 comparison in visitation between USACE lakes in the Fort Worth District region.

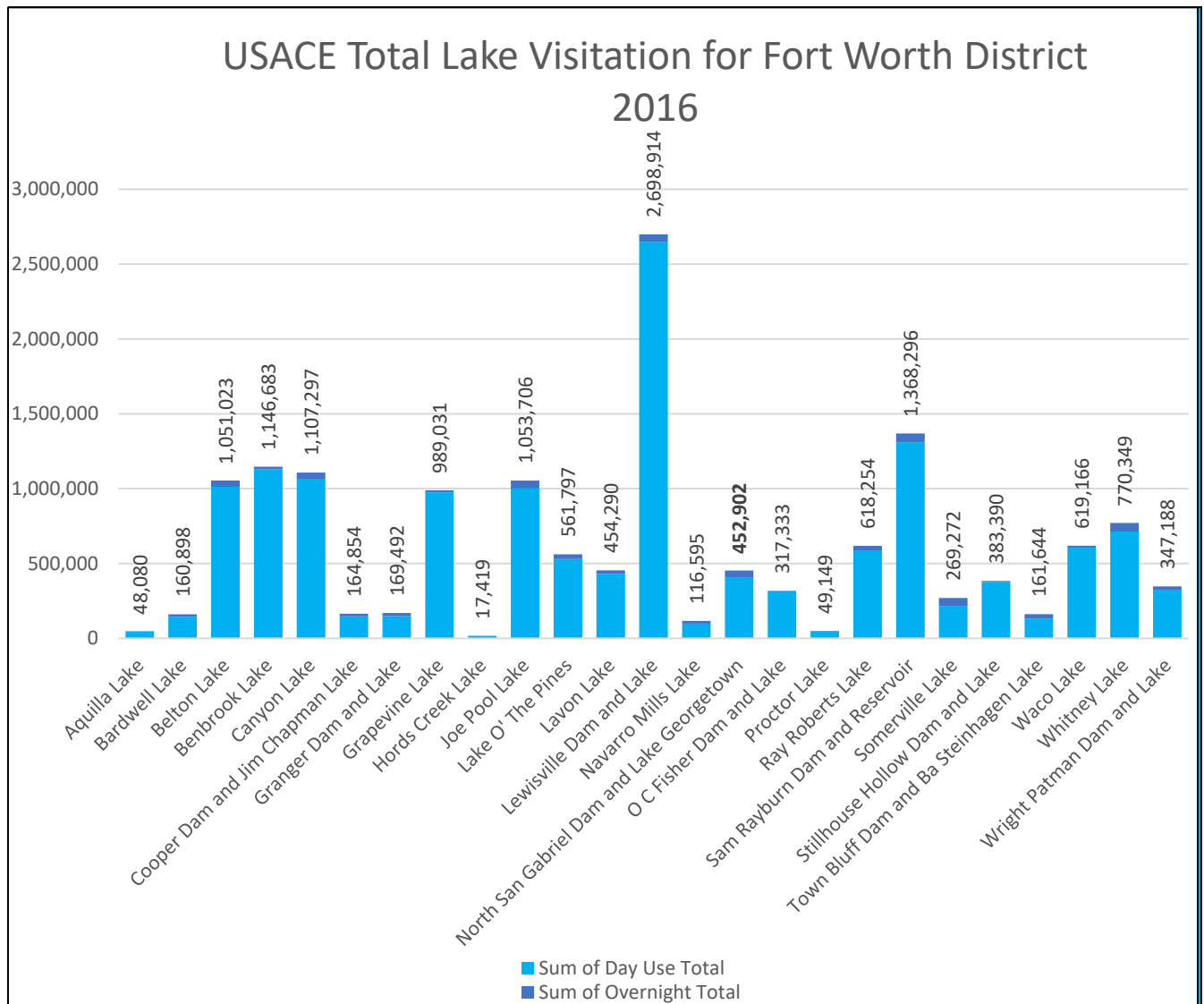


Figure 2.11 USACE Lake Visitation Map for Fort Worth District, 2016

2.5.3 Recreation Areas and Facilities

The existing recreational opportunities and future potential of Stillhouse Hollow Lake is of great importance within the project's zone of influence. The project offers many recreational activities such as swimming, boating, water skiing, fishing, hunting, picnicking, camping, as well as hiking and cycling trails. Table 2.28 lists the various recreational facilities collectively provided by USACE at Stillhouse Hollow Lake.

Table 2.28 Stillhouse Hollow Lake USACE Parks and Facilities

Park Name/Facilities Provided	Restrooms	Parking	Courtesy Docks	Picnic Areas	Camping	Boat Ramps
Cedar Gap Park	*	*	*			*
Chalk Ridge Falls Nature Area	*	*				
Dana Peak Park	*	*	*	*	*	*
Overlook Park	*	*		*		
Rivers Bend Park	*	*	*	*		
Stillhouse Park	*	*	*	*		*
Union Grove Park	*	*	*	*	*	*

2.5.4 Recreational Analysis - Trends

Recreational use at Stillhouse Hollow Lake continues to evolve. While visitation in USACE managed recreational areas remains strong, there is demand for recreational opportunities not offered in these parks. To identify potential needs and opportunities at Stillhouse Hollow Lake, the 2018 Texas Outdoor Recreation Plan (TORP) was used. The TORP is a comprehensive recreational demand study completed and published by TPWD. Presented in Figure 2.12 is the top ten recreational activities by participation rate that resulted from the survey. Survey results presented in the TORP indicated that walking for pleasure had the largest participation, with about 55 percent of the respondents indicating they participated in this activity. This was followed closely with a participation rate of about 51 percent for picnicking/cookouts/other gatherings. Activities with the third and fourth highest participation rates are swimming in a swimming pool and sightseeing with 43 percent and 42 percent respectively. Stillhouse Hollow Lake offers hiking trails and picnic areas for the public to enjoy.

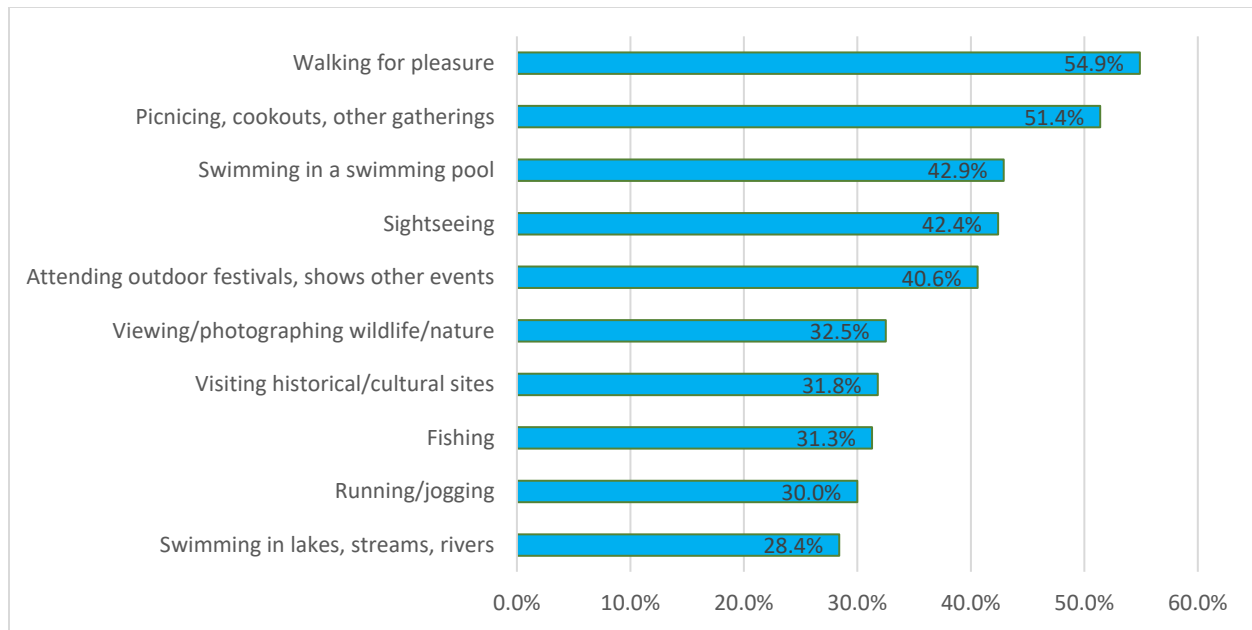


Figure 2.12 Top Ten Participation Rates of Texas Residents for Outdoor Recreation Activities (2018 TORP)

The outdoor recreation survey also asked adult respondents what activities they participated in during childhood that lead to spending time outdoors. The top six activities identified were fishing (27%), swimming (21%), camping (17%), bicycling (15%), hunting (13%), hiking (12%), and outdoor children's games (11%). A breakdown of activities adults enjoyed during childhood by race and ethnic groups is shown in Table 2:29, which shows there are some differences among activities for each group. For African American/Black respondents, the top three activities were bicycling, children's outdoor games, and swimming. For Hispanics/Latino respondents, the top three were fishing, swimming and camping/campfires. The top three activities reported by Asian adults were hiking, swimming, and a tie between fishing and bicycling. White/Caucasian respondents gave their top three as fishing, hunting, and swimming. As can be seen, swimming was the one common activity among the top three for each group. Stillhouse Hollow Lake offers opportunities for each of these activities, thus supporting a rich outdoor recreation element that adds to increase in quality of life for visitors.

Table 2.29 Outdoor Activities Enjoyed by Adults as Children

Activity	Black/African American	Hispanics/Latino	Asian	White/Caucasian
Fishing	12.4%	24.0%	17.0%	37.0%
Swimming	13.8%	23.1%	18.9%	21.9%
Camping/campfires	7.3%	19.5%	16.1%	16.6%
Bicycling	20.3%	16.1%	17.0%	11.7%
Hunting	5.1%	9.3%	2.2%	22.0%
Children's games/play	15.6%	13.1%	7.8%	9.6%
Hiking (including backpacking)	5.5%	14.1%	20.0%	10.1%
Park visit/playground	9.8%	13.3%	7.6%	4.2%
Jogging/running	8.3%	11.0%	14.0%	1.4%
Walking	5.6%	10.0%	8.0%	3.0%

2018 TORP

Adults respondents with children in their homes were asked what activities they enjoy participating in outdoors. A comparison of adult and youth's responses is shown in Figure 2.13. For both groups, the highest participation rate is fishing, followed by swimming in pools, and the rates are similar between what adults enjoyed as children and current youths enjoy. Today's youths appear to enjoy running/walking, visiting/playing in parks, soccer, and basketball more than the adults did as children. Stillhouse Hollow Lake offers ample opportunities for fishing, running, walking, biking, camping, and hiking.

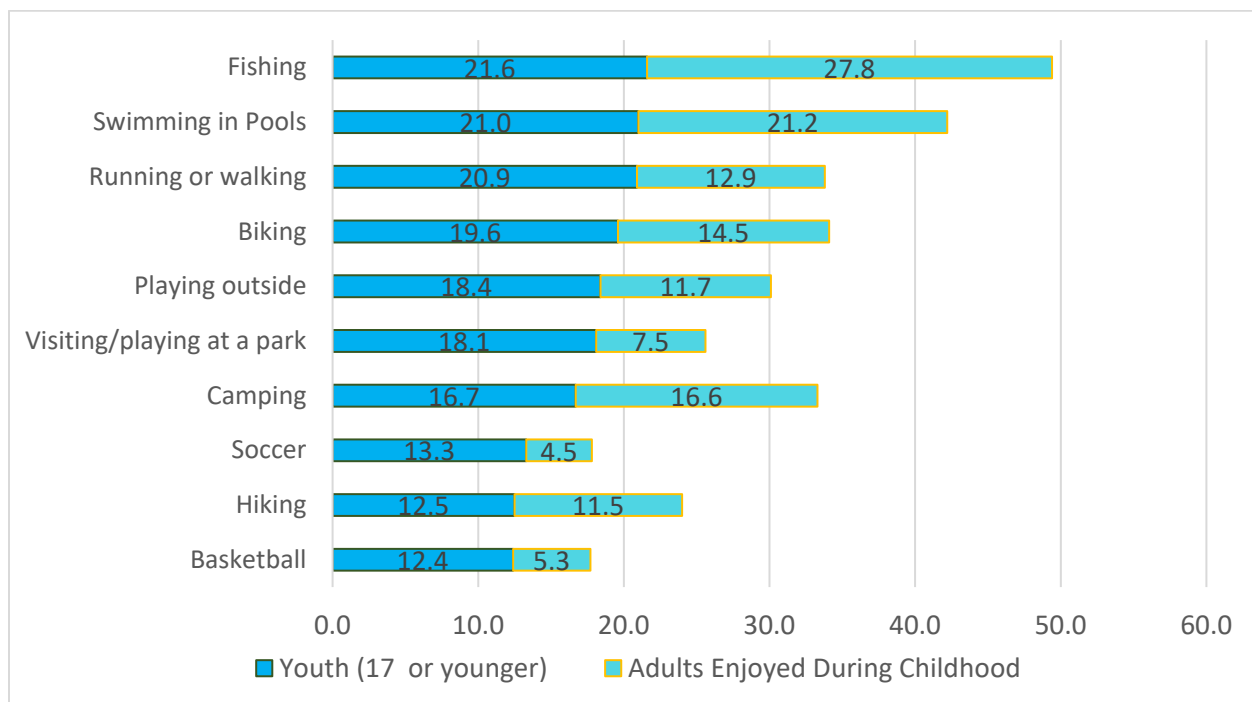


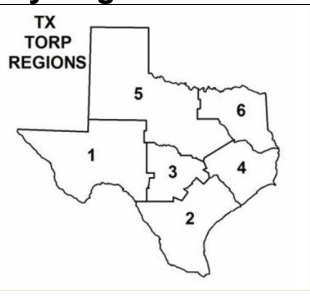
Figure 2.13 Comparison of Outdoor Recreation Activities between Current Youth Activities vs. Activities Adults Enjoyed During Childhood (2018 TORP)

Respondents who did not visit local or state parks in Texas for the preceding 12 months were asked why they had not visited. The common responses were lack of time, age/health issues, and lack of interest. Less frequent responses were no parks close to home, the weather, and not knowing where to go. However, approximately 28 percent of the non-visiting respondents indicated they could be encouraged to visit local parks if they had more time, had people to go with, and had more information about park activities. About 33 percent of the respondents indicated they could be encouraged to visit state parks if they had more time, activities/events/amusements at the parks, and had parks closer to home.

Approximately 28 percent of the respondents identified a lack of outdoor recreational opportunities as being an issue. A list of the top two needs, by region, is shown in Table 2.30. The most common shortfall across the state was trails, with number of parks and park capacity seen and the largest need in Region 1. There was more diversity in the second most common response among the regions. For region 3 and 4, number of parks and park capacity was identified. For region 1, children's activities were cited; campgrounds in region 2; fishing in region 5; and swimming pools in region 6.

Table 2.30 Two Responses to Lacking Outdoor Activities by Region

Region	Most Common Response	Second Most Common Response
Region 1	Parks/Park Capacity	Children's Activities
Region 2	Trails	Campgrounds
Region 3	Trails	Parks/Park Capacity
Region 4	Trails	Parks/Park Capacity
Region 5	Trails	Fishing
Region 6	Trails	Swimming Pools



2018 TORP

Stillhouse Hollow Lake recreation areas, natural shoreline, and water add to the attractiveness, vitality, and increased appreciation for the outdoors by users. These areas provide a sense of place and allow a growing urban population to enjoy outdoor recreation opportunities in a rural, natural setting. Outdoor recreation at Stillhouse Hollow Lake falls within two broad categories; land-based and water-based recreation. Management objectives for each type vary depending on the location and the intensity of use. Recreation management objectives in this Plan project future direction and actions necessary to meet the public's needs for land and water-based recreation.

The reservoir provides recreational opportunity for swimming, boating, fishing, and other water sports. The area around the reservoir provides picnicking and camping for casual, overnight, or vacationing visitors. Additionally, horseback riding is permitted in designated areas, and hiking and bird watching are encouraged throughout the project lands. Project lands are open for public hunting except in developed recreational area and lands in the vicinity of the dam and other project structures. Increases in these uses

are expected, therefore, future development will be directed primarily toward those activities.

Written comments were collected from visitors in USACE parks for the period 2013 -2018 via the USACE- administered Comment Card program. The most recent customer satisfaction comment card summary for Stillhouse Hollow Lake is provided in Table 2.31. The summary from the Stillhouse Hollow Lake visitor comment cards shows that visitors are very satisfied with the current facilities.

Table 2.31 Stillhouse Hollow Lake Comment Cards, 2019

Customer Satisfaction Item	No. of Visitor Responses	Response Distribution (Percent)						Mean Response
		Very Good (5)	Good (4)	Neither Good nor Poor (3)	Poor (2)	Very Poor (1)	Total	(1-5 Scale)
Facilities:								
Suitability of park facilities for my recreational equipment and activities	49	80	20	0	0	0	100	4.8
Restroom cleanliness and availability of conveniences	47	81	19	0	0	0	100	4.8
Appearance of park grounds	49	80	20	0	0	0	100	4.8
Adequacy of signs providing directions and information	49	86	12	2	0	0	100	4.8
Parking space availability during my visit	49	78	20	6	0	0	100	4.8
Condition of roads and parking areas in the park	49	67	27	2	0	0	100	4.6
Employees:								

Availability of park rangers and staff	49	78	20	2	0	0	100	4.8
Helpfulness of park rangers and staff	49	82	16	2	0	0	100	4.8
Environmental Setting:								
Attractiveness of surrounding scenery and landscape	49	71	27	2	0	0	100	4.7
Quality of land and water resources for my activities	49	63	33	4	0	0	100	4.6
Overall:								
Waiting times needed to access park facilities and services	49	84	14	2	0	0	100	4.8
Feeling of safety and security in the park	49	86	14	0	0	0	100	4.9
Value received for any visitor fees paid	49	84	16	0	0	0	100	4.8
Overall satisfaction with my visit to this area	49	84	16	0	0	0	100	4.8

2.5.5 Recreation Analysis – Needs

Stillhouse Hollow Lake offers an array of recreational opportunities. Public comments received during the master planning process indicate there is a desire to have more recreational facilities to enhance the already outstanding outdoor recreation experience, such as cycling trails and increases in amenities to facilitate fishing and boating, while preserving the natural environment. The TORP supports the expressed need for hiking, biking, and in general more non-motorized outdoor activities. USACE relies on partnerships for recreational amenities, and as time, partnerships, and budget allows, will integrate more facilities to accommodate the public. These activities are

balanced with the primary missions of the Lake, namely flood risk management, water supply, and the inherent mission of environmental stewardship.

2.5.6 Recreational Carrying Capacity

Recreational carrying capacity is considered by USACE to ensure that visitors have a high quality and safe recreational experience, and that natural resources are not irreparably damaged. At Stillhouse Hollow Lake, carrying capacity has become a normal occurrence during the peak recreational season. Parks such as Dana Peak and Stillhouse Hollow are being managed with a carrying capacity. This allows maximum visitation without minimal impact to the parks, infrastructure, or the natural resources. Generally, once all parking lots are full, USACE will not allow additional entry for approximately two hours. After the two-hour period, the park may be reopened if numerous parking spots are available. This carrying capacity not only protects facilities and resources, but it improves safety for the public by assuring the road systems are open for emergency responders if needed.

Given the number of boat ramp parking spaces and number of wet slips that currently exist at Stillhouse Hollow Lake, USACE believes that the level of boating during peak use days may exceed the Fort Worth District target usage level of 22 acres per boat. Proposals to expand parking capacity at boat ramps or expand the number of wet slips would require a comprehensive boating capacity study before a decision could be reached to allow or prohibit future expansion.

USACE strives to have facilities that cater to a variety of tastes and different user groups to encourage visitors to enjoy the lake. Presently, USACE manages recreation areas using historic visitation data combined with best professional judgment to address recreation areas considered to be overcrowded, overused, underused, or well balanced. USACE will continue to identify possible causes and effects of overcrowding and overuse and apply appropriate best management practices including site management and regulating or modifying visitor behavior.

CHAPTER 3: RESOURCE GOALS AND OBJECTIVES

3.1 INTRODUCTION

This chapter sets forth goals and objectives necessary to achieve the USACE vision for the future of Stillhouse Hollow Lake. In the context of this Master Plan, “goals” express the overall desired end state of the Master Plan whereas resource “objectives” are specific task-oriented actions necessary to achieve the overall Master Plan goals. The Master Plan resource objectives will be used as the basis for the OMP, which is the Master Plan strategic implementation plan.

3.2 RESOURCE GOALS

The following statements, paraphrased from *EP 1130-2-550*, Chapter 3, express the goals for the Stillhouse Hollow Lake Master Plan:

GOAL A. Provide the best management practices to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.

GOAL B. Protect and manage project natural and cultural resources through sustainable environmental stewardship programs.

GOAL C. Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining project natural resources.

GOAL D. Recognize the unique qualities, characteristics, and potentials of the project.

GOAL E. Provide consistency and compatibility with national objectives and other State and regional goals and programs.

In addition to the above goals, USACE management activities are guided by USACE-wide Environmental Operating Principles (EOPs) as follows:

- Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.
- Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of USACE programs and act accordingly in all appropriate circumstances.

- Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
- Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
- Seek ways and means to assess and mitigate cumulative impacts to the environment; bring systems approaches to the full life cycle of our processes and work.
- Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.
- Respect the views of individuals and groups interested in USACE activities; actively listen to them and learn from their perspective in search of innovative win-win solutions to the nation's problems that also protect and enhance the environment.

3.3 RESOURCE OBJECTIVES

Resource objectives are clearly written statements that respond to identified issues and that specify measurable and attainable activities for resource development and/or management of the lands and waters under the jurisdiction of the Fort Worth District, Stillhouse Hollow Lake Project Office. The objectives stated in this Master Plan support the goals of the Master Plan, USACE Environmental Operating Principles (EOPs), and applicable national performance measures. They are consistent with authorized project purposes, federal laws and directives, regional needs, resource capabilities, and they consider public input. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in this Master Plan. The regional and state planning documents including TPWD's Texas Conservation Action Plan (TCAP) and TORP were also reviewed and used in the development of recreational resources.

The objectives in this Master Plan provide project benefits, meet public needs, and foster environmental sustainability for Stillhouse Hollow Lake to the greatest extent possible. They include recreational objectives; natural resource management objectives; visitor information; education and outreach objectives; general management objectives; and cultural resource management objectives. Tables 3.1 through 3.5 list the objectives along with the associated goal(s) addressed.

Table 3.1 Recreational Objectives

Recreational Objectives	Goals				
	A	B	C	D	E
Evaluate the demand for improved recreation facilities and increased public access on USACE-managed public lands and water for recreational activities (i.e. camping, walking, hiking, biking, boating, fishing, wildlife viewing, etc.) and facilities (i.e. campsites, picnic facilities, overlooks, all types of trails, boat ramps, courtesy docks, interpretive signs/exhibits, and parking lots).	*		*	*	
Improve, modernize, and implement sustainability measures into day use and campground facilities through addition and repair of amenities, including, but not limited to road improvements, sewer hook ups, increased electrical service, concrete or asphalt recreational vehicle (RV) pads, tent pads, restrooms, trails, pavilions, and improved park entrances.	*		*	*	
Monitor public use levels (including boating areas) and evaluate potential impacts from overuse and crowding. Take action to prevent/remediate overuse, conflict, and public safety concerns.	*		*		*
Evaluate recreational use zoning and regulations for designated quiet water or no-wake areas with emphasis on natural resource protection, quality recreational opportunities, and public safety concerns.	*		*		*
Follow the EOPs associated with recreational use of waterways for all water-based management activities and plans.		*	*		*
Increase universally accessible facilities on Stillhouse Hollow Lake lands.	*		*		*
Evaluate established permits/outgrants to determine impacts on public lands and waters. Sustain the Shoreline Management Policy in order to balance private shoreline uses (such as mowing or vegetation removal requests along the federal property boundary, or paths to the shoreline) with habitat management and impacts to the general public.	*	*	*		
Consider flood/conservation pool fluctuations to address potential impact to recreational facilities (i.e. campsites, boat ramps, courtesy docks, etc.).	*	*	*	*	
Consider long-term sustainable operational and maintenance costs when planning future new recreational facilities or upgrading and expanding existing facilities.	*	*		*	

Ensure consistency with USACE Recreation Strategic Plan.					*
Monitor the TCAP, the TORP, and adjacent municipality plans to insure that USACE is responsive to outdoor recreation trends, public needs and resource protection within a regional framework. All plans by others will be evaluated in light of USACE policy and operational aspects of Stillhouse Hollow Lake.	*	*	*	*	*

*Denotes that the objective helps to meet the specified goal.

Table 3.2 Natural Resource Management Objectives

Natural Resource Management Objectives	Goals				
	A	B	C	D	E
Consider flood/conservation pool levels to ensure that natural resources are managed in ways that are compatible with primary project purposes of flood risk management and water supply.	*	*		*	
Ensure project lands are managed with preservation and conservation of natural habitat and open space as a primary objective in order to maintain the public open space.	*	*		*	
Actively manage and conserve fish and wildlife resources, especially habitat for the golden-cheeked warbler and other federally listed species, and special status species, by implementing ecosystem management principles. Key among these principles is the use of native species adapted to the ecological region in restoration and mitigation plans.	*	*		*	*
Consider watershed approach during decision-making process.					*
Optimize resources, labor, funds, and partnerships for protection and restoration of fish and wildlife habitats.		*			*
Minimize activities that disturb the scenic beauty and aesthetics of the lake.	*	*	*	*	
Continually evaluate erosion control and sedimentation issues at Stillhouse Hollow Lake and develop alternatives to resolve the issues.	*	*			*
Address unauthorized uses of public lands such as off-road vehicle use, trash dumping, unauthorized fires, fireworks, poaching, clearing of vegetation, unauthorized trails and paths, and placement of advertising signs that create negative environmental impacts.	*	*	*	*	*

Monitor lands and waters for non-native invasive species, and aggressively spreading native species, taking action to prevent and/or reduce the spread of these species. Implement recommended management practices to control the spread of noxious plants. Control of invasive species will promote the vigor of native prairie grasses and forbs.	*	*		*	*
Protect and/or restore important native habitats such as Texas Cross Timbers, riparian zones, grasslands, blackland prairies, and wetlands, where they occur, or historically occurred on project lands. Special emphasis should be taken to protect and/or restore special or rare plant communities, to include actions that promote butterfly and/or pollinator habitat, migratory bird habitat, and habitat for birds listed by USFWS as Birds of Conservation Concern. Some of these habitats may be designated as Environmentally Sensitive Areas.	*	*	*	*	*
Continue to manage the public hunting program to ensure public safety and sustainability of game species and wildlife habitat.	*	*	*		*

*Denotes that the objective helps to meet the specified goal.

Table 3.3 Visitor Information, Education, and Outreach Objectives

Visitor Information, Education and Outreach Objectives	Goals				
	A	B	C	D	E
Provide more opportunities for communication with agencies, special interest groups, and the general public (i.e. comment cards, updates to City Managers, web page).	*	*		*	*
Implement more educational, interpretive, and outreach programs at the lake office and around the lake. Topics to include history, lake operations (flood risk management and water supply), water safety, recreation, nature, cultural resources, ecology, and USACE missions.	*	*	*	*	*
Enhance network among local, state, and federal agencies in order to exchange lake-related information for public education and management purposes.	*			*	*
Increase public awareness of special use permits or other authorizations required for special activities, organized special events, and commercial activities on public lands and waters of the lake.	*	*	*		*

Capture trends concerning boating accidents and other incidents on public lands and waters and coordinate data collection with other public safety officials.	*		*	*	*
Promote USACE Water Safety message.	*		*	*	*
Educate adjacent landowners on Shoreline Management Statement of Policy and permit processes in order to reduce encroachment actions.	*	*	*	*	*

*Denotes that the objective helps to meet the specified goal.

Table 3.4 General Management Objectives

General Management Objectives	Goals				
	A	B	C	D	E
Resurvey and maintain the public lands boundary line to ensure it is clearly marked and recognizable in all areas to reduce habitat degradation and encroachment actions.	*	*		*	
Secure sustainable funding for the shoreline management program.	*	*	*	*	*
Ensure consistency with USACE Campaign Plan (national level), IPlan (regional level), OPlan (District level).					*
Ensure green design, construction, procurement, and operation practices, such as the Leadership in Energy and Environmental Design (LEED) criteria for government facilities, are considered as well as applicable Executive Orders (EO).					*
Carefully manage non-recreation outgrants such as utility and road easements in accordance with national guidance set forth in ER-1130-2-550 and applicable chapters in ER 405-1-12.	*	*			*
Manage project lands and recreational programs to “meet such statutory requirements in a manner that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment”, as set forth in EO 13834 and related USACE policy.					*

*Denotes that the objective helps to meet the specified goal.

Table 3.5 Cultural Resources Management Objectives

Cultural Resources Management Objectives	Goals				
	A	B	C	D	E
Monitor and coordinate lake development and the protection of cultural resources with appropriate entities.	*	*		*	*

Complete and maintain an inventory of cultural resources.	*	*		*	*
Increase public awareness and education of regional history.		*		*	*
Ensure any current or future historical preservation is fully integrated into the Stillhouse Hollow Lake Master Plan and planning decision-making process (Section 106 and 110 of the NHPA; the Archeological Resources Protection Act; and the Native American Graves Protection and Repatriation Act) on public lands surrounding the lake.		*		*	*
Develop partnerships that promote and protect cultural resources at Stillhouse Hollow Lake.		*	*	*	*
Stop unauthorized use of public lands as it pertains to the illegal excavation and removal of cultural resources.		*		*	*

CHAPTER 4: LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, AND PROJECT EASEMENT LANDS

4.1 LAND ALLOCATION

All lands at USACE water resource development projects are allocated by USACE into one of four categories in accordance with the congressionally authorized purpose for which the project lands were acquired. There are four possible categories of allocation identified in USACE regulations: Operations, Recreation, Fish and Wildlife, and Mitigation. At Stillhouse Hollow Lake the only land allocation categories that apply are Operations and Recreation. Operations is defined as those lands that are required to operate the project for the primary authorized purposes of flood risk management, and water conservation. Recreation is defined as those lands acquired specifically for the congressionally authorized purpose of recreation, which are referred to as separable recreation lands and must be used for the purpose of recreation. The remaining allocations of Fish and Wildlife and Mitigation would apply only if lands had been acquired specifically for these purposes. The entire fee simple federal estate at Stillhouse Hollow Lake as calculated for this Master Plan is 8,754 acres of land at conservation pool, of which 8,521 acres are allocated to Operations and 236 acres are allocated to Recreation (see SH20MP-0C-00 in Appendix A). These separable recreation lands are included in the following land classifications acres:

- High Density Recreation (HDR) – 65 acres
- Wildlife Management Areas (WMA) – 13 acres
- Environmentally Sensitive Areas (ESA) - 93 acres
- Future Recreation – 65 acres

4.2 LAND CLASSIFICATION

Previous versions of the Stillhouse Hollow Lake Master Plan included land classification criteria that were similar to the current criteria. These prior land classifications were based on projected need rather than on actual experience, which resulted in some areas being classified for a type of use that has not or is not likely to occur. Additionally, in the 40-plus years since the previous Master Plan was published, wildlife habitat values, surrounding land use, and regional recreation trends have changed, giving rise to the need for revised classifications. Refer to Table 8.1 in Chapter 8 for a summary of prior to current land classification changes.

4.2.1 Current Land and Water Surface Classifications

USACE regulations require project lands and waters to be classified in accordance with the primary use for which project lands are managed. There are six classification identified in USACE regulations including:

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Management Lands
- Water Surface

The land and water surface classifications for Stillhouse Hollow Lake were established after considering public comments and input from key stakeholders including elected officials, city and county governments, and lessees operating on USACE land. Additionally, wildlife habitat values and the trends analysis provided in TPWD's TORP and TCAP were used in decision making, as well as input from experts in planning, recreation, environmental, wildlife, and cultural resources. Maps showing the various land classifications can be found in Appendix A. The land classifications, acreage, and description of allowable uses is described in the following paragraphs.

4.2.2 Project Operations (PO)

This classification includes the lands managed for operation of the dam, project office, and maintenance yards, all of which must be maintained to carry out the authorized purpose of flood risk management. In addition to the operational activities taking place on these lands, incidental recreational use may be allowed for activities such as public access to the fishing piers. Regardless of any limited recreation use allowed on these lands, the primary classification of PO will take precedent over other uses. There are 500 acres of PO land specifically managed for this purpose, which includes 26 acres of PO by Others. PO by Others includes water intake and other operations that are not directly related to USACE operations but require a higher level of protection for public safety.

4.2.3 High Density Recreation (HDR)

These are lands developed for intensive recreational activities for the visiting public including day use areas, campgrounds, marinas and related concession areas. Recreation development by lessees operating on USACE lands must follow policy guidance contained in USACE regulations ER 1130-2-550, Chapter 16. That policy includes the following statement:

“The primary rationale for any future recreation development must be dependent on the project’s natural or other resources. This dependency is typically reflected in facilities that accommodate or support water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps, and comprehensive resort facilities. Examples that do not rely on the project’s natural or other resources include theme parks or ride-type attractions, sports or concert

stadiums, and standalone facilities such as restaurants, bars, motels, hotels, non-transient trailers, and golf courses. Normally, the recreation facilities that are dependent on the project's natural or other resources, and accommodate or support water-based activities, overnight use, and day use, are approved first as primary facilities followed by those facilities that support them. Any support facilities (e.g., playgrounds, multipurpose sports fields, overnight facilities, restaurants, camp stores, bait shops, comfort stations, and boat repair facilities) must also enhance the recreation experience, be dependent on the resource-based facilities, and be secondary to the original intent of the recreation development..."

Lands classified for HDR are suitable for the development of comprehensive resorts. The regulation cited above defines Comprehensive Resort as follows:

"Typically, multi-faceted developments with facilities such as marinas, lodging, conference centers, golf courses, tennis courts, restaurants, and other similar facilities."

At Stillhouse Hollow Lake, prior land classifications included several areas under the HDR classification. Several of these areas were never developed and/or were determined to be unsuitable for development resulting in a change to another, more suitable land classification. At Stillhouse Hollow Lake there are 982 acres classified as HDR land. Each of the HDR areas is described briefly in Chapter 5 of this Plan.

4.2.4 Mitigation

This classification is used only for lands set aside for mitigation for the purpose of offsetting losses associated with the development of the project. This is not the same as *allocated* lands, which are purchased for the purpose of mitigation. There are no lands at Stillhouse Hollow Lake with this classification.

4.2.5 Environmentally Sensitive Areas (ESA)

These are areas where scientific, ecological, cultural, and aesthetic features have been identified. At Stillhouse Hollow Lake several distinct areas have been classified as ESA, primarily for the protection of sensitive habitats, unique aesthetics features, or cultural resources. These areas are further discussed in Chapter 5 and shown on the maps in Appendix A of this Plan. There are 625 acres classified as ESA at Stillhouse Hollow Lake.

4.2.6 Multiple Resource Management Lands (MRML)

This classification is divided into four sub-classifications identified as Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. A given tract of land may be classified using one or more of these sub-classifications, but the primary sub-classification should reflect the dominant use of the land. Typically, Multiple Resource Management Lands support only passive, non-intrusive uses with very limited facilities or infrastructure. Where needed, some areas may require basic facilities that include but are not limited to minimal parking spaces, a small boat ramp, and/or primitive sanitary facilities. There are 6,647 acres of land under this

classification at Stillhouse Hollow Lake. The following paragraphs list each of the sub-classifications, and the number of acres and primary uses of each.

4.2.6.1 Low Density Recreation (LDR)

These are lands that may support passive public recreational use (e.g., fishing, hunting, wildlife viewing, natural surface trails, hiking, etc.). Under prior land classifications, several relatively large tracts were classified for LDR, but during the study process to develop this Plan, these larger tracts were reclassified under the sub-classification of Wildlife Management. LDR lands are typically narrow strips of land lying between the shoreline at the conservation pool elevation and the USACE property boundary line and are often located adjacent to private residential areas. The narrow configuration and location next to residential areas make these areas unsuitable for other uses such as HDR, Vegetation Management or Wildlife Management. There are 55 acres under this land classification at Stillhouse Hollow Lake.

4.2.6.2 Wildlife Management (WM)

This land classification applies to those lands managed primarily for the conservation of fish and wildlife habitat. These lands generally include comparatively large contiguous parcels. Passive recreation uses such as natural surface trails, fishing, hunting, and wildlife observation are compatible with this classification unless restrictions are necessary to protect sensitive species or to promote public safety. There are 6,178 acres of land included in this classification at Stillhouse Hollow Lake.

4.2.6.3 Vegetative Management (VM)

These are lands designated for stewardship of forest, prairie, and other native vegetative cover. Passive recreation activities previously described may be allowed in these areas. There are no acres of land included in this classification at Stillhouse Hollow Lake.

4.2.6.4 Future or Inactive Recreation

These are lands with site characteristics compatible with High Density Recreation development where HDR development was anticipated in prior land classifications, but the development either never took place or was minimal. These areas are typically closed to vehicular traffic and will be managed as multiple resource management lands until development takes place. There are 414 acres of land included in this classification at Stillhouse Hollow Lake.

4.2.7 Water Surface

USACE regulations specify four possible sub-categories of water surface classification. These classifications are intended to promote public safety, protect resources, or protect project operational features such as the dam and spillway. These areas are typically marked by USACE or lessees with navigational or informational buoys

or signs or are denoted on public maps and brochures. The Water Surface Classification map can be found in Appendix A of this Plan. The four sub-categories of water surface classification include:

4.2.7.1 Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The areas include the water surface upstream and downstream of the Stillhouse Hollow Lake Dam. There are 23 acres of restricted water surface at Stillhouse Hollow Lake.

4.2.7.2 Designated No-Wake

Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps. There are three boat ramps at Stillhouse Hollow Lake where no-wake restrictions are in place for reasons of public safety and protection of property. There are 75 acres of designated no-wake water surface at Stillhouse Hollow Lake.

4.2.7.3 Fish and Wildlife Sanctuary

This water surface classification applies to areas with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. Stillhouse Hollow Lake has no water surface areas designated as a Fish and Wildlife Sanctuary.

4.2.7.4 Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. This classification encompasses most of the lake water surface and is open to general recreational boating. Boaters are advised through maps and brochures, or signs at boat ramps and marinas, that navigational hazards may be present at any time and at any location in these areas. Operation of a boat in these areas is at the owner's risk. Specific navigational hazards may or may not be marked with a buoy. There are 6,375 acres of open recreation water surface at Stillhouse Hollow Lake.

4.2.8 Recreational Seaplane Operations

Seaplane restrictions are part of Title 36 Code of Federal Regulations. At Stillhouse Hollow Lake and other USACE lakes across the nation, areas where recreational seaplane operations are prohibited were established through public meetings and environmental assessments circa 1980. The seaplane policy for USACE Fort Worth District is found in the Notice to Seaplane Pilots (see Appendix F), which lays out the

general restrictions as well as lake-specific restrictions for seaplane operation. Seaplane operations at Stillhouse Hollow Lake are generally prohibited in several major coves and bays off the main body of the lake and within 500 feet of structures such as bridges and the dam. Once on the water, seaplanes are classified as water vessels and fall under guidelines for watercraft.

Table 4.1 provides a summary of land and water surface classifications at Stillhouse Hollow Lake. Acreages were calculated by historical and GIS data. A map representing these areas can be found in Appendix A.

Table 4.1 Proposed Land Classification Acres at Stillhouse Hollow Lake

CLASSIFICATION	ACRES
Project Operations ¹	500
High Density Recreation ²	982
Environmental Sensitive Areas ²	625
Multiple Resource Managed Lands - Low Density Recreation	55
Multiple Resource Managed Lands - Wildlife Management ²	6,178
Multiple Resource Managed Lands - Vegetative Management	0
Multiple Resource Managed Lands - Future/Inactive Recreation Areas ²	414
Water Surface: Restricted	23
Water Surface: Designated No-Wake	75
Water Surface: Fish and Wildlife Sanctuary	0
Water Surface: Open Recreation	6,375

Note: Acreages were measured using GIS technology and may vary from the official land acquisition records. Acreage varies depending on changes in lake levels, sedimentation and shoreline erosion. Total Water Surface: 1287 acres - Miles of Shoreline at conservation pool: approximately 25 miles

Includes 26 acres of Project Operations by Other

*These classifications include portions of the lands allocated as separable recreation lands. These include HDR-65 acres; WMA-13 acres; ESA-93 acres; and Future Recreation - 65 acres.

4.3 PROJECT EASEMENT LANDS

Project Easement Lands are primarily lands on which easement interests were acquired. Fee title was not acquired on these lands, but the easement interests convey to the Federal Government certain rights to use and/or restrict the use of the land for specific purposes. Easement lands are typically classified as Operations Easement, Flowage Easement, and/or Conservation Easement. Flowage easement lands are the only easements that exist at Stillhouse Hollow Lake. A flowage easement, in general, grants to the government the perpetual right to temporarily flood/inundate private land during flood risk management operations and to prohibit activities on the flowage easement that would interfere with flood risk management operations such as placement of fill material or construction of habitable structures. There are 913.57 acres of Flowage Easement lands at Stillhouse Hollow Lake.

CHAPTER 5: RESOURCE PLAN

5.1 MANAGEMENT BY CLASSIFICATION

This chapter describes the management plans for each land use classification within the Master Plan. The classifications that exist at Stillhouse Hollow Lake are Project Operations, High Density Recreation, Environmentally Sensitive Areas, and Multiple Resource Management Lands, which consist of Low Density Recreation and Wildlife Management. The Water Surface is divided into Restricted, No-Wake, and Open Recreation sub-classifications. The management plans describe how these project lands will be managed in broad terms. A more descriptive plan for managing these lands can be found in the Stillhouse Hollow Lake OMP.

5.2 PROJECT OPERATIONS

Project Operations is land associated with the dam, spillway, levees, lake office, maintenance facilities, and other areas solely for the operation of the project. There are 500 acres of lands under this classification, of which 474 acres are managed by the USACE and 26 acres are managed by other agencies. The management plan for the Project Operations area is to continue providing physical security necessary to ensure sustained operations of the dam and related facilities including restricting public access in hazardous locations near the dam and spillway.

Recommended future actions for these areas include facility upgrades to meet USACE sustainability objectives as funding and personnel allow. Opportunities to incorporate environmental stewardship objectives for land management such as invasive species control and wildlife management through use of food or pollinator plots will be implemented as appropriate.

5.3 HIGH DENSITY RECREATION

Stillhouse Hollow Lake has 982 acres classified as HDR. These lands are developed for intensive recreational activities for the visiting public including day use and campgrounds. National USACE policy set forth in ER 1130-2-550, Chapter 16, limits recreation development on USACE lands to those activities that are dependent on a project's natural resources and typically include water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps and comprehensive resorts. Examples of activities that are not dependent on a project's natural resources include, theme parks or ride-type attractions, sports or concert stadiums, and stand-alone facilities such as restaurants, bars, motels, hotels, and golf courses.

USACE operates and manages numerous areas designated as HDR. The following is a description of each park operated by USACE along with a conceptual management plan for parks by classification groups. Groups include Class A (highly developed parks listed in section 5.3.1) and Class C (basic facilities listed in section

5.3.2). Maps showing existing parks and facilities managed by USACE can be found in Appendix A.

5.3.1 USACE Class A Parks

In accordance with historical visitation rates and recent outdoor recreation trends documented in the 2018 TORP, trails, picnicking, fishing, swimming, and wildlife viewing and photography are in high demand. Camping as well remains a popular activity at USACE lakes. Visitation rates for some of the Class A parks at Stillhouse Hollow Lake are growing. Facilities provided are sufficient in some parks, while at others demand exceeds available resources during summer use. USACE intends to continue to operate the Class A campgrounds and day use areas by maintaining and improving existing facilities but has no long-range plans to add additional campsites. In response to trends documented in the TORP, USACE will endeavor to improve access to some swim beaches and to develop hiking and biking trails in or adjacent to some park areas as funding permits. USACE encourages partnerships with agencies who lease and manage parks to respond to increasing demands and build on the current quality of USACE parks for present and future visitors.

Popular activities at Stillhouse Hollow Lake include boating, fishing, and hunting in and on the clear waters and lands of the lake. Fishing is excellent in the area, and the lake contains black bass, white bass, hybrid stripers, white crappie, channel catfish and flathead catfish, but it's most known for its abundance of smallmouth bass. Hunting is subject to rules and regulations promulgated by TPWD (see Section 6 for more details) and available for migratory birds and feral hogs.

Dana Peak Park – Dana Peak Park has a total of 454 acres with 140 acres developed. The park is located on a peninsula on the north shoreline of Stillhouse Hollow Lake adjacent to the City of Harker Heights in Central Texas. The park includes the following:

- 22 single sites and three (3) double sites with water and electric hookups, parking pad, covered picnic table, fire ring, and grill
- Eight (8) primitive campsites
- Restroom with hot showers and flush toilet
- Fishing pier
- Four lane concrete Boat ramp
- Courtesy dock
- Swim beach
- Group shelter
- Hike/bike/equestrian trailhead and trails
- Playground
- Dump station
- Picnic areas
- Launch, camp sight, and pavilion fees required
- March 01 – September 30, 6 am - 9 pm



Photo 5.1 Cycling at Dana Peak Park

Union Grove Park – Union Grove Park has a total of 286 acres, with 59 acres developed. The park located on the south side of the lake across from Dana Peak Park. The park includes the following amenities:

- 35 single and 2 double campsites with water and electric hookups, parking pad, covered picnic table, fire ring, and grill
- Three (3) screened shelters with water and electrical hook-ups
- Four-lane concrete ramp and fishing dock
- Courtesy dock
- Fishing pier
- Dump station
- Restroom with hot showers and flush toilet
- Lease for a model airplane field
- Launch, camp sight, and pavilion fees required
- Whole park open March 01 – September 30, 6 am - 9 pm, boat ramp only October 01-March 01

5.3.2 USACE Day Use (Class C) Parks

Visitation rates for most of the Day Use parks at Stillhouse Lake are increasing rapidly along with the residential development in the area. Facilities provided are aging and deficient to meet the summer use demands. The management plan for all of the day use parks listed below is to continue to operate them as day use areas by maintaining

and improving existing facilities. Similar to Class A parks, emphasis will be placed on improvements such as upgrading aging water and electrical infrastructure, repairing or replacing outdated restrooms, maintaining roads, parking areas, and site amenities such as tables fire rings, lantern posts and cookers. Trails within parks will be considered in cooperation with other agency partners for development and operation.

Overlook Park – Overlook Park has a total of 34 acres of land with 27 acres developed. The main use of this park is a scenic viewing area of the lake. The park has five picnic sites, restroom facilities, and parking. A walking/exercise trail is also located here.

Stillhouse Park – Stillhouse Park has a total of 249 acres with 62 acres developed. There are 38 picnic sites, a marina, a four-lane boat ramp, a courtesy dock, two pavilions, a beach area, and restrooms.

Cedar Gap Park – Cedar Gap Park has a total of 143 acres with 7 acres developed. Cedar Knob Road divides the Park in half with the eastern half having the only recreational development. It has a one-lane boat ramp, a courtesy dock, restrooms and two parking lots.

River's Bend Park – River's Bend Park has a total of 72 acres with 16 acres developed. The park is a day-use only area, with a gate entrance that is closed at night. There are 16 recreational sites at this park along with a four-lane boat ramp and restrooms.

Bluff Park (closed) – Bluff Park has 268 acres of land with most of the area designated as ESA. Only 58 areas may be available for development. This park has been closed to public access since 1981 and the recreational facilities have been re-located to other park areas. The circulation roads and a chain link fence around the perimeter of the bluff remain, which overlooks the lake. The Brazos River Authority has a water intake structure located on the south east bluff line of this area. They are under agreement to maintain the road, which they use to access their structure.



Photo 5.2 Chalk Ridge Falls Located withing Chalk Ridge Falls Environmental Learning Center

5.3.3 USACE Access Points

USACE has three designated access points on Stillhouse. The management plan for these areas is to continue to maintain the roads and parking lots, providing access for bank fishermen, kayakers to launch, and hikers.

Chalk Ridge Falls Environmental Learning Center – Located off FM 1670 at the toe of Stillhouse Hollow Dam paralleling the Lampasas River downstream of the Dam, Chalk Ridge Falls has a total of 155 acres of land with 10 acres developed. Facilities include restrooms, a parking area, hiking trail and a pavilion. Most of this area is classified as an Environmentally Sensitive Area.

Long Bridge Access Area - Located at the west end of the lake across from Cedar Gap Park on FM 3481, this park is approximately four acres in size and is used heavily by bank fishermen. A gravel access road and parking lot are the extent of development and are in very poor repair due to erosion, potholes, and use.

Gravel Crossing Access Area - Located approximately four miles west of the Cedar Knob Road intersection with FM 2484, this area is primarily an unimproved river access area

on the Lampasas River. A gravel road and parking lot are the only USACE maintained facilities.

5.3.4 USACE Boat Ramps

Stillhouse Hollow - This four-lane concrete boat ramp is located within the Stillhouse Hollow Park gatehouse and is open from 6:00 AM - 10:00 PM daily.

Cedar Gap - This one-lane concrete boat ramp currently provides 24-hour access and is available at no cost.

Rivers Bend - This four-lane concrete boat ramp is located within a gate that is open from 6:00 AM - 10:00 PM daily.

Union Grove - This four-lane concrete boat ramp is located within the Union Grove gatehouse and is open from 6:00 AM - 10:00 PM daily.

Dana Peak - This four-lane concrete boat ramp is located within the Dana Peak gatehouse and is open from 6:00 AM - 10:00 PM daily.

5.3.5 Leased Park Areas

USACE has three outgrants issued in the form of permits or leases to recreational partners, referred to as grantees. Each grantee is responsible for the operation and maintenance of their leased area, and although USACE does not provide direct maintenance within any of the leased locations, it may occasionally lend support where appropriate. The USACE reviews requests and ensures compliance with applicable laws and regulations for proposed activities in all leased and USACE-operated HDR areas. USACE works with partners to ensure that recreation areas are managed and operated in accordance with the objectives prescribed in Chapter 3.

Commercial Marina

Stillhouse Marina - Located in Stillhouse Park, this lease is issued for approximately 19.37 acres of land and water areas. The Marina provides boat storage, boat rental, sale of gasoline and oil and food supplies.

Model Airport

Hall Field - Located in Union Grove Park area, this lease is issued to operate and maintain a model airplane field on 1.38 acres of land.

Water Intake Structure Lease

Bluff Park – There are two easements related to Bluff Park. Brazos River Authority (BRA) was issued an easement for a water intake structure and water line located in Bluff Park and travels to FM 1670. Central Texas Water Supply Corporation was issued a 6.34-acre easement for a water line that parallels the BRA easement and connects to the BRA structure. The BRA system moves raw water from Stillhouse Hollow Lake to Lake Georgetown.

5.3.6 Trails

As stated in the TORP, the demand for trails and outdoor fitness areas of all kinds is growing exponentially. As Texas has seen the largest growth in the nation for the past six years, and with the Central Texas area being conveniently located on the I35 corridor with Fort Hood providing economic consistency, this area has experienced major growth in development the past 15 years. With the population explosion, more people than ever before are craving trails. Because of this, the developed parks require more visitor assistance and repair/maintenance. USACE has focused all efforts on maintaining areas, and thus many areas do not have new amenities nor are they designed to meet the volume of today's customers. Continued and expanded partnerships are needed and welcomed to provide these much-demanded amenities on USACE lands.

Dana Peak Park Trail - This area was initially developed by Texas Equestrian Trail Riders Association (TETRA) as a partnership with USACE. Over the years TETRA interest declined but the City of Harker Heights has taken interest. The City of Harker Heights has signed a Memorandum of Understanding (MOU) with USACE under which all trail maintenance/repair and improvements are performed with an interest in providing more biking amenities. With the expressed interest to provide biking opportunities, this trail has been completed converted from equestrian use to biking use. This six-mile trail system begins outside the gated entrance of Dana Peak Park and travels along USACE property to Stillhouse Hollow Park. This area has numerous trails including some of which are highly challenging. The trails have bike repair stations, kiosks, benches, and directional signs. More trail markers, definable trails, benches, restrooms, and an improved entrance parking area are a few of the needed items.

Chalk Ridge Falls Environmental Center - This area was designed for group environmental experiences with an emphasis on younger school-aged children. The area provides parking for multiple buses and limited parking for smaller vehicles. Over the years, and especially when flood events caused closure of other USACE parks, visitation to the Chalk Ridge Falls Environmental Center has steadily increased. Because of the increased visitation, USACE efforts have been focused on maintenance and repairs. This area has numerous trails, kiosks, vault restroom, cable-bridge, two streams (one that flows all year with a waterfall), and 200-foot wooden bridge over a gorge.



Photo 5.3 Bridge Over Gorge at Chalk Ridge Falls Environmental Center

The gorge has excellent geological features that was created when 20,000 cubic feet per second of water flow through the uncontrolled spillway. This trail system is parallel to the Lampasas River and traverses a wetlands area located within the old abandoned riverbed. Because of these unique features, this popular area needs a careful redesign to accommodate more users including a critical need for more parking.

5.4 MITIGATION

This classification is used for lands that were acquired specifically for the purpose of offsetting losses associated with development of the project. There are no acres at Stillhouse Hollow Lake under this classification.

5.5 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally Sensitive Areas are areas where scientific, ecological, cultural or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act or applicable state statutes. These areas must be managed to ensure they are not adversely impacted, so typically, limited or no development of public use is allowed. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration and management. These areas are distinct parcels separate from other, and perhaps larger, land classification areas.

The results of the WHAP conducted in September 2020 were used, in part, to assist in determining which areas should be classified as ESA. Other factors, including the presence of visual aesthetics, cultural resources, and species of conservation concern were also included in the selection of ESA areas. At Stillhouse Hollow Lake there are 625 acres classified as ESA. Each of these areas are numbered on the land classification maps in Appendix A. Table 5.1 provides a listing of the ESA areas, point numbers, WHAP scores, acreage, and habitat type. More information on the WHAP can be found in Appendix E of this Plan.

Table 5.1 ESA Areas at Stillhouse Hollow Lake

ESA Area Number	WHAP Scores Per Sample Point Number and Associated Habitat Type				
	Point No.	Score	Habitat Type	Approx. Acres	Determining Factor
ESA 1	16	.61	Upland Forest	179	Known golden-cheeked warbler habitat
	18	.44			
	19	.59			
ESA 2	6	.66	Riparian/ Bottomland Hardwood Forest	51	Unique green tree wetland habitat along old riverbed
	7	.64			
	8	.81			
ESA 3	9	.73	Grassland	10	High species diverse grassland prairie
ESA 4	1	.60	Upland Forest	127	Known golden-cheeked warbler habitat
	2	.55			
	3	.44			
ESA 5	81	.72	Upland Forest	384	Known and Critical golden-cheeked warbler habitat
	82	.34			
	83	.51			
ESA 6	N/A	N/A	N/A	7	Aesthetic and other value
ESA 7	N/A	N/A	N/A	42	Aesthetic and other value
ESA 8	N/A	N/A	N/A	86	Aesthetic and other value

Future management of ESA areas will be designed to protect and improve the resources that qualify these areas for ESA classification. These areas are suitable for development of natural surface pedestrian trails unless the areas are critically important as habitat for sensitive species. Hunting is also allowed in these areas, taking into consideration public safety and resource protection. Specific management measures may include but are not limited to the following:

- Cultural Resource Sites: Known sites will be protected from vandalism and/or erosion. Additional reconnaissance surveys will be conducted as needed to determine the extent of cultural resource sites. Tribal coordination will continue to insure proper management and/or protection of known sites.
- Sites Supporting Species of Conservation Concern: The site characteristics that cause these areas to be favored by individual species will be protected and

improved. Perch and/or nesting sites for the southern bald eagle are examples of site characteristics that need protection.

- Steep Slope Sites: These areas will be monitored to protect their scenic value, wildlife habitat value, and to reduce shoreline erosion.

5.6 MULTIPLE RESOURCE MANAGEMENT LANDS

Multiple Resource Management Lands are organized into four sub-classifications. These sub-classifications are Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. The following is a description of each sub-classification's management strategies, acreages, and description of use.

5.6.1 Low Density Recreation

These lands are generally parcels of land that are adjacent to private residential developments. Future management of these lands calls for maintaining a healthy, ecologically adapted vegetative cover to reduce erosion and improve aesthetics. Prevention of unauthorized use such as trespass or encroachments is an important management objective for all USACE lands but is especially important for those lands in close proximity to private development. These lands are typically open to the public, including adjacent landowners, for pedestrian traffic and are frequently used by adjacent landowners for access to the shoreline near their homes. Adjacent landowners may apply for a permit to mow a meandering path to the shoreline, and if conditions warrant, may apply for a permit to mow a narrow strip along the USACE boundary line as a precaution against wildfire. The general public may use these lands for bank fishing, hiking, and for access to the shoreline. Hunting is strictly limited to controlled hunts in designated hunting areas. Future uses may include additional designated natural surface hike/bike/equestrian trails. There are 55 acres classified as Low Density Recreation.

5.6.2 Wildlife Management

These are lands designated for the stewardship of fish and wildlife resources and are managed by USACE. There are currently 6,178 acres of land under this classification at Stillhouse Hollow Lake, however, areas of low density recreation, ESA's and vegetative management all support wildlife. Management efforts focus on producing native wildlife food and habitat.

The broad objective of fish and wildlife management is to conserve, maintain and improve the fish and wildlife habitat to produce the greatest dividend for the benefit of the general public. Implementation of a fish and wildlife management plan is the first step toward achieving the goals of the Fish and Wildlife Coordination Act (Public Law 85-624). The TPWD and the USFWS share responsibility with USACE for managing fish and wildlife, primarily through enforcement of laws and regulations and establishing seasons and bag limits for game species.

Best Management Practices such as prescription burning, native grass and forbs species planting, fencing, construction of water features, native tree plantings, species

inventories, nesting structures, and invoking certain requirements on public hunting will be utilized. Other non-game programs, such as songbird nest box construction and installation of bat boxes, are performed on an intermittent basis. USACE intends to continue these initiatives in order to provide some form of management for non-game species. Future management plans for Wildlife Management areas include continued cooperation with partners and managing/improving areas under this land classification. A holistic management approach is taken in conserving these areas with some emphasis on white-tailed deer, golden-cheeked warbler, and pollinator habitat management.

5.6.3 Vegetative Management.

These are lands that have vegetative types considered to be sensitive and needing special classification to ensure success. A good example of these types of vegetation would be forested wetlands and Cross Timbers forests. However, no acres are currently identified at Stillhouse Hollow Lake for the primary purpose of vegetative management.

5.6.4 Future/Inactive Recreation Areas.

These are areas with site characteristics compatible with potential future recreational development or recreation areas that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources. There are 414 acres classified under this sub-classification at Stillhouse Hollow Lake.

5.7 WATER SURFACE

At conservation pool 622.0 feet NGVD29 there are 15,230 acres of surface water. Buoys are managed by USACE and help mark hazards, swim beaches, no-wake, and other restricted boat access areas. Future management of the water surface includes the maintenance of warning, information, and regulatory buoys as well as routine water safety patrols during peak use periods.

5.7.1 Restricted

Restricted areas are around swim beaches, the dam, and intake structures for project operations, safety, and security purposes. Water surface zoned as restricted total approximately 23 acres.

5.7.2 Designated No-wake

No-wake areas are located near boat launch areas for the safety of launching and loading boat or personal watercraft. Currently, approximately 75 total acres at Stillhouse Hollow Lake is designated for no-wake.

5.7.3 Fish and Wildlife Sanctuary

These areas are managed with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or

spawning. There are no water surface acres under this classification at Stillhouse Hollow Lake.

5.7.4 Open Recreation

The remaining lake area not in the above classifications is open to recreational use. No specific zoning exists for these areas, but there is a buoy system in place to help aid in public safety. Future management of the water surface includes the maintenance of warning, information, and regulatory buoys as well as routine water safety patrols during peak use periods. Approximately 6,375 total acres of Stillhouse Hollow Lake is zoned for open recreation.

5.8 SUSTAINABILITY

Sustainability is a multi-pronged aspect of responsible stewardship of USACE lands. The goal of sustainability initiatives is to have an adaptable program to address fiscal challenges, safeguard the environment, and continues to provide high quality recreational opportunities for the public. As the nation's largest provider of outdoor recreation, managing 12 million acres of lands and waters across the country, USACE is committed to implementing initiatives that link people to public lands and water.

The recreational mission of USACE is to manage and conserve natural resources, while providing quality public outdoor recreation opportunities to serve the needs of the present and future generations. This is in line, and indeed the underpinning, of all the goals and objectives for Stillhouse Hollow Lake resources and management. The USACE 2011 Recreational Strategic Plan identifies several goals and objectives designed to build a more robust environmental and recreational program on USACE managed lands. Many of the goals focus specifically on promoting environmental sustainability in all aspects of recreation resources management. This includes integrating environmental operating principles and other environmental regulations and initiatives into day-to-day decision making and long-range planning. Other objectives include using Leadership in Energy and Environmental Design (LEED) certified personnel and projects in facility design and maintenance, adopting Sustainable Sites Initiative criteria where applicable on land-based recreation areas, and updating project Master Plans to include environmental sustainability elements.

Meeting the public's needs and continuing to provide a full range of outdoor recreation opportunities will require collaboration. In support of that, USACE will maintain and enhance existing rapport while seeking new and innovative types of relationships with federal, state, and local agencies, volunteers, non-government organizations, cooperators and others to provide certain recreation services and opportunities to the public. Besides pursuing and maintaining partnerships, it is important to continue to identify, analyze, and evaluate authorities and policies such as fee collection and retention, and increased partnership capabilities. Areas identified for changes to meet the goals and objectives of this Strategy include authorities for fee collection and retention without budgetary offset, and policies that pertain to funding schedules for partnership projects.

Through creativity, innovation, strong partnerships, and environmentally sustainable stewardship, quality recreational opportunities will continue to be available to the public. This will be done while simultaneously protecting the water, environment, and cultural resources for current and future generations.

CHAPTER 6: SPECIAL TOPICS/ISSUES/CONSIDERATIONS

6.1 LAKE-TO-LAKE ROAD PROJECT

The Lake-to-Lake Road project is a long-term project by the City of Belton to connect Belton Lake to Stillhouse Hollow Lake with a new road. The City of Belton has been in different planning stages of this project since 2000, with USACE involvement since 2013. In coordination with the Texas Department of Transportation, it was determined that federal guidelines must be followed, and the City of Belton will need to request a Feasibility Study with an expanded scope. An Environmental Assessment (EA) will likely be needed (a draft EA was initiated but not finalized in 2007) as well as a Belton Lake Master Plan supplement. The city has received the rights-of-way on all portions of this road except via USACE property, so finalizing this last section has been critical for the City of Belton.

6.2 MANAGEMENT OF PUBLIC HUNTING

State Hunting (Goodnight) Law at Stillhouse: Local hunters have voiced opinions to have Stillhouse Hollow Lake wildlife lands open for a full range of public hunting to include deer hunting. As stated in TPWD's Outdoor , which lists of all rules governing hunting in the state of Texas : " It is unlawful to hunt on water of Stillhouse Hollow reservoir or land adjacent to the reservoir owned by the federal government in Bell County, except for game birds hunted with a shotgun. A hunter must be 600 feet from the nearest private property line."

6.3 WATER SUPPLY CONCERNS

While not a component of the master plan, the public is concerned about water supply issues involving Stillhouse Hollow Lake. Texas, as the fastest growing state in the nation, has an increased demand for municipal water. The Brazos River Authority (BRA) is authorized by the State of Texas to directly manage the water supply component of Stillhouse Hollow Lake, or contract water to the local or downstream municipalities. To meet future needs, the BRA has developed several systems to move the water to the customers, some of which have raised a few concerns with the public at large. The following are some of the projects.

1) Belhouse Project: The BRA is in the planning phases of creating a new pipeline that will transfer water from Belton Lake to Stillhouse Hollow Lake for water right holders in Williamson County. The pipeline intake will be located at the existing Bell County Water Control Improvement District (WCID) #1 facility. Expected completion date is 2040.

2) BRA Intake: The BRA has an intake structure south of the uncontrolled spillway. This intake connects a 54" raw waterline from Stillhouse Hollow Lake to Georgetown Lake that is capable of providing 43 million gallons/day (49K Acre Feet/Year).

3) Kempner Water Supply Corporation (KWSC) Intake: The KWSC owns and operates an intake just south of Union Grove Park. KWSC primary supplies the City of Kempner and rural customers located in Burnet, Bell and Coryell Counties. **4)**

Killeen Intake: The BRA has authorized and a new water intake is currently being installed on Stillhouse Hollow Lake to provide water to the growing Killeen, Copperas Cove, Harker Heights and Nolanville area. It will be managed by Bell County Water Improvement District #1 and parallels the Killeen intake. Expected completion date is 2021.

4) Central Texas Water Supply Corporation (CTWSC): The CTWSC owns and operates a floating intake just north of the Cedar Gap Park boat ramp. The CTWSC supplies wholesale water to the cities of Salado, Rosebud, Lott, Belton, Rogers, Lampasas, Holland, Buckholts, and the following water supply corporations, Salem-Elm Ridge, Westphalia, Dog Ridge, Little Elm, Mooreville, Bell-Milam-Falls, Bell County WCID#5, East Bell, and Armstrong.

6.4 FORT HOOD IMPACT ON LAKE RESOURCES

Minutes from Stillhouse Hollow Lake, Fort Hood is the largest active duty armed post in the world. Fort Hood is a sprawling 340 square (214,968 acres) miles and has capability of stationing and training two armored divisions. It houses nearly 50,000 soldiers and 9,000 civilian employees who could all potentially utilize the lake.

USACE offers free entry to all day use areas for active duty soldiers, where at Belton Lake Outdoor Recreation Facility (BLORA) an Army MWR (Morale, Welfare and Recreation) facility near Fort Hood, TX charges fees to all soldiers.

Because of the close proximity of young adult soldiers and their families, Stillhouse Hollow Lake visitation is approximately 70-80 percent soldiers, with the heaviest concentrations in the day use parks.

6.5 GOLDEN-CHEEKED WARBLER

USACE is responsible for participating in the recovery actions for federally endangered and threatened species occurring on USACE-managed lands. Golden-cheeked warblers (GCWA) (*setophaga chrysoparia*) are federally endangered migratory songbirds that breed exclusively in the juniper-oak (*Juniperus ashei-Quercus spp.*) woodlands of central Texas. Campbell (2003) described vegetation associations where GCWA are expected to occur as woodlands with mature Ashe juniper in a natural mix with oaks (*quercus spp.*), elms (*ulmus spp.*), and other hardwoods, in relatively moist areas such as steep canyons, slopes, and adjacent uplands.

Some of the properties managed by the USACE around Stillhouse Hollow Lake fit Campbell's description. Multiple USACE areas have been determined to contain golden-cheeked warblers. The main areas include Chalk Ridge Falls Environmental Learning Center, Bluff Park, and Stillhouse Hollow Park.



Photo 6.1 Golden-cheeked Warbler. (Courtesy, USFWS)

A golden-cheeked warbler survey was conducted in selected areas during the 2013 breeding season and a minimum of five males were spotted in the Chalk Ridge Falls recreational area. This area is located on FM 1670 just below Stillhouse Hollow Lake Dam and contains approximately 60 hectares (ha) of warbler habitat. At Bluff Park recreational area only one male was observed. This area is located 1.5 miles south of Chalk Ridge Falls Park on FM 1670 and contains approximately 80 ha of warbler habitat. At the Stillhouse Park recreational area, a minimum of five males were spotted. This area is located two miles south of U.S. 190 (I14) on Simmonds Road and contains approximately 80 ha of warbler habitat.

6.6 INVASIVE SPECIES

The extent of invasive species currently documented as present at Stillhouse Hollow Lake lands and waters is presented in Table 2.15. While efforts are made to prevent and eradicate invasive species from the lands and waters at Stillhouse Hollow Lake, special attention is given to particularly destructive species, including the zebra mussel (*Dreissena polymorpha*), which were positively identified at the lake on July 25, 2016. Population levels of zebra mussels at several Texas lakes have quickly risen and are impacting raw water intakes for water supply and associated pipelines. At present these impacts are mainly in the form of increased maintenance costs due to mussel

removal. The zebra mussel is roughly the size of a fingernail but can reach up to 2 inches long and is characterized by an alternating light and dark striped pattern resembling zebra stripes on two connected hard shells. Precautions are being taken as educational and warning signs are posted at the lake and affiliated websites. Currently, USACE is working with TPWD to help educate the lake users about the species at Stillhouse Hollow Lake, including creating a series of informational YouTube videos for boaters, hunters, and anglers. Management plans are being formulated to address zebra mussels at Stillhouse Hollow Lake.



Photo 6.2 Concrete Drinking Fountain Inundated for 45 days. (USACE Photo)

Feral hogs are a destructive hazard on both USACE managed public lands and lands adjacent to the project. The public has voiced concerns about major damage to their properties and the inability to hunt on USACE lands to help control the growing population of hogs. There has not been major damage to USACE lands at this time. USACE and TPWD have discussed control measures for those populations by use of special hunts and cooperative control efforts and will continue to cooperate with agencies to devise means for controlling the feral hog presence at Stillhouse Hollow Lake.

Terrestrial invasive plant species with major prevalence at Stillhouse Hollow Lake include the Chinese tallow tree (*Triadica sebifera*), Chinaberry tree (*Melia azedarach*), and willow baccharis (*Baccharis salicina*).

The Chinese tallow tree is a deciduous species with a 12 to 18 inch crooked trunk and a height of 50 feet at maturity. The USDA first introduced it to the Gulf coast in the 1900's to develop a soap-making industry from the seeds. Eradication of the tree is difficult due to its fast growth and ability to adapt to all soils. The species causes large-scale ecosystem modification by replacing native vegetation thereby reducing native species diversity that, in turn, has a negative effect on wildlife. Additionally, the plant is toxic to humans and cattle and can cause dermatitis on contact.

The Chinaberry tree is a very drought tolerant tree native to Asia that grows extremely fast (5-10 feet each year) and has very few diseases allowing it to out-compete native species. While it has brilliant yellow fall foliage and lavender spring flowers, the berries, bark, leaves and flowers produced by the tree are all toxic to livestock, humans and pets. The plant was originally introduced for its ability to thrive in poor conditions, and its berries were used to make soap, and extracts from the tree have been used as natural pesticides. Seeds are spread by birds, and the plant spreads by root sprouts, thus forming a dense thicket.

Willow baccharis is a weedy, noxious, perennial shrub that grows between three to nine feet. The plant prefers wet sites along rivers, streams and lakes but has begun spreading into the upland sites, tolerating saline soils. Originally used to control erosion, it is a prolific seed producer, reproducing by seed and rhizomes, rapidly spreading and invading mesic sites. While native, it is toxic and aggressively invades in disturbed areas. It can be controlled with some herbicides.

6.7 RECREATIONAL BOATING STUDY

In 2002, the Fort Worth District adopted a policy governing water-related recreation development that has the potential to affect the degree of boating traffic on the water surface of all Fort Worth District lakes. In brief terms, the policy established a target capacity of 22 surface acres of boatable water surface for each vessel on the water during peak use periods. Using the number of boat ramp parking spaces, wet storage slips and dry stacked storage slips as a basis for calculating potential boating activity, USACE can determine whether any proposed additions of parking spaces or storage slips has the potential to exceed the target capacity. USACE has determined that the number of existing parking spaces and slips at Stillhouse Hollow Lake as of the date of this Plan has the potential to exceed the target capacity and may have already done so. In view of this potential, USACE would require a comprehensive water-related recreation use study prior to deciding to approve or deny a proposal for additional slips or boat ramp parking spaces at Stillhouse Hollow Lake. The policy allows limited flexibility in decision-making. Adequate funding to conduct a Recreational Boating Study at the same time as the Master Plan revision was not available.

6.8 DANA PEAK PARK RECREATIONAL LEASE

The City of Harker Heights is considering leasing Dana Peak Park on Stillhouse Hollow Lake. USACE is working with the city to facilitate this action and requested a long-term recreational lease.

6.9 SHORELINE MANAGEMENT STATEMENT OF POLICY

On December 13, 1974 the USACE published regulation ER 1130-2-406 in the Federal Register entitled “Civil Works Projects: Lakeshore Management.” This regulation was published as Part 327.30 of Chapter III, Title 36 of the Code of Federal Regulations. A subsequent change to the regulation was published in the Federal Register on October 31, 1990, incorporating the results of recent legislation and changing the name to “Shoreline Management at Civil Works Projects.” The focus of this regulation is to establish national policy, guidelines, and administrative procedures for management of certain private uses of federal lands administered by USACE. A key requirement in the regulation is that private shoreline uses, as defined in the regulation, are not allowed at lakes where no such private uses existed as of December 13, 1974. At Stillhouse Hollow Lake, no such private uses existed as of that date and therefore private shoreline uses are not allowed.

The private uses described in the regulation primarily include privately-owned floating facilities such as floating boat docks, fixed or movable piers, and vegetation modification activities such as plantings, mowing, and selective removal of shrubs and trees to the extent that exclusive benefits accrue to an individual or group and the general public is denied use of public lands or waters. Not included in the above definition are certain limited private activities that do not provide exclusive benefits to an individual or group, nor preclude general public use. These limited private activities may be allowed by written shoreline use permit for reasons of public safety, erosion control, benefits to wildlife, or to provide reasonable pedestrian access to the shoreline. A key requirement of the regulation is stated as follows: “Except to honor written commitments made prior to publication of this regulation, private shoreline uses are not allowed on water resources projects where construction was initiated after December 13, 1974, or on water resources projects where no private shoreline uses existed as of that date.” The regulation requires USACE to prepare a Shoreline Management Plan for those projects where private uses existed as of December 13, 1974, and a Shoreline Management Policy Statement (SMPS) for all other projects. In response to this requirement a SMPS was prepared for Stillhouse Hollow Lake.

In FY 2012, an administrative update to the Stillhouse Hollow Lake Shoreline Management Statement of Policy was prepared to incorporate current terminology and to ensure compliance and compatibility with the most current versions of ER 1130-2-406 and ER 1130-2-540, as well as Fort Worth District policy decisions related to shoreline management. One of the primary reasons for the administrative update was to incorporate language that supports the USACE natural resources mission statement to “manage and conserve natural resources consistent with ecosystem management principles” as set forth in ER 1130-2-540.

The purpose of the SMPS is to set forth the policy and procedures by which USACE manages certain private uses of public lands at Stillhouse Hollow Lake. Private uses that accrue exclusive benefits to an individual are not allowed at Stillhouse Hollow Lake. The non-exclusive private uses that may be authorized by written permit from

USACE include mowing and removal of underbrush to the extent needed for protection from wildfire and limited clearing to provide a pedestrian access path from private property to the shoreline. These non-exclusive uses may not be authorized in all areas and are subject to restrictions set forth in the SMPS. To further inquire about the SMPS at Stillhouse Hollow Lake, please contact the lake office.

6.10 UTILITY CORRIDORS

USACE policy encourages the establishment of designated corridors on project lands, where feasible, to serve as the preferred location for future outgrants such as easements for roads or utility lines. After obtaining public input and examining the location of existing roads and utility lines on project lands, USACE determined that utility corridors would be designated at Stillhouse Hollow Lake. USACE policy EP 1130-2-550, Chapter 17 states that project lands will generally be available only for roads that are considered regional arteries or freeways. Changes to existing roadways, such as those described in regional and county mobility plans that call for widening of some existing roadways across USACE lands, will be addressed on a case-by-case basis.

The following two utility corridors have been designated across USACE land at Stillhouse Hollow Lake with each corridor incorporating and/or running parallel to an existing easement. These corridors are shown on the maps provided in Appendix A. Future use of these corridors, where the corridor is limited to an existing easement, would in most cases require prior approval of those entities that have legal rights to the easement. Some existing easements at Stillhouse Hollow Lake are designated as *restricted* and may be used for placement of additional utilities by the grantee holding the easement, but only for purposes which directly serve the grantee or are of direct benefit to the Government. Expansion or widening of these restricted existing corridor easements will generally not be permitted.

- Corridor 1 (FM 3481 Bridge). This corridor includes the existing Bell County easement right-of-way for FM 3481 as it crosses the main body of Stillhouse Hollow Lake and travels approximately 6,100 feet through government property. The corridor crosses USACE Tracts 312-2, 314, 403 and 404.
- Corridor 2 - LIMITED (Gravel Crossing area): This corridor is available for future use but must be under special considerations, because a portion of this area has been deemed as an Environmental Sensitive Area (ESA). This designation may not prohibit future use, but it will have additional requirements (e.g. limits, boring to bed rock, mitigation, surveys or other criteria) depending on the proposed purpose. All future considerations will be evaluated on a case-by-case basis.

Multiple utility lines are in existence in this general corridor area. The Kempner Water Supply Corporation's raw water line begins near Gravel Crossing at USACE monument (5-20) in USACE Tract 502 and crosses the Lampasas River at a 90-degree intersection and continues across USACE property approximately 4,100 feet in a western straight direction through USACE Tract 504. The Bell County WCID #1 raw water line for the City of Killeen begins at the Gravel

Crossing area near USACE monument (5-20) in USACE Tract 502 and travels approximately 2,100 feet paralleling Kemper's line until it crosses the Brazos Electric easement (above ground electric transmission). At this point, the WCID water line turns approximately 90 degrees then runs north under the Brazos Electric corridor for approximately 3,900 feet until it exits near USACE monument (5-89) in Tract 504.

In summary, the following best management practices shall be applied in the future use of the corridors.

- Use existing easements before using additional space.
- Efficient use of the designated corridor space to allow the maximum number of utilities possible to occupy the space. Reduced cost is not a reason to occupy more space. A typical drawing depicting how utility lines can be placed efficiently within a corridor is provided in Appendix A following the map of corridor locations.
- In accordance with USACE policy Chapter 17 of EP 1130-2-550, Non-Recreation Outgrant Policy, USACE will prohibit placement of utility lines on USACE land unless there is no reasonable alternative route.
- Underground utilities shall be installed by boring at all creek crossings, and where feasible, across the full extent of designated corridors. Bore pits shall be a minimum of 100 feet from the centerline of creeks and, depending on site conditions, may need to be placed farther than 100 feet.
- Overhead electric and communication lines must meet minimum sag height requirements to be specified by USACE.
- Natural resources damaged or destroyed within corridors shall be mitigated per USACE requirements.
- Current and future identified cultural resources will be protected.

CHAPTER 7: PUBLIC AND AGENCY COORDINATION

7.1 PUBLIC AND AGENCY COORDINATION OVERVIEW

The USACE is dedicated to serving the public interests in support of the overall development of land uses related to land management for cultural, natural, and recreational resources of Stillhouse Hollow Lake. An integral part of this effort is gathering public comment and engaging stakeholders in the process of planning. USACE policy guidance in ER and EP 1130-2-550 requires thorough public involvement and agency coordination throughout the Master Plan revision process including any associated NEPA process. Public involvement is especially important at Stillhouse Hollow Lake to ensure that future management actions are both environmentally sustainable and responsive to public outdoor recreation needs in a region that is experiencing rapid population growth. The following milestones provide a brief look at the overall process of revising the Stillhouse Hollow Lake Master Plan.

USACE began planning to revise the Stillhouse Hollow Lake Master Plan in September 2019. The objectives for the Master Plan revision were to (1) update land classifications to reflect changes in USACE land management policies since 1975 and (2) update the Master Plan to reflect new agency requirements for Master Plan documents in accordance with ER 1130-2-550, Change 7, January 30, 2013 and EP 1130-2-550, Change 5, January 30, 2013.

7.2 INITIAL STAKEHOLDER AND PUBLIC MEETINGS

The first action was a scheduled public scoping meeting providing an avenue for public and agency stakeholders to ask questions and provide comments. The public scoping meeting was held on 12 March 2020 at the Harris Community Center, 401 N. Alexander Street, Belton, Texas 76513. The Fort Worth District placed advertisements on the USACE webpage, social media and print publications two weeks prior to the public scoping meeting.

USACE employees hosted the workshop, which was conducted in an open format. Twenty members of the public attended the public meeting. Through initial media contact, the public and agencies were directed to access the information on the Fort Worth District webpage. A slideshow containing the public involvement process, project overview, overview of the NEPA process, master plan and current land classifications, and instructions for submitting comments was made available. Person's interested in submitting comments had the opportunity to comment about the master plan using a variety of methods, including the following:

- Filling out a comment form and returning it within the 30-day comment period
- Submitting a comment using electronic mail
- Submitting a comment and mailing it in on letterhead or choice of paper

USACE received 21 comments from eight (8) members of the public in the 30-day public comment period. Issues that were addressed in the comments included environmental stewardship and preservation, hunting, facilities conditions, access for fishing and boating, and hike and bike trails. Stillhouse Hollow Lake is a federally owned and managed public property, and it is USACE's goal to be a good neighbor, as well as steward for public interest as it concerns Stillhouse Hollow Lake. As such, USACE is bound to the equal enforcement of policies and fees for this publicly held national asset. Table 7.1 provides a summary list of the comments received during the initial scoping comment period for the Master Plan, followed by the USACE response.

Table 7.1 Public Comments from 12 March 2020 Public Scoping Meeting

Count	Comment Description	USACE Response
3	Would like Bluff Park put in a classification that will allow hike and bike trails due to the population growth and to relieve congestion at Dana Peak Park	Concur: USACE supports improvements and additions to recreation at Stillhouse Hollow Lake. Bluff Park and much of the area is classified in this Master Plan as an Environmentally Sensitive Area and thus protected. The area includes an easement to the Brazos River Authority for a water intake and pipeline, and there are nearby trails available. Care will be taken in any development as this area has been surveyed and has potential to serve as habitat for the federally listed endangered golden cheeked warbler. USACE must have partners/organizations to develop and maintain trails or other recreational improvements, including parking to support visitors.
5	Maintain existing facilities and make them safer and more universally accessible. Boat docks and boat ramps at Cedar Gap, Union Grove, and River's Bend parks need maintained or replaced	While this is an operational issue and not a master planning issue, USACE is committed to maintaining all recreational facilities as well as providing facilities that are universally accessible. Repairs from flood damage to facilities has proven to be expensive and time consuming. USACE is continuing to evaluate the facilities to best balance and support project operations and recreational needs within budget and personnel limitations.

Count	Comment Description	USACE Response
3	Gravel Crossing needs improvement, better parking, and better access for watercraft	While this is an operational issue and not a master planning issue, USACE recognizes the concerns surrounding this area. The gravel access point has major erosion problems. USACE has partnered with Bell County to fix the road and install pipe railing. Other recognized issues are illegal dumping and other unauthorized activities, an unauthorized boat ramp, and silting. This area is not a designated recreation area, but the launching of small boats is currently allowed. USACE will need a partner to make improvements, and in the meantime will continue to maintain this primitive access point as a natural area.
4	Allow hunting of deer and feral hogs to reduce damage to natural habitat and protect endangered species. Union Grove, Cedar Gap, and Dana Peak parks be set aside for white-tailed deer management to protect the threatened and endangered species that inhabit this area.	The topic of public hunting is not addressed in the master plan except to describe the status quo. USACE reviews the status of public hunting annually at each operational lake and makes changes dictated by changes in residential development, state law, and habitat quality or wildlife populations. Hunting on federal land at Stillhouse Hollow Lake is managed in accordance with state law, which currently limits hunting at the project to game fowl only, shotgun only, and feral hog hunting. State hunting law prohibits hunting on any USACE land that is within 600 feet from the boundary. USACE is willing to work with the state and other agencies/organizations to examine state law and make reasonable changes to allow expanded hunting at Stillhouse Hollow Lake.
2	Create signage for rules at boat ramps and enforce the rules	While this is an operational issue and not a master planning issue, USACE strives to continually improve and replace damaged and missing signage and enforce rules at the project as personnel and funding permit.
1	Create habitat to improve fishing	While this is an operational issue and not a master planning issue, USACE relies on partnerships with TPWD and other organizations to maintain and improve fish habitat such as spawning beds and artificial structures. USACE generally does not participate in fish stocking, which is a specific mission of TPWD.

Count	Comment Description	USACE Response
1	Extend hours for ramps to 24 hours or at least open before 0500	While this is an operational issue and not a master planning issue, USACE and its partners are committed to creating high quality recreational opportunities while balancing the needs of other missions, such as environmental stewardship. Note that some boat ramps at Stillhouse Hollow Lake are open 24 hours and 7 days a week.
1	Expand parking at marina	This is not an element of the master plan. The single marina at Stillhouse Hollow Lake operates under a lease agreement from USACE. The lessee is responsible for parking, maintenance and enhancements of the area.
1	Missing Appendix D Wildlife Management Plan, in current MP	Appendix D, Wildlife Management was once part of the 1975 Master Plan for Stillhouse Hollow Lake but is now addressed in the Operational Management Plan. Wildlife management is conceptually addressed in the Master Plan in Chapter 5 where potential management techniques are described for the Multiple Resource Management Lands - Wildlife Management (MRML-WM).

7.3 PUBLIC AND AGENCY REVIEW OF DRAFT MP, EA, AND FONSI

This section will be completed following the draft release virtual public input process and 30-day comment period.

CHAPTER 8: SUMMARY OF RECOMMENDATIONS

8.1 SUMMARY OVERVIEW

The preparation of the Stillhouse Hollow Lake Master Plan followed the USACE Master Planning guidance in ER 1130-2-550 and EP 1130-2-550, both dated 13 January 2013. Three major requirements set forth in the guidance include (1) preparation of contemporary Resource Objectives, (2) Classification of project lands using the newly approved classification standards, and (3) preparation of a Resource Plan describing in broad terms how the land in each of the land classifications will be managed into the foreseeable future. Additional important requirements include rigorous public involvement throughout the process, and consideration of regional recreation and natural resource management priorities identified by other federal, state, and municipal authorities. The study team endeavored to follow this guidance to prepare a Master Plan that will provide for enhanced public recreational opportunities, improve environmental quality, and foster a management philosophy conducive to existing and projected staff levels at Stillhouse Hollow Lake. Factors considered in the Plan were identified through public involvement and review of statewide planning documents including TPWD's 2018 TORP (synonymous with SCORP) and the TCAP – Cross Timbers ecoregion. This Master Plan will ensure the long-term sustainability of the USACE managed recreation program and natural resources associated with Stillhouse Hollow Lake.

8.2 LAND CLASSIFICATION PROPOSALS

A key component in preparing this Master Plan was examining prior land classifications and addressing the needed transition to the new land classification standards. During the public involvement process, USACE sought public input into whether, besides the simple change in nomenclature, a shift in land classification was desired (for example, should lands with a recreation classification be reclassified to a wildlife classification or vice versa.). Chapter 7 of the Plan describes the public input process and outcome.

Of the 21 public comments received as a result of the initial public scoping meeting, most concerned an interest in maintaining the existing facilities, hunting, Gravel Crossing improvements, and Bluff Park to be under a land classification that will allow for hike and bike trails. While these issues are not a component the master plan, consideration was given to include land classifications that would support these activities. The land classifications presented in the Plan were formulated based on these comments, first-hand experience, professional training of USACE Stillhouse Hollow Lake project staff, Operations Division staff and Regional Planning and Environmental Center (RPEC) staff assigned to the Master Plan Project Development Team (PDT), as well as proven best management practices. There were 3,473 acres reclassified or updated to the new land classification name. All changes reflect historic and projected public use and new guidance from ER 1130-2-550 and EP 1130-2-550. A summary of acreage changes from

prior land classifications to the current classifications is provided in Table 8.1, and key decision points in the reclassification of project lands are presented in Table 8.2.

Table 8.1 Change from Prior Land Classification to New Land Classification

Prior (1975) Land Classifications	Acres	2021 Land Classifications	Acres
Project Operations ¹	627	Project Operations (PO)	500
Recreation Intensive Use (Includes 236 acres Allocated as Separable Recreation Lands)	1,934	High Density Recreation (HDR) ²	982
Natural Areas	230	Environmentally Sensitive Areas (ESA) ²	625
Recreation Low Density	2,416	Multiple Resource Management – Low Density Recreation (MRML-LDR)	55
Wildlife Areas	3,726	Multiple Resource Management – Wildlife Management (MRML-WM) ²	6,178
	0	Future/Inactive Recreation ²	414
Total Fee Land 1975	8,933	Total Fee Land 2021	8,754
Prior (1975) Water Surface Classifications	Acres	2021 Water Surface Classifications	Acres
Water Surface*	6,430	Restricted	23
		Designated No-wake	75
		Open Recreation	6,375
Total Water Surface 1975			
1975 Flowage Easement	882	2021 Flowage Easement	914
1975 Shoreline Miles	58	2021 Shoreline Miles ³	71.8

Conservation Pool 622.0 NGVD29

*Acreage differences from the 1975 total to the 2021 totals are due to improvements in measurement technology, siltation and erosion.

¹ Includes 26 acres of Project Operations by Other

² These classifications include a portion of the Separable Recreation Lands as follows: HDR, 65 acres; WMA, 13 acres; ESA, 93 acres; and Future Recreation, 65 acres.

³ 1975 Master Plan did not include a good portion of the Lampasas River on USACE lands.

Table 8.2 Reclassification Proposals

Proposal	Description	Justification
Project Operations (PO)	<p>Lands classified as PO were reduced from 623 acres to 500 acres as a result of the following reclassifications:</p> <ul style="list-style-type: none"> • ESA: -189 acres • HDR: +31 acres • LDR: +50 acres • Disposed: -15 acres 	The Project Operations land classification was expanded to take in the spillway, staging area, and operations by other entities associated with the water supply mission. The conversion of these lands will have no effect on current or projected public use.
High Density Recreation (HDR)	<p>Lands classified as HDR were reduced from 1,934 acres to 982 acres as a result of the following reclassifications:</p> <ul style="list-style-type: none"> • PO: -31 acres • ESA: -252 acres • LDR: -29 acres • WM: -237 acres • FIR: -398 acres • Disposed: -1 acres • GIS Correction: -4 acres 	Decreases in prior Recreation Intensive Use lands were the result of evaluating historic land uses in these areas and reclassifying acres to more appropriately reflect current needs and uses, especially ESA's to protect golden cheeked warbler habitat. The conversion of these lands will have no effect on current or projected public use.
Environmentally Sensitive Areas (ESA)	<p>The classification of 625 acres as ESA resulted from reclassifying acres in the prior classifications of Operations:</p> <ul style="list-style-type: none"> • PO: +189 acres • HRD: +252 acres • LDR: +49 acres • WM: +135 acres 	These classification changes were necessary to recognize those areas at Stillhouse Hollow Lake having the highest ecological value, including areas of high value for protection of important habitat for the endangered GCWA as designated by the USFWS, and to protect unique views and cultural and archeological sites. The conversion of lands will have little to no effect on current or projected public use. Lands classified as ESA are given the highest order of protection among possible land classifications.

MRML – Low Density Recreation (LDR)	<p>Lands classified as LDR were reduced from 2,416 acres to 55 acres as a result of the following reclassifications:</p> <ul style="list-style-type: none"> • PO: -50 acres • ESA: -49 acres • WM: -2,015 acres • FIR: -16 acres • Disposed: -80 acres • LDR: +29 • GIS Change: -180 	<p>The land in the former classification of Operations: Recreation Low Density were converted to other land uses due to the areas having historic land use patterns supporting the change. The conversion of these lands will have no effect on current or projected public use.</p>
MRML – Wildlife Management (WM)	<p>Lands classified as WM were increased from 3,726 acres to 6,178 acres as a result of the following reclassifications:</p> <ul style="list-style-type: none"> • PO: +237 acres • ESA: -135 acres • LDR: +2,015 acres • Formally Natural Areas: +230 acres • Property not calculated in the 1975 plan: +30 acres • GIS Change: +75 	<p>Lands were converted from previous land classifications of Project Operations, Operation: Low Density Recreation, and Natural Areas to Wildlife Management to more appropriately align with historic and current land use patterns. Additionally, some lands were converted to ESA to protect important cultural and habitat areas. The conversion of these lands will have no effect on current or projected public use.</p>
MRML – Future or Inactive Recreation (FIR)	<p>The classification of 414 acres as FUT resulted from reclassifying acres in the prior classifications of Operations:</p> <ul style="list-style-type: none"> • HDR: 398 acres • LDR: 16 acres 	<p>These classification changes were necessary to recognize areas at Stillhouse Hollow Lake having potential for future recreation.</p>
Water Surface	<p>The classification of 6,473 acres of water surface of the lake at the conservation pool elevation is as follows:</p> <ul style="list-style-type: none"> • 23 acres of Restricted water surface include the water surface in front of Stillhouse Hollow Dam, water intakes, 	<p>The previous Master Plan for Stillhouse Hollow Lake did not specify different classifications on the water surface, though these classifications were recognized in practice. This Master Plan revision recognizes and specifies</p>

	<p>and designated swimming areas in the parks around Stillhouse Hollow Lake. Buoys mark the line in front of the dam. Keep-out buoys and floating barrier pipes mark the designated swimming areas in each park.</p> <ul style="list-style-type: none"> • 75 acres of Designated No-Wake areas are in place near the boat ramps at Stillhouse Hollow Lake. • There are 6,375 acres of Open Recreation water surface at Stillhouse Hollow Lake. 	<p>these uses. The classification of water surfaces will have no effect on current or projected public use</p>
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Note: The land classification changes described in this table are the result of changes to parcels of land ranging from a few acres to over 100 hundred acres. Acreages were measured using GIS technology. The acreage numbers provided are approximate.

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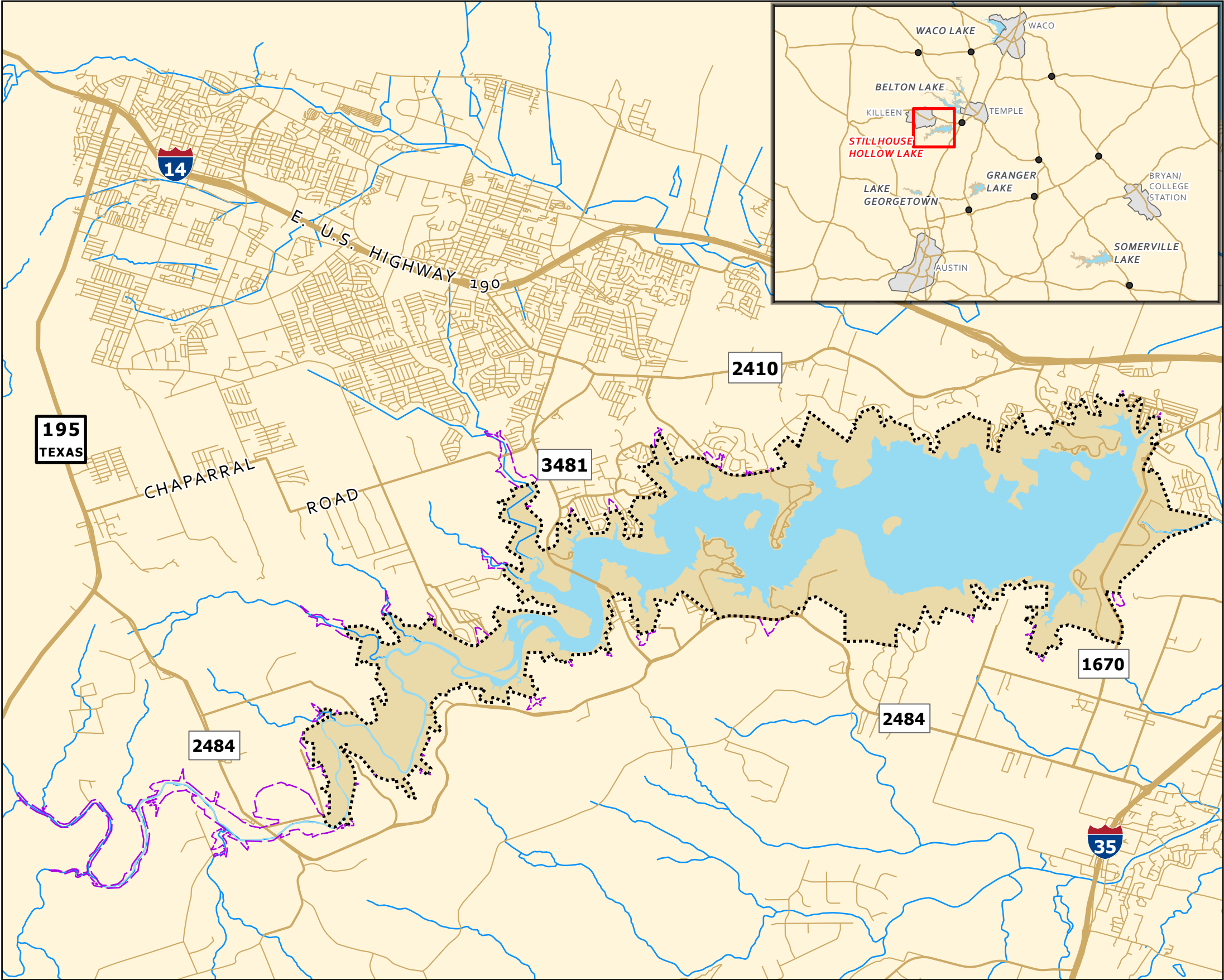
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APPENDIX A - LAND CLASSIFICATION, MANAGING AGENCIES, AND RECREATION MAPS

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LEGEND

- FEE PROPERTY
- FLOWAGE EASEMENT
- FEE PROPERTY AREA

- WATER SURFACE AREA
- TRIBUTARIES



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GENERAL

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SH20MP-01-00	PROJECT LOCATION & INDEX
SH20MP-01-01	AGENCY LAND MANAGEMENT
SH20MP-01-02	UTILITY CORRIDOR

LAND CLASSIFICATION

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SH20MP-0C-01	LAND AND WATER CLASSIFICATION (SHEET 1)
SH20MP-0C-02	LAND AND WATER CLASSIFICATION (SHEET 2)
SH20MP-0C-03	LAND AND WATER CLASSIFICATION (SHEET 3)
SH20MP-0C-04	LAND AND WATER CLASSIFICATION (SHEET 4)
SH20MP-0C-05	LAND AND WATER CLASSIFICATION (SHEET 5)
SH20MP-0C-06	LAND AND WATER CLASSIFICATION (SHEET 6)
SH20MP-0C-07	LAND AND WATER CLASSIFICATION (SHEET 7)
SH20MP-0C-08	LAND AND WATER CLASSIFICATION (SHEET 8)

RECREATIONAL AREAS

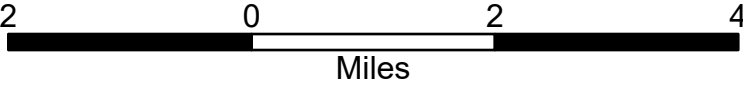
MAP NO.	TITLE
SH20MP-0R-0A	RECREATIONAL DEVELOPMENT MAP
SH20MP-0R-0B	TRAILS MAP
SH20MP-0R-01	STILLHOUSE PARK PLATE
SH20MP-0R-02	UNION GROVE PARK PLATE
SH20MP-0R-03	RIVERSBEND PARK PLATE
SH20MP-0R-04	CEDAR GAP PARK PLATE
SH20MP-0R-05	DANA PEAK PARK PLATE



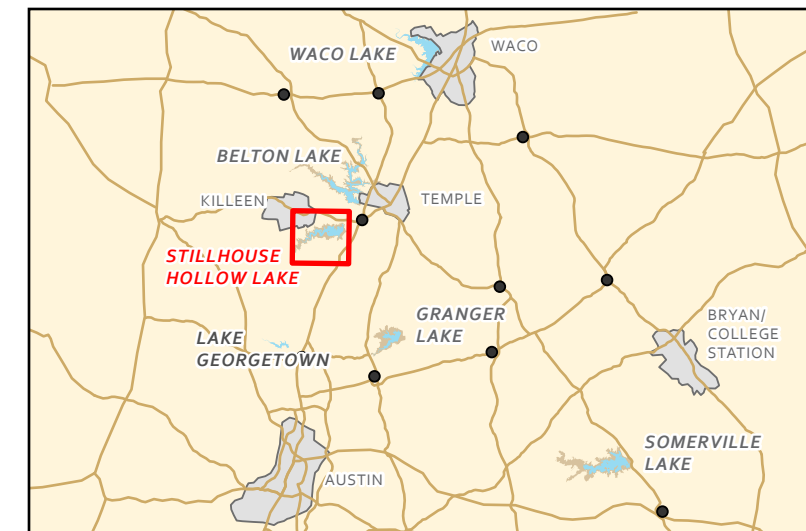
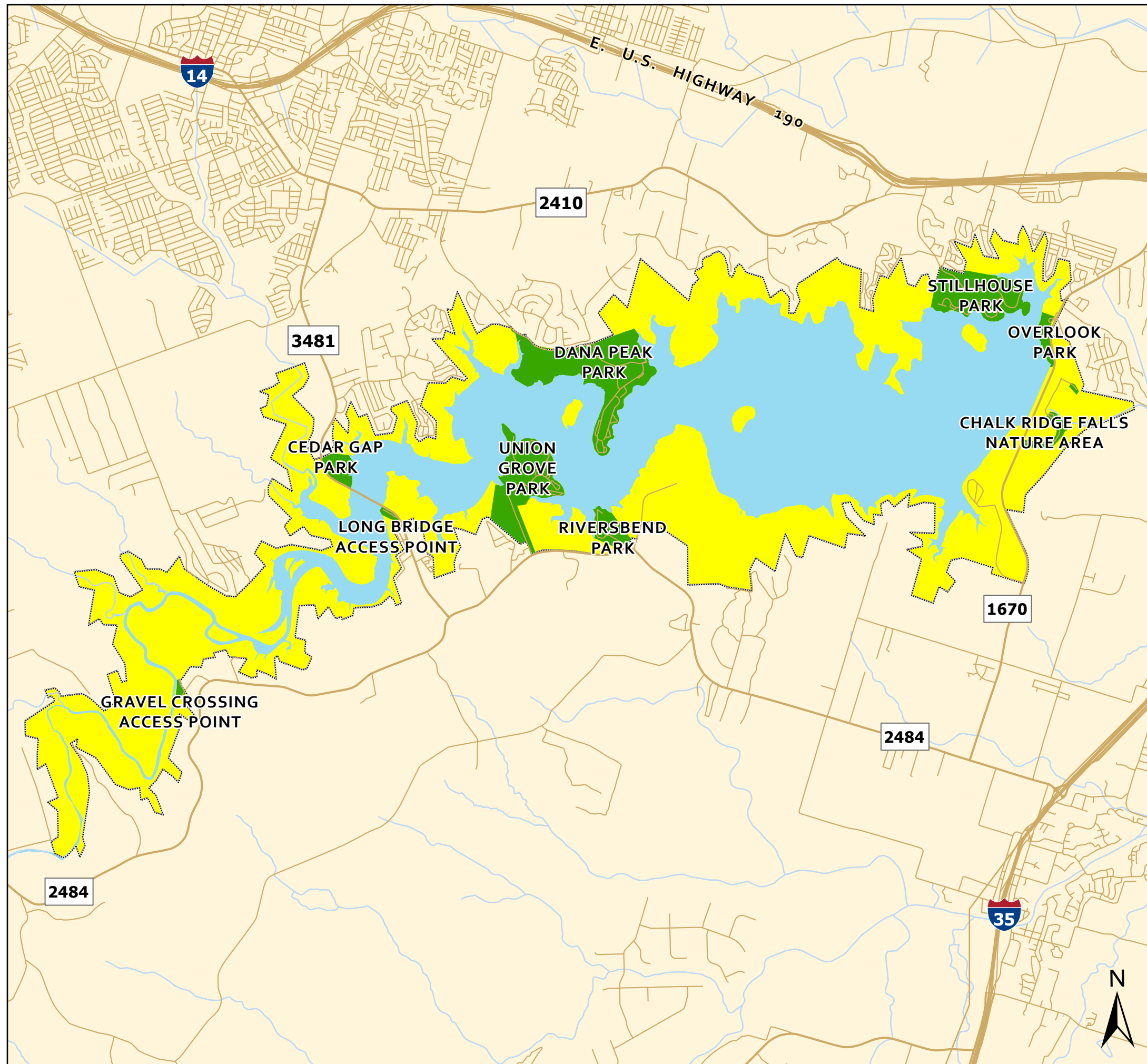
**US Army Corps
of Engineers**
Fort Worth District

STILLHOUSE HOLLOW LAKE BELTON, TEXAS

STILLHOUSE HOLLOW LAKE
STILLHOUSE HOLLOW LAKE MASTER PLAN
PROJECT LOCATION AND INDEX



DATE: JULY 2020	MAP NO. SH20MP-01-00
------------------------	-----------------------------



- FEE PROPERTY
- WATER SURFACE AREA
- TRIBUTARIES
- USACE RECREATIONAL AREAS
- MANAGING AGENCY**
- U.S. ARMY CORPS OF ENGINEERS

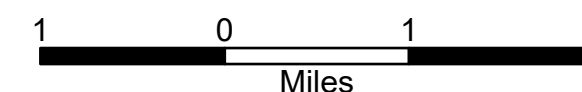


**US Army Corps
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Fort Worth District

STILLHOUSE HOLLOW LAKE

BELTON, TEXAS

STILLHOUSE HOLLOW LAKE
STILLHOUSE HOLLOW LAKE MASTER PLAN
AGENCY LAND MANAGEMENT MAP

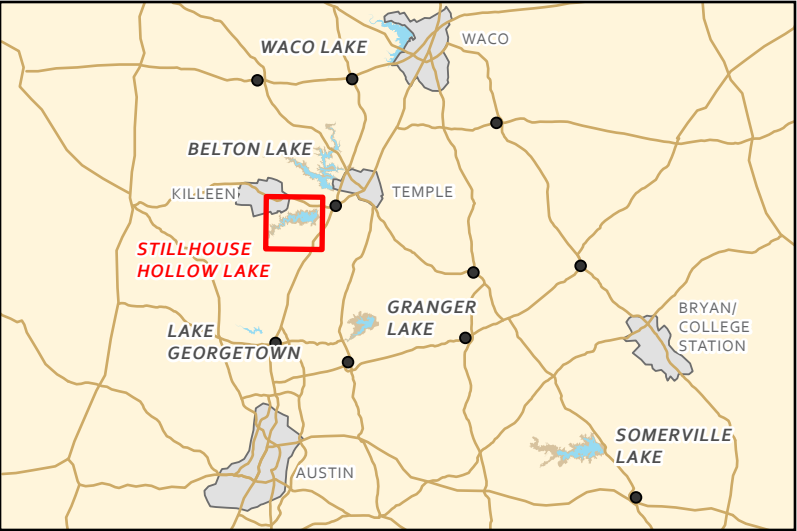
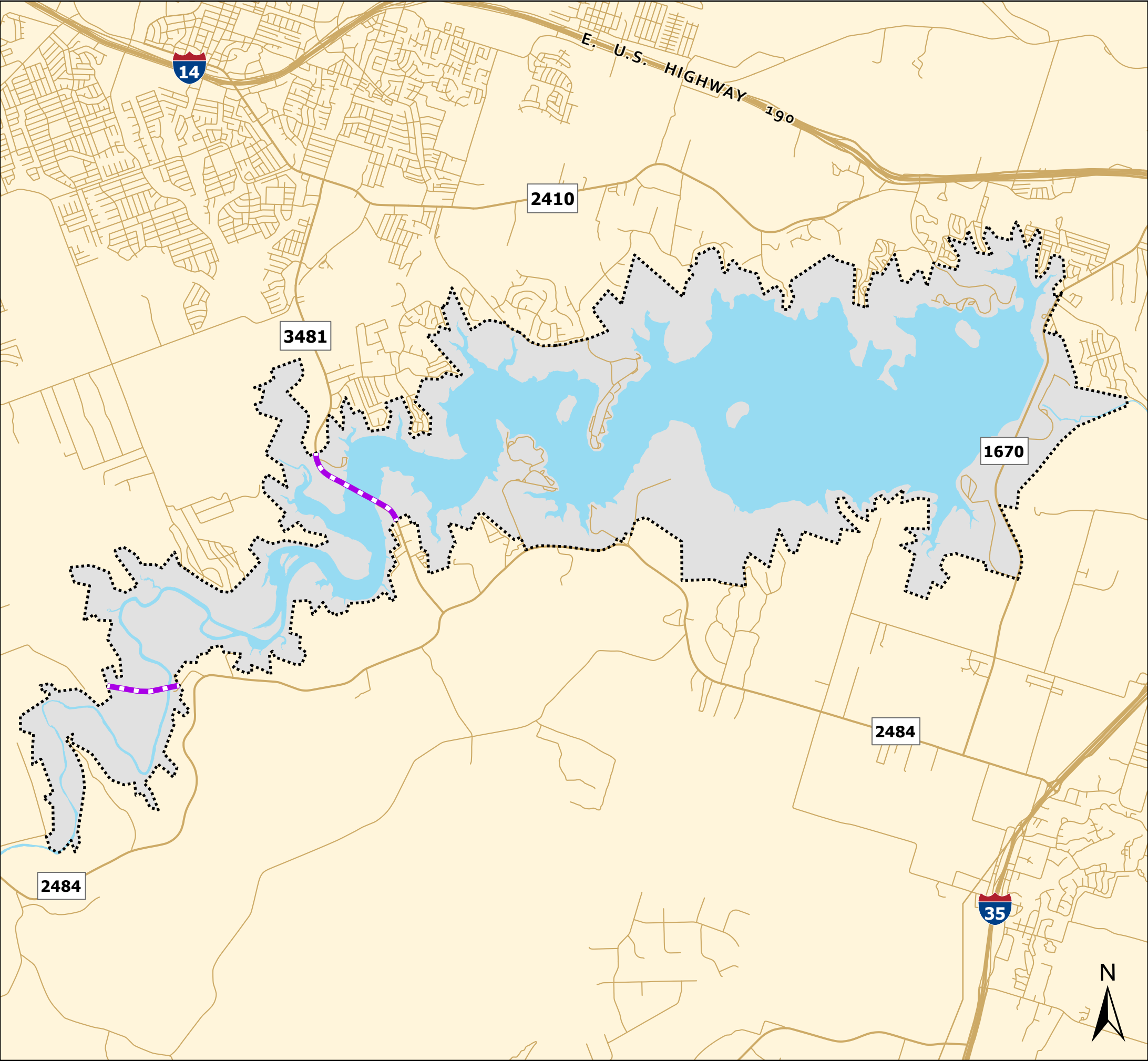


DATE:


JUNE 2020

MAP NO.

SH20MP-01-01



- LEGEND
- UTILITY CORRIDOR
 - ROADWAY
 - FEE PROPERTY
 - FEE PROPERTY AREA
 - WATER SURFACE AREA



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Fort Worth District

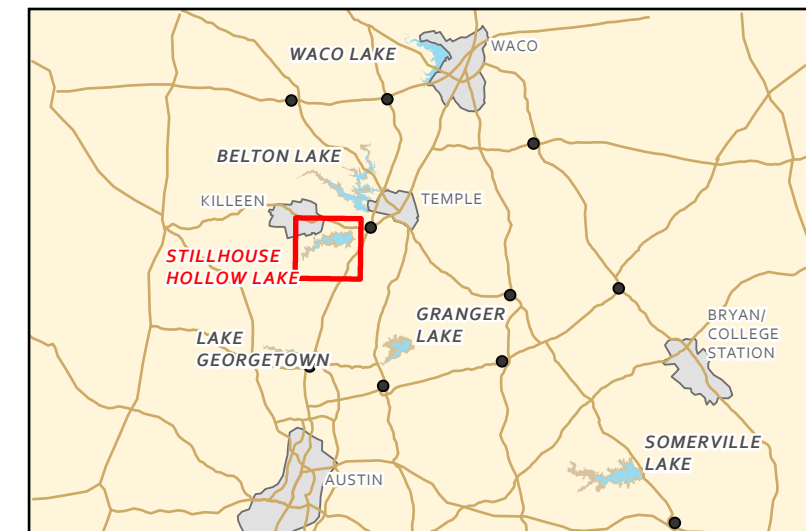
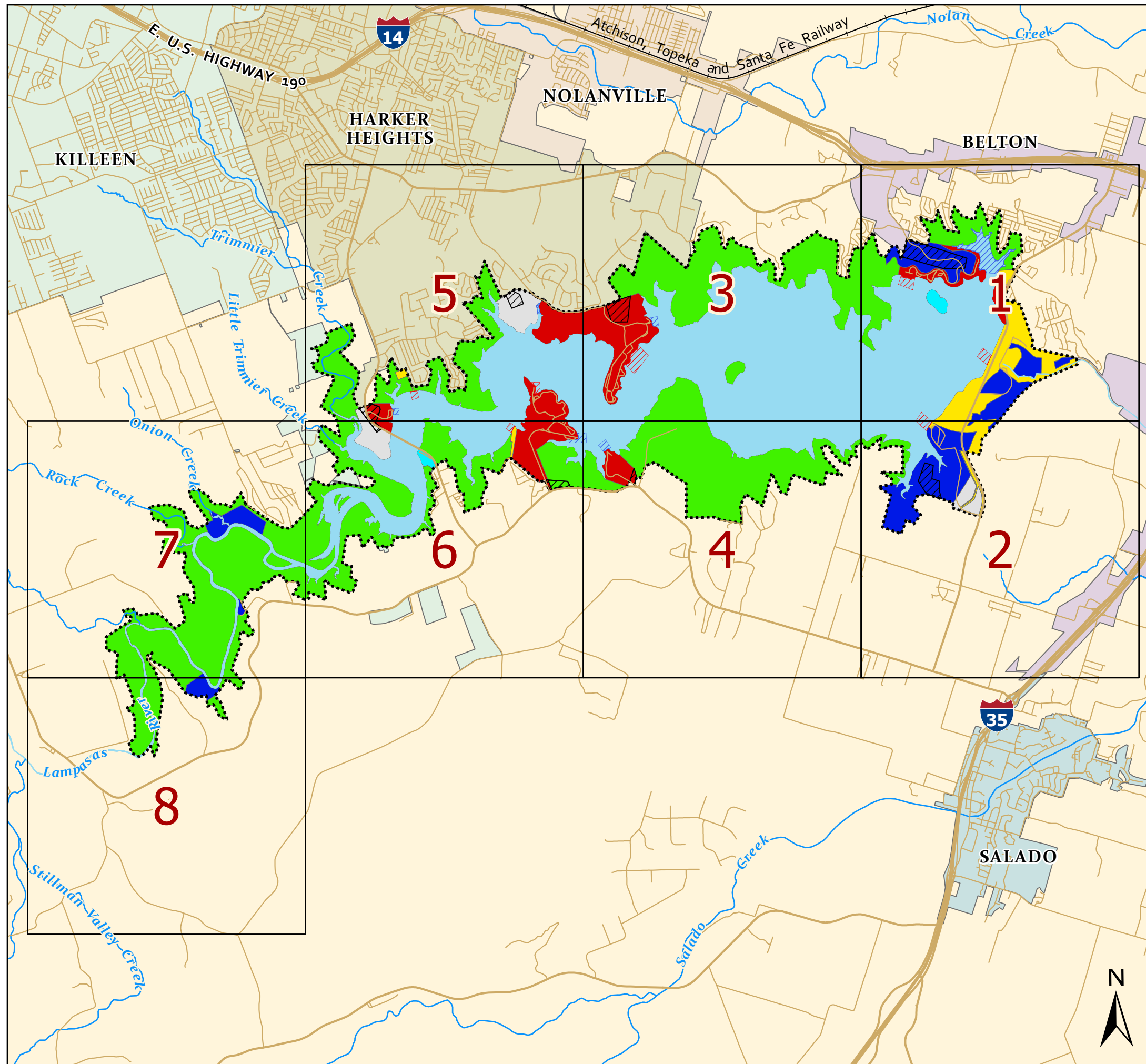
STILLHOUSE HOLLOW LAKE

STILLHOUSE HOLLOW LAKE MASTER PLAN

UTILITY CORRIDOR MAP

1 0 1 2
Miles

DATE: JUNE 2020	MAP NO. SH20MP-01-02
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- FEE PROPERTY
- WATER CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO-WAKE
 - OPEN RECREATION
- LAND ALLOCATION**
- SEPERABLE RECREATION LANDS
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - LOW DENSITY RECREATION
 - FUTURE RECREATION AREA
 - WILDLIFE MANAGEMENT AREA
 - ENVIRONMENTALLY SENSITIVE AREA



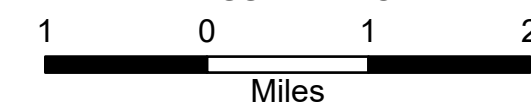
**US Army Corps
of Engineers**
Fort Worth District

STILLHOUSE HOLLOW LAKE BELTON, TEXAS

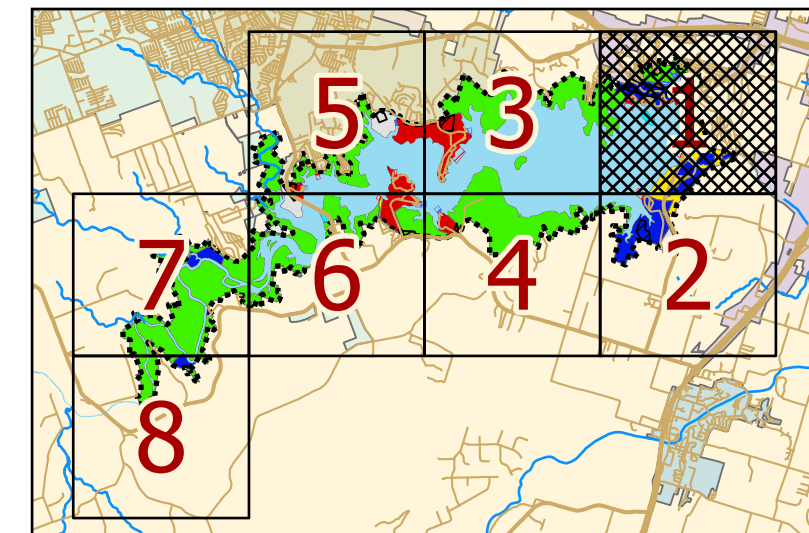
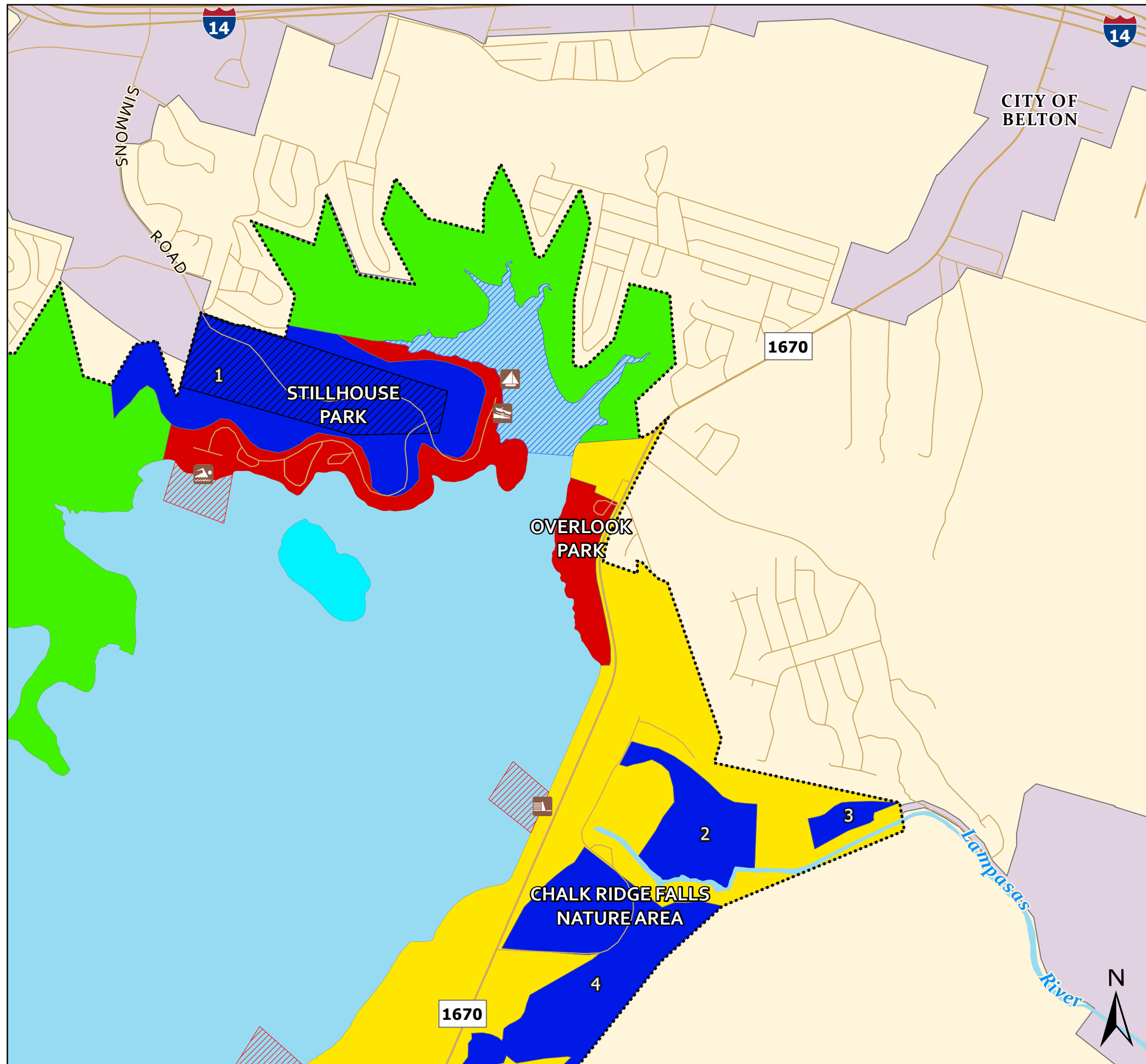
STILLHOUSE HOLLOW LAKE

STILLHOUSE HOLLOW LAKE MASTER PLAN

LAND CLASSIFICATION INDEX



DATE:	MAP NO.
MAY 2020	SH20MP-0C-00



- | | |
|----------------------------|--------------------------------|
| FEE PROPERTY | LAND CLASSIFICATION |
| BOAT RAMP | PROJECT OPERATIONS |
| SWIMBEACH | HIGH DENSITY RECREATION |
| FISHING POINT | LOW DENSITY RECREATION |
| MARINA | FUTURE RECREATION AREA |
| FLOOD CONTROL STRUCTURE | WILDLIFE MANAGEMENT AREA |
| WATER INTAKE | ENVIRONMENTALLY SENSITIVE AREA |
| LAND ALLOCATION | WATER CLASSIFICATION |
| SEPERABLE RECREATION LANDS | RESTRICTED |
| | DESIGNATED NO-WAKE |
| | OPEN RECREATION |



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STILLHOUSE HOLLOW LAKE BELTON, TEXAS

STILLHOUSE HOLLOW LAKE
STILLHOUSE HOLLOW LAKE MASTER PLAN

LAND CLASSIFICATION (SHEET 1)

0.25 0 0.25 0.5

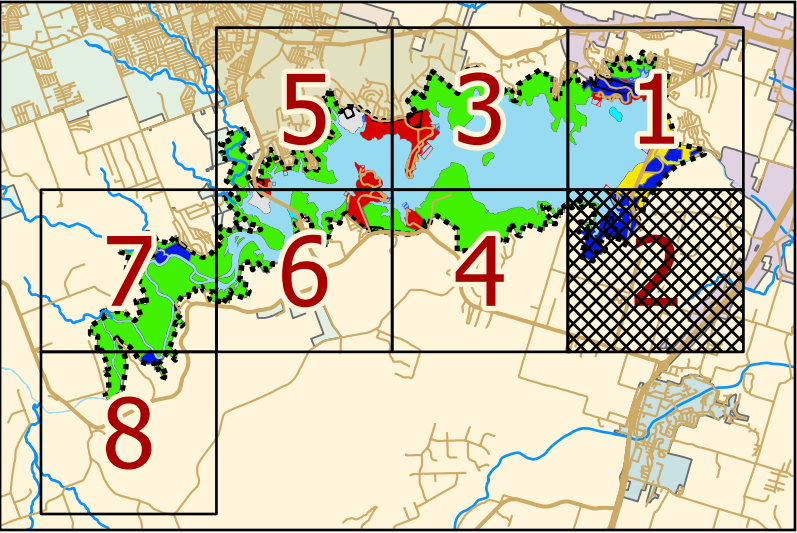
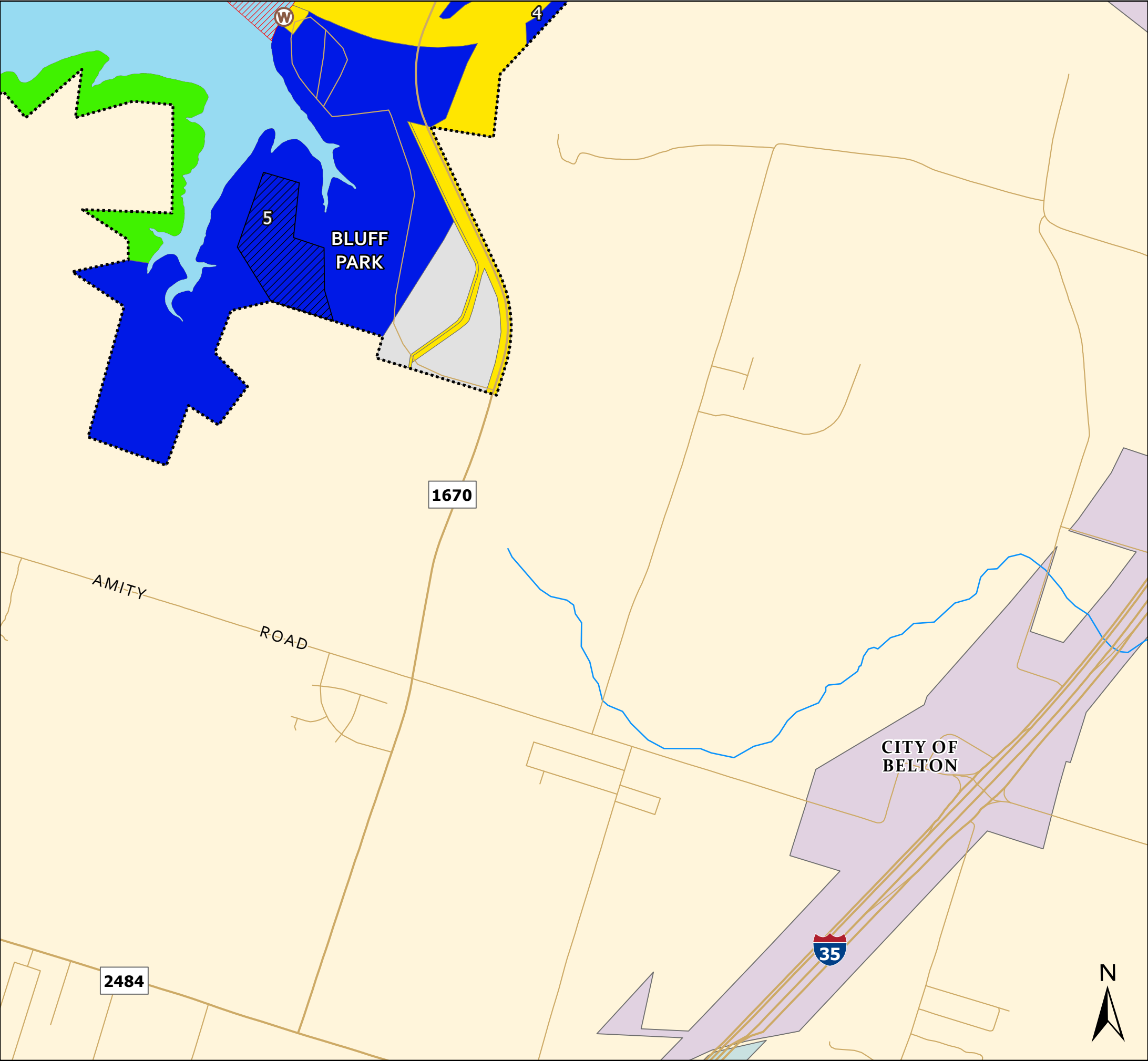
Miles

DATE:

MAY 2020

MAP NO.

SH20MP-0C-01



- FEE PROPERTY**
- BOAT RAMP
 - SWIMBEACH
 - FISHING POINT
 - MARINA
 - FLOOD CONTROL STRUCTURE
 - WATER INTAKE
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - LOW DENSITY RECREATION
 - FUTURE RECREATION AREA
 - WILDLIFE MANAGEMENT AREA
 - ENVIRONMENTALLY SENSITIVE AREA
- LAND ALLOCATION**
- SEPERABLE RECREATION LANDS
- WATER CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO-WAKE
 - OPEN RECREATION

US Army Corps of Engineers
Fort Worth District

STILLHOUSE HOLLOW LAKE

BELTON, TEXAS

STILLHOUSE HOLLOW LAKE

STILLHOUSE HOLLOW LAKE MASTER PLAN

LAND CLASSIFICATION (SHEET 2)

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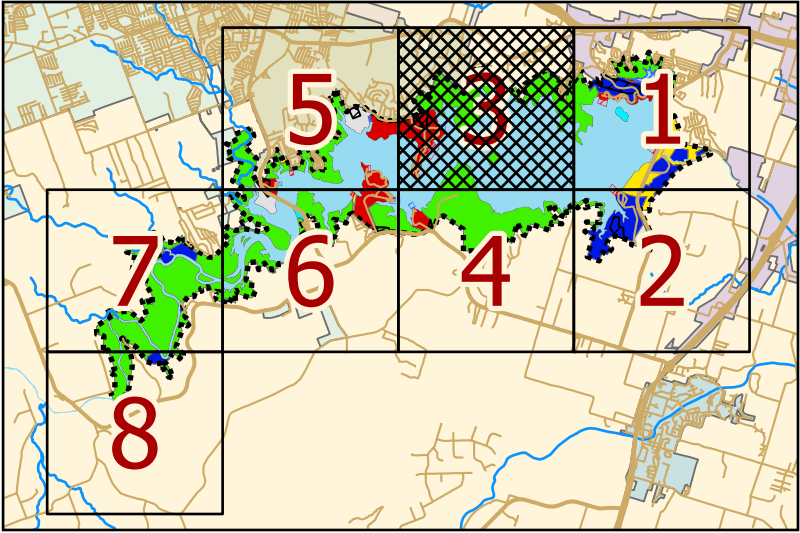
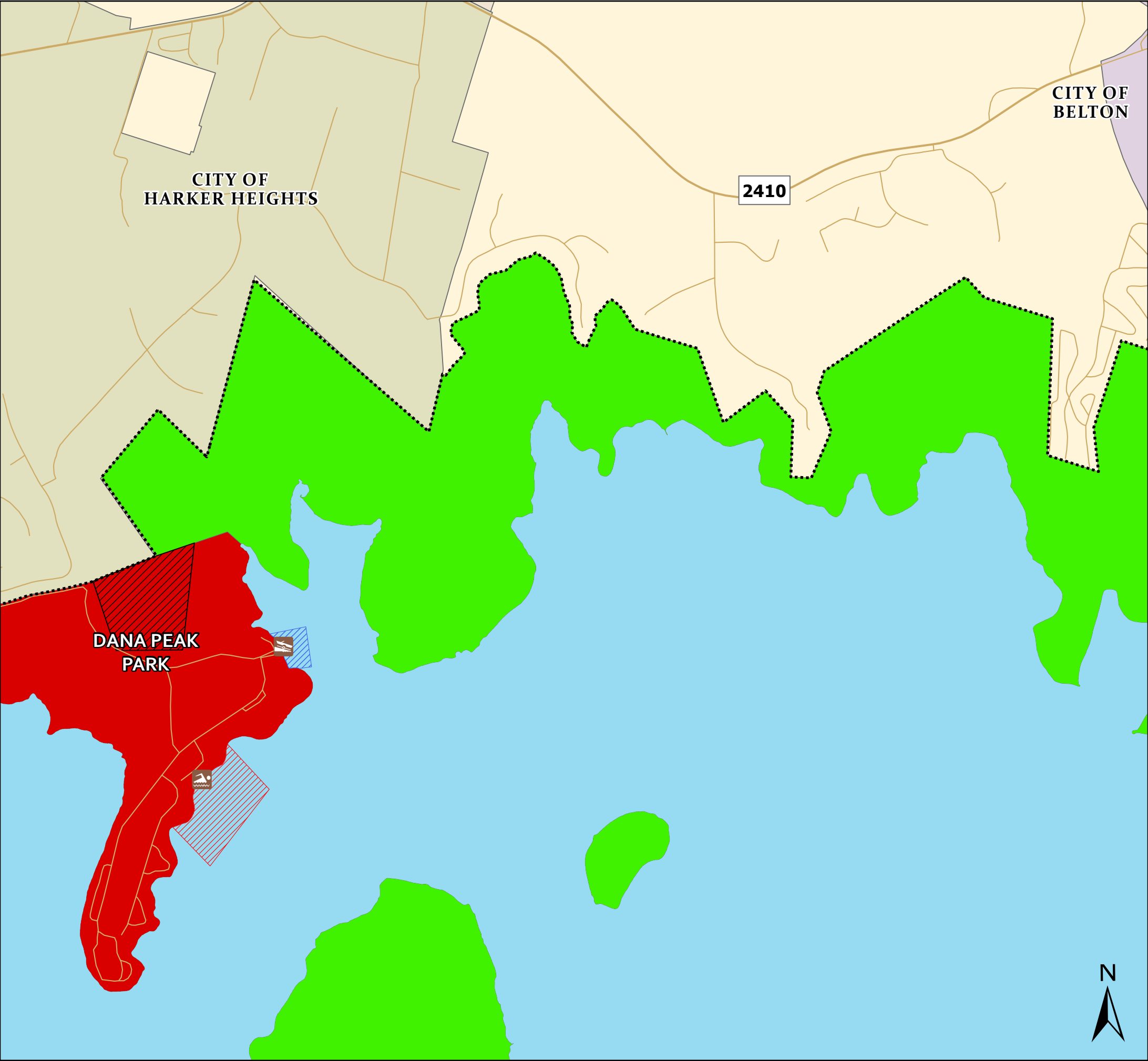
Miles

DATE:


MAY 2020

MAP NO.

SH20MP-0C-02



- | | |
|----------------------------|--------------------------------|
| FEE PROPERTY | LAND CLASSIFICATION |
| BOAT RAMP | PROJECT OPERATIONS |
| SWIMBEACH | HIGH DENSITY RECREATION |
| FISHING POINT | LOW DENSITY RECREATION |
| MARINA | FUTURE RECREATION AREA |
| FLOOD CONTROL STRUCTURE | WILDLIFE MANAGEMENT AREA |
| WATER INTAKE | ENVIRONMENTALLY SENSITIVE AREA |
| LAND ALLOCATION | WATER CLASSIFICATION |
| SEPERABLE RECREATION LANDS | RESTRICTED |
| | DESIGNATED NO-WAKE |
| | OPEN RECREATION |



US Army Corps of Engineers
Fort Worth District

STILLHOUSE HOLLOW LAKE

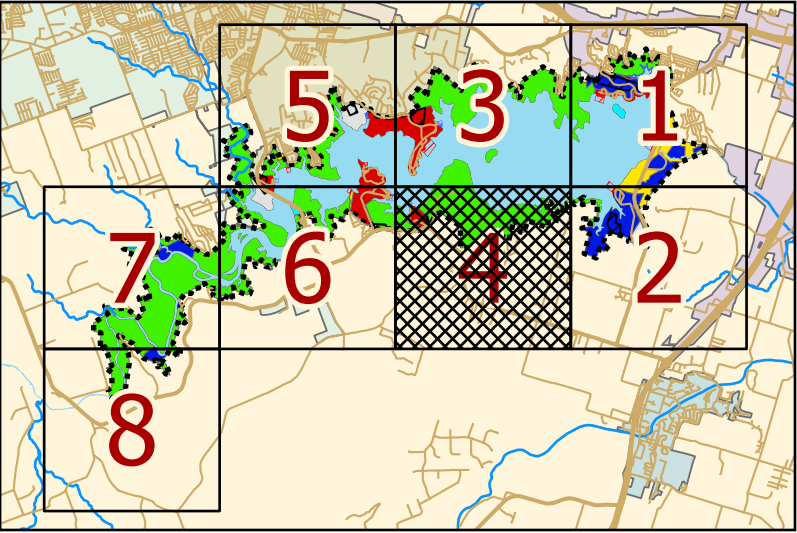
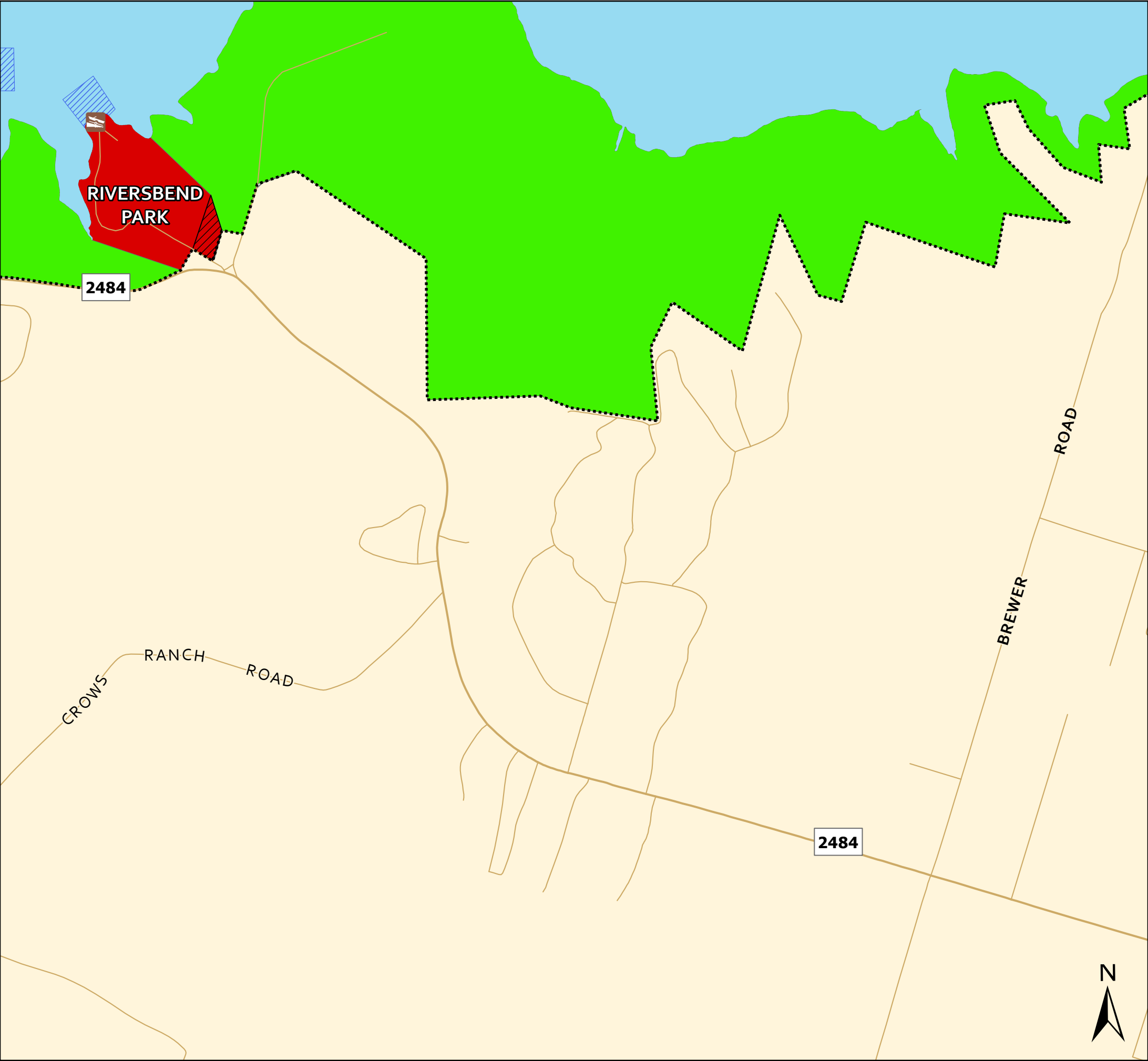
STILLHOUSE HOLLOW LAKE MASTER PLAN

LAND CLASSIFICATION (SHEET 3)

0.25 0 0.25 0.5

Miles

DATE:	MAP NO.
MAY 2020	SH20MP-0C-03



- FEE PROPERTY

BOAT RAMP

SWIMBEACH

FISHING POINT

MARINA

FLOOD CONTROL STRUCTURE

WATER INTAKE

LAND ALLOCATION

SEPERABLE RECREATION LANDS
- LAND CLASSIFICATION**

PROJECT OPERATIONS

HIGH DENSITY RECREATION

LOW DENSITY RECREATION

FUTURE RECREATION AREA

WILDLIFE MANAGEMENT AREA

ENVIRONMENTALLY SENSITIVE AREA

WATER CLASSIFICATION

RESTRICTED

DESIGNATED NO-WAKE

OPEN RECREATION

US Army Corps of Engineers
Fort Worth District

STILLHOUSE HOLLOW LAKE

BELTON, TEXAS

STILLHOUSE HOLLOW LAKE

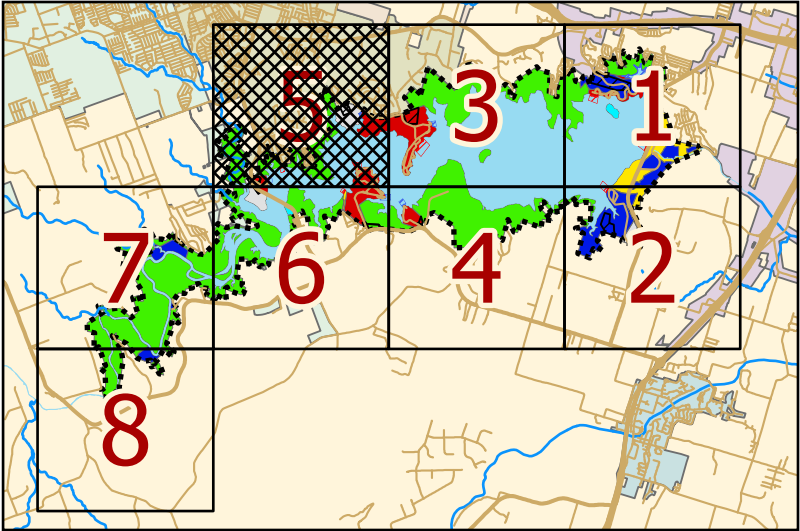
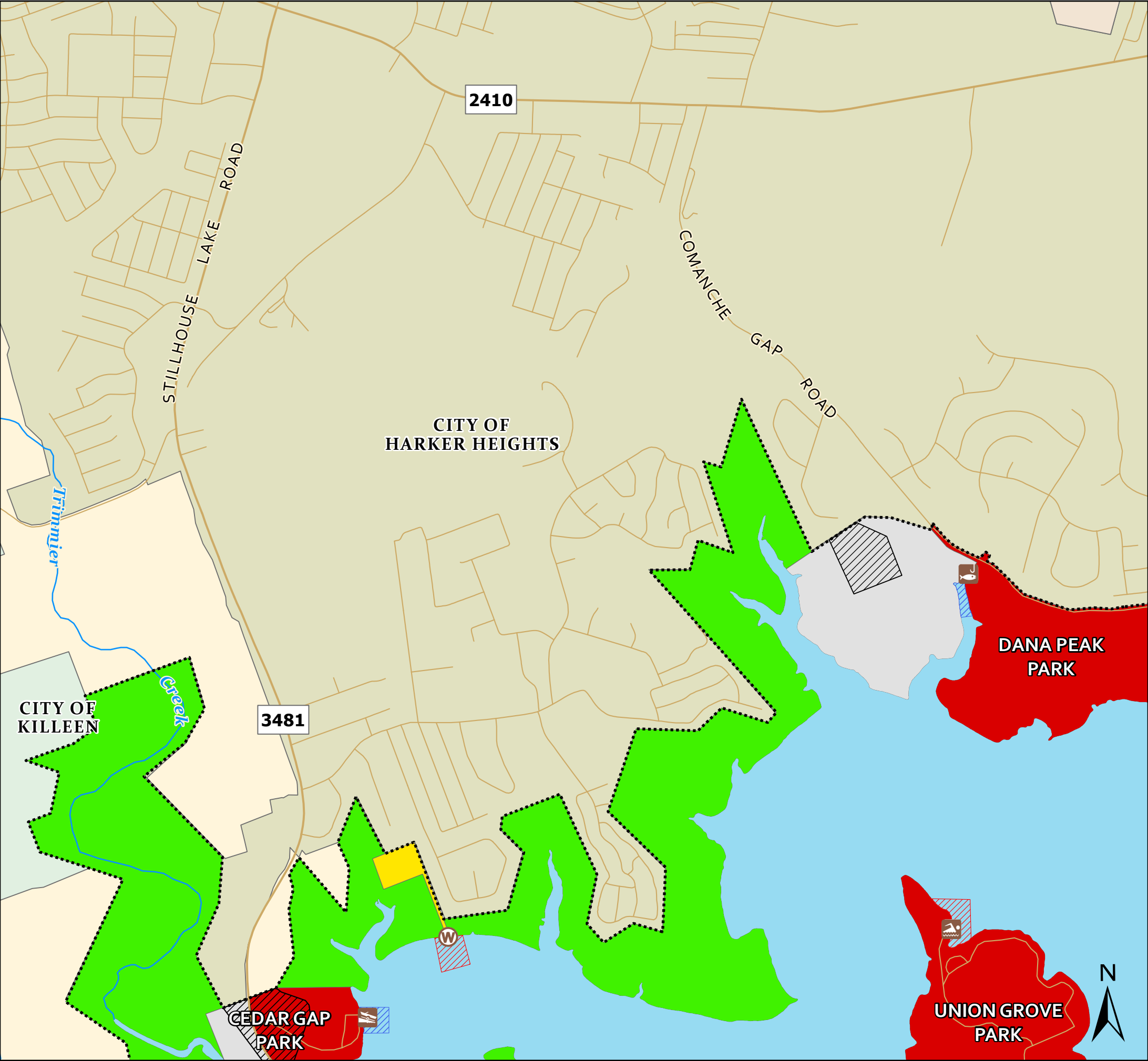
STILLHOUSE HOLLOW LAKE MASTER PLAN

LAND CLASSIFICATION (SHEET 4)

0.25 0 0.25 0.5

Miles

DATE:	MAP NO.
MAY 2020	SH20MP-0C-04



<p>..... FEE PROPERTY</p> <p> BOAT RAMP</p> <p> SWIMBEACH</p> <p> FISHING POINT</p> <p> MARINA</p> <p> FLOOD CONTROL STRUCTURE</p> <p> WATER INTAKE</p> <p> SEPERABLE RECREATION LANDS</p>	<p>LAND CLASSIFICATION</p> <p> PROJECT OPERATIONS</p> <p> HIGH DENSITY RECREATION</p> <p> LOW DENSITY RECREATION</p> <p> FUTURE RECREATION AREA</p> <p> WILDLIFE MANAGEMENT AREA</p> <p> ENVIRONMENTALLY SENSITIVE AREA</p> <p>WATER CLASSIFICATION</p> <p> RESTRICTED</p> <p> DESIGNATED NO-WAKE</p> <p> OPEN RECREATION</p>
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US Army Corps of Engineers
Fort Worth District

STILLHOUSE HOLLOW LAKE

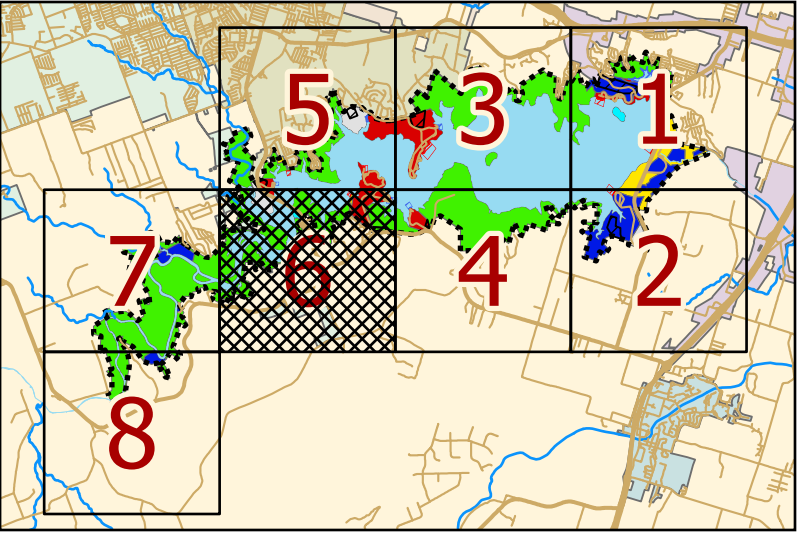
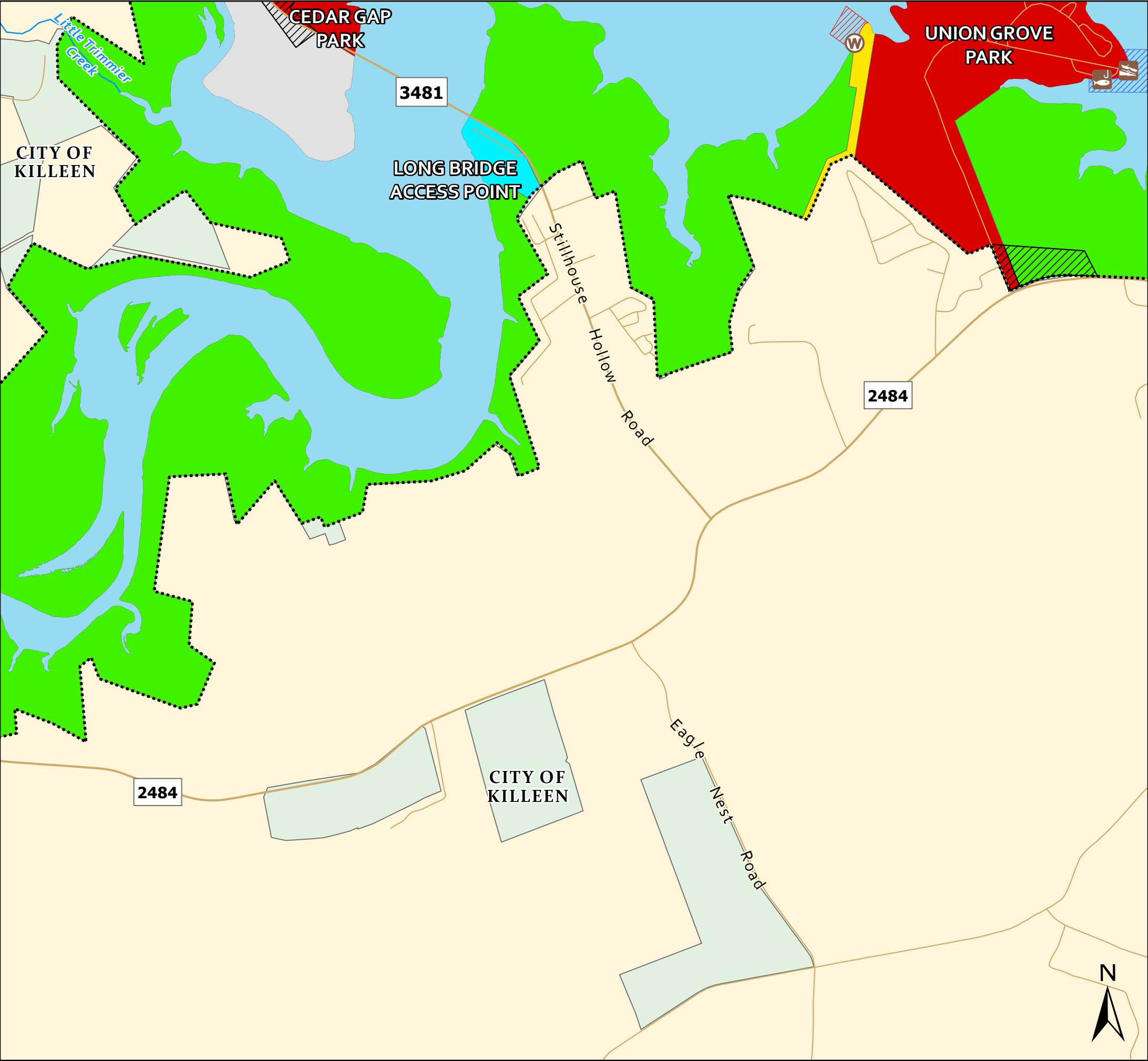
STILLHOUSE HOLLOW LAKE MASTER PLAN

LAND CLASSIFICATION (SHEET 5)

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Miles

DATE:	MAP NO.
MAY 2020	SH20MP-0C-05



- | | |
|----------------------------|--------------------------------|
| FEE PROPERTY | LAND CLASSIFICATION |
| BOAT RAMP | PROJECT OPERATIONS |
| SWIMBEACH | HIGH DENSITY RECREATION |
| FISHING POINT | LOW DENSITY RECREATION |
| MARINA | FUTURE RECREATION AREA |
| FLOOD CONTROL STRUCTURE | WILDLIFE MANAGEMENT AREA |
| WATER INTAKE | ENVIRONMENTALLY SENSITIVE AREA |
| LAND ALLOCATION | WATER CLASSIFICATION |
| SEPERABLE RECREATION LANDS | RESTRICTED |
| | DESIGNATED NO-WAKE |
| | OPEN RECREATION |

US Army Corps of Engineers
Fort Worth District

STILLHOUSE HOLLOW LAKE

STILLHOUSE HOLLOW LAKE MASTER PLAN

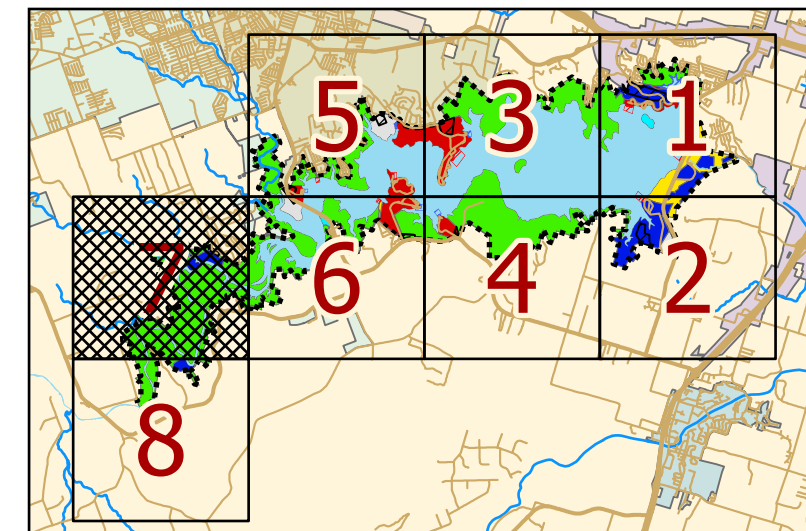
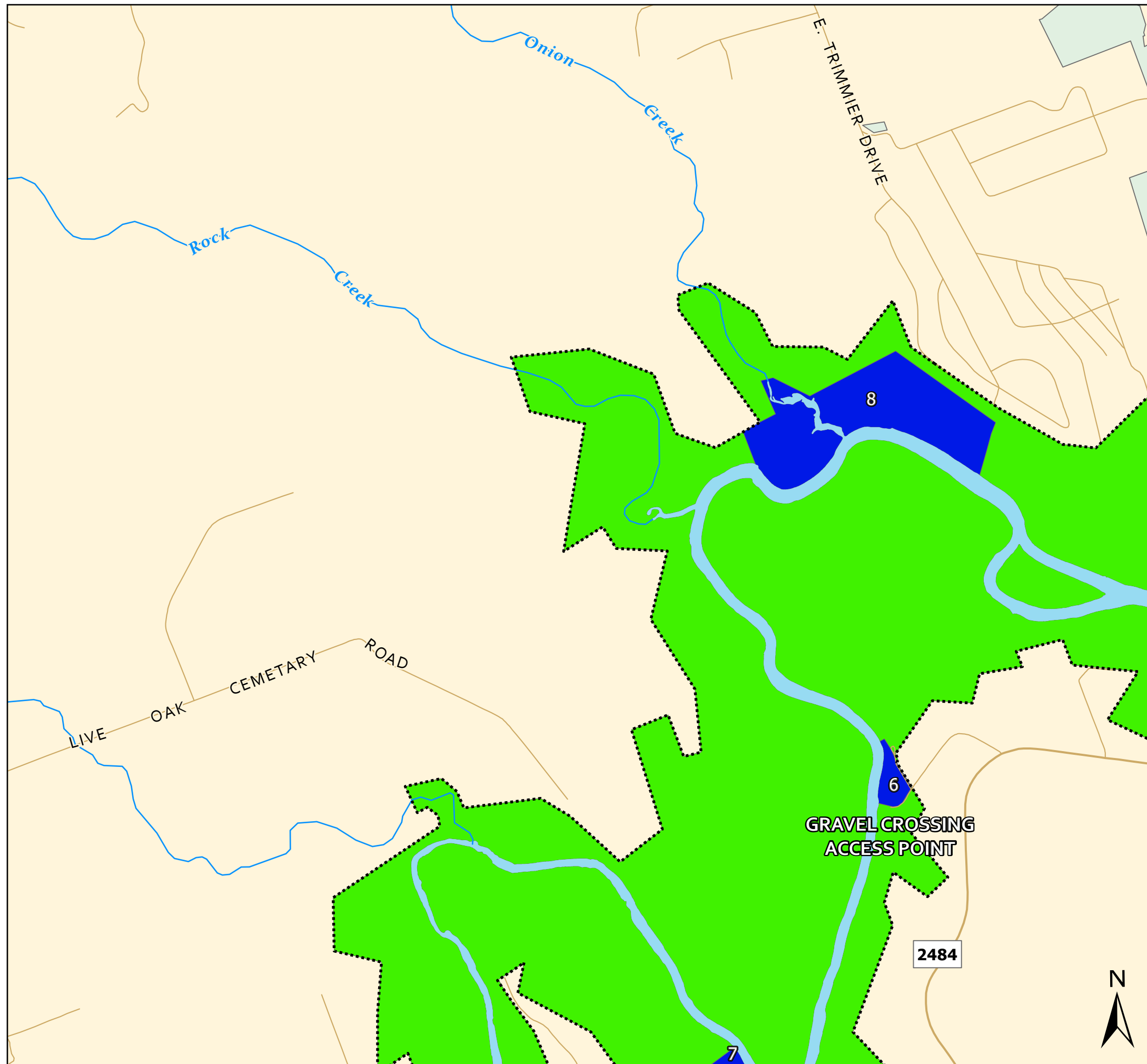
LAND CLASSIFICATION (SHEET 6)

0.25 0 0.25 0.5

Miles

DATE: MAY 2020

MAP NO. SH20MP-0C-06



- | | |
|--|---|
| <p>..... FEE PROPERTY</p> <p> BOAT RAMP</p> <p> SWIMBEACH</p> <p> FISHING POINT</p> <p> MARINA</p> <p> FLOOD CONTROL STRUCTURE</p> <p> WATER INTAKE</p> <p>LAND ALLOCATION</p> <p> SEPERABLE RECREATION LANDS</p> | <p>LAND CLASSIFICATION</p> <p> PROJECT OPERATIONS</p> <p> HIGH DENSITY RECREATION</p> <p> LOW DENSITY RECREATION</p> <p> FUTURE RECREATION AREA</p> <p> WILDLIFE MANAGEMENT AREA</p> <p> ENVIRONMENTALLY SENSITIVE AREA</p> <p>WATER CLASSIFICATION</p> <p> RESTRICTED</p> <p> DESIGNATED NO-WAKE</p> <p> OPEN RECREATION</p> |
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US Army Corps of Engineers
Fort Worth District

STILLHOUSE HOLLOW LAKE

BELTON, TEXAS

STILLHOUSE HOLLOW LAKE

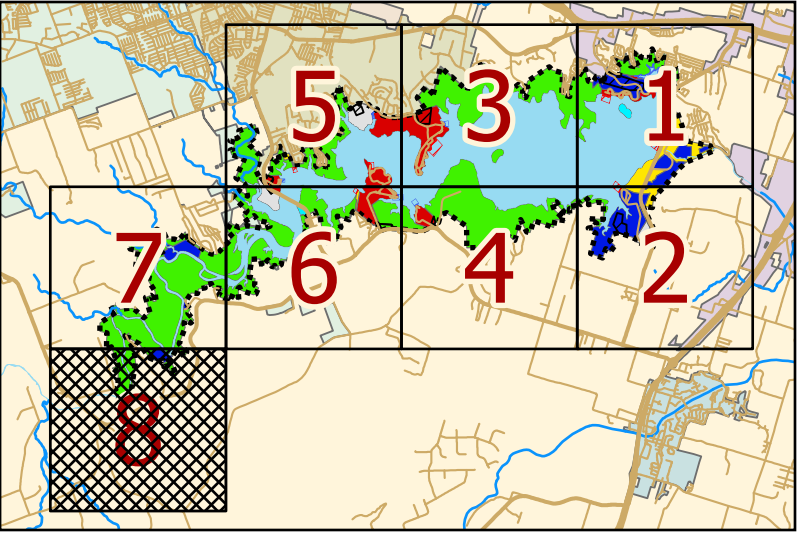
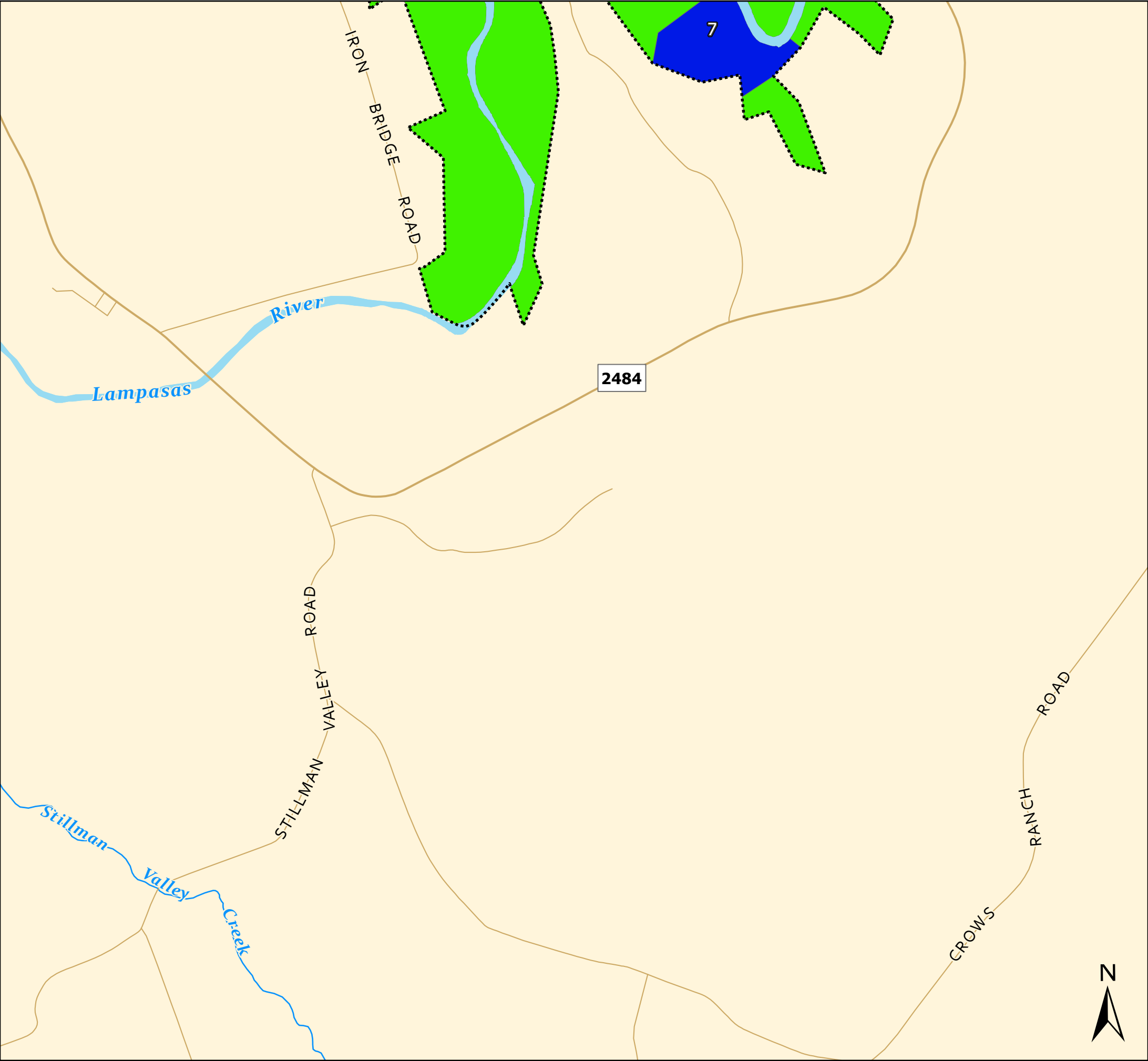
STILLHOUSE HOLLOW LAKE MASTER PLAN

LAND CLASSIFICATION (SHEET 7)

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Miles

DATE:	MAP NO.
MAY 2020	SH20MP-0C-07



..... FEE PROPERTY

BOAT RAMP

SWIMBEACH

FISHING POINT

MARINA

FLOOD CONTROL STRUCTURE

WATER INTAKE

LAND CLASSIFICATION

PROJECT OPERATIONS

HIGH DENSITY RECREATION

LOW DENSITY RECREATION

FUTURE RECREATION AREA

WILDLIFE MANAGEMENT AREA

ENVIRONMENTALLY SENSITIVE AREA

LAND ALLOCATION

SEPERABLE RECREATION LANDS

WATER CLASSIFICATION

RESTRICTED

DESIGNATED NO-WAKE

OPEN RECREATION

US Army Corps of Engineers
Fort Worth District

STILLHOUSE HOLLOW LAKE

STILLHOUSE HOLLOW LAKE MASTER PLAN

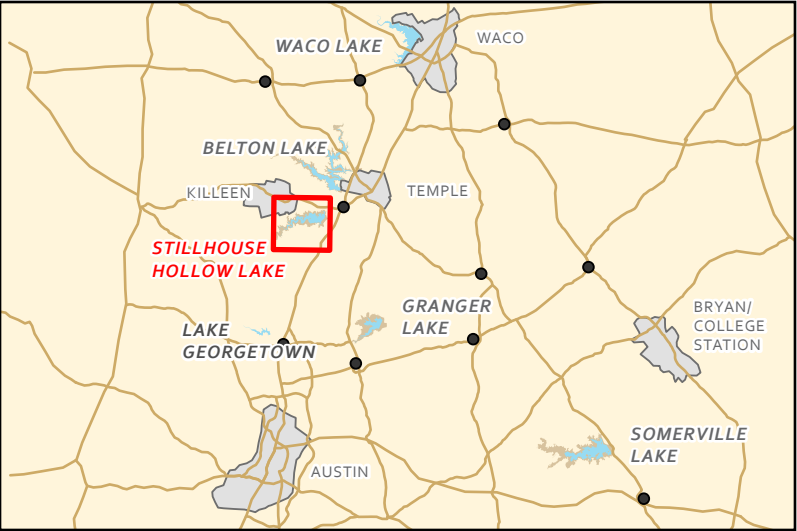
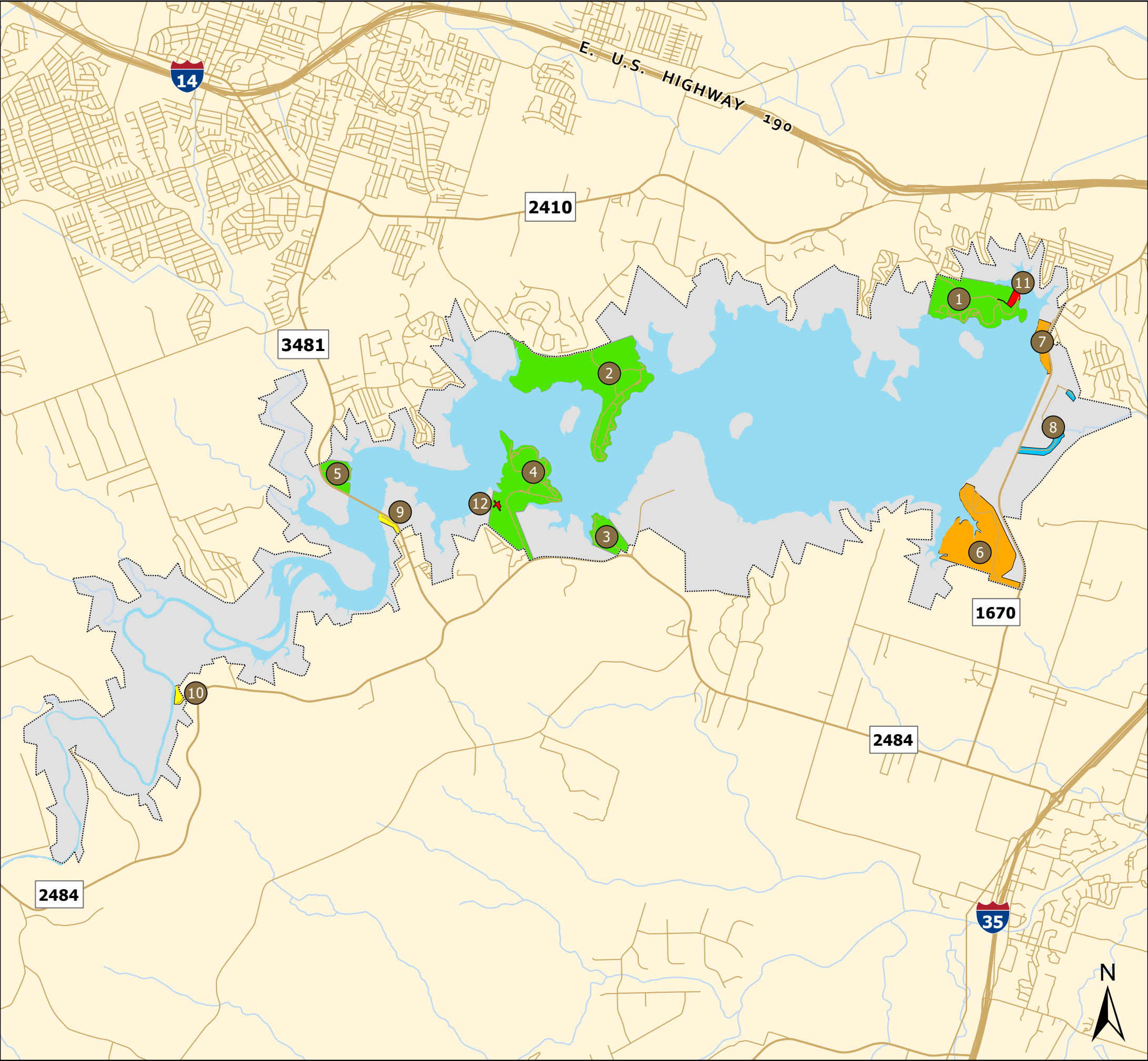
LAND CLASSIFICATION (SHEET 8)

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Miles

DATE: MAY 2020

MAP NO. SH20MP-0C-08



- FEE PROPERTY

WATER SURFACE AREA
- RECREATIONAL AREAS**

 - DEVELOPED
 - UNDEVELOPED
 - NATURE AREA
 - ACCESS POINT
 - LEASED AREA
- 1 STILLHOUSE PARK
 - 2 DANA PEAK PARK
 - 3 RIVERSBEND PARK
 - 4 UNION GROVE PARK
 - 5 CEDAR GAP PARK
 - 6 BLUFF PARK
 - 7 OVERLOOK PARK
- 8 CHALK RIDGE FALLS NATURE AREA
 - 9 LONG BRIDGE ACCESS POINT
 - 10 GRAVEL CROSSING ACCESS POINT
 - 11 STILLHOUSE MARINA LEASE AREA
 - 12 CEN-TEX MODELERS AIRFIELD LEASE AREA

US Army Corps of Engineers
Fort Worth District

STILLHOUSE HOLLOW LAKE

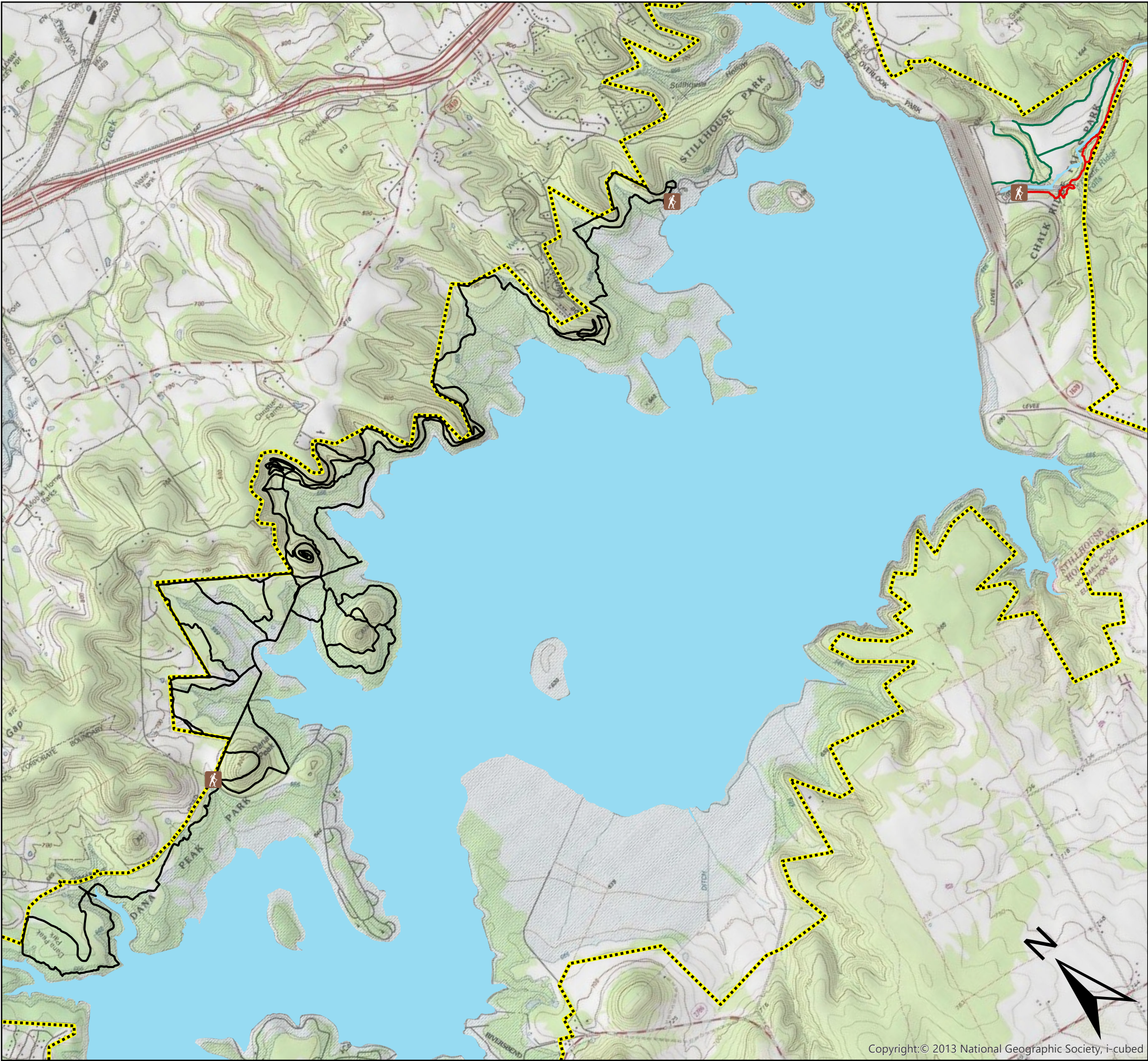
STILLHOUSE HOLLOW LAKE MASTER PLAN

RECREATIONAL DEVELOPMENT MAP

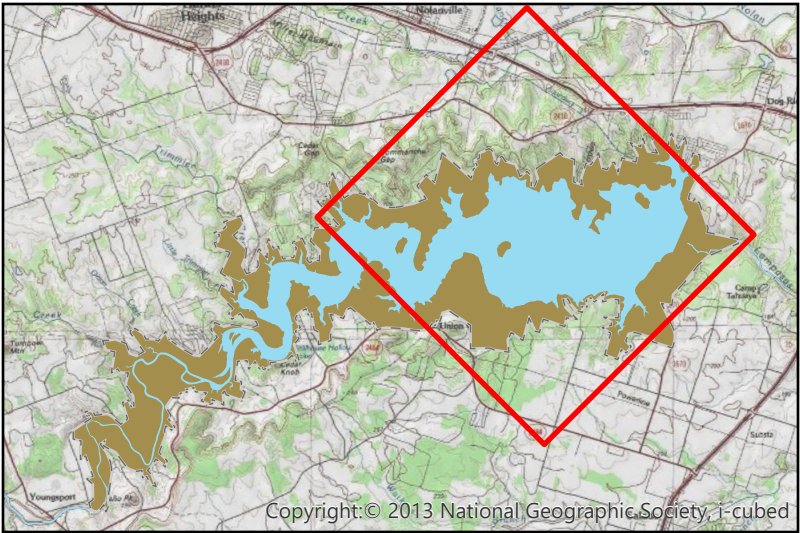
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Miles


DATE: JUNE 2020


MAP NO. SH20MP-0R-0A



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-  TRAILHEAD
-  DANA PEAK TRAIL SYSTEM
-  CHALK RIDGE FALLS TRAIL
-  GREEN TREE TRAIL
-  FEE PROPERTY
-  WATER SURFACE AREA

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Fort Worth District

STILLHOUSE HOLLOW LAKEBELTON, TEXAS

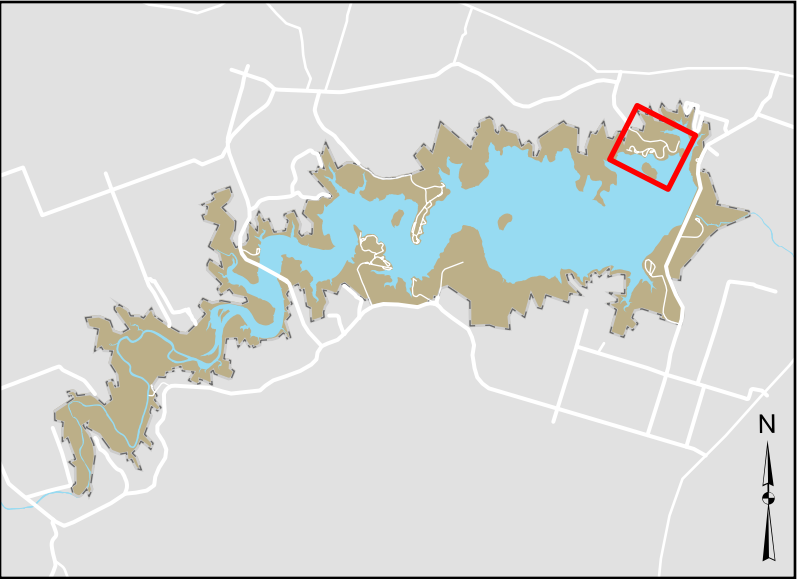
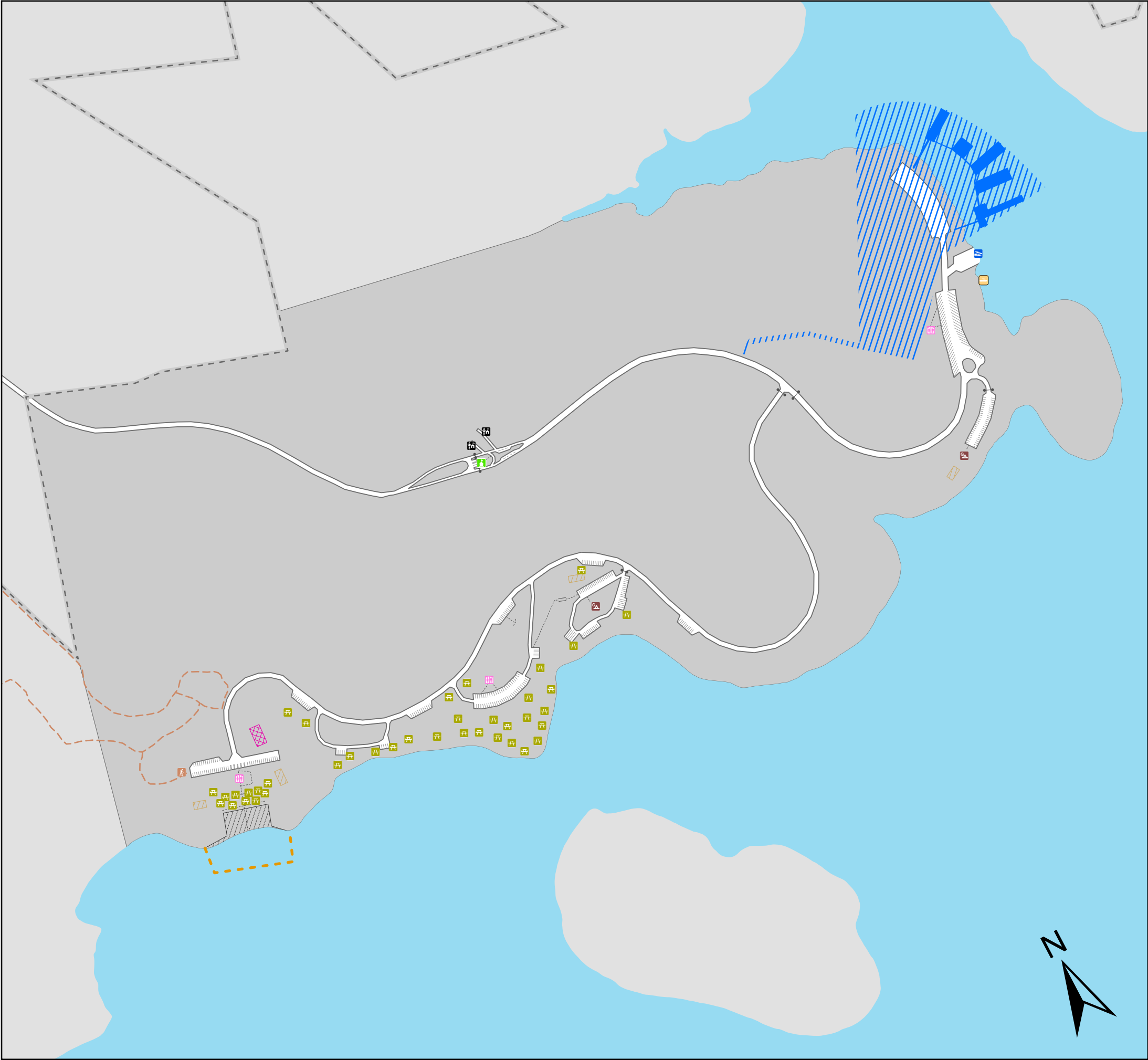
STILLHOUSE HOLLOW LAKE
STILLHOUSE HOLLOW LAKE MASTER PLAN
TRAILS MAP

0.500.51

Miles

DATE:
JULY 2020

MAP NO.
SH20MP-0R-0B



- | | |
|--------------------|-------------------|
| FEE PROPERTY | GATEHOUSE |
| WATER SURFACE AREA | SWIMBEACH |
| PAVED ROAD | BEACH LINE |
| SIDEWALK | VOLLEYBALL COURT |
| FOOT BRIDGE | SPORTS COURT |
| PICNIC SITE | TRAIL |
| GROUP SITE | TRAILHEAD |
| HOST SITE | GATE |
| BOATRAMP | MARINA LEASE AREA |
| COURTESY DOCK | MARINA |
| RESTROOM | |

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Fort Worth District

STILL HOUSE HOLLOW LAKE

BELTON, TEXAS

STILLHOUSE HOLLOW LAKE

STILLHOUSE HOLLOW LAKE MASTER PLAN

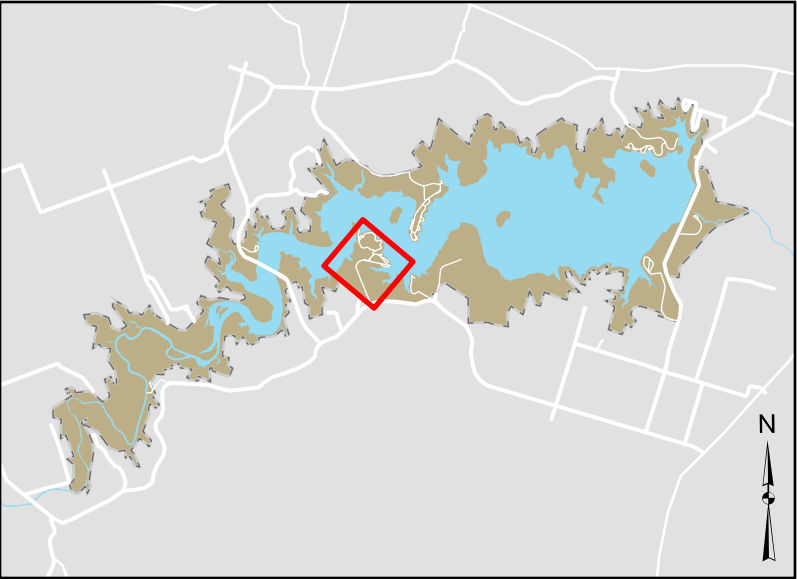
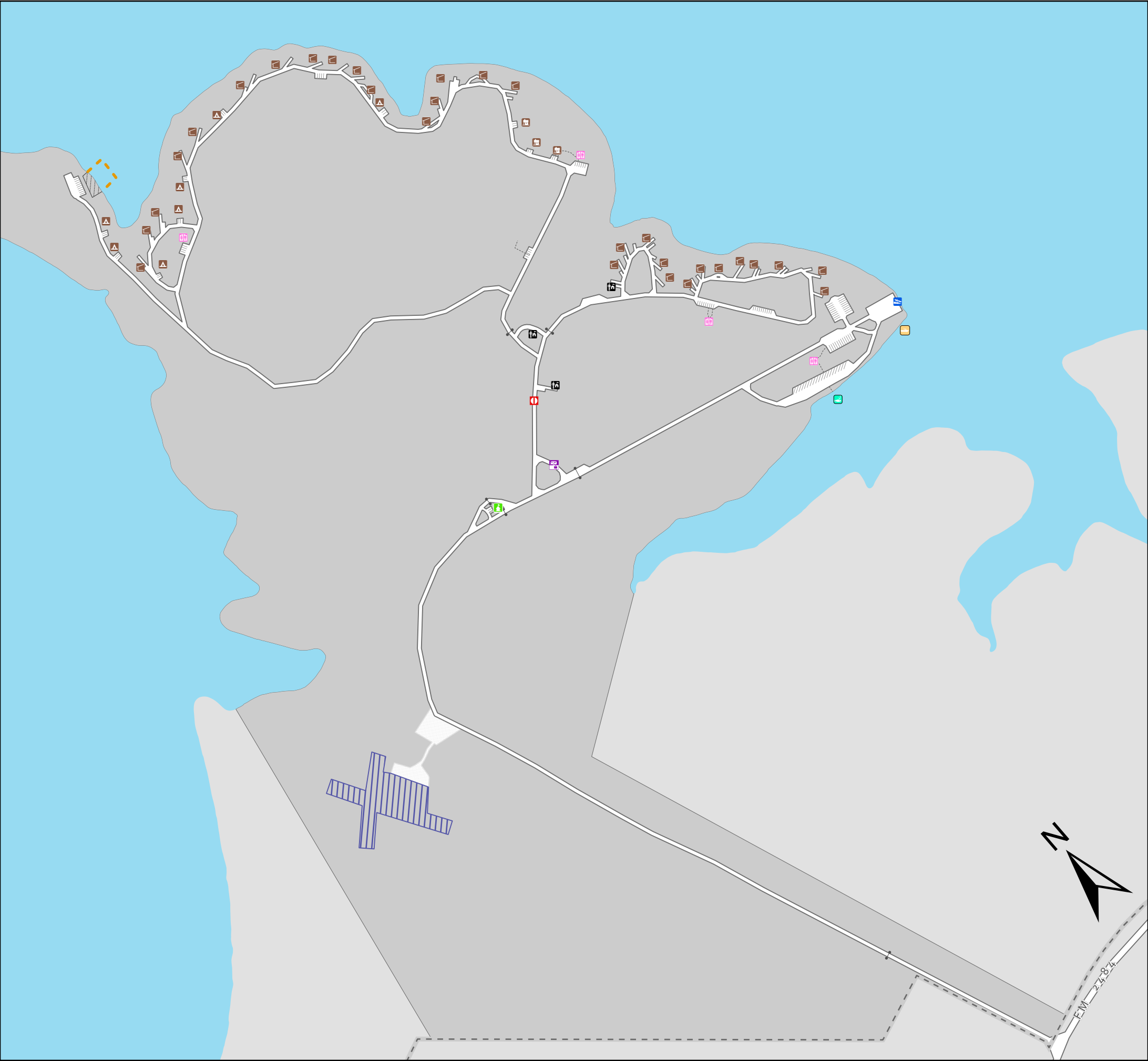
STILLHOUSE PARK PLATE

Feet


250 0 250 500

DATE: JULY 2019

MAP NO. SH20MP-0R-01



- | | |
|--------------------|---------------------------|
| FEE PROPERTY | FISHING DOCK |
| WATER SURFACE AREA | RESTROOM |
| PAVED ROAD | DUMPSTATION |
| UNPAVED ROAD | GATEHOUSE |
| SIDEWALK | SWIMBEACH |
| CAMPSITE | BEACH LINE |
| SCREENED SHELTER | GATE |
| TENT ONLY SITE | AUTOMATIC GATE |
| HOST SITE | MODEL AIRFIELD LEASE AREA |
| BOATRAMP | |
| COURTESY DOCK | |



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STILL HOUSE HOLLOW LAKE

BELTON, TEXAS

STILLHOUSE HOLLOW LAKE

STILLHOUSE HOLLOW LAKE MASTER PLAN

UNION GROVE PARK PLATE

Feet

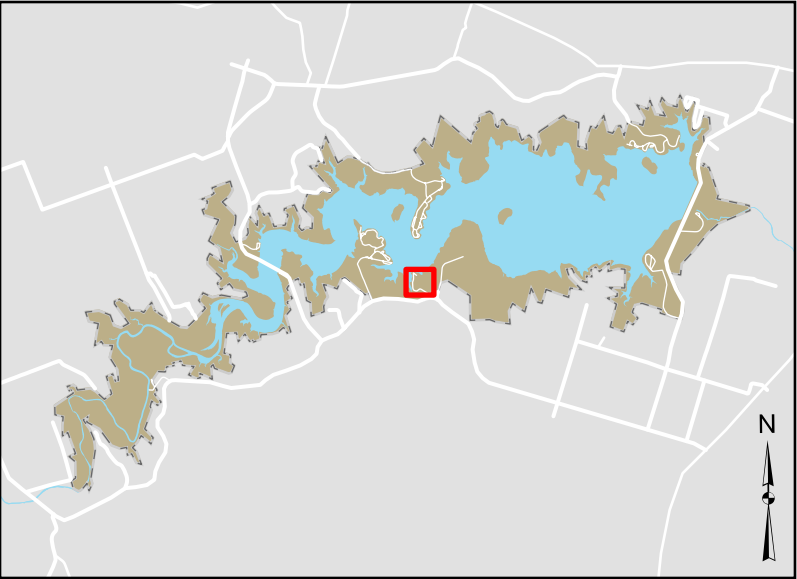
250 0 250 500

DATE:


JULY 2019

MAP NO.

SH20MP-0R-02



- FEE PROPERTY
- WATER SURFACE AREA
- PAVED ROAD
- UNPAVED ROAD
- SIDEWALK
- PICNIC SITE
- BOATRAMP
- COURTESY DOCK
- RESTROOM
- GATE



**US Army Corps
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Fort Worth District

STILL HOUSE HOLLOW LAKE

BELTON, TEXAS

STILLHOUSE HOLLOW LAKE

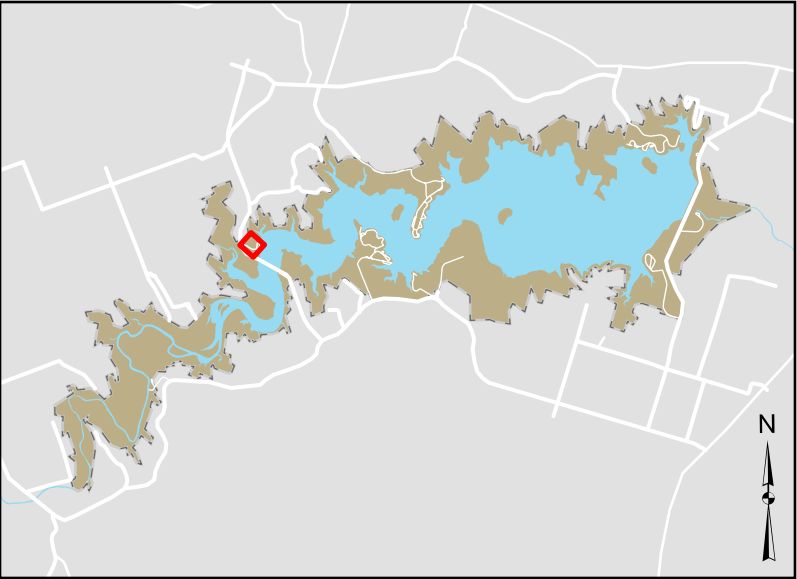
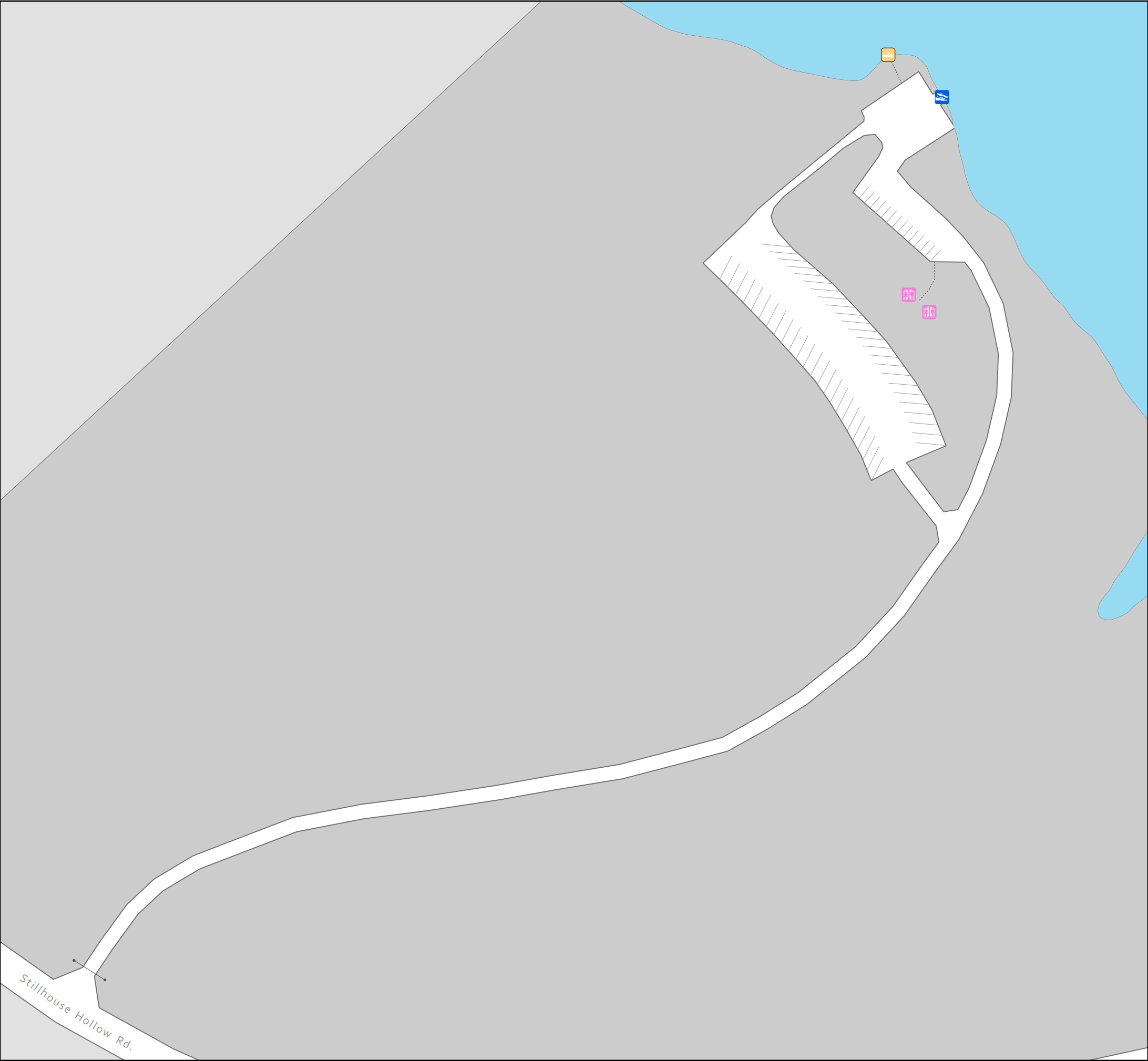
STILLHOUSE HOLLOW LAKE MASTER PLAN

RIVERSBEND PARK PLATE


Feet

100 0 100 200

DATE:	MAP NO.
JULY 2019	SH20MP-0R-03



- FEE PROPERTY
- WATER SURFACE AREA
- PAVED ROAD
- SIDEWALK
- BOATRAMP
- COURTESY DOCK
- RESTROOM
- GATE



**US Army Corps
of Engineers**
Fort Worth District

STILL HOUSE HOLLOW LAKE

BELTON, TEXAS

STILLHOUSE HOLLOW LAKE

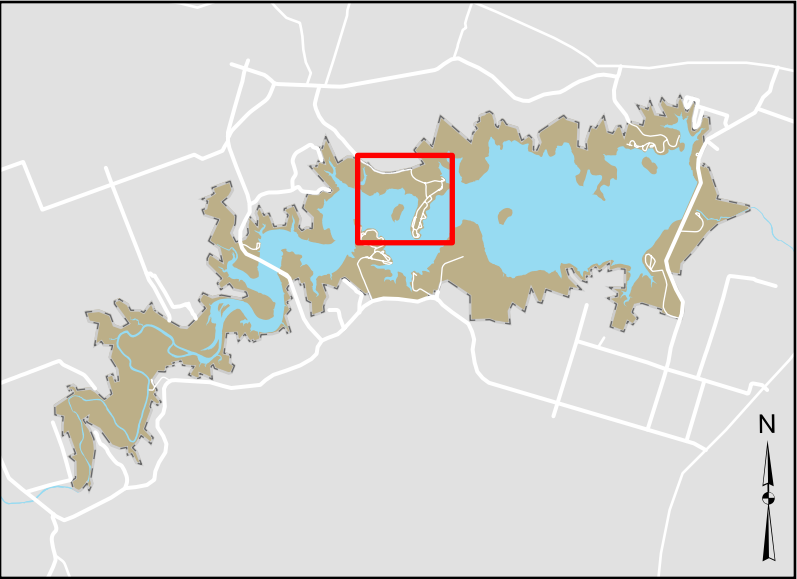
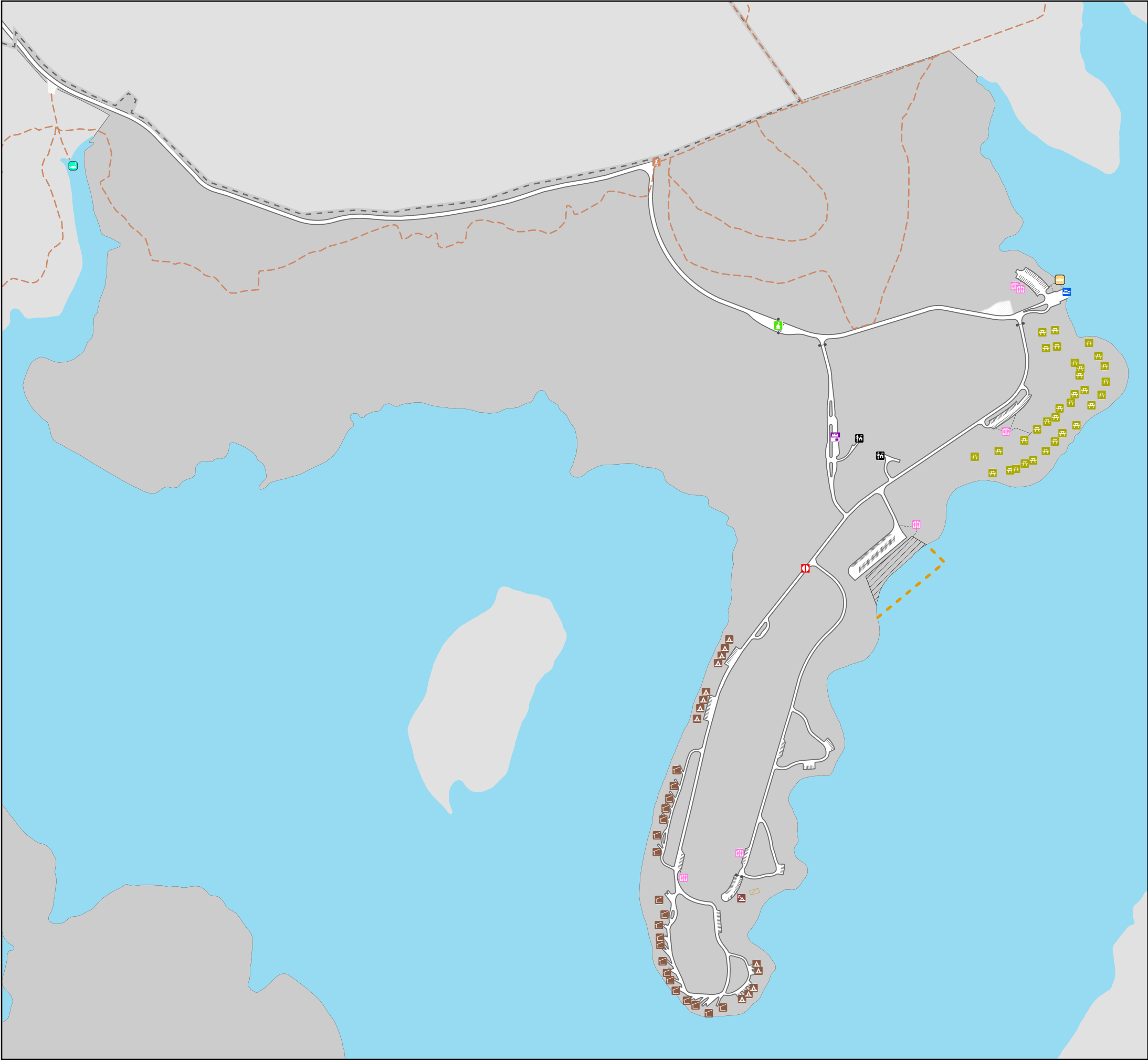
STILLHOUSE HOLLOW LAKE MASTER PLAN

CEDAR GAP PARK PLATE

100 0 100 200 Feet

DATE: JULY 2019

MAP NO. SH20MP-0R-04



- | | |
|--------------------|------------------|
| FEE PROPERTY | FISHING DOCK |
| WATER SURFACE AREA | RESTROOM |
| PAVED ROAD | DUMPSTATION |
| UNPAVED ROAD | GATEHOUSE |
| SIDEWALK | SWIMBEACH |
| CAMPSITE | BEACH LINE |
| TENT ONLY SITE | VOLLEYBALL COURT |
| PICNIC SITE | TRAIL |
| GROUP SITE | TRAILHEAD |
| HOST SITE | GATE |
| BOATRAMP | AUTOMATIC GATE |
| COURTESY DOCK | |

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STILL HOUSE HOLLOW LAKEBELTON, TEXAS

STILLHOUSE HOLLOW LAKE
STILLHOUSE HOLLOW LAKE MASTER PLAN
DANA PEAK PARK PLATE

50005001,000

Feet

DATE:
JULY 2019

MAP NO.
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APPENDIX B - NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENTATION

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Draft Environmental Assessment for the Stillhouse Hollow Lake Master Plan

Lampasas River
Brazos River Basin



Bell County, Texas

DRAFT February 2021



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ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the potential environmental and socioeconomic impacts of the Stillhouse Hollow Lake Master Plan revision. This EA will facilitate the decision process regarding the Proposed Action and alternatives.

<i>SECTION 1</i>	<i>INTRODUCTION</i> of the Proposed Action summarizes the purpose of and need for the Proposed Action, provides relevant background information, and describes the scope of the EA.
<i>SECTION 2</i>	<i>PROPOSED ACTION AND ALTERNATIVES</i> examines alternatives for implementing the Proposed Action and describes the recommended alternative.
<i>SECTION 3</i>	<i>AFFECTED ENVIRONMENT</i> describes the existing environmental and socioeconomic setting. <i>ENVIRONMENTAL CONSEQUENCES</i> identify the potential environmental and socioeconomic effects of implementing the Proposed Action and alternatives.
<i>SECTION 4</i>	<i>CUMULATIVE IMPACTS</i> describes the impact on the environment that may result from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions.
<i>SECTION 5</i>	<i>COMPLIANCE WITH ENVIRONMENTAL LAWS</i> provides a listing of environmental protection statutes and other environmental requirements.
<i>SECTION 6</i>	<i>IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES</i> identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented.
<i>SECTION 7</i>	<i>PUBLIC AND AGENCY COORDINATION</i> provides a listing of individuals and agencies consulted during preparation of the EA.
<i>SECTION 8</i>	<i>REFERENCES</i> provide bibliographical information for cited sources.
<i>SECTION 9</i>	<i>ACRONYMS/ABBREVIATIONS</i>
<i>SECTION 10</i>	<i>LIST OF PREPARERS</i> identifies persons who prepared the document and their areas of expertise.
<i>APPENDIX B</i>	National Environmental Policy Act Coordination and Scoping

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DRAFT ENVIRONMENTAL ASSESSMENT

Stillhouse Hollow Lake Master Plan

Bell County, TX

SECTION 1: INTRODUCTION

The 2021 Stillhouse Hollow Master Plan (Master Plan or Plan) is the strategic land use management document that guides the comprehensive management and development actions related to all project recreational, natural, and cultural resources throughout the life of the water resource project. The Master Plan guides the execution of efficient and cost-effective management, development, and use of project lands. The Master Plan is a vital tool for the responsible stewardship and sustainability of project resources for the benefit of present and future generations.

1.1 PROJECT LOCATION AND SETTING

Stillhouse Hollow Lake and Dam are located at the northern extent of the Edwards' Plateau, approximately five miles southwest of Belton, Texas in Bell County. The dam was constructed on the Lampasas River, a tributary of the Little River which is a tributary to the Brazos River. The drainage area above the dam is 1,318 square miles.

The dam and associated infrastructure, as well as all the project lands which were acquired for the Stillhouse Hollow Lake project, are federally owned and are managed by the U.S. Army Corps of Engineers (USACE).

Congressional authority for the construction of Stillhouse Hollow Lake and programs are found in Section 1.2 of the 2021 Stillhouse Hollow Master Plan. The entire 2021 Master Plan and Appendices are incorporated herein by reference.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to ensure that the conservation and sustainability of the land, water, and recreational resources on Stillhouse Hollow Lake comply with applicable environmental laws and regulations and to maintain quality lands for future public use. The 2021 Master Plan is intended to serve as a comprehensive land and recreation management plan with an effective life of approximately 25 years.

The need for the Proposed Action is to bring the 1975 Master Plan up-to-date and to reflect ecological, socio-political, and socio-demographic changes that are currently impacting Stillhouse Hollow Lake, as well as those changes anticipated to occur through 2046. Changes in outdoor recreation trends, regional land use, population, current legislative requirements and USACE management policy have indicated the need to revise the plan. Additionally, increasing fragmentation of wildlife habitat, national policies related to climate change and growing demand for recreational access and protection of natural resources are all factors affecting Stillhouse Hollow Lake and the surrounding region in general. In response to these continually evolving trends, the USACE determined that a full revision of the 1975 plan would be required.

The following factors may influence reevaluation of management practices and land uses:

- Changes in national policies or public law mandates
- Operations and maintenance budget allocations
- Recreation area closures
- Facility and infrastructure improvements
- Cooperative agreements with stakeholder agencies (such as Texas Parks and Wildlife Department [TPWD]) to operate and maintain public lands
- Outdoor recreation trends identified in the Texas Outdoor Recreation Plan (TORP)
- Ecoregion priorities identified in the Texas Conservation Action Plan (TCAP)
- Evolving public concerns

As part of the master planning process, the project delivery team evaluated public comments and current land uses, determined any necessary changes to land classifications, and formulated proposed alternatives. As a result of public coordination and a public information meeting, alternatives were developed, and this EA was initiated.

1.3 SCOPE OF THE PROPOSED ACTION

This EA was prepared to evaluate existing conditions and potential impacts of proposed alternatives associated with implementation of the 2021 Master Plan. The alternative considerations were formulated with special attention given to revised land classifications, new resource management objectives, and a conceptual resource plan for each land classification category. This EA was prepared pursuant to NEPA, Council on Environmental Quality (CEQ) regulations (40 CFR 1500–1508), and the USACE implementing regulations, Policy and Procedures for Implementing NEPA, ER 200-2-2.

SECTION 2: PROPOSED ACTION AND ALTERNATIVES

The project need is to revise the 1975 Master Plan so that it is compliant with current USACE regulations and guidance, incorporates public needs, and recognizes surrounding land use and recreational trends. As part of this process, which includes public outreach and comment, two alternatives were developed for evaluation, including a No Action Alternative. The alternatives were developed using land classifications that indicate the primary use for which project lands would be managed. USACE regulations specify five possible categories of land classification: Project Operations (PO), High Density Recreation (HDR), Mitigation, Environmentally Sensitive Areas (ESA), and Multiple Resource Managed Lands (MRML). The MRML classification is divided into four subcategories: Low Density Recreation (MRML-LDR), Wildlife Management (MRML-WM), Vegetative Management (MRML-VM), and Future/Inactive Recreation (MRML-IFR) Areas.

The Proposed Action evaluated in this EA is compared to the No Action Alternative. The USACE guidance recommends the establishment of resource goals and objectives for purposes of development, conservation, and management of natural, cultural, and man-made resources for a project. Goals describe the desired end state of overall management efforts, whereas objectives are concise statements describing measurable and attainable management activities that support the stated goals. Goals and objectives are guidelines for obtaining maximum public benefits while minimizing adverse impacts on the environment and are developed in accordance with 1) authorized project purposes, 2) applicable laws and regulations, 3) resource capabilities and suitability, 4) regional needs, 5) other governmental plans and programs, and 6) expressed public desires.

In the context of the 2021 Master Plan, goals express the overall desired end state of the Master Plan, whereas resource objectives are specific task-oriented actions necessary to achieve the Master Plan goals. The objectives in the 2021 Master Plan are intended to provide project benefits, meet public needs, and foster environmental sustainability of Belton Lake to the greatest extent possible. The goals for the Stillhouse Hollow Lake Master Plan are:

- Goal A: Provide the best management practices (BMPs) to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.
- Goal B: Protect and manage project natural and cultural resources through sustainable environmental stewardship programs.
- Goal C: Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining project natural resources.
- Goal D: Recognize the unique qualities, characteristics, and potentials of the project.
- Goal E: Provide consistency and compatibility with natural objectives and other state and regional goals and programs.

A detailed discussion of these goals can be found in Chapter 3 of the 2021 Master Plan. Specific resource objectives to accomplish these goals can be found in Chapter 3.3 of the 2021 Master Plan.

In addition to the above goals, USACE management activities are also guided by USACE-wide Environmental Operating Principles as follows:

- Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse and sustainable condition is necessary to support life.
- Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of USACE programs and act accordingly in all appropriate circumstances.
- Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
- Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
- Seek ways and means to assess and mitigate cumulative impacts on the environment; bring systems approaches to the full life cycle of our processes and work.
- Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.
- Respect the views of individuals and groups interested in USACE activities; listen to them actively and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.

The Proposed Action would meet regional goals associated with good stewardship of land and water resources, would meet regional recreation goals, would address identified recreational trends, and would allow for continued use and development of project lands without violating national policies or public laws.

2.1 ALTERNATIVE 1: NO ACTION

The No Action Alternative serves as a basis for comparison to the anticipated effects of the other action alternatives, and its inclusion in this EA is required by NEPA and CEQ regulations (40 CFR § 1502.14(d)). Under the No Action Alternative, no new resource analyses or land-use classifications would occur at the project. Instead the USACE would continue to manage Stillhouse Hollow Lake's natural resources as set forth in the 1975 Master Plan. The 1975 Master Plan would continue to provide the only source of comprehensive management guidelines and philosophy. However, the 1975 Master Plan is out of date and does not reflect the current ecological, socio-political, or socio-demographic conditions of Stillhouse Hollow Lake. The No Action Alternative, while it does not meet the purpose of, or need for, the Proposed Action, serves as a benchmark of existing conditions against which federal actions can be evaluated, and as such, the No Action Alternative is included in this EA, as prescribed by CEQ regulations.

2.2 ALTERNATIVE 2: PROPOSED ACTION

Under the Proposed Action, the 2021 Master Plan would be reviewed, coordinated with the public, revised to comply with USACE regulations and guidance, and to reflect changes in the land management and land uses that have occurred over time or are

desired in the near future. Key components include the reclassifications of land and the water surface, adoption of new resource objectives, and preparation of a resource plan that would guide the management of each classification to sustain the lake's natural resources and provide recreational experiences for the next 25 years.

The proposed land classification categories are defined as follows:

- Project Operations (PO): Lands required for the dam, spillway, switchyard, levees, dikes, offices, maintenance facilities, and other areas used solely for the operation of Stillhouse Hollow Lake.
- High Density Recreation (HDR): Lands developed for the intensive recreational activities for the visiting public including day use and campgrounds. These areas could also be for commercial concessions and quasi-public development.
- Environmentally Sensitive Areas (ESA): Areas where scientific, ecological, cultural, or aesthetic features have been identified.
- Multiple Resource Management Lands (MRML): Allows for the designation of a predominate use with the understanding that other compatible uses may also occur on these lands.
 - Wildlife Management (WM): Lands designated for stewardship of fish and wildlife resources.
 - Low Density Recreation (LDR): Lands with minimal development or infrastructure that support passive recreation use (primitive camping, fishing, hunting, trails, wildlife, viewing, etc.).
 - Vegetative Management (VM): Lands designated for stewardship of forest, prairie, and other native vegetative cover.
 - Future or Inactive Recreation Areas: Areas with site characteristics compatible with potential future recreational development or recreation areas that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources.
- Water Surface: Allows for surface water zones.
 - Restricted: Water areas restricted for Stillhouse Hollow Lake operations, safety, and security.
 - Designated No-Wake: Water areas to protect environmentally sensitive shoreline areas and recreational water access areas from disturbance and areas to protect public safety.
 - Open Recreation: Water areas available for year-round or seasonal water-based recreational use.

Section 4.2 of the 2021 Master Plan provides details of these classifications. Table 2.1 lists the proposed land and water surface classification changes and acres. Table 2.2 provides the justification for the proposed reclassifications.

Table 2.1 Change from Prior Land Classification to New Land Classification

1975 Land Classifications	Acres	Proposed New Land Classifications	Acres
Project Operations ¹	627	Project Operations	500
Recreation – Intensive Use (Includes 236 acres Allocated Recreation Lands)	1,934	High Density Recreation (HDR) ²	982
Natural Areas	230	Environmentally Sensitive Areas (ESA) ²	625
Recreation Low Density	2,416	<u>Multiple Resource Management Lands (MRML) – Low Density Recreation (LDR)</u>	55
Wildlife Management	3,726	<u>Multiple Resource Management Lands (MRML) – Wildlife Management (WM)²</u>	6,178
	0	Future/Inactive Recreation ²	414
Total Fee Land 1975	8,933	Total Fee Land 2021	8,754
Prior (1975) Water Surface Classifications	Acres	2021 Water Surface Classifications	Acres
Water Surface*	6,430	Water Surface: Open Recreation	6,375
		Water Surface: Restricted	23
		Water Surface: Designated No-Wake	75
Total Water Surface 1975	6,430	Total Water Surface 2021	6,473
Total Fee	15,363	Total Fee	15,227
1975 Flowage easement	882	2021 Flowage easement	914
1975 Shoreline Miles	58	2021 Shoreline Miles ³	71.8

Conservation Pool 622.0 NGVD29

*Acreage differences from the 1975 total to the 2021 totals are due to improvements in measurement technology, siltation and erosion.

¹ Includes 26 acres of Project Operations by Other

² These classifications include a portion of the Separable Recreation Lands as follows: HDR, 65 acres; WMA, 13 acres; ESA, 93 acres; and Future Recreation, 65 acres.

³ 1975 Master Plan did not include a good portion of the Lampasas River on USACE lands.

Table 2.2 Justification for the Proposed Reclassification

Proposal	Description	Justification
Project Operations (PO)	PO acres were reduced from 627 acres to 500 acres as a result of the following reclassifications:	The Project Operations land classification was expanded to take in the spillway, staging

	<ul style="list-style-type: none"> • ESA: -189 acres • HDR: +16 acres • LDR: +39 acres • Project Operations by Others: +26 • Disposed: -15 acres • GIS Correction: -4 acres 	area, and operations by other entities associated with the water supply mission. The conversion of these lands will have no effect on current or projected public use.
High Density Recreation (HDR)	<p>HDR acres were reduced from 1,934 acres to 982 acres as a result of the following reclassifications:</p> <ul style="list-style-type: none"> • PO: -31 acres • ESA: -252 acres • LDR: -29 acres • WM: -237 acres • FIR: -398 acres • Disposed: -1 acres • GIS Correction: -4 acres 	Decreases in prior Recreation Intensive Use lands were the result of evaluating historic land uses in these areas and reclassifying acres to more appropriately reflect current needs and uses, especially ESA's to protect golden cheeked warbler habitat. The conversion of these lands will have no effect on current or projected public use.
Environmentally Sensitive Areas (ESA)	<p>The classification of 625 acres as ESA resulted from reclassifying acres from the following:</p> <ul style="list-style-type: none"> • PO: +189 acres • HRD: +252 acres • LDR: +49 acres • WM: +135 acres 	These classification changes were necessary to recognize those areas at Stillhouse Hollow Lake having the highest ecological value, including areas of high value for protection of important habitat for the endangered GCWA as designated by the USFWS, and to protect unique views and cultural and archeological sites. The conversion of lands will have little to no effect on current or projected public use. Lands classified as ESA are given the highest order of protection among possible land classifications.
MRML – Low Density Recreation (LDR)	<p>LDR acres were reduced from 2,416 acres to 55 acres as a result of the following reclassifications:</p> <ul style="list-style-type: none"> • PO: -50 acres • ESA: -49 acres • WM: -2015 acres • FIR: -16 acres • Disposed: -80 acres • HDR: +29 • GIS Change: -180 	The land in the former classification of Operations: Recreation Low Density were converted to other land uses due to the areas having historic land use patterns supporting the change. The conversion of these lands will have no effect on current or projected public use.

MRML – Wildlife Management (WM)	<p>WM acres were increased from 3,726 acres to 6,178 acres as a result of the following reclassifications:</p> <ul style="list-style-type: none"> • HDR: +237 acres • ESA: -135 acres • LDR: +2,015 acres • Formally Natural Areas: +230 acres • Property not calculated in the 1975 plan: +30 acres • GIS Change: +75 	<p>Lands were converted from previous land classifications of Project Operations, Operation: Low Density Recreation, and Natural Areas to Wildlife Management to more appropriately align with historic and current land use patterns. Additionally, some lands were converted to ESA to protect important cultural and habitat areas. The conversion of these lands will have no effect on current or projected public use.</p>
MRML – Future or Inactive Recreation (FIR)	<p>The classification of 414 acres as FUT resulted from reclassifying acres in the prior classifications of Operations:</p> <ul style="list-style-type: none"> • HDR: 398 acres • LDR: 16 acres 	<p>These classification changes were necessary to recognize areas at Stillhouse Hollow Lake having potential for future recreation.</p>
Water Surface	<p>The classification of 6,473 acres of water surface of the lake at the conservation pool elevation is as follows:</p> <ul style="list-style-type: none"> • 23 acres of Restricted water surface include the water surface in front of Stillhouse Hollow Dam, water intakes, and designated swimming areas in the parks around Stillhouse Hollow Lake. Buoys mark the line in front of the dam. Keep-out buoys and floating barrier pipes mark the designated swimming areas in each park. • 75 acres of Designated No-Wake areas are in place near the boat ramps at Stillhouse Hollow Lake. • There are 6,375 acres of Open Recreation water surface at Stillhouse Hollow Lake. 	<p>The previous Master Plan for Stillhouse Hollow Lake did not specify different classifications on the water surface, though these classifications were recognized in practice. This Master Plan revision recognizes and specifies these uses. The classification of water surfaces will have no effect on current or projected public use</p>

The land classification changes described in this table are the result of changes to several individual parcels of land ranging from a few acres to over 100 acres. Acreages were measured using GIS technology. The acreage numbers provided are approximate.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

Other alternatives to the Proposed Action were initially considered as part of the scoping process for this EA. However, none met the purpose of and need for the Proposed Action or the current USACE regulations and guidance. Furthermore, no other alternatives addressed public concerns. Therefore, no other alternatives are being carried forward for analysis in this EA.

SECTION 3: AFFECTED ENVIRONMENT AND CONSEQUENCES

This section of the EA describes the natural and human environments that exist at the project and the potential impacts of the No Action Alternative (Alternative 1) and Proposed Action (Alternative 2), outlined in Section 2.0 of this document. Only those issues that have the potential to be affected by any of the alternatives are described, per CEQ guidance (40 CFR § 1501.7 [3]). Some topics are limited in scope due to the lack of direct effect from the Proposed Action on the resource or because that resource is not located within the project area. For example, no body of water in the Stillhouse Hollow Lake watershed is designated as a federally designated Wild or Scenic River, so this resource will not be discussed.

Impacts (consequence or effect) can be either beneficial or adverse and can be either directly related to the action or indirectly caused by the action. Direct effects are caused by the action and occur at the same time and place (40 CFR § 1508.8 [a]). Indirect effects are caused by the action and are later in time or further removed in distance but are still reasonably foreseeable (40 CFR § 1508.8 [b]). As discussed in this section, the alternatives may create temporary (less than one year), short-term (up to three years), long-term (three to ten years following the master plan revision), or permanent effects.

Whether an impact is significant depends on the context in which the impact occurs and the intensity of the impact (40 CFR § 1508.27). The context refers to the setting in which the impact occurs and may include society as a whole, the affected region, the affected interests, and the locality. Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis, the intensity of impacts would be classified as negligible, minor, moderate, or major. The intensity thresholds are defined as follows:

- Negligible: A resource would not be affected, or the effects would be at or below the level of detection, and changes would not be of any measurable or perceptible consequence.
- Minor: Effects on a resource would be detectable, although the effects would be localized, small, and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse effects, would be simple and achievable.
- Moderate: Effects on a resource would be readily detectable, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.
- Major: Effects on a resource would be obvious and long-term and would have substantial consequences on a regional scale. Mitigation measures to offset the adverse effects would be required and extensive, and success of the mitigation measures would not be guaranteed.

3.1 LAND USE

Construction of the Stillhouse Hollow Lake Dam began in 1962 and was completed in 1968. The total project area at Stillhouse Hollow Lake encompasses 15,227 acres in fee owned land and water, in addition to 914 acres of flowage easement lands. When the pool elevation is at the normal or conservation pool elevation of 622.0 mean sea level

([msl] NGVD29), the lake has a surface area of approximately 6,473 acres and a shoreline of about 71.8 miles.

The USACE lands above elevation 622.0 msl associated with Stillhouse Hollow Lake are listed in the 1975 Master Plan as follows:

- 627 acres of land managed as operations and maintenance;
- 1,934 acres of land managed as intensive use public recreational areas;
- 2,416 acres managed for low density recreation;
- 3,956 acres of land managed as wildlife management and natural areas;

The USACE operates and manages numerous areas designated as High Density Recreation. In addition to the USACE-operated parks, the USACE leases three areas to non-Federal partners referred to as grantees. Each grantee is responsible for the operation and maintenance of their leased area. The USACE does not provide direct maintenance within any of the leased locations, but it may occasionally lend support where appropriate. The USACE reviews requests and ensures compliance with applicable laws and regulations for proposed activities in all leased and USACE-operated High Density Recreation areas. These parks are Overlook Park, Stillhouse Park, Dana Peak Park, Cedar Gap Park, Union Grove Park, Bluff Park, and Chalk Ridge Environmental Learning Center.

Section 5.3 of the 2021 Master Plan further describes recreational areas at Stillhouse Hollow Lake.

3.1.1 ALTERNATIVE 1: NO ACTION

The No Action Alternative for Stillhouse Hollow Lake is defined as the USACE taking no action, which means the operation and maintenance of USACE lands at Stillhouse Hollow Lake would continue as outlined in the existing 1975 Master Plan. No new resources analysis, resources management objectives, or land-use classifications would occur. Although this alternative does not result in a Master Plan that meets current regulations and guidance, there would be no direct or indirect impacts on land uses surrounding Stillhouse Hollow Lake.

3.1.2 ALTERNATIVE 2: PROPOSED ACTION

The objectives for revising the Stillhouse Hollow Lake Master Plan were to describe current and foreseeable land uses while considering expressed public opinion and USACE policies that have evolved to meet day-to-day operational needs.

The USACE intends to continue to operate the campgrounds, day use areas, and access points, by maintaining and improving existing facilities with no plans for expansion. Emphasis will be placed on improvements such as upgrading aging water and electrical infrastructure, improving service facilities such as restrooms and showers, improving energy efficiency, and sustainability of facilities.

The recommended changes for the Proposed Action were developed to help fulfill the regional goals associated with good stewardship of natural resources that would allow for the continued use and development of project lands. For example, 625 acres would be reclassified as ESA compared to the No Action Alternative which contains 0 acres (see Tables 2.1 and 2.2). The ESA reclassifications would afford protection to and potentially

benefit wildlife, wildlife habitats, sensitive species habitat, and cultural resources. The protection and appropriate management of these areas aligns with Resource Goals B, C, D, and E as described in Section 3.2 of the revised Master Plan, as well as numerous cultural and natural resource objectives listed in Tables 3.3 and 3.5 of the revised Master Plan. The reduction of HDR by 952 acres and MRM-LDR by 2,361 acres occur in areas of parks with little to no recreational development. No decrease in recreational opportunities are expected as low impact activities like fishing, hiking, and wildlife viewing can still occur in these land classes. Maintaining the HDR and MRML-LDR areas allows for continued outdoor recreation opportunities at Stillhouse Hollow Lake. New resource goals A, C, and E and several recreational objectives are supported by these reclassifications as described in Sections 3.2 and 3.3, and Table 3.1 of the revised Master Plan. The new resources objectives will provide a level of consistency in beneficial management practices that would not occur with the No Action Alternative. The designation of two utility corridors, as described in Section 6.10 of the 2021 Master Plan, will serve to avoid and minimize impacts of fragmentation on the proposed land uses. Utility corridors provide areas for existing and future infrastructure while minimizing the extent of reoccurring maintenance activities and additional habitat fragmentation.

No changes in land use are expected, as recreation and project maintenance areas and operation areas will largely remain the same. As such, no direct or indirect impacts are anticipated as a result of implementing the 2021 Stillhouse Hollow Lake Master Plan.

3.2 WATER RESOURCES

The 45,573 square mile Brazos Basin, which feeds Stillhouse Hollow Lake, is the second largest river basin by area within Texas. The total basin is 840 miles long with an annual flow of 6,074,000 ac-ft per year, most of which is in Texas. The basin's namesake river was named Los Brazos de Dios, "the arms of God," by early Spanish explorers. The Brazos River flows from the confluence of its Salt and Double Mountain forks in Stonewall County to the Gulf of Mexico. It is the state's third longest river and has the largest average annual flow volume of any river in the state. Other streams in the basin include the Salt, Double Mountain, and Clear forks of the Brazos River; Gabriel, Lampasas, Little, Leon, Navasota, Nolan, Paluxy, Sabana, and White rivers; and many creeks such as Big Sandy, Cedar, Millers, Salt, Sweetwater, and Yegua creeks.

The water resources for Stillhouse Hollow Lake can be classified into three categories; surface water, groundwater, and wetlands. The primary water resource in the Stillhouse Hollow Lake area is surface water.

3.2.1 SURFACE WATER

Stillhouse Hollow Dam and Lake is located entirely in Bell County, Texas on the Lampasas River, approximately 16 miles upstream of its' confluence with the Leon River. The estimated drainage area above the dam is 1,318 miles. According to a 2017 TPWD fisheries management report, the lake has a mean depth of 37 feet and a maximum depth of 107 feet. The reservoir is classified as oligotrophic based on a chlorophyll concentration of 1.6 milligrams per cubic meter (mg/m^3) and a total phosphorus concentration of 15.7 mg/m^3 (TPWD 2018).

Congressional authority for the construction of the Lampasas Lake, now Stillhouse Hollow Lake, is contained in Public Law 780-399, (83rd Congress, 2nd Session). Water Rights Permit (No. 2109) to impound and appropriate the water was issued by the State of Texas on 24 July 1964. A contract between the USACE and the Brazos River Authority (BRA) executed on 13 April 1962 granted the BRA the right to utilize the storage space below elevation 572.0 for water supply. The storage space between elevations 572.0 and 622.0 (top of conservation storage) is contracted for future use.

A 2015 Texas Water Development Board (TWDB) volumetric survey indicates that Stillhouse Hollow Lake has a total reservoir capacity of 229,881 acre-feet and a surface area of 6,429 acres at conservation pool elevation (622 feet above msl, NGVD29).

There are currently three permanent pumping stations on the reservoir. The first is operated by BRA and transfers untreated water to Lake Georgetown to be used for municipal water supply. The other two are operated by the town of Kempner and Central Texas Water Supply, both of which pull water from the lake, treat it, and deliver it for use as municipal water. There is a proposed waterline between Belton Lake and Stillhouse Hollow Lake (Bellhouse Project) to pump untreated water to Stillhouse Hollow, thereby increasing the water transfer capabilities of Stillhouse Hollow. The City of Killeen has installed a waterline from Stillhouse Hollow Lake and is currently constructing the intake structure at the lake. A reproducing zebra mussel population was documented on 25 July 2016 by TPWD fisheries staff. The population is expanding, and the reservoir is considered infested. The presence of zebra mussels in Stillhouse Hollow and Belton Reservoirs will certainly play a role in future water transfer projects.

3.2.2 GROUNDWATER

The two primary sources of groundwater in the Stillhouse Hollow Lake area are the Edwards Balcones Fault Zone (BFZ) Aquifer and the Trinity Aquifer (TWDB, 2015). The Edwards BFZ forms a narrow belt extending through most of the southwestern part of the state of Texas, through 13 counties from a groundwater divide in Kinney County through the San Antonio area, northwestward to the Leon River in Bell County. Water in the aquifer occurs in fractures, honeycomb zones, and solution channels in the Edwards and associated limestone formations of Cretaceous age. Water quality for the Edwards BFZ ranges from fresh to slightly saline as it approaches the west side of the Trinity Group, with total mineral dissolve ranging from 100 to 3,000 milligram per liter. Water from the Edwards BFZ is primarily used for municipal, irrigation, and recreational purposes.

The Trinity Aquifer consists of basal Cretaceous-age Trinity Group formations extending across much of the central and northwest parts of the state of Texas, through 61 counties. From the Red River in North Texas to the Hill Country of Central Texas, the aquifer is comprised of the Antlers, Twin Mountains, Glen Rose, Paluxy, Hosston, Travis Peak, and Hensell formations. In general, groundwater in the Trinity Aquifer is fresh but very hard in the outcrop. The dissolved solids increase from 1,000 - 5,000 milligram per liter, and slightly to moderately saline as the depth of the aquifer increases. Sulfate and chloride concentrations increase in the aquifer as depth increases. The Trinity Aquifer is mostly used for municipalities, irrigation, and livestock and is one of the most used groundwater resources in the state of Texas.

3.2.3 WETLANDS

Waters of the United States are defined within the Clean Water Act (CWA), and jurisdiction is addressed by the USACE and United States Environmental Protection Agency (USEPA). Wetlands are a subset of the waters of the United States that may be subject to regulation under Section 404 of the CWA (40 CFR 230.3). Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wetlands in the Stillhouse Hollow Lake area are most common on floodplains along rivers and streams (riparian wetland), along the margin of the lake and in other low-lying areas where groundwater intercepts the soil (springs). Wetlands generally occur as small emergent wetland associated with ephemeral streams or as large forested wetland complexes adjacent to perennial channels. Table 3.1 lists the acreages of various types of wetlands present at Stillhouse Hollow Lake. Wetland classifications, as depicted in Figure 3.1, are derived from the U.S. Fish and Wildlife Service's (FWS) National Wetland Inventory (NWI) (USFWS, 2020).

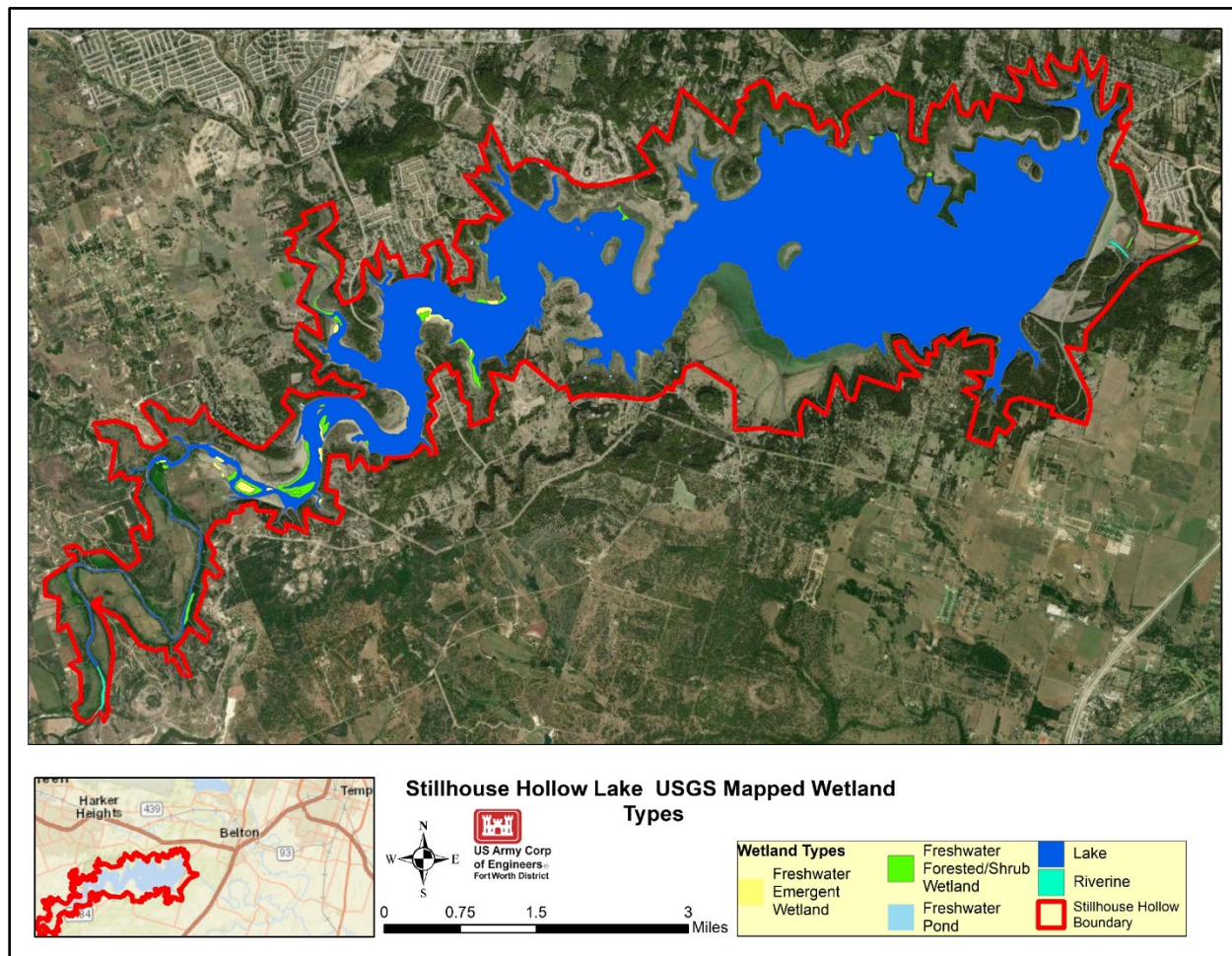


Figure 3.1. NWI mapped wetlands at Stillhouse Hollow Lake

Table 3-1. Wetland Resources

Wetland Types	Total Acres
Lake	6,555.7
Riverine	802.4
Freshwater Forested/Shrub Wetland	122.8
Freshwater Emergent Wetland	31.8
Freshwater Pond	3.5
Total Inventoried	7516.2

Note: Acreages from the USFWS website do not match exactly with the USACE digitized acreages.

3.2.4 WATER QUALITY

Stillhouse Hollow Lake is identified as Segment ID 1216 within the Brazos River Basin. According to the 2020 Texas Commission on Environmental Quality (TCEQ) Texas Integrated Report for Clean Water Act Section 305(b) and 303(d), no water quality parameters measured were considered impaired at Stillhouse Hollow Lake (TCEQ 2020). All parameters measured such as metals in water, organics in water, sediment Toxicity sets, and macrobenthos communities, show Stillhouse Hollow Lake as fully supported (FS) or no concern (NC) for aquatic life, contact recreation, public water supply and general uses. Depressed dissolved oxygen levels were noted for the screening level of analysis in 7 out of 89 samples collected between 01 December 2011 and 30 November 2018 for Aquatic Life Use, but those samples exceeded minimum level requirements (TCEQ 2020).

Upstream of Stillhouse Hollow Lake, Lampasas River (Segment ID 1217) all parameters measured, such as dissolved Oxygen levels, metals in water, organics in water, sediment Toxicity sets, and macrobenthos communities, show the river as fully supported (FS) or no concern (NC) for aquatic life, contact recreation, public water supply and general uses (TCEQ 2020).

3.2.5 ALTERNATIVE 1: NO ACTION

Operation and maintenance of USACE lands and waters at Stillhouse Hollow Lake would continue as outlined in the existing 1975 Master Plan. No new resources analysis, resources management objectives, or land-use classifications would occur. There would be no direct or indirect impacts on the hydrology, groundwater or wetlands in and around Stillhouse Hollow Lake.

3.2.6 ALTERNATIVE 2: PROPOSED ACTION

The reclassifications included in the Proposed Action would allow land management and land uses to be compatible with the goals of good stewardship of water resources. The classification of 625 acres as ESA (compared to the No Action Alternative which allocates no acres) directly supports resource goals B, D, and E and several natural resource management objectives including minimizing activities that disturb the aesthetic

value and protect natural habitat, all of which are further described in Chapter 3 of the revised Master Plan. The net reduction in HDR land classification from 1,934 acres to 982 acres will limit future intensive development, thus reducing the potential for erosion and sedimentation. Natural vegetation communities act as buffers to trap runoff, thus potentially reducing sedimentation. Furthermore, the utility corridors were designated to avoid and minimize impacts on water resources by future actions by requiring future actions to bore under streams and wetlands where feasible. The new resources objectives will provide a level of consistency in beneficial management practices that would not occur with the No Action Alternative. Land reclassifications and new resource objectives proposed as part of the Proposed Action would have moderate long-term beneficial impacts on water quality. No direct or indirect impacts to groundwater or wetlands are anticipated with implementation of the 2021 Master Plan.

3.3 CLIMATE

Stillhouse Hollow Lake lies near the intersection of the Cross Timbers and Texas Blackland ecoregions, along the northern extent of the Edward's Plateau. The climate is characterized by short, mild winters and long hot summers. In spring, summer, and fall, prevailing winds are from the south and southwest. The average annual temperature in nearby Belton, TX is 66.3 degrees Fahrenheit (F). The maximum recorded temperature at Belton, TX was 99.1° F. The recorded low was 22° F. The average annual precipitation for Belton, TX is 35.2 inches. May typically has the most precipitation (4.6") and January with the least (1.7"). The area surrounding Stillhouse Hollow Lake has little to no snowfall annually, with an average of 0.1" which usually occurs in January.

Section 2.1.2 of the 2021 Master Plan further describes the regional and local climate.

3.3.1 ALTERNATIVE 1: NO ACTION

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions. There would be no direct or indirect impacts on climate as a result of implementing the No Action Alternative.

3.3.2 ALTERNATIVE 2: PROPOSED ACTION

Revision of the Stillhouse Hollow Lake Master Plan would have no direct or indirect impacts on the climate of the study area.

3.4 CLIMATE CHANGE AND GREENHOUSE GASES

The U.S. Global Change Research Program (USGCRP) looks at potential impacts of climate change globally, nationally, regionally, and by resource (e.g., water resources, ecosystems, human health). Stillhouse Hollow Lake area lies within the Southern Great Plains region of analysis. The Southern Great Plains region has already seen evidence of climate change in the form of rising temperatures that are leading to increased demand for water and energy and impacts on agricultural practices. Over the last few decades, the Southern Great Plains have seen fewer cold days and more hot days, as well as an overall increase in total precipitation. The decrease in the cold days has resulted in an overall increase of the frost-free (growing) season. Within this region, there has been an

increase in average temperatures 1.2° Fahrenheit (F) for the period 1986-2016 (USGCRP 2018). In addition to more extreme rainfall, extreme heat events have also been increasing. Most of the increases of heat wave severity in the U.S. are likely due to human activity, with a detectable human influence in recent heat waves in the Southern Great Plains (USGCRP, 2018).

Texas, in general, experiences multiple climate and weather hazards including floods, droughts, severe storms, tornadoes, hurricanes and winter storms. The National Climate Assessment (Shafer et al., 2014) reports that large parts of Texas and Oklahoma are projected to see longer dry spells by mid-century (2041-2070), particularly in the western edges of the states. The projected number of heavy precipitation days is not expected to change dramatically through the remainder of the century.

According to the most recent estimating tools from the USEPA, there are no contributors to GHG within Bell or Coryell Counties.

3.4.1 ALTERNATIVE 1: NO ACTION

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions. There would be no direct or indirect impacts on climate change or contributions to GHG emissions as a result of implementing the No Action Alternative.

3.4.2 ALTERNATIVE 2: PROPOSED ACTION

Under the Proposed Action, current Stillhouse Hollow Lake project management plans and monitoring programs would not be changed. There would be no direct or indirect impacts on climate change or contributions to GHG emissions as a result of implementing the 2021 Master Plan. If GHG emission issues become significant enough to impact the current operations at Stillhouse Hollow Lake, the 2021 Master Plan and all associated documents would be reviewed and revised as necessary.

3.5 AIR QUALITY

The USEPA established nationwide air quality standards to protect public health and welfare in 1971. The State of Texas has adopted the National Ambient Air Quality Standards (NAAQS) as the state's air quality criteria. NAAQS standards specify maximum permissible short- and long-term and concentrations of various air contaminants including primary and secondary standards for six criteria pollutants: Ozone (O₃), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrogen Oxide (NO), particulate matter (PM₁₀ and PM_{2.5}), and Lead (Pb). Based on both Federal and state air quality standards, an area can be classified as either an "attainment," "maintenance," or "non-attainment" area for each pollutant. According to TCEQ current State Implementation Plan (TCEQ 2015), the Stillhouse Hollow Lake area (Bell and Coryell Counties) is an attainment area and does not require a pollutant control strategy. Through the first six months of 2020, Bell County, Texas air quality was rated as "Good" for 143 days out of 182 days, "Moderate" for 38 days, and only 1 day was listed as "Unhealthy" (EPA, 2020). In 2019, only 2 days out of 365 were listed as "Unhealthy".

3.5.1 ALTERNATIVE 1: NO ACTION

The existing operation and management of Stillhouse Hollow Lake is compliant with the Clean Air Act. There would be no direct or indirect impacts on air quality as a result of implementing the No Action Alternative, since there would be no change to the existing Master Plan.

3.5.2 ALTERNATIVE 2: PROPOSED ACTION

Existing operation and management of Stillhouse Hollow Lake is compliant with the Clean Air Act and would not change with implementation of the 2021 Master Plan. No direct or indirect impacts on air quality would occur as a result of implementing the proposed revisions to the Stillhouse Hollow Lake Master Plan. The draft 2021 Master Plan does not entail ground disturbance activities or associated GHG emissions, as such a General Conformity analysis and determination is not required.

3.6 TOPOGRAPHY, GEOLOGY, AND SOILS

3.6.1 TOPOGRAPHY

The topography of the lands surrounding Stillhouse Hollow Lake is controlled, for the most part, by the underlying and surface geology and soils. It is defined by rolling prairies and steep breaks. Stillhouse Hollow Lake is in the Balcones Fault Zone, a region of many small faults. Over geological time, the area surrounding this fault zone, has elevated as much as 500 ft. above sea level in the eastern part and as high as 1,200 feet in the western part. Erosion in the area has created an irregular steep sloping terrain. Soils developed from thousands of years of slow erosion by major streams and tributaries cover most of the relatively flat areas of limestone surface, resulting in a rolling topography of hills bisected by steep bluffs where streams are located. Meandering stream beds and floodplains cut into the limestone are filled with relatively flat alluvial deposits in the stream valleys. Further discussion on the topography in the region can be found in Section 2.1.3 of the 2021 Master Plan.

3.6.2 GEOLOGY

The underlying geology of Stillhouse Hollow Lake is that of valleys, buttes, and mesas. It is located in the Mid-Continent Plains and Escarpments physiographic region, and the eastern edge of the Edwards Plateau. The area of Stillhouse Hollow Lake was originally that of rolling prairies with limestone beds. However, the softer limestone was eroded slowly forming narrow long valleys and streams flowing in a southeastward direction leaving the ridges of the harder limestone. The area is characterized by karst topographic features such as sinkholes, caves, and underground springs. The geologic formations of Cretaceous and Quaternary Ages in the Stillhouse Hollow Lake area are Glen Rose, Paluxy Sand, Walnut Clay, Comanche Peak Limestone, and Denton Clay formations. Further discussion on the geology in the region can be found in Section 2.1.3 of the 2021 Master Plan.

3.6.3 SOILS

Geology influences the kind of soils that develop in any area. Geologic formation in the Stillhouse Hollow Lake is wholly within the Mesozoic period. All the rock outcrops are of the lower Cretaceous (Comanche) formation and the Cretaceous Gulf formation.

Soils in the Stillhouse Hollow Lake area are naturally susceptible to soil erosion. The major soil series found in the area are Brackett association, Bosque clay loam, Purves association, and Real-Rock outcrop complex. The soils in general are well drained and moderately permeable, but can vary in depth, parent material, and slope. Hydrologically, these soil groups generally have moderate infiltration water rate. However, in the areas where soils tend to be of clay formation, a very slow infiltration rate (high runoff potential) is recorded which gives the soil a shrink-swell potential.

There are 1,022.3 acres of Prime Farmland soils (11.6%) and 637.6 acres of Farmland of Statewide Importance soils (7.2%) found on USACE fee-owned lands at Stillhouse Hollow Lake. Prime Farmland soils include Crawford silty clay (0 to 1% and 1 to 3% slopes), Denton silty clay, 0-1% slopes, Krum silty clay (0 to 1% and 1 to 3% slopes), Lewisville silty clay, 1 to 3% slopes, San Saba clay (0 to 2% and to 3% slopes), Venus clay loam (1 to 3% and 3 to 5% slopes). Farmlands of Statewide Importance include Denton silty clay 1 to 3% slopes and Lewisville-Altoga complex, 2 to 5% slopes. (USDA 2020).

3.6.4 ALTERNATIVE 1: NO ACTION

No direct or indirect impacts on topography, geology, or soils (including Prime Farmland and Farmland of Statewide Importance) would occur as a result of implementing the No Action Alternative.

3.6.5 ALTERNATIVE 2: PROPOSED ACTION

Topography, geology, and soils were considered during the refining process of land reclassifications for the 2021 Master Plan. Some lands under the prior classification of Recreation Areas were reclassified to the new and similar classification of High Density Recreation, but total acreage was reduced from 1,934 acres to 982 acres. This reduction is solely based on the realization that the amount of acreage originally planned for intensive recreation use per the 1975 Master Plan significantly exceeded the amount necessary to meet public needs and was excessive and not being fully utilized. Areas currently developed as park would continue to operate as parks and no change would occur. However, 2,252 acres of the lands previously designated as Recreation Areas (high and low use) would be reclassified to Wildlife Management, along with 625 acres to ESA, to better reflect historic use patterns and current land management efforts. The conversion of these lands would have no effect on current or projected public use. No direct or indirect impacts on topography, geology, or soils (including Prime Farmland and Farmland of Statewide Importance) would occur as a result of implementing the 2021 Stillhouse Hollow Lake Master Plan.

3.7 NATURAL RESOURCES

Operational civil works projects administered by USACE are required, with few exceptions, to prepare an inventory of natural resources. The basic inventory required is referred to within USACE regulations (ER and EP 1130-2-540) as a Level One Inventory. This inventory includes the following: vegetation in accordance with the National Vegetation Classification System through the sub-class level; assessment of the potential presence of special status species including but not limited to Federal and state listed endangered and threatened species, migratory species, and birds of conservation

concern listed by the USFWS; land (soils) capability classes in accordance with NRCS soil surveys; and wetlands in accordance with the USFWS Classification of Wetlands and Deepwater Habitats of the United States, which are previously discussed in Section 3.2.

In addition to the data from the Level One Inventories, a Habitat Assessment was conducted on 24-28 August 2020 at Stillhouse Hollow Lake by USACE staff using TPWD's Wildlife Habitat Appraisal Procedure [(WHAP) TPWD 1995] to assist the preparation of the 2021 Master Plan. A total of 83 points were identified and vegetation data collected. Three major habitat types that were selected and assessed were grasslands, upland forests, and riparian/bottomland hardwood forests. The WHAP assessment report is included as Appendix E of the 2021 Master Plan.

3.7.1 VEGETATION

Stillhouse Hollow Lake is located within the Cross Timber ecological region in central Texas. The region is a transitional area between tall grass prairies and oak savannas. The dominant trees include honey locust (*Gleditsia triacanthos*), mesquite (*Prosopis glandulosa*), cedar elm (*Ulmus crassifolia*), winged elm (*Ulmus alata*), salt cedar (*Tamarix*), boxelder (*Acer negundo*), black locust (*Robinia pseudoacacia*), Ashe juniper (*Juniperus ashei*), and black willow (*Salix nigra*). Predominate herbaceous species include various grasses and forbs. The dominate forbs found on Stillhouse Hollow Lake lands include switchgrass (*Panicum virgatum*), false nettle (*Boehmerieae ramiflora*), johnsongrass (*Sorghum halepense*), bermuda grass (*Cynodon dactylon*), sea oats (*Chasmanthium latifolium*), panic grass (*Panicum spp.*), and eastern baccharis (*Baccharis halimifolia*).

Additional discussion of vegetation resources at Stillhouse Hollow Lake can be found in Section 2.2.1 of the 2021 Master Plan and Appendix E: WHAP Summary Report.

3.7.2 FISHERIES

Stillhouse Hollow Lake provides habitat for an abundance of fish species including popular sport fish species such as largemouth bass (*Micropterus salmoides*), crappie (*Pomoxis spp.*), and channel catfish (*Ictalurus punctatus*). Other sportfish species include a variety of sunfish species including bluegill (*Lepomis macrochirus*) and redear (*Lepomis microlophus*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), blue catfish (*Ictalurus furcatus*), and flathead catfish (*Pylodictus olivaris*).

3.7.3 WILDLIFE

Stillhouse Hollow Lake provides habitat for an abundance of wildlife species, including game and non-game species, migratory waterfowl, resident and migratory songbirds, wading birds, reptiles, amphibians, and insects. The area offers a mixture of geologic features, riparian forest, grasslands, springs, and river habitats, which support white-tailed deer (*Odocoileus virginianus*), gray foxes (*Urocyon cinereoargenteus*), red foxes (*Vulpes vulpes*), coyotes (*Canis latrans*), fox squirrels (*Sciurus niger*), bobwhite quail (*Colinus virginianus*), owls (Order *Strigiformes*), and over a hundred other species of birds (Class *Aves*).

Additional discussion of fish and wildlife resources at Stillhouse Hollow Lake can be found in Section 2.2.3 of the 2021 Master Plan and in the Trust Resources Report in Appendix C of the 2021 Master Plan.

3.7.4 ALTERNATIVE 1: NO ACTION

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions. No direct or indirect impacts on natural resources would be anticipated as a result of implementing the No Action Alternative.

3.7.5 ALTERNATIVE 2: PROPOSED ACTION

The reclassifications, resource management objectives, and resource plan required for the Proposed Action would allow land management and land uses to be compatible with the goals of good stewardship of natural resources. The proposed net increase of ESA by 625 acres and MMRL-WM by 2,452 acres would cause major long-term beneficial impacts to natural resources within these areas. The ESA classification provides the highest form of protection for natural resources. These proposed changes would protect natural resources from various types of adverse impacts such as habitat fragmentation. Furthermore, the utility corridors were designated to avoid and minimize impacts on current natural resources by future actions by selecting corridors with lesser quality habitats and that would avoid continued fragmentation of habitats. The Proposed Action would be compatible with conservation principles and measures to protect migratory birds as mandated by EO 13186. The Proposed Action is expected to provide moderate, direct, long-term beneficial impacts on the natural resources at Stillhouse Hollow Lake.

3.8 THREATENED AND ENDANGERED SPECIES

The Endangered Species Act was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All Federal agencies are required to implement protective measures for designated species and to use their authorities to further the purposes of the Endangered Species Act. The Secretary of the Interior and the Secretary of Commerce (marine species) are responsible for the identification of threatened or endangered species and development of any potential recovery plan.

The USFWS is the primary agency responsible for implementing the Endangered Species Act and is responsible for birds and other terrestrial and freshwater species. USFWS responsibilities under the Endangered Species Act include (1) the identification of threatened and endangered species; (2) the identification of critical habitats for listed species; (3) implementation of research on, and recovery efforts for, these species; and (4) consultation with other Federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species officially recognized by the USFWS as being in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The USFWS also identifies species that are candidates for listing as a result of identified threats to their continued existence. The

Candidate designation includes those species for which USFWS has enough information to support proposals to list as endangered or threatened under the Endangered Species Act; however, proposed rules have not yet been issued because such actions are precluded at present by other listing activity. Proposed species are those candidate species that are found to warrant listing as either threatened or endangered, after completion of a scientific review including biology, ecology, abundance and population trends, and threats. Official listing occurs after considering public comments and any new data that may become available, and publication of a Final Rule in the Federal Register. Species may be considered eligible for listing as endangered or threatened when any of the five following criteria occur: (1) current/imminent destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors affecting their continued existence. Although not afforded protection by the Endangered Species Act, candidate and proposed species may be protected under other federal or state laws.

There are 5 federally listed species that could be found at Stillhouse Hollow Lake based on information from USFWS' Information for Planning and Consultation website (Consultation Code: 02ETAU00-2020-SLI-0872) (USFWS 2020B). A list of these species is presented in Table 3-2. No Critical Habitat has been designated within or near Stillhouse Hollow Lake. The species identified as Threatened, Endangered or Candidate by TPWD, as well as all federally listed species by the USFWS are included in Section 2.2.4 of the 2021 Master Plan and in Appendix D of the 2021 Master Plan.

Table 3-2. Federally Listed Endangered and Threatened Species with Potential to Occur at Stillhouse Hollow Lake

Common Name	Scientific Name	Federal Status	Occurrence
Whooping Crane	<i>Grus americana</i>	Endangered	Rare; migrant
Piping Plover	<i>Charadrius melodus</i>	Threatened	Rare; migrant
Red Knot	<i>Calidris canutus rufa</i>	Threatened	Rare; migrant
Golden-cheeked Warbler	<i>Dendroica chrysoparia</i>	Endangered	Resident
Salado Salamander	<i>Eurycea chisholmensis</i>	Threatened	None

Source: USFWS 2020B

Determinations for impacts to the Piping Plover, and Red Knot are only required for wind energy projects, therefore a determination for these species is not warranted.

The Whooping Crane is a large white bird, with males approaching 1.5 m tall. Whooping Cranes are a long-lived species. Current estimates suggest a maximum longevity in the wild of at least 30 years. Whooping cranes currently exist in the wild at three locations and in captivity at 12 sites. There is only one self-sustaining wild population that nests in Wood Buffalo National Park and adjacent areas in Canada, and winters in coastal marshes at Aransas National Wildlife Refuge in Texas. Habitat for this

species consists of marshes, shallow lakes, lagoons, salt flats, grain and stubble fields, and barrier islands (NatureServe 2020A). Whooping Cranes have not been documented as occurring at Stillhouse Hollow Lake, nor are they anticipated to use the area for feeding or resting during their migratory flight to and from Canada each year. While some habitat for this species is present within Stillhouse Hollow Lake Federal Fee Boundary, there have been no known sightings, therefore it would be considered a rare occurrence.

Golden-cheeked Warbler [GCWA] is a small, neo-tropical songbird that live and breed in Texas during the spring and early summer, leaving in July to spend the winter in Mexico and Central America. GCWA breeding habitat consists of woodlands with old-growth and mature regrowth Ashe juniper in a natural mix with oaks (*Quercus* spp.), elms (*Ulmus* spp.), and other hardwoods, in relatively moist areas such as steep canyons, slopes, and adjacent uplands. Of the nearly 360 bird species that breed in Texas, the GCWA is the only one that nests exclusively in Texas. Habitat destruction is the primary threat to GCWAs (NatureServe 2020B). Pockets of suitable habitat for GCWAs is present within and adjacent to Stillhouse Hollow Lake Federal Fee Boundary. A survey conducted during the 2013 breeding season at Stillhouse Hollow Lake revealed GCWAs at three separate locations, therefore they are considered a common occurrence (Peak, 2013).

The Salado Salamander is entirely aquatic and reaches lengths up to 6cm, with a grayish-brown dorsal color and slight cinnamon tinge (Herps of Texas, 2018). Of the 19 known populations, most appear to consistently produce low numbers of salamanders when surveyed, providing weak evidence of stable populations in the short term. A few populations are located in heavily developed areas and probably lack long term viability. Monitoring at 2 sites since 2015 (Robertson Spring and Salado Springs Complex) show stable to increasing detections that are clearly related to spring flow. As with most spring salamanders in this genus in Texas, a small geographic distribution, rapidly expanding urban development, and long-term ground water depletion are the principle threats to this species (NatureServe 2020C). With the Salado Salamander being a spring obligate, they are not expected to be present within the Stillhouse Hollow Lake fee-boundary area.

3.8.1 TEXAS NATURAL DIVERSITY DATABASE

The Texas Natural Diversity Database (TXNDD), administered by TPWD, manages and disseminates information on occurrence of rare species, native plant communities, and animal aggregations in Texas to help guide project planning efforts. A request for information was submitted to TPWD for the following USGS quadrangles that encompass Stillhouse Hollow project lands: Nolanville, Salado, Killeen, and Youngsport. USACE received the requested information from TXNDD on 10 December 2020.

Within Stillhouse Hollow Lake project lands, two locations were identified by the TXNDD that contain unique species. There is one record of an American (formally “Western”) hog-nosed skunk (*Conepatus leuconotus*) from a location within the project lands at Stillhouse Hollow Lake. No date was listed for this record. In Texas, they are commonly known as “rooter skunks”, for its habit of rooting and overturning rocks and debris in search of food. Western hog-nosed skunks are one of the largest skunks in the world, growing to lengths of 2.7 feet. The distinguishing feature of the American hog-nosed skunk is it has a single, broad white stripe from the top of the head to the base of the tail, with the tail itself being completely white. Habitat preference is fairly broad, with

the exception of wetlands (NatureServe 2020D). Because of this information and lack of recent sightings, the occurrence of this species at Stillhouse Hollow Lake project lands is considered rare.

One specimen of mountain mullet (*Agonostomus monticola*) was recorded on 25 March 2002 below the Stillhouse Hollow Dam. The mountain mullet is a diadromous species (living in both fresh and sea water). Their body is elongated and slightly compressed, with a greyish-brown color on its back with dark outlines on the scales. The sides of adults have silver lateral scales and a white ventral region. Adults can reach lengths of approximately 28 inches. Mountain mullets are found along both the Atlantic and Gulf coasts from North Carolina to Texas, Mexico, Central America, West Indies, and northern South America. Mountain mullets spawn in the sea, where juveniles are found (sometimes drifting in currents hundreds of miles from shore). Adults and subadults ascend tropical and subtropical streams, often to their headwaters, where they are found in pools and runs with strong currents and rocky bottoms (NatureServe 2020E). The presence of the Stillhouse Hollow Dam prevents this species from migrating into or through the lake, thus it does not occur in the lake.

3.8.1 ALTERNATIVE 1: NO ACTION

While the No Action Alternative does not involve any activities that would contribute to changes in existing conditions, it does fail to recognize current federal and state-listed species. No direct or indirect impacts on natural resources would be anticipated as a result of implementing the No Action Alternative.

3.8.2 ALTERNATIVE 2: PROPOSED ACTION

Under the Proposed Action, the USACE would continue cooperative management plans with the USFWS and TPWD to preserve, enhance, and protect wildlife habitat resources. To further management opportunities and beneficially impact habitat diversity, several land parcels that were previously classified as Recreation Intensive Use and Project Operations were converted to ESAs in order to recognize those areas having the highest ecological value and to ensure they are given the highest order of protection among possible land classifications. Included as Environmentally Sensitive were areas of high-value bottomland hardwood and areas identified by USFWS as high-quality habitat for GCWA. Any future activities that could potentially result in impacts on federally listed species will be coordinated with USFWS through Section 7 of the Endangered Species Act. Direct and indirect long-term, beneficial impacts on state and federally listed threatened and endangered species would occur as a result of implementing the reclassifications outlined in the 2021 Master Plan. There would be no adverse impacts to Federally listed Threatened and Endangered species as a result of implementing the proposed 2021 Stillhouse Lake Master P, therefore USACE has determined the Proposed Action would have no effect on Federally Threatened and Endangered Species.

3.9 INVASIVE SPECIES

Executive Order (EO) 13751, dated December 5, 2016, which amends EO 13112 (1999), directs federal agencies to expand and coordinate their efforts to prevent the introduction, establishment, and spread, as well as to eradicate and control populations of invasive species. Invasive species are any kind of living organism which, if

uncontrolled, causes harm to the environment, economy, or human health. Invasive species generally grow and reproduce quickly and spread aggressively. Non-native, or exotic, species have been introduced, either intentionally or unintentionally, and can out-compete native species for resources or otherwise alter the ecosystem. Native invasive species are those species that spread aggressively due to an alteration in the ecosystem, such as lack of fire or the removal of a predator from the food chain. Table 3.3 lists the currently known invasive species occurring at Stillhouse Hollow Lake.

Table 3.3: Stillhouse Hollow Lake Invasive Species

Common Name	Scientific Name	Prevalence
Zebra mussel	<i>Dreissena polymorpha</i>	Significant/Major
Hydrilla	<i>Hydrilla verticillata</i>	Moderate
*Chinaberry	<i>Melia azedarach</i>	Major
*Willow baccharis	<i>Baccharis salicina</i>	Major
Feral hog	<i>Sus scrofa</i>	Minor

Zebra mussels reproduce rapidly once introduced to lakes. This species was first documented 25 July 2016 by TPWD. Since then the population has expanded and the lake is considered infested. An effective population control of zebra mussels has yet to be discovered. The best control as this time is the prevention from further spread to other aquatic systems.

Hydrilla was first discovered in the lake in 1995 and is monitored by TPWD and USACE. Concentrations of hydrilla fluctuate as water levels in the reservoir change during the growing season. In low densities, hydrilla provides habitat for some fish species. However, this is an aggressive plant that forms large, dense populations that displace native species and impair water use. Additionally, as populations grow, they can cause choke out waterways, causing serious impacts to water quality, water supply, and recreation. Hydrilla is all but impossible to eradicate by manual removal methods. Chemical control is possible but harms other aquatic life. Prevention from further spread to other aquatic systems is an important approach to reduce possible impacts (ANS 2020).

Chinaberry is a tree native to Asia that was introduced to the United States (U.S.) around 1830. Originally introduced to develop a soap-making industry, they have been widely planted as ornamentals. Since introduction, Chinaberry escaped cultivation, as it is fast-growing, highly disease resistant, and easily adapts to various habitat conditions. The fruit is poisonous to humans and animals if ingested in quantity. Chinaberry is prevalent around the lake and the population continues to expand.

Willow baccharis is a smooth shrub in the sunflower family that is native to the southern great plains and southwestern U.S. While mainly found in moist soils, the plant can tolerate a wide range of habitat conditions and is extremely heat tolerant, allowing it to spread easily. This plant has little value for wildlife or livestock. Once established in an area, it grows in dense stands where it out-competes more desirable vegetation for sunlight, water, and soil nutrients. Willow baccharis is prevalent around the lake in wet

areas and uplands. Common control of willow baccharis is by springtime use of 2, 4-Dichlorophenoxyacetic acid (2,4-D).

Feral hogs are an old-world species belonging to the family Suidae, and in Texas include European wild hogs, feral hogs, and European-feral crossbreeds. Feral hogs are domestic hogs that either escaped or were released for hunting purposes. With each generation, the hog's domestic characteristics diminish, and they develop the traits needed for survival in the wild. Feral hog populations continue to expand in Texas and elsewhere. They are prolific breeders, thus rapidly expand their populations once established. While popular for recreational hunting, their destructive feeding habits and potential to spread disease are a substantial liability to agriculture and native wildlife in Texas. Feral hogs have been documented in the Stillhouse Hollow Lake watershed on private property. It is likely that this species will occur on USACE property in the future. Several methods of population control have been used to control feral hog populations (e.g. hunting at night, trapping, hunting, shooting from a helicopter).

Sections 2.2.5 of the 2021 Master Plan provides additional information on these invasive species.

3.9.1 ALTERNATIVE 1: NO ACTION

Stillhouse Hollow Lake would continue to be managed according to the 1975 Master Plan. With implementation of existing invasive species management programs, direct and indirect effects from Chinaberry and willow baccharis are anticipated to be minor.

Hydrilla is a difficult aquatic species to control. Monitoring by TPWD and USACE indicate past densities have ranged from 5 – 40 percent annually, depending on summer water levels. Direct and indirect adverse impacts from hydrilla is expected to be minor to moderate with the continued implementation of the 1975 Master Plan.

Effective control of zebra mussel populations has yet to be identified, thus this species will continue to expand in the lake and adversely impact native species and infrastructure such as gates and water supply intakes. Additional funding beyond normal maintenance will likely be necessary to maintain equipment in proper working order.

Feral hog populations are expected to expand to USACE fee-owned property, causing minor to moderate habitat damage. Population eradication is unlikely due to their prolific breeding. Recreational hunting may provide some initial control, but unlikely to provide long-term population control. As populations expand, trapping may be needed to remove large numbers.

While some invasive species could have moderate to major long-term adverse impacts to resources at Stillhouse Hollow Lake, none would result due to the continued implementation of the No Action Alternative.

3.9.2 ALTERNATIVE 2: PROPOSED ACTION

The land reclassifications, resource objectives, and resource plan required to revise the Stillhouse Hollow Lake Master Plan are compatible with the lake's invasive species management practices. Invasive species would continue to be monitored and

eradication programs instituted to control their spread. Resource impacts from invasive species will be the same as those in Alternative 1.

3.10 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

The earliest well-documented evidence of human occupation in the Stillhouse Hollow Lake area is the Clovis culture, which dates to about 13,000 years before present (B.P.). Recent claims of an earlier pre-Clovis occupation (ca. 16,000 B.P.) have been made for the Gault Site in far southern Bell County.

Section 2.3 of the 2021 Master Plan provides prehistoric and historic background discussions for the Stillhouse Hollow Lake area as well as a summary regarding previous cultural resources investigations.

3.10.1 ALTERNATIVE 1: NO ACTION

Stillhouse Hollow Lake would continue to be managed according to the 1975 Master Plan and cultural resource management plans. No direct or indirect impacts on cultural, historical, or archaeological resources is anticipated as a result of implementing the No Action Alternative.

3.10.2 ALTERNATIVE 2: PROPOSED ACTION

Impacts on cultural, historical, and archaeological resources were considered during the refinement processes of land reclassifications. No ground disturbing activities are associated with the revision of the master plan; therefore, no direct impacts are expected to occur to cultural resources at Stillhouse Hollow Lake. The allocation of 625 acres to ESA and 6,178 acres to Wildlife Management would provide an increased level of protection to cultural resources as ground disturbance to these areas would be limited. Implementation of the 2021 Master Plan will provide long-term direct and indirect beneficial impacts to cultural resources that exist at Stillhouse Hollow Lake.

3.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Stillhouse Hollow Lake lies primarily within the northern portion of Bell County and extends into Coryell County. The zone of influence for the socio-economic analysis of Stillhouse Hollow Lake is defined as the counties in which the lake lies, Bell and Coryell, as well as the six additional counties that surround Bell, which are Burnet, Falls, Lampasas, McLennan, Milam, and Williamson counties.

Section 2.4 of the 2021 Master Plan provides a detailed discussion on regional demographics.

3.11.1 PROTECTION OF CHILDREN

EO 13045 requires each Federal agency “to identify and assess environmental health risks and safety risks that may disproportionately affect children” and “ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.” This EO was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults. The potential for impacts on the health and safety of children is greater where projects are located near

residential areas. The U.S. Census estimates show that persons under 18 years of age range from 22 percent of the population in Bosque County to 26 percent of the population in McLennan County and in the State of Texas.

3.11.2 ALTERNATIVE 1: NO ACTION

Under the No Action Alternative, the USACE would continue to manage Stillhouse Hollow Lake's natural resources as set forth in the 1975 Master Plan. While camping in USACE-operated campgrounds, many visitors purchase goods such as groceries, fuel, and camping supplies locally, eat in local restaurants, stay in local hotels and resorts, play golf at local golf courses, and shop in local retail establishments. These activities would continue to bring revenues to local companies, provide jobs for residents, and generate local and state tax revenues. Beneficial economic impacts existing as a result of the implementation of the current Master Plan would continue. There would be no direct or indirect impacts on minority or low-income populations or children with the implementation of the No Action Alternative.

3.11.3 ALTERNATIVE 2: PROPOSED ACTION

Under the Proposed Action, the land reclassifications, resources objectives, and resource plan reflect changes in land management and land uses that have occurred since 1975. Stillhouse Hollow Lake offers a variety of free recreational opportunities for visitors. It is beneficial to the local economy through direct and indirect job creation and local spending by visitors. Beneficial economic impacts would be similar to the No Action Alternative. The reduction of 952 acres of HDR would have no adverse effect the public as these lands will remain open for public use. There would be no direct or indirect impacts on minority or low-income populations or children as a result of the Proposed Action.

3.12 RECREATION

The primary area having a significant influence on the public use and management of Stillhouse Hollow Lake includes Bell and Coryell Counties, situated in central Texas. Most visitors to Stillhouse Hollow Lake come from within a 100-mile radius of the lake. Stillhouse Hollow Lake visitors are a diverse group ranging from campers who utilize the campgrounds around the lake, full-time and part-time residents of the private housing developments that border the lake, hunters and anglers who utilize public lands around the lake, day users who picnic in the locally and federally operated parks, marina customers, and many other user groups.

Section 2.5 of the 2021 Master Plan provides a further discussion on recreation opportunities at Stillhouse Hollow Lake.

3.12.1 ALTERNATIVE 1: NO ACTION

Under the No Action Alternative, there would be no direct or indirect impacts on recreational resources, as there would be no changes to the existing Master Plan.

3.12.2 ALTERNATIVE 2: PROPOSED ACTION

Stillhouse Hollow Lake is beneficial to the local visitors and offers a variety of free recreation opportunities. Even though the acreage available for High- and Low-Density

Recreation would decrease (952 acres for HDR and 2,361 acres for LDR) with implementation of the 2021 Master Plan, these land reclassifications reflect changes in land management and land uses that have occurred since 1975 at Stillhouse Hollow Lake. Existing parks and other recreation areas would continue to be available to the public along with ESA and WM lands that would still be available to low impact activities like fishing, hiking, and wildlife viewing. The conversion of these lands would have no effect on current or projected public use as they will open for public usage. There would be direct or indirect impacts on recreational resources by implementing the Proposed Action.

3.13 AESTHETIC RESOURCES

Stillhouse Hollow Lake is known for its scenic rocky bluffs; this makes it a popular destination for boating and camping. Section 2.2.6 of the 2021 Master Plan provides additional descriptions of scenic opportunities around Stillhouse Hollow Lake.

3.13.1 ALTERNATIVE 1: NO ACTION

There would be no direct or indirect impacts on visual resources as a result of implementing the No Action Alternative, as there would be no changes to the existing Master Plan.

3.13.2 ALTERNATIVE 2: PROPOSED ACTION

Stillhouse Hollow Lake currently plays a pivotal role in availability of parks and open space in Bell and Coryell counties. The reclassification of land would have no effect on current or projected public use or visual aesthetics. Furthermore, the increase in the acreage of land classified as ESAs and MRML – Wildlife Management would protect lands that are aesthetically pleasing at Stillhouse Hollow Lake and limit future development. No direct or indirect impacts on visual resources would result from implementation of the 2021 Master Plan.

3.14 HAZARDOUS MATERIALS AND SOLID WASTE

This section describes existing conditions within the Stillhouse Hollow Lake area regarding potential environmental contamination and the sources of releases to the environment. Contaminants could enter the Stillhouse Hollow Lake environment via air or water pathways. The highways and roads, marinas, and private residences in the vicinity of the lake could also provide sources of contaminants. There is one marina at Stillhouse Hollow Lake that provides boat fueling service. The fuel dock is regulated by the U.S. Coast Guard (USCG) regarding spill containment and cleanup requirements. There are also numerous public campgrounds/resorts and recreation areas/parks around the lake that could contribute small amounts of hazardous materials and waste to the watershed. Illegal trash dumping on project lands by individuals and businesses is a persistent problem. USACE and area law enforcement officials work cooperatively to apprehend those responsible for illegal trash dumping.

Several private residences and commercial facilities also surround the lake shores, and fertilizer and pesticide/herbicide use at those locations could contribute minor amounts of hazardous materials to the lake.

3.14.1 ALTERNATIVE 1: NO ACTION

There would be no direct or indirect impacts from hazardous, toxic, radioactive, or solid wastes as a result of implementing the No Action Alternative, as there would be no changes to the existing Master Plan.

3.14.2 ALTERNATIVE 2: PROPOSED ACTION

The land reclassifications required to revise the Master Plan would be compatible with Stillhouse Hollow Lake hazardous and toxic waste and solid waste management practices. There would be no direct or indirect impacts from hazardous, toxic, radioactive, or solid wastes as a result of implementing the 2021 Master Plan.

3.15 HEALTH AND SAFETY

As mentioned earlier in this document, Stillhouse Hollow Lake's authorized purposes include flood risk management, water conservation, and recreation. Compatible uses incorporated in project operation management plans include conservation and fish and wildlife habitat management components. The USACE, with some assistance from the TPWD, has established public outreach programs to educate the public on water safety and conservation of natural resources. In addition to the water safety outreach programs, the project has established recreation management practices in place to protect the public. These include safe boating and swimming regulations, safe hunting regulations, and speed limit and pedestrian signs for park roads. Stillhouse Hollow Lake also has solid waste management plans in place for camping and day use areas. Belton Lake has personnel in place to enforce these policies, rules, and regulations during normal park hours.

The Texas Department of State Health Services (TDSHS) Seafood and Aquatic Life Group protects consumers from contaminants, disease or other health hazards transmissible or found in fish and shellfish using several functions including Fish Consumption Advisories and Bans for Public Waters. Currently, there are no fish consumption advisories for Stillhouse Hollow Lake (TDSHS 2020).

3.15.1 ALTERNATIVE 1: NO ACTION

Under the No Action Alternative, the Stillhouse Hollow Lake Master Plan would not be revised. No direct or indirect impacts on human health or safety would be anticipated.

3.15.2 ALTERNATIVE 2: PROPOSED ACTION

Under the Proposed Action, the proposed revisions to the Stillhouse Hollow Lake Master Plan would be compatible with project safety management plans. The revised classifications of Restricted water surface (23 acres) and Designated No-Wake areas (75 acres) would improve boating safety near key recreational water access areas such as boat ramps. The Project would continue to have reporting guidelines in place should water quality become a threat to public health. Existing regulations and safety programs throughout the Stillhouse Hollow Lake Project area would continue to be enforced to ensure public safety. There would be moderate, long-term beneficial impacts on public health and safety as a result of implementing the Proposed Action.

3.16 SUMMARY OF CONSEQUENCES AND BENEFITS

Table 3.4 provides a tabular summary of the consequences and benefits for the No Action and Proposed Action alternatives for each of the assessed resource categories.

Table 3.4 Summary of Consequences and Benefits

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Land Use	No effect on private lands. Emphasis is on protection of wildlife and environmental values on USACE land and maintaining current level of developed recreation facilities.	Fails to recognize recreation trends and regional natural resource priorities.	Recognizes recreation trends and regional natural resource priorities identified by TPWD and public comments.	Land classification changes and new resource objectives fully recognize passive use recreation trends and regional environmental values.
Water Resources Including Groundwater, Wetlands, and Water Quality	Minor change with benefits to recognize value of wetlands.	Fails to recognize the water quality benefits of good land stewardship and need to protect wetlands.	Promotes restoration and protection of wetlands and good land stewardship.	Specific resource objective promotes restoration and protection of wetlands.
Climate	No change.	No effect.	No effect.	No added benefit.
Climate Change and Greenhouse Gases	Minor change to recognize need for sustainable, energy efficient design.	Fails to promote sustainable, energy efficient design.	Promotes land management practices and design standards that promote sustainability.	Specific resource objectives promote national climate change mitigation goal. Leadership in Engineering and Environmental Design (LEED) standards for green design, construction, and operation activities will be employed to the extent practicable.
Air Quality	No change.	No effect.	No effect.	No added benefit.
Topography, Geology and Soils	Beneficial change to place emphasis on good stewardship of land and water resources.	Fails to specifically recognize known and potential soil erosion problems.	Encourages good stewardship that would reduce existing and potential erosion.	Specific resource objectives call for stopping erosion from overuse and land disturbing activities.

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Natural Resources	Moderate benefits through land reclassification and resource objectives.	Fails to recognize ESAs, and regional priorities calling for protection of wildlife habitat.	Gives full recognition of sensitive resources and regional trends and priorities related to natural resources.	Reclassification of lands included 625 acres of ESA and a net increase in lands emphasizing wildlife management.
Threatened & Endangered Species and rare/unique communities as identified in the TXNDD Database	Moderate benefits from land reclassifications and utility corridors for recognizing both federal and state-listed species.	Fails to recognize current federal and state-listed species.	Fully recognizes federal and state-listed species as well as the TXNDD Database listed by TPWD.	The master plan sets forth the most recent listing of federal and state-listed species. The allocation of 625 acres of ESA and 6,178 acres of MRML-WM provides increased habitat for T&E and rare/unique species and communities.
Invasive Species	Minor change to recognize several recent and potentially aggressive invasive species.	Fails to recognize current invasive species and associated problems.	Recognizes current species and the need to be vigilant as new species may occur.	Specific resource objectives specify that invasive species shall be monitored and controlled as needed.
Cultural, Historical and Archaeological Resources	Minor change to recognize current status of cultural resource.	Included cursory information about cultural resources that is inadequate for future management and protection.	Recognizes the presence of cultural resources and places emphasis on protection and management.	Reclassification of lands and specific resource objectives were included for protection of cultural resources.
Socioeconomics and Environmental Justice	No change.	No effect.	No effect.	No added benefit.
Recreation	Negligible benefits to outdoor recreation programs.	Fails to recognize current outdoor recreation trends.	Fully recognizes current outdoor recreation trends and places special emphasis on trails.	Specific management objectives focused on outdoor recreation opportunities and trends are included.

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Aesthetic Resources	Minor benefits through land reclassification, utility corridors, and resource objectives.	Fails to minimize activities that disturb the scenic beauty and aesthetics of the lake.	Promotes activities that limit disturbance to the scenic beauty and aesthetics of the lake.	Specific management objectives to minimize activities that disturb the scenic beauty and aesthetics of the lake.
Hazardous Materials and Solid Waste	No change.	No effect.	No effect.	No added benefit.
Health and Safety	Minor change to promote public safety awareness.	Fails to emphasize public safety programs.	Recognizes the need for public safety programs.	Includes specific management objectives to increase water safety outreach efforts. Also, classifies 98 acres of water surface as restricted and designated no-wake for public safety purposes.

SECTION 4: CUMULATIVE IMPACTS

NEPA regulations require that cumulative impacts of a proposed action be assessed and disclosed in an EA. Council on Environmental Quality (CEQ) regulations define a cumulative impact as *“the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”* (40 CFR 1508.7). Impacts can be positive or negative.

By Memorandum dated June 24, 2005 from the Chairman of the CEQ to the Heads of Federal Agencies entitled “Guidance on the Consideration of Past Actions in Cumulative Effects Analysis”, CEQ made clear its interpretation that “...generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions...” and that the “...CEQ regulations do not require agencies to catalogue or exhaustively list and analyze all individual past actions.” CEQ guidance also recommends narrowing the focus of cumulative impacts analysis to important issues of national, regional, or local significance.

The initial step of the cumulative impact analysis uses information from the evaluation of direct and indirect impacts in the selection of environmental resources that should be evaluated for cumulative impacts. A proposed action would not contribute to a cumulative impact if it would not have a direct or indirect effect on the resource.

USACE used NEPA guidance to identify resource topics discussed in the cumulative impact analysis (40 CFR 1508.25). Based on a review of the likely environmental impacts analyzed in Section 3 (Affected Environment and Consequences) the USACE determined that the analysis of cumulative impacts would be limited to: natural resources, threatened and endangered species, water quality, cultural resources, and safety. With respect to the remaining resource topics such as climate, environmental justice, and HTRW, both the No Action and Proposed Action alternatives would either:

1. Not result in any direct or indirect impacts and therefore would not contribute to a cumulative impact; or,
2. That the nature of the resource is such that impacts do not have the potential to cumulate. For example, impacts related to geology are site specific and do not cumulate; or,
3. That the future with or future without project condition analysis is a cumulative analysis and no further evaluation is required. For example, because climate change is global in nature, the future without project condition and future with project condition analysis is inherently a cumulative impact assessment.

For each resource topic carried forward for cumulative impact analysis, the timeframe for analysis is the time since the 1975 Master Plan was implemented (past) and thru the

proposed life of the 2021 Master Plan (25 years – to 2046). The zone of interest for all resources except economy is Bell County, Texas. The zone of interest for economics is the same used in Section 3.11.

4.1 PAST IMPACTS WITHIN THE ZONE OF INTEREST

The construction of Stillhouse Hollow Lake was authorized in the Flood Control Act of 1944, as amended. Construction of the Stillhouse Hollow Lake Dam began in 1962 with impoundment of water beginning in 1968. The dam is rolled earth filled, approximately 15,624 feet in length including the spillway and dike, is 200 feet high and has a top width of 42 feet, with the dike at 10 feet. The spillway is a broad-crested weir that is 1,650 feet National Geodetic Vertical Datum (NGVD). The outlet works consist of one gate-controlled conduit that is 12 feet in diameter with two 5.67 feet by 12 feet hydraulically operated slide gates and invert elevation of 515.0 feet NGVD.

The total project area at Stillhouse Hollow Lake encompasses approximately 16,141 acres. Of this total area about 15,227 acres were acquired in fee simple title by USACE, and perpetual flowage easements were acquired on an additional 914 acres.

Four water intake structures have been built on USACE property at Stillhouse Hollow Lake. Central Texas Water Supply constructed an intake in the mid-1970's to provide water to the cities of Belton, Harker Heights, Salado, Rogers, Lott, Rosebud, Westphalia, Heidenheimer, and other smaller communities. The BRA constructed their intake in the late 1990's that serves the city of Georgetown. The city of Kempner constructed an intake in the early 2000's to provide water for their city and the city of Lampasas.

4.2 CURRENT AND REASONABLY FORESEEABLE PROJECTS WITHIN AND NEAR THE ZONE OF INTEREST

Future management of the 914 acres of Flowage Easement Lands at Stillhouse Hollow Lake includes routine inspection of these areas to ensure that the Federal Government's rights specified in the easement deeds are protected. In almost all cases, the Federal Government acquired the right to prevent placement of fill material or habitable structures on the easement area. Placement of any structure that may interfere with the USACE flood risk management and water conservation missions may also be prohibited.

The City of Killeen is currently constructing a waterline between Belton Lake and Stillhouse Hollow Lake to pump untreated water to Stillhouse Hollow, thereby increasing the water transfer capabilities of Stillhouse Hollow. The waterline from Stillhouse Hollow Lake and is currently constructing the intake structure at the lake.

The primary planning responsibilities for the road network serving Bell County is the Texas Department of Transportation (TXDOT), Waco office. One project is currently under construction, that being the widening of Interstate 14 (I-14) from Highway 2410 in west Belton to Interstate 35. This project is in its last phase.

A TXDOT project to widen Service Loop 121 from Farm to Market Road 439 to Interstate 14 is slated to begin the summer of 2021.

Locally, the City of Belton has proposed a new road that would run from FM 2271 to FM 1670, connecting Belton Lake to Stillhouse Hollow Lake and creating a loop road from Highway 190 (I-14) to the north side of the City of Belton. USACE has been in discussions with the City of Belton, TXDOT, Central Texas County of Governments, Killeen Temple Metropolitan Planning Organization (KTMP), and other county groups concerning this road expansion crossing government property.

4.3 ANALYSIS OF CUMULATIVE IMPACTS

Impacts on each resource were analyzed according to how other actions and projects within the zone of interest might be affected by the No Action Alternative and Proposed Action. Impacts can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis the intensity of impacts will be classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 3.0. Minimal growth and development are expected to continue in the vicinity of Belton Lake and cumulative adverse impacts on resources would not be expected when added to the impacts of activities associated with the Proposed Action or No Action Alternative. A summary of the anticipated cumulative impacts on each resource is presented below.

4.3.1 HYDROLOGY AND WATER RESOURCES

Operation and maintenance of USACE lands and waters at Stillhouse Hollow Lake would continue as outlined in the existing 1975 Master Plan. The No Action Alternative, when combined with other past, current, and future projects in the zone of interest, would not result in any cumulative impacts.

A major impact would occur if any action is inconsistent with adopted surface water classifications or water use plans, or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Stillhouse Hollow Lake is a multipurpose water resource project constructed and operated by USACE for the purposes of flood risk management, water supply, recreation, and fish and wildlife. The reclassifications and resource objectives proposed in the 2021 Stillhouse Hollow Lake Master Plan are compatible with water use plans and surface water classification; further, they were developed to help fulfill regional goals associated with good stewardship of water resources that would allow for continued use of water resources associated with Stillhouse Hollow Lake. Land reclassifications and new resource objectives proposed as part of the Proposed Action would have moderate long-term beneficial impacts on water quality. Past and future projects are not anticipated to have significant impacts on the hydrology or water resources of Stillhouse Hollow Lake. Any construction associated with such projects would have to meet state water quality protection standards. Cumulative impacts associated with implementation of the Proposed Action, when combined with other past, current, and proposed actions in the zone of interest, are anticipated to be beneficial for water quality.

4.3.2 NATURAL RESOURCES

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions. The No Action Alternative, when combined with other past,

current, and future projects in the zone of interest, would not result in any cumulative impacts.

By implementing the Proposed Action, the establishment of ESA and MRML – WM areas, as well as resource objectives and resource plans would allow land management and land uses to be compatible with the goals of good stewardship of natural resources. The Proposed Action would allow project lands to continue TPWD missions associated with wildlife conservation and implementation of operational practices that would protect and enhance wildlife and fishery populations and habitat. In addition, the Proposed Action would be compatible with conservation principles and measures to protect migratory birds as mandated by EO 13186. Past, present, and future projects are not anticipated to adversely impact the viability of any plant species or community, rare or sensitive habitats, or wildlife. The Proposed Action is expected to provide direct, long-term beneficial impacts on the natural resources at Stillhouse Hollow Lake. There would be long-term beneficial cumulative impacts to natural resources resulting from implementation of the 2021 Stillhouse Hollow Lake Master Plan, when combined with other past, current, and proposed actions in the zone of interest.

4.3.3 THREATENED AND ENDANGERED SPECIES

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions. The No Action Alternative, when combined with other past, current, and future projects in the zone of interest, would not result in any cumulative impacts.

The Proposed Action, as well as other past, present, and future projects, are not anticipated to adversely impact threatened and endangered species. The proposed land reclassifications will allow for further protection of threatened, endangered and other unique/rare communities found within the TXNDD database. The reclassifications will also allow future land management practices that would maintain and enhance habitats for these species. The proposed utility corridors would limit further fragmentation of habitat and confine ongoing maintenance disturbances. There would be long-term beneficial cumulative impacts to threatened and endangered species resulting from implementation of the 2021 Stillhouse Hollow Lake Master Plan, when combined with other past, current, and proposed actions in the zone of interest.

4.3.4 CULTURAL, HISTORIC, AND ARCHAEOLOGICAL RESOURCES

The No Action Alternative does not involve any ground disturbing activities. Any future ground disturbing activities proposed for Stillhouse Hollow Lake, as well as other past, current, and future projects would have to be coordinated with the Texas State Historic Preservation Office to minimize impacts to cultural, historic, and archaeological resources. The No Action Alternative, when combined with other past, current, and future projects in the zone of interest, would not result in any cumulative impacts.

While the Proposed Action does not involve ground disturbing activities, the allocation of 625 acres to ESA and 6,178 acres to MRML-WM would provide an increased level of protection to cultural resources, as ground disturbance to these areas would be limited. The proposed utility corridors in the 2021 Proposed Action would restrict any future pipelines, roads, or other infrastructure to already disturbed areas, further limiting

impacts on cultural resources. Any future ground disturbing activities proposed for Stillhouse Hollow Lake, as well as other past, current, and future projects, would have to be coordinated with the Texas State Historic Preservation Office to minimize impacts to cultural, historic, and archaeological resources. Implementation of the 2021 Master Plan would beneficially impact cultural resources.

The Proposed Action, when combined with other past, current, and future projects in the zone of interest, would provide beneficial cumulative impacts to cultural, historical, and archaeological resources present at Stillhouse Hollow Lake.

4.3.5 HEALTH AND SAFETY

The No Action Alternative would continue reporting guidelines should water quality become a threat to public health. Existing regulations and safety programs throughout the Stillhouse Hollow Lake Project area would continue to be enforced to ensure public safety. The No Action Alternative, when combined with other past, current, and future projects, is not expected to result in cumulative impacts to human health or safety.

The Proposed Action would have beneficial impacts on safety by revising water surface classifications that would improve boating safety near key recreational water access areas. Stillhouse Hollow Lake Project Office would continue current reporting guidelines should water quality become a threat to public health. Current regulations and safety programs would continue to be implemented. Other past, current, and future projects have not, and are not expected to cause impacts to the public health and safety in the zone of interest. The Proposed Action, when combined with other past, current, and future projects, is expected to have beneficial impacts to the human health and safety in the zone of interest.

SECTION 5: COMPLIANCE WITH ENVIRONMENTAL LAWS

This EA has been prepared to satisfy the requirements of all applicable environmental laws and regulations and has been prepared in accordance with the CEQ's implementing regulations for NEPA, 40 CFR Parts 1500 – 1508, and the USACE ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA*. The revision of the 1975 Master Plan is consistent with the USACE's Environmental Operating Principles. The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

Master Plan revision process, as well as identify reclassification proposals, and identify significant issues related to the Proposed Action. Information provided by USFWS and TPWD on fish and wildlife resources has been utilized in the development of the 2021 Master Plan.

Fish and Wildlife Coordination Act of 1958, as amended – The USACE initiated public involvement and agency scoping activities to solicit input on the 2021 Master Plan revision process, as well as identify reclassification proposals, and identify significant issues related to the Proposed Action. Information provided by USFWS and TPWD on fish and wildlife resources has been utilized in the development of the 2021 Master Plan.

Endangered Species Act of 1973, as amended – Current lists of threatened or endangered species were compiled for the revision of the 2021 Master Plan. The 2021 Master Plan revision will not result in adverse impacts on endangered species or their habitat. There would be beneficial impacts, such as habitat protection, as a result of implementation of the 2021 Master Plan.

Migratory Bird Treaty Act – The Migratory Bird Treaty Act of 1918 extends Federal protection to migratory bird species. The nonregulated “take” of migratory birds is prohibited under this act in a manner similar to the prohibition of “take” of threatened and endangered species under the Endangered Species Act. The timing of resource management activities would be coordinated to avoid impacts on migratory and nesting birds.

Executive Order 13186 (Migratory Bird Habitat Protection) – Sections 3a and 3e of EO 13186 direct Federal agencies to evaluate the impacts of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential negative impacts on migratory birds. The 2021 Master Plan revision will not result in adverse impacts on migratory birds or their habitat. Beneficial impacts could occur through protection of habitat as a result of implementing the 2021 Master Plan revision.

Clean Water Act (CWA) of 1972 – The Proposed Action complies with all state and federal CWA regulations and requirements and is regularly monitored by the USACE and TCEQ for water quality. A state water quality certification pursuant to Section 401 of the CWA is not required for the 2021 Master Plan revision. There will be no change in the existing management of the reservoir that would impact water quality.

National Historic Preservation Act (NHPA) of 1966, as amended – Compliance with the NHPA of 1966, as amended, requires identification of all properties in the project area listed in, or eligible for listing in, the NRHP. All previous surveys and site salvages were coordinated with the Texas State Historic Preservation Officer. Known sites are mapped and avoided by maintenance activities. Areas that have not undergone cultural resources surveys or evaluations will need to do so prior to any earthmoving or other potentially impacting activities.

Clean Air Act of 1963 – The USEPA established nationwide air quality standards to protect public health and welfare. Existing operation and management of the reservoir is compliant with the Clean Air Act and will not change with implementation of the 2021 Master Plan.

Farmland Protection Policy Act (FPPA) – The FPPA was enacted as a subtitle of the 1981 Farm Bill. Its purpose is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that to the extent possible federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. There are 1,022.3 acres of Prime Farmland and 637.6 acres of Farmland of Statewide Importance on Stillhouse Hollow Lake Project Office Lands.

CEQ Memorandum dated August 11, 1980, Prime or Unique Farmlands – Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The Proposed Action would not impact Prime Farmland present on Stillhouse Hollow Lake project lands.

Executive Order 11990, Protection of Wetlands – EO 11990 requires Federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in executing Federal projects. The Proposed Action complies with EO 11990.

Executive Order 11988, Floodplain Management – This EO directs Federal agencies to evaluate the potential impacts of proposed actions in floodplains. The Proposed Action complies with EO 11988.

Executive Order 12898, Environmental Justice – This EO directs Federal agencies to achieve environmental justice to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review. Agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The revision of the 1975 Master Plan will not result in a disproportionate adverse impact on minority or low-income population groups.

SECTION 6: IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

NEPA requires that Federal agencies identify “any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented” (42 U.S.C. § 4332). An irreversible commitment of resources occurs when the primary or secondary impacts of an action result in the loss of future options for a resource. Usually, this is when the action affects the use of a nonrenewable resource or it affects a renewable resource that takes a long time to renew. Impacts from the reclassification of land would not be considered an irreversible commitment because subsequent Master Plan revisions could reclassify lands to a prior land classification.

SECTION 7: PUBLIC AND AGENCY COORDINATION

In accordance with 40 CFR §§1501.7, 1503, and 1506.6, the USACE initiated public involvement and agency scoping activities to solicit input on the 2021 Master Plan revision process, identify reclassification proposals, and identify significant issues related to the Proposed Action. The USACE began its public involvement process with a public scoping meeting to provide an avenue for public and agency stakeholders to ask questions and provide comments. The USACE, Fort Worth District, placed advertisements on the USACE webpage, social media, and print publications prior to the meeting. This public scoping meeting was held on 12 March 2020 at the Harris Community Center in Belton, Texas. Twenty members of the public attended the public meeting. This low turnout was likely due to the COVID 19 pandemic. A 30-day public comment period (13 March – 11 April 2020) resulted in 21 comments from eight (8) members of the public.

PARAGRAPH ON DRAFT REPORT MEETING

The EA was coordinated with agencies having legislative and administrative responsibilities for environmental protection. Please refer to Section 7 of the 2021 Master Plan for a summary of comments received at the public meetings.

A copy of the correspondence from the agencies that provided comments and planning assistance for preparation of the EA is included in Attachment A of this EA.

Appendix A includes the ads published in the local newspaper, the agency coordination letters, and the distribution list for the coordination letters.

SECTION 8: REFERENCES

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SECTION 9: ACRONYMS/ABBREVIATIONS

%	Percent
°	Degrees
BMP	Best Management Practice
BP	Before Present
CAP	Climate Action Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	CO ₂ -equivalent
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EP	Engineer Pamphlet
ER	Engineer Regulation
ESA	Environmentally Sensitive Area
F	Fahrenheit
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gas
GCWA	Golden-cheeked Warbler
HDR	High Density Recreation
LDR	Low Density Recreation
MP	Master Plan
MRML	Multiple Resource Management Lands
msl	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO	Nitrogen Oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRRS	National Recreation Reservation Service
O ₃	Ozone
OAQPS	Office of Air Quality Planning and Standards
Pb	Lead
PCB	Polychlorinated Biphenyls
PCPI	Per Capita Personal Incomes
PM _{2.5}	Particulate Matter Less than 2.5 Microns
PM ₁₀	Particulate Matter Less than 10 Microns
ROD	Record of Decision
RPEC	Regional Planning and Environmental Center
SGCN	Species of Greatest Conservation Need
SO ₂	Sulfur Dioxide

SUPER	USACE Suite of Computer Programs
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
TCLP	Toxicity Characteristic Leaching Procedure
TPWD	Texas Parks and Wildlife Department
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compounds
VM	Vegetation Management
WHAP	Wildlife Habitat Appraisal Procedures
WM	Wildlife Management

SECTION 10: LIST OF PREPARERS

Craig Hilburn - Environmental Regional Technical Specialist, Regional Planning and Environmental Center; 6 years of USACE experience

Paul Roberts – Biologist, Compliance Section, Regional Planning and Environmental Center; 6 years of USACE experience.

ATTACHMENT A: NEPA COORDINATION AND PUBLIC SCOPING

**STILLHOUSE HOLLOW LAKE STAKEHOLDER/CONSTITUENTS MAILING LIST 2020-21
FOR MP KICKOFF MEETING PUBLIC NOTICE AND NOTICE OF AVAILABILITY**

Eddy Lange, Sheriff Bell County Sheriff's Department 104 S. Main St. Belton, TX. 76513 eddy.lange@co.bell.tx.us	Russell Schneider, Precinct 1 Commissioner Bell County TX Commissioner's Court Post Office Box 768 Belton, Texas 76513 russell.schneider@bellcounty.texas.gov	Congressman John Carter Rep Sheryl Hassmann 6544B S. General Bruce Drive Temple, TX 76502 cheryl.hassman@mail.house.gov
Michael Harmon, Director Office of Emergency Management 708 West Avenue O Belton, Texas 76513 michael.harmon@bellcounty.texas.gov	Bobby Whitson, Precinct 2 Commissioner Bell County TX Commissioner's Court Post Office Box 768 Belton, Texas 76513 bobby.whitson@bellcounty.texas.gov	State Representative Hugh Shine Rep. Charlette Blakemore 4 South 1 st Street Temple, TX 76501 Charlotte.blakemore@house.texas.gov
Bryan Neaves, P.E., CFM County Engineer Bell County Engineer's Office Post Office Box 264 Belton, Texas 76513 bryan.neaves@bellcounty.texas.gov	Rick Smith, Owner Marine Outlet 4410 South General Bruce Drive Temple, Texas 76502 rick@marineoutlet.com	Brad Burnett, Central and Lower Basin Regional Manager Brazos River Authority 4600 Cobbs Drive Waco, TX 76710 brad.brunett@brazos.org
Bryan Neaves, P.E., CFM County Engineer Bell County Engineer's Office Post Office Box 264 Belton, Texas 76513 bryan.neaves@bellcounty.texas.gov	Cliff Brown, Owner Texas Boat World 303 W. Central Texas Expy Harker Heights, TX 76548	Matt Bates, Director Parks and Recreation City of Belton 401 N. Alexander St. Belton, TX 76513 mbates@beltontexas.gov
Don Ferguson, Administrator Village of Salado 301 N. Stagecoach Salado, Texas 76571 vos@saladotx.gov	Major Jeff Gillenwater Region 7 Texas Parks and Wildlife 3615 South General Bruce Drive Temple, Texas 76504 Jeff.gillenwaters@tpwd.texas.gov	Jeff Achee, Director Parks and Recreation City of Harker Heights 307 Miller's Crossing Harker Heights, TX 76548 jachee@ci.harker-heights.tx.us
Sam A. Listi, City Manager Belton City Hall 333 Water Street Post Office Box 120 Belton, Texas 76513 slisti@beltontexas.gov	Ricky Garrett, P.E., General Manager Bell County Water Control & Improvement, District 1 201 South 38 th Street Killeen, Texas 76543 r.garrett@wcid1.org	Jerry Bark, Director Public Relations City of Harker Heights 401 Indian Trail Harker Heights, TX 76548 jbark@ci.harker-heights.tx.us
Kathy Clapper, Owner Stillhouse Hollow Marina 4596 Simmons Road Belton, Texas 76513 kmclapper@yahoo.com		

**STILLHOUSE HOLLOW LAKE AGENCY MAILING LIST 2020-21
FOR MP KICKOFF MEETING PUBLIC NOTICE AND NOTICE OF AVAILABILITY**

<p>Karen Hardin, Natural Resources Specialist Wildlife Habitat Assessment Program Texas Parks and Wildlife Dept. 4200 Smith School Road Austin, TX 78744 Karen.Hardin@tpwd.texas.gov</p>	<p>Fred Schrank, State Agronomist Natural Resources Conservation Service 101 South Main Street Temple, TX 76501 Fred.schrank@tx.usda.gov</p>	<p>Debra Bills, Field Supervisor U.S. Fish and Wildlife Service Arlington Field Office 2005 NE Green Oaks Blvd, Suite 140, Arlington, TX 76006 debra_bills@fws.gov</p>
<p>Robert Houston, Chief Special Projects Section Environmental Protection Agency Region 6 1445 Ross Avenue, Suite 1200 (6EN), Dallas, TX 75202-2733 houston.robert@epa.gov</p>	<p>Peter Schafer, Biologist Water Quality Assessment Section Texas Council on Environmental Quality MC 150, P.O. Box 13087, Austin, TX 78711-3087 Peter.Schafer@tceq.texas.gov</p>	<p>Richard Hanson Wildlife Habitat Assessment Program Texas Parks and Wildlife Department 1702 Landmark Lane, Suite 3 Lubbock, TX 79415 Richard.Hanson@tpwd.texas.gov</p>
<p>Richard Hanson Wildlife Habitat Assessment Program Texas Parks and Wildlife Department 1702 Landmark Lane, Suite 3 Lubbock, TX 79415 Richard.Hanson@tpwd.texas.gov</p>		



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

February 20, 2020

Public Notice

**Public Meeting for Stillhouse Hollow Lake Master Plan Revision, Stillhouse Hollow Lake,
Brazos River Basin, Bell County, Texas**

The U.S. Army Corps of Engineers (USACE) Fort Worth District, hereby informs the public of the initiation of the revision to the Stillhouse Hollow Lake Master Plan. The Master Plan is a vital tool produced and used by USACE to guide the responsible stewardship of USACE-administered lands/waters and resources for the benefit of present and future generations. Public participation is critical to the successful revision of the Master Plan.

An open house public meeting will be held on Thursday, March 12, 2020 at Harris Community Center, 401 N. Alexander Street, Belton, Texas 76513. A brief overview outlining the purpose and scope of the Master Plan, as well as the proposed schedule and opportunities for public involvement will be presented at 6:00 pm, followed by a session to view maps, ask questions, and provide written comments about the project.

The open house public meeting information will be available to download at the following USACE website beginning on Thursday, March 12, 2020:

http://www.swf.usace.army.mil/About/LakesandRecreationInformation/MasterPlanUpdates/Stillhouse-Hollow_Lake

Key topics to be addressed in the revised Master Plan include revised land classifications, new natural and recreational resource management objectives, recreational land needs, and special topics such as invasive species management. Revision of the Master Plan will not address in detail the technical operations and maintenance or aspects related to the water supply or flood risk management missions of the project.

In accordance with the National Environmental Policy Act, and other applicable laws and regulations, a 30-day public comment period will begin on Friday, March 13, 2020. Comments and questions pertaining to the proposed revision may be submitted at the public meeting, or emailed to CESWF-PER-StillhouseHollow@usace.army.mil, or mailed to Ronnie Bruggman: Lake Manager, U.S. Army Corps of Engineers, 3740 FM 1670, Belton, Texas 76513.

Sincerely,

A handwritten signature in cursive script that reads "Amanda M. McGuire".

Amanda M. McGuire
Chief, Environmental Branch
Regional Planning and Environmental Center



News Release

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

For Immediate Release:
20 January 2020

Contact:

Corps to host public meeting for the Stillhouse Hollow Lake Master Plan revision

FORT WORTH, Texas – The Fort Worth District, U.S. Army Corps of Engineers (USACE) will host a public meeting on 12 March 2020 at **Harris Community Center located at 401 N Alexander Street, Belton TX 76513** to provide information and receive public input for the revision of the Stillhouse Hollow Lake Master Plan.

The meeting will begin with a brief presentation at 6:00 p.m. followed by an open house for the public to view the current land use maps, ask questions and provide comments about the project.

USACE defines the Master Plan as the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource development project.

The Master Plan study area will include Stillhouse Hollow Lake proper and all adjacent recreational and natural resources properties under USACE administration. Revision of the Master Plan **will not** address in detail the technical operational aspects of the reservoir related to the water supply or flood risk management missions of the project. Stillhouse Hollow Lake is a multi-purpose reservoir constructed and managed for flood risk management, water supply, fish and wildlife, and recreation.

The current Master Plan, last updated in 1970, is in need of revision to address changes in regional land use, population, outdoor recreation trends and USACE management policy. Key topics to be addressed in the revised Master Plan include revised land classifications, new natural and recreational resource management objectives, recreation facility needs and special topics such as invasive species management and threatened and endangered species habitat. **Public participation is critical to the successful revision of the Master Plan.**

Questions pertaining to the proposed revision can be addressed to: **Ronnie Bruggman**, Lake Manager, U.S. Army Corps of Engineers, 3740 FM 1670, Belton, Texas 76513, (254) 939-2461.

About the Fort Worth District: The Fort Worth District, U.S. Army Corps of Engineers was established in 1950. The District is responsible for water resources development in two-thirds of Texas, and design and construction at military installations in Texas and parts of Louisiana and New Mexico. Visit the Fort Worth District Web site at: www.swf.usace.army.mil and SWF Facebook at: <http://www.facebook.com/pages/Fort-Worth-District-US-Army-Corps-of-Engineers/188083711219308>.

U.S. ARMY CORPS OF ENGINEERS – FORT WORTH DISTRICT

819 TAYLOR STREET
FORT WORTH, TX 76102

<http://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/>

Stillhouse Hollow Lake Master Plan Revision



General Information

The U.S. Army Corps of Engineers (USACE), Fort Worth District, is revising the Stillhouse Hollow Lake Master Plan. The Master Plan is intended to serve as a comprehensive land and recreational management plan with a life span of 25 years. The Plan guides the stewardship of natural and cultural resources and the provision of outdoor recreation facilities with opportunities to ensure sustainability of federal land associated with Stillhouse Hollow Lake.

About Stillhouse Hollow Lake

Stillhouse Hollow Lake, (formally Lampasas Lake) was authorized by the Flood Control Act 03 September 1954 (Public Law (PL) 83-780) for the purpose of flood control, water conservation storage, recreation, and fish and wildlife enhancement. The name of the lake was changed by PL 86-307 from 'Lampasas' to 'Stillhouse Hollow.' Stillhouse Hollow Lake is currently a multipurpose water resources project operated by USACE that includes balancing the needs of the surrounding population, visitors, and the ecological system. The lake, located on the Lampasas River, is also managed for public recreation and environmental stewardship, including fish and wildlife conservation.

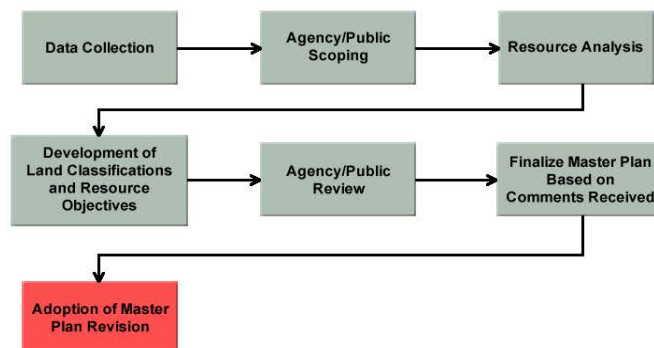
What is a Master Plan?

The Master Plan is the strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources of the lake throughout the life of the water resources project.

Why Revise the Stillhouse Hollow Master Plan?





The current Master Plan for Stillhouse Hollow Lake was last updated in 1970. The Plan and the land classifications are in need of revision to address changes in regional land use, population, outdoor recreation trends and USACE management policy. Key topics to be addressed in the revised Master Plan include revised land classifications, new natural and recreational resource management objectives, recreation facility needs and special topics such as invasive species management and threatened and endangered species habitat. Public participation is critical to the successful revision of the Master Plan.

The Master Planning Process



Related Files

March 12, 2020

-  [Public Meeting Presentation](#)
-  [Public Meeting Notice](#)
-  [Stillhouse Hollow Master Plan - 1975 \(37MB\)](#)
-  [Comment Form with Instructions](#)



DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

February 9, 2021

NOTICE OF AVAILABILITY

DRAFT MASTER PLAN AND ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED U.S. ARMY CORPS OF ENGINEERS 2021 STILLHOUSE HOLLOW LAKE MASTER PLAN BELL COUNTY, TEXAS

The U.S. Army Corps of Engineers (USACE), Fort Worth District, hereby informs the public of the release of the 2021 draft Stillhouse Hollow Lake Master Plan (hereafter Plan), draft Finding of No Significant Impact (FONSI), and draft Environmental Assessment (EA).

The Plan is a vital tool produced and used by USACE to guide the responsible stewardship of USACE-administered lands and resources for the benefit of present and future generations. The Plan provides direction for appropriate management, use, development, enhancement, protection, and conservation of the natural, cultural, and manmade resources at Stillhouse Hollow Lake. The Plan presents an inventory and analysis of land resources, resource management objectives, land use classifications, resource use plan for each land use classification, current and projected park facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management. The most current Master Plan for Stillhouse Hollow Lake was approved in February of 1975.

In lieu of a face-to-face public meeting due to the COVID-19 Pandemic, USACE will provide a virtual presentation that gives an overview of the proposed changes to the current Stillhouse Hollow Master Plan and instructions on how to submit comments. A 30-day public comment period will begin on **February 24, 2021** and end on **March 26, 2021**. The draft Plan, FONSI, EA, and comment instructions will be available for download starting February 24, 2021 at the following Fort Worth District website:

<https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Master-Plan-Updates/Stillhouse-Hollow-Lake/>

You may also send written comments or questions to Lake Manager, Stillhouse Hollow Lake, 3740 FM 1670, Belton, Texas 76513. Comments or questions may also be emailed to CESWF-PER-StillhouseHollow@usace.army.mil.

Sincerely,

Amanda McGuire

Amanda M. McGuire
Chief, Environmental Branch
Regional Planning and Environmental Center



NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

For Immediate Release:

Contact: Denisha Braxton

USACE to host a virtual public involvement presentation for the draft release of the Stillhouse Hollow Lake Master Plan Revision

Fort Worth, Texas – Army Corps of Engineers (USACE) Fort Worth District, U.S. will host a virtual public involvement presentation to provide information and receive public input regarding the draft master plan revision for **Stillhouse Hollow Lake**. The presentation will be available beginning **Wednesday, February 24** with public comment open from **February 24 through Wednesday, March 26, 2021**. The public is encouraged to view information and send comments.

Please access the following website beginning February 24th, which contains the presentation describing the planning process and changes, revised land classification maps, the 1970 Master Plan, and the 2021 draft Master Plan revision, as well as comment forms and instructions for making comments.

<https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/Master-Plan-Updates/Stillhouse-Hollow-Lake/>

Questions may be directed to the **USACE Lake Manager, Ronnie Bruggman, 3740 FM 1670, Belton, Texas 76513, (254) 939-2461**. Please note that only *written* comments regarding the Master Plan revision will be considered.

The Master Plan study area includes Stillhouse Hollow Lake proper and all adjacent recreational and natural resources properties under USACE administration. Revision of the Master Plan does not address in detail the technical operational aspects of the reservoir related to the water supply or flood risk management missions of the project. Stillhouse Hollow Lake is a multi-purpose reservoir constructed and managed for flood risk management, water supply, fish and wildlife, and recreation.

This is a revision from the current Master Plan, last updated in 1970, which is no longer useful for addressing changes in regional land use, population, outdoor recreation trends and USACE management policy. Key topics addressed in the revised Master Plan include revised land classifications, new natural and recreational resource management objectives, recreation facility needs and special topics such as invasive species management and threatened and endangered species habitat. Please access the presentation and **participate in the successful revision of the Master Plan**. Thank you.

-30-

U.S. ARMY CORPS OF ENGINEERS – FORT WORTH DISTRICT

819 TAYLOR STREET
FORT WORTH, TX 76102

<http://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/>

APPENDIX C - TRUST RESOURCES REPORT – USFWS & SGCN- TPWD

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

Phone: (512) 490-0057 Fax: (512) 490-0974

<http://www.fws.gov/southwest/es/AustinTexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>



In Reply Refer To:

February 16, 2021

Consultation Code: 02ETAU00-2020-SLI-0872

Event Code: 02ETAU00-2021-E-01616

Project Name: Stillhouse Hollow Masterplan Revision

Subject: Updated list of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that *may* occur within the county of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please note that new information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Also note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of federally listed as threatened or endangered species and to determine whether projects may affect these species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

While a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal Agency must notify the Service in writing of any such designation. The Federal agency shall also independently review and evaluate the scope and content of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by a federally funded, permitted or authorized activity, the agency is required to consult with the Service pursuant to 50 CFR 402. The following definitions are provided to assist you in reaching a determination:

- *No effect* - the proposed action will not affect federally listed species or critical habitat. A “no effect” determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.
- *May affect, but is not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effect. The Federal agency or the designated non-Federal representative should consult with the Service to seek written concurrence that adverse effects are not likely. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.
- *Is likely to adversely affect* - adverse effects to listed species may occur as a direct or indirect result of the proposed action. For this determination, the effect of the action is neither discountable nor insignificant. If the overall effect of the proposed action is beneficial to the listed species but the action is also likely to cause some adverse effects to individuals of that species, then the proposed action “is likely to adversely affect” the listed species. The analysis should consider all interrelated and interdependent actions. An “is likely to adversely affect” determination requires the Federal action agency to initiate formal section 7 consultation with our office.

Regardless of the determination, the Service recommends that the Federal agency maintain a complete record of the evaluation, including steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered

Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

Migratory Birds

For projects that may affect migratory birds, the Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of these species. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Migratory birds may nest in trees, brushy areas, or other areas of suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the Service recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned.

For additional information concerning the MBTA and recommendations to reduce impacts to migratory birds please contact the U.S. Fish and Wildlife Service Migratory Birds Office, 500 Gold Ave. SW, Albuquerque, NM 87102. A list of migratory birds may be viewed at <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at: <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/communication-towers.php>. Additionally, wind energy projects should follow the wind energy guidelines

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/wind-energy.php>) for minimizing impacts to migratory birds and bats.

Finally, please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/eagles.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

(512) 490-0057

Project Summary

Consultation Code: 02ETAU00-2020-SLI-0872

Event Code: 02ETAU00-2021-E-01616

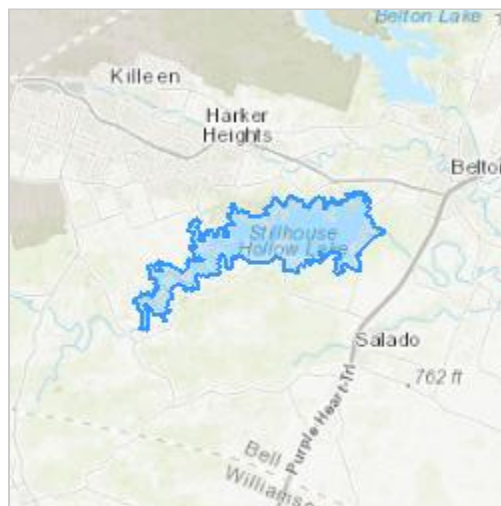
Project Name: Stillhouse Hollow Masterplan Revision

Project Type: LAND - MANAGEMENT PLANS

Project Description: The Stillhouse Hollow Master Plan (Bell County, Texas) is the long-term strategic land use management document that guides the comprehensive management and development of all the project's recreational, natural, and cultural resources within the federal fee boundary. Under the guidance of ER-1130-2-550 Change 7, the Plan guides the efficient and cost-effective development, management, and use of project lands. It is a dynamic tool that provides for the responsible stewardship and sustainability of the project's resources for the benefit of present and future generations. The Plan works in tandem with the Operational Management Plan (OMP), which is the implementation tool for the resource objectives and development needs identified in the Master Plan. The Master Plan guides and articulates the USACE responsibilities pursuant to federal laws. Efforts are under way to revise the current Lake Master Plan. The Master Plan revision will update land classifications, plan for the modernization of existing parks, and inform the management of wildlife and other resource lands within USACE managed property at Stillhouse Hollow Lake for the next 25 years.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@31.002261351515685,-97.5849808126793,14z>



Counties: Bell County, Texas

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Golden-cheeked Warbler (=wood) <i>Dendroica chrysoparia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/33	Endangered
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane <i>Grus americana</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Amphibians

NAME	STATUS
Salado Salamander <i>Eurycea chisholmensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3411	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

**APPENDIX D – OFFICIAL T&E SPECIES LIST – USFWS & STATE
LISTED SPECIES - TPWD**

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Last Update: 8/25/2020

BELL COUNTY

AMPHIBIANS

Salado Springs salamander *Eurycea chisholmensis*

Aquatic; springs, streams and caves with rocky or cobble beds.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

ARACHNIDS

No accepted common name *Cicurina coryelli*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

No accepted common name *Cicurina caliga*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

No accepted common name *Cicurina hoodensis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

No accepted common name *Cicurina mixmaster*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

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BELL COUNTY

ARACHNIDS

No accepted common name *Cicurina troglobia*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

No accepted common name *Tartarocreagris hoodensis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

No accepted common name *Tyrannochthonius muchmoreorum*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: PT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

black-capped vireo *Vireo atricapilla*

Oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3B

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BELL COUNTY

BIRDS

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

golden-cheeked warbler *Setophaga chrysoparia*

Ashe juniper in mixed stands with various oaks (*Quercus* spp.). Edges of cedar brakes. Dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S2S3B

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

Rufa Red Knot *Calidris canutus rufa*

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BELL COUNTY

BIRDS

Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. A small plump-bodied, short-necked shorebird that in breeding plumage, typically held from May through August, is a distinctive and unique pottery orange color. Its bill is dark, straight and, relative to other shorebirds, short-to-medium in length. After molting in late summer, this species is in a drab gray-and-white non-breeding plumage, typically held from September through April. In the non-breeding plumage, the knot might be confused with the omnipresent Sanderling. During this plumage, look for the knot's prominent pale eyebrow and whitish flanks with dark barring. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (*Donax* spp.) on beaches and dwarf surf clam (*Mulinia lateralis*) in bays, at least in the Laguna Madre. Wintering Range includes-Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1N

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (*Taxodium distichum*) or red mangrove (*Rhizophora mangle*); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

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BELL COUNTY

BIRDS

zone-tailed hawk *Buteo albonotatus*

Arid open country, including open deciduous or pine-oak woodland, mesa or mountain country, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3B

CRUSTACEANS

a cave obligate isopod *Caecidotea bilineata*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: N
Endemic: Y	Global Rank: G2G3	State Rank: S1

FISH

Guadalupe bass *Micropterus treculii*

Endemic to the streams of the northern and eastern Edwards Plateau including portions of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also found outside of the Edwards Plateau streams in decreased abundance, primarily in the lower Colorado River; two introduced populations have been established in the Nueces River system. A pure population was re-established in a portion of the Blanco River in 2014. Species prefers lentic environments but commonly taken in flowing water; numerous smaller fish occur in rapids, many times near eddies; large individuals found mainly in riffle tail races; usually found in spring-fed streams having clear water and relatively consistent temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

mountain mullet *Agonostomus monticola*

Catadromous. Adults can be found great distances upstream. Potential to occur in all river systems in Texas from Rio Grande to Sabine River. Rheophilic, fast, strong swimmer often associated with swift currents and possibly near large boulders; found in abundance or at rest in deeper pools of stream below falls and rapids.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S2

smalleye shiner *Notropis buccula*

Endemic to the Brazos River drainage; presumed to have been introduced into the Colorado River. Historically found in lower Brazos River as far south as Hempstead, Texas but appears to now be restricted to upper Brazos River system upstream of Possum Kingdom Lake. Typically found in turbid waters of broad, sandy channels of main stream, over substrate consisting mostly of shifting sand.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S1S2

INSECTS

a cave obligate beetle *Batrissodes dentifrons*

The only known specimens were taken from under a rock in a cave (Chandler et al., 2009).

Federal Status:	State Status:	SGCN: Y
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BELL COUNTY

INSECTS

Endemic: Global Rank: G1G2 State Rank: SNR

a cave obligate beetle *Batrisodes fanti*

This species was recently described from a few caves in Bell Co., Texas; from the underside of rocks in both dim twilight and complete darkness (Chandler et al., 2009).

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G1G2 State Rank: SNR

a cave obligate beetle *Batrisodes feminiclypeus*

This species is only known from disjunct caves in Bell Co., Texas (Chandler et al., 2009).

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G1G2 State Rank: SNR

a cave obligate beetle *Batrisodes gravesi*

This species is known from caves in Bell and Coryell Cos., Texas (Chandler et al., 2009).

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G3 State Rank: SNR

a cave obligate beetle *Batrisodes incisipes*

It was recently described from a single cave in Bell Co., Texas; from the underside of a rock deeply buried in soil near the end of the cave in dim twilight (Chandler et al., 2009).

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G1 State Rank: SNR

a cave obligate beetle *Batrisodes pekinsi*

This species was recently described from a single cave in Bell Co., Texas; from under a small rock buried in clay in the deepest part of the cave in total darkness (Chandler et al., 2009).

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G1 State Rank: SNR

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y

Endemic: Global Rank: G3G4 State Rank: SNR

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BELL COUNTY

INSECTS

Kretschmarr Cave mold beetle *Texamaurops reddelli*

Small, cave-adapted beetle found under rocks buried in silt; small, Edwards Limestone caves in of the Jollyville Plateau, a division of the Edwards Plateau

Federal Status: LE	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

No accepted common name *Rhadine reyesi*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

MAMMALS

American badger *Taxidea taxus*

Generalist. Prefers areas with soft soils that sustain ground squirrels for food. When inactive, occupies underground burrow. Young are born in underground burrows.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S3

cave myotis bat *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S4

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BELL COUNTY

MAMMALS

eastern red bat

Lasiurus borealis

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:

State Status:

SGCN: N

Endemic: N

Global Rank: G3G4

State Rank: S4

eastern spotted skunk

Spilogale putorius

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G4

State Rank: S1S3

hoary bat

Lasiurus cinereus

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:

State Status:

SGCN: N

Endemic: N

Global Rank: G3G4

State Rank: S4

long-tailed weasel

Mustela frenata

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S5

Mexican free-tailed bat

Tadarida brasiliensis

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S5

mink

Neovison vison

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S4

mountain lion

Puma concolor

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S2S3

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BELL COUNTY

MAMMALS

plains spotted skunk

Spilogale putorius interrupta

Generalist; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T4	State Rank: S1S3

swamp rabbit

Sylvilagus aquaticus

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

thirteen-lined ground squirrel

Ictidomys tridecemlineatus

Prefers short grass prairies with deep soils for burrowing. Frequently found in grazed ranchland, mowed pastures, and golf courses.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat

Perimyotis subflavus

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S3S4

western hog-nosed skunk

Conepatus leuconotus

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. *telmalestes*

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

woodland vole

Microtus pinetorum

Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

MOLLUSKS

Brazos Heelsplitter

Potamilus streckersoni

Habitat description is not available at this time.

Federal Status:	State Status: T	SGCN: N
Endemic: Y	Global Rank: GNR	State Rank: SNR

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BELL COUNTY

MOLLUSKS

No accepted common name *Elimia comalensis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2?

No accepted common name *Phreatodrobia micra*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2

No accepted common name *Marstonia comalensis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

Texas Fawnsfoot *Truncilla macrodon*

Occurs in large rivers but may also be found in medium-sized streams. Is found in protected near shore areas such as banks and backwaters but also riffles and point bar habitats with low to moderate water velocities. Typically occurs in substrates of mud, sandy mud, gravel and cobble. Considered intolerant of reservoirs (Randklev et al. 2010; Howells 2010o; Randklev et al. 2014b,c; Randklev et al. 2017a,b). [Mussels of Texas 2019]

Federal Status: C	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S2

REPTILES

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

massasauga *Sistrurus tergeminus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3S4

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BELL COUNTY

REPTILES

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas garter snake *Thamnophis sirtalis annectens*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T4	State Rank: S1

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

PLANTS

canyon sedge *Carex edwardsiana*

Dry-mesic deciduous and deciduous-juniper woodlands in canyons and ravines, usually in clay loams very high in calcium on rocky banks and slopes just above streams and stream beds. *Carex edwardsiana* usually grows near *C. planostachys*. Fruiting spring (Ball, Reznicek, and 2003).

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4

Glass Mountains coral-root *Hexalectris nitida*

Apparently rare in mixed woodlands in canyons in the mountains of the Brewster County, but encountered with regularity, albeit in small numbers, under *Juniperus ashei* in woodlands over limestone on the Edwards Plateau, Callahan Divide and Lampasas Cutplain; Perennial; Flowering June-Sept; Fruiting July-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

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BELL COUNTY

PLANTS

Osage Plains false foxglove *Agalinis densiflora*

Most records are from grasslands on shallow, gravelly, well drained, calcareous soils; Prairies, dry limestone soils; Annual; Flowering Aug-Oct

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

plateau milkvine *Matelea edwardsensis*

Occurs in various types of juniper-oak and oak-juniper woodlands; Perennial; Flowering March-Oct; Fruiting May-June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

scarlet leather-flower *Clematis texensis*

Usually in oak-juniper woodlands in mesic rocky limestone canyons or along perennial streams; Perennial; Flowering March-July; Fruiting May-July

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4

sycamore-leaf snowbell *Styrax platanifolius ssp. platanifolius*

Rare throughout range, usually in oak-juniper woodlands on steep rocky banks and ledges along intermittent or perennial streams, rarely far from some reliable source of moisture; Perennial; Flowering April-May; Fruiting May-Aug.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3T3	State Rank: S3

Texabama croton *Croton alabamensis var. texensis*

In duff-covered loamy clay soils on rocky slopes in forested, mesic limestone canyons; locally abundant on deeper soils on small terraces in canyon bottoms, often forming large colonies and dominating the shrub layer; scattered individuals are occasionally on sunny margins of such forests; also found in contrasting habitat of deep, friable soils of limestone uplands, mostly in the shade of evergreen woodland mottes; flowering late February-March; fruit maturing and dehiscing by early June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3T2	State Rank: S2

Texas almond *Prunus minutiflora*

Wide-ranging but scarce, in a variety of grassland and shrubland situations, mostly on calcareous soils underlain by limestone but occasionally in sandier neutral soils underlain by granite; Perennial; Flowering Feb-May and Oct; Fruiting Feb-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4

Texas fescue *Festuca versuta*

Occurs in mesic woodlands on limestone-derived soils on stream terraces and canyon slopes; Perennial; Flowering/Fruiting April-June

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

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BELL COUNTY

PLANTS

Texas milk vetch

Astragalus reflexus

Grasslands, prairies, and roadsides on calcareous and clay substrates; Annual; Flowering Feb-June; Fruiting April-June

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

tree dodder

Cuscuta exaltata

Parasitic on various *Quercus*, *Juglans*, *Rhus*, *Vitis*, *Ulmus*, and *Diospyros* species as well as *Acacia berlandieri* and other woody plants; Annual; Flowering May-Oct; Fruiting July-Oct

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S3

turnip-root scurfpea

Pediomelum cyphocalyx

Grasslands and openings in juniper-oak woodlands on limestone substrates on the Edwards Plateau and in north-central Texas (Carr 2015).

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3G4

State Rank: S2S3

Wright's milkvetch

Astragalus wrightii

On sandy or gravelly soils; April (Diggs et al. 1999).

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

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Element Occurrence Record

Scientific Name: Agalinis densiflora **Occurrence #:** 9 **Eo Id:** 10997
Common Name: Osage Plains false foxglove **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G3 **State Rank:** S2 **Federal Status:**

Location Information:

Directions

Near highway along Camp Hood.

Survey Information:

First Observation: 1949-10-08 **Survey Date:** **Last Observation:** 1949-10-08
Eo Type: **Eo Rank:** H **Eo Rank Date:** 2006-12-07

Observed Area:

Comments:

General On rocky soil below shell marl outcrop, prairie rangeland, associated with grasses and scattered oak and juniper.
Description:

Comments: Complete label citation: On rocky soil below shell marl outcrop, prairie rangeland, associated with grasses and scattered oak and juniper, elev. 650 ft., near highway along Camp Hood, 8 Oct 1949, F. W. Gould 5377 (BRIT/SMU).

Protection

Comments:

Management

Comments:

Data:

EO Data:

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Gould, F.W. (5377). 1949. BRIT/SMU.

Specimen:

Gould, F.W. (5377). 1949. BRIT/SMU. (S49GOUSMTXUS)

Element Occurrence Record

Scientific Name: Agalinis densiflora

Occurrence #: 18

Eo Id: 11092

Common Name: Osage Plains false foxglove

Track Status: Track all extant and selected historical EOs

Identification Confirmed:

TX Protection Status:

Global Rank: G3

State Rank: S2

Federal Status:

Location Information:

Directions

Near highway along Camp Hood.

Survey Information:

First Observation:

Survey Date:

Last Observation: 1949-10-08

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: Complete label citation: On rocky soil below shell marl outcrop, prairie rangeland, associated with grasses and scattered oak and juniper, elev. 650 ft., near highway along Camp Hood, 8 Oct 1949, F. W. Gould 5377 (BRIT/SMU).

Protection

Comments:

Management

Comments:

Data:

EO Data:

Community Information:

Scientific Name:

Stratum:

Dominant:

Lifeform:

Composition Note:

Reference:

Citation:

Specimen:

F. W. Gould 5377 (BRIT/SMU).

Element Occurrence Record

Scientific Name: Caecidotea bilineata **Occurrence #:** 1 **Eo Id:** 12809
Common Name: a cave obligate isopod **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G2G3 **State Rank:** S1 **Federal Status:**

Location Information:

Directions

Specimens were collected from Tahuaya Springs, Camp Tahuaya, Bell Co.

Survey Information:

First Observation: 1985-06-14 **Survey Date:** 1985-07-24 **Last Observation:** 1985-07-24
Eo Type: **Eo Rank:** H **Eo Rank Date:** 1985-07-24
Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 14 June 1985: Male and female specimens were collected. 24, 26 June and 3, 5, 8, 12, 15, 18, and 24 July 1985:
At a minimum, a total of 11 females and two males were collected.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Lewis, Julian J., and T. E. Bowman. 1996. The subterranean asellids of Texas (Crustacea: Isopoda: Asellidae). Proceedings of the Biological Society of Washington 109(3):482-500.

Smithsonian Institution, National Museum of Natural History. 2016. Data download of 21 July for Caecidotea and Lirceolus species in Texas from the Department of Invertebrate Zoology collections.

Element Occurrence Record

Specimen:

National Museum of Natural History, Smithsonian, Washington D.C.; M. Mauldin, Catalog USNM 264052, 12 July 1985, USNM.
Holotype.

National Museum of Natural History, Smithsonian, Washington D.C.; M. Mauldin, Catalog USNM 264053, 14 June 1985, USNM.
Paratype.

National Museum of Natural History, Smithsonian, Washington D.C.; M. Mauldin, Catalog USNM 264054, 26 June 1985, USNM.
Paratype.

Element Occurrence Record

Scientific Name: Conepatus leuconotus **Occurrence #:** 116 **Eo Id:** 14395
Common Name: western hog-nosed skunk **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G4 **State Rank:** S4 **Federal Status:**

Location Information:

Directions

The specimen label states it was located in Bell County, TX.

Survey Information:

First Observation: no date **Survey Date:** no date **Last Observation:** no date
Eo Type: **Eo Rank:** H **Eo Rank Date:** no date
Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: No date: One preserved specimen of unknown sex and preservation type.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Ferguson, Adam. 2014. Texas Skunk Record Database regarding five species of skunk in Texas.

Specimen:

University of Mary Hardin Baylor, Belton, TX; unknown (#1651), Catalog #566, No date, UMHB.

Element Occurrence Record

Scientific Name:	Eurycea chisholmensis	Occurrence #:	1	Eo Id:	2989
Common Name:	Salado Springs salamander	Track Status:	Track all extant and selected historical EOs		
Identification Confirmed:	Y - Yes	TX Protection Status:			
Global Rank:	G1	State Rank:	S1	Federal Status:	LT

Location Information:

Directions

Salado (Big Boiling, Mair or Siren) Springs, 0.6 kilometer southeast of Salado, south side of Salado Creek.

Survey Information:

First Observation:	1990-01-21	Survey Date:	2015-04-08	Last Observation:	2015-04-08
Eo Type:		Eo Rank:	E	Eo Rank Date:	2015-04-08

Observed Area:

Comments:

General Description: 2009: The salamanders have been found in a couple springs on the S bank of Salado Creek, and down to the confluence of the spring water and the creek. The main spring has been excavated and refilled with road base rock. The area surrounding the springs is dominated by St Augustine grass and a parking area. At the confluence of the spring flow and Salado creek, watercress is abundant as well as mint and St. Augustine grass. 2015: The salamanders were found on gravel and pebble substrate.

Comments: There may be an additional specimens in the private collection of Bryce C. Brown at Baylor University.

Protection Comments: 2009: This EO is currently threatened by habitat modification related to aesthetic improvements of park area including mowing, removal of plants from creekbed and shoreline and moving, removing and dumping of gravel in Spring and Salado Creek adjacent to springs. This site is potentially threatened by upstream construction projects (TXDOT), proposed park improvements (City of Salado), and low flow in Salado Creek and low groundwater levels. The springs, spring runs and creek habitat at and upstream of Salado Park need to be protected.

Management Comments: 2009: About one year ago, a member of the public removed rocks from the spring creating what was perceived to be a public safety hazard by some. Another individual dumped a truckload of roadbase in the spring, raising the floor of the pool approximately 30 cm above previous level and obscuring spring orifices. The gravel dumped in the spring appears to be restricting flow and limiting access of the salamanders. Fill may need to be replaced with a more heterogeneous mix of rock that is more permeable for both salamanders and water. The salamanders might benefit from reduced predation by the removal of fish from the main spring.

Data:

EO Data: No Date: 2 specimens were collected. Jan 1990: 4 specimens were collected; 1 was a gravid female. Nov 1990: 2 specimens were collected. Feb 1991: 1 specimen was collected. Oct 1991: 1 specimen was collected. Aug 1998: 1 specimen was collected. 25 Jun 2009: Site was visited, but no salamanders were found. 24 Mar 2-15: Site was visited, but no salamanders were found. 1 and 8 Apr 2015: 1 juvenile was seen each date and were thought to be different individuals.

Community Information:

Scientific Name:	Stratum:	Dominant:	Lifeform:	Composition Note:

Element Occurrence Record

Reference:

Citation:

Gluesenkamp, Andy, and C. Hanks. 2009. Field survey for Salado Salamanders, *Eurycea chisolmensis*, at Salado Spring on 25 June 2009.

Sweet, Samuel S. 1982. A distributional analysis of epigean populations of *Eurycea neotenes* in Central Texas, with comments on the origin of troglobitic populations. *Herpetologica* 38(3):430-444.

Chippindale, P. T., A. H. Price, J. J. Wiens, and D. M. Hillis. 2000. Phylogenetic relationships and systematic revision of central Texas hemidactyliine plethodontid salamanders. *Herpetological Monographs* 14:1-80.

Hillis, David M., and Paul T. Chippindale. 1999. Final Report. Project No. 3.4: Status Report of Central Texas Salamanders (Genus: *Eurycea*). Grant No. E-1-4. Endangered and Threatened Species Conservation. Submitted to Texas Parks and Wildlife Dept., Austin, TX. 30 November 1999.

Hanks, Cullen. 2011. Compilation of *Eurycea* specimen records for Central Texas extracted from online databases.

Diaz, Pete. 2015. Salado Salamander Monitoring March and April 2015 Trip Report. Prepared by the Texas Fish and Wildlife Conservation Office (TXFWCO), Salado Spring complex, Bell County. Mar-Apr 2015. 4 pp.

Specimen:

Texas Natural History Collections, University of Texas at Austin, TX; D. M. Hillis (#DMH 90-416), Catalog #51141, 5 November 1990, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; D. M. Hillis (#DMH 90-417), Catalog #51142, 12 November 1990, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; D. M. Hillis (#DMH 91-34), Catalog #51139, 10 February 1991, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; D. M. Hillis (#unknown), Catalog #51140, no date, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; D. M. Hillis and P. Chippindale (#DMH 90:23), Catalog #52771, 28 January 1990, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; D. M. Hillis and P. Chippindale (#DMH 90:322), Catalog #51143, No Date, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; P. Chippindale (#PC 1998-9), Catalog #58859, 1 August 1998, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; P. Chippindale and A. H. Price (#AHP 3292), Catalog #51146, 23 October 1991, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; P. Chippindale et al. (#DMH 90:2 and 4), Catalog #51144-51145, 23 January 1990, TNHC.

Texas Natural History Collections, University of Texas at Austin, TX; P. Chippindale et al. (#DMH 90:5), Catalog #52770, 21 January 1990, TNHC.

Element Occurrence Record

Scientific Name: Eurycea chisholmensis

Occurrence #: 2

Eo Id: 4827

Common Name: Salado Springs salamander

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G1

State Rank: S1

Federal Status: LT

Location Information:

Directions

Robertson Springs, part of Salado Springs, West of IH-35 and South of Salado Creek.

Survey Information:

First Observation: 1990s

Survey Date: 2010-03-24

Last Observation: 2010-03-24

Eo Type:

Eo Rank: E

Eo Rank Date: 2010-03-24

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 2000: location was reported by Chippindale et al. Feb 2010: 1 specimen was collected. Mar 2010: 2 specimens were collected.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Chippindale, P. T., A. H. Price, J. J. Wiens, and D. M. Hillis. 2000. Phylogenetic relationships and systematic revision of central Texas hemidactyliine plethodontid salamanders. Herpetological Monographs 14:1-80.

Hanks, Cullen. 2011. Compilation of Eurycea specimen records for Central Texas extracted from online databases.

Hillis, David M., and Paul T. Chippindale. 1999. Final Report. Project No. 3.4: Status Report of Central Texas Salamanders (Genus: Eurycea). Grant No. E-1-4. Endangered and Threatened Species Conservation. Submitted to Texas Parks and Wildlife Dept., Austin, TX. 30 November 1999.

Element Occurrence Record

Specimen:

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, TX; Andy Gluesenkamp (# AGG 1873), Catalog #s unknown, 25 February 2010, UTA.

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, TX; Andy Gluesenkamp (# AGG 1879), Catalog #s unknown, 4 March 2010, UTA.

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, TX; Andy Gluesenkamp (# AGG 1893), Catalog #s unknown, 24 March 2010, UTA.

Element Occurrence Record

Scientific Name:	Eurycea chisholmensis	Occurrence #:	3	Eo Id:	8953
Common Name:	Salado Springs salamander	Track Status:	Track all extant and selected historical EOs		
Identification Confirmed:	Y - Yes	TX Protection Status:			
Global Rank:	G1	State Rank:	S1	Federal Status:	LT

Location Information:

Directions

Solana Springs on the Solana Ranch. Approx. 4 air miles WNW of Prairie Dell on IH-35. Directions were created by database staff.

Survey Information:

First Observation:	2009-08-11	Survey Date:	2009-08-11	Last Observation:	2009-08-11
Eo Type:		Eo Rank:	E	Eo Rank Date:	2009-08-11

Observed Area:

Comments:

General Description: Springs were flowing at 25 gallons per minute. Springs were issuing from creek at head of unnamed tributary to North Rumsey Creek. Draw is dry upstream and is heavily used by cattle. Springs emerge from base of crumbling limestone ledge that extrudes from alluvial deposits - primarily cobble, gravel, and sand. There is lots of silt in areas near springs and downstream due to cattle activity. Watercress and spikerush dot the spring outflow.

Comments: The Assoc. Species tab contains a list of the invertebrates that were observed. Photographs of the springs are included in the reference.

Protection Comments:

Management Comments:

Data:

EO Data: 11 Aug 2009: Five salamanders were observed; three were collected. 25 Mar 2010: 11 specimens were collected.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Gluesenkamp, Andy. 2009. Field survey to Solana Springs of 11 August 2009.

Hanks, Cullen. 2011. Compilation of Eurycea specimen records for Central Texas extracted from online databases.

Element Occurrence Record

Specimen:

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, Arlington, TX; Andy Gluesenkamp (#AGG 1813),
Catalog #unknown, 11 Aug 2009, UTA.

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, Arlington, TX; Andy Gluesenkamp (#AGG 1814),
Catalog #unknown, 11 Aug 2009, UTA.

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, Arlington, TX; Andy Gluesenkamp (#AGG 1815),
Catalog #unknown, 11 Aug 2009, UTA.

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, TX; Andy Gluesenkamp (# AGG 1882-1892),
Catalog #s unknown, 25 March 2010, UTA.

Element Occurrence Record

Scientific Name: Eurycea chisholmensis

Occurrence #: 4

Eo Id: 9289

Common Name: Salado Springs salamander

Track Status: Track all extant and selected historical EOs

Identification Confirmed:

TX Protection Status:

Global Rank: G1

State Rank: S1

Federal Status: LT

Location Information:

Directions

Salado Springs (eastern outlet on Lazy Days Fish Farm). Bell County.

Survey Information:

First Observation:

Survey Date:

Last Observation:

Eo Type:

Eo Rank: U

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: Sweet (A82SWE01TXUS and U78SWE01TXUS)) reported that there was a specimen in Bryce C. Brown's private collection at Baylor University.

Protection

Comments:

Management

Comments:

Data:

EO Data:

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Sweet, Samuel S. 1982. A distributional analysis of epigean populations of Eurycea neotenes in Central Texas , with comments on the origin of troglotic populations. Herpetologica 38(3):430-444.

Sweet, Samuel S. 1978. The Evolutionary Development of the Texas Eurycea (Amphibia: Plethodontidae). Ph.D. dissertation. University of California, Berkeley. 450 pp.

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Eurycea chisholmensis

Occurrence #: 5

Eo Id: 9359

Common Name: Salado Springs salamander

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G1

State Rank: S1

Federal Status: LT

Location Information:

Directions

Hog Hollow Spring, Solana Ranch, Approx. 4 air miles WNW of Prairie Dell on IH-35. Directions were created by database staff.

Survey Information:

First Observation: 2010-03-25

Survey Date: 2010-03-25

Last Observation: 2010-03-25

Eo Type:

Eo Rank: E

Eo Rank Date: 2010-03-25

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 25 Mar 2010: 1 specimen was collected.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Hanks, Cullen. 2011. Compilation of Eurycea specimen records for Central Texas extracted from online databases.

Specimen:

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, TX; Andy Gluesenkamp (# AGG 1900), Catalog #s unknown, 25 March 2010, UTA.

Element Occurrence Record

Scientific Name: Eurycea chisholmensis

Occurrence #: 6

Eo Id: 9360

Common Name: Salado Springs salamander

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G1

State Rank: S1

Federal Status: LT

Location Information:

Directions

Cistern Spring, Solana Ranch, Approx. 4 air miles WNW of Prairie Dell on IH-35. Directions were created by database staff.

Survey Information:

First Observation: 2010-03-25

Survey Date: 2010-03-25

Last Observation: 2010-03-25

Eo Type:

Eo Rank: E

Eo Rank Date: 2010-03-25

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 25 Mar 2010: 1 specimen was collected.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Hanks, Cullen. 2011. Compilation of Eurycea specimen records for Central Texas extracted from online databases.

Specimen:

Amphibian and Reptile Diversity Research Center, University of Texas at Arlington, TX; Andy Gluesenkamp (# AGG 1894-1899), Catalog #s unknown, 25 March 2010, UTA.

Element Occurrence Record

Scientific Name: Micropterus treculii

Occurrence #: 102

Eo Id: 14107

Common Name: Guadalupe bass

Track Status: Track all extant and selected historical EOs

Identification Confirmed: Y - Yes

TX Protection Status:

Global Rank: G3

State Rank: S3

Federal Status:

Location Information:

Directions

Data aggregated from Fishes of Texas specimens. No directions added.

Survey Information:

First Observation: 1965-11-20

Survey Date: 1974-11-10

Last Observation: 1974-11-10

Eo Type:

Eo Rank: H

Eo Rank Date: 1974-11-10

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 20 Nov 1965: 8 specimens were collected. 10 Nov 1974: 1 specimen was collected.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Fishes of Texas. 2015. Database download from the Fishes of Texas online database (<http://www.fishesoftexas.org/home/>) of SGCN species on 11 May 2015. University of Texas, Texas Natural History Collections, Excel spreadsheet.

Specimen:

Mayborn Museum, Baylor University, Waco, TX; unknown (#unknown), Catalog # 1879, 10 Nov 1974, BU-MMC-BB.

Texas Cooperative Wildlife Collections, Texas A&M University, College Station, TX; M. Zengerle, H. Holcomb (#unknown), Catalog # 1496.01, 20 Nov 1965, TCWC.

2/27/2020

Element Occurrence Record

Scientific Name: Notropis buccula **Occurrence #:** 4 **Eo Id:** 7778
Common Name: smalleye shiner **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G2 **State Rank:** S1S2 **Federal Status:** LE

Location Information:

Directions

These directions were not updated when Fishes of Texas specimen Source Features were aggregated into EOs . Original directions: Original directions: LAMPASAS RIVER SOUTH OF BELTON, BELL COUNTY

Survey Information:

First Observation: 1951-10-13 **Survey Date:** 1951-10-13 **Last Observation:** 1951-10-13
Eo Type: **Eo Rank:** H **Eo Rank Date:** 2011-01-01
Observed Area:

Comments:

General Description: MAIN CHANNEL OF STREAM, TURBID WATER, SANDY SUBSTRATE

Comments: PROBABLY EXTIRPATED BY UPSTREAM DAM BUILDING (STILLHOUSE HOLLOW RESERVOIR)

Protection Comments:

Management Comments:

Data:

EO Data: 13 Oct 1951: 5 specimens were collected.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

LEE, DAVID S. ET AL. 1980. ATLAS OF NORTH AMERICAN FRESHWATER FISHES. N.C. STATE MUSEUM OF NAT. HIST., GREENSBORO, NC.

CROSS, FRANK B. 1953. A NEW MINNOW NOTROPIS BAIRDI BUCCULA, FROM THE BRAZOS RIVER, TEXAS. TEXAS J. OF SCI., 1958 (2):252-259.

Fishes of Texas. 2015. Database download from the Fishes of Texas online database (<http://www.fishesoftexas.org/home/>) of SGCN species on 11 May 2015. University of Texas, Texas Natural History Collections, Excel spreadsheet.

Element Occurrence Record

Specimen:

Texas A & M University, Texas Cooperative Wildlife Collection. 1951. F.T. Knapp and class, Catalog # 164.01 TCWC. 13 October 1951.

[S51KNAAMTXUS]

Element Occurrence Record

Scientific Name: Prunus minutiflora

Occurrence #: 54

Eo Id: 10542

Common Name: Texas almond

Track Status: Track all extant and selected historical EOs

Identification Confirmed:

TX Protection Status:

Global Rank: G3G4

State Rank: S3S4

Federal Status:

Location Information:

Directions

3 mi E of Salado.

Survey Information:

First Observation:

Survey Date:

Last Observation: 1932-02-08

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: Complete label citation: On shallow Houston clay hill 3 mi E of Salado, 8 Feb 1932, S. E. Wolff 3435 (TAES).

Protection

Comments:

Management

Comments:

Data:

EO Data:

Community Information:

Scientific Name:

Stratum:

Dominant:

Lifeform:

Composition Note:

Reference:

Citation:

Specimen:

S. E. Wolff 3435 (TAES).

Element Occurrence Record

Scientific Name: Prunus minutiflora

Occurrence #: 81

Eo Id: 10726

Common Name: Texas almond

Track Status: Track all extant and selected historical EOs

Identification Confirmed:

TX Protection Status:

Global Rank: G3G4

State Rank: S3S4

Federal Status:

Location Information:

Directions

Triangle of land just S of intersection of Howard Lane and Dessau Rd., W side of I-35, 1 Mar 1997, M. Enquist 3315 (BRIT/SMU, TAES).

Survey Information:

First Observation: 1988-05-18

Survey Date:

Last Observation: 1997-03-01

Eo Type:

Eo Rank: C

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: Complete label citation: Triangle of land just S of in. of Howard Lane and Dessau Rd., W side of I-35, several small clumps about 3-4' tall, 1 Mar 1997, M. Enquist 3315 (BRIT/SMU, TAES).

Protection

Comments:

Management

Comments:

Data:

EO Data: Several small clumps about 3-4' tall (per Enquist label from 1997).

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Specimen:

G. Nesom and J. Grimes 6439 (TEX-LL).

M. Enquist 3315 (BRIT/SMU, TAES).

Element Occurrence Record

Scientific Name:	Quadrula houstonensis	Occurrence #:	18	Eo Id:	9812
Common Name:	smooth pimpleback	Track Status:	Track all extant and selected historical EOs		
Identification Confirmed:	Y - Yes	TX Protection Status:	T		
Global Rank:	G2	State Rank:	S1S2	Federal Status:	C

Location Information:

Directions

Mussels were observed in the Lampasas River west of Youngsport (south of Killeen). The directions were created by database staff.

Survey Information:

First Observation:	1994-08-20	Survey Date:	1994-08-20	Last Observation:	1994-08-20
Eo Type:		Eo Rank:	H	Eo Rank Date:	2014-08-20

Observed Area:

Comments:

General

Description:

Comments: 20 Aug 1994: Survey methodology was a shoreline search.

Protection

Comments:

Management

Comments:

Data:

EO Data: 20 Aug 1994: 1.5 shells of recently dead to long dead condition were collected.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Howells, Robert G. 1996. Distributional surveys of freshwater bivalves in Texas: progress report for 1994. Management Data Series No. 120. Texas Parks and Wildlife Dept., Inland Fisheries Division. 53 pp.

Morton, J., J. Dudding, E. Tsakiris, K. Inoue, R. Lopez, and C. Randklev. 2016. Survey results and habitat use for Quadrula houstonensis (smooth pimpleback) in the Brazos and Colorado River drainages of Texas. Prepared for the Interagency Task Force on Economic Growth and Endangered Species, Texas Comptroller of Public Accounts. November 2016.

Randklev, C. R., N. A. Johnson, T. Miller, J. M. Morton, J. Dudding, K. Skow, B. Boseman, M. Hart, E. T. Tsakiris, K. Inoue, and R. R. Lopez. 2017. Freshwater mussels (Unionidae): central and west Texas final report. Prepared for the Interagency Task Force on Economic Growth and Endangered Species, Texas Comptroller of Public Accounts. 321 pp. 28 April 2017.

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Spilogale putorius **Occurrence #:** 15 **Eo Id:** 12682
Common Name: eastern spotted skunk **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G4 **State Rank:** S1S3 **Federal Status:**

Location Information:

Directions

The specimen label states that it was located on Fort Hood in Training Area # 5, Bell County.

Survey Information:

First Observation: 1996-08-06 **Survey Date:** 1996-08-06 **Last Observation:** 1996-08-06
Eo Type: **Eo Rank:** E **Eo Rank Date:** 1996-08-06
Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 6 August 1996: Tissue sample of one female preserved specimen.

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Ferguson, Adam. 2014. Texas Skunk Record Database regarding five species of skunk in Texas.

Specimen:

Angelo State Natural History Collections, Angelo State University, San Angelo, TX; Darin S. Carroll, Cody W. Edwards (#3544), Catalog #10299, Tissue #ASK4529, 6 August 1996, ASNHC.

Element Occurrence Record

Scientific Name: Texamaurops reddelli **Occurrence #:** 3 **Eo Id:** 10893
Common Name: Kretschmarr Cave mold beetle **Track Status:** Track all extant and selected historical EOs
Identification Confirmed: Y - Yes **TX Protection Status:**
Global Rank: G1G2 **State Rank:** S1 **Federal Status:** LE

Location Information:

Directions

COFFIN CAVE, IN FLORENCE AREA

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1963-11-03
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: ENTRANCE SHAFT FORMED ALONG VERTICAL JOINT IN THIN-BEDDED LIMESTONE; WATER AT LOWER LEVEL

Comments: CAVE LOCATION MAY BE SENSITIVE, BASED ON LACK OF LOCATIONAL INFORMATION

Protection Comments:

Management Comments:

Data:

EO Data: FAUNA LIST EXISTS (SEE SOURCE)

Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

Reference:

Citation:

Elliott, W.R. and J.R. Reddell. 1989. The status and range of five endangered arthropods from caves in the Austin , Texas, region. Prepared for Texas Parks & Wildlife Dept. and Texas Nature Conservancy for the Austin Regional Habitat Conservation Plan, Austin, TX. 103 pp. 1 December 1989.

Specimen:

APPENDIX E – WILDLIFE HABITAT APPRAISAL PROCEDURE (WHAP) REPORT

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**WILDLIFE HABITAT APPRAISAL PROCEDURE (WHAP) SUMMARY
REPORT STILLHOUSE HOLLOW LAKE MASTER PLAN
BELL COUNTY, TEXAS**



OCTOBER 2020



**US Army Corps
of Engineers®**
Fort Worth District

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INTRODUCTION

Habitat assessments were conducted at Stillhouse Hollow Lake on September 24th-28th, 2020 using Texas Parks and Wildlife Department's (TPWD) Wildlife Habitat Appraisal Procedure [(WHAP) TPWD 1995]. WHAP survey points were haphazardly preselected based on aerial imagery from existing Geographical Information Systems (GIS) data and local knowledge of the area. A total of 81 WHAP points were surveyed, all within the U.S. Army Corps of Engineers (USACE) fee boundary (Figures 1, 2, and 3).

The purpose of this report is to describe wildlife habitat quality on USACE fee-owned property at Stillhouse Hollow Lake in Bell County, Texas. This report is being prepared by the USACE Regional Planning and Environmental Center to provide habitat quality information and inform land classifications as part of the 2021 Stillhouse Hollow Lake Master Plan revision process.

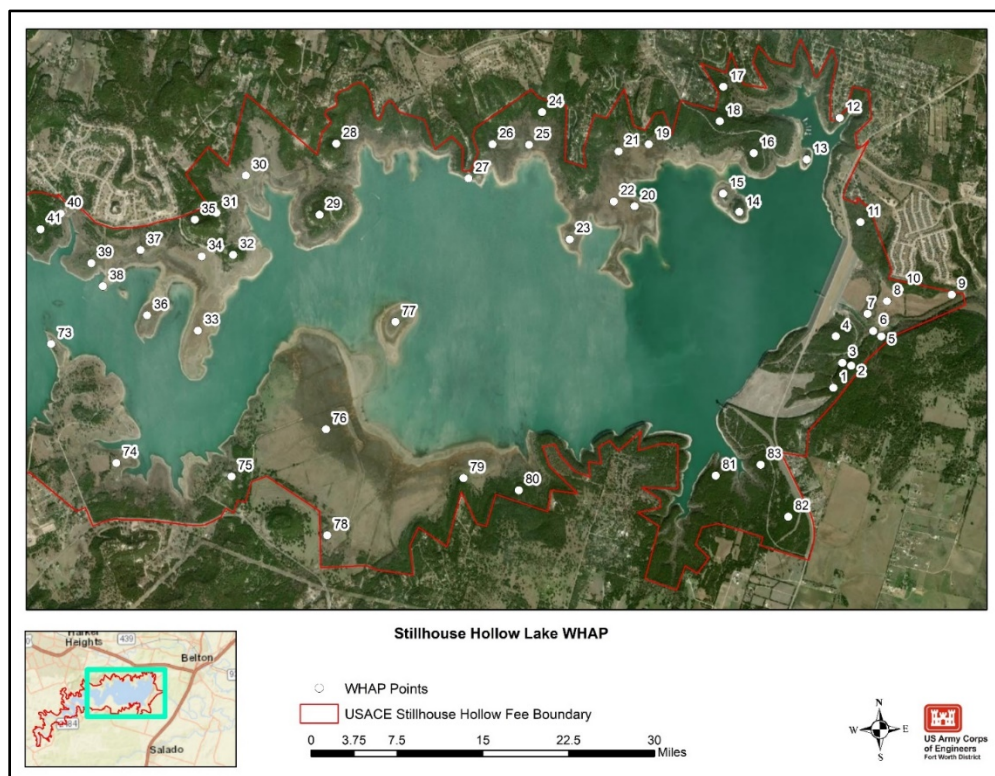


Figure 1. Distribution of WHAP Points - Stillhouse Hollow Lake

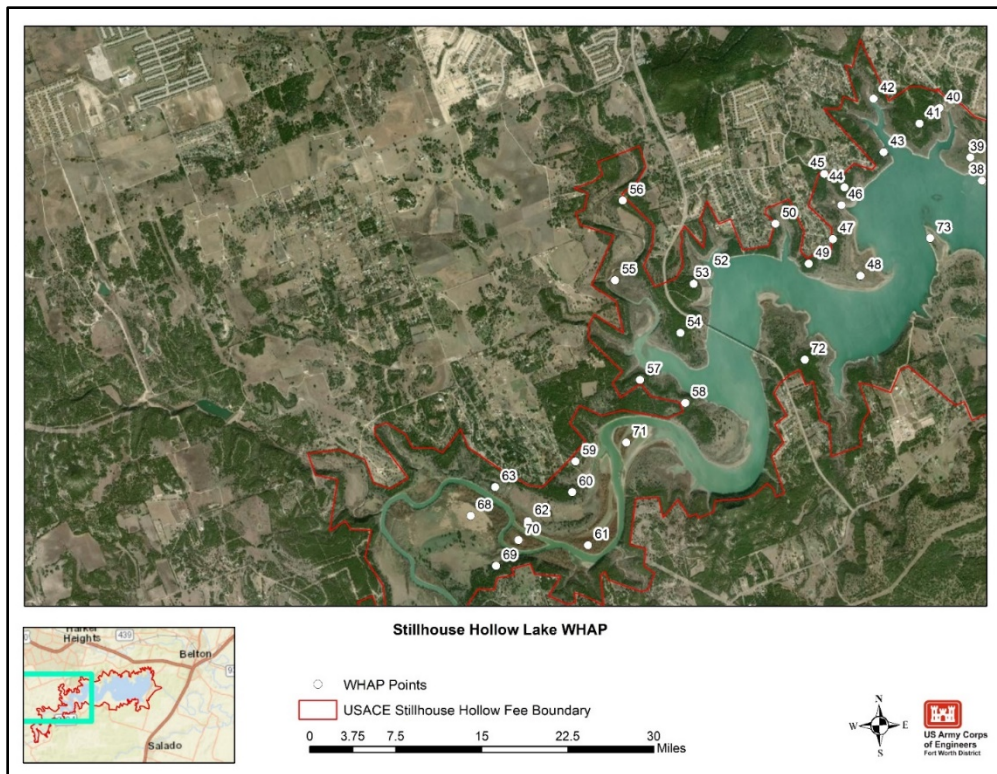


Figure 2. Distribution of WHAP Points - Stillhouse Hollow Lake

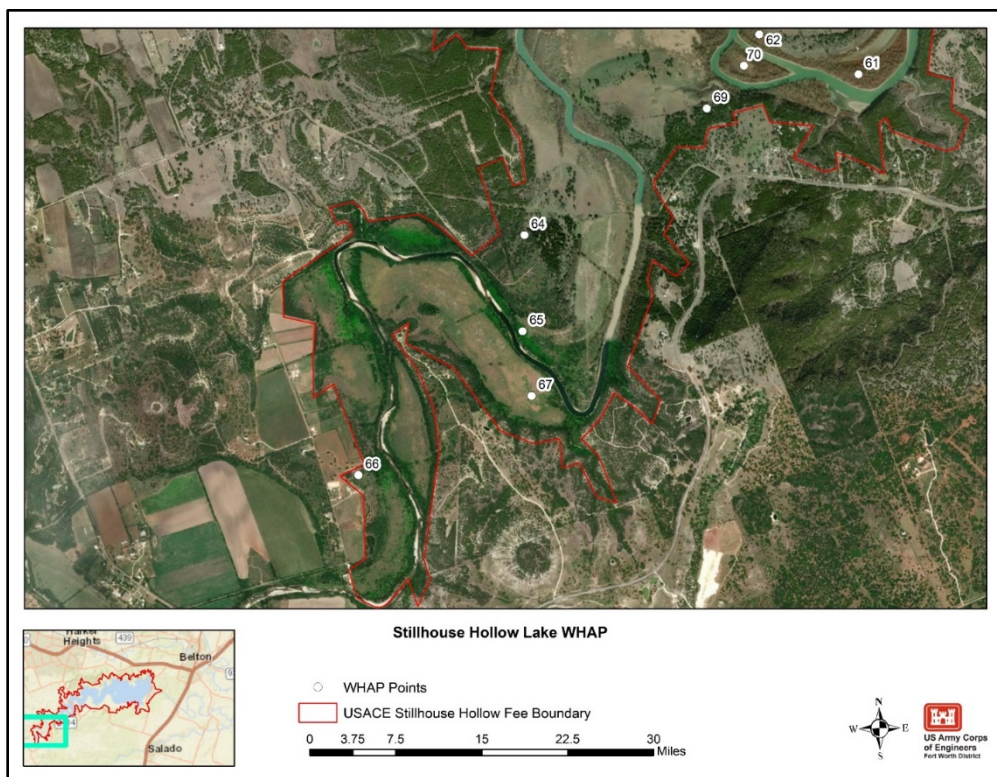


Figure 3. Distribution of WHAP Points - Stillhouse Hollow Lake

STUDY AREA

USACE fee owned property at Stillhouse Hollow Lake, approximately 15,230 acres, is located 5 miles southwest of Belton, Texas in Bell County. The dam was constructed on the Lampasas River, a tributary of the Little River which is a tributary to the Brazos River. The drainage area above the dam is 1,318 square miles.

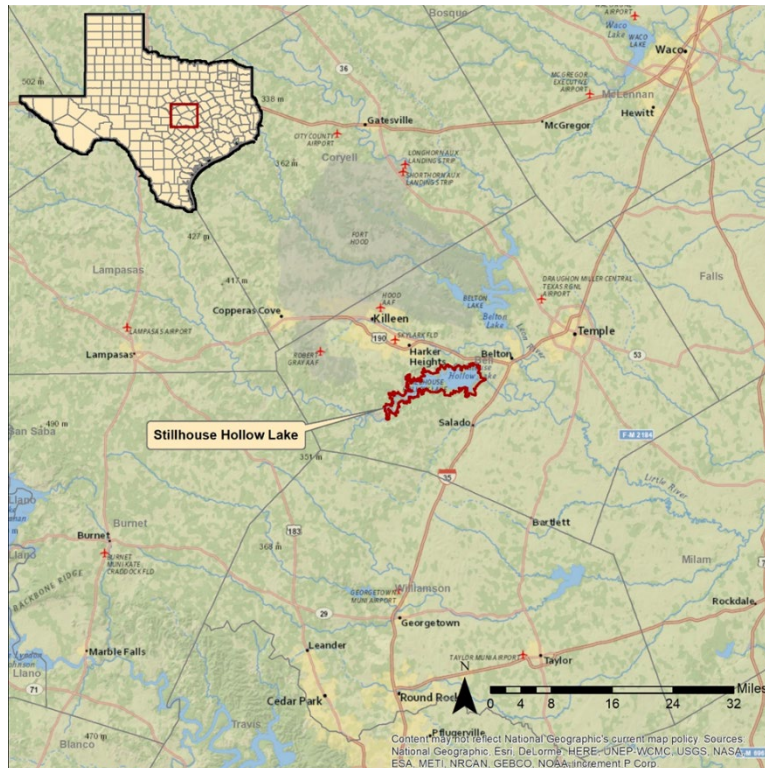


Figure 4. Stillhouse Hollow Lake Vicinity Map

METHODOLOGY

An interagency team of biologists, foresters, and USACE park rangers conducted a habitat evaluation of selected areas at Stillhouse Hollow Lake. TPWD's WHAP protocol was used to analyze and describe existing habitats.

The WHAP requires evaluating representative sites of each cover type present within an area of interest. For this project, a search area of 0.1 acre (circle with radius of 37.2 feet) was used at each WHAP site to compile a list of plant species and to complete the Biological Components Field Evaluation Form. Data collected on the form at each WHAP site included the following components:

1. Site Potential
2. Temporal Development of Existing Successional Stage
3. Uniqueness and Relative Abundance
4. Vegetation Species Diversity
5. Vertical Vegetation Stratification
6. Additional Structural Diversity
7. Condition of Existing Vegetation

At each site, a 1/10th acre plot was evaluated, and points were assigned to all applicable components based on field conditions. A habitat quality score, where values range from 0.0(low quality) to 1.0 (high quality), was then calculated for each site by adding together all points and multiplying by 0.01. Habitat quality was then determined for all sites within the same habitat type. Photographs were taken at each site (cardinal directions) and are included as Attachment B.

The TPWD developed the WHAP to allow a qualitative, holistic evaluation of wildlife habitat for tracts of land statewide without imposing significant time requirements for field work and compilation of data (TPWD 1995). The WHAP is not designed to evaluate habitat quality in relation to specific wildlife species.

The WHAP is based on the following assumptions:

1. Vegetation structure including species composition and physiognomy is sufficient to define the habitat suitability for wildlife.
2. A positive relationship exists between vegetation diversity and wildlife species diversity.
3. Vegetation composition and primary productivity directly influence population densities of wildlife species.

As designed, the WHAP is intended to be used for the following applications:

1. Evaluating impacts upon wildlife populations from specific development project alternatives.
2. Establishing baseline data prior to anticipated or proposed changes in habitat conditions for specific areas.
3. Comparing tracts of land that are candidates for land acquisition or mitigation.
4. Evaluating general habitat quality and wildlife management potential for tracts of land over large geographical areas, including wildlife planning units.

The WHAP protocol can be used to assess a wide range of habitats; however, it was originally developed to assess and develop mitigation requirements for loss of bottomland hardwoods and other aquatic habitats. Scores can skew higher for these habitats based on how the scoring is allotted to each WHAP habitat component. Upland forest and grassland habitat types cannot reach a score indicative of high-quality habitat although they may exhibit high quality features. Subsequently, high quality upland habitat may not be identified or can be overlooked.

Grasslands, in particular, fall into this category. Consider the Site Potential component with a maximum score of 0.25 points, it allocates more points based on higher hydrologic connectivity. In order to receive the highest score for this component, the area must exhibit at least one of the following: at least periodically support predominately hydrophytic vegetation, is predominately undrained hydric soil and supports or is capable of supporting hydrophytic vegetation, and/or is saturated with water or covered by shallow water during 1-2 months during the growing season of each year. In a grassland setting, when conditions become conducive to hydrophytic

plant growth, a successional shift from a grassland to herbaceous wetlands, swamps, or riparian forest is likely to occur. Therefore, grasslands would almost always be limited to a maximum score of 0.12 points (uplands with thick surface layer).

Similarly, grasslands would be limited to a maximum of 0.12 points for the Temporal Development of Existing Successional Stage component, whereas other forested habitats could receive the full 0.25 points.

These two components alone regularly exclude grassland habitat from receiving 0.25 points on the WHAP scale. In order to identify the maximum score each habitat type can receive, USACE environmental staff scored each criterion given ideal conditions for riparian/bottomland hardwood forest (BHF), upland forest (includes all non-riparian/BHF forests), grassland, swamp, and marsh habitats. The maximum values scores, shown in Table 1, were then used to normalize scores for habitats that are prevented from reaching the maximum WHAP score primarily due to arbitrary low scores in the two WHAP components described above. Normalizing habitat scores will identify high quality habitat that would otherwise not be detected.

Table 1. Cover Types and Maximum Total Scores

Cover Type	Component Number								Maximum Total Score
	1	2	3	4	5	6	7	7B	
Riparian /BHF	25	20	20	15	5	5	5	5	1.00
Upland Forest	12	20	20	15	5	5	5	5	0.87
Grassland	12	12	20	0	4	1	5	5	0.59

Riparian/BHF habitats can achieve the maximum score, therefore, no normalization of scores were made for that habitat type. Upland forests and grasslands, however, can only reach within 0.13 and 0.41 points of the maximum WHAP score, even in ideal conditions.

To evaluate all habitat types on an even scoring basis, upland forest and grassland scores were normalized by dividing their original scores by the maximum possible score for their respective habitat types. For example, if a grassland site received an initial score of 0.42, it would be divided by the maximum total points a grassland site can receive, 0.59. The normalized total score used for further analysis for the grassland site would be 0.75.

This adjustment allows habitat type scores to be analyzed and compared to their corresponding habitat type maximum total score. Rather than, for instance, a grassland being evaluated on a bottomland hardwood scoring scale.

All WHAP scores analyzed and discussed from here forward reflect the normalized total scores. As mentioned above riparian/BHF habitat was not normalized because it

already can achieve the maximum score. Grassland scores were normalized by dividing initial scores by 0.59, while all upland forest scores were normalized by dividing the initial score by 0.87.

HABITAT

Using TPWD's Texas Ecological Mapping Systems (TPWD 2020), Stillhouse Hollow Lake lies within the Cross Timbers ecoregions. The most common habitat types include marsh, riparian/BHF, upland forest, and grassland (Elliot, 2014). Table 2 displays all habitats surveyed and the number of points surveyed within each respective habitat type.

Table 2. Survey Points per Habitat Type

Habitat Type	Points Surveyed
Riparian/BHF	14
Upland Forest	47
Grassland	20
Total Points Surveyed	81

Elliot (2014) provided general habitat type descriptions and associated vegetation communities for the Ecological Systems Classification and Mapping Project in support of the Comprehensive Wildlife Conservation Strategy for the Texas Parks and Wildlife Department. These descriptions were meant to be broad and depict typical vegetative assemblages across vast areas as the observable vegetation communities can vary based on local conditions.

Early settlers found the Cross Timbers' woodlands thick and impenetrable. Dominated by post (*Quercus stellate*) and blackjack oak (*Quercus marilandica*), these woodlands were often cleared for farming. Those few remaining woodland tracts can contain trees reaching 200-500 years old. Today juniper (*Juniperus spp.*) and yaupon (*Ilex vomitoria*) are a more abundant component of the Cross Timbers, pockets of prairie are spread throughout agriculture, oil and gas, and urban use areas (TPWD, 2012A). The ecoregion is characterized by moderate but sporadic rainfall. Typical vegetation that can be found in the Cross Timbers include: post oak, blackjack oak, black hickory (*Carya texana*), bitternut hickory (*Carya cordiformis*), dwarf chinkapin oak (*Quercus prinoides*), cedar elm (*Ulmus crassifolia*), oak (*Quercus spp.*), little bluestem, sumac (*Rhus spp.*), eastern red cedar (*Juniperus virginiana*) and honey mesquite (*Prosopis glandulosa*).

Figure 5 displays the distribution of habitat types within the USACE boundary at Stillhouse Hollow Lake. For analysis purposes, habitat types were pooled into one of four categories: marsh, riparian/BHF, upland forest, and grasslands.

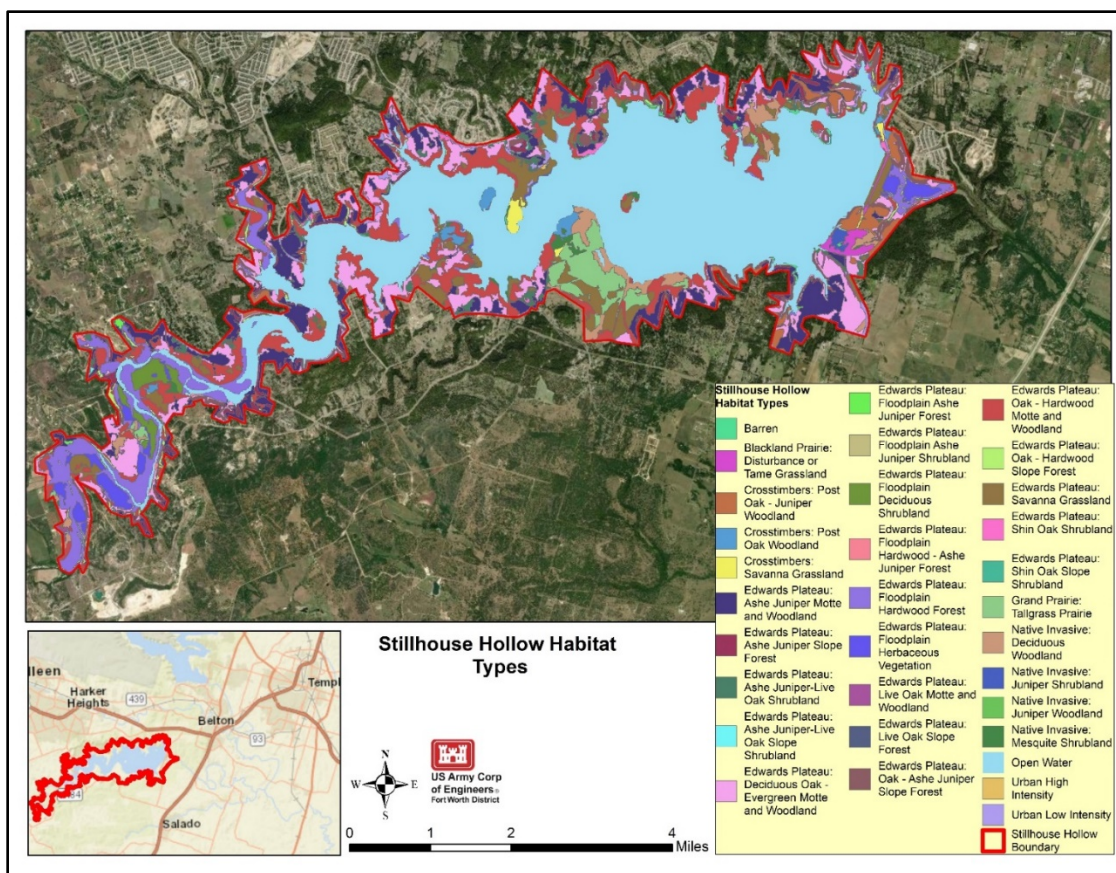


Figure 5. Distribution of Habitat Types - Stillhouse Lake

RESULTS AND DISCUSSION

The total habitat score for each point surveyed is a representation of multiple habitat attributes including vegetative diversity and structure, site soil potential, successional stage, and uniqueness of that habitat across the landscape. Data analysis highlights are discussed below, while detailed data for each point surveyed can be found in Attachment A: Stillhouse Hollow Lake WHAP Summary Results of this report.

Upland forest (47 sampled) and grassland (20 sampled) were the most abundant habitat types surveyed. Upland forest scores ranged from 0.54 to 0.72 while grassland scores ranged from 0.67 to 0.88. The lower minimum scores, especially for these normally drier upland habitats, may be partly due to long-term flooding that occurred at Stillhouse Hollow Lake in recent years, thus leading to reduced plant diversity. Flooding at lower elevations in the flood pool of Stillhouse Hollow Lake almost certainly led to mortality of the typically upland species of herbaceous plant growth. This certainly affected survey metrics within the inundated areas. Long-term flooding of federal lands is a routine occurrence at typical USACE lakes having a primary mission of flood risk reduction.

The average, maximum, and minimum total scores observed for each habitat type surveyed are shown in Table 3.

Table 3. Average, Minimum, and Maximum Scores per Habitat Type

Habitat Type	Average Total Score	Maximum Total Score	Minimum Total Score
Riparian/BHF	0.59	0.78	0.43
Upland Forest	0.54	0.72	0.34
Grassland	0.67	0.88	0.47

Figures 6 - 8 show the range of total scores for all points surveyed (81 sampled) as well as two points that were skipped due to inaccessibility or multiple points occurring in the same area. Skipped points show a total score of 0 in Figures 6 – 8. Overall, grassland and riparian/BHF habitats exhibited the highest average total score (0.67 and 0.59).

Riparian/BHF and upland forests are very similar in Average Total Scores (0.05 difference), therefore both are considered equal in value. One possible reason to why grasslands scoring higher is that some sites received the maximum value for Site Potential while riparian/BHF sites did not.

Beyond vegetative diversity, the three major metrics within the WHAP scoring criteria that allocate points are for site potential, successional stage, and uniqueness and relative abundance. Table 4 shows these metrics' average score per habitat type.

Table 4. Average Site Potential, Successional Stage, and Uniqueness and Relative Abundance Scores per Habitat Type

Habitat Type	Average Site Potential	Average Successional Stage	Average Uniqueness and Relative Abundance
Riparian/BHF	19.07	10.64	10.36
Upland Forest	8.66	8.30	8.11
Grassland	9.60	5.00	7.00

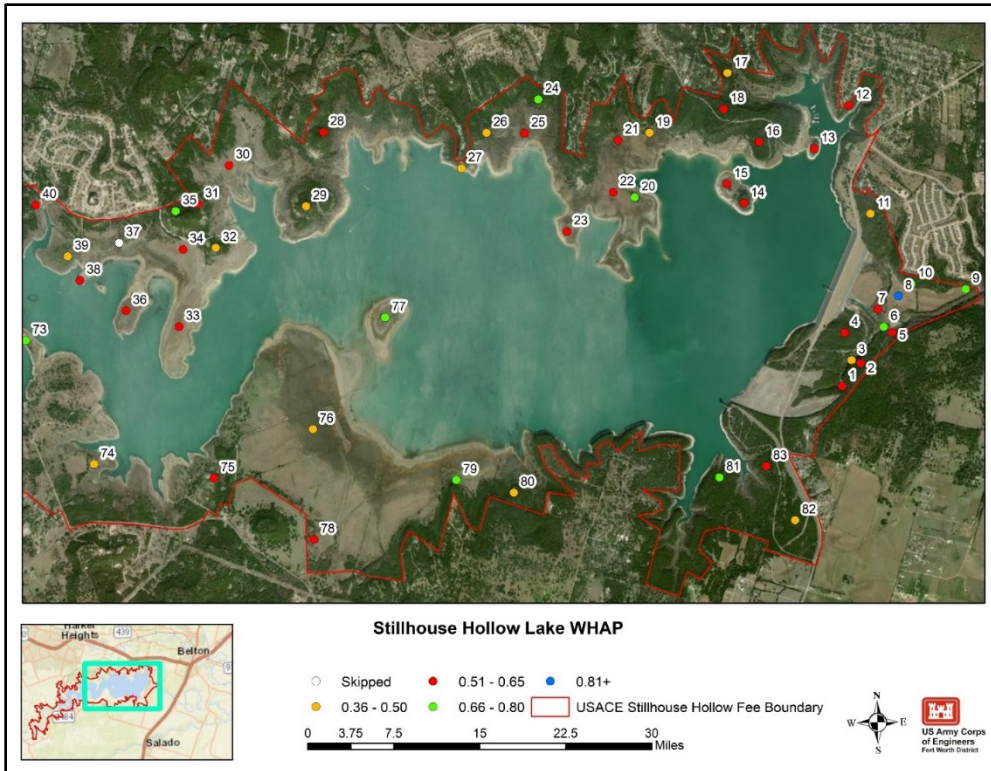


Figure 6. Total Score Range for All Points Surveyed on the Eastern Boundary of Stillhouse Hollow Lake

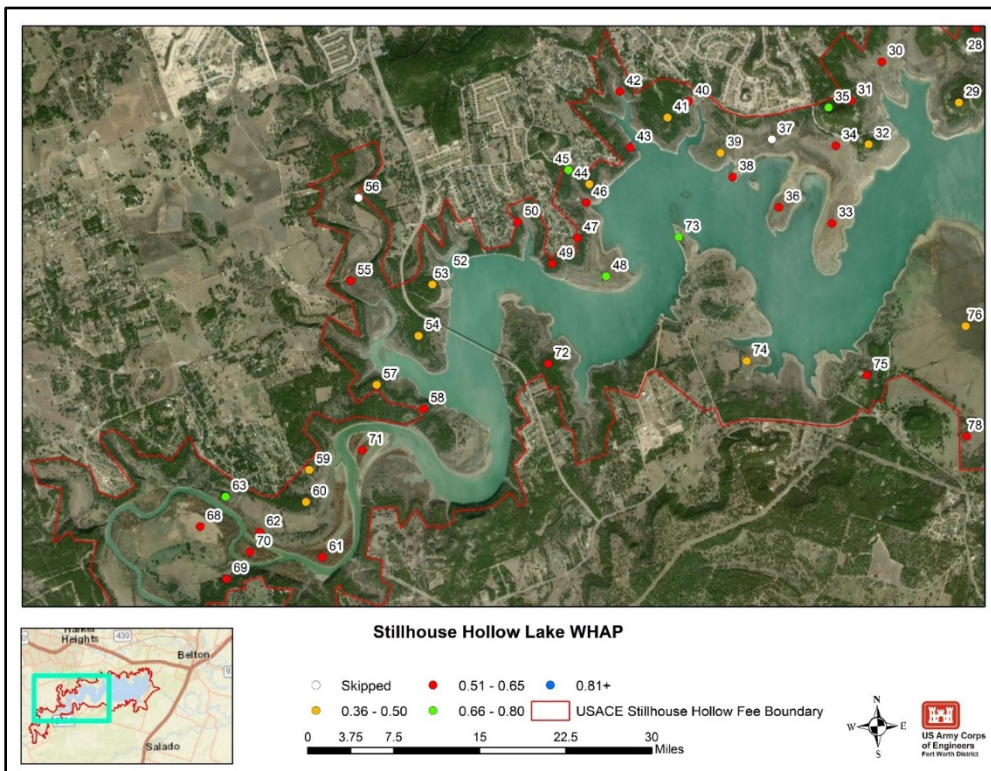


Figure 7. Total Score Range for All Points Surveyed within the Center of Stillhouse Hollow Lake

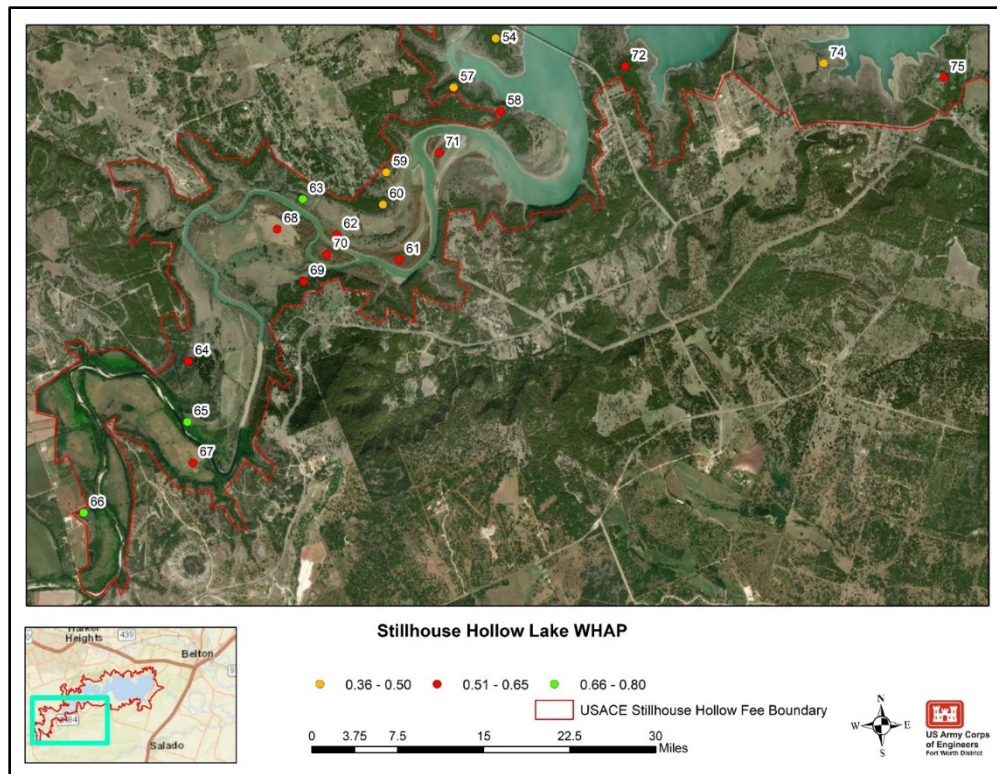


Figure 8. Total Score Range for All Points Surveyed on the Western Boundary of Stillhouse Hollow Lake

Site potential allocates more points based on soil substrates characteristics and hydrologic connectivity that can support hydrophytic habitats, such as marshes, swamps, and bottomland hardwood forests that are often considered to be of higher quality and more diverse habitat. This allows areas to score higher even though a recent disturbance, such as fire or flood, may have removed most of the vegetation. Areas scoring high in site potential but low in other metrics can be targeted for management efforts as these areas' vegetation community response should be favorable, thus increasing habitat value.

Successional stage refers to the age of the vegetative community. Older, mature forests and climax prairies score higher than younger pole stands or disturbed grasslands because they provide more diverse forage, cover, and niche habitats. These scores are expected to increase across the habitats, except in areas that may not have the soil types to support hydrophytic vegetation or are flooded frequently enough to limit upland forest or grassland growth and development.

Uniqueness and Relative Abundance takes into consideration the rarity of a habitat or vegetative community and its abundance in the region. Stillhouse Hollow Lake's close proximity to Waco and Ft. Hood has resulted in urban expansion that has significantly influenced the region's remaining habitat composition. This expansion will continue in the future, resulting in few large, contiguous patches of habitat remaining in the region. Presently, only one site was identified as having the most unique and rare habitats, land south of Rosaline Drive in Belton, Texas (Figure 9). As a result of increasing loss of native

habitats in the region, the habitat at Stillhouse Hollow Lake will increase in overall wildlife value and uniqueness.

In total, two points (52, and 8) surveyed received a score over 0.80, indicating high quality habitat in comparison to all the other points (Figure 10). Both points are grassland habitat with maximum scores for the site potential criterion. A comparison of Figures 6 - 8 “WHAP Total Scores” to Figures 11 and 12 (sites with maximum site potential criterion scores), revealed three areas identified as having the greatest potential for improvement. These areas can be found around Tahuaya Drive in Harker Heights, in Dana Peak Park, and in between the Narrow Neighborhood and Stillhouse Park.

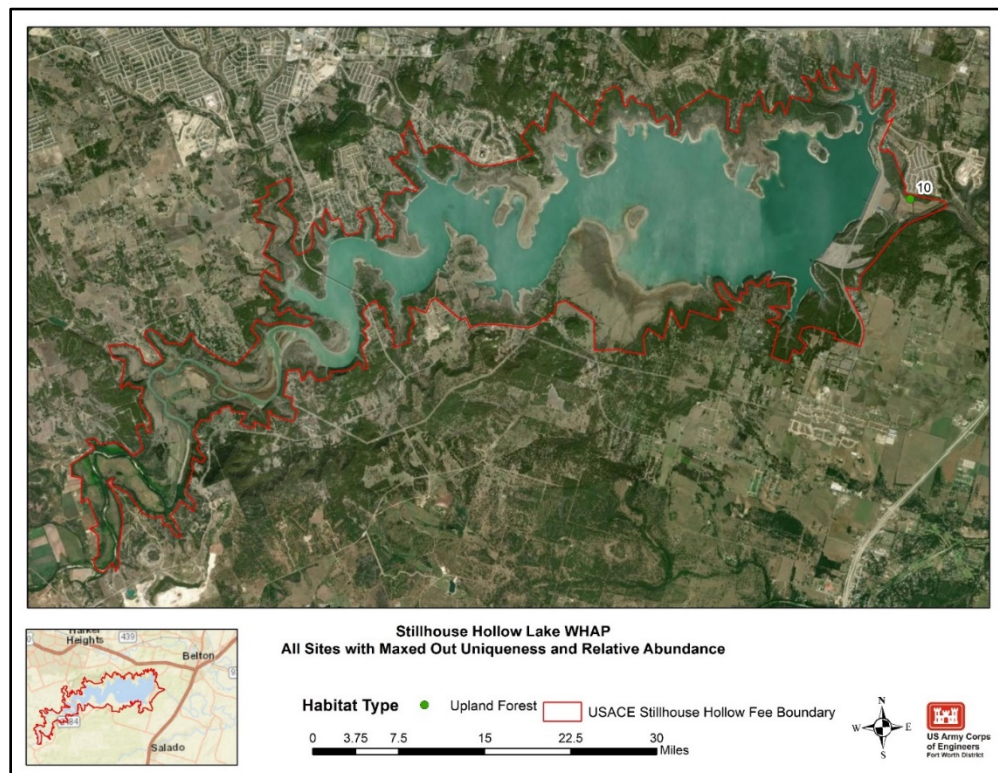


Figure 9. All Sites with Maxed Out Uniqueness and Relative Abundance

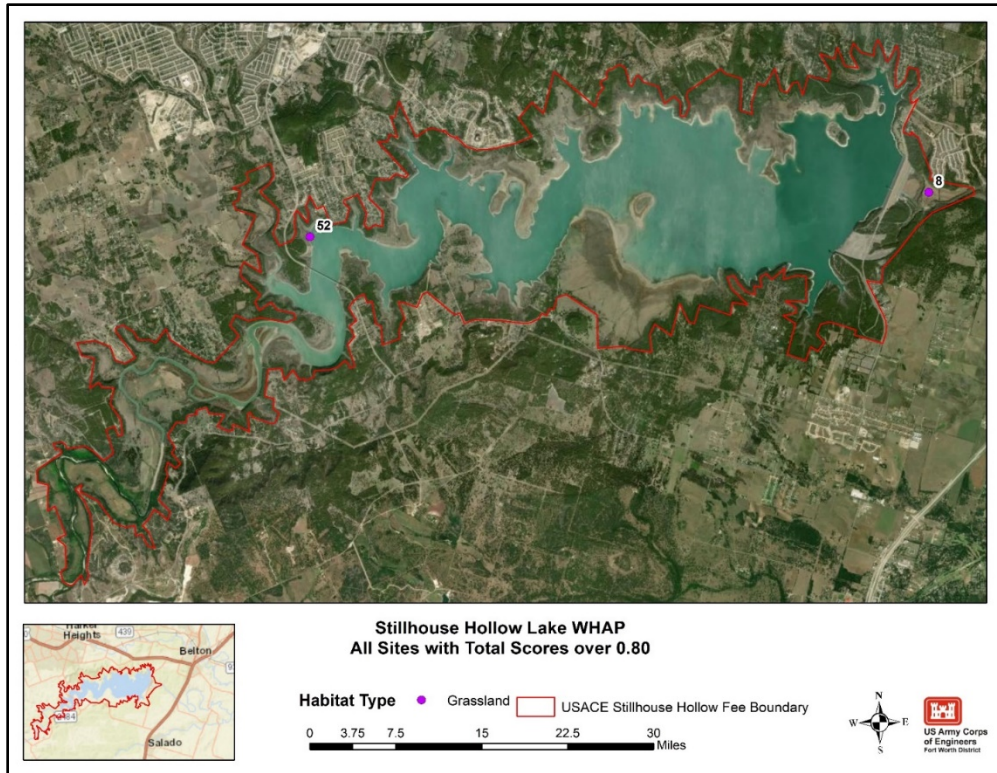


Figure 10. All Sites with Total Scores over 0.80

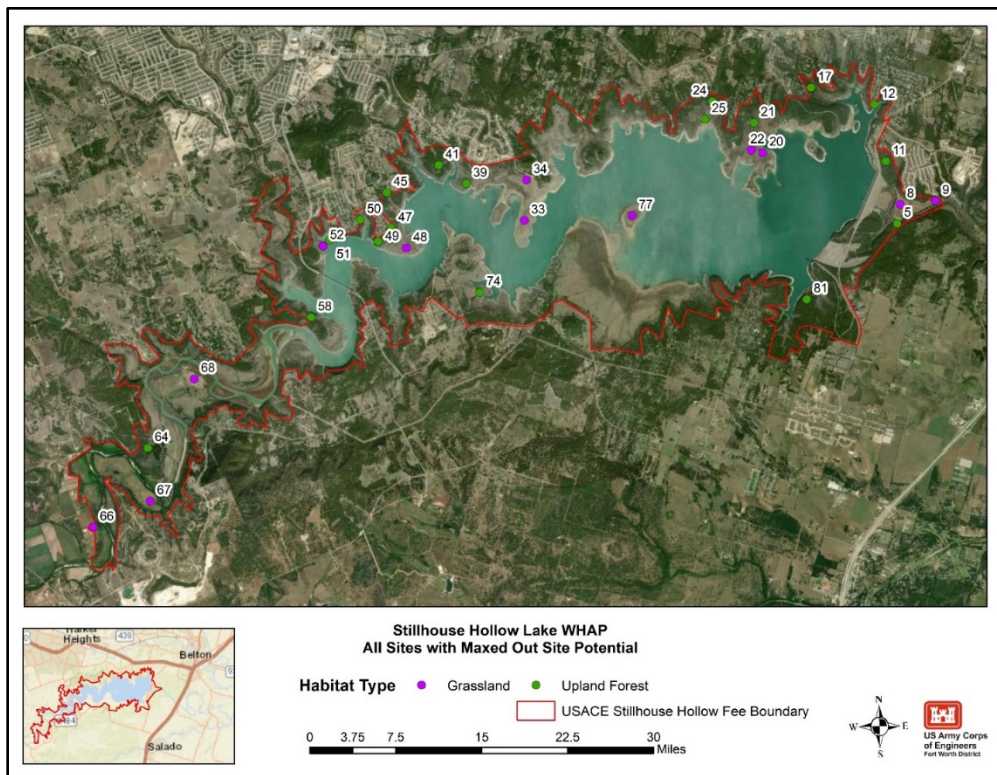


Figure 11. All Sites with Maxed Out Site Potential

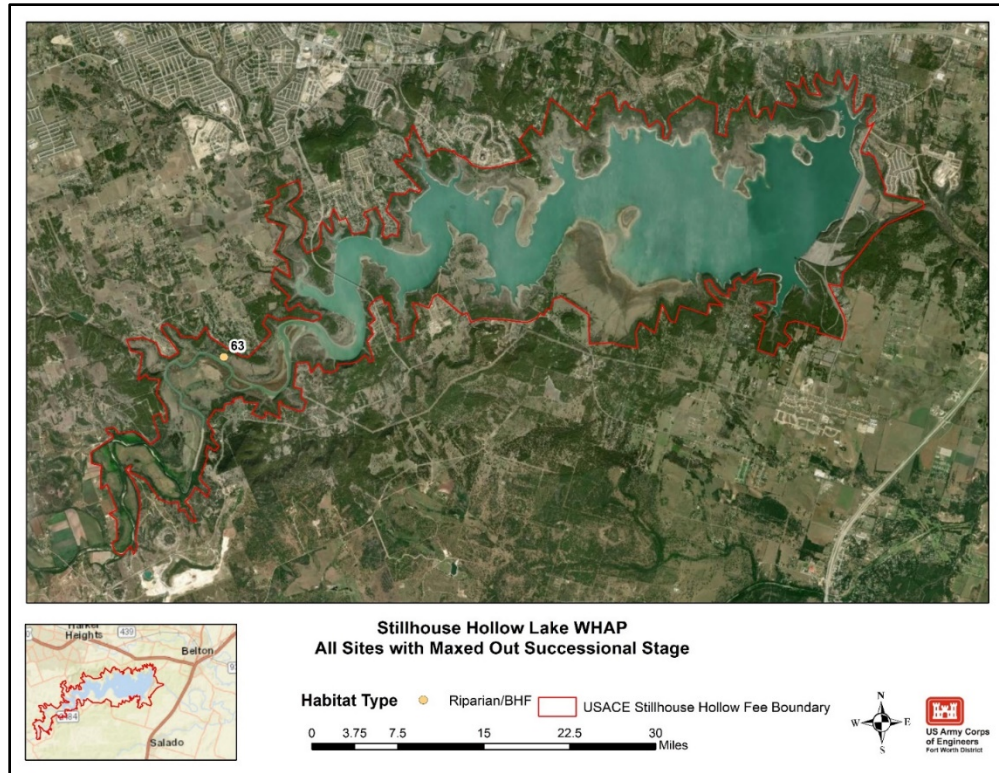


Figure 1. All Sites with Maxed Out Successional Stage

RECOMMENDATIONS

Even with planned and unplanned disturbances, there are numerous areas of valuable wildlife habitat remaining on USACE fee owned property at Stillhouse Hollow Lake. Overall, habitat management has proven effective in maintaining medium- to high-quality wildlife habitat on USACE lands at Stillhouse Hollow Lake.

Based on the results of the WHAP survey efforts, areas to consider for Wildlife Management or Environmentally Sensitive Areas land classifications include those areas with highest maximum scores. The planning team for the Stillhouse Hollow Lake Master Plan revision will consider the WHAP scores when making land classification decision.

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Attachment A: Stillhouse Hollow Lake WHAP Results Summary

Point Number	Final Score	Habitat Type	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
1	0.6	Upland Forest	Privet, Smilax, Persimmon, Mustang Grape	Eastern Redbud	Oak Spec, Ash, Red Oak	Walnut	NA	Ashe Juniper,	NA	Prickly Pear	Boneset, Buffalo Grass, Beggarslice	NA
2	0.55	Upland Forest	Privet, Sawtooth Hackberry, Flameleaf Sumac	Eastern Redbud	Red Oak	NA	Ash specs., Texas Ash	Ashe Juniper	NA	Prickly Pear, Yucca	Boneset	Prime Golden Cheek Warbler
3	0.44	Upland Forest	Persimmon,	NA	Oak Spec., Red Oak	NA	Cedar Elm	Ashe Juniper	NA	Prickly Pear,	Buffalo Grass, Beggarslice, Croton	NA
4	0.6	Upland Forest	Texas Persimmon, Smilax, Chinaberry	Acacia	Lacey Oak, Oak spec	Walnut	Cedar Elm	Ashe Juniper	NA	Yucca, Prickly Pear, Ball Moss	Buffalo Grass, Croton, Thickweed, Ironweed, Mexican Hat	NA
5	0.63	Upland Forest	Wild Plum, Poison Ivy, Unknown Ivy, Smilax, Privet, Chinese Tallow	NA	White Oak, Bur Oak	NA	Cedar Elm	Ashe Juniper	Sycamore	Ball Moss	Inland Seaots, Virginia Creeper, Goldenrod, Carolina Wild Petunia	Trails throughout
6	0.66	Riparian/ BHF	Hackberry, Poison Ivy, Mustang Grape, Virginia Creeper, Dewberry,	NA	NA	NA	Cedar Elm, Box Elder	Ashe Juniper	Sycamore	NA	Inland Seaots, Dandelion, Frost Weed, Virginia Wildrye	NA
7	0.64	Riparian/ BHF	Persimmon, Smilax, Poison Ivy	NA	NA	NA	Box Elder, Texas Ash	Ashe Juniper	NA	NA	Virginia Wildrye, Ironweed, Turkscap, Inland Seaots	a lot of ash Box Elder
8	0.81	Grassland	Persimmon,	Honey Locust	NA	NA	Texas Ash	Ashe Juniper	Baccharis	NA	Goldenrod, Stinging Nettle, Silverleaf Nightshade, Johnson Grass, Silver Bluestem, King Ranch Bluestem, Virginia Wildrye, Mexican Hat	Johnson Grass & Willow Baccharis taking over
9	0.73	Grassland	Dewberry	Honey Locust	NA	NA	NA	Ashe Juniper	Baccharis	NA	Tall Grama, Mexican Hat, Silver Bluestem, Johnson Grass, Gayfeather, Bee Balm, Dove Weed, Milkweed, Indian Grass, Silverleaf Nightshade, King Ranch Bluestem,	former hayfield, red ant mounds
10	0.71	Upland Forest	Hackberry, Privet, Persimmon, Agarita	NA	NA	Live Oak, Black Walnut	Cedar Elm	Ashe Juniper	NA	Prickly Pear Cactus, Lichen	Virginia Wildrye	NA
11	0.47	Upland Forest	Smilax, Poison Ivy, Flameleaf Sumac	NA	Live Oak	NA	Ash	Ashe Juniper	NA	Prickly Pear	Buffalo Grass, Dove Weed, Beggarslice, Giant Wildrye	NA
12	0.59	Upland Forest	Grapevine, Mulberry, Smilax, Agarita, Glossy Privet, Texas Persimmon	Sensitive Pea,	Live Oak, Bigelow Oak	NA	Green Ash	NA	NA	Prickly Pear Cactus, Yucca	Carex spec., Scribners Panicum, Little Bluestem, Helioma	NA
13	0.55	Upland Forest	Chinaberry, Persimmon, Chinese Tallow, Agarita	NA	Bigelow Oak	NA	Green Ash	Ashe Juniper	NA	Prickly Pear Cactus, Yucca	Oneseed Croton, Lantana, Buffalo Grass, Beggarslice, Sticktight, Canadian Wildrye, Threeseed Croton, Scribner Panicum, Japanese Brome, Milkweed	Overgrazing from deer, a lot of buckrubs
14	0.57	Upland Forest	Mexican Persimmon, Agarita, Mexican Buckeye	NA	Bigelow Oak, Live Oak	NA	Green Ash	Ashe Juniper	NA	Prickly Pear Cactus,	Lantana, Carex spec., Morning Glory, Noseburn, unknown	NA
15	0.59	Grassland	NA	NA	NA	NA	NA	NA	NA	Prickly Pear Cactus	Salvia Spec., Scribners Panicum, Queens Delight, Japanese Brome, Mexican Hat, One Seed Croton, Beggarslice, Threawn, Malvaceae, Deer Grass, 2 unknown , Virginia Wildrye,	Trail through the middle

Point Number	Final Score	Habitat Type	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
16	0.61	Upland Forest	Smilax, Agarita, Poison Ivy	Trailing Lespedeza,	Live Oak, Bastard Oak	NA	Texas Ash, Cedar Elm	Ashe Juniper	NA	Prickly Pear Cactus	Cordgrass, Sedge, Three Way Sedge, Yellow Wood Sorrel	NA
17	0.44	Upland Forest	Smilax, Privet, Masten Grape, Agarita, Poison Ivy, Elbow Bush	NA	Live Oak	NA	Ash, Elm	Ashe Juniper	NA	NA	Carex, Heavenly Bamboo	unauthorized road, thick leaf litter
18	0.59	Upland Forest	Texas Persimmon, Hackberry, Smilax, Agarita	Trailing Lespedeza	Live Oak	NA	Texas Ash	Ashe Juniper	NA	Prickly Pear, Pale Yucca, Twisted Leaf Yucca	Cordgrass, Sedge, Threeway Sedge	NA
19	0.48	Upland Forest	Chinaberry, Mustang Grape, Southern Dewberry, Smilax	NA	Live Oak	NA	Cedar Elm	Juniper,	Willow Baccharis	Buttonbush, Prickly Pear Cactus	Mexican Hat, Dropseed, Indian Mallow, Threawn, Barley	NA
20	0.69	Grassland x2	Southern Dewberry, Smilax	NA	NA	NA	NA	NA	NA	Buttonbush	Mexican Hat, Frogfruit, Prairie Verbena, Narrow Leaf Marsh Elder, Texas Barley, Snow on the Mountain, Brome, unknown grass, Threeseed Croton, Wild Tartan	NA
21	0.56	Upland Forest	Chinaberry, Southern Dewberry, Mustang Grape, Smilax,	NA	NA	NA	Cedar Elm, American Elm	Juniper	NA	Buttonbush, Prickly Pear Cactus	Texas Boney, Johnson Grass	NA
22	0.64	Grassland	Southern Dewberry	NA	NA	NA	NA	NA	NA	Buttonbush	Mexican Hat, Croton, Narrowleaf Marsh Elder, Silver Bluestem, Horsemint, King Ranch Bluestem, Common Plantain, Frogfruit, Texas Barley, Milkweed	NA
23	0.59	Riparian/ BHF	NA	NA	NA	NA	NA	NA	NA	Buttonbush	Frogfruit, Heller's Rosette Grass, Fleabane, Milkweed, Switchgrass, Bermuda Grass, Boneset, unknown grass,	incredibly thick brush
24	0.68	Upland Forest	Chinaberry, American Beauty Berry, Sugarberry, Rattanvine, Mustang Grape, Southern Dewberry, Smilax, Possum Haw Holly,	NA	Live Oak	NA	Cedar Elm	Juniper	NA	NA	Poison Oak, Croton, Threawn, King Ranch Bluestem, Beggarslice	NA
25	0.63	Upland Forest	Chinaberry, American Beauty Berry, Southern Dewberry, Sugarberry, Mustang Grape, Virginia Creeper, Texas Persimmon, Chinese Tallow, Gum	NA	Live Oak	NA	NA	NA	NA	NA	Mullein, Sage,	NA
26	0.4	Upland Forest	NA	NA	Live Oak	NA	Fragrant Sumac	Ashe Juniper	NA	Prickly Pear Cactus	Oldfield Threawn, Heller's Rosette Grass	NA
27	0.43	Riparian/ BHF	Flameleaf Sumac, Mustang Grape, Dewberry, Smilax	NA	Live Oak	NA	NA	NA	Willow Baccharis	Buttonbush	Threeseed Croton, Snap Dragon, Frogfruit, unknown grass, Heller's Rosette Grass, Canada Germander	NA
28	0.53	Upland Forest	Smilax, Poison Ivy, Mustang Grape, Blackhaw	NA	Buckley Oak	NA	Texas Ash, Elm	Ashe Juniper	NA	Twist Leaf Yucca	Carex	Possible Golden Cheek Warbler habitat
29	0.43	Upland Forest	Agarita	NA	Red Oak	NA	NA	Ashe Juniper	NA	Twist Leaf Yucca, Prickly Pear	Carex, Mountain Laurel, Heller's Rosette Grass,	NA

Point Number	Final Score	Habitat Type	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
30	0.63	Grassland	Persimmon	NA	Live Oak	NA	Cedar Elm	NA	NA	Prickly Pear Cactus	Mexican Hat, Curly Cup Gumweed, Wildrye, Brome, Penny Royal, Sedge, Cordgrass, Cordgrass, Frogfruit	NA
31	0.61	Grassland	Smilax	Twoleaf Senna	NA	NA	NA	Ashe Juniper, Salt Cedar	NA	Buttonbush, Prickly Pear Cactus	Mexican Hat, Cordgrass, Milkweed, Brome, Queens Delight, Croton, Frogfruit, Rabbit Tobacco, American Germander, Sida, Broomweed	NA
32	0.43	Upland Forest	Agarita	NA	NA	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus, Miniture Barrel Cactus	Little Bluestem, Cordgrass, King Ranch Bluestem, Rockflax, Wiregrass, Scarlet Bee Blossom	NA
33	0.59	Grassland	NA	NA	NA	NA	NA	NA	NA	NA	Croton, Tall Boneset, Late Boneset, False Vervain, Snow on the Prairie, Mexican Hat, Brome, Thistle, King Ranch Bluestem, Frogfruit	NA
34	0.63	Grassland	NA	NA	NA	NA	NA	Ashe Juniper	NA	NA	Little Bluestem, Croton Spec., Brome Spec. Mexican Hat, Wildrye, Frog Fruit, Ragweed, Cordgrass, Indian Grass	NA
35	0.7	Upland Forest	Texas Persimmon, Agarita, Mexican Buckeye, Coral Berry, Hackberry, Muscadine Grape, Poison Ivy, Ground Ivy	Deer Pea	Live Oak, Bigelow, Red Oak	NA	Green Ash	Ashe Juniper	NA	Prickly Pear Cactus, Yucca Spec	Carex spec. Panicum spec., Noseburn, Aster Spec., Maximillian Sunflower, Mexican Hat, Snow on the Prairie, Virginia Wildrye, Boneset, Johnson Grass, Sedge	High Density Recreation, But great habitat potential, Golden Cheek Warbler habitat
36	0.53	Riparian/ BHF	Chinese Tallow	NA	NA	NA	NA	NA	NA	NA	Nut Sedge, Marsh Fleabane, Switchgrass, Frogfruit, unknown	NA
37	0	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped
38	0.51	Riparian/ BHF	Chinese Tallow, Peppervine	NA	NA	NA	NA	NA	NA	NA	NA	NA
39	0.48	Upland Forest	Chinese Tallow	NA	NA	NA	NA	Ashe Juniper	Baccharis	Buttonbush	Snow on the Prairie, Indian Grass, Threeseed Croton, Panicum, Brome, King Ranch Bluestem, Texas Aster, Mexican Hat, Germander, Silver Bluestem, Snap Dragon, Lamb's Ear, Carex Spec., Pasture Heliotrope, Boneset	lots of Buttonbush
40	0.55	Riparian/ BHF	NA	NA	NA	NA	NA	NA	NA	Buttonbush	Snow on the Prairie, Spurge	NA
41	0.49	Upland Forest	Persimmon, Hackberry, Privet, Agrita, Smilax	NA	NA	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus	Milkweed, Dove Weed, Buffalo Grass, Mexican Hat, Grama Spec., Texas Grama, King Ranch Bluestem	NA
42	0.52	Upland Forest	Smilax, Japanese Brome, Vine	NA	Live Oak, Scrub Oak	NA	Sumac, Cedar Elm	Ashe Juniper	Baccharis	Buttonbush	Silver Bluestem, King Ranch Bluestem, Little Bluestem, One Seed Croton, Aster, Snap Dragon, Pasture Heliotrope, Western Ragweed, Mexican Hat, Frogfruit, Sensitive Briar, Panicum Spec.,	NA

Point Number	Final Score	Habitat Type	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
43	0.52	Upland Forest	Chinese Tallow, Smilax, Possumhaw, Dewberry, Chinaberry, Gum Bumelia	Sensitive Pea,	Live Oak	NA	NA	Ashe Juniper	Baccharis	Buttonbush	Lantana, Aster spec., Mexican Hat, Beggarslice, Brome, One Seed Croton, Threeseed Croton, Little Bluestem, Western Ragweed, Canadian Ragweed, Virginia Wildrye, Snap Dragon, Bee Balm	NA
44	0.41	Upland Forest	NA	Sensitive Pea,	Live Oak	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus, Yucca	Carex spec. x 2, Scribner's Panicum, unknown, Penny Royal, Noseburn	juniper thicket, very sever utilization, deer bones
45	0.67	Upland Forest	Smilax spec., Muscadine Grape, Possumhaw, Texas Persimmon, Japanese Privet	Necklace Pod	Live Oak	NA	Cedar Elm	Ashe Juniper	NA	NA	Boneset, Snow on the Prairie, Bluestem, Unknown Snakeroot, Marsh Fleabane, Camphorweed, Virginia Wildrye, Frogfruit, Aster spec.,	Evidence of invasive species from yard trimming lots of tallow & dead zebra mussels
46	0.58	Riparian/BHF	Chinese Tallow	NA	NA	NA	NA	NA	NA	Willow Buttonbush	Scribner's Panicum, Antelope-horns Mexican Hat, Little Bluestem, Switchgrass, Yellow Indian Grass, Queen's Delight, King Ranch Bluestem, Threeseed Croton, Japanese Brome	NA
47	0.6	Upland Forest	Possumhaw, Agarita, Lantana, Smilax Spex.	Texas Mesquite	NA	NA	Cedar Elm, American Elm	Ashe Juniper	Baccharis	NA	Aster Spec., Johnson Grass, Mexican Hat, Canadian Germander, Western Ragweed, Frogfruit, One Seed Croton, Marsh Fleabane, Scribner's Panicum, Low Mercury, Japanese Brome, Virginia Wildrye	large rock wall nearby
48	0.78	Grassland	Chinese Tallow, Mustang Grape, Smilax	NA	NA	NA	NA	NA	Baccharis	Buttonbush	Snow on the Prairie, Virginia Wildrye, Japanese Brome, Mexican Hat, Indian Blanket, Boneset, Johnson Grass, Noseburn, Plantain	NA
49	0.61	Upland Forest	Texas Persimmon, Lantana	NA	Live Oak,	NA	Cedar Elm	Ashe Juniper	Baccharis Spec.,	Prickly Pear	2 unknowns, Scribner's Panicum	NA
50	0.63	Upland Forest	Persimmon, Smilax, Yaupon, Agarita,	NA	Live Oak,	NA	NA	Ashe Juniper	NA	NA	Horehound, Threeseed Croton, Johnson Grass, Mexican Hat, Bee Balm, Canadian Wildrye, Virginia Wildrye, One Seed Croton, Noseburn, Verbina, Muleins, Beggarslice, Germander, Japanese Brome	deer beds, large Chinaberry, animal burrows
51	0.57	Upland Forest	Lilac Chaste Tree, Chinaberry, Mustang Grape, Dewberry, Smilax, Texas Persimmon, Agarita	Mountain Laurel	NA	NA	Cedar Elm, Post Cedar	Juniper	NA	Prickly Pear Cactus, Buttonbush	Canadian Wildrye, Mexican Hat, Silverleaf Nightshade, Croton, Purple Thistle, Barley, Lamb's Ear, unknown grass	a lot of bedding
52	0.88	Grassland	Smilax, Chinaberry, American Persimmon, Possumhaw, Grapevine	NA	NA	NA	Cedar Elm, Winged Elm	NA	Baccharis	Buttonbush, Prickly Pear Cactus	Dove Weed, Oldfield Threawn, Fall Whichgrass, Panicum	NA
53	0.43	Upland Forest	NA	Catclaw Acacia	Live Oak	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus,	Sensitive Briar, Vetch, Fleabane, Cordgrass, Trailing Lespedeza	NA
54	0.44	Upland Forest	NA	Japanese Clover	Live Oak	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus, Yucca	American Germander, Wildrye, Mexican Hat, Beggarslice, Brome, Ragweed, Croton	NA
55	0.52	Upland Forest	Chinaberry, Persimmon, Smilax	NA	NA	NA	Cedar Elm	NA	NA	Buttonbush, Prickly Pear Cactus	Skipped	NA
56	0	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped

Point Number	Final Score	Habitat Type	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
57	0.48	Upland Forest	NA	NA	Live Oak, Southern Red Oak, Willow Oak	NA	Green Ash	Ashe Juniper	NA	Prickly Pear, Yucca	Bluestem, Queen's Delight, Croton, Sensitive Briar, Penny Royal, Carex Spec, Noseburn	Potential Golden Cheeck Warbler Habitat
58	0.61	Upland Forest	Agarita, Texas Persimmon, Gum Bumelia	NA	NA	NA	Cedar Elm	Ashe Juniper	NA	Prickly Pear Cactus, Yucca, Desert Rose Cactus	Threeseed Croton, Boneset, Japanese Brome, Beggarslice, Skullcap, Virginia Wildrye, Threawn, unknown spec.,	NA
59	0.45	Upland Forest	Possumhaw Holly, Texas Persimmon, Agarita,	Honey Locust	Bigelow Oak, Live Oak	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus, Yucca, Barrel Cactus	Cordgrass, Texas Lanatana, Threeseed Croton, 2 unknown grasses	NA
60	0.47	Upland Forest	Possumhaw Holly,	NA	Live Oak	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus, Yucca	Brome	Normal Cedar thicket
61	0.56	Riparian/BHF	Chinese Tallow	NA	NA	NA	NA	NA	NA	Black Willow	Smartweed, Wildrye, Sedge, Boneset, American Germander	NA
62	0.56	Riparian/BHF	Chinese Tallow	NA	NA	NA	NA	NA	NA	Black Willow	Smartweed, Wildrye, Sedge, Boneset, American Germander	NA
63	0.78	Riparian/BHF	Chinaberry, Muscadine Grape, Smilax, Persimmon, Texas Buckeye	NA	Live Oak	Pecan	Ash, Elm	Ashe Juniper	NA	NA	Virginia Wildrye, American Germander, Mexican Hat, Brome, Threeseed Croton	NA
64	0.63	Upland Forest	Persimmon, Agarita	NA	NA	NA	Cedar Elm	Ashe Juniper		Prickly Pear Cactus	Texas Vervain, Seep Muhly, Croton, Brome, Cordgrass, Mexican Hat, Sedge, Beggarslice, Virginia Wildrye	NA
65	0.66	Riparian/BHF	Mustang Grape, Smilax	NA	NA	NA	Cedar Elm, Box Elder	NA	NA	NA	Virginia Wildrye, Seep Muhly, Penny Royal, Sedge, Mexican Hat, Wiregrass, Vervain, Croton	NA
66	0.73	Grassland	Muscadine Grape, Chinaberry, unknown vine	Mesquite	NA	Pecan	Box Elder, Cedar Elm	NA	NA	Prickly Pear, Buttonbush	Dove Weed, Johnson Grass, Threeseed Croton, Silverleaf Nightshade, Mexican Hat, 2 unknown grass, Brome, Texas Barley, Thistle	NA
67	0.61	Grassland	NA	NA	NA	NA	NA	NA	NA	NA	Johnson Grass, Silverleaf Nightshade, Kingranch Bluestem, Wildrye, Mexican Hat, Common Mullein	NA
68	0.63	Grassland	Chinese Tallow	NA	NA	NA	NA	NA	NA	NA	Wildrye, Boneset, Thistle, Coastal Bermuda, Wooley Croton, Johnson Grass, Threeseed Croton	NA
69	0.6	Upland Forest	Chinese Tallow, Texas Persimmon, unknown grape	Catclaw	Live Oak, Texas Red Oak	NA	Green Ash, Cedar Elm, Winged Elm	Ashe Juniper, Eastern Red Cedar	NA	Prickly Pear	Smilax, Beggarslice, Wildrye, Cordgrass, Poison Oak, Carolina Snailseed, Threawn	NA

Point Number	Final Score	Habitat Type	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
70	0.58	Riparian/ BHF	Chinese Tallow	NA	NA	NA	NA	NA	NA	Black Willow	Smartweed, Wildrye, Sedge, Boneset, American Germander	NA
71	0.56	Riparian/ BHF	NA	NA	NA	NA	Box Elder	NA	Willow Baccharis	Buttonbush	Boneset, Virginia Wildrye, Poison Oak, Fleabane, Smartweed, unknown spec., Morning Glory	NA
72	0.63	Upland Forest	Texas Persimmon, Stretch Berry, Poison Ivy, Smilax	Trailing Lespedeza, Japanese Clover	Live Oak	NA	Texas Ash, Cedar Elm	Ashe Juniper	NA	Prickly Pear, Yucca	Cordgrass, Smilax, Poison Oak, Beggarslice	NA
73	0.78	Grassland	Texas Persimmon	Japanese Clover	Live Oak	NA	NA	Ashe Juniper	NA	Prickly Pear, Buttonbush	Lantana spec., Mexican Hat, Ragweed, Gumweed, Saltgrass, Brome, Croton, Milkweed, Lambs Ear, Silver Blue Stem, Switchgrass, Wildrye, Cordgrass, Indian Mallow	NA
74	0.45	Upland Forest	NA	NA	Live Oak	NA	Cedar Elm	NA	NA	Buttonbush	Oneseed Croton, Threeseed Croton,, Snow on the Prairie, Boneset, Brome, 4 species of grass, Mexican Hat	NA
75	0.54	Grassland	Summer Grape,	Black Senna,	Live Oak	NA	NA	Salt Cedar, Ashe Juniper,	NA	Buttonbush	Cordgrass, Beggarslice, Flat Sedge, Prairie Clover, Frogfruit, White Tridens, Parsley, Yellow Wood Sorrel, Snapdragon	NA
76	0.47	Grassland	NA	NA	NA	NA	NA	NA	NA	NA	Sedge spec., Texas Boney, Snow on the Mountain, Western Ragweed, Horse Mint, Horse Mint, Slender Hedeoma, Mexican Hat, Knotroot Bristlegrass, Penny Royal, Fleabane	NA
77	0.76	Grassland	Smilax spec.,	NA	NA	NA	NA	NA	NA	NA	Mexican Hat, Mexican Blanket Flower, Japense Brome, Virginia Wildrye, Maximillian Sunflower, Lamb's Ear, Frogfruit, Texas Aster, Carex spec., 4 unknown grasses	Dominated by Mexican Hat
78	0.64	Grassland	Gum Bumelia	Mesquite	NA	NA	NA	Ashe Juniper	NA	NA	Bull Nettle, King Ranch Bluestem, Yellow Indian Grass, Texas Croton	NA

Point Number	Final Score	Habitat Type	Berry Drupe	LegumePod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
79	0.73	Grassland	Possumhaw Holly, Smilax, Southern Dewberry, Gum Bumelia	Mesquite, Sensitive Briar	NA	Pecan	NA	Juniper Spec.,	Willow Baccharis	Buttonbush	Little Bluestem, Prairie Verbena, Boneset, Penny Royal,	NA
80	0.4	Upland Forest	NA	NA	NA	NA	NA	Ashe Juniper	NA	Prickly Pear, Rainbow Cactus	unknown grass, Fleabane, Milkweed	Golden Cheeked Warbler habitat
81	0.72	Upland Forest	Poison Ivy, Black Gum, Texas Persimmon, Chinaberry	Three Flower Tickfoil	Bigelow Oak	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus, Yucca Spec.,	Penny Royal, Carex Spec., Beggarslice Panicum Spec., Unknown	Prime Golden Cheeked Warbler Habitat, Large Ashe Juniper
82	0.34	Upland Forest	NA	NA	NA	NA	NA	Ashe Juniper	NA	Prickly Pear Cactus	Dove Weed, Croton spec., Mosquito Grass	50/50 mix of oak&juniper Mostly juniper
83	0.51	Upland Forest	Persimmon, 2 species of Hackberry, Poison Ivy, Smilax, Gum Bumelia	NA	NA	Live Oak	Velvet Ash	Ashe Juniper	NA	Prickly Pear Cactus	Dove Weed, Buffalo Grass	NA

Attachment B: Stillhouse Hollow Lake WHAP Point Photographs

Stillhouse Hollow Lake Site #: 1

Facing North



Facing East



Facing South



Stillhouse Hollow Lake Site #: 2

Facing North



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Stillhouse Hollow Lake Site #: 3

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Facing South



Stillhouse Hollow Lake Site #: 5

Facing North



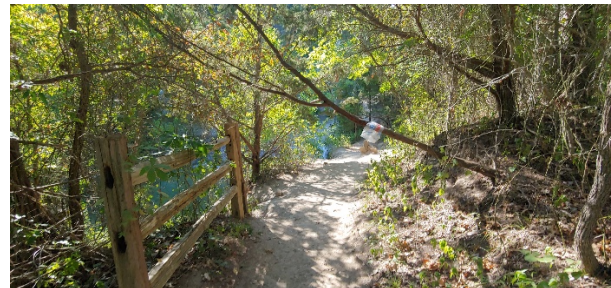
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Stillhouse Hollow Lake Site #: 6

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Stillhouse Hollow Lake Site #: 7

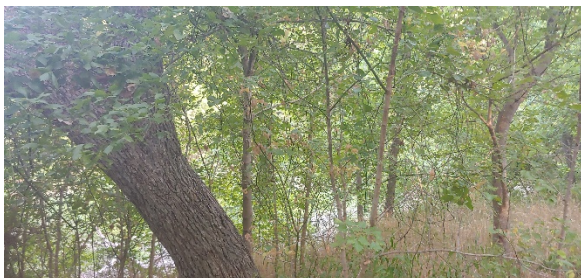
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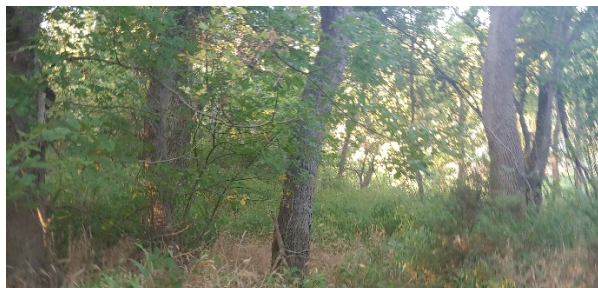
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Stillhouse Hollow Lake Site #: 8

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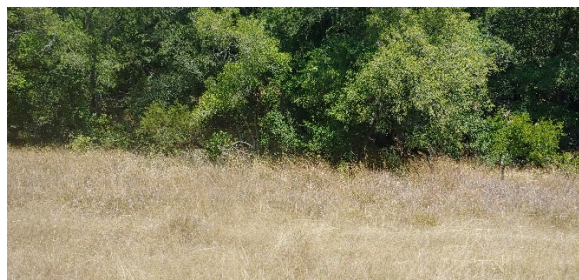


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Stillhouse Hollow Lake Site #: 9

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Stillhouse Hollow Lake Site #: 10

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Stillhouse Hollow Lake Site #: 11

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Stillhouse Hollow Lake Site #: 12

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Stillhouse Hollow Lake Site #: 13

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Stillhouse Hollow Lake Site #: 14

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Stillhouse Hollow Lake Site #: 15

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Stillhouse Hollow Lake Site #: 16

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Stillhouse Hollow Lake Site #: 17

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Stillhouse Hollow Lake Site #: 18

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Stillhouse Hollow Lake Site #: 19

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Stillhouse Hollow Lake Site #: 20

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Stillhouse Hollow Lake Site #: 21

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Stillhouse Hollow Lake Site #: 22

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Stillhouse Hollow Lake Site #: 23



Stillhouse Hollow Lake Site #: 24

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Stillhouse Hollow Lake Site #: 25

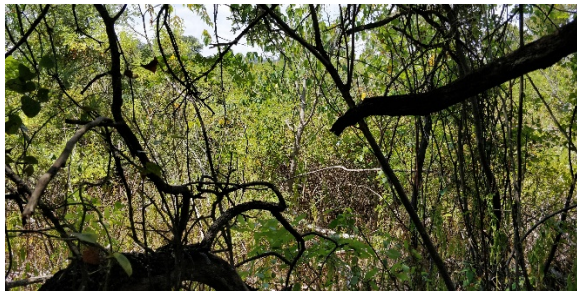
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Stillhouse Hollow Lake Site #: 26

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Stillhouse Hollow Lake Site #: 27

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Stillhouse Hollow Lake Site #: 29

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Stillhouse Hollow Lake Site #: 30

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Stillhouse Hollow Lake Site #: 31

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Stillhouse Hollow Lake Site #: 32

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Stillhouse Hollow Lake Site #: 33

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Stillhouse Hollow Lake Site #: 34

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Stillhouse Hollow Lake Site #: 35

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Stillhouse Hollow Lake Site #: 36

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Stillhouse Hollow Lake Site #: 38

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Stillhouse Hollow Lake Site #: 39

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Stillhouse Hollow Lake Site #: 40

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Stillhouse Hollow Lake Site #: 41

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Stillhouse Hollow Lake Site #: 42

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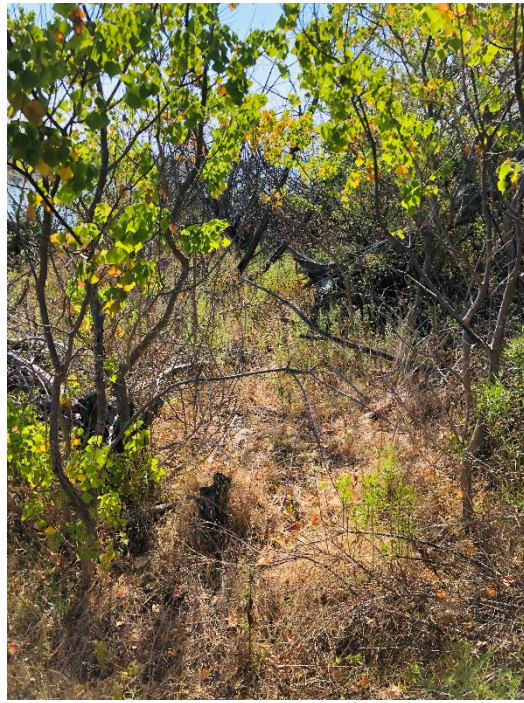


Stillhouse Hollow Lake Site #: 43

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Stillhouse Hollow Lake Site #: 44

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Stillhouse Hollow Lake Site #: 45

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Stillhouse Hollow Lake Site #: 46

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Stillhouse Hollow Lake Site #: 47

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Stillhouse Hollow Lake Site #: 48

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Stillhouse Hollow Lake Site #: 49

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Stillhouse Hollow Lake Site #: 50

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Stillhouse Hollow Lake Site #: 51

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Stillhouse Hollow Lake Site #: 52

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Stillhouse Hollow Lake Site #: 53

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Stillhouse Hollow Lake Site #: 54

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Stillhouse Hollow Lake Site #: 55

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Stillhouse Hollow Lake Site #: 57

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Stillhouse Hollow Lake Site #: 58

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Stillhouse Hollow Lake Site #: 59

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Stillhouse Hollow Lake Site #: 60

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Stillhouse Hollow Lake Site #: 61

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Stillhouse Hollow Lake Site #: 64

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Stillhouse Hollow Lake Site #: 65

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Stillhouse Hollow Lake Site #: 66

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Stillhouse Hollow Lake Site #: 67

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Stillhouse Hollow Lake Site #: 68

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Stillhouse Hollow Lake Site #: 69

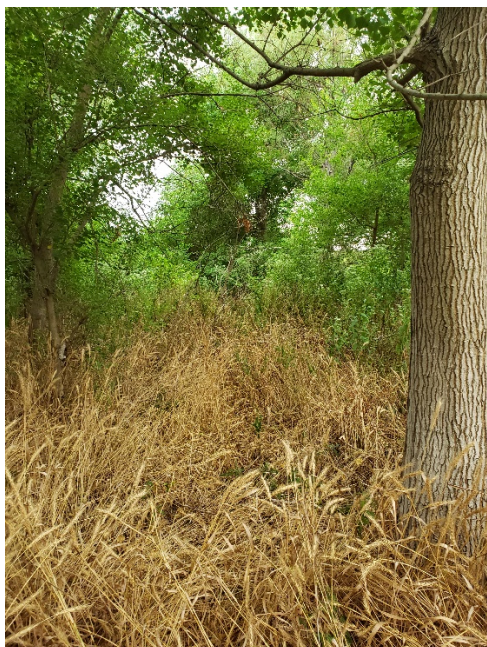
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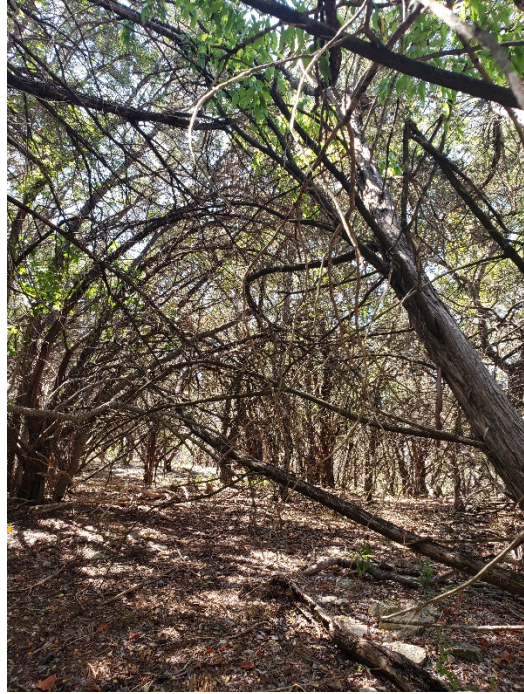


Stillhouse Hollow Lake Site #: 70

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Stillhouse Hollow Lake Site #: 71

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Stillhouse Hollow Lake Site #: 72

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Stillhouse Hollow Lake Site #: 73

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Stillhouse Hollow Lake Site #: 74

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Stillhouse Hollow Lake Site #: 75

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Stillhouse Hollow Lake Site #: 76

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Stillhouse Hollow Lake Site #: 77

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Stillhouse Hollow Lake Site #: 78

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Stillhouse Hollow Lake Site #: 79

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Stillhouse Hollow Lake Site #: 80

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Stillhouse Hollow Lake Site #: 81

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Stillhouse Hollow Lake Site #: 82

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Stillhouse Hollow Lake Site #: 83

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APPENDIX F – SEAPLANE POLICY


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MEMORANDUM FOR O&M Distribution #2
Number (POL: 00-06)

SUBJECT: Notice to Seaplane Pilots

1. The enclosed Notice to Seaplane Pilots has been updated to correct a few omissions (Waco Lake had been omitted from the last update in Feb 1998) and to include the District's Web Site address.
2. The Notice includes a reference to our Lake Recreation Visitor's Guide pamphlet for additional information. When the Notice is given to a member of the public, the Guide pamphlet should be attached.
3. When printing a copy of the Notice, it should be printed on a Corps of Engineers letterhead.

Encl


DWIGHT L. QUARLES
Chief, Operations Division

NOTICE TO SEAPLANE PILOTS
U.S. Army Corps of Engineers, Fort Worth District
Prohibitions and Restrictions Governing the Use of Seaplanes

POLICY

In accordance with Title 36, Chapter III, Part 328 of the Code of Federal Regulations, it is the objective of the Corps of Engineers natural resources management mission to maximize public enjoyment and use of Corps lakes, consistent with their aesthetic and biological values. Within that context, the following restrictions governing the use of seaplanes have been developed.

DISTRICT-WIDE PROHIBITIONS AND RESTRICTIONS

1. Pilots are responsible for knowing the rules and regulations pertaining to aircraft as set forth in Title 36, Chapter III, Part 327.4 of the Code of Federal Regulations. Copies are available from any Corps of Engineers Lake Office.
2. Seaplanes may not be operated between sunset and sunrise. Where not specifically restricted or prohibited, recreational seaplane operations are allowed seven days a week.
3. Aircraft larger than 5,000 pounds gross weight are prohibited from landing without special permission from the District Engineer.
4. Commercial seaplane operations are prohibited unless authorized by the District Engineer. Commercial operations, if authorized, will be limited to the hours of 10 a.m. to 5 p.m., Monday through Friday, from November 1 to April 1.
5. Individual letter permits may be issued for seaplanes to operate in prohibited areas on a one-time-only basis.
6. The operation of a seaplane at Corps of Engineers lakes is at the risk of the plane's owner, operator, and passenger(s). All lakes in the Fort Worth District are operated as flood control reservoirs with widely fluctuating pool elevations. Pilots are encouraged to contact each lake project office for current pool elevation information. Addresses and phone numbers of each lake are listed in the attached Visitor's Guide. Information may also be obtained from the Corps of Engineers web site at www.swf.usace.army.mil
7. Where landings and takeoffs are not totally prohibited at a given lake, a minimum distance of 500 feet from shore or structures must be maintained during landing and takeoffs.
8. The attached information lists specific restrictions and prohibitions for each lake in the Fort Worth District.

SEAPLANE OPERATIONS ARE PROHIBITED ON THE FOLLOWING LAKES

Lake Georgetown
Grapevine Lake
Hords Creek Lake
O.C. Fisher Lake
B.A. Steinhagen Lake
Waco Lake

SPECIFIC RESTRICTIONS ON SEAPLANE OPERATION

<p>AQUILLA LAKE</p> <p>Seaplane operations are prohibited in all areas except on 'open water' areas of the lake from the dam northeast to the mouth of Hackberry Creek Branch and from the dam northwest to an East-West line extending from the north bank of the Old School branch.</p>	<p>JIM CHAPMAN LAKE - COOPER DAM</p> <p>Landings and takeoffs are prohibited in the uncleared portion of the lake west of a line running from the west end of South Sulphur State Park to the peninsula at the mouth of Doctors Creek and in the cove formed Doctors Creek.</p>
<p>BARDWELL LAKE</p> <p>Landings and takeoffs are prohibited north of Highway 34 and in all coves off the main body of the lake.</p>	<p>GRANGER LAKE</p> <p>Landings and takeoffs are prohibited in both major arms of the lake formed by Willis Creek and the San Gabriel River and in the large, shallow lake area north of a line from the outlet structure to the east tip of the San Gabriel Wildlife Area.</p>
<p>BELTON LAKE</p> <p>Landings and takeoffs are prohibited north of Highway 36, in the coves formed by Owl Creek and Cedar Creek, and in the arm of the lake formed by Cowhouse Creek upstream from the northwest end of the Fort Hood Recreation Area.</p>	<p>JOE POOL LAKE</p> <p>Landings and takeoffs are prohibited in all lake areas west of the Lakeridge Parkway bridges.</p>
<p>BENBROOK LAKE</p> <p>Landings and takeoffs are prohibited in the lake area south of the abandoned pump station on the east shore and in the coves formed by East and West Dutch Branch Creeks.</p>	<p>LAKE O THE PINES</p> <p>Landings and takeoffs are prohibited in all coves and bays off the main body of the lake and in uncleared and shallow areas of the lake.</p>
<p>CANYON LAKE</p> <p>Landings and takeoffs are prohibited upstream from Cranes Mill Park and in all coves and major bay areas off of the main body of the lake. (Including the large lake area east and west of Canyon Park.)</p>	<p>LAVON LAKE</p> <p>Landings and takeoffs are prohibited in lake areas north of Collin Park, north of Tickey Creek Park, and in all coves and bays off the main body of the lake.</p>

SPECIFIC RESTRICTIONS ON SEAPLANE OPERATION	
<p>LEWISVILLE LAKE</p> <p>Landings and takeoffs are prohibited in uncleared areas north of Crescent Oaks Park, the entire area west of IH 35 and north of Highway 720, and in large uncleared portions of the entire eastern half of the lake.</p>	<p>SOMERVILLE LAKE</p> <p>Landings and takeoffs are prohibited west of the west end of Birch Creek Unit of Somerville Lake State Park and in all coves and bays off the main body of the lake.</p>
<p>NAVARRO MILLS LAKE</p> <p>Landings and takeoffs are prohibited west of Wolf Creek Park 1.</p>	<p>STILLHOUSE HOLLOW LAKE</p> <p>Landings and takeoffs are prohibited west and south of Cedar Knob Road and in large shallow areas surrounding unnamed islands in the main body of the lake.</p>
<p>PROCTOR LAKE</p> <p>Landings and takeoffs are prohibited in all areas north and west of the eastern tip of Promontory Park and all areas west of the southwest tip of Promontory Park.</p>	<p>WHITNEY LAKE</p> <p>Seaplane operations are prohibited in areas downstream from a line drawn from the northern tip of Walling Bend park to the mouth of Frazier Creek and upstream from a line drawn from the mouth of Cedar Creek southwest to the opposite undeveloped shoreline. The coves formed by King Creek and Cedron Creek are also prohibited</p>
<p>RAY ROBERTS LAKE</p> <p>Landings and takeoffs are prohibited north of Highway 3002 and in areas north and east of a line from the northeast tip of Johnson Park to the southwest tip of Jordan Park.</p>	<p>WRIGHT PATMAN LAKE</p> <p>Landings and takeoffs are prohibited in all coves and bays off main body of lake and in uncleared and shallow areas of the lake.</p>
<p>SAM RAYBURN RESERVOIR</p> <p>Landings and takeoffs are prohibited west of Highway 147, north of Highway 83, and in scattered uncleared areas of the reservoir.</p>	

NOTE: The latest revision to this Notice to Seaplane Pilots was completed in March of 2000.

APPENDIX G – PERTINENT PUBLIC LAWS

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- Public Law 59-209, Antiquities Act of 1906. The first federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities, and Uniform Rules and Regulations.
- Public Law 74-292, Historic Sites Act of 1935. Declares it to be a national policy to preserve for (in contrast to protecting from) the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources. It also establishes an "Advisory Board on National Parks; Historic Sites, Buildings, and Monuments, a committee of eleven experts appointed by the Secretary to recommend policies to the Department of the Interior".
- Public Law 75-761, Flood Control Act of 1938. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.
- Title 16 U.S. Code §§ 668-668a-d, 54 Stat. 250, Bald Eagle Protection Act of 1940, as amended. This Act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or any manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or egg thereof. The Act defines "take" as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.
- Public Law 78-534, Flood Control Act of 1944 as amended. - Section 4 of the act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to federal, state or local governmental agencies.
- Public Law 79-525, River and Harbor Act of 1946. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.
- Public Law 83-780, Flood Control Act of 1954. This act authorizes the construction, maintenance, and operation of public parks and recreational facilities in reservoir areas under the control of the Department of the Army and authorizes the Secretary of the Army to grant leases of lands in reservoir areas deemed to be in the public interest.
- Public Law 85-624, Fish and Wildlife Coordination Act 1958. - This act as amended in 1965 sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources

shall be examined along with other purposes which might be served by water resources development.

- Public Law 86-717, Forest Conservation. - This act provides for the protection of forest and other vegetative cover for reservoir areas under this jurisdiction of the Secretary of the Army and the Chief of Engineers.
- Public Law 87-874, Rivers and Harbors Act of 1962. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.
- Public Law 88-578, Land and Water Conservation Fund Act of 1965. This act established a fund from which Congress can make –appropriations for outdoor recreation. Section 2(2) makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act as amended.
- Public Law 88-29, 28 May 1963, authorized the Secretary of the Interior to inventory and classify outdoor recreation needs and resources and to prepare a comprehensive outdoor recreation plan taking into consideration the plans of the various federal agencies, State, and other political subdivisions. It also states that the federal agencies undertaking recreational activities shall consult with the Secretary of the Interior concerning these activities and shall carry out such responsibilities in general conformance with the nationwide plan.
- Public Law 89-72, Federal Water Project Recreation Act of 1965. - This act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at federal reservoir projects shall be borne by a non-federal public body. A HQUSACE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.
- Public Law 89-90, Water Resources Planning Act (1965). This act established the Water Resources Council and gives it the responsibility to encourage the development, conservation, and use of the Nation's water and related land resources on a coordinated and comprehensive basis.
- Public Law 89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 21, 1976. This act authorized a research and development program with respect to solid-waste disposal. It proposes (1) to initiate and accelerate a national research and development program for new and improved methods of proper and economic solid-waste disposal, including studies directed toward the conservation of national resources by reducing the amount of waste and unsalvageable materials and by recovery and utilization of potential resources in solid waste; and (2) to provide technical and financial assistance to State and local governments and interstate agencies in the planning, development, and conduct of solid-waste disposal programs.

- Public Law 89-665, Historic Preservation Act of 1966. - This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President's Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.
- Public Law 90-483, River and Harbor and Flood Control Act of 1968, Mitigation of Shore Damages. Section 210 restricted collection of entrance fee at USACE lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.
- Public Law 91-190, National Environmental Policy Act of 1969 (NEPA). – NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a “continuing policy of the Federal Government... to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.” Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations and public law of the United States shall be interpreted and administered in accordance with the policies of the Act. It is Section 102 that requires consideration of environmental impacts associated with Federal actions. Section 101 of NEPA requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony.

Specifically, Section 101 of the National Environmental Policy Act declares:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradation risk to health or safety or other undesirable and unintended consequences;
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain wherever possible an environment which supports diversity and variety of individual choice;
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities: and
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

- Public Law 91-611, River and Harbors and Flood Control Act of 1970. – Section 122e. Establishes the requirement for evaluating the economic, social, and environmental impacts of projects.
- Public Law 92-347, Golden Eagle Passbook and Special Recreation User Fees. This act revises Public Law 88-578, the Public Land and Water Conservation Act of 1965, to require federal agencies to collect special recreation user fees for the use of specialized sites developed at federal expense and to prohibit the USACE from collecting entrance fees to projects.
- Public Law 92-500, Federal Water Pollution Control Act Amendments of 1972. The Federal Water Pollution Control Act of 1948 (PL 845, 80th Congress), as amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet of uniform State standards for water quality. Public Law 92-500 strongly affirms the federal interest in this area. "The objective of this act is to restore and maintain the chemical, physical and biological integrity of the Nation's waters."
- Public Law 92-516, Federal Environmental Pesticide Control Act of 1972. This act completely revises the Federal Insecticide, Fungicide and Rodenticide Act. It provides for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.
- Public Law 93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended to require each federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at federal expense.
- Public Law 93-205, Conservation, Protection, and Propagation of Endangered Species Act of 1973, as amended. This law repeals the Endangered Species Conservation Act of 1969. It also directs all federal departments/agencies to carry out programs to conserve endangered and threatened species of fish, wildlife, and plants and to preserve the habitat of these species in consultation with the Secretary of the Interior. This Act establishes a procedure for coordination, assessment, and consultation. This Act was amended by Public Law 96-159.
- Public Law 93-251, Water Resources Development Act of 1974. Section 107 of this law establishes a broad federal policy which makes it possible to participate with local governmental entities in the costs of sewage treatment plant installations.
- Public Law 93-291, Archeological Conservation Act of 1974. The Secretary of the Interior shall coordinate all federal survey and recovery activities authorized under this expansion of the 1960 act. The Federal Construction agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered non-reimbursable project costs.
- Public Law 93-303, Recreation Use Fees. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted

criteria under which federal agencies may charge fees for the use of campgrounds developed and operated at federal areas under their control.

- Public Law 93-523, Safe Drinking Water Act. The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a joint Federal-State system for assuring compliance with these standards and for protecting underground sources of drinking water.
- Public Law 94-422, Amendment of the Land and Water Conservation Fund Act of 1965. Expands the role of the Advisory Council. Title 2 - Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the National Register of Historic Places.
- Public Law 95-217, Clean Water Act of 1977, as amended. This Act amends the Federal Water Pollution Control Act of 1970 and extends the appropriations authorization. The Clean Water Act is a comprehensive federal water pollution control program that has as its primary goal the reduction and control of the discharge of pollutants into the nation's navigable waters. The Clean Water Act of 1977 has been amended by the Water Quality Act of 1987, Public Law 100-4.
- Public Law 95-341, American Indian Religious Freedom Act of 1978. The Act protects the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objections, and the freedom to worship through ceremonials and traditional rites.
- Public Law 95-632, Endangered Species Act Amendments of 1978. This law amends the Endangered Species Act Amendments of 1973. Section 7 directs agencies to conduct a biological assessment to identify threatened or endangered species that may be present in the area of any proposed project. This assessment is conducted as part of a federal agency's compliance with the requirements of Section 102 of NEPA.
- Public Law 96-95, Archeological Resources Protection Act of 1979. This Act protects archeological resources and sites that are on public and tribal lands and fosters increased cooperation and exchange of information between governmental authorities, the professional archeological community, and private individuals. It also establishes requirements for issuance of permits by the federal land managers to excavate or remove any archeological resource located on public or Indian lands.
- Public Law 98-63, Supplemental Appropriations Act of 1983. This Act authorized the USACE Volunteer Program. The United States Army Chief of Engineers may accept the services of volunteers and provide for their incidental expenses to carry out any activity of the USACE, except policymaking or law or regulatory enforcement.

- Public Law 99-662, The Water Resources Development Act 1986. Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.
- Public Law 101-601, Native American Graves Protection and Repatriation Act (16 November 1990), requires federal agencies to return Native American human remains and cultural items, including funerary objects and sacred objects, to their respective peoples.

APPENDIX H – ACRONYMS

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ac-ft	Acre Feet
BFZ	Balcones Fault Zone
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act
DC	District Commander
DM	Design Memorandum
DoD	Department of Defense
EA	Environmental Assessment
EAA	Edwards Aquifer Authority
EO	Executive Order
EOP	Environmental Operating Principles
EP	Engineering Pamphlet
EPA	United States Environmental Protection Agency
ER	Engineering Regulation
ESA	Environmentally Sensitive Areas
F	Fahrenheit
FONSI	Finding of No Significant Impact
FS	Fully Supported
GAM	Groundwater Availability Models

GCD	Groundwater Conservation District
GCWA	Golden Cheeked Warbler
GIS	Geographical Information Systems
GMA	Groundwater Management Area
HDR	High Density Recreation
IPaC	USFWS Information for Planning and Conservation
LDR	Low Density Recreation
LEED	Leadership in Energy and Environmental Design
MP	Master Plan or Master Planning
MRML	Multiple Resource Management Lands
NAAQS	National Ambient Air Quality Standard
NEPA	National Environmental Policy Act, 1970
NGVD29/88	National Geodetic Vertical Datum (1929 or 1988)
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRMS	Natural Resource Management System
NRRS	National Recreation Reservation System
NSRE	National Survey on Recreation and the Environment
NVCS	National Vegetation Classification System
NWI	National Wetland Inventory

O&M	Operations and Maintenance
OMB	Office of Management and Budget
OMP	Operations Management Plan for a specific lake Project
OPM	Operations Project Manager
PDT	Project Delivery Team
PL	Public Law
PM	Project Management or Project Manager
PMBP	Project Management Business Processes
PO	Project Operations
RPEC	Regional Planning and Environmental Center
RV	Recreational Vehicle
SH	State Highway
SHPO	State Historical Preservation Office
SMPS	Shoreline Management Policy Statement
SWF	U. S. Army Corps of Engineer's Fort Worth District Office
SWF-OD	Operations Division, U. S. Army Corps of Engineers, Fort Worth
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
TORP	Texas Outdoor Recreation Plan
TPWD	Texas Parks and Wildlife Department
TWDB	Texas Water Development Board
TX	Texas

TXDOT	Texas Department of Transportation
TWC	Texas Water Code
VM	Vegetative Management
USACE	United States Army Corps of Engineers
USFWS	U. S. Fish and Wildlife Service
USGS	United States Geological Survey
WDA	Workforce Development Area
WHAP	Wildlife Habitat Appraisal Procedure
WMA	Wildlife Management Area