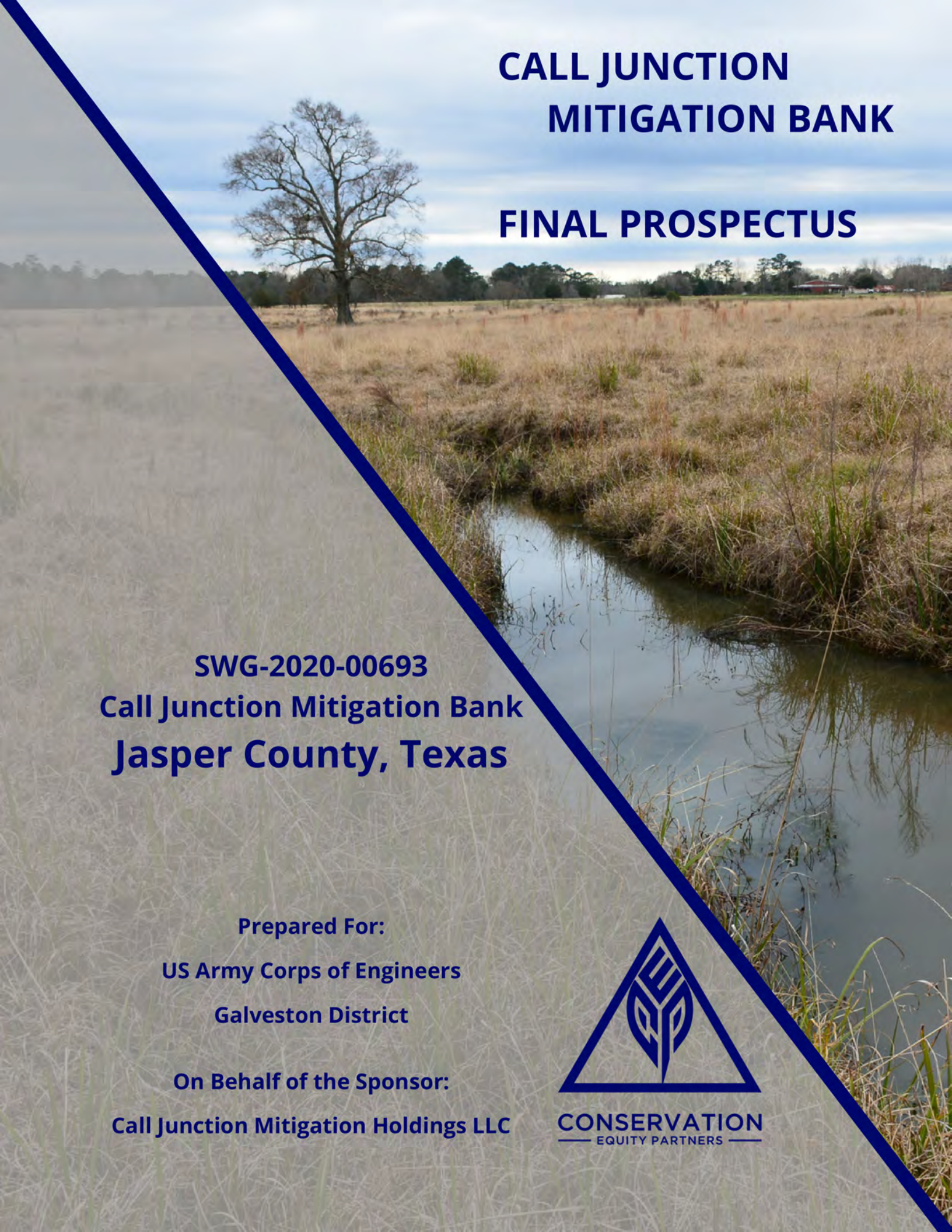

CALL JUNCTION MITIGATION BANK

FINAL PROSPECTUS

SWG-2020-00693

Call Junction Mitigation Bank

Jasper County, Texas

Prepared For:

US Army Corps of Engineers

Galveston District

On Behalf of the Sponsor:

Call Junction Mitigation Holdings LLC

CONSERVATION
EQUITY PARTNERS

Call Junction Mitigation Bank

Final Prospectus

SWG-2020-00693

Jasper County, Texas

Sponsored By
Call Junction Mitigation Holdings LLC

2022 November 30

Prepared By
Tamara Wood
Conservation Equity Partners, LLC
936-404-3819 | tamara@conservationep.com

1. INTRODUCTION 3
1.1 BANK CONTACT INFORMATION 3
1.2 SPONSOR QUALIFICATIONS 3
1.3 REGULATORY AUTHORITIES 4
1.4 INTERAGENCY REVIEW TEAM 4
2. GOALS AND OBJECTIVES 5
2.1 OBJECTIVES 5
3. SITE SELECTION 6
3.1 PROJECT LOCATION 6
3.2 SITE CHARACTERISTICS 6
3.3 HISTORIC LAND USE 7
3.4 GENERAL NEED & TECHNICAL FEASIBILITY 8
3.5 ECOLOGICAL SUITABILITY 9
3.6 PROPOSED SERVICE AREA 11
3.7 SITE PROTECTION INSTRUMENT 12
3.8 BASELINE INFORMATION 12
3.9 PRELIMINARY DELINEATION OF POTENTIAL WATERS OF THE U.S. 15
3.10 THREATENED AND ENDANGERED SPECIES 16
3.11 CULTURAL RESOURCES 17
3.12 DETERMINATION OF CREDITS 17
3.13 MITIGATION WORK PLAN 18
3.13.1 STREAM RESTORATION 18
3.13.2 SITE PREPARATION AND PLANTING 21
3.14 MONITORING AND MANAGEMENT 22
3.15 CONSTRUCTION METHODS, TIMING, & SEQUENCE 22
3.16 MINERAL MANAGEMENT PLAN 22
3.17 FINANCIAL ASSURANCES 23
3.18 BANK ESTABLISHMENT 23
3.19 CREDIT RELEASE SCHEDULE 23
3.20 ANY & ALL EXISTING AND FUTURE EASEMENTS AND/OR ENCUMBRANCES 24
3.21 WATER RIGHTS 24
4. REFERENCES 26
5. ATTACHMENTS 28

Attachment A: Figures
Attachment B: Baseline Assessments – (Previously submitted on July 22nd, 2021)
- Wetland Delineation
- Functional Assessment

Attachment C: Desktop Cultural Investigation
Attachment D: Phase I ESA Report
Attachment E: Concept Stream Plan and Geomorphic Reference Reach Data
Attachment F: Letter of Intent Texas Agricultural Land and Trust
Attachment G: Long-term Stewardship Fund Management Agreement
Attachment H: T&E IPAC Report
Attachment I: Attorney Title of Opinion and Title Commitment
Attachment J: Texas Department of Agriculture Noxious and Invasive Plant List
Attachment K: Site Photos

1. INTRODUCTION

Conservation Equity Partners, LLC (CEP), on behalf of Call Junction Mitigation Holdings LLC (Sponsor), is proposing the development of Call Junction Stream Mitigation Bank (CJMB or Bank) within the Lower Sabine River watershed in Jasper County, Texas (Attachment A, Figures 1 and 7). The Bank will be established and operated in accordance with 33 CFR Part 332, Compensatory Mitigation for Losses of Aquatic Resources, Final Rule, dated April 10, 2008, in collaboration with the United States Army Corps of Engineers (USACE) and the Interagency Review Team (IRT).

1.1 BANK CONTACT INFORMATION

Mitigation Bank Name:

Call Junction Mitigation Bank | SWG-2020-00693

Sponsor/Property Owner:

Call Junction Mitigation Holdings LLC
c/o Eco-Capital Advisors, LLC, 3414 Peachtree Rd NE, Suite 990, Atlanta GA 30326
Brian Normanly | 770-820-8270 | normanly@ecocapitaladvisors.com

Point of Contact/Consultant:

Conservation Equity Partners, LLC
P.O. Box 5121, San Angelo Tx 76902
Tamara Wood | 936-404-3818 | tamara@conservationep.com

Mineral Owner(s):

Southwestern Settlement and Development Corporation & Houston Oil Company of Texas

Conservation Easement Holder:

Texas Agricultural Land Trust
1919 Oakwell Farms Pkwy #100, San Antonio, TX 78218
Chad Ellis |580-222-5050 | CEllis@txaglandtrust.org

Long-term Stewardship Endowment Fund Managing Entity:

Texas Parks and Wildlife Foundation
2914 Swiss Avenue, Dallas TX 75204
Merrill Gregg |217-720-1478| mgregg@tpwf.org

1.2 SPONSOR QUALIFICATIONS

Call Junction Mitigation Holdings LLC is a special-purpose entity established and managed under a partnership arrangement between the Lyme Timber Company, LP and Eco-Capital Advisors, LLC (“Lyme-ECA Partnership”); this partnership also includes Conservation Equity Partners. The Lyme-ECA Partnership is currently developing 16 mitigation projects occurring within eight states, including ten approved mitigation banks with completed construction. Prior to forming the Lyme-ECA Partnership, principals of both firms collectively permitted and managed over 100 mitigation and conservation projects occurring within 20 states and 17 USACE Districts. Projects co-managed by ECA and CEP Principals include numerous

approved mitigation banks in both the Fort Worth and Galveston Districts (e.g., Bushneck Bayou MB, Fall Off Creek MB, Keystone MB, Straus-Medina MB, & Daisetta Swamp MB).

1.3 REGULATORY AUTHORITIES

The establishment, use, and operation of the FJMB will be carried out in accordance with the following authorities:

- Clean Water Act (33 USC 1251 et seq.)
- Rivers and Harbors Act (33 USC 403)
- Fish and Wildlife Coordination Act (16 USC 661 et seq.)
- Regulatory Programs of the U.S. Army Corps of Engineers, Final Rule (33 CFR 320-332)
- Guidelines for Specification of Disposal Sites for Dredged and Fill Material (40 CFR 230)
- Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army Concerning Determination of Mitigation Under the Clean Water Act, Section 404(b)1 Guidelines (February 6, 1990)
- Final Rule for the Compensatory Mitigation for Losses of Aquatic Resources issued by the U.S. Army Corps of Engineers and the Environmental Protection Agency (April 10, 2008)
- Water Resources Development Act of 2007-Section 2036: Mitigation for Fish and Wildlife and Wetlands Losses
- Section 7 of the Endangered Species Act
- Section 106 of the National Historic Preservation Act"
- Food Security Act of 1985, as amended
- Texas State Water Quality Certification [30 Tex. Admin. Code §279.12 (2001)]
- Texas State Water Quality Standards [30 Tex. Admin. Code § 307 (2000)]
- Texas Parks and Wildlife Code Chapter 14 Powers and Duties Concerning Wetlands

1.4 INTERAGENCY REVIEW TEAM

The Interagency Review Team (IRT) for the CJMB is composed of the individuals representing the agencies listed below:

Agency	Representative	Address	Email
U.S. Army Corps of Engineers	Sam Watson (IRT Chair)	2000 Fort Point Road Galveston, Texas 77550	Sam.Watson@usace.army.mil
U.S. Environmental Protection Agency (Region 6)	Paul Kaspar	10625 Fallstone Road Houston, Texas 77099	Kaspar.Paul@epa.gov
Texas Parks and Wildlife Department	Mike Morgan	1502 East FM 512 Dickinson, Texas 77539	Mike.Morgan@tpwd.texas.gov
Texas General Land Office	Carla Kartman	1700 North Congress Avenue Austin, Texas 78701	Carla.Kartman@glo.tx.gov
Texas Commission on Environmental Quality	Brittany Lee	P.O. Box 13087, Mail Code 150 Austin, Texas 78711	Brittany.Lee@tceq.texas.gov
Natural Resources Conservation Service	Dan Keesee	101 South Main Street Temple, Texas 76501	Dan.Keesee@tx.usda.gov

National Marine Fisheries Service	Rusty Swafford	4700 Avenue U Galveston, Texas 77550	Rusty.Swafford.noaa.gov

2. GOALS AND OBJECTIVES

The primary purpose of developing the Bank is to conduct ecological restoration to reestablish and retain biodiversity, health, ecological function, and resilience to historically disturbed and impacted private lands, using the compensatory driven mitigation banking program.

The ecological and nature-based goals of the project are to successfully establish and restore stream functions associated with wetlands and non-wetland waters of the US and to perpetually protect rare and difficult-to-replace habitats. A compatible societal and capitalistic goal for creating the Bank is to create a means of providing compensatory mitigation for unavoidable impacts to Waters of the US (WOTUS) that result from USACE permitted impacts requiring compensatory mitigation within the approved CJMB service area in accordance with Section 404 of the Clean Water Act (Federal Water Pollution Control Act) and/or Section 10 of the Rivers and Harbors Act (Rivers and Harbors Appropriation Act of 1899) provided such use has met all applicable requirements and is authorized by the USACE.

Development of the Bank will result in the re-establishment of approximately 7,192 linear feet of degraded intermittent streams and the enhancement of an additional 473 linear feet of intermittent streams. Approximately 48.6 acres of improved pastureland will also be restored to forested riparian habitat during the course of the project (Table 1). Under the guidance of the Galveston District's Stream Condition Assessment 2013 (Galveston SOP), planned activities will result in Priority 1 intermittent stream restoration and re-establishment of adjacent forested wetlands and riparian habitat.

These stated goals will be quantified and achieved through an interactive process with the IRT, culminating with the development and approval of a Mitigation Banking Instrument (MBI), which will outline specific details for the stream re-establishment, stream enhancement, and riparian restoration of aquatic resources, including the long-term management and financing mechanisms.

A key component of the MBI (forthcoming) is detailed in the Mitigation Work Plan that has been prepared to optimize uplift and successfully attain desired ecological conditions, while also meeting or exceeding ecological performance standards. The Mitigation Work Plan will be constructed to accomplish the following site-specific objectives.

2.1 OBJECTIVES

1) Protect the Bank in perpetuity with a conservation easement held by an accredited land trust (Attachment F).
2) Eliminate and cease non-compatible land uses.
3) Re-establish stable stream characteristics (pattern, profile, and dimension) utilizing Natural Channel Design to intermittent channels that currently exhibit poor floodplain connectivity and stability (Attachment E).
4) Restore and enhance riparian buffers to reduce erosion and sediment loading, increase shading to reduce streamflow temperatures, and provide a source of woody debris and detritus to enhance aquatic habitat and primary productivity, respectively.

5) Restore adjacent native bottomland forest vegetative communities through selective planting and forest management strategies.
6) Enhance and uplift the stream system in regard to water quality, flood storage capacity, wildlife habitat values and ecological resiliency.

Table 1. Resource type by linear feet and acres for stream credit generation within the proposed Call Junction Mitigation Bank, Jasper County, Texas.

Resource Type	Re-Established		Enhancement	Total Proposed
	Current	Proposed		
Stream (linear feet)	5,378	7,192	473	7,665
Inter (0-100 foot) Riparian Buffer (acre)	27.2		---	27.2
Extended (100-200 foot) Riparian Buffer (acre)	21.4		---	21.4

3. SITE SELECTION

3.1 PROJECT LOCATION

The Bank is located in the Galveston District of the USACE within the Sabine River watershed, also defined as the primary 8-digit Hydrologic Unit Code (HUC) Lower Sabine: 12010005. The Bank is in Jasper County, Texas, immediately adjacent to the eastern city limit of Kirbyville, Texas. The latitude/longitude coordinates for the property are 30.646086 N and -93.885575 W (UTM 415145.39 East, 3390714.73 North, Zone 15R). (Attachment A, Figure 1)

3.2 SITE CHARACTERISTICS

The Natural Resource Conservation Service (NRCS) indicates that lands associated with the Bank are located within Land Resource Region T (Atlantic and Gulf Coast Lowland Forest and Crop Region), and Major Land Resource Area 152B (Western Gulf Coast Flatwoods). Jasper County has a warm and relatively humid, subtropical climate characterized by relatively high rainfall. Most rainfall occurs as frontal storms between fall and early spring; although an appreciable amount of precipitation may occur as convective thunderstorms or tropical depressions during the summer and fall.

Image 1. Equipment and cattle crossing an unnamed tributary within the Bank Boundary, primarily vegetation consists of exotic invasive species such as Chinese tallow tree.

Total annual precipitation based on years 1991 through 2020 is over 60 inches (152 centimeters) with average monthly rainfall between 4.2 and 5.8 inches (10.7 and 14.7 centimeters). Mean average temperature based on 1991 through 2020 is approximately 66.3°F (19.1°C) with mean temperatures between 48.7°F (9.3°C) in winter and 81.5°F (27.5°C) in summer (NOAA 2021).

The Bank acreage is situated adjacent to and upstream of riverine forests via Trout Creek (Attachment A, Figures 2A and 2B). Streams within the Bank site are hydrologically sustained by a combination of precipitation, sheet runoff, microrelief ponding, and seasonally perched water tables.

Image 2. Improved pasture grass with active cattle grazing in riparian buffer.

The Bank lands can best be described as agricultural land (grazing & hay production) with impaired streams and wetland riparian buffer communities. Three (3) unnamed tributaries to Trout Creek converge within the Bank site, before flowing northeast and eventually merging with Big Cow Creek, a major tributary to the Sabine River.

Historic ranch management practices have resulted in the removal of virtually all woody vegetation buffering the unnamed tributaries and a corresponding exposure of stream channels to direct sunlight. Unrestricted, continual grazing and mowing practices have resulted in increased erosion, deeply incised channels, increased sedimentation loads, and reduced water quality.

Current habitat within the proposed Bank boundaries is best described as farmed wetlands with improved pasture dominated by Bermuda grass (*Cynodon dactylon*), Bahia grass (*Paspalum notatum*), smut grass (*Sporobolus indicus*), and Vasey's grass (*Paspalum urvillei*). Woody vegetation occurring only along the primary tributary consists of isolated Chinese tallow tree (*Triadica sebifera*) and black willow (*Salix nigra*), with an occasional water oak (*Quercus nigra*).

3.3 HISTORIC LAND USE

On behalf of the Sponsor, CEP conducted an analysis of historical documents and aerial photography to best determine the historical pre-settlement condition of the Bank footprint. Based on the geographic location within the lower reaches of the Piney Woods Ecoregion and physiographic characteristics, the cover type of this area was likely forestland or woodland savannahs prior to first use by Anglo-American settlers in the early 1800s'. Please refer to the historical photographs in Attachment A, Figure 9a-k.

The first documented evidence of disturbance identified by CEP occurred in the form of timber deeds on adjacent portions of the property under the same ownership established in 1920. The oldest aerial photograph reviewed is dated 1939 (Attachment A, Figure 9a) and illustrates that the Bank footprint, as well as adjacent acreage, had been converted to agricultural use at some point prior to 1938. The only woody vegetation present appears in the form of scattered motts and isolated trees. A stream channel is visible across the northeast portion of the Bank, along with a small pond near the eastern side of the property. Evidence of farm roads and stream crossings are also present.

In the 1952 image (Attachment A, Figure 9b), channels are evident near their present-day locations, along with an increased abundance of woody vegetation, likely occurring from natural regeneration. There is noticeable evidence of a reduction in agriculture practices as compared to the 1939 image.

In 1958 (Attachment A, Figure 9c), the stream channels remain visible with a higher abundance of woody vegetation present along the stream course. There is also evidence that cattle production activities were

once again increasing within the bank footprint. The small cattle tank appears to be under expansion, at the time the 1958 photograph was taken.

The 1968 photograph (Attachment A, Figure 9d) shows that apart from isolated trees, all woody vegetation had been removed from the Bank footprint. It is CEP's impression that cattle grazing became the primary land use from this point forward, as there is no further evidence of crop production.

Based on the aerial review and speaking to local parties with historical knowledge of the area, significant segments of the stream channels were impacted to improve drainage and improve agriculture (i.e., cattle and/or hay) production during the early 1970s'. The 1976 imagery (Attachment A, Figure 9e) appears to illustrate that major segments of the channel were over-widened and converted to swales.

In 1976 (Attachment A, Figure 9e), the stream channels appear to have reformed and significantly incised. Importantly, the Bank now appears to be better drained with less indicators of saturated soil evident. From the late 1970s' to the present day, alterations to the Bank have largely consisted of ongoing agricultural operations with occasional evidence of further drainage efforts, construction of additional road crossings, and vegetation management.

As part of the historical analysis of the Bank, the Bank Sponsor completed a Phase I environmental site assessment (Phase I ESA) to investigate possible environmental concerns associated with the Bank property. The Phase I ESA included site reconnaissance, interviews, and review of available historical resources including photographs. Based on the findings detailed in the report, which is provided in Attachment D, no recognized environmental conditions were identified within the Bank property.

3.4GENERAL NEED & TECHNICAL FEASIBILITY

The mitigation needs and feasibility parameters for this site were derived using a watershed-oriented, landscape approach as discussed in CMLAR. This site was carefully evaluated and strategically selected for the following reasons: 1) regulatory considerations and market conditions supporting the establishment of a mitigation bank within the watershed, and 2) population growth, land development, habitat conversion trends and other demographic characteristics evaluated at various scales (global, national, regional, and local).

There are currently no permitted private mitigation banks with available stream credits within the proposed service area of the CJMB. Compensation for impacts requiring stream mitigation within this proposed service area have heretofore relied on permittee responsible mitigation or non-traditional mitigation methods. The CMLAR is clear in establishing that mitigation banks generally represent more sustainable and ecologically beneficial forms of compensatory mitigation than the other allowable options. As such, the establishment of the CJMB in this service area will provide the preferred mitigation options to permittees in the form of highly valued stream resources.

Rapidly expanding human populations increase pressure on the productive potential and resiliency of natural resources. The Lower Sabine watershed has experienced moderate to high rates of conversions from 1997-2017. Given Texas's projected growth to 47.4 million by 2050, via Texas Demographic Center (TDC) in 2019, we can expect these land-use conversion trends to continue and demographic pressures to intensify.

Furthermore, the proposed Bank lies within the Sabine River Basin, which, reflecting overall Texas land trends, has seen a 20% increase in population and a loss of more than 78,000 acres of working land to conversion since 1997 (Texas Land Trends, 2021). Texas' population continues with a trend of dramatic increase, validating the real and pending threat to our ecologically valuable, fragile, and difficult-to-replace natural resources.

- Texas is the #2 most populous state (World Population Review, 2021)
- Texas is #1 in the nation in annual population growth from 2010-2020 (TDC, 2021)
- #1 Austin & #3 Dallas fastest growing cities and economies in the nation in 2016 (Carlyle 2015)
- #4 Houston, #7 San Antonio, #9 Dallas, and #11 Austin most populous cities in the nation (TDC, 2019)
- Texas population grew from 19 to 26 million from 1997-2012 (TA&M IRNR, 2021)

Projected population growth coupled with an ever-increasing need for energy and petrochemical products are major drivers of industrial and domestic development within the service area. International commerce and infrastructure development associated with the Ports of Houston and Beaumont will continue to expand to service global needs. Further, such growth requires improvements in transportation systems to accommodate current and projected population growth, as well as expansion of distribution corridors to facilitate commerce between local, regional, national, and global economies.

The Bank's primary service area is known for prolific oil, gas, and industrial development (HUC 12010005) fueled by the Port of Orange located on the Sabine River. Major employers within the city of Orange, Texas, the largest city within the service area, include International Paper, Dow Chemical, Southeast Texas Industries, Optimus Steel, and Trinity Industries (Orange Department of Economic Development, 2021). The conservation of ideally suited, high-value lands as mitigation banks in this area will support environmental sustainability and resource stewardship initiatives in a rapidly developing area and promote economic stability and growth within the state of Texas.

3.5 ECOLOGICAL SUITABILITY

The geomorphological location, relatively flat to slightly sloping landscape, existing hydric soils, and wetland hydrology implies that the Bank is a prime site for stream re-establishment and establishment of forested riparian buffer habitat. The following parameters were considered in selecting the site for stream re-establishment:

- Location - the Bank will restore and protect stream function and riparian buffer habitat by re-establishing three unnamed tributaries.
- Mitigation need - the increasing requests for stream credits within the primary and secondary service areas establishes the need for this Bank.
- Mitigation availability – there is an absence of stream credits within the primary and secondary service areas.
- Landscape positioning - the relatively low elevation of the Bank and nexus to Trout Creek and Big Cow Creek, a major tributary to the Sabine River, creates an excellent opportunity for successful stream restoration.
- Hydric soils - hydric soils are documented within the Bank boundaries.

- Wetland Characteristics - approximately 60% of the Bank lies within the designated 100-year flood zone (Zone A), and the National Hydrography Dataset mapping shows continuity of the Trout Creek forested corridor, (The National Map, Attachment A, Figure 2a).
- Historical evidence – historical evidence illustrates a classic example of ecological loss and stream degradation over time.
- Compatibility – within one mile of the Bank perimeter, the surrounding land use is comprised of cropland/pastureland (38%), mixed/bottomland forest (30%), urban/residential/industrial/commercial (14%), evergreen forest (15%), and marsh/shrubland (3%) (Attachment A, Figure 8)
- Continuity - restoring and protecting the Bank will reduce landscape fragmentation and protect and restore riparian habitats and reconnect wildlife habitats
- Long-term protection and habitat connectivity - the Bank will preserve a riverine forested landscape that will restore historic forested wetlands.

Improved water quality and ecological health benefits to the Sabine watershed and the southeast Gulf Coast were positive attributes considered in the site suitability process. The waterways within the property are contributory to Big Cow Creek (Seg ID 0513; TCEQ 2020) which is included on the Texas 303(d) list due to elevated levels of bacteria.

Table 2. Big Cow Creek listing in TCEQ 2020 report as a 303(d) category 5 impaired water.

SegID: 0513	Big Cow Creek Big Cow Creek - from the confluence with the Sabine River in Newton County to a point 4.6 km (2.9 mi) upstream of Recreational Road 255 in Newton County		
Impairment Description(s)		*Category*	*Year Segment First Listed*
Bacteria in water (Recreation Use)		**5c**	**2018**
0513_01	Big Cow Creek from the confluence with the Sabine River southeast of Kirbyville upstream to the confluence of White Oak Creek west of Kirbyville		

Another contributing factor to project suitability was the Bank site's presence within the Big Thicket Biosphere Reserve (Image 3, Attachment A, Figure 1 & 10)—one of 46 such sites in the US designated with the explicit goals of conserving ecosystems, species, and genetic variation while supporting sustainable economies and promoting research and education regarding the site's significance. The proposed restoration of denuded streams and associated riparian habitat, in addition to the re-establishment of mixed pine/hardwood forest, not only meets the goals as expressed by The United Nations Educational, Scientific and Cultural Organization, but also works to fulfill the goals of multiple local conservation non-profits such as the Big Thicket National Heritage Trust and the Big Thicket Association (UNESCO, 2021).

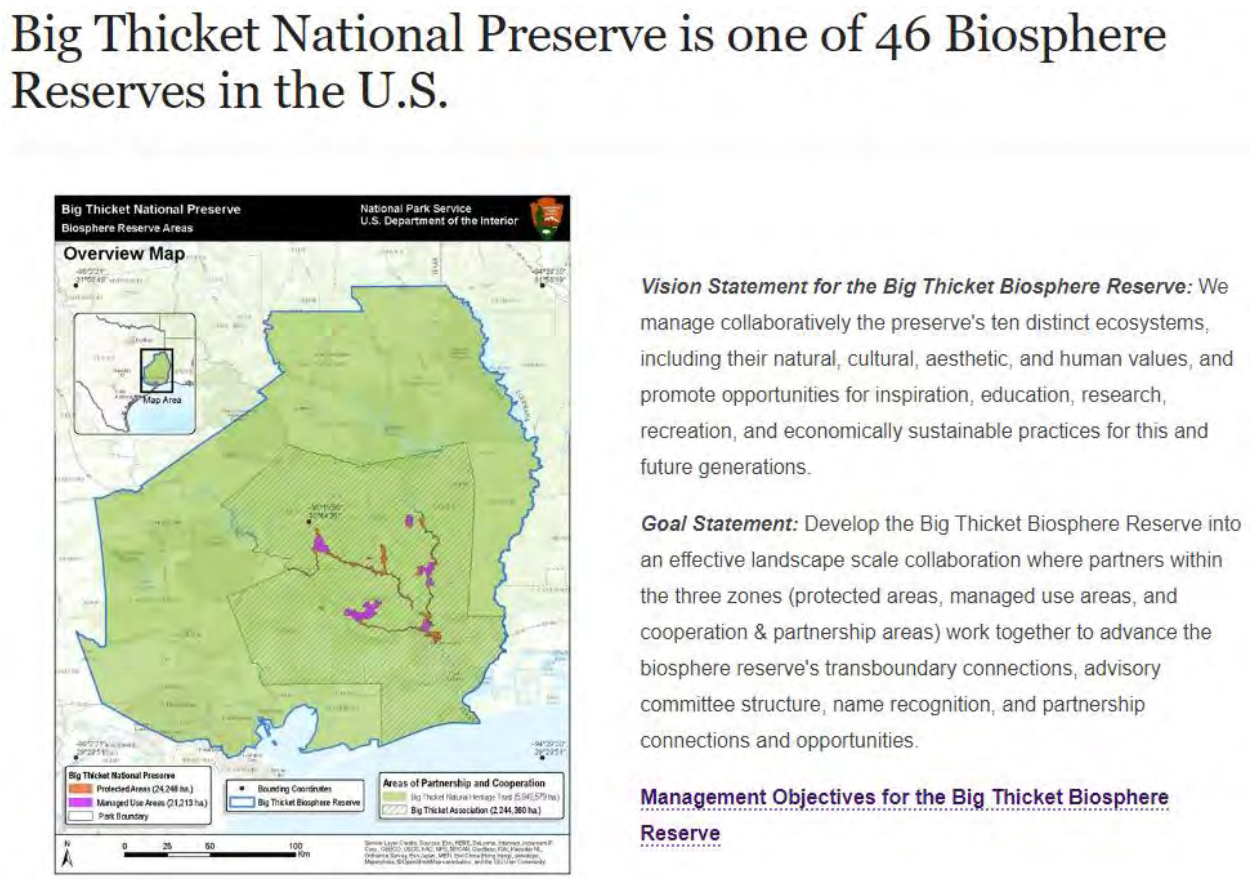

Image 3. Big Thicket National Preserve is of National and Global biological importance, detailed map Attachment A, Figure 1, Figure 10.

Project objectives also work toward achieving goals established in the Texas Comptroller's East Texas Initiative. Since 2019, this initiative has worked to collect scientific data that will be analyzed to propose conservation measure for than 12 East Texas species including aquatic and riparian flora and fauna. Species of concern include Louisiana pigtoe (*Pleurobema riddellii*), Texas heelsplitter (*Potamilus amphichaenus*), alligator snapping turtle (*Macrochelys temminckii*), western chicken turtle (*Deirochelys reticularia miaria*), tricolored bat (*Pipistrellus subflavus*), and the Neches River rose-mallow (*Hibiscus dasycalyx*) — all species that would benefit from the proposed restored streams and associated riparian zones (Texas Comptroller, 2021).

Once restored, the streams and accompanying riparian areas within the proposed Bank will contribute to the overall hydrologic welfare of the Sabine River drainage basin and ecosystem. Under the perpetual conservation easement, the Bank will re-establish a minimum of approximately 5,851 linear feet intermittent streams and 48.6 acres of forested riparian habitat.

3.6 PROPOSED SERVICE AREA

The proposed Bank is located in the South-Central Plains Level III Ecoregion within the Galveston District of the USACE. It is within the Sabine River watershed, the 8-digit Hydrologic Unit Code (HUC) Lower Sabine: 12010005. This segment of the Sabine River also constitutes the state boundary between Texas and Louisiana. The primary service area for the project will consist of the Texas portion of the Lower Sabine

HUC, with a small secondary service area that includes the Texas portion of the Toledo Bend Reservoir HUC (12010004) occurring within the Galveston District (Attachment A, Figure 7).

Unavoidable impacts to stream function within the primary service area will be replaced at a 1:1 ratio, while impacts occurring within the secondary service area will be debited at a 1.5:1 ratio.

3.7 SITE PROTECTION INSTRUMENT

The intent of the Sponsor is to dedicate the Bank acreage in perpetuity as an aquatic ecosystem preserve. The proposed conservation easement holder is Texas Agricultural Land Trust (TALT), who is an Accredited Land Trust by the Land Trust Accreditation Commission, a national accreditation organization. A draft conservation easement will be submitted with the draft MBI. The conservation easement will be filed upon execution of the final MBI.

The Sponsor recognizes that the transferring of sponsorship of the Bank to another party in the future will require approval from the USACE. The USACE reserves the right to review and approve any party to whom responsibility for construction, maintenance, or monitoring may be transferred under the MBI.

3.8 BASELINE INFORMATION

TOPOGRAPHY

The Bank is situated within a natural valley between two adjacent ridges on the northwest and southeast boundaries. The topography within the floodplain is 0-1% slope toward the downgradient with flat pimple mound landforms. Adjacent to the floodplain, slopes range from 0-2% to 3-5% with interfluves landforms. The highest elevation (107 ft) occurs at the southwest corner of the Bank, with the northeast boundary as the lowest elevation (93 ft). A majority of the Bank is located within the 100-year FEMA floodplain of Trout Creek (FEMA Panel No. 48241C0450D, 12/17/2010).

The USGS topographic maps (Kirbyville, TX sheet) depict the convergence of three intermittent streams within the Bank boundary. The primary drainage area encompasses approximately 159 acres and directs stream flows towards the intermittent stream network in the central portion of the Bank site. The main intermittent stream (UT 1) flows through the Bank collects flow from both unnamed tributaries (UT 2 & UT 3) before conveying flow in a general northeastern direction towards Trout Creek located approximately 0.3 miles outside of the Bank footprint. Trout Creek is depicted as a perennial stream that flows approximately 7.5 miles in a general southeastern direction to Big Cow Creek. Big Cow Creek is a perennial stream that flows approximately 5.5 miles in a general southeastern direction and is a major tributary to the Sabine River (Attachment A, Figure 2a).

GEOLOGY

According to the Geologic Atlas of Texas map (Beaumont Sheet, 1992), most of the Bank footprint is mapped within an outcrop area of the Lissie formation (Ql), with some of the downgradient portion mapped within the Beaumont formation— predominantly sand (Qbs) (Attachment 1, Figure 6). The Lissie formation is described as a fairly flat surface and featureless, except for rounded, shallow depressions and pimple mounds. The Beaumont formation is described as including level relief with local mounds and ridges.

SOILS

The association of soils found here are typical of the South-Central Prairies. A soil map is provided in Figure 4 of Attachment A. Acreage associated with the Bank is underlain by the following soil types: Sorter-Dallardsville complex, 0 to 1 percent slopes (SomA); Otanya very fine sandy loam, 3 to 5 percent slopes (OtbC); and Kirbyville fine sandy loam, 0 to 2 percent slopes (KibB). Soils range from moderately well-drained on interfluvial locations to poorly drained along the flat pimple mounds in the lower areas. Approximately 90% of the potential project footprint is mapped as Sorter-Dallardsville complex and is rated as 33 to 65% hydric. The hydric soil indicators observed include Depleted Matrix (F3) and Redox Dark Surface (F6). A detailed soils report is included within the wetland delineation (AJD) which was submitted separately on July 22nd, 2021.

HYDROLOGY

Hydrologic conditions of the Bank are derived directly from the water table (seasonal availability). Surface water flow (sheet flow) occurs from the north, west and south and generally drains toward the center of the property into the main unnamed tributary that flows through the property. Very fine, sandy loamy soil is found throughout upper horizon across most of the Bank, resulting in high runoff and convex microtopography. Microtopography increases water accumulation and storage within the Bank footprint. Precipitation collects in the riparian buffer until surface water either infiltrates or drains via sheet flow into the intermittent streams before being directed downstream into Trout Creek. Notably, alterations in surface features due to agricultural or drainage activities have resulted in increased surface water runoff and erosion issues in certain areas and poor drainage patterns and ponding in others.

During the field investigation, three intermittent streams (Unnamed Tributaries 1, 2, and 3) were delineated within the bank footprint. Stream classifications for each tributary were determined using ordinary high-water mark (OHWM) indicators, as well as geomorphology, hydrology, and biological attributes. Descriptions of each delineated tributary are included in the following paragraphs.

Unnamed Tributary 1 (Intermittent, 4,783 LF): Unnamed Tributary 1 (UT-1) is the primary tributary flowing through the largest drainage basin within the Bank. The tributary flows in a northeasterly direction and can be characterized as having a well-defined channel distinguishable along its entire length. Impacts resulting from unrestricted cattle access, road crossings and drainage activities are abundantly evident along the length of the delineated stream. As a result, the stream is deeply incised (exhibiting varying levels of disconnection with the floodplain), lacks defined and appropriately sequenced bed features, and has an altered channel geometry and unstable bank characteristics.

Unnamed Tributary 2 (Intermittent, 595 LF): Unnamed Tributary 2 (UT-2) is located within a minor valley in the north-central segment of the Bank. Originating at a small pond located approximately 725 feet north of the project boundary, the stream channel is well defined with typical characteristics of an intermittent stream in the upper reaches but becomes indistinguishable from buffering emergent wetland habitat within the downgradient reaches, due to decades of agricultural management. As a result, UT-2 can currently be characterized as flowing in a general southeastern direction and discharging into an emergent wetland approximately 400 feet short of the intersection point with UT-1. As a result of the disrupted channel characteristics, water accumulates and ponds in the emergent wetland before moving as sheet flow, eventually draining into UT-1.

Unnamed Tributary 3 (Intermittent, 473 LF): Unnamed Tributary 3 (UT 3) is located within a minor valley in the southwestern quadrant of the Bank with a watershed that is influenced by a blend of residential and rural property, as well as drainage from Highway 82. Intermittent characteristics become apparent

approximately 1000 feet south of the Bank boundary, at the confluence of multiple ephemeral drains and a constructed pond. Within project boundaries, the stream can generally be described as flowing in a northernly direction for 473 feet until its confluence with UT-1. The stream can be characterized as being moderately incised with simplified channel geometry, limited floodplain connection, and marginal riparian buffer habitat. The UT-3 reach is also impacted by multiple vehicular and livestock crossings.

The riparian habitat adjacent to the unnamed tributaries can best be described as managed cattle pasture. While site conditions vary throughout the project site, a majority of the habitat continues to maintain conditions capable of supporting wetland dominated plant communities. The most common primary wetland hydrology indicators observed throughout the delineated wetlands were Surface Water (A1), High Water Table (A2), Saturation (A3), and Inundation Visible on Aerial Imagery (B7). The most common secondary wetland hydrology indicators observed with the Bank site were Crayfish Burrows (C8), Geomorphic Positions (D2), and wetland positive FAC-Neutral Tests (D5).

VEGETATION

The historic vegetation of the Bank was most likely a mixed-pine hardwood flatwoods community, with softwoods such as longleaf (*Pinus palustris*) and loblolly pine (*Pinus taeda*) and hardwoods including, oaks (*Quercus* spp.), ash (*Fraxinus* spp.), and sweetgum (L*iquidambar styraciflua*).

Image 4. The primary stream channel, UT 1, on the left with the confluence of UT 3 and small cattle pond to the right.

Current habitat within the Bank consists of improved cattle pasture, dominated with Bermuda grass, Bahia grass, smut grass, and Vasey grass with very few woody species. Woody species along the streambank include Chinese tallow, black willow, and occasional water oaks.

Vegetation community descriptions are provided for the landforms occurring within the Bank, highlighting dominant and common species observed during field investigation. The open, herbaceous areas of the Bank have been heavily grazed and managed for forage production, which has reduced the presence of native wetland vegetation. In accordance with the 1987 Wetlands Delineation Manual and 2010 supplement, dominant plant species were used to determine the percent of hydrophytic vegetation present, see the wetland delineation report submitted on July 22nd, 2021. Vegetation nomenclature follows USDA, "The PLANTS Database" and the 2018 National Wetland Plant List (USDA 2021 and USACE 2018).

The six major landforms identified within the project bank footprint, can be categorized at 1) ridge, 2) side-slope, 3) mound, 4) inter-mound, 5) swale, and 6) depression. A general description of the vegetative communities occurring within each landform class is provided as follows:

Ridge, Sideslope, and Mound: Ridge, sideslope, and mound landforms are dominated by upland plant communities. The composition of vegetation within the upland areas is more facultative (FAC) in

nature. Dominant species include Bermuda grass (*Cynodon dactylon*) and Bahia grass (*Paspalum notatum*). Other less dominant species include smut grass (*Sporobolus indicus*), Vasey's grass (*Paspalum urvillei*), swamp smartweed (*Polygonum hydropiperoides*), fragrant flatsedge (*Cyperus odoratus*), bull thistle (*Cirsium vulgare*), little bluestem (*Schizachyrium scoparium*), manyflower marshpennywort (*Hydrocotyle umbellate*), and lamp rush (*Juncus effusus*).

Inter-mound, Swale, and Depression: Inter-mound, swale, and depression landforms are dominated by wetland plant communities. Because these landforms are managed as pasture, dominant vegetation consists primarily of various sedges and rushes. Depending on location within the Bank, dominate species may include broom-sedge (*Andropogon virginicus*), eastern woodland sedge (*Carex blanda*), wand panic grass (*Panicum virgatum*), globe flat sedge (*Cyperus echinatus*), Vasey's grass (*Paspalum urvillei*), and/or lamp rush (*Juncus effusus*).

3.9 PRELIMINARY DELINEATION OF POTENTIAL WATERS OF THE U.S.

A preliminary Wetland Determination/Delineation (WDD) field investigation was conducted on January 1st, 2021 by Hydrex Environmental and provided to the USACE on July 22nd, 2021, after review by CEP. The Sponsor is currently awaiting the final Approved Jurisdictional Determination (AJD). Copies of the delineation and functional assessment reports, as well as an addendum to these reports, can be referenced in Attachment B.

During the field investigation, three intermittent streams, emergent wetlands, and an open water feature were delineated within the Bank boundary and appear to have obvious hydrologic connections to WOTUS in a typical year based upon landscape position relative to on-site or off-site streams. It should be noted that due to the timing of the field investigation and bank footprint determination, the delineation report encompasses a larger tract of land than is being proposed as the Bank.

In the course of the field investigation, a majority of the riparian buffer (100 ft) and extended riparian buffer (100-200 ft) habitat was found to contain jurisdictional features. The preliminary WDD within the bank boundary found 21.65 acres of potential WOTUS, including 21.4 acres of emergent wetlands and 5,851 linear feet (1 acre) of intermittent stream exhibiting an ordinary high-water mark (OHWM). Preliminary delineated streams and riparian wetlands can be referenced in Table 2.

The wetland delineation boundary extended beyond the CJMB limits. The following table represents the extended wetland delineation boundary.

Table 3. Existing aquatic resource types within the potential Bank footprint and extended wetland delineation boundary, Jasper County, Texas.

Feature ID	Current Resource Type	Linear feet	Acres
Stream UT-1	Intermittent	4,783	0.86
Stream UT-2	Intermittent	595	0.10
Stream UT-3	Intermittent	473	0.05
Wetland A*	Emergent	N/A	2.70
Wetland B	Emergent	N/A	18.28

Wetland C	Emergent	N/A	3.12
Wetland D	Emergent	N/A	34.78
Wetland E*	Emergent	N/A	0.23
Wetland F*	Emergent	N/A	0.50
Wetland G*	Forested	N/A	0.72
Wetland H*	Forested	N/A	1.77
Pond 1	Open Water	N/A	0.25
Pond 2*	Open Water	N/A	2.00
	Totals	**5,851**	**65.36**

*Indicates aquatic resources outside CJMB boundary.

3.10 THREATENED AND ENDANGERED SPECIES

Threatened or endangered species listed in the USFWS' Information for Planning and Consultation (IPaC) include the piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), red-cockaded woodpecker (*Picoides borealis*), Louisiana Pinesnake (*Pituophis ruthveni*), and Navasota Ladies-tresses (*Spiranthes parksii*) (USFWS 2021a). Based upon USFWS criteria, there are no critical habitats occurring within the Bank footprint (Attachment H).

The interior piping plover and red knot are shorebirds known to winter along the Texas Gulf Coast and, as a result, may occasionally fly over the Bank site. However, due to the distance from the coast and species-specific habitat requirements, the Bank site does not contain wintering, nesting, or breeding habitat. As a result, development of the Bank and its associated land management activities will have no effect on these species.

The Bank footprint does not contain nesting or foraging habitat suitable for the red-cockaded woodpecker or Louisiana pinesnake. The red-cockaded woodpecker and Louisiana pinesnake require old-growth pine forests generally maintained by frequent, low-intensity burns to limit hardwood encroachment and to maintain an open "savannah" like habitat. As a result, development of the Bank and its associated land management activities will have no effect on these species.

Navasota Ladies-tresses is "a small white flowered orchid occurring only in association with the Post-Oak Savannah vegetation type within Robertson, and Burleson Counties, Texas" per Recovery Plan published in 1984 (USFWS 2021c). While the known habitat range has expanded to include portions of southeast Texas with mesic alluvial floodplain, intensive land use concentrating on agricultural and grazing history within Bank footprint precludes presence. As a result, the Bank will not have an effect on these species.

Development of the Bank and associated activities will result in no negative impacts to state or federally listed threatened and endangered species. The Bank, as proposed, will enhance a beneficial wildlife corridor, important herpetofauna/amphibian habitat, and critical resting and "stop over" habitat for neotropical migrant songbirds. This beneficial wildlife corridor and habitat is further complimented and enhanced by the wildlife habitat associated with the nearby Big Thicket National Forest, Neches Bottom and Jack Gore Baygall Unit, EO Siecke State Forest, Angelina National Forest, Sabine Nation Forest, Sabine Island Wildlife Management Unit, and Clear Creek Wildlife Management Area. Reducing sediment runoff from the Bank site will improve water quality within Trout Creek and Big Cow Creek—a major tributary to

the Sabine River and ultimately the Sabine Lake systems, benefitting aquatic organisms such as fish and mussels.

3.11 CULTURAL RESOURCES

A desktop evaluation for the proposed Bank footprint was conducted in January 2021 by Stone Point Services, provided in Attachment C. As part of this desktop evaluation, the Texas Archeological Sites Atlas, and the National Register of Historic Places (NRHP) database were reviewed to identify previous surveys and recorded archeological sites within 1.6-kilometers (1-mile) of the Bank footprint. The purpose of this investigation is to identify the likelihood that unidentified archeological or historic resources are present within the Bank boundaries.

Three prehistoric archeological sites, two historic archeological sites, and five previous archaeological surveys have been identified within 1.6-kilometers (1-mile) of the Bank footprint. While the Bank has not previously been surveyed for cultural resources, the potential exists for prehistoric and historic resources to be present within proximity of the unnamed tributaries and upon nearby upland landforms.

A full field survey will be conducted and submitted with the draft MBI in accordance with requirements specified in the 2008 Compensatory Mitigation for Losses of Aquatic Resources, Final Rule.

3.12 DETERMINATION OF CREDITS

Ecological uplift (stream credits) generated at the CJMB project will be calculated using the 2013 Galveston District Stream Tool (Stream SOP) (USACE 2013). Sponsor will calculate credit generation using the following considerations (see below) with additional details pertaining to credit generation methodology, release schedule, and accounting to be provided in the draft MBI.

In accordance with the Galveston District Stream Tool:

- Re-establishment credits will be achieved through manipulation of the physical, chemical, and biological characteristics of the site with the goal of returning natural/historic functions to a former or degraded aquatic resource (e.g., stabilizing dimension, pattern, and profile through in-channel work). Re-establishment shall result in a net gain in aquatic resource.
- Enhancement credits will be achieved via the manipulation of the physical, chemical, or biological characteristics of a site to heighten, intensify, or improve a specific aquatic resource function(s). Successful enhancement will result in a gain in aquatic resource functions but may not result in a gain in aquatic resource area(s) (e.g., channel stabilization and buffer work).
- Riparian buffer credits are achieved through the restoration/enhancement of the forested system in a primary buffer (0 ft – 100 ft) and secondary buffer (100 ft – 200 ft).
- Increased compensation can be generated for riparian buffers where medium to high quality wetlands are created, enhanced, or restored in addition to in-stream construction.

A credit release schedule will be developed after coordination with the USACE and IRT. A portion of the total credits will be released upon the filing of the conservation easement and execution of the forthcoming MBI as these activities have the immediate effect of preserving a property in perpetuity; whereas the remainder of the credit releases will be dependent on milestones and the achievement of

the overall success criteria. These details, as well as performance standards will be provided in greater detail within the forthcoming MBI.

The Sponsor shall also be responsible for the management of the compensatory mitigation credit accounting system that documents all credit transactions. All credit and debit transactions will be recorded in a ledger database and submitted to appropriate agencies (i.e. the USACE/IRT) upon sale/receipt.

3.13 MITIGATION WORK PLAN

The Mitigation Work Plan encompasses the overall design of the stream channel; restoration and enhancement of riparian zones; performance and monitoring requirements; as well as credit generation and release; will be constructed and provided in the forthcoming MBI.

3.13.1 STREAM RESTORATION

Objectives of the proposed Bank will be to re-establish approximately 7,192 linear feet of degraded intermittent streams, enhance 473 linear feet of intermittent streams, and re-establish 48.6 acres of riparian buffer forests. In conducting the proposed restoration/re-establishment and enhancement activities, the Sponsor plans to utilize the Natural Channel Design (NCD) approach developed under Dave Rosgen. Per the Stream SOP, priority levels will be classified and constructed as follows:

- Priority 1 involves the re-establishment of a stable C or E channel type on the original floodplain by constructing a new channel or using a relic channel, if available.
- Priority 2 involves creating a stable C or E channel type and re-establishment of a new floodplain at the bankfull elevation of the existing channel bed or higher but not at the elevation of the historical floodplain.
- Priority 3 is the modification to existing channels and floodplains at the current elevation to create a stable B or Bc stream type. The best use of this restoration priority is in-stream projects that have historic and contemporary purposes associated with flood management.
- Enhancement credits are given in all other situations when only two of the following three geomorphic variables are addressed to produce a stable channel: dimension, profile, and pattern.

Utilizing NCD criteria, the Sponsor has used local and regional reference reach data to develop a geomorphic design criterion for stable restored channels. The reference reach stream selections are based on stream type and valley type of the proposed restored streams. Key components for reference reach selection include a desktop review of the watershed and observable field indicators of stream stability at each reference location. The selected stream reference reaches for these streams indicated no observable alterations to the watershed, provided valuable information regarding natural stream stability and equilibrium, and were applied to multiple proposed restoration reaches within the Bank.

It should be noted that reference reaches identified are representative of streams from which they were surveyed and provide information that was scaled and utilized for the proposed restoration reaches of the same stream type. This was accomplished by analyzing fluvial geomorphic measurements of the reference streams and using that data to generate multiple dimensionless ratios that accurately characterize relationships between contributing drainage areas and restoration reach

design criteria for dimension, pattern, and profile. The reference reach cross sectional data can be viewed in Attachment E.

Enhancement activities will include the removal of cattle and cessation of grazing, adjustments to channel dimensions including width/depth ratio, and development of more defined bed features through the use of woody structures (e.g., log vanes, log j-hooks, etc.). Along with in-channel restoration, riparian buffers with a width of 200' (400' in total) will be designated and planted with appropriate native woody species.

In-channel construction will entail above-grade natural woody structures that are specifically designed for bank stabilization, grade control, water quality, and habitat development. Proposed structures include, but are not limited to, log cross-vanes, j-hook vanes, native material revetments, log-vanes, constructed riffles, and step-pools. The structures will be constructed solely of native materials. Concept drawing of proposed stream restoration reaches along with typical structure designs are included in Attachment E.

All existing and proposed re-establishment and enhancement channels have been subdivided into distinct segments (stream reaches) based on value type, site topography, drainage, and treatment application, with individual morphological criteria developed for each reach. Selected morphological characteristics and a brief description of the channel work along with the associated structures for each of the distinct restoration types is included below.

RE-ESTABLISHMENT

The re-establishment process targets the restoration standards set forth in the Restoration and Re-establishment Priorities section of Chapter 3 per the Stream SOP. This process supports re-establishment of the stream's biological, chemical, and physical integrity, including transport of the water and sediment produced by its watershed in order to achieve dynamic equilibrium.

The Sponsor and associated consultants, Engineering303, evaluated the existing streams relative to reference stream data and determined that the Bank site streams are incised, lack appropriate channel dimensions, and contain poorly defined bed features (i.e., riffles and pools) that are out of sequence (i.e., length and spacing) relative to reference streams. The unstable nature of the existing streams has resulted in channel incision and bank erosion, which has further disrupted the streams' hydrologic connectivity with respective floodplains and associated riverine wetlands. Given these findings, there were no existing stream reaches that could be integrated into the design in a manner that would result in the restoration of stable and sustainable streams.

UT 1a, 1b, and 1c are proposed re-establishment reaches along the main intermittent channel that traverses the Bank. The drainage areas of UT 1a, 1b, and 1c are 0.08 square mile, 0.22 square mile, and 0.45 square mile, respectively. The combined existing length of the three proposed re-establishment reaches totals 4,783 feet. All three reaches occur in a broad, flat valley best classified as a Rosgen valley type VIII. Existing channels associated with UT 1a, 1b, and 1c were channelized and/or backfilled in the past to drain the adjacent riparian areas and to provide additional land for grazing.

The restoration of the three UT 1 reaches will result in the re-establishment of 5,720 LF of channel to reflect the pattern derived from reference reach data. UT 1's existing wide floodplain will be utilized to re-create a C5 stream type. Specific design criteria vary slightly between the reaches strictly due to

the marginal difference in contributing drainage area. The design criteria are indicative of C5 stream types with a very flat valley slope, (0.0034, 0.0030, and 0.0050 vertical foot change per linear foot). Design width/depth ratios will average 15.0 with a bank height ratio of 1.0 (Attachment E).

UT 2 is a proposed intermittent re-establishment reach that is a tributary to UT 1. UT 2 has an existing length of 595 feet and a drainage area of 0.09 square mile. This reach also occurs within a valley that is classified as a Rosgen valley type VIII. Similar to UT 1, the channel has been altered in an attempt to improve grazing productivity. The restoration of UT 2 will include the re-establishment of 1,472 LF of historic channel to reflect a pattern derived from reference reach data. UT 2's existing wide floodplain will be utilized to restore a C5 stream type. Design criteria are indicative of C5 stream types with a very flat valley slope (0.0048 vertical foot change per linear foot). Design width/depth ratio will average 15.9 with a bank height ratio of 1.0 (Attachment E).

A variety of structures will be used to restore and stabilize the channels including log J-hook vanes, toe-wood, scour logs, log cross-vanes and flow-thru vanes. These structures will introduce woody material into the channel, reduce near bank stress, maintain pool depth, and provide grade control. As a result, suitable aquatic habitat will increase, and sediment transport competency will be restored.

UT 1 and UT 2 will be designed as C-type streams; however, there is a strong likelihood of both streams evolving into E-type streams over time. The primary reason for not designing E-type streams from the beginning is due to stabilization concerns. E-type streams have lower width/depth ratios and steeper banks than C-type streams. Under natural conditions E-type streams are able to develop and maintain their channel forms through dense vegetative growth. However, in the case of stream restoration projects, E-type streams are difficult to stabilize because the steepness of the banks does not create conditions that are conducive to implementing proven stabilization methods such as installing erosion control matting (e.g., coir fabric) and transplanted vegetation (e.g., live cuttings, herbaceous plantings, mats, shrubs with root mats, etc.). In contrast, C-type streams have flatter banks that are more readily stabilized with fabric and vegetation, both of which are essential to stabilizing graded soils during the initial "grow-in" period (i.e., the period of time that occurs before shallow and deep-rooted vegetation becomes established along the banks). In addition, a C-type stream's wider and shallower channel cross section reduces shear stress along the banks by decreasing water depths within the channel. Further, point bars, which are also characteristic of C-type streams, provide depositional surfaces within the channel that are also important during the initial grow-in period.

ENHANCEMENT

The enhancement process will target restoration standards set forth in the Restoration and Re-establishment Priorities section of Chapter 3 per the Stream SOP. This process supports the enhancement of the stream's biological, chemical, and physical integrity, including the transport of the water and sediment produced by its watershed in order to achieve dynamic equilibrium.

Planned enhancement activities for UT 3 will manipulate the physical, chemical, and biological characteristics to heighten, intensify, or improve specific aquatic resource functions. UT 3 is an intermittent stream with a drainage area of 0.14 square mile that contains a small residential development. UT 3 drains from the west through a culvert under a railroad and then flows approximately 473 feet before joining UT 1 in the western portion of the Bank. Enhancement will include installing a plunge pool on the downstream end of the culvert to reduce the velocities of flow discharging from the culvert and manage sediment contributions from reaches occurring upstream of the railroad. The existing channel will be stabilized by constructing bankfull benches on both sides of

the existing stream. These activities will result in improved floodplain access, more efficient sediment transport, and a reduction of near bank stress resulting in overall greater channel stability with dramatically reduced bed and bank erosion rates. The downstream-most, approximately 90 feet of UT3 will be realigned using Natural Channel Design to create a stable transition to the proposed UT1.

Contributing impacts resulting from unmanage cattle access include a lack of desirable buffer vegetation. Buffer plantings in these areas will enhance UT 3 by returning the native bottomland hardwood vegetation to its proper condition. Please refer to the following Section 3.13.2, for a more detailed description of the vegetative restoration plan.

Several types of wooden structures will be used to further stabilize enhancement reaches, including log J-hook vanes, toe-wood, scour logs, and root wads. Use of log-n-roll structures will also be employed specifically at UT 3 to establish reliable grade controls while achieving proper slope to maintain the streams' confluence with UT 1. These structures will introduce stable and beneficial woody material into the channel, reduce near bank stress, maintain pool depth, as well as provide grade control. As a result, habitat will be improved, and stream bed/bank erosion will be minimized.

3.13.2 SITE PREPARATION AND PLANTING

A forested wetland community and upland buffer will be re-established through the planting of native hardwood seedlings (i.e., 400+ stems per acre of hard and soft mast). Additional actions will include restriction of cattle, establishment of fencing, and invasive species control.

RIPARIAN BUFFER PLANTING

Site preparation will consist of removing cattle and removing exotic species. Exotic species will be removed/controlled with herbicide (e.g. broadcast and spot spraying). Once the initial control treatment is completed, any remaining, sprouting, or germinating stems will be spot treated again.

To restore the native forest and provide added exotic species control, re-establishment areas will be planted with native species that have wetland indicator statuses of FAC or wetter in lower elevations and FAC or dryer in higher elevations. The proposed planting species list will comprise the tree species that would naturally occur within forested floodplains and on the high and low terraces; mixed-pine hardwood flatwoods community. Planting will likely occur from January through February at a rate no less than 400 stems per acre. Site preparation for seedling establishment (i.e., bedding and/or disking) will take place, and a planting ratio mixture of hard- and soft-mast species will be utilized. Details regarding the planting list, planting ratio, species quantities, planting time, and site preparation will be provided in the forthcoming MBI.

Due to the number of stems required for planting, tree seedlings will be provided by commercial nurseries using seeds collected within similar temperature regimes and plant hardiness zones within the Western Gulf Coastal Plains and South-Central Plains Level III Ecoregions (USEPA 2003). Notably, ecologically based performance standards will be developed to ensure that Bank goals and objectives are being met in accordance with credit release events. These details will be provided in the forthcoming MBI.

3.14 MONITORING AND MANAGEMENT

Sponsor will monitor and manage all aspects of the Bank until the Bank enters the long-term management phase. The Sponsor will use prudent efforts, (i.e., physical, chemical, or mechanical) to eliminate existing noxious and/or invasive vegetation currently listed by the Texas Department of Agriculture Noxious and Invasive Plant List, Attachment J (Title 4, Part 1, Chapter 19, Subchapter T, §19.300 of the Texas Administrative Code) (TDA 2007). In addition to invasive plants species, the Sponsor will implement techniques/methods to control nuisance, invasive wildlife species (e.g., feral hogs; *Sus scrofa*) on an as-needed basis.

Following completion of construction activities, the Bank will be monitored and inspected annually for plant community development, invasive species colonization, and abiotic/biotic factors affecting tree or herbaceous shrub establishment and growth. Wetland hydrology will also be monitored through the placement of water-level recorders. Monitoring will determine if adaptive management measures are required such as replanting and adjustments to invasive species control measures. The Sponsor anticipates that invasive species control will be implemented annually over the first five (5) years following construction and as-needed following Year 5. The Sponsor will continue to monitor the Bank through annual inspections to document the following:

- The establishment of a forested vegetation community in accordance with performance standards;
- The establishment of stable re-establishment and enhancement reaches in accordance with geomorphic performance standards;
- The effectiveness of invasive species control efforts;
- The extent and degree of exotic / nuisance species present;
- The extent and degree of any herbivory or insect damage;
- The extent and degree of adverse climate impacts (i.e., drought); and,
- The need for boundary maintenance (e.g., gates, signage, fencing, boundary marking, etc.)

Additional details regarding the monitoring plan and ecological and geomorphic performance standards will be provided in the MBI.

3.15 CONSTRUCTION METHODS, TIMING, & SEQUENCE

At this stage, design concepts are being developed to meet the goals and objectives of the Mitigation Work Plan, including the restoration of stable streams and establishment of forested riparian buffers. Irrespective of final construction methods, the plans for timing and sequence will ensure that the proposed mitigation activities will have “no effect” on federally listed species (seasonally or otherwise; refer to Section 3.10 Threatened and Endangered Species) and sites that may be eligible for listing in the National Register of Historic Places.

3.16 MINERAL MANAGEMENT PLAN

Mineral rights are not owned by the Bank Sponsor and are currently held by Southwestern Settlement and Development Corporation & Houston Oil Company of Texas. There are no active oil and gas wells on or near the Bank site. Recognizing that surface landowners in the State of Texas cannot wholly control a mineral owner’s access to those minerals, a Mineral Management Plan (MMP) will be developed by

Sponsor to reduce the risk of such activities having a negative effect on the Bank. The MMP will be outlined in the forthcoming MBI.

3.17 FINANCIAL ASSURANCES

Per 33CFR332, the Sponsor will provide sufficient financial assurances (FA) to ensure a high level of confidence that the compensatory mitigation project will be successfully completed and maintained in accordance with the performance standards. The Sponsor possesses sufficient financial resources, considering inflation, to establish FA that can be used by a third party (at the direction of the USACE) to ensure compliance with the requirements of the MBI in the event that the Sponsor is no longer able or willing to operate the Bank in compliance with the MBI. The FA will be sufficient to provide for maintenance and operation of the Bank's activities, monitoring, reporting, and any remedial actions that might be necessary during the active management phase of the Bank (i.e., prior to bank closure). The type and amount of the FA will be determined in accordance with the SWG Guidance on Financial Assurances and will be detailed in the forthcoming MBI. Failure to maintain the financial assurance described herein shall constitute good cause for suspending or terminating operation of the Bank. However, prior to taking such action, the USACE shall provide written notice and a reasonable opportunity for the Sponsor to correct any alleged financial assurance deficiencies.

3.18 BANK ESTABLISHMENT

The Bank will be developed in accordance with the CMLAR §332.8(d)(6) and the Galveston District's 2014 Stream Condition Assessment Standard Operating Procedure (Galveston SOP), which establishes the requirements for assessing stream functions, evaluating compensatory mitigation projects, and determining compensation and credits in the Galveston District. A Level I assessment (Section 1) was conducted to evaluate intermittent streams. Following the completion of the Level 1 baseline assessment, the design plan was developed in accordance with the Galveston SOP. The design plan is provided in Attachment E. Credits generated from implementation of the design plan will be determined using the Galveston SOP, Section 5 (Determination of Compensation). Details regarding bank operations and establishment will be provided in the forthcoming MBI.

3.19 CREDIT RELEASE SCHEDULE

A credit release schedule will be provided in the forthcoming draft MBI. Credit releases shall be contingent on the Bank's compliance with all terms and conditions of the Nationwide Permit and the MBI including any and all revisions, modifications, or amendments thereof. The USACE, in collaboration with the IRT, will grant credit releases after the Sponsor demonstrates compliance with administrative milestones and/or data collected during annual monitoring confirms that the Bank is complying with its approved ecological and geomorphic performance standards (Martin et al. 2005, CMLAR 2008). In no event will credits be debited before they are released by the USACE. If it is determined during monitoring that the number of credits generated on-the-ground exceeds the cumulative number of credits already released to the Sponsor, then the USACE will release these additional credits to the Sponsor upon the USACE's verification of the monitoring results.

3.20 ANY & ALL EXISTING AND FUTURE EASEMENTS AND/OR ENCUMBRANCES

All non-compatible easements/encumbrances will be excluded from the creditable acreage of the Bank. A description of existing easements and encumbrances will be compiled and included in the forthcoming MBI.

An attorney's Opinion of Title, the owner's existing title policy, and a survey with legal description of the Bank showing existing easements and encumbrances as identified in the title document are provided in Attachment I. Notably, the easements or encumbrances associated with the existing oil and gas and electrical transmission rights-of-way (ROWs) occurring within the proposed Bank noted within the attorney's opinion of title and title policy are excluded from the creditable acreage of the Bank, as is customary.

Upon approval of the MBI by the USACE, the Bank Sponsor will execute a conservation easement (CE) using the USACE Galveston District's standard template. The CE will be filed publicly at the Jasper County Clerk's office. A draft CE is provided herein as Attachment F.

3.21 WATER RIGHTS

The current hydrologic regime, permanent to semipermanent inundation, is anticipated to persist indefinitely. There are no reservoir projects planned in this section of the Sabine River (Texas draft 2017 state Water plan). Texas surface water is owned by the State and held by the State in trust for public use. The right to utilize this public resource (a "water right") is governed by a dual-doctrine system created from merging the riparian and prior appropriation doctrines. Since 1913, surface water rights (both perpetual and limited term) are granted by permits awarded by the Texas Commission on Environmental Quality (TCEQ). Currently, Texas State law prohibits the issuance of water rights permits for instream flows for environmental needs (§ 11.0237, TX Senate Bill 3, Texas Water Code).

The Sabine River Compact, an agreement between Texas and Louisiana, establishes a minimum flow rate within the Sabine River. Any unappropriated water in the lower reach of the Sabine River below the junction of the Sabine River and the Texas/Louisiana Stateline (not contained in or released from a reservoir) is divided equally between the two states. In addition, any reservoir proposed for construction below the Sabine/Stateline junction is subject not only to approval by both Texas and Louisiana but also by congressional approval as the Sabine River is an interstate navigable water.

In the portion of the Sabine River Basin located in Texas, the Sabine River Authority (SRA) possesses most of the senior water rights both above and below Toledo Bend Reservoir and maintains run-of-the-river (aka "diversion") rights in Newton and Orange Counties. SRA holds water rights of 238,100 ac-ft. per year from Lake Tawakoni, 188,660 ac-ft. per year from Lake Fork, 750,000 ac-ft. per year from Toledo Bend Reservoir, and 147,100 ac-ft. per year from the Sabine River. The reliable supply from SRA's Lower basin sources (Toledo Bend Reservoir and Canal System) is approximately 1.3 million ac-ft. per year (ETRWP 2011). As a result of the ownership of these water rights as relates to the Sabine River Compact, the SRA is the primary responsible party to assure the minimum downstream flow to Sabine Lake.

In 2007, the 80th Texas Legislature created the Environmental Flows Advisory Group. The group was tasked with establishing appropriate environmental flow standards for each river basin and bay system in the state. Subsequently, The Sabine and Neches Rivers and Sabine Lake Bay Environmental Flow Standards

were established by the TCEQ (2012) from recommendations made by the Basin and Bay Area Stakeholder Committee (BBASC) and the Bay and Basin Expert Science Team (BBEST). These flow standards were established in order to maintain the substantially sound ecological environments of the Sabine and Neches Rivers, their associated tributaries, Sabine Lake Bay, and the associated Sabine Neches estuary. Summarizing the effects of the established standards: "The commission [TCEQ] finds that these sound ecological environments can be maintained by a set of flow standards that implement a schedule of flow quantities that contain subsistence flow, base flow, and one level of high flow pulses at defined measurement points." (TCEQ 2012).

As such, future water rights permitting in these river basins are subject to the established subsistence, base, and high flow pulse requirements. Therefore, it is anticipated and expected that the existing hydrologic regime in the Sabine River Basin will remain, at a minimum, at its present state, even in the presence of additional permitting of junior water rights. In summary, the BBEST (2009) states, "Climatic conditions and flood events are expected to produce these levels of flow even with full use of existing water rights and realistic projections of water supply development." Their findings further state, "evidence indicates that high-pulse flows and overbank flows will provide sufficient flow to maintain the existing dynamic equilibrium within these two riverine basins [Sabine and Neches]." For more information, please see the document entitled, Environmental Flows Recommendation Report: Final Submission to the Sabine and Neches Rivers and Sabine Lake Bay Basin and Bay Area Stakeholder Committee, Environmental Flows Advisory Group, and Texas Commission on Environmental Quality.

Per review of the Texas Commission on Environmental Quality's (TCEQ) water rights database, water use is not listed for the Bank (TCEQ 2020) and historic water use data did not indicate any water purchases. Restored functional stream channels within the Bank will not require the use of public water or a TCEQ Water Use Permit because restored streams will utilize natural processes and will not create any on-channel or off-channel reservoirs that artificially store, hold, retain, or divert water from state water sources beyond the ordinary function of forested wetland floodplain systems.

The hydrologic restoration of the Bank includes natural channel design, natural wooden in-stream features, and culvert/low water crossings for restored flow. No water that naturally flows onto or through the floodplain will be diverted or retained. Long-term hydrology maintenance will not involve or be dependent upon the utilization of water captured from irrigation wells or any Texas public water system.

As such, this information supports the conclusion that long-term site hydrology is naturally sustainable for the proposed Bank. Therefore, the acquisition and protection of water rights for environmental needs is not only unnecessary to assure sustainable site hydrology but already addressed by the state of Texas.

4. REFERENCES

Carlyle, Erin. 2015. America's Fastest-Growing Cities Forbes. Accessed May 29, 2019. http://www.forbes.com/sites/erincarlyle/2015/01/27/americas-fastest- growing-cities-2015/

CMLAR. 2008. Compensatory Mitigation for Losses of Aquatic Resources; Final Rule; Federal Register: (Volume 73, Number 70). US Government Printing Office, Washington, DC.

Conservation Equity Partners, LLC,. 2021. Wetland Delineation Report Call Junction, Jasper County, Texas.

Federal Emergency Management Agency [FEMA]. 2010. Flood Map Service: Map 48241C0450D. https://msc.fema.gov/portal/search

National Oceanic and Atmospheric Administration. Accessed August 25, 2021. https://www.weather.gov/wrh/Climate?wfo=lch

Orange Department of Economic Development Corporation. Accessed August 29, 2021. https://orangecountyedc.com/business-resources/additional-resources/

Sabine and Neches Rivers and Sabine Lake Bay Basin and Bay Expert Science Team. 2009. Environmental Flows Recommendations Report. http://businessdocbox.com/Green_Solutions /88248178-Sabine-and-neches-rivers-and-sabine-lake-bay-basin.html

Southern Regional Climate Center. 2021. Department of Atmospheric Sciences Texas A&M University https://www.srcc.tamu.edu/

Texas Administrative Code Title 4. Part 1. Chapter 19. Subchapter T. Rule §19.300 Noxious and Invasive Plants. 2013. https://texreg.sos.state. tx.us/public/readtac$ext.Tac Page?sl=R&app= 9& p_dir=&p_rloc =&p_tloc=&p_ploc=&pg=1&p_tac=&ti=4&pt=1&ch=19&rl=300

Texas Commission on Environmental Quality [TCEQ]. 2020. Water Rights Database and Related Files: Water Rights Database File. https://www.tceq.t exas.gov/assets /public/permitting /water supply/water_rights/applications/WRWaterUseData2000Through2014.xlsx.

Texas Commission on Environmental Quality. 2012. List of Impaired waters. https://www.tceq.texas.gov/waterquality/assessment/12twqi

Texas Comptroller. 2021. East Texas Initiative. Accessed August 31, 2021. https:// comptroller.texas. gov/programs/natural-resources/research/ongoing-studies/east-texas-initiative/ viewed

Texas Demographic Center. 2019. Texas Population Projections 2010 to 2050. https://demographics. texas.gov/Resources/publications/2019/20190128_PopProjectionsBrief.pdf

Texas Demographic Center. 2021. Demographic Trends and Projections in Texas. Texas Associated Press Managing Editors. Accessed October 16, 2021. San Angelo, Texas. Microsoft PowerPoint - 2021-10-16 Texas Associated Press Managing Editors

Texas Land Trends. Sabine River Basin. Accessed August 29, 2021. https://data.txlandtrends. org/trends/riverbasin/Sabine

The Portal of Texas History. Regional Water Plan: Region I (East Texas), 2016, Volume II. Page: Appendix 5B-A-114

UNESCO. What are the Goals of a Biosphere Reserve?. Accessed August 29, 2021. https://blbra.ca/faq_post/what-are-the-goals-of-a-biosphere-reserve/

United States Army Corps of Engineers. 2018. National Wetland Plant List, version 3.4. http://wetland-plants.usace.army.mil/

United States Army Corps of Engineers-Galveston District. 2013. Interim SWG Stream Condition Assessment Standard Operating Procedure

United States Department of Agriculture, Natural Resources Conservation Service, 1982, Soil Survey of Jasper and Newton Counties, Texas.

United States Geological Survey, 7-1/2 Minute Topographic Quadrangle Maps: Kirbyville, TX (1958, 1984, 2016)

United States Geological Survey, Geologic Atlas of Texas, Beaumont Sheet, Revised 1992.

United States Geological Survey, Light Detecting and Ranging, Digital Elevation Model: Neches River Basin Lidar. 2016.

United States Geological Survey. 2021. USGS TNM Hydrography (NHD). Accessed November 19, 2022. https://apps.nationalmap.gov/services/

USDA Natural Resources Conservation Service. 2020. Ecosystem Dynamics Interpretive Tool. Ecological site F152BY007TX Poorly Drained Loamy Upland. Accessed August 25, 2021. https://edit.jornada.nmsu.edu/

USDA, NRCS. 2021. The PLANTS Database. Accessed September 2, 2021. National Plant Data Team, Greensboro, NC USA. http://plants.usda.gov

USFWS. 2003. Recovery Plan for the Red-cockaded Woodpecker (Picoides borealis), Second Revision. Atlanta, GA: Southeast Region.

USFWS. 2021a. IPaC Information for Planning and Consultation. https://ecos.fws.gov/ipac/

USFWS. 2021b. Species Profile for Louisiana Pinesnake (Pituophis ruthveni) https://ecos.fws.gov/ecp/species/4092

USFWS. 2021c. Species Profile for Navasota ladies'-tresses (Spiranthes parksii) https://ecos.fws.gov/ecp/species/1570

USFWS. National Wetlands Inventory. Surface waters and Wetlands Interactive Map. https://www.fws.gov/wetlands/data/Mapper.html

White, S., Potter, L.B., You, H., Valencia, L., Jordan, J., Pecotte, B. 2016. Office of The State Demographer. Introduction to Texas Domestic Migration.

World Population Review. The 200 Largest cities in the United States By Population. 2021. https://worldpopulationreview.com/us-cities

Young, Angelo. 2011. Where People From Texas are moving the Most. https://247wallst.com/ special-report/2021/08/11/where-people-from-texas-are-moving-to-the-most/

5. ATTACHMENTS

Attachment A: Figures

1. Location

2a. Topography – USGS National Map

2b. Topography – USA Topo Maps, National Geographic

3. 2020 Aerial
4. Soils
5. NWI
6. Current Conditions
7. Service Area
8. Land Use within 1-mile radius
9. Historic Aerials
    a. 1938
    b. 1952
    c. 1958
    d. 1968
    e. 1976
    f. 1983
    g. 1996
    h. 2004
    i. 2005
    j. 2006
    k. 2008
10. Big Thicket National Preserve – Biosphere Preserve Area

Attachment B: Baseline Assessments (Previously submitted on July 22nd, 2021)

- Wetland Delineation
- Functional Assessment

Attachment C: Desktop Cultural Investigation

Attachment D: Phase 1 ESA Report

Attachment E: Concept Stream Plan and Geomorphic Reference Reach Data

Attachment F: Letter of Intent Texas Agricultural Land and Trust

Attachment G: Long-term Stewardship Fund Management Agreement

Attachment H: T&E IPAC Report

Attachment I: Title Commitment and Attorney Title of Opinion

Attachment J: Texas Department of Agriculture Noxious and Invasive Plant List

Attachment K: Site Photos: