IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
BEAUMONT DIVISION

UNITED STATES OF AMERICA and the STATE OF TEXAS, Plaintiffs, v. E. I. DU PONT DE NEMOURS and COMPANY and THE CHEMOURS COMPANY FC, LLC, Defendants.	Civil Action No. 1:20-v-556 JUDGE MICHAEL J. TRUNCALE

CONSENT DECREE ADDRESSING NATURAL RESOURCE DAMAGES

This Consent Decree is made and entered into by and between the United States of America ("United States"), on behalf of the Secretary of the United States Department of the Interior ("DOI") and the National Oceanic and Atmospheric Administration ("NOAA") of the Department of Commerce ("Federal Trustees"); the State of Texas, on behalf of the Texas Commission on Environmental Quality ("TCEQ"), the Texas General Land Office ("TGLO"), and the Texas Parks and Wildlife Department ("TPWD") ("State Trustees"); E. I. du Pont de Nemours and Company ("DuPont") and The Chemours Company FC, LLC ("Chemours") (collectively, "Settling Defendants").

BACKGROUND

A. Contemporaneously with the lodging of this Consent Decree, the United States, on behalf of the Federal Trustees, and the State of Texas, on behalf of the State Trustees, filed a Complaint in this matter against Settling Defendants pursuant to Section 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9607, and the Texas Hazardous Substances Spill Prevention and Control Act, Texas Water Code §§ 26.261–26.267. In the Complaint, the United States and the State of Texas seek (1) Natural Resource Damages, as defined herein, for the injury, loss, or destruction of natural resources, including the interim loss of the services or use of such resources, resulting from the release of hazardous substances at or from the "Complex" to the "Site," both of which are described below; (2) past costs incurred by the Trustees in assessing these Natural Resource Damages at the Site based on the release of hazardous substances; and (3) future restoration costs to be incurred by the Trustees in overseeing and monitoring the Restoration Project, as defined herein, to be undertaken by Settling Defendants.

B. The "Complex" is a group of facilities formerly owned and operated by DuPont on what is now called the Beaumont Works Industrial Park Complex. The approximately 751-acre Complex is located approximately seven miles south of Beaumont, off State Highway 347 in Jefferson County, Texas, and has been operating since 1954. Historical operations at the Complex's West Waste Management Area ("WWMA") have resulted in disposal there of hazardous substances, including Aroclors 1016 and 1260, cadmium, chromium, copper, lead, mercury, selenium, tetrachloroethene, trichloroethene, and zinc, and the release of hazardous

substances into the environment at the Site. The WWMA and the Site are located in the northwestern corner of the Complex.

C. For purposes of this Consent Decree, the "Site" is defined as follows: The Site consists of about 30 acres in the northwestern corner of the Complex that make up the West Marsh plus a 1.6-acre parcel associated with a drainage ditch leading into the West Marsh. The Site is bounded by the Neches River on the northeast, closed solid waste management units to the southeast, storage tanks to the southwest, and a former intake canal on the northwest.

D. NOAA, DOI, TCEQ, TGLO, and TPWD (collectively "Trustees") each has been designated a natural resource trustee pursuant to: Section 107(f) of CERCLA, 42 U.S.C. § 9607(f); Section 311 of the Clean Water Act, 33 U.S.C. § 1321; Subpart G of the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. §§ 300.600, 300.605, and 300.615; and Executive Order 12580. Under these authorities, each acts on behalf of the public to seek damages for the injury to, destruction of, or loss of natural resources resulting from releases of hazardous substances into the environment.

E. In 2007, DuPont entered into a Memorandum of Agreement with the Trustees to perform a cooperative, restoration-based assessment to address potential natural resource injuries at the Site. After completing the cooperative assessment, the Trustees determined that hazardous substances at the Site injured or potentially injured estuarine emergent wetland habitat and other resources.

F. The Trustees' assessment of these injuries to natural resources, including their estimates of interim losses and the restoration project proposed to compensate for those losses, is identified in the Final Damage Assessment and Restoration Plan/Categorical Exclusion

("DARP/CE") for the Site, dated June 6, 2016, attached as Appendix A, which is incorporated herein by reference.

G. The DARP/CE specifies the restoration project to be implemented by Settling Defendants to restore natural resources injured at the Site by the release of hazardous substances. The project is preservation of a 475-acre tract of tidal intermediate wetlands (emergent marsh, high marsh, small shallow ponds, and channels), large expanses of open water, and narrow bands of upland forest habitat in Orange County, Texas (the "Acquisition Property"), through the execution of a Conservation Easement, attached as Appendix B, which is incorporated herein by reference, that protects the conservation values of the property in perpetuity (the "Restoration Project"). Settling Defendants, separately, have agreed to reimburse The Conservation Fund ("Grantor"), which owns the Acquisition Property and will grant the Conservation Easement, for certain acquisition, carrying and other costs. The Restoration Project will compensate for the loss of natural resources or natural resource services allegedly injured, destroyed, or lost at the Site, as a result of releases of hazardous substances.

H. During development of the DARP/CE, the Trustees provided opportunities for public participation, including through a formal public review and comment period on the proposed DARP/CE, in accordance with 43 C.F.R. §§ 11.32 and 11.81, 42 U.S.C. §§ 9607(f) and 9611(i), and the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq.

I. Settling Defendants do not admit any liability to Plaintiffs arising out of the transactions or occurrences alleged in the Complaint.

J. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated in good faith and implementation of this Consent

Decree will expedite the restoration of natural resources, and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

THEREFORE, it is ORDERED, ADJUDGED, AND DECREED as follows:

I. JURISDICTION AND VENUE

1. The Court has personal jurisdiction over the Parties and has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and Sections 107 and 113(b) of CERCLA, 42 U.S.C. §§ 9607 and 9613(b). Venue is proper in this Court pursuant to 28 U.S.C. § 1391(b) and Section 113(b) of CERCLA, 42 U.S.C. § 9613(b). Solely for the purposes of this Consent Decree, the Parties waive all objections and defenses that they may have to the jurisdiction of the Court, to venue in this District, and to service of process. Settling Defendants shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

II. SETTLING DEFENDANTS

2. Settling Defendants are DuPont, a Delaware corporation which formerly owned and operated the Site and which conducts or formerly conducted, business in the State of Texas, and Chemours, a Delaware corporation and the current owner of the Site.

III. DEFINITIONS

3. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA, 42 U.S.C. § 9601 et seq., or in regulations promulgated under CERCLA, 43 C.F.R. Part 11 and 40 C.F.R. Part 300, shall have the meaning assigned to them in

CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or in the attachments hereto and incorporated hereunder, the following definitions shall apply:

(a) "Acquisition Property" means the 475-acre property in Orange County, Texas that is located on the eastern bank of the Neches River, approximately 3.5 river miles upstream of the Site, on which a Conservation Easement will be granted to the Holder, and which is more fully described in Appendix B and C of this Consent Decree.

(b) "Chemours" means The Chemours Company FC, LLC, a Settling Defendant in this case and a Delaware corporation, along with its successors and assigns.

(c) "Consent Decree" means this document entitled "Consent Decree," all attachments hereto, any modifications to the Consent Decree or the attachments agreed upon by the Parties in accordance with Section XX (Modification), and all items approved by the Trustees pursuant to Section V (Natural Resource Damage Restoration Requirements). In the event of a conflict between this Consent Decree and any Appendix, this Consent Decree shall control.

(d) "Conservation Easement" means the legal document in substantially the form of Appendix B and consistent with Chapter 183 of the Texas Natural Resources Code ("TNRC") that is finalized in accordance with the regulations of Section V and executed by the Grantor, the Holder, and, as third parties with the right to enforce the terms of the Conservation Easement, TCEQ, TPWD, TGLO, and DOI.

(e) "DARP/CE" means the plan entitled Final Damage Assessment and Restoration Plan/Categorical Exclusion for DuPont Beaumont Works, West Marsh, Jefferson County, Texas, dated June 6, 2016, attached as Appendix A to this Consent Decree, which is incorporated herein by reference.

(f) "Date of Lodging" means the date on which this Consent Decree is lodged with the Clerk of Court.

(g) "Day" means a calendar day unless expressly stated to be a business or working day. "Business or working day" shall mean a day other than a Saturday, Sunday, or Federal or State of Texas holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or Federal or State of Texas holiday, the period shall run until the close of business of the next business or working day.

(h) "DuPont" means E. I. du Pont de Nemours and Company, a Settling Defendant in this case and a Delaware corporation, along with its successors and assigns.

(i) "Effective Date" of this Consent Decree shall mean the effective date as provided by Section XIX of this Consent Decree (Effective Date and Retention of Jurisdiction).

(j) "Federal Trustees" means DOI and NOAA.

(k) "Future Costs" means all reasonable costs in connection with overseeing completion of the Restoration Project contemplated by this Consent Decree that Trustees incur from the dates below through one year after the date that

the Conservation Easement is properly recorded. The relevant dates are October 31, 2018, for TCEQ; November 24, 2018, for NOAA; and November 30, 2018, for TGLO, TPWD, and DOI. Such costs include administrative costs and other costs or expenses which are incurred to provide for, carry out, or support the activities or responsibilities of the United States and the State of Texas in overseeing completion of the Restoration Project.

(l) "Holder" means a person or entity qualified under Chapter 183 of the TNRC that is approved by the Trustees to hold the Conservation Easement.

(m) "Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

(n) "Natural Resource Damages" means civil compensatory relief or damages, including the reasonable costs of assessing such damages, recoverable pursuant to Section 107(a)(4)(C) of CERCLA, 42 U.S.C. § 9607(a)(4)(C), and Section 26.265(d) of the Texas Hazardous Substances Spill Prevention and Control Act, Texas Water Code, by the Trustees on behalf of the public for injury to, destruction of, loss of, or loss of use of the natural resources or resource services at the Site resulting from the release of hazardous substances from the Complex, including injuries due to response actions previously

conducted at the Site, as described in Appendix A.

(o) "Paragraph" means a portion of this Consent Decree identified by an Arabic numeral.

(p) "Parties" or "Party" (as applicable in the singular) means the United States, the State of Texas, DuPont, and Chemours.

(q) "Past Assessment Costs" means those costs, in the amounts set forth below, incurred by the Trustees through the dates listed below in assessing the natural resources actually or potentially injured, destroyed, or lost at the Site as a result of releases of hazardous substances, including injuries caused by response actions, and incurred in identifying and planning for restoration actions to compensate for such injuries and losses. The relevant dates are October 31, 2018, for TCEQ; November 24, 2018, for NOAA; and November 30, 2018, for TGLO, TPWD, and DOI. Such costs include administrative costs and other costs or expenses associated with providing for public participation which are incurred incident to or in support of the assessment and restoration planning process.

(r) "Restoration Project" means the preservation of the Acquisition Property through the execution of a Conservation Easement, in the form set forth in Appendix B, and the performance of baseline biological monitoring of the Acquisition Property, annual monitoring of the Acquisition Property, and legal enforcement of the Conservation Easement, in accordance with Appendix A.

(s) "Section" means a portion of this Consent Decree identified by an uppercase Roman numeral.

(t) "Site" means that portion of the Complex, described above in Paragraph C. The Site is currently owned and operated by Chemours.

(u) "State" means the State of Texas and its political subdivisions, departments and agencies, by and through TCEQ, TGLO, and TPWD.

(v) "State Trustees" means TCEQ, TGLO, and TPWD.

(w) "Trustees" means the Federal Trustees and State Trustees.

(x) "The United States" means the United States of America, including its departments, agencies and instrumentalities.

IV. APPLICABILITY OF CONSENT DECREE

4. This Consent Decree applies to and is binding upon the United States, and the State of Texas, and Settling Defendants and their successors and assigns. No change in ownership or corporate status of Settling Defendants including, but not limited to, any transfer of assets or real or personal property, shall in any way alter Settling Defendants' responsibilities under this Consent Decree.

5. Settling Defendants shall provide a copy of this Consent Decree to each person representing Settling Defendants with respect to the Restoration Project and to the Holder and any other private enforcers of the Conservation Easement of which Settling Defendants are, or may become, aware.

6. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any Federal or State statute or regulation. The United States and the State do not, by

signing this Consent Decree, warrant or aver in any manner that Settling Defendants' compliance with this Consent Decree will constitute or result in compliance with the requirements of any Federal, State, or local laws and regulations which may be applicable to the implementation of the Restoration Project or other activities required by the terms of this Consent Decree.

7. Settling Defendants are and shall remain solely responsible for compliance with all terms and requirements of this Consent Decree. The obligations of Settling Defendants under this Consent Decree are joint and several. In the event of the insolvency or other failure of any one Settling Defendant to make any payment or to implement the requirements of this Consent Decree, the remaining Settling Defendant shall complete all such requirements.

8. The United States or the State may take any and all legal or administrative actions necessary to enforce Settling Defendants' compliance with the terms of this Consent Decree. If Settling Defendant(s) fail to comply with the Consent Decree, Plaintiff(s) shall be entitled to collect the costs incurred in any legal or administrative action to enforce this Consent Decree, including, but not limited to, enforcement costs, attorneys' fees, and interest accruing on any balance unpaid by Settling Defendants.

V. NATURAL RESOURCE DAMAGE RESTORATION REQUIREMENTS

9. Settling Defendants shall perform the Restoration Project as set forth below. In accordance with the terms of this Consent Decree, Settling Defendants shall ensure that a Conservation Easement is prepared and recorded on the Acquisition Property to preserve the Acquisition Property in perpetuity for protection of the natural resources on the Acquisition Property. The Conservation Easement shall be in the form of and contain the terms set forth in Appendix B to this Consent Decree. Settling Defendants shall further ensure that the annual

monitoring of the Acquisition Property and the legal enforcement of the Conservation Easement are performed in accordance with Appendix A and B through payment of costs for implementation of the Conservation Easement, including for monitoring and maintenance fees, to the Holder or its successor. The baseline biological monitoring of the Acquisition Property has already been performed and is attached as Appendix D.

(a) Within fifteen (15) days after the Date of Lodging of this Consent Decree and in accordance with the terms of this Consent Decree, Settling Defendants shall ensure that the identity of the entity proposed to serve as the Holder of the Conservation Easement, together with a written representation by the proposed Holder of its willingness, financial and technical ability, and qualification under Chapter 183 of the TNRC, to serve as the Holder of the Conservation Easement, is submitted in writing to the Trustees. In Settling Defendants' submission, the Holder must commit in writing, in a form acceptable to the Trustees, that it will (a) monitor the Acquisition Property and enforce the Conservation Easement through available legal and judicial means and (b) inform the Trustees and Settling Defendants in the event that it will no longer be able to meet its obligations at least thirty (30) days before it is unable to perform or meet its obligations. Within twenty-one (21) days of receipt of the Settling Defendants' submission, the United States and the State shall notify Settling Defendants whether the proposed Holder is acceptable. If the proposed Holder is rejected by the Trustees, declines to serve in that capacity, or declines to sign the Conservation Easement, then Settling

Defendants shall ensure that an alternate proposed Holder is submitted to the Trustees for approval within ninety (90) days of the notice of rejection or the Holder's declining to serve or sign the Conservation Easement.

(b) Within thirty (30) days after the Effective Date of this Consent Decree and in accordance with the terms of this Consent Decree, Settling Defendants shall ensure that the form of the Conservation Easement complies with the legal regulations of Chapter 183 of the TNRC and is enforceable under the laws of the State of Texas. Also within thirty (30) days after the Effective Date of this Consent Decree, Settling Defendants shall ensure that the final form of the Conservation Easement is provided to the Trustees for review and approval. Any changes to the terms and form of Appendix B must be approved in writing by the Trustees prior to execution and recordation in the County real property records.

(c) In accordance with the terms of this Consent Decree and within sixty (60) days after the Effective Date of this Consent Decree, or thirty (30) days after the Trustees approve the Holder, the terms of the proposed Conservation Easement and the title commitment and certification, whichever deadline is later, Settling Defendants shall ensure that a Conservation Easement, as defined in Paragraph 3(d), is granted and properly executed and recorded in the deed records of Orange County, Texas over the Acquisition Property in favor of the Holder.

(d) The United States, on behalf of the Federal Trustees, and the State, on behalf

of the State Trustees, shall have access to the Acquisition Property and third party rights of enforcement of the Conservation Easement to prevent any activity on or use of the Acquisition Property that is inconsistent with the Conservation Easement and to ensure that the intended purpose of this Consent Decree is satisfied.

(e) Within fifteen (15) days after the Date of Lodging of this Consent Decree and in accordance with the terms of this Consent Decree, Settling Defendants shall ensure that a current title commitment and title certification, which shows title to the Acquisition Property to be free and clear of all prior liens and encumbrances (except those liens or encumbrances approved by the Trustees) is submitted to the Trustees for review and approval. The commitment and certification shall be provided by an insured title examiner in good standing in the State of Texas and must show that the Acquisition Property is free from all other encumbrances that would undermine or conflict with the purposes of the Conservation Easement. The certification shall list any encumbrances of record, with a copy of such encumbrances to be provided to the Trustees, along with associated release(s) and subordination agreement(s). If the title insurance commitment or title certification reveals a defect in title or an encumbrance that would undermine or conflict with the purposes of the Conservation Easement, Settling Defendants shall ensure such defect is corrected and such encumbrance is removed (except as otherwise proposed by Settling Defendants and approved in writing by the Trustees) within thirty

(30) days after receipt of a notice from the Trustees that such defect or encumbrance must be resolved.

(f) Immediately prior to recording the Conservation Easement, Settling Defendants shall ensure that the title search is updated and that a determination has been made on whether there has been an occurrence that impairs the title since the effective date of the original title commitment or certification. Settling Defendants shall (except as otherwise requested by Settling Defendants and approved by the Trustees) ensure that any such defect or impairment to the title is removed within thirty (30) days from receipt of the title update.

(g) Within sixty (60) days after recording the Conservation Easement and in accordance with the terms of this Consent Decree, Settling Defendants shall ensure that the Trustees are provided with a final title insurance policy and a certified copy of the original recorded Conservation Easement, showing the clerk's recording stamps.

10. Until the Conservation Easement is properly filed and recorded, Settling Defendants shall ensure that if the owner of the Acquisition Property seeks to transfer title or ownership (or any portion thereof) of the Acquisition Property, the owner of the Acquisition Property may only do so to a person or entity approved by the Trustees.

11. Settling Defendants shall ensure that the natural and ecological integrity of the Acquisition Property is maintained in the condition described in the baseline documentation

attached hereto as Appendix D and included herein by reference until the Acquisition Property is formally preserved through proper recording of the Conservation Easement.

VI. PAYMENTS BY SETTLING DEFENDANTS

12. Within thirty (30) days of the Effective Date of this Consent Decree, Settling Defendants shall pay the Federal Trustees' Past Assessment Costs in the manner and amounts described herein. Payment shall be made by Fedwire Electronic Funds Transfer at https://www.pay.gov to the U.S. Department of Justice ("DOJ") account in accordance with instructions provided under this Paragraph and instructions provided to Settling Defendants by the Financial Litigation Unit of the United States Attorney's Office for the Southern District of Texas. The instructions must include a Consolidated Debt Collection System ("CDCS") number to identify payments made under this Consent Decree. Any payments received by the DOJ after 4:00 p.m. (Eastern Time) will be credited on the next business day:

(a) For DOI: Settling Defendants shall pay $20,179.62 to reimburse costs incurred by DOI, referencing "DOJ Case Number 90-11-3-10852, USAO File Number [to be provided upon filing of Complaint] and NRDAR Account Number 14X5198; Site name: Project 0440 DuPont-Beaumont NPL Site, TX (Project # 0440)." Settling Defendants shall also send notice that such payment has been made to the DOJ and DOI representatives listed in Paragraph 16, as well as to:

U.S. Department of the Interior
Natural Resource Damage Assessment and Restoration Program
Attention: Restoration Fund Manager
1849 C Street, NW
Mailstop 3548
Washington, DC 20240

Genette Gaffney
US Department of the Interior
Office of the Solicitor
1849 C Street, NW MS 6320
Washington, DC 20240
(918) 669-7730 – phone
(918) 669-7736 - fax

(b) For NOAA: Settling Defendants shall pay $89,573.93 to reimburse costs incurred by NOAA, referencing "DOJ Case Number 90-11-3-10852, USAO File Number [to be provided upon filing of Complaint] and DuPont Beaumont Works, Texas -NOAA DARRF." Settling Defendants shall also send notice that such payment has been made to the DOJ and NOAA representatives listed in Paragraph 16, as well as to:

Christopher J. Plaisted
NOAA, Office of the General Counsel, Natural Resources Section
501 W. Ocean Blvd., Suite 4470
Long Beach, CA 90802
(562) 980-3237 - phone
(562) 980-4065 - fax

NOAA/NOS/OR&R
ATTN: Donna Roberts, DARRF Manager
1305 East West Highway
SSMC4, Room 10139
Silver Spring, MD 20910-3281

13. Within thirty (30) days of the Effective Date of this Consent Decree, Settling Defendants shall pay the State Trustees' Past Assessment Costs incurred by TCEQ, TPWD, and TGLO, in the manner and amounts described herein.

(a) For TCEQ: Settling Defendants shall pay $63,560.40 to TCEQ to reimburse costs incurred for the Site. Payment to TCEQ shall be in the form of a

certified check made payable to the "State of Texas (AG# 072452667)." Checks shall be delivered to Chief, Environmental Protection Division, Office of the Attorney General, P.O. Box 12548, MC-066, Austin, Texas 78711. Settling Defendants shall provide written notice of this payment to the State and TCEQ in accordance with Paragraph 16.

(b) For TPWD: Settling Defendants shall pay $16,570.38 to TPWD to reimburse costs incurred for the Site. Payment to TPWD shall be in the form of a certified check, made payable to the "State of Texas (AG# 072460462)." Checks shall be delivered to Chief, Environmental Protection Division, Office of the Attorney General, P.O. Box 12548, MC-066, Austin, Texas 78711. Settling Defendants shall provide written notice of this payment to the State and TPWD in accordance with Paragraph 16.

(c) For TGLO: Settling Defendants shall pay $8,969.11 to TGLO to reimburse costs incurred for the Site. Payment to TGLO shall be in the form of a certified check, made payable to the "State of Texas (AG# 133448084)." Checks shall be delivered to Chief, Environmental Protection Division, Office of the Attorney General, P.O. Box 12548, MC-066, Austin, Texas 78711. Settling Defendants shall provide written notice of this payment to the State and TGLO in accordance with Paragraph 16.

14. Within 120 days following the date, defined above in Paragraph 3(k), on which reimbursable Future Costs cease accruing, the Trustees shall submit invoices and supporting documentation to Settling Defendants for any unreimbursed Future Costs.

(a) Settling Defendants shall reimburse each Trustee for its Future Costs within thirty (30) days after receiving an invoice and supporting documentation from a Trustee for the Future Costs that have been incurred, except as to any disputed portion.

(b) Settling Defendants may initiate the procedures of Section X (Dispute Resolution) regarding payment of any Future Costs billed under Paragraph 14 for Future Costs if they determine that the Trustees have made a mathematical error or included a cost item that is not within the definition of Future Costs. To initiate such a dispute, Settling Defendants shall submit a Notice of Dispute in writing to the Trustees within thirty (30) days after receipt of the bill. Any such Notice of Dispute shall specifically identify the contested Future Costs and the basis for objection. If Settling Defendants submit a Notice of Dispute, Settling Defendants shall within the 30-day period, also as a requirement for initiating the dispute, (a) pay all uncontested Future Costs to Trustees, and (b) establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation (FDIC) and remit to that escrow account funds equivalent to the amount of the contested Future Costs. Settling Defendants shall send to the Trustees a copy of the transmittal letter and check paying the uncontested Future Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow

account is established as well as a bank statement showing the initial balance of the escrow account. If the Trustees prevail in the dispute, within five (5) days after the resolution of the dispute, Settling Defendants shall pay the sums due (with accrued interest) to the Trustees in the manner described in Paragraph 13. If Settling Defendants prevail concerning any aspect of the contested costs, Settling Defendants shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to the Trustees in the manner described in Paragraph 13. Settling Defendants shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section X (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Settling Defendants' obligation to reimburse the Trustees for their Future Costs.

15. In the event that any payments required by this Section are not made within the allotted time, Defendants shall pay Interest on the unpaid balance as provided for in Paragraph 3(m). Interest shall begin to accrue commencing on the day following the payment deadline and continue to accrue through the date of payment. Interest is in addition to any Stipulated Penalties accruing for late payments under Section XI (Stipulated Penalties). Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of Settling Defendants' failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to Section XI.

VII. NOTICE

16. Whenever, under the terms of this Consent Decree, a notice, report or other document is required to be sent by one Party to another, it shall be made electronically or by first class mail, as specified below, unless otherwise requested. It shall be directed to the individuals at the addresses set forth below, unless those individuals or their successors give notice of a change to the other Parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, the State, the Trustees, and Settling Defendants, respectively.

FOR THE UNITED STATES and the FEDERAL TRUSTEES:

By email:
eescdcopy.enrd@usdoj.gov
Re: DJ # 90-11-3-10852
(Together with Notice to NOAA and DOI)

By Mail:
Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Re: DJ # 90-11-3-10852
(Together with Notice to NOAA and DOI)

(a) For NOAA:
Kristopher Benson
NOAA Restoration Center
4700 Avenue U
Galveston, Texas 77551-5997
Tel: (409) 621-1200

(b) For DOI:
Denise Ruffino
U.S. Fish & Wildlife Service
Texas Coastal Ecological Services Field Office
17629 El Camino Real, Ste 211

Houston TX 77058
Phone: (281) 212-1514
Fax: (281) 488-5882

FOR THE STATE and the STATE TRUSTEES:

(c) For TCEQ:
By Mail:
Richard Seiler
Texas Commission on Environmental Quality
P.O. Box 13087, MC-225
Austin, Texas 78711-3087
Tel: (512) 239-2523
Fax: (512) 239-4814

(d) For TPWD:
By Mail:
Johanna Gregory Belssner
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744
Tel: (512) 389-8703
Fax: (512) 389-8160

(e) For TGLO:
By Mail:
Angela Sunley
Texas General Land Office
P.O. Box 12873
Austin, Texas 78711
Tel: (512) 463-9309

(f) For the State:
By Mail:
Ekaterina DeAngelo
Assistant Attorney General
Office of the Attorney General
P.O. Box 12548, MC-066
Austin, Texas 78711-2548
Tel: (512) 463-2012
Fax: (512) 320-0911
AG# 133444588

FOR SETTLING DEFENDANTS:

(g) For DuPont:
Tom Stilley
Remediation Director
E. I. du Pont de Nemours and Company
974 Centre Road, CRP 735
Wilmington, Delaware 19805
Tel: (302) 485-3834
Email: tom.a.ei@corteva.com

Patricia McGee
Corporate Counsel
E. I. du Pont de Nemours and Company
974 Centre Road, CRP 735
P.O. Box 2915
Wilmington, Delaware 19805
Tel: (302) 485-3046
Email: patricia.mcgee@corteva.com

(h) For Chemours:
Todd Coomes
Senior Counsel, Chemours Legal
The Chemours Company
1007 Market Street
Wilmington, Delaware 19899
Tel: (302) 773-0058
Email: todd.coomes@chemours.com

VIII. INDEMNIFICATION

17. The United States and the State do not assume any liability by entering into this Consent Decree or by virtue of any of the activities to be performed by Settling Defendants under this Consent Decree. Settling Defendants shall indemnify, save, and hold harmless the United States and the State and their officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Settling Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any person acting on their behalf or under

Settling Defendants' control, in carrying out activities pursuant to this Consent Decree. Further, Settling Defendants agree to reimburse the United States and the State all costs they incur including, but not limited to, attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States or the State based on negligent or other wrongful acts or omissions of Settling Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on Settling Defendants' behalf or under their control, in carrying out activities pursuant to this Consent Decree. Neither the United States nor the State shall be held out as a party to any contract entered into by or on behalf of Settling Defendants in carrying out activities pursuant to this Consent Decree. Neither Settling Defendants nor any such contractor shall be considered an agent of the United States or the State.

18. The United States and the State shall give Settling Defendants notice of any claim for which the United States or the State plans to seek indemnification pursuant to Paragraph 17 and shall consult with Settling Defendants prior to settling such claim.

19. Settling Defendants waive all claims against the United States and the State for damages or reimbursement or for set-off of any payments made or to be made to the United States or the State, arising from or on account of any contract, agreement, or arrangement between Settling Defendants and any person for performance of the Restoration Project. In addition, Settling Defendants shall indemnify and hold harmless the United States and the State with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between Settling Defendants and any person for performance of the Restoration Project.

IX. FORCE MAJEURE

20. "Force majeure," for the purposes of this Consent Decree, is defined as any event arising from causes beyond the control of one or more Settling Defendants, of any entity controlled by Settling Defendants, or of Settling Defendants' contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Settling Defendants' best efforts to fulfill the obligation, except the obligations to make payments described in Sections VI (Payments By Settling Defendants) and XI (Stipulated Penalties) of this Consent Decree. The requirement that Settling Defendants exercise "best efforts to fulfill the obligation" includes using the best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (1) as it is occurring and (2) following the potential force majeure, such that the delay is minimized to the greatest extent possible. "Force majeure" does not include changes in the cost of the Restoration Project, financial hardship, or financial inability to complete any requirements of this Consent Decree on the part of Settling Defendants.

21. If any event occurs or has occurred that may delay or prevent the performance of any obligation under this Consent Decree, whether or not caused by force majeure, Settling Defendants shall notify the Trustees orally or by electronic or facsimile transmission, within forty-eight (48) hours following the time that the Settling Defendants first know or should have known that the circumstances might cause a delay. Within five (5) days thereafter, Settling Defendants shall provide in writing to the persons identified in Paragraph 16, a detailed explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay; Settling Defendants' rationale for

attributing such a delay to a force majeure if it intends to assert such a claim; and a statement as to whether, in the opinion of Settling Defendants, such event may cause or contribute to an endangerment to public health or the environment. Settling Defendants shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude Settling Defendants from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Provided, however, if the Trustees, despite the late or incomplete notice, are able to assess to their satisfaction whether the event is a Force Majeure under Paragraph 20 and whether Settling Defendants have exercised their best efforts under Paragraph 20, the Trustees may, in their unreviewable discretion, excuse Settling Defendants' failure to submit timely or complete notices under this Paragraph. Settling Defendants shall be deemed to know of any circumstances of which Settling Defendants, any entity controlled by Settling Defendants, or Settling Defendants' contractors knew or should have known.

22. If the Trustees agree that the delay or anticipated delay is attributable to a force majeure, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by the Trustees for such time as necessary to complete the obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. If the Trustees do not agree that the delay or anticipated delay has been or will be caused by a force majeure event, the Trustees shall notify Settling Defendants in writing of their decision. If the Trustees agree that the delay is attributable to a force majeure event, the Trustees

shall notify Settling Defendants in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

23. If Settling Defendants elect to invoke the dispute resolution procedures set forth in Section X (Dispute Resolution) regarding the Trustees' notice of decision under Paragraph 22, they shall do so no later than fifteen (15) days after receipt of the Trustees' notice. In any such proceeding, Settling Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Settling Defendants complied with the requirements of Paragraph 21. If Settling Defendants carry this burden, the delay at issue shall not be deemed to be a violation by Settling Defendants of the affected obligation of this Consent Decree identified to the Trustees and the Court.

24. The failure by the Trustees to complete any obligation under the Consent Decree is not a violation of the Consent Decree, provided, however, that if such failure prevents Settling Defendants from meeting one or more deadlines or obligations, Settling Defendants may seek relief under Section IX.

X. DISPUTE RESOLUTION

25. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedure of Section X shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, the procedures set forth in Section X shall not apply to actions by the United States or the State to enforce obligations of Settling Defendants that have not been disputed in accordance with Section X.

26. Informal Dispute Resolution. Either Settling Defendant may initiate dispute resolution under Section X by sending a written notice to the Trustees. The notice shall identify the issue in dispute and Settling Defendant(s)' position on the issue. The Parties shall attempt to resolve the dispute by engaging in good faith informal negotiations. The period for informal negotiations shall not exceed thirty (30) days from the date the dispute arises, unless this time period is modified by written agreement of the Parties. In the event the Parties are unable to reach agreement during such informal negotiation period, the Trustees shall provide Settling Defendant(s) in question with a written summary of their position regarding the issues in dispute within forty-five (45) days from the end of the informal negotiations.

27. Formal Dispute Resolution.

(a) In the event that the Parties cannot resolve a dispute by informal negotiations under Paragraph 26, then the position advanced by the Trustees, individually or jointly, as applicable, shall be considered binding on Settling Defendant(s) unless, within thirty (30) days after Settling Defendants receive the Trustees' written summary pursuant to Paragraph 26, Settling Defendants invoke the formal dispute resolution procedures of this Section by serving the Trustees with a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by Settling Defendant(s).

(b) Within sixty (60) days after receipt of Settling Defendants' Statement of Position, the Trustees shall serve on Settling Defendant(s) a Statements of Position, including, but not limited to, any factual data, analysis, or opinion

supporting each position and appropriate supporting documentation relied upon by the Trustees. Within fifteen (15) days after receipt of the Statements of Position, Settling Defendants may submit a Reply.

(c) An administrative record of the dispute shall be maintained by the Trustees and shall contain all Statements of Position (including Replies), including supporting documentation, submitted pursuant to Section X. Where appropriate, the Trustees may allow submission of supplemental statements of positions by the parties to the dispute.

(d) The Trustees shall issue a final administrative decision resolving the dispute based on the administrative record described in Paragraph 27(c). This decision shall be binding on Settling Defendants, subject only to the right to seek judicial review pursuant to Paragraph 27(e).

(e) Any administrative decision made by the Trustees pursuant to Paragraph 27 shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by Settling Defendants with the Court and served on all Parties within forty-five (45) days of receipt of the Trustees' final decision. The motion shall include a description of the matter in dispute, the efforts made by the Parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States or the State, on behalf of the respective Trustee, may file a response(s) to Settling Defendants' motion.

(f) In proceedings on any dispute governed by Paragraph 27, Settling Defendants

shall have the burden of demonstrating that the decision of the Trustees is arbitrary and capricious or otherwise not in accordance with the requirements of this Consent Decree or applicable law. Judicial review of the decision of the Trustees shall be on the administrative record compiled pursuant to Paragraph 27(c).

XI. STIPULATED PENALTIES

28. Settling Defendants shall be liable for stipulated penalties in the amounts set forth in Paragraph 29 to the United States and the State for failure to comply with the requirements of this Consent Decree, unless excused under Section IX (Force Majeure). "Compliance" by Settling Defendants shall include completion of the activities identified in Section V (Natural Resource Damage Restoration Requirements) within the schedules established in this Consent Decree or any modification thereto, as well as meeting the payment requirements of Section VI (Payments by Settling Defendants).

29. Stipulated penalties shall accrue per violation per day for Settling Defendants' (a) Failure to timely comply with the requirements under Sections V and VI of this Consent Decree; or (b) Failure to make the payments to the Federal Trustees or the State Trustees as required by Section VI in a timely manner:

Penalty Per Violation Per Day	Period of Noncompliance
$ 1,000	1st through 14th day
$ 2,500	15th through 30th day
$ 3,500	31st day and beyond.

30. All penalties shall begin to accrue on the day after performance is due or the day a violation occurs and shall continue to accrue through the final day of the correction of the noncompliance. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

31. Following the determination by the Trustees, separately or jointly, that Settling Defendants failed to comply with one of the requirements of this Consent Decree listed above, the United States or the State may give Settling Defendants a written notification of the same and describe the noncompliance. The United States or the State may send Settling Defendants a written demand for the payment of penalties. Penalties shall accrue and are due as provided in Section XI regardless of whether the United States or the State has notified Settling Defendants of a violation. All stipulated penalties due under Section XI shall be due and payable within thirty (30) days of Settling Defendants' receipt of a demand for payment from the Trustees, unless Settling Defendants invoke dispute resolution under Section X of this Consent Decree. If Settling Defendants invoke dispute resolution under Section X, then stipulated penalties shall be due at the time specified in Paragraph 34. Stipulated penalties shall be paid 50% to the United States and 50% to the State, except that stipulated penalties for untimely payment of Past Assessment Costs or Future Costs pursuant to Section VI shall be paid to the appropriate Plaintiff.

(a) All payments to the United States under Section XI shall be paid in accordance with the procedures set forth in Paragraph 13 and shall reference DOJ Number 90-11-3-10852, the CDCS Number, "Stipulated Penalties, USAO File Number [to be provided upon filing of Complaint]."

(b) All payments made to the State under this Section shall be paid by certified check made payable to the "State of Texas." This payment should be mailed to Chief, Environmental Protection Division, Office of the Attorney General, P.O. Box 12548, MC-066, Austin, TX 78711. The check shall bear the identifying number AG# 133444588."

32. Interest shall accrue on unpaid stipulated penalties in accordance with Paragraph 16 beginning on the thirty-first (31) day after Settling Defendants' receipt of the demand for stipulated penalties. Additionally, in the event Settling Defendants fail to pay stipulated penalties when due, the United States or the State may institute legal proceedings to collect such penalties, as well as Interest accruing on any unpaid balance, as provided by law. Plaintiffs shall be entitled to collect the costs, including attorney's fees, incurred in any judicial action to enforce the terms of this Consent Decree. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States or the State to seek other remedies or sanctions available by virtue of a violation of this Consent Decree by Settling Defendants.

33. Notwithstanding any other provision of Section XI, the United States and the State, in their unreviewable discretion, may waive any portion of stipulated penalties owed to them that have accrued pursuant to this Consent Decree. Any such waiver shall only apply to the Stipulated Penalties owed to the Plaintiff exercising the discretion allowed under Paragraph 33 and shall not affect the right of the other Plaintiff to seek the full amount of Stipulated Penalties due for a violation, less the amount paid to the other Plaintiff.

34. Stipulated penalties continue to accrue during dispute resolution but are not due and payable until there is resolution of the dispute as provided below.

(a) If the dispute is resolved by agreement, accrued penalties agreed to be owed shall be paid to the United States and/or the State within twenty-five (25) days of the agreement;

(b) If the dispute is appealed to this Court and Plaintiff(s) prevail in whole or in part, Settling Defendants shall pay all accrued penalties determined by the Court to be owed to the United States or the State within sixty (60) days of receipt of the Court's decision or order, except as provided by Paragraph 34(c). Settling Defendants shall not be required to pay any stipulated penalties if they prevail on the disputed issue;

(c) If the Court's decision is appealed by any Party, Settling Defendants shall pay all accrued penalties determined by the Court to be owed to the United States and the State into an interest-bearing escrow account within sixty (60) days of receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of the final appellate court decision, the escrow agent shall pay the balance of the account to the United States or the State, or Settling Defendants to the extent that they prevail.

XII. COVENANTS NOT TO SUE BY THE UNITED STATES AND THE STATE

35. In consideration of the satisfactory performance by Settling Defendants of all of their obligations under this Consent Decree, and except as specifically provided in Paragraphs

36-37, the United States and the State each hereby covenant not to sue or to take any civil or administrative action against Settling Defendants for Natural Resource Damages for injuries to natural resources within the Site. These covenants not to sue shall take effect upon Settling Defendants' successful completion of the obligations in Section V (Natural Resource Damage Restoration Requirements) of this Consent Decree and the receipt by the Trustees of all payments due pursuant to both Section VI (Payments by Settling Defendants) and, as applicable, Section XI (Stipulated Penalties), whichever occurs last. These covenants not to sue are conditioned upon the satisfactory performance by Settling Defendants of their obligations under this Consent Decree. These covenants not to sue extend only to Settling Defendants and do not extend to any other person.

XIII. RESERVATION OF RIGHTS BY THE UNITED STATES AND THE STATE

36. Notwithstanding any other provision of this Consent Decree, the United States and the State reserve, and this Consent Decree is without prejudice to, the right to institute proceedings against Settling Defendants in this action or in a new action, seeking recovery of Natural Resource Damages, if: (a) conditions, including the release of hazardous substances at the Site, that previously were unknown to the Trustees are discovered after the Date of Lodging of this Consent Decree and these conditions cause or contribute to new or additional injuries to, losses of, or destruction of natural resources, or new or additional service losses at the Site; or (b) information about the release of hazardous substances at the Site that previously was unknown to the Trustees is received, in whole or in part, after the Date of Lodging of this Consent Decree, and this information together with any other relevant information indicates that there are new or additional injuries to, losses of, or destruction of natural resources, or new or additional service

losses at the Site. For purposes of this provision, the information and conditions known to the Trustees shall include only the information and the conditions known by the Trustees as of the Date of Lodging of this Consent Decree.

37. Nothing in this Consent Decree is intended to be, nor shall be construed as, a release from liability or a covenant not to sue for any claim or cause of action, administrative or judicial, for the following:

(a) Settling Defendants' failure to comply with any obligation or requirement of this Consent Decree;

(b) claims brought on behalf of the United States or the State, including State and Federal agencies, for costs, damages, and expenses of any sort other than for Natural Resource Damages that are the subject of this Consent Decree;

(c) liability arising from any past, present, or future releases of hazardous substances other than the releases of hazardous substances that are the subject of this Consent Decree;

(d) liability arising from any releases of hazardous substances from or to any site or location that is not the subject of this Consent Decree, including, but not limited to, any hazardous substance taken from the Site and disposed of at another site or location;

(e) liability for violations of federal and state law that occur during or incident to the implementation and/or monitoring of the Restoration Project;

(f) criminal liability;

(g) liability based upon Settling Defendants' transportation, treatment, storage, or

disposal, or the arrangement for the transportation, treatment, storage, or disposal of hazardous substances at or in connection with the Site, after signature of this Consent Decree by Settling Defendants; and

(h) any matter not expressly included in the covenant not to sue for Natural Resource Damages set forth in Section XII (Covenants Not to Sue by the United States and the State) of this Consent Decree, including natural resource injuries occurring outside the Site.

38. Except as provided for in this Consent Decree, the United States and the State retain all authority and reserve all rights to take any and all action authorized by law.

XIV. COVENANTS BY SETTLING DEFENDANTS

39. Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States or the State for any claims arising from or relating to the Restoration Project or any claims arising from or relating to Natural Resource Damages pursuant to any Federal, State, or common law, including, but not limited to, the following:

(a) Any direct or indirect claim for reimbursement for Natural Resource Damages from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through Sections 107, 111, 112, and 113 of CERCLA, 42 U.S.C. §§ 9607, 9611, 9612, and 9613, or any other provision of State or Federal law;

(b) Any claims against the United States or the State under Sections 107 or 113 of CERCLA, 42 U.S.C. §§ 9607 or 9613, or state law regarding Natural Resource Damages and this Consent Decree; or

(c) Claims based on the Trustees' selection of the Restoration Project, oversight of the Restoration Project, and/or approval of plans for such activities.

40. Except as provided in Paragraph 49 (Res Judicata and Other Defenses), the covenants in Section XIV shall not apply if the United States or the State brings a cause of action or issues an order pursuant to any of the reservations in Section XIII (Reservation of Rights by the United States and the State), other than claims for failure to meet a requirement of this Consent Decree, but only to the extent that Settling Defendants' claims arise from the same response action, response costs, or damages that the United States or the State is seeking pursuant to the applicable reservation.

41. Settling Defendants hereby covenant not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States notifies Settling Defendants in writing that it no longer supports entry of this Consent Decree.

42. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

43. Notwithstanding any other provision of this Consent Decree, this Consent Decree is without prejudice to all rights of Settling Defendants with respect to all matters other than those expressly specified in the covenants set forth in Paragraphs 39, 40, and 41.

XV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

44. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this

Consent Decree may have under applicable law. Except as otherwise provided herein each of the Parties expressly reserves any and all rights (including, but not limited to, any right of contribution against third parties pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to Natural Resource Damages against any person not a Party hereto.

45. The Parties agree, and by entering this Consent Decree this Court finds, that this Consent Decree constitutes a judicially-approved settlement pursuant to which each Settling Defendant has, as of the Effective Date, resolved its liability to the United States and to the State within the meaning of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and is entitled, as of the Effective Date of this Consent Decree, to protection from contribution actions or claims as provided by Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), or as may be otherwise provided by law, for the "matters addressed." The "matters addressed" in this Consent Decree are Natural Resource Damages. Provided, however, that if the United States or the State exercise rights under the reservations in Section XII (Covenants Not to Sue by the United States and the State), other than the reservation in Paragraph 37(f) (criminal liability), the "matters addressed" in this Consent Decree will no longer include those Natural Resource Damages that are within the scope of the exercised reservation.

46. The Parties further agree, and by entering this Consent Decree this Court finds, that the Complaint filed by the United States and the State in this action is a civil action within the meaning of Section 113(f)(1) of CERCLA, 42 U.S.C. § 9613(f)(1), and that this Consent Decree constitutes a judicially-approved settlement pursuant to which each Settling Defendant

has, as of the Effective Date, resolved liability to the United States and the State within the meaning of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

47. Each Settling Defendant shall, with respect to any suit or claim brought by Settling Defendant(s) for "matters addressed" in this Consent Decree, notify the United States and the State in writing no later than sixty (60) days prior to the initiation of such suit or claim.

48. Each Settling Defendant shall, with respect to any suit or claim brought against Settling Defendant(s) for "matters addressed" in this Consent Decree, notify in writing the United States and the State within ten (10) days after service of the complaint on such Settling Defendant. In addition, each Settling Defendant shall notify the United States and the State within ten (10) days after service or receipt of any Motion for Summary Judgment and within ten (10) days after receipt of any order from a court setting a case for trial.

49. In any subsequent administrative or judicial proceeding initiated by Plaintiffs with respect to the Site, Settling Defendants shall not assert, and may not maintain any defense or claim based on the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or any other defenses based upon the contention that the claims raised by Plaintiffs in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this paragraph affects the enforceability of the covenants not to sue set forth in Section XII (Covenants Not to Sue by the United States and the State).

50. The failure of any of the Plaintiffs to insist upon strict and prompt performance of any provision of this Consent Decree shall not operate as a waiver of any requirement of this Consent Decree or of the Plaintiff(s)' right to insist on prompt compliance in the future with such

provision, and shall not prevent a subsequent action by any of the Plaintiffs to enforce such a provision.

XVI. CERTIFICATION

51. Settling Defendants certify that, to the best of their knowledge and belief, Settling Defendants, their officers, employees, contractors, agents and/or any person acting on their behalf, have fully and accurately disclosed to the Trustees all information requested by the Trustees regarding potential Natural Resource Damages at the Site which are currently in the possession of Settling Defendants' officers, employees, contractors, agents, and/or any person acting on their behalf, that relate in any way to the releases of hazardous substances from the Complex to the Site.

XVII. VOIDABILITY

52. If for any reason the Court should decline to approve entry of this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms hereof may not be used as evidence in any litigation.

XVIII. COMPLIANCE WITH OTHER LAWS

53. This Consent Decree shall not be construed in any way to relieve Settling Defendants or any other person or entity from the obligation to comply with any Federal, State, or local law.

XIX. EFFECTIVE DATE AND RETENTION OF JURISDICTION

54. This Consent Decree will be effective upon entry of the Consent Decree by the Court or upon the Court granting a motion to enter this Consent Decree, whichever occurs first as recorded on the Court's docket.

55. The Court shall retain jurisdiction over both the subject matter of this Consent Decree and the Parties for the duration of the performance of the terms and provisions of this Decree for the purpose of entering such further orders, direction, or relief as may be necessary or appropriate for the construction, implementation, resolution of disputes, or enforcement of this Consent Decree.

XX. MODIFICATION

56. Any non-material modifications to this Consent Decree, including the appendices hereto, may be made by a signed written agreement between the Trustees and Settling Defendants. Any material modifications to this Consent Decree shall be in writing, signed by the Parties, and shall take effect upon approval by the Court. Nothing in this Consent Decree shall be deemed to alter the United States' and the State of Texas' power to enforce, supervise or approve modifications to this Consent Decree.

XXI. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

57. The Parties agree and acknowledge that final approval by the United States and the State and entry of this Consent Decree is subject to a thirty-day (30) period for public notice and comment in accordance with U.S. Department of Justice policy and Section 7.110 of the Texas Water Code. The United States and the State reserve the right to withdraw or withhold their consent if comments regarding this Consent Decree disclose facts or considerations that indicate that this Consent Decree is inappropriate, improper, or inadequate. Settling Defendants consent to entry of this Consent Decree without further notice.

XXII. SIGNATORIES/SERVICE

58. Each undersigned representative of a Settling Defendant to this Consent Decree, the State, and the Assistant Attorney General for the Environment Protection Division, and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

59. Each Settling Defendant shall identify, on the attached signature page, the name, address, and telephone numbers of agents who are authorized to accept service of process by mail on its behalf with respect to all matters arising under or relating to this Consent Decree. Each Settling Defendant hereby agrees to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure, Fed R. Civ. P. 4, and any applicable rules of this Court, including, but not limited to, service of a summons. Settling Defendants shall not be required to file an answer to the complaint in this action unless and until the Court expressly declines to enter this Consent Decree.

60. This Consent Decree may be executed in any number of counterparts and, as executed, shall constitute one agreement, binding on all of the Parties hereto, even though all of the Parties do not sign the original or the same counterpart.

XXIII. APPENDICES

61. The following appendices are attached to and incorporated into this Consent Decree:

"Appendix A" is the DARP/CE;

"Appendix B" is the Conservation Easement;

"Appendix C" is the Property Description; and

"Appendix D" is the Baseline Documentation.

XXIV. FINAL JUDGMENT

62. This Consent Decree and its Appendices constitute the final, complete, and exclusive agreement, and understanding among the Parties with respect to the settlement embodied in this Consent Decree. The Parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those contained expressly in this Consent Decree.

63. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute the final judgment between and among the United States, the State, DuPont, and Chemours. The Court enters this judgment as a final judgment under Fed. R. Civ. P. 58.

SIGNED this 25th day of March, 2021.

Michael J. Truncale
United States District Judge

FOR THE UNITED STATES OF AMERICA:

Respectfully submitted,

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Environmental Enforcement Section
Environment and Natural Resources Division
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APPENDIX A:

DAMAGE ASSESSMENT AND NEPA CATEGORICAL EXCLUSION (DARP/CE) FOR DUPONT BEAUMONT WORKS WEST MARSH, JEFFERSON COUNTY, TEXAS

DAMAGE ASSESSMENT AND NEPA CATEGORICAL EXCLUSION FOR DUPONT BEAUMONT WORKS WEST MARSH, JEFFERSON COUNTY, TEXAS

June 6, 2016

Prepared by the:

Texas Commission on Environmental Quality

Texas Parks and Wildlife Department

Texas General Land Office

National Oceanic and Atmospheric Administration

and

United States Fish and Wildlife Service

acting on behalf of the

United States Department of the Interior

NOTE TO READER

This Damage Assessment and Restoration Plan/Categorical Exclusion (DARP/CE) is intended to inform members of the public on the Federal and Texas natural resource Trustees' assessment of the natural resource injuries and service losses described herein and the restoration action which the Trustees will implement in order to compensate the public for those injuries and losses.

EXECUTIVE SUMMARY

The West Marsh (the 'Site') consists of approximately 30 acres in the northwestern corner of industrial facilities formerly owned and operated by E.I. du Pont de Nemours & Company, Inc. (DuPont), on what is now called the Beaumont Works Industrial Park. The Site is bounded by the Neches River on the northeast, closed solid waste management units (SWMUs) to the southeast, storage tanks to the southwest, and a former canal on the northwest. Beaumont Works Industrial Park is surrounded by industrial properties, undeveloped properties, the residential community of Central Gardens, and the Neches River. Beaumont Works Industrial Park is located approximately seven miles south of Beaumont, off State Highway 347, in Jefferson County, Texas. The facility, which has been operating since 1954, covers approximately 751 acres. Historical operations at the DuPont facility's West Waste Management Area (WWMA) have resulted in multiple releases of hazardous substances and their degradation products to the West Marsh.

The Trustees determined that approximately 21.5 acres of benthic habitat in West Marsh were impacted by hazardous substances historically released from the WWMA. The DuPont-related sources of contaminants of concern (COCs) were remediated by removal and containment methods or will dissipate as a result of natural attenuation. The Trustees determined that natural recovery combined with off-site restoration will result in restoration and compensation of benthic resources lost and/or injured due to exposure to hazardous substances.

The Trustees evaluated several restoration methods and off-site projects and determined that the preferred restoration alternative included natural recovery at the Site and preservation of a 500-acre tract (the "Orange County Tract") located on the eastern bank of the Neches River approximately 3.5 river miles upstream of the Site. Habitat on this tract is comprised of tidal intermediate wetlands (emergent marsh, high marsh, small shallow ponds, and channels), expanses of open water and upland forested habitat. These habitats would be preserved in perpetuity through the placement of a conservation easement to be held by the Big Thicket Natural Heritage Trust, a local conservation group. This action will be implemented by DuPont with Trustee oversight pursuant to the terms of a legal settlement agreement for natural resource damages claims for the Site as specified in a court-approved Consent Decree.

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AR	Administrative Record
ATSDR	Agency for Toxic Substances and Disease Registry
CE	Categorical Exclusion
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIE	Conservative Injury Evaluation
COC	Contaminant of Concern
CWA	Federal Water Pollution Control Act or Clean Water Act
CZMA	Coastal Zone Management Act
DARP	Damage Assessment and Restoration Plan
DOC	Department of Commerce
DOI	Department of the Interior
DSAY	Discounted Service Acre-Year
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ERL	Effects Range Low
ERM	Effects Range Medium
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
GMFMC	Gulf of Mexico Fishery Management Council
HEA	Habitat Equivalency Analysis
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRDA	Natural Resource Damage Assessment
PCL	Protective Concentration Level
RFI	Request for Information
PRP	Potentially Responsible Party
SLERA	Screening Level Ecological Risk Assessment
SWMU	Solid Waste Management Unit
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TRRP	Texas Risk Reduction Program
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound
WWMA	West Waste Management Area

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

This Damage Assessment and Restoration Plan/Categorical Exclusion (DARP/CE) has been developed by the Texas Commission on Environmental Quality (TCEQ), the Texas Parks and Wildlife Department (TPWD), the Texas General Land Office (GLO), the National Oceanic and Atmospheric Administration (NOAA) of the U. S. Department of Commerce (DOC), and the United States Fish and Wildlife Service (USFWS) acting on behalf of the U.S. Department of the Interior (DOI), (collectively, 'the Trustees') to address natural resources (including ecological services[1]) injured, lost, or destroyed within the West Marsh and a portion of the surrounding properties (the Site) in Jefferson County, near Beaumont, Texas, as a result of releases of hazardous substances.

The Site consists of approximately 30 acres in the northwestern corner of industrial facilities formerly owned and operated by E.I. du Pont de Nemours & Company, Inc. (DuPont). The area is commonly referred to as the Beaumont Works Industrial Park complex (Figure 1). The Site is bounded by the Neches River on the northeast, closed solid waste management units (SWMUs) to the southeast, storage tanks to the southwest, and a former intake canal on the northwest (Figure 2). The Beaumont Works Industrial Park is surrounded by industrial properties, undeveloped properties, the residential community of Central Gardens, and the Neches River. The Beaumont Works Industrial Park is located approximately seven miles south of Beaumont, off State Highway 347, in Jefferson County, Texas. The facility, which has been operating since 1954, covers approximately 751 acres. Historical operations at the DuPont facility's West Waste Management Area (WWMA) resulted in releases of hazardous substances and their degradation products, including Aroclor 1016 and 1260, cadmium, chromium, copper, lead, mercury, selenium, tetrachloroethene, trichloroethene, and zinc (Figure 2).

This DARP/CE addresses injuries to natural resources at the Site attributable to releases from the WWMA. Further, this report provides information regarding the restoration alternatives the Trustees considered as potential compensation for those injuries attributable to the WWMA and identifies the Trustees' preferred restoration alternatives. The injury assessment and proposed restoration actions presented in this document were developed by the Trustees, working in cooperation with DuPont, the Potentially Responsible Party (PRP) for the Site, as provided by 43 C.F.R. Part 11. The Trustees and PRP elected to use an integrated approach to remediation, natural resource damage assessment (NRDA), and restoration planning,

1 *Ecological services* is defined in 43 C.F.R. § 11.14(nn) as the "physical and biological functions performed by the resource including the human uses of those functions. These services are the result of the physical, chemical, or biological quality of the resource."

resulting in the identification of a preferred restoration alternative that the Trustees consider appropriate to compensate for the natural resource injuries attributable to the PRP's operations, and make the public whole for previous and current environmental harm.

Finally, this document presents the federal Trustees' consideration of potential environmental impacts associated with the preferred alternative under the National Environmental Policy Act.

1.1 Authority

This DARP/CE was prepared jointly by the Trustees pursuant to their respective authorities and responsibilities as natural resource trustees under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9601 *et seq*.; the Federal Water Pollution Control Act, 33 U.S.C. §§ 1251 *et seq*. (also known as the Clean Water Act or CWA); and other applicable federal or state laws which provide guidance for the natural resource damage assessment and restoration planning process under CERCLA, including Subpart G of the National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. §§ 300.600 through 300.615; DOI's CERCLA natural resource damage assessment regulations, 43 C.F.R. Part 11; and the Texas Water Code (TWC) §§ 26.261 *et seq*.

CERCLA provides liability of persons responsible for releases of hazardous substances that may endanger public health or the environment and requires cleanup of those contaminated sites. In addition to addressing the cleanup of contaminated sites, CERCLA establishes liability for the injury to, destruction of, or loss of natural resources caused by releases of hazardous substances. Damages recovered for these losses must be used to restore, replace, rehabilitate, or acquire equivalent natural resources or services, in accordance with a restoration plan developed by designated natural resource trustees. Instead of a monetary settlement, the trustees may allow a PRP to directly implement a restoration project to compensate the public for injured resources and lost services, as proposed in this case.

1.2 NEPA Compliance

Actions undertaken by the federal trustees to restore natural resources or services under CERCLA and other federal laws are subject to NEPA, 42 U.S.C. §§ 4321 *et seq.* and the regulations guiding its implementation at 40 C.F.R. Parts 1500 through 1517. NEPA and its implementing regulations outline the responsibilities of federal agencies when preparing environmental documentation. In general, federal agencies contemplating implementation of a major federal action must produce an Environmental Impact Statement (EIS) if the action is expected to have significant impacts on the quality of the human environment. When it is uncertain whether the proposed action is likely to have significant impacts, federal agencies prepare an Environmental Assessment (EA) to evaluate the need for an EIS. If the EA

demonstrates that the proposed action will not significantly impact the quality of the human environment, the agencies issue a Finding of No Significant Impact (FONSI), which satisfies the requirements of NEPA, and no EIS is required. The trustees then issue a final restoration plan describing the selected restoration action(s).

Alternatively, federal agencies may identify categories of actions which do not individually or cumulatively have a significant effect on the human environment. Actions falling into those categories are exempt from the requirement to prepare an environmental impact statement. As described in Chapter 8, the federal agencies determined that the preferred action proposed in this DARP falls into one or more such categories that may result in the exercise of a Categorical Exclusion (CE).

1.3 Public Participation

The Trustees prepared this DARP/CE for public review and comment. It provides the public with information on the assessment of natural resource injuries and service losses resulting from releases of hazardous material to the Site, the resource restoration objectives that guided the Trustees in developing this plan, the restoration alternatives that were considered, the process used by the Trustees to identify the preferred restoration alternative, the rationale for its selection, and evaluation of associated environmental impacts. Public review of this DARP/CE is the means by which the Trustees seek public input on the analyses used to define and quantify the resource injuries and losses, as well as on the restoration action proposed to compensate for those injuries and losses. As such, it is an integral and important part of the NRDA process and is consistent with all applicable state and federal laws and regulations, including NEPA and its implementing regulations, and the regulations guiding assessment and restoration planning under CERCLA at 43 C.F.R. Part 11.

A draft version of this DARP/CE was made available for review and comment by the public for a period of 30 days beginning on April 15, 2016 and ending May 27, 2016. No comments were received by the Trustees.

1.4 Administrative Record

The Trustees maintained records documenting the information considered and actions taken by the Trustees during this assessment and restoration planning process, and these records collectively comprise the Trustees' administrative record (AR) supporting this DARP/CE. The AR is available for review by interested members of the public. Interested persons can access or view these records at the office of Richard Seiler, at the following address:

Texas Commission on Environmental Quality
MC-136

P.O. Box 13087
Austin TX, 78711-3087
512-239-2523

Arrangements must be made in advance to review or obtain copies of these records by contacting the person listed above. Access to and copying of these records is subject to all applicable laws and policies including, but not limited to, laws and policies relating to copying fees and the reproduction or use of any material that is copyrighted or attorney/client privileged.

2 SITE DESCRIPTION AND HISTORY

This section describes the area of the Site affected by releases of hazardous substances by the PRP and summarizes the response actions that have been, will be, or are expected to be undertaken to address that contamination.

2.1 Overview of the Site

The Beaumont Works Industrial Park (BWIP) complex is located approximately seven miles south of Beaumont, off State Highway 347 in an industrialized area of Jefferson County, Texas (Figure 1). The BWIP is located on the Gulf of Mexico Coastal Plain along the western bank of the Neches River approximately 23 miles from the Gulf of Mexico shoreline. The Neches River, adjacent to the Site, forms part of the Sabine-Neches Waterway, an artificially deepened navigation channel connecting the ports of Beaumont, Orange, and Port Arthur, Texas to the Gulf of Mexico (Figure 3). The Neches River flows into Sabine Lake, which in turn empties into the Gulf of Mexico through Sabine Pass. Smaller tributary streams include Pine Island, Cow, and Spindletop bayous. These smaller streams have well drained watercourses and support typical riparian vegetation. The lower Neches River system (HUC 1202003-Lower Neches) is typically well-vegetated with water-tolerant hardwoods in flood basins, swamp and fresh-water vegetation in abandoned channels, grass covered levees, and heavily wooded patches in well-drained upland areas. Extensive fresh to brackish wetlands are present along the Neches River and border the site to the north, east, and west.

The Site itself consists of approximately 30 acres in the northwestern corner of the BWIP. The Site is bounded by the Neches River on the northeast, closed SWMUs to the southeast, storage tanks to the southwest, and a former intake canal on the northwest (Figure 1). The marsh in and adjacent to the Site, southwest of the Neches River, encompasses several swales, channels, ditches, and depressions. High marsh habitat can be found along the edges of some of these perennial aquatic habitats. Many of the linear perennial water bodies appear to be hydrologically connected to the former intake canal and are tidally influenced. The elevation of the complex ranges from five to 20 feet above mean sea level (MSL), and the facility is located on two remnant terraces formed during Holocene and Pleistocene periods. The upper Pleistocene terrace provides the foundation base for many of the manufacturing units, while the lower Holocene terrace, partially filled with spoils from dredging the Neches River, accommodates several SWMUs (Law Engineering, Inc., 1990).

2.2 Operational History of the Site

The BWIP, formerly owned and operated by DuPont, has been operating since 1954. DuPont manufactured acrylonitrile, ammonia, methanol, methyl methacrylate (MMA), caprolactum, methionine (Hydan), Hypalon® synthetic rubber, and Nordel® hydrocarbon rubber when the plant was operational. The facility also blended tetraethyl lead (TEL) with halo-carbon solvent/stabilizers. Until 1976, treated process wastewater and stormwater runoff from the facility discharged to the West Marsh. In 1991, DuPont sold the methanol unit to Terra Industries. In 2011, the methanol unit was sold to Pandora Methanol, LLC (now OCI Beaumont, LLC), was upgraded, and began production in 2012. The MMA unit was sold to ICI Acrylics in 1993 and is currently owned and operated by Lucite International. DuPont Performance Elastomers ceased the Nordel® hydrocarbon rubber operation in 1999. In 2007, the Acrylonitrile Unit was sold to Lucite International. Operation of the DuPont Performance Elastomers Hypalon® unit was discontinued April 19, 2010, and the unit was dismantled. Presently, the only remaining unit owned and operated by DuPont at the Beaumont Works Industrial Park is the Aniline Unit. Aniline (also known as benzenamine, phenylamine, aminobenzene, aminophen, arlamine, kyanol, benzidam, drystallin, annilin) is not a COC for DuPont West Marsh.

The original BWIP was approximately 751 acres in size and consisted of the following facility components: 200 acres of manufacturing and tank farm facilities, 85 acres of surface impoundments, 26 acres of landfills, and 417 acres of undeveloped or partially developed tracts of land including plant employee recreation grounds, waterways, barge and ship wharfs, and fresh water ponds (Law Engineering, Inc., 1990). Four SWMUs and one area of concern (AOC), operated by DuPont and located within the WWMA, were known to impact the West Marsh. These units include:

SWMU 1 - Burning Ground Landfill

SWMU 4 - Class III Landfill

SWMU 10 - Paint Solvent Storage Pad

SWMU CP-2 - West Burial Ground

AOC 3 - Old "B" Outfall Ditch

Numerous investigations by the TCEQ characterized waste within the SWMU boundaries and demonstrated a release of constituents into the West Marsh, which received runoff from the aforementioned units (DuPont, 1998).

2.2.1 SWMU 1 - Burning Ground Landfill

The Burning Ground Landfill Unit was built on the lower terrace to the northwest of the Beaumont Works in a marshy area formerly used by the Corps of Engineers for the disposal

of dredge material from the Neches River (Figure 2). This SWMU was active from 1960 to 1970, and was utilized to burn and/or dispose of waste materials such as Hypalon™ and Nordel™ rubber as well as activated carbon. The residue was pushed into a pit adjacent to the SWMU. The landfill is currently covered with gravel and vegetation. Sinkholes and protrusions of Nordel® and Hypalon® on the surface have been noted in the past.

2.2.2 SWMU 4 - Class III Landfill

SMWU-4, a Class III Landfill, is located in the northwest portion of the Site, 600 feet from the Neches River channel (Figure 2). This unit was built in a marshy area within the lower river terrace at the facility.

In the late 1960s, non-combustible rubble and debris, including inert spent catalysts, were disposed in the landfill. From 1970 to 1979, wastes including synthetic rubber polymer (containing carbon tetrachloride and chloroform), shifter catalyst (potentially containing chromium and copper salts), and activated and desulfurized carbon were disposed in the landfill. The landfill is unlined and rises 10 feet above original grade with fill. There are no trenches and half the area is covered with grass. Protrusions of Hypalon™ and Nordel™ were observed at the time of the Phase III Request For Information (RFI).

Data collected during the RFI indicated the presence of chlorinated organic compounds in both soil and groundwater. Site-specific waste constituents identified in SWMU 4 include carbon tetrachloride, chloroform, methylene chloride, *trans*-1,2-dichloroethene, tetrachloroethene, and copper and chromium oxides (catalysts). However, near-surface soil samples, as well as subsequent groundwater samples, demonstrated that the only potential source in SWMU 4 is unauthorized drum disposal located along the southern boundary of the unit (Terra Technologies, 1988).

2.2.3 SWMU CP-2 - West Burial Ground

The West Burial Ground (SWMU CP-2) was constructed on a low-lying river terrace southwest of SWMU 1 (Figure 2; Terra Technologies, 1988). SWMU CP-2 consisted of two contiguous landfills: the lead burial pit and the off-grade polymer landfill.

From 1957 to 1972, wastes disposed in the landfills included tetraethyl lead (TEL) contaminated steel, pipe, pelletized lead titanate ($PbTiO_3$), hexadiene heels, Nordel™ polymer solutions, and off-grade Hypalon™ polymer. In 1972, the area was filled in with trash, leveled with a bulldozer, and covered with soil (Law Engineering, Inc., 1990).

Currently, the unit contains 12 feet of fill, with surface protrusions of Hypalon™ and Nordel™ rubber. Constituents and degradation products of the waste disposed in the unit include carbon tetrachloride, chloroform, tetrachloroethene, 1,2-dichloroethane,

trichloroethene, methylene chloride, vinyl chloride, xylenes, lead, chromium, and cyanide. Site-specific constituents have been detected in groundwater. Chlorinated organic compounds, chromium, and lead were detected in soils in SWMU CP-2.

2.2.4 AOC C - Old "B" Outfall Ditch

The Old "B" Outfall Ditch (AOC C) was located on the north side of the BWIP (Figure 2). The ditch was earthen and has since been filled to grade. The Old "B" Outfall Ditch handled wastewater from multiple SWMUs.

Chromium, mercury, lead, carbon tetrachloride, chloroform, methylene chloride, tetrachloroethene, trans-1,2-dichloroethene, and vinyl chloride were detected in soil, groundwater, surface water, and sediment samples collected from the AOC C unit. These constituents are common to wastes disposed in the three surrounding SWMUs and could be associated with waste management activities or waste migration from any of the three.

3 PURPOSE AND NEED

The purpose of the identified restoration actions is to compensate the public for natural resources injured, lost or destroyed, including the loss of the services associated with injured resources within the Site due to releases of hazardous substances. Damages recovered for these losses must be used to restore, replace, rehabilitate, or acquire equivalent natural resources or services equivalent to those lost (42 U.S.C. §9607(f)(1)). This DARP/CE identifies and evaluates a reasonable range of restoration alternatives and identifies the preferred restoration alternative.

3 THE AFFECTED ENVIRONMENT

This section discusses the physical, biological, and cultural environments in which the injured resources exist and in which the restoration action proposed in this DARP/CE would occur. The scope of the environmental impacts addressed in this DARP/CE include those on wildlife, fish and invertebrates, Essential Fish Habitat (EFH), threatened and endangered species, farmland and urban development, recreational resources, water and sediment quality, cultural resources, hazardous and toxic waste, and environmental justice. The information in this section, together with other information in this document, provides the basis for the Trustees' evaluation of the original environmental impacts to the West Marsh, potential

environmental impacts of the alternative restoration actions listed in Section 7 Evaluation of Restoration Alternatives, as well as the potential impacts of the restoration actions proposed in Section 6 The Restoration Planning Process.

In restoration planning, the Trustees emphasis has been on the areas and resources directly affected by the historical releases of hazardous substances to the West Marsh; however, the Trustees have also recognized that the injured resources are part of a larger ecological system: the tidally influenced reach of the lower Neches River system (HUC 12020003). Accordingly, in the development of this DARP/CE, appropriate restoration opportunities within that system have been considered. Under this approach, the Natural Resource Trustees are better able to compensate for resource injuries while also taking into account the multiple ecological and human use benefits of restoration within the larger ecosystem.

3.1 The Physical Environment

Presently, the general area is part of the Western Gulf Coastal Plain Ecoregion as defined by Omernik (1995), and is in the Gulf Coastal Prairies vegetation region as classified by Gould et al. (1960), and modified by Bezanson (2001). The West Marsh is a localized remnant of the original Neches River floodplain, which was altered in the 1940s as part of creation of the McFaddin Bend Cutoff and the National Defense Reserve Fleet (NDRF) facility. The latter consists of a large, deep-draft access channel and docking facilities about 2,100 feet northwest of the Site, and a 570-acre embayment for vessel anchorage on the opposite (northeast) side of the Cutoff from the Site. More of the former Neches River floodplain within DuPont property is occupied by solid waste units and docking facilities. The West Marsh is not a natural tidal fringe wetland. The area in question was part of an extensive bottomland hardwood (riparian) forested ecosystem that was altered during the discovery and subsequent production of oil, and further altered for deep-draft navigation, irrigation, and flood control. The parts of the area (if any) that were wetland or deepwater habitats would have been riverine and deltaic features (Cowardin et al., 1979).

3.2 The Biological Environment

The wetlands of the tidally-influenced reach of the lower Neches River system contribute nutrients to and enhance productivity of Sabine Lake and serve as important nursery and adult habitat for a variety of oligohaline and marine fish and invertebrate species. The Neches River in the vicinity of the Site is tidally influenced. Phytoplankton, zooplankton, and aquatic invertebrates living in the estuarine habitats of the system provide food web support for a diversity of fish and bird species. The substrate associated with macroinvertebrate and fish/shellfish communities reported from similar habitats near the West Marsh are typical of

those of comparable salinity regimes in other northern Gulf estuaries (Harrel and Hall, 1991; ANSP, 1998; Conner et al., 1975; Pattillo et al., 1995).

The waters of the tidally influenced reach of the lower Neches River system also support species important for commercial and recreational usage and provide habitat for the following organisms: spotted seatrout (*Cynoscion nebulosus*), sand seatrout (*Cynoscion arenarius*), Atlantic croaker (*Micropogonius undulatus*), red drum (*Scienops ocellatus*), black drum (*Pogonius cromis*), sheepshead (*Argosargus probatocephalus*), blue crab (*Callinectes sapidus*), white shrimp (*Litopenaeus setiferus*), brown shrimp (*Farfantepenaeus aztecus*), southern kingfish (*Menticirrhus americanus*), southern flounder (*Paralichthys lethostigma*), striped mullet (*Mugil cephalus*), sea catfish (*Galeichthys felis*), Gulf menhaden (*Brevoortia patronus*), gafftopsail catfish (*Bagre marinus*), and Gulf kingfish (*Menticirrhus littoralis*). In addition, numerous other estuarine and marine resources are found in the tidally-influenced reach of the lower Neches River system, including bay anchovy *(Anchoa mitchilli*), silver perch (*Bairdiella chrysoura*), bull shark (*Carcharhinus leucas*), sheepshead minnow (*Cyprinodon variegatus*), gizzard shad (*Dorosoma cepedianum*), Gulf killifish (*Fundulus grandis*), code goby (*Gobiosoma robustum*), pinfish (*Lagodon rhomboides*), spot croaker (*Leiostomus xanthurus*), silversides (*Menidia* spp.), Gulf flounder (*Paralichthys albigutta*), hard clam (*Mercenaria mercenaria*), grass shrimp (*Palaemonetes pugio*), and common rangia (*Rangia cuneata*).

The sediments within the system support benthic organisms, including annelid worms, small crustaceans (amphipods, isopods, copepods, and juvenile decapods), mollusks, and other small benthic species in salt marshes and unvegetated subtidal sediments. Among these benthic organisms are herbivores (eating algae or other live plant material), detritivores (feeding on decaying organic matter in surface sediments or sediment-bound nutrients and organic substances that are not generally available to epiphytic or pelagic organisms), carnivores (preying on other benthic organisms), and omnivores (a combination). These organisms provide the nutritional base for developing stages of many finfish and shellfish and thus affect all trophic levels in the tidally influenced reach of the lower Neches River system. The activities of benthic organisms are important in conditioning wetlands and subtidal habitats and in the decomposition and nutrient cycling that occur in these areas. In sum, benthic communities provide important ecological services primarily related to food production, decomposition and energy cycling that affect nearly all organisms within an estuarine system. A potential adverse impact on benthic populations has the potential to impact biota in nearly all trophic levels of the tidally influenced reach of the lower Neches River system.

The tidally influenced reach of the lower Neches River system is home to a variety of plant species that are typical of species found in estuarine wetlands including cordgrasses

(*Spartina alterniflora* and *S. patens*), saltwort (*Batis maritima*), glass wort (*Salicornia virginica*), seashore saltgrass (*Distichlis spicata*), saltmarsh bulrush (*Scirpus maritimus*), sea oxeye (*Borrichia frutescens*), and marsh elder (*Iva frutescens*).

The currently existing habitat in the West Marsh is a mosaic of marsh, scrub-shrub, and small areas of immature forest. A central area of marsh, dominated by common reed (*Phragmites australis)*, tends to grade laterally (except toward the old intake canal) into patches or strips of shrubs, mainly wax-myrtle (*Myrica cerifera*), and eastern baccharis, *Baccharis halimifolia)*, and/or trees in slightly higher areas. The latter are mainly black willows (*Salix nigra)*, sugarberry (*Celtis laevigata)*, ash (*Fraxinus* spp.), elms (*Ulmus* spp.), and Chinese tallows (*Sapium sebiferum*). The wooded zones are more mature, denser, and largely continuous along the northern (riverfront) and southern portions of the overall area.

Because of its largely ruderal vegetative cover, small size, and relative isolation, the West Marsh would be expected to support a rather limited assemblage of wildlife. The most diverse group, due to their mobility, would be birds. However, small-to medium-sized herbivores or omnivores can be expected to reside or forage at the site and would include common small mammals such as bats (order Chiroptera), swamp rabbit (*Sylvilagus aquaticus*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana)*, striped skunk (*Mephitis mephitis)*, eastern fox squirrel (*Sciurus niger*), marsh rice rat (*Oryzomys palustris*), nutria (*Myocastor coypus*), River otter (*Lutra canadensis*), and beaver (*Castor canadensis)*.

More than one-half of the bird species of North America are resident in the state of Texas or spend a portion of their migration there. Migratory wildfowl represent the most abundant of these and include several species of ducks and geese that winter in the tidal marshes and estuarine habitat along the Gulf coast. The most common of the state's water birds that may use the site include the green-winged teal (*Anas crecca),* blue-winged teal (*Anas discors*), wood duck (*Aix sponsa*), black-bellied whistling duck (*Dendrocygna autumnalis*), gadwall (*Anas strepera*), grebe (*Podiceps nigricollis*), mottled duck (*Anas fulvigula*), laughing gull (*Larus atricilla*), royal tern (*Sterna maxima*), brown pelican (*Pelecanus occidentalis*), Snowy egret (*Egretta thula*), spotted sandpiper (*Actitis macularia*), Foster's Tern (*Sterna forsteri*), Red-winged blackbird (*Agelaius phoeniceus*), and black skimmer (*Rynchops niger*). Birds found in the wetlands include the marsh wren (*Cistothorus palustris*), seaside sparrow (*Ammodramus maritimus*), red-winged blackbird (*Agelaius phoeniceus*), Wilson snipe (*Charadrius wilsonia*), woodcock (*Scolopax minor*), and species of sandpipers (*Actitis* spp.). This eastern portion of the Chenier Plain is part of the Central Flyway and the Mississippi Flyway (USFWS, 2012). The U.S. Fish and Wildlife Service and its partner agencies manage for migratory birds based on specific migratory route paths within North America (Atlantic, Mississippi, Central, and Pacific). Based on the paths of those routes, state and federal

agencies developed four administrative Flyways that administer migratory bird resources. This area is also a known wintering ground for numerous Canadian species of birds.

Amphibians and reptiles are known to be present in the vicinity of the Site. The largest apex predator, the American alligator (*Alligator mississippiensis*), is known to inhabit streams, rivers, ponds, and lakes. Although they are primarily freshwater animals, alligators will also venture into brackish water (SREL, 2014). Other species common to Jefferson county include the cottonmouth (*Agkistrodon piscivorus*), common kingsnake (*Lampropeltis getula*), mud snake (*Farancia abacura*), diamondback terrapin (*Malaclemys terrapin*), Eastern mud turtle (*Kinosternon subrubrum*), pig frog (*Rana grylio*), bullfrog (*Lithobates catesbeianus*), American green tree frog (*Hyla cinerea*), garter snake (*Thamnophis proximus*), ground skink (*Scincella lateralis*), northern cricket frog (*Acris crepitans*), green water snake (*Nerodia cyclopion*), brown snake (*Storeria dekayi*), pond slider (*Trachemys scripta*), banded water snake (*Nerodia fasciata*), Carolina anole (*Anolis carolinensis*), salt marsh snake (*Nerodia clarkii*), copperhead (*Agkistrodon contortrix*), plain-bellied water snake (*Nerodia erythrogaster*), Squirrel tree frog (*Hyla squirella*), dwarf salamander (*Eurycea quadridigitata*), and the five-lined skink (*Plestiodon fasciatus*) (TAMU, 2014).

3.3 The Aquatic Environment

Sabine Lake is Texas' easternmost estuary, covering approximately 90,000 acres and is under the regulatory jurisdiction of Texas and Louisiana. Sabine Lake lies in a river valley formed during the last glacial period and receives its primary freshwater influx from the Sabine River and the Neches River, which enter near Port Arthur. Bayous entering Sabine Lake include Lighthouse, Fourge, Greens, Madame Johnson, Johnsons, Willow, and Black (Figure 3). Together with the Sabine River, the lake forms the boundary between Louisiana and Texas. The Sabine River flows for 555 miles. Its total drainage basin area is 9,756 square miles, of which 7,426 is in Texas and the remainder in Louisiana. It discharges the largest volume of water at its mouth of all Texas rivers (DuPont, 1998).

Internal aquatic habitats of West Marsh are part of Segment 0601, described as Neches River Tidal in Appendix C of the Texas Water Quality Standards. The Environmental Protection Agency has designated a hydrologic unit code (HUC) that represents a geography area for all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature. The lower Neches River is designated as HUC 1202003-Lower Neches system. This system is typically well-vegetated with water-tolerant hardwoods in flood basins, swamp and fresh-water vegetation in abandoned channels, grass covered levees, and heavily wooded patches in well-drained upland areas. Extensive fresh to brackish water marsh habitats are present along the Neches River and border the site to the north, east, and west. The Neches

River has a total estimated drainage area of 10,000 square miles. Abundant rainfall in the basin results in a flow of approximately 6,000,000 acre-feet per year.

Essential Fish Habitat

Congress enacted amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (PL 94-265) in 1996 that established procedures for identifying EFH and required interagency coordination to further the conservation of federally managed fisheries. Rules published by NOAA's National Marine Fisheries Service (NMFS) (50 C.F.R. §§ 600.805 - 600.930) specify that any Federal agency that authorizes, funds or undertakes, or proposes to authorize, fund, or undertake an activity which could adversely affect EFH is subject to the consultation provisions of MSFCMA as described in the implementing regulations. This section and the associated impacts sections were prepared to meet these requirements.

EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." When referring to estuaries, it is further defined as "all waters and substrates (mud, sand, shell, rock, and associated biological communities) within these estuarine boundaries, including the sub-tidal vegetation (seagrasses and algae) and adjacent tidal vegetation (marshes and mangroves)" (Gulf of Mexico Fishery Management Council (GMFMC), 2004). The Site, the selected restoration project site, and the alternative restoration project sites are located in areas that have been identified by the GMFMC and by the NMFS as EFH for a suite of species identified in Tables 1 and 2.

Detailed information on EFH for federally managed shrimp, crab, red drum, reef fish, and coastal migratory pelagic species is provided in the 2005 amendment of the fishery management plans (FMPs) for the Gulf of Mexico prepared by the GMFMC. Information on EFH for most highly migratory species is contained in Appendix B of the 2006 Final Consolidated Atlantic Highly Migratory Species Fishery Management Plan prepared by the NMFS. Tables 1 and 2 include a list of species and life stages for which EFH has been designated in the vicinity of the Site and in the preferred and non-preferred restoration project alternative sites.

In addition to being designated EFH for the federally managed species listed in Tables 1 and 2, the subtidal and intertidal zones of the Site and the preferred and non-preferred restoration project alternative sites provide nursery and foraging habitats that support various life states of ecologically and recreationally important marine fishery species, such as spotted seatrout, sand seatrout, southern flounder, Gulf flounder, Atlantic croaker, black drum, Gulf menhaden, striped mullet, blue crab, eastern oyster, stone crab, pinfish, bay anchovy, Gulf killifish, sheepshead, sheepshead minnow, southern kingfish, Gulf kingfish, sea catfish,

gafftopsail catfish, gizzard shad, code goby, spot croaker, silversides, bluefish, Spanish mackerel, bay squid, hard clam, grass shrimp, common rangia, American gizzard shad, and silver perch. Such organisms serve as prey for other fish managed under the MSFCMA by the GMFMC (e.g., red drum, mackerels, snappers, and groupers) and for highly migratory species managed by the NMFS (e.g., billfishes and sharks). Vegetated intertidal and subtidal habitats also provide important fishery support functions, including: (1) providing a physically recognizable structure and substrate for refuge and attachment above and/or below the water and sediment surfaces; (2) improving water quality by trapping sediments and assimilating pollutants; (3) preventing erosion; (4) collecting organic and inorganic material by slowing currents; and (5) providing nutrients and detrital matter to the estuarine system. Moreover, the tidally influenced reach of the lower Neches River system provides habitat for many benthic animals, including marine worms and crustaceans which are consumed by higher trophic level predators such as shrimp, crabs, and black drum. Benthic organisms also have a key role in the estuarine food web because they (1) mineralize organic matter, releasing important nutrients to be reused by primary producers; (2) act as trophic links between primary producers and primary consumers; and (3) aggregate dissolved organics within estuarine waters, which are another source of particulate matter for primary consumers.

The Site and the preferred and non-preferred restoration project alternative sites also include supratidal areas, including irregularly-flooded halophytic marsh, estuarine sandflats, and algal flats. When flooded by seasonal high tides and storm events, these areas provide nursery, foraging, and refuge habitats for marine fisheries. They also provide vital support functions necessary for the maintenance of healthy estuaries including improving water quality and producing nutrients and detrital matter. Halophytic wetlands and estuarine flats also provide habitats for a variety of marine invertebrates, which are important components of the estuarine food web.

Table 1. Reef Fish, Red Drum, Shrimp, and Coastal Migratory Pelagic Fish with Essential Fish Habitat near the Site or Restoration Site[1]

Species	Life Stage	Habitats[2]
Almaco jack	Early Juvenile Late Juvenile	nearshore and offshore drift algae, 15-160m nearshore and offshore drift algae, 15-160m
Dog Snapper (*Lutjanus jocu*)	Eggs Larvae Early Juvenile	nearshore pelagic nearshore pelagic marsh
Gray mangrove snapper (*Lutjanus griseus*)	Adults	marsh; estuarine, nearshore and offshore sand/shell, soft bottom, 0-180m

Gray triggerfish (*Balistes capricus*)	Larvae Post Larval Early Juvenile Late Juvenile Adults Spawning adults	nearshore drift algae nearshore drift algae nearshore drift algae nearshore drift algae, 10-100m nearshore and offshore sand/shell, 10-100m nearshore and offshore sand/shell, 10-100m
Greater amberjack (*Seriola dumerili*)	Eggs Larvae Post Larval Early Juvenile Late Juvemile Adults Spawning adult	offshore pelagic, 1-360m offshore pelagic, 1-360m offshore pelagic, 1-360m nearshore and offshore drift algae, 1-360m nearshore and offshore drift algae, 1-360m nearshore and offshore pelagic, 1-360m offshore pelagic, 1-360m
Lane Snapper (*Lutjanus synagris*)	Eggs Early Juvenile Late Juvenile Adults	offshore pelagic, 4-132m estuarine and nearshore sand/shell and soft bottom, 0-20m estuarine and nearshore sand/shell and soft bottom, 0-20m nearshore and offshore sand/shell, 4-132m
Red snapper (*Lutjanus campechanus*)	Eggs Larvae Early Juvenile Late Juvenile Spawning Adults	offshore pelagic, 18-37m nearshore and offshore pelagic, 18-37m nearshore and offshore soft bottoms and sand/shell, 17-183m nearshore and offshore soft bottoms and sand/shell, 20-46m offshore sand/shell, 18-37m
Red Drum (*Sciaenops ocellatus*)	Eggs Larval Post Larval Early Juvenile Late Juvenile Adults Spawning Adults	nearshore pelagic estuarine soft bottom estuarine soft bottom and sand/shell, marsh estuarine soft bottom, marsh estuarine sand/shell, marsh estuarine and nearshore soft bottom and sand/shell, marsh, nearshore pelagic estuarine and nearshore soft bottom and sand/shell
Brown Shrimp (*Farfantepenaeus aztecus*)	Eggs Larvae Post Larval Early Juvenile Late Juvenile Adults Spawning Adults	offshore sand/shell and soft bottoms offshore pelagic marsh, oyster reef, estuarine sand/shell and soft bottom marsh, oyster reef, estuarine sand/shell and soft bottom marsh, oyster reef, estuarine sand/shell and soft bottom nearshore and offshore sand/shell and soft bottoms offshore sand/shell and soft bottoms
White Shrimp (*Litopenaeus setiferus*)	Eggs Larvae Post Larval Early Juvenile Late Juvenile Adults Spawning Adults	offshore sand/shell and soft bottoms nearshore pelagic marsh, estuarine soft bottom marsh, estuarine soft bottom marsh, estuarine soft bottom nearshore soft bottoms nearshore soft bottoms
Cobia (*Rachycentron canadum*)	Eggs Larvae Post Larval Early Juvenile Late Juvenile Adults Spawning Adults	nearshore pelagic offshore pelagic nearshore and offshore pelagic nearshore and offshore pelagic nearshore and offshore pelagic nearshore and offshore pelagic nearshore and offshore pelagic

King Mackerel (*Scomberomorus cavalla*)	Eggs Larvae Early Juvenile Late Juvenile Adults Spawning Adults	offshore pelagic offshore pelagic nearshore and offshore pelagic nearshore pelagic nearshore and offshore pelagic offshore pelagic

[1] Gulf of Mexico Fishery Management Council. 2004. Final environmental impact statement for the generic amendment to the following fishery management plans of the Gulf of Mexico: Shrimp Fishery of the Gulf of Mexico, United States Waters; Red Drum Fishery of the Gulf of Mexico; Reef Fish Fishery of the Gulf of Mexico; Coastal Migratory Pelagic Resources (Mackerels) in the Gulf of Mexico and South Atlantic; Stone Crab Fishery of the Gulf of Mexico; Spiny Lobster in the Gulf of Mexico and South Atlantic; Coral and Coral Reefs of the Gulf of Mexico. Gulf of Mexico Fishery Management Council. Tampa, FL.
[2] The water column is considered EFH for all listed life stages.

Table 2. Highly Migratory Species with Essential Fish Habitat near the Site or Restoration Site[2]

Species	Life Stage	Habitats[1]
Scalloped Hammerhead (*Sphyrna lewini*)	neonate/young of year	estuaries, nearshore, and offshore
Bull Shark (Ca*rcharhinus leucas*)	neonate/young of year juvenile adult	estuaries, nearshore, and offshore estuaries, nearshore, and offshore estuaries, nearshore, and offshore
Lemon Shark (*Negaprion brevirostris*)	juvenile	estuaries, nearshore, and offshore
Bonnethead Shark (*Sphyrna tiburo*)	neonate/young of year juvenile	estuaries, nearshore, and offshore estuaries, nearshore, and offshore
Atlantic Sharpnose Shark (*Rhizoprionodon terraenovae*)	neonate/young of year juvenile adult	estuaries, nearshore, and offshore estuaries, nearshore, and offshore estuaries, nearshore, and offshore
Finetooth Shark (*Carcharhinus isodon*)	juvenile adult	estuaries, nearshore, and offshore estuaries, nearshore, and offshore
Blacktip Shark (Ca*rcharhinus limbatus*)	neonate/young of year juvenile adult	estuaries, nearshore, and offshore estuaries, nearshore, and offshore estuaries, nearshore, and offshore

[1] The water column is considered EFH for all listed life stages.
[2] NMFS. 2009. Final Amendment 1 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan, Essential Fish Habitat. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring,
MD. Public Document. pp. 395.

3.4 Protected Species

The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§1531 *et seq*.) requires federal agencies to conserve endangered and threatened species and to conserve the ecosystems upon

which these species depend. Table 2 provides a list of federally recognized endangered or threatened species, as well as species utilizing designated critical habitat, reported to reside in or migrate through the tidally influenced reach of the lower Neches River system. Numerous endangered and threatened species are seasonal or occasional visitors to the tidally influenced reach of the lower Neches River system. The habitats in the Site and the preferred or non-preferred restoration project alternative sites provide multiple ecosystem services supporting threatened and endangered species migrating through or utilizing these communities. While individuals may have been put at risk due to the exposures to COCs at the Site, the continued existence of species protected under the ESA is not considered to have been jeopardized by the releases of hazardous substances into the West Marsh, nor was any evidence of injury to threatened or endangered species found to have resulted from the releases.

Table 3. Protected species under the ESA in federal waters of the Gulf of Mexico or the preferred restoration project alternative area

Common Name	Scientific Name	Federal Status
Green Sea Turtle	*Chelonia mydas*	Threatened
Piping Plover	*Charadrius melodus*	Threatened
Red Knot	*Calidris canutus rufa*	Threatened
Hawksbill Sea Turtle	*Eretmochelys imbricata*	Endangered
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	Endangered
Leatherback Sea Turtle	*Dermochelys coriacea*	Endangered
West Indian Manatee	*Trichechus manatus*	Endangered

3.5 The Cultural and Human Environment

Early inhabitants of the Texas coastal region included Atakapa-speaking Akokisa Indians who resided around Galveston Bay and the Karankawa, who resided along the coast between the Brazos River Delta and the Corpus Christi Bay area. The Spanish began populating Texas in the early 1700s and established missions along the Trinity and Sabine Rivers. The Neches River/Sabine Lake area cultural environment was influenced by immigration of Anglo-American settlers from neighboring Louisiana beginning in the early 1800s and German immigrants during the mid-1800s (Ricklis 1994).

During the Civil War, Sabine Pass, at the south of Sabine Lake, was a major center for the shipment and trade of cotton in exchange for vital supplies, arms, and medicine for the Confederate Army. Union ships actively sought to blockade harbors and disrupt shipments along the Gulf Coast. In a small but notable victory, Confederate forces repelled an attempted 1863 invasion of Texas by Union naval gunboats convoying Union soldiers at Sabine Pass near Port Arthur. Sabine Pass Battleground State Historical Park, a 57.6-acre park located in

Jefferson County to the south, encompasses lands and resources that were part of this historic period.

Prior to the 1870s, the lower Neches River was used seasonally for navigation, mainly to bring lumber, shingles, and agricultural commodities to Gulf ports. In 1878, Sabine Pass was dredged to provide a deep-draft channel and year-round access to the area of Port Arthur and Port Neches. Farther inland, to the west and southwest of Beaumont, an interest in large-scale rice farming developed. Around the turn of the century, several groups established irrigation networks tapping the lower Neches River. The McFaddin-Wiess-Kyle Canal Company built an intake channel and pumping station near the upstream end of McFaddin Bend to supply a 25-mile network of canals to the west. What remains of the canal is the feature that forms the northwestern edge of West Marsh. Construction of this "Old Intake Canal" may have taken advantage of an existing tributary outlet whose watershed included an unusual "hill" about two miles inland. This prairie drainage feature, which was later partially channelized, descended to the floodplain in the immediate vicinity of the canal company's pumping station. The hill to the west is now known as Spindletop Dome, the site of development of one of the world's first major oil fields, and the first in Texas, in 1901. During the months after the initial Spindletop gusher was harnessed, several hundreds of wells (including others that began as gushers) were completed. Predecessors of many of the major oil companies we recognize today (e.g., ExxonMobil, Chevron) were formed at this time, and several refineries were built in the area, especially around Port Arthur. The frantic growth stimulated by Spindletop briefly made Beaumont the largest metropolitan area in Texas (Kleiner, 2001).

Soon after World War II, the lower Neches River was widened by an average of approximately 100 feet, straightened, and dredged to a depth of 35 feet. The McFaddin Bend Cutoff was created at this time. DuPont acquired the property, including the West Marsh, in 1951, and began operations near the railroad tracks that parallel Highway 437.

Post-Spindletop industrial expansion in the Beaumont area created such serious water-quality problems in the lower Neches River that in the 1950s through the early 1980s, it was recognized as one of the most "polluted" streams in the country (ANSP 1954, 1958, 1961, 1974; Warshaw, 1974; Harrel, 1975; Harrel et al., 1976; TDWR, 1978; Davis 1984). Most of the degradation was related to organic loading and its influence on dissolved oxygen levels.

By the early 1990s, aside from salinity intrusion, water quality was restored to the point that biological communities in the main channel appeared to be relatively healthy (Harrel and Hall 1991; ANSP 1998). This prompted Patrick et al. (1992) to cite the lower Neches as a case study of recovery, demonstrating the effectiveness of the CWA. Most recent studies under the Texas Clean Rivers Program (CRP) indicate that the only remaining serious water-

quality concerns in Segment 0601 are dissolved oxygen concentrations and malathion (a pesticide) (LNVA, 2011).

In addition to being part of Texas' cultural history, the tidally influenced reach of the lower Neches River system supports both recreational and commercial fishing. Recreational fishing occurs throughout the Estuary, including in the salt marshes in the vicinity of the Site and in the drainage channel east of pond A. Species fished in the Estuary include blue crab, red drum, black drum, spotted sea trout, southern flounder, Atlantic croaker, striped mullet, and sea catfish. Sabine Lake is also a popular area for recreational fishing, with red and black drum, sea trout, sheepshead, and flounder being the most commonly harvested species. The tidally influenced reach of the lower Neches River system supports several important commercial fisheries. Large numbers of blue crab are harvested in the lake, as well as in the surrounding salt marshes and throughout the rest of the Sabine Lake Estuary. White shrimp and brown shrimp are economically important species found in the system. Commercial harvest of finfish also occurs at low levels. These human activities are dependent upon the condition of coastal and marine habitats.

4 METHODOLOGY FOR INJURY EVALUATION

This section of the DARP/CE describes the Trustees' assessment of natural resource injuries due to hazardous substances released from the WWMA.

The evaluation and estimate of potential natural resource injuries presented in this section were developed within a joint technical workgroup formed by the Trustees and the PRPs as part of a cooperative NRDA process; however, the assessment approach and resource injury and loss evaluation is solely that of the Trustees, as they are responsible for ensuring that the assessment plan and its outcome are consistent with the CERCLA and NRDA process.

4.1 Conservative Injury Evaluation

In evaluating and estimating injuries within this cooperative workgroup, a 'Conservative Injury Evaluation' (CIE) approach was applied. The CIE approach uses conservative values and assumptions (i.e., those favoring natural resources and the public's interests in injured resources) to address or resolve uncertainties in assessment analyses. The approach results in an upper-end estimate of how much injury occurred or how much restoration is required, but can also aid Trustees in determining the appropriate level of effort to apply in obtaining more refined estimates. Sometimes, as is the case for most of the assumptions used in this assessment, the cost to develop more precise estimates or further refine parameters used in the analysis would exceed the potential resulting change in the cost of restoration. In these instances, the use of conservative assumptions in the final analysis, rather than developing more precise point estimates, results in an overall cost savings while still protecting the public's interest in obtaining sufficient restoration for the injuries.

4.2 Contaminants of Concern

The identification of hazardous substances to include in the list of COCs, as well as their pathways to and potential effects on the ecosystem, is integral to the Trustees' approach to injury assessment. To develop the list for this Site, the Trustees, along with TCEQ Ecological Risk Assessors and Project Managers, reviewed the remedial investigation and Screening Level Ecological Risk Assessment (SLERA; Dupont, 2008). The remedial investigation identified the nature and extent of hazardous substances, and the SLERA assessed ecological risks to biota due to contaminant exposures.

When a COC exceeds the ecological benchmark or is bioaccumulative, a protective concentration level (PCL) must be developed. In order to determine the PCL, multiple site-specific and receptor-specific factors must be considered. These considerations include (but are not limited to): toxicity test results based on scientific research, home range and ingestion

rate of organisms at risk, and the bioaccumulative nature of the chemical. Based on the COC screening protocol, it was necessary to identify ecological PCLs for multiple COCs at the Site. The COCs and their screening determination information can be found summarized in Table 2. More detailed information can be found in Table 2-1 of the SLERA (DuPont, 2008).

Table 4. Ecological screening of sediment concentrations of chemicals of concern, DuPont Beaumont Works - West Marsh and adjacent extended area

Chemical of Concern (COC)	Surficial Sediments (mg/kg-DW)					COC Screening	
	Detection Frequency	Maximum Detected	95% UCL	Estuarine Sediment Benchmark	Bioaccumulator	Benthics	Wildlife
Antimony (total)	16/68	22.2	2.7	2	no	retained	eliminated
Aroclor 1016/1260	7/26	2.9	0.767	0.005	yes	retained	retained
Arsenic (total)	81/100	26	8.62	8.2	no	retained	eliminated
Bis(2-ethylhexyl)phthalate	1/8	0.74	0.532	0.182	no	retained	eliminated
Cadmium (total)	7/79	16.6	1.44	1.2	yes	retained	retained
Chromium (III: dissolved)	101/103	10300	905	81	no	retained	retained
Copper (total)	69/71	887	57.3	34	yes	retained	retained
Lead (dissolved)	105/109	3.86	95	46.7	no	retained	retained
Mercury (total)	28/77	1.15	0.233	0.15	yes	retained	retained
Nickel (dissolved)	50/69	252	20.8	20.9	yes	retained	retained
Selenium (total)	13/76	0.679	3.236	1	yes	retained	retained
Tetrachloroethene	12/87	28000	959	3.1	no	retained	retained
Trichloroethene (TCE)	10/74	130	7.18	1.47	no	retained	retained
Zinc (dissolved)	78/80	3300	336	150	yes	retained	retained

Based on the SLERA, the Trustees determined that approximately 21.5 acres of benthic habitat in the West Marsh were impacted by hazardous substances historically released from the WWMA. This DARP/CE addresses only injuries to natural resources at the Site that are or may be attributable to releases from the WWMA and does not address natural resource injuries at the Site that may be due to releases of hazardous substances by any other party or releases of hazardous substances by any other waste management area associated with this Beaumont Works Industrial Complex. Potential contamination issues at the Beaumont Works Industrial Complex outside of the West Marsh are currently being addressed under the Texas Risk Reduction Program (TRRP) in coordination with the TCEQ.

4.2.1 Aroclor 1016/1260

Aroclor 1260 is a polychlorinated biphenyl (PCB) mixture. PCBs have been demonstrated to cause a variety of adverse health effects, including cancer in animals. These effects can impact the immune system, reproductive system, nervous system, and the endocrine system, amongst others (USEPA, 2013). Since the behavior and toxicity of most of the individual PCB compounds are poorly understood, literature tends to refer primarily to the properties of the homologs (Safe, 1990, 1994) or "total PCBs." PCBs adsorb to particulate matter (sediments and soil), especially in the presence of elevated organic matter. This absorption increases with higher levels of chlorination. This means that the heavier and more highly chlorinated PCBs (e.g., Aroclor 1260) are more resistant to weathering or degradation. The

homologs that predominate in Aroclor 1260 have a strong tendency to biomagnify so that in a given food web the animals that are at the highest trophic levels (e.g. top carnivores) can have substantially greater tissue burdens than herbivores or omnivores (ATSDR, 2000).

Toxicity due to PCB exposure can affect speed of growth and adequacy of "survival skills" in fish (McCarthy et al., 2003). The effects of PCBs can also impact birds via diet and maternal-transfer, but it varies depending on the species of bird. Impairment of reproduction is the most significant chronic endpoint (Hoffman et al., 1996).

4.2.2 Cadmium (Cd)

Cadmium is a naturally occurring metal that typically found with other metals such as lead and zinc. Cadmium is seldom found in its pure form (Eisler, 1985a), and usually is combined with other elements such as oxygen, chlorine, or sulfur. Cadmium is obtained as a by-product from smelting zinc, lead, or copper ores. The cadmium by-product is mostly used in metal plating and to make pigments, batteries and plastics (USEPA, 1979). In general, cadmium tends to be more mobile in water than heavier metals; however, sorption to mineral surfaces and humic material are important mechanisms for partitioning to sediments. When mobilized, cadmium is readily accumulated by certain aquatic organisms (USEPA, 1979; Eisler, 1985a). Other factors associated with increasing the bioavailability of cadmium in water are low pH, low hardness, low suspended solids, and high conductivity.

Cadmium is a relatively toxic metal with no known nutrient properties (Eisler, 1985a). It appears to manifest adverse effects via a variety of mechanisms in many tissues (Sorensen, 1991). In aquatic animals, a common reaction is damage to gills which causes irregular ventilation. The TCEQ saltwater (estuarine) criterion for aquatic life is 0.01 milligrams per liter (mg/L) cadmium (DuPont, 2008). Based on the concentrations noted in the water column it appears unlikely that either water-column organisms or benthic invertebrates are directly at risk. The main concern in the West Marsh would be the potential for bioaccumulation in such organisms and trophic transfer of cadmium to wildlife receptors.

Birds and mammals are comparatively resistant to cadmium, which appears to act in a cumulative manner, tending to accumulate in the liver and (especially) the kidney. The most sensitive chronic endpoints are reflected in impaired reproduction and/or developmental abnormalities in offspring (Eisler, 1985a). Dietary concentrations in the low part-per-million (ppm) range appear to affect some birds, but not mammals.

4.2.3 Chromium (Cr)

Chromium is widely recognized to typically exist in sediment in the trivalent form ($CR^{3+)}$ (Eisler, 1986; McComish and Ong, 1988). Chromium can exist in variable oxidation states

from Cr^{+2} to Cr^{+6}, although the highly oxidized forms are environmentally unstable. Chromium will adsorb to clay particles, depending upon pH, and will also form organic complexes. Under normal sediment conditions, the ready conversion of Cr^{+6} to relatively insoluble Cr^{+3} results in low bioavailability to plants and animals (McComish and Ong, 1988; Kabata-Pendias and Pendias, 1992). Toxicity due to chromium exposure is related to its oxidative state and membrane permeability; the hexavalent form (Cr^{+6}) is the most toxic.

In plants, chromium appears to interfere with the transport and metabolism of essential minerals, especially cadmium, potassium, manganese, boron, and copper (Efroymson et al., 1997).

In aquatic animals, reproduction appears to be the most significant chronic endpoint. Invertebrates tend to be more sensitive than most fishes.

In terrestrial and semi-aquatic (air-breathing) vertebrates, chromium appears to be mainly a contact poison by actively attacking respiratory tissues (Eisler, 1986). Oral exposure appears to be relatively innocuous, especially in mammals. Reproductive, growth, and/or developmental endpoints are poorly established; therefore, the most significant chronic endpoint is considered to be survival. Trivalent chromium is the prevalent form of chromium found at the Site.

4.2.4 Copper (Cu)

Copper is significantly phytotoxic (toxic to plants), and is a common active ingredient in algicides. The most significant chronic endpoints are related to survival (algae) and survival and growth (vascular plants).

Copper is highly toxic to most aquatic species. The main cause of copper toxicity to fish and aquatic invertebrates is through rapid binding of copper to the gill membranes, which causes damage and interferes with osmoregulatory processes (USEPA, 2008).

In terrestrial and semi-aquatic vertebrates copper is a contact irritant within the gastrointestinal tract and a potential inducer of cellular oxidative stress. Many terrestrial animals have the ability to cope with some amount of excess copper exposure by storing it in the liver and bone marrow. However, exposure to high levels of copper in the diet can overwhelm the ability of birds and mammals to maintain homeostasis. The most significant chronic endpoints appear to be related to growth or survival in birds and reproduction in mammals. Mammals appear to be slightly more sensitive to dietary exposures than birds (Sample et al., 1996)

4.2.5 Lead (Pb)

Lead is a naturally occurring metal. It occurs in small amounts in ore, along with other elements such as silver, zinc or copper. Lead is frequently used in a wide variety of products including: paint, ceramics, batteries, and cosmetics (NIEHS, 2013).

Plants in general are resistant to lead; the most significant chronic endpoint is growth. Lead in vascular plants has no known physiological function (although lead appears to be a natural constituent in tissues). It appears that the sediment pH and form of lead, when combined, have a significant influence on the toxicity observed.

In aquatic animals, acute lead exposure affects invertebrates much more readily than fish. This is believed to be associated with the differences in liver enzyme function (i.e., metal-binding proteins). Crustaceans appear to be most vulnerable due to interference with metal mobilization processes during molting events.

Among terrestrial and semi-aquatic vertebrates, birds tend to be relatively sensitive to lead poisoning, while mammals appear to be slightly less sensitive (ignoring ingestion of lead pellets by water fowl). Neurological, behavioral, and metabolic effects (often manifested as reduced growth) appear to be the most significant chronic effects in birds. The most significant chronic effects in mammals appear to be related to fertility (reproduction) and development (Eisler, 1988).

4.2.6 Mercury (Hg)

Mercury is a highly toxic element that is found both naturally and as an introduced contaminant in the environment. There are multiple forms of mercury present and some forms are more toxic than others. Methylmercury (CH_3Hg) is the most toxic form. It affects the immune system, alters genetic enzyme systems, and damages the nervous system. Mercury is persistent in the environment and is known to bioaccumulate. Planktonic algae have a high capacity to bioaccumulate organic mercury as do other plants. Primary consumers readily accumulate mercury by eating contaminated algae. Thus begins the biomagnification of mercury in the food chain (New Jersey Mercury Task Force, 2002).

In aquatic animals, acute mercury toxicity results in flaring of gill covers, increased respiratory movements, loss of equilibrium, and sluggishness in fish followed by death (Armstrong, 1979). Chronic or sublethal exposures to mercury have been shown to adversely impact reproduction, growth behavior, metabolism, blood chemistry, osmoregulation, and oxygen exchange in marine and freshwater organisms (Eisler, 1987).
Birds vary greatly in the amount of mercury in their bodies. In general, birds higher on the food chain, such as fish-eating (piscivorous) waterbirds and meat-eating raptors (hawks and

eagles), have higher concentrations of mercury than seed-eating or fruit-eating birds. Increased mercury levels in eggs are associated with decreased egg weight, malformations, lowered hatchability, and/or altered behavior in various species (Eisler, 1987). Among other terrestrial vertebrates, biomagnification of mercury up the food chain occurs, especially in aquatic systems, and predators at the top of the food chain accumulate the highest concentrations of mercury. Mercury accumulation by organisms has resulted in adverse effects ranging from sublethal effects to death. Mercury is a teratogen, mutagen, and carcinogen, and causes embryocidal, cytochemical and histopathological effects (Eisler, 1987).

4.2.7 Selenium (Se)

Selenium is a naturally occurring substance that is toxic at high concentrations but is also a nutritionally essential element. Selenium has historically been used by the electronics industry and the glass industry. It is also used in pigments for plastics, pains, enamels, inks, and rubber (ATSDR, 2003).

The adverse effects of excess selenium are usually manifested in teratogenic (developmental) and/or reproductive impairments (Eisler, 1985b; Lemly, 1995; Simmons and Wallschlager, 2005). Selenium is known to bioaccumulate but bioaccumulation rates vary widely among species. Selenium transfer rates to higher tropic levels tend to be smaller (Chapman et al., 2009). The main concern in the West Marsh would be the potential for bioaccumulation in lower trophic level organisms and trophic transfer of selenium to wildlife receptors.

Selenium has a narrow range between dietary essentiality and toxicity to aquatic organisms. Egg-laying (oviparous) vertebrates such as fish and waterbirds are the most sensitive organisms to selenium studied to date. Toxicity can result from maternal transfer of selenium to eggs. Toxicity endpoints include embryo mortality (which is most sensitive in birds), and a characteristic suite of deformities (such as skeletal, facial, and fin deformities) that are indicators of selenium toxicity in fish larvae.

Selenium toxicity in terrestrial and semi-aquatic vertebrates is modified by numerous factors, including route of exposure, chemical form of the selenium, and dietary composition, age, and needs of the animals. Selenium toxicity is primarily manifested as reproductive impairment due to maternal transfer, resulting in embryotoxicity and teratogenicity in egg-laying vertebrates (Chapman et al., 2009). Algae and plants are believed to be the least sensitive organisms.

4.2.8 Tetrachloroethylene (PCE)

PCE is a volatile organic compound (VOC) and is commonly called perchloroethylene, perchlor, or "perc." PCE is a colorless, nonflammable liquid and is not considered to significantly bioaccumulate (TNRCC, 2001). The dry cleaning industry, textile mills, chlorofluorocarbon producers, vapor degreasing and metal cleaning operations, and makers of rubber coatings are known to use PCE.

PCE evaporates when exposed to air. It dissolves only slightly when mixed with water. Most direct releases of PCE to the environment are to air. Once in the air PCE breaks down to other chemicals over several weeks. PCE that makes its way into the ground can move through the ground and enter groundwater. Plants and animals living in environments contaminated with PCE can store small amounts of the chemical.

Very little is known of the toxicokinetics of PCE in other than mammalian models (and these are almost exclusively rodents). Most of the effects of this compound appear to be related either to the central nervous system or the liver (with various outcomes including cancer). Other than mortality at extremely high dietary concentrations, the general outcomes of oral exposures in mammals tend to be related to behavioral anomalies and/or growth.

Aquatic plants are relatively tolerant to PCE (Sample et al., 1996); however, effects on growth in fish can be manifested as PCE concentrations increase (Rowe et al., 1997).

4.2.9 Trichloroethene (TCE)

TCE is a man-made VOC and unsaturated chlorinated aliphatic. TCE is colorless, nonflammable, and has a sweet odor resembling chloroform. TCE is widely used as a degreaser, dry cleaning solvent, and industrial solvent. TCE evaporates easily but can stay in the soil and groundwater; it is one of the most common groundwater contaminants in the U. S (Irwin et al., 1998). Volatilization is the primary means of elimination of TCE from the soil and it is not considered to significantly bioaccumulate (TNRCC, 2001). TCE has a relatively low propensity to adsorb to soil or sediments. Unvolatilized TCE tends to migrate into groundwater. Effects of TCE on biota often occur from direct spills and contaminated groundwater. Effects from contaminated groundwater may occur in the mixing zone where the groundwater enters the surface water.

Very little is known of the toxicokinetics of TCE in any models other than mammalian (and these are almost exclusively rodents). Most of the effects of this compound appear to be related either to the central nervous system or the liver (with various outcomes including cancer). Other than mortality at extremely high dietary concentrations, the general outcomes of oral exposures in mammals tend to be related to behavioral anomalies and/or growth.

Aquatic plants are relatively tolerant to TCE (Sample, 1996); however, effects on growth in fish can be manifested as TCE concentrations increase (Rowe et al., 1997).

TCE may enter a plant through multiple pathways. These pathways include root uptake and subsequent translocation by the transpiration stream, uptake of vapor, uptake of external contamination of plant shoots by soil or dust (Agustin, 1994). The uptake, transport, and accumulation of organic chemicals by plants depend on the prevailing environmental conditions and plant characteristics. Based on the physiochemical properties, the potential exists for TCE to be taken up by plants through both roots and foliage.

Among terrestrial vertebrates, TCE has been listed as a class B2 carcinogen by the EPA. This means that there is enough evidence for TCE to be classed as an animal carcinogen. Mice have experienced increases in hepatocellular carcinomas (liver cancers) at low and high dosage levels of TCE. Additionally, mice and rats exposed to TCE had enlarged livers; and high level exposure caused liver and kidney damage.

In aquatic animals, it has been reported that fathead minnows, 31 days old, have been impacted by TCE. The affected fathead minnows swam in a spiral pattern near the water surface, were hyperactive and were hemorrhaging; however, equilibrium loss was not observed before death. TCE has been found at low levels in fish tissue, but it does not appear to accumulate there (USEPA, 2011).

4.2.10 Zinc (Zn)

Zinc is an essential metal for normal cell differentiation and growth, as well as for synthesis of a number of metalloenzymes, enzymatic cofactors, and DNA and RNA polymerases (NAS 1980; Eisler, 1993). Cellular zinc concentrations affect the regulation of many of the cell's metabolic processes. Sublethal intoxication by zinc is most often manifested by anemia and histopathological effects. The toxicity of zinc, however, is highly dependent upon its concentration ration with copper.

Algae tend to be highly sensitive to zinc, whereas vascular plants tend to be resistant. In terrestrial vascular plants, zinc is an essential element for which some physiological control over its uptake has evolved. Symptoms of zinc toxicity in plants include chlorosis and reduced growth or development. The most significant chronic exposure endpoints related to growth (Efroymson et al., 1997).

Among aquatic animals, both invertebrates and fish are relatively sensitive to zinc. The most significant chronic exposure endpoints for aquatic animals are survival and growth.

In terrestrial and semi-aquatic vertebrates, zinc is an essential micronutrient. Overexposure elicits a variety of responses, depending upon the receptor and metabolic interaction with copper. Birds tend to be more sensitive to zinc than mammals (Eisler, 1993).

4.3 Pathways to Trust Resources

Identifying and understanding the COCs for the Site, as well as their pathways to, and potential effects on, ecological receptors is critical to the Trustees' approach to injury assessment. A pathway is defined as the route or medium (for example, water or soil) through which hazardous substances are transported from the source of contamination to the natural resource of concern (43 C.F.R. § 11.14).

Results of the West Marsh Tier 2 SLERA and other relevant data revealed that sediments in the West Marsh were contaminated with hazardous substances that are characteristic of chemical manufacturing constituents and facility wastes. It has been determined that spills and past housekeeping practices at the PRP facilities were the sources of the hazardous substances presently located in West Marsh sediments. Fish and other aquatic receptors known to utilize these areas are exposed to the contaminated sediments through direct contact or indirectly through consumption of contaminated prey. Specific pathways are discussed in more detail in Section 5 Evaluation of Injury.

4.4 Strategy for Assessing Resource Injuries and Compensation Requirements

For the Site, the Trustees and the PRP identified an assessment approach that could be performed in conjunction with the remedial investigations and response planning. This integrated approach allowed for data sharing, since much of the data needed to support remedial planning can be useful in evaluating and estimating natural resources injuries (Gouguet, 2005). Additionally, such integration typically results in time and cost savings and promotes efficiency in the overall process. Further, NRDAs undertaken with the cooperation of PRPs avoid costly litigation and expedite restoration of the ecosystem.

To evaluate injury to resources for the Site, the Trustees reviewed existing information, including remedial investigation data, ecological risk assessments, scientific literature, and applied their collective knowledge and understanding of the function of the terrestrial and aquatic ecosystems at and near the Site.

The assessment completed by the Trustees quantified not only the scale of the injuries but the resource services provided by the restoration alternatives. The scale (or size) of the restoration action should be such that the services it will generate are greater than or equal to the losses. The process of determining the size of restoration is called restoration scaling.

Restoration scaling requires a framework for quantifying the value of losses and for quantifying the benefits of restoration so the losses and benefits can be compared.

A number of factors are considered in identifying and quantifying resource injuries, including, but not limited to:

- the hazardous substances (COCs) released at or from the facility,
- the specific natural resources and ecological services in the area,
- the evidence indicating exposure, pathway and injury,
- the mechanism(s) by which injury to natural resources would occur,
- the type, degree, spatial, and temporal extent of injury; and
- the type(s) of restoration that would be appropriate and feasible for use as compensation.

4.5 Description of Habitat Equivalency Analysis

The Trustees used Habitat Equivalency Analysis (HEA) as the framework for quantifying losses and benefits. HEA has been recognized as a valid and reliable procedure and has been used successfully at various restoration projects in Texas and around the country. The focus of a HEA is to identify habitat services that are lost or diminished due to releases of hazardous substances and to estimate the restoration activities needed to offset the lost service. Ideally, the restoration of habitat of the same type, quality, and comparable service levels should be provided; however, federal guidance provides for other methods to restore equivalent service, including acquisition of the equivalent habitat or resource or monetary compensation.

First, in order to quantify lost resources and services, injury parameters must be developed, including the size of the injury, the degree of injury, and how that degree of injury changes over time. The degree of injury is determined by the condition of key or representative resources or services in the habitat (e.g., primary production or macrofaunal density).

Losses are then quantified in habitat acres and converted to lost service acre-years, where a service acre-year is the loss of one acre of habitat and its resources and services for a year. The value of these services must be adjusted to account for the difference in time from when services were lost to when services are gained through restoration, because people place more value on the use or consumption of goods and services in the present rather than postponing their use or consumption to some future time. To make the losses that occur in different time periods comparable, a discount factor is applied to the losses to determine discounted service acre-years (DSAYs).

Other parameters necessary to quantify the benefits of restoration actions in a HEA include the year when a habitat restoration action begins, the time until the habitat provides full services, the risk of service losses to existing resources as a result of the habitat restoration, the level of services provided between the time when the restoration action begins and when it provides full services, and the relative level of services of the created or enhanced habitat compared to the injured habitat before the injury.

The Trustees use this information to determine what type and size restoration project would generate the "credits" necessary to offset the "debits" resulting from the release of hazardous substances. For example, if a release of hazardous substances degraded a marsh resulting in a debit of 200 DSAYs, the Trustees would attempt to identify a project that would generate 200 DSAYs or more of marsh credits.

The Trustees consider the HEA to be an appropriate analytical tool for use to assess benthic and terrestrial resource losses for this Site.

4.6 Scope of Injury Assessment

The potential for natural resource injuries was based on the presence of hazardous substances attributable to the WWMA at concentrations that could adversely affect natural resources or services. A threshold evaluation indicated that the potential for injury is limited to the West Marsh, including the associated habitat and the biota utilizing this area. Accordingly, the Trustees' injury and service loss evaluation focused on resource injuries and losses in this area only. Areas of the West Marsh in which COCs were not likely to pose a substantial potential for injury to natural resources or services were excluded.

The Trustees considered information from multiple sources, including the remedial investigations, the DuPont West Marsh Tier 2 SLERA, current and historical records for the WWMA, relevant scientific literature, and their own knowledge and understanding of the ecosystem. Where uncertainties existed, conservative assumptions were used. Because much of this information arises from recent comprehensive investigations of the Site conducted or supported by the TCEQ, the PRP, and the Trustees, there is a high technical confidence that areas identified in this evaluation are appropriate for evaluating injury to natural resources and services associated with historical releases from the WWMA.

4.7 Injury Assessment and Loss Quantification

Data from site-specific studies and scientific literature were used to identify and estimate resource injuries in West Marsh sediments as part of the HEA for this site. In order to quantify the injury, the Trustees had to determine the type of habitat that was impacted.

Although the site can be thought of as a mosaic of marsh, scrub-shrub, and small clumps of immature forest, the Trustees addressed the West Marsh as a single, integrated habitat because the features (habitats) are contiguous and strongly interacting. A spatial representation of COC distribution was created by plotting historical data on aerial photographs using software combining database and geographic information system (GIS) packages (ArcMap 9.2). The Trustees determined that COCs exceeded PCLs over a total of 21.5 acres of shallow benthic habitat in largely emergent wetlands (Figure 4). All estimates of injury are based on reductions of services common to emergent wetland in the coastal plain. The Trustees and PRPs agreed that the benthic macroinvertebrate community present in sediment from 0 to 6 inches in depth, in waters between +2 and -10 feet mean low tide is the primary resource of concern in the West Marsh.

5 EVALUATION OF INJURY

The services (functions) of the West Marsh in its modern form would generally resemble those of emergent wetlands as outlined by Shafer et al. (2002):

- shoreline stabilization,
- sediment deposition,
- nutrient and organic carbon exchange,
- resident nekton utilization,
- non-resident nekton utilization,
- maintenance of an invertebrate prey pool,
- wildlife habitat,
- maintenance of a characteristic vegetative community composition, and
- plant biomass production.

All of these functions are interrelated to some degree. The first two services, particularly their relative importance, are largely a function of the hydrographic and topographic context (i.e., physical factors). They are also indirectly dependent upon the last two functions listed. The services of direct relevance to the damage assessment are those related to biological features and/or processes, specifically the benthic macroinvertebrate community.

Because access to the West Marsh is restricted due to the site being an active manufacturing facility, no human services (e.g., bird watching, hunting, fishing, hiking), either direct or indirect, were estimated.

The Trustees' evaluation of the potential for injuries to natural resources for the Site is summarized in the following subsections.

5.1 Potential Injuries to Surface Water Resources

The Trustees evaluated the potential for injury to organisms living in the water column due to contamination within the West Marsh.

Contaminant concentrations in surface water samples taken for the ERA were below relevant water quality standards. Although past injuries and interim losses may have occurred, quantifying any such loss retroactively is difficult given the limited supporting data available prior to 1995, and is unlikely to yield accurate results. Water quality standards used to

evaluate the potential for injury to aquatic organisms are technically conservative and therefore more likely to over-estimate potential risk.

The Trustees also considered the nature of the exposure to aquatic organisms. Unlike benthic organisms, which are relatively sedentary, plankton and juvenile fish drift with water currents, thus reducing their exposure to contaminants present in the water column in these areas resulting in more temporary exposures than for benthic organisms. The contaminants released by the PRPs tend to be hydrophobic in nature and thus tend to sorb to sediments rather than remain in the water column.

The Trustees recognized that most potential restoration projects undertaken to compensate for benthic injuries would ecologically benefit other resources, including water column organisms. All the restoration alternatives evaluated in Section 7, except the "No Action" alternative, would benefit water column organisms, and the potential for multiple environmental benefits for each alternative has been considered in identifying the preferred restoration project to compensate for the benthic resource injury.

For all these reasons, the Trustees found no significant potential for injury and propose no further evaluation of injury to water column organisms.

5.2 Potential Injuries to Higher Trophic Level Organisms

Higher trophic level organisms include animals such as piscivorous fish, mammals, and birds. Potential injuries to such organisms may occur through direct exposure to contaminants or indirect exposure through the consumption of contaminated prey.

The direct exposure route is frequently the most significant source of contaminants to fish, rather than piscivorous birds or mammals, because fish are continuously exposed through the surface waters and sediments that comprise their habitat. Because contaminant concentrations in surface waters at the Site are below levels likely to cause injury to most fishes, only sediment exposure was considered to be relevant. Fish species in close association with sediments (e.g., blue catfish, flatfishes, anchovies, pinfish, and menhaden) have a potential for injury through direct contact with contaminated sediments. The Trustees opted to include these fish species in the analysis of injury to benthic resources since the pathway and potential effects among sediment dwelling species are similar.

Some contaminants present at high concentrations in the sediments of the West Marsh and linked to historical releases from the WWMA increase in concentration from lower to higher trophic levels and increase the potential for injury to higher trophic level organisms via indirect exposure to contaminants through their food chain. The West Marsh Site ERA evaluated the risk of injury through indirect exposures for representative bird and wildlife species common to the marsh. The snowy egret (*Egretta thula)*, spotted sandpiper (*Actitis*

macularis), Foster's tern (*Sterna forsteri)*, red-winged blackbird (*Oryzomys palustris*), marsh rice rat (*Oryzomys palustris*), nutria (*Myocastor coypus*), raccoon (*Procyon lotor*), and the river otter (*Lutra canadensis*) were all specifically considered and served as surrogates for other potentially affected upper trophic level organisms. The DuPont West Marsh SLERA concluded that sediment concentrations of cadmium (total), chromium (trivalent), copper (total), lead (total), mercury (total), selenium (total), PCE, TCE, and zinc (total) exceeded PCLs and presented a risk for the most sensitive wildlife receptors (spotted sandpiper and marsh rat) (DuPont, 2008).

As was true for surface water resources, the Trustees recognize that most potential restoration undertaken to compensate for benthic injuries would ecologically benefit other resources, including birds and wildlife, either directly or indirectly.

5.3 Potential Injury to Benthic Resources (Habitat and Organisms)

The Trustees considered whether the contaminant levels present in the sediments of the West Marsh were sufficient to cause harm to benthic organisms, or otherwise adversely affect ecological services provided by this habitat. Organisms common to the area were considered in this analysis, including invertebrates and fish species that are viewed predominantly as bottom dwelling species (e.g., flatfishes, catfishes).

Benthic communities constitute an important part of the estuarine food web by utilizing sediment-bound nutrients and organic substances that are not generally available to epiphytic (an organism that grows upon or attached to a living plant) or pelagic (living in the upper waters of the open ocean) organisms. The ecological services provided by benthic organisms potentially affected by Site contaminants include the following:

Food and production: Benthic populations include both meiofauna and macrofauna that are classified based on their relationship with the sediments. These relationships include infaunal (burrowing), deposit feeders, or epibenthic (organisms living on the bottom surface) species. Benthic organisms are generally fast growing, adaptable, and serve as an important basal component of the estuarine food web. The productivity of this habitat affects all trophic levels in the estuary by providing the nutritional base for the developing stages of many finfish, shellfish, birds, and other species.

Conditioning and improvement of habitat: Many benthic species burrow through the sediments, increasing the oxygen content of deeper sediments and thereby allowing other organisms and aerobic bacteria to inhabit deeper sediment layers. In addition, the excavation of sediment re-introduces nutrients found at greater depths to the surface where grazers and deposit feeders can utilize them. The ingestion of sediments by deposit feeders occasionally results in the complete re-working of bottom sediments several times within a year.

Decomposition and nutrient cycling: A complex community of bacteria, meiofauna, and macrofauna contributes to the reduction and decomposition of organic matter and debris within the sediments. The process of decomposition is important for the cycling of carbon and nutrients back through the aquatic food web.

5.3.1 Sediment Quality Guidelines in Benthic Resource Injury Assessment

To determine the impact on benthic invertebrates, the Trustees compared sediment COC concentrations (maximum, 95% upper confidence limit, and arithmetic mean) to scientifically recognized screening values for sediment quality, specifically, the Effects Range Low (ERL) and Effects Range Medium (ERM) developed by Long and Morgan (1991) and Long et al. (1995). ERM and ERL are calculated from a large compilation of effects-based sediment data for some of the most commonly assessed contaminants. Adverse biological effects may occur at contaminant concentrations ranging between the ERL and the ERM; above the ERM, adverse effects are highly probable, and below the ERL, adverse effects are highly unlikely. According to TCEQ ecological risk assessment guidance, PCLs are calculated as the mean of the ERL and ERM for a contaminant (TNRCC, 2001). In this injury evaluation, the PCL represented a conservative threshold for loss of ecological services.

5.3.2 Strategy for Estimating Benthic Resource Injury

Benthic habitat in the West Marsh is limited to shallow zones outside the Federal Navigation Channel and is defined as those areas within a depth of 0 to 6 inches in sediments, in waters between +2 and -10 feet mean low tide (Figure 4).

Losses are quantified by determining the time required for the injured resources to recover to pre-release conditions and the severity of the injury. For each injury category, the losses to benthic habitat were quantified by determining the likely severity of injury based on the available scientific information on potential biological effects. The Trustees selected a conservative threshold for injury based on sediment contaminant PCLs. The ERLs, ERMs, and lowest comparative PCLs for COCs in sediment at the Site are presented in Table 3.

Table 5. ERL, ERM, and final PCL values for COCs in sediment

Contaminant of Concern	ERL	ERM	PCL
Aroclor 1260	0.005 (B)	0.24	0.12
Cadmium (total)	0.13 (S)	0.56	0.35

Chromium (trivalent)	8.2 (S)	49	28.6
Copper (total)	14.3 (R)	17.9	16.1
Lead (total)	16 (S)	159	88
Mercury (total)	0.011 (S)	0.13	0.07
Selenium (total)	0.06 (S)	2.1	1.1
Tetrachloroethene (PCE)	1.3 (R)	17	9.2
Trichloroethene (TCE)	0.89 (R)	11.3	6.1
Zinc (total)	10 (S)	95	53

Units in mg/kg dry weight
B- based on direct exposure to benthic invertebrates
S- based on estimated exposure to spotted sandpiper
R- based on estimate exposure to marsh rice rat

5.3.3 Benthic Injury Assessment and Loss Quantification

A total of 21.5 acres of habitat in the West Marsh was determined to have levels of COCs above PCLs. A P_max toxicity value was determined using logistic regression model parameters for individual COCs at each sediment sampling station based on the chemical with the highest probability of toxicity for that station (Field et.al, 2002). Predicted toxicity for the intervening area between the individual sample locations was interpolated from the sampling station toxicity values using a spline model spatial analysis (Figure 4). To simplify HEA calculations, the number of affected acres within eight evenly divided injury categories was determined and then normalized to determine the equivalent area (13.8 acres) impacted at 100% Loss of Service (LOS) (e.g., two acres injured at 50% is equivalent to one acre injured at 100%). Based on identified sedimentation rates in the vicinity of the Sabine-Neches Estuary, the duration of recovery was set at 90 years to represent the time required to build up the six inches of deposition required to provide benthic organisms with an adequate depth of clean materials.

A number of additional conservative assumptions were utilized in the completion of the HEA: (1) the discount rate is 3%, (2) the base year (the year from which a discount is applied) is set at 2011, and (3) the start of injury was set at 1981 based on the date of the passage of CERCLA (Table 4).

Table 6. Inputs for Calculation of Benthic Resource Injury

Source of Impact to DuPont West Marsh Sediments	COC Impacts
Base Year	2011
Discount Rate	3%
Date the Resource Injury Occurs	1981
Extent of Injury (Acres)	13.8
Initial Level of Injury (% Loss of Service)	100
Level of Injury in 2009	100
Level of Injury in 2099	0
Level of Injury After Third Recovery Phase (%LOS) and Year	0
End of the Recovery Period (Year)	2099
Total Lost Benthic DSAYs	971.47
Emergent Wetland DSAYs (marsh equivalency factor 2:1)	485.73
Total Wetland Equivalent DSAYs	485.73

5.3.5 Summary of Injury Analysis for Benthic Resources

The Trustees found benthic resources in the West Marsh were injured due to elevated concentrations of hazardous substances attributable to the PRP's facilities. The Trustees quantified lost ecological services of the benthos as a surrogate for all biological resources over time until recovery to baseline conditions by comparing historical data collected for the DuPont West Marsh Site ERA and RAP to sediment benchmark concentrations.

Because the preferred restoration action has a higher ecological productivity than the habitat within which the injuries occurred (open water bottom), a marsh equivalency ratio of 5-to-1 was applied to convert benthic losses to their 'equivalent' in the target restoration habitat. The results of this analysis indicate that compensation for assessed benthic resource losses is achieved by providing the ecological services of a constructed intertidal wetland equivalent to 486 DSAYs.

6 THE RESTORATION PLANNING PROCESS

The goal of NRDA is to make the environment and public whole by restoring resources to their baseline condition (i.e., what their condition would be absent the release of a hazardous substance). Losses resulting from natural resource exposure to released hazardous substances are estimated over time until the resource is restored (i.e., interim losses). These losses can therefore extend beyond the date of remedy completion if contaminants are left in place at levels harmful to natural resources. The scale of a restoration project depends on the nature, extent, severity, and duration of the resource injury. On-site, in-kind restoration actions that speed resource recovery reduce interim losses, as well as the amount of restoration required to compensate for those losses.

The use of on-site, in-kind restoration actions are generally favored under NRDA policies and laws, wherever possible, to ensure the most direct relationship between resource injuries or service losses and the benefits of restoration actions. However, planning and implementation of restoration on-site may be inhibited by the surrounding environments and nature of the areas contaminated. In this case, the Trustees first considered potential on-site, in-kind restoration actions. To determine the impact of restoration actions, the Trustees assessed the bioavailability of the existing COCs. Some chemicals are sequestered by sorption to the sediment or sediment interstitial (pore) water. When dredging or other restoration activities occur, these chemicals may once again be released into the water column where they become bioavailable to a more diverse group of organisms (Suter, 2007). The Trustees compared the degree of exposure to contamination left in place versus the potential for exposure to increased bioavailability due to movement during remedial activities. The Trustees concluded that the clearing and construction required for containment of the contaminated material would result in the loss of valuable habitats due to potential redistribution of impacted sediments. The redistribution of impacted sediments would likely hinder the impacted Site's ability to return to baseline conditions. Considering the impacts associated with restoration activities, the Trustees concluded that, left to recover on its own, the impacted habitat would reach baseline conditions in approximately 100 years. Therefore, the Trustees opted for natural recovery on-site and focused on identifying restoration projects that will compensate the public by providing additional (i.e., above and beyond baseline) ecological services in or near the assessment area.

In accordance with NRDA regulations, the Trustees identified and evaluated a reasonable range of off-site project alternatives capable of restoring ecological services comparable to those lost due to injury to natural resources at the Site. The Trustees considered three restoration alternatives within the same watershed potentially capable of providing

restoration for the injured natural resources and/or services. All three were evaluated based on criteria presented in Section 6.1.2, and the preferred alternative was then scaled to ensure that its size would appropriately compensate for the injuries. The Trustees employed a service-to-service scaling method, where restoration actions provide natural resources and/or services of the same type and quality, and of comparable value, as those lost. The "No Action" alternative was also included for consideration as required by NEPA.

6.1 Restoration Strategy

After the initial search and screening process, the Trustees determined that the creation or enhancement of emergent wetland as compensation would be generally less desirable compared to other options due to the time required to achieve full service values for this habitat type as well as the significant effort and costs required for success. Therefore, preservation of existing emergent wetlands was considered to be the preferred strategy. All project alternatives considered in this plan represent opportunities to preserve existing emergent wetland habitat in the Sabine Lake/Neches River Estuarine ecosystem. The Trustees determined that the preservation of 500 acres, consisting of a mixture of upland forested habitat, open water habitat, and emergent wetland habitat, would be sufficient to provide the 486 DSAY credits required.

6.2 Restoration Evaluation Criteria

Consistent with NRDA regulations in 43 CFR §11.82, the following criteria were used to evaluate restoration project alternatives and identify the project preferred for implementation under this plan.

Technical feasibility of alternative:

The Trustees must consider if the technology and management skills necessary to implement the proposed restoration alternative are well known and that each element of the plan has a reasonable chance of successful completion in an acceptable period of time. Generally know construction, planting and or management techniques are preferred over untried process.

The Trustees also considered technical factors that represented risk to either the success of project construction or the long-term viability of the habitats involved. For example, high rates of subsidence at a project site are considered a risk to long-term existence of constructed habitats. Alternatives that are susceptible to future degradation or loss through contaminant releases or erosion are considered less viable. The Trustees also consider whether difficulties in project implementation are likely and whether long-term maintenance of project features will be necessary and/or feasible. Sustainability of a given restoration

action is a measure of the vulnerability to natural or human-induced factors following implementation and the need for future maintenance actions to achieve restoration objectives.

Cost-effectiveness and cost of the alternative to the service gains of the alternative:

Cost-effectiveness means that when two or more activities provide the same or similar level of benefits, the least costly activity providing that level of benefits will be selected. The Trustees also must consider the total cost of the alternative in relation to the expected amount of services provided by the restoration project when evaluating each restoration alternative. Factors that can affect and increase the costs of implementing the restoration alternatives may include project timing, access to the project site (for example with heavy equipment), acquisition of state or federal permits, and acquisition of the land needed to complete a project and the potential liability from project construction. Although a monitoring program does increase the cost of an alternative, the presence of an adequate monitoring component is considered a positive attribute because documenting project performance is important.

The results of any actual or planned response actions:

The Trustees must consider the effects of any response or remedial activity on the proposed restoration actions. Efforts to control exposure from unauthorized releases of hazardous substances, by removing, neutralizing or isolating hazardous substances to protect human health, property and the environment are necessary. However, these activities may ultimately result in additional losses to natural resource services as well as alterations to the environment that may make on-site restoration technically infeasible or cost prohibited.

Potential for additional injury resulting from the proposed actions, including long-term and indirect impacts, to the injured resources or other resources:

The Trustees must consider the extent to which each alternative will prevent future injury as a result of the release and will avoid collateral injury as a result of implementing the alternative. For example, the possibility of the project site being contaminated is considered, as is the potential for use of contaminated dredged sediments in the project. The isolation of the contaminants under less contaminated material would be considered positively. Compatibility of the project with the surrounding land use and potential conflicts with any federally-listed species are also considered.

Natural recovery period:

The amount of time needed for recovery if no restoration, rehabilitation, replacement, and/or acquisition of equivalent resources efforts are undertaken beyond response actions performed or anticipated shall be estimated. This time period shall be used as the No Action alternative.

Ability of the resources to recover with or without alternative actions:

The Trustees must consider the ability of the effected resource to recover without remedial or restoration action. This is often referred to as natural attenuation. The Trustees considered natural attenuation as part of the no action alternative.

The effect of each alternative on public health and safety:

Projects that would negatively affect public health or safety are not appropriate.

Consistency with relevant Federal, State, and tribal policies and compliance with applicable laws:

The Trustees as part of their review and selection of a preferred restoration alternative must consider if the restoration alternative is consistent with all relevant Federal, State and tribal policies. The Trustees must also consider if the restoration alternative complies with all relevant Federal, State and tribal laws. Sections 1.2, 7.2 and 8 of this DARP/CE provide the relevant review and constancy determinations for NEPA and other relevant environmental policies and laws.

The regulations give the Trustees discretion to prioritize these criteria and to use additional criteria as appropriate. The Trustees also recognized the importance of public participation in the restoration planning process, as well as the acceptance of the projects by the community. Alternatives that are complementary with other community development plans/goals are considered more favorably. In addition, the Trustees also considered public access and recreational opportunities provided by a project as positive attributes. In addition to the factors specific in (43 CFR §11.82), the Trustees also considered the following criteria when evaluating the restoration alternatives.

The extent to which each alternative is expected to meet the Trustees' goals and objectives in compensating for interim losses:

The primary goal of any restoration project is to provide a level and quality of resources and services comparable to those lost. Thus, the ability of the restoration project to provide comparable resources and services is an important consideration. Specifically, the Trustees consider the potential relative productivity of restored habitat and whether the habitat is being created or enhanced. Finally, future site management issues and the opportunity for conservation easements are also considered because they can influence the extent that a restoration action meets objectives.

The extent to which each alternative benefits more than one natural resource or service:

Projects that provide benefits to more than one resource and/or service yield more benefits. For example, certain types of marsh restoration projects could improve fish habitat such that recreational users experience higher catch rates. Although recreational benefits are not explicitly evaluated in this DARP/CE, opportunities for a restoration alternative to provide these added benefits are considered a positive feature of the alternative.

6.3 Screening of Potential Project Alternatives

Based on the injuries to benthic resources in the West Marsh, the Trustees considered the following four restoration alternatives:

- Marsh Preservation - Old River Cove Tracts
- Marsh Preservation - Neches River Tracts
- Marsh Preservation - Orange County Tract
- No Action

The Trustees selected acquisition of the Orange County Tract as the preferred restoration alternative. Further information regarding the basis for choosing the preferred restoration alternatives and the evaluation of the non-preferred alternatives is provided in Section 7.0 Evaluation of Restoration Alternatives.

7 EVALUATION OF RESTORATION ALTERNATIVES

Under this DARP/CE, natural recovery combined with off-site preservation is proposed as the restoration method that will most effectively compensate the public for natural resource injuries related to the Site. In light of this, the Trustees evaluated three specific projects and a No Action alternative. The Trustees determined that the preferred restoration alternative, if completed in accordance with all requirements of this DARP/CE, will fully compensate for ecological injuries and service losses until the system returns to baseline condition.

The preferred restoration project identified to compensate for the losses described in Section 5 involves the preservation of a mix of tidal intermediate wetlands (emergent marsh, high marsh, small shallow ponds, and channels), large expanses of open water, and narrow bands of upland forested habitat. To determine the amount of restoration needed to offset losses, the DSAYs lost due to injuries have to be compared to DSAYs gained through restoration across these habitat types. To translate the habitat losses into their 'equivalent' in the target restoration habitat, a conversion factor is necessary for the differences in relative productivity across habitat types.

The Trustees determined that the impacted estuarine emergent wetland habitat provides roughly half the level of services as that of a fully functional tidal wetland complex. As such, a relative weight of 0.5 was applied to the injury value, resulting in a restoration goal of 485.73 emergent wetland equivalent DSAYs (971.47 * 0.5).

7.1 Preferred Restoration Alternative: Marsh Preservation on the Eastern Bank of the Neches River at the Orange County Tract

The Orange County Tract is a single 500-acre tract on the eastern bank of the Neches River approximately 3.5 river miles upstream of the Site (Figure 5). Habitat on this tract is comprised of a mix of 150 acres of tidal intermediate wetlands (emergent marsh, high marsh, small shallow ponds, and channels), 200 acres of open water habitat, and 100 acres of upland forested habitat. The eastern portion of the Orange County Tract contains bands of forested upland habitat at risk of degradation through human use.

7.1.1 Preferred Restoration Action

The preferred restoration action consists of placing a conservation easement on the Orange County Tract, to be held and enforced by the Big Thicket Natural Heritage Trust (the "Easement Holder"), a local conservation organization. Third party rights of enforcement for the conservation easement would be reserved by the Trustees. The conservation easement would preserve the natural character of the land and its habitats by limiting or prohibiting any

activities that would degrade those habitats. In addition to the creation of the conservation easement itself, funds would be provided to the Easement Holder for baseline biological monitoring, annual monitoring, and legal enforcement of the easement provisions.

The goals of the preferred project are (1) to remove the potential for continued degradation through human use currently threatening the ecological integrity of the site, and (2) to ensure the continued provision of ecological services from the preserved property comparable to those lost due to injury to natural resources associated with injury caused by releases from the Site.

7.1.2 Evaluation of Preferred Restoration Action

Acquisition and preservation of existing functional habitat is feasible and can, under certain circumstances, be highly beneficial. Given the difficulties, costs, and long term efforts associated with the construction of marsh habitats, the acquisition and protection of existing marshland is a feasible option. The unique qualities, valuable location, and threat to the site proposed for preservation under the preferred alternative further increase the level of benefits derived by exercising this option. No increase in service flows would occur through acquisition or protection alone; however, the ecological losses associated with the imminent development of the identified tract would be prevented by preserving the tract in perpetuity.

7.1.3 Ecological and Socio-Economic Impacts

The acquisition and enforcement of a conservation easement over this property will not affect noise levels in the vicinity of the project area. The property is privately owned and is not open to public access. Examples of benefits associated with preserving the 500-acre tract include continued ecological functioning (maintaining the water quality improvement function of the site and maintaining the site as a flood zone), amongst others.

The conservation easement is expected to sustain the ecological value and assist in maintaining the health of the Sabine Lake/Neches River ecosystem as a whole. The implementation of this project should not negatively affect the local economy or its citizens; therefore, no socio-economic effects are expected.

7.1.4 Habitat Equivalency Analysis

HEA was used by the Trustees to determine the scope of habitat preservation necessary to compensate for the injuries to natural resources resulting from the impacts of contaminant release to the Site.

To identify an appropriate relative productivity input parameter for the marsh preservation component, the Trustees considered the ecological function of the preserved area in

comparison to the potential elimination of these services given the development pressure on the site. This approach results in a service flow from the preserved site immediately upon its acquisition and protection under conservation easement. The flow of services would continue through the remainder of its project lifespan (i.e., the length of the conservation easement). The estimated services to be gained by implementing this project are presented in Table 5 and reflect application of a 3% annual discount rate.

Based on adjacent land use, the Trustees assumed that if the property is not protected, there will be a 10% loss of future ecological services provided by habitats on the property over time. Service losses would begin at 0% in 2016 and build up to a 10% loss in 2026. This 10% loss would then be maintained indefinitely into the future. Given the restoration goal of 485.73 emergent wetland equivalent DSAYS, it would require the preservation of approximately 189.74 (485.73 / 2.56) wetland equivalent acres within the Orange County Tract to satisfy this requirement. The value of non-wetland habitats present in the tract were converted to emergent wetland equivalent acreage by applying a ratio of 5 to 1 (open water to emergent wetlands) and 10 to 1 (upland forested habitat). The resulting 200 acres of tidal wetlands equivalent habitat within the proposed Orange County Tract would meet this requirement.

Table 7. Anticipated Ecological Service Gains from Preferred Project

Calculation of Total Discounted Acre-Years of Resources Services Gained Through Habitat Preservation		
Scenario :	Preservation of ”Orange County” tract	
Area Preserved : (acres)	1.0	
Base Year :	2011	
	% services	Year
Initial level of services	0	2010
End of First Protection Phase	0	2016
End of Second Protection Phase	10	2026
End of Third Protection Phase	10	2312
End of Fourth Protection Phase	0	2312
End of Fifth Protection Phase	0	2312
End of Protection period		2312
Total DSAYs Gained	2.56	

7.2 Non-Preferred Alternative – Preservation of Neches River Tracts

The Neches River tracts are comprised of two tracts totaling 293.2 acres (Figure 5). Habitat on these tracts is comprised primarily of wetlands (emergent marsh, high marsh, and small shallow ponds) and large expanses of open water.

7.2.1 Habitat Equivalency Analysis

Based on GIS software estimates, the tracts consist of 153.4 acres of wetlands (emergent marsh, high marsh and small shallow ponds) and 139.8 acres of open water habitat. The value of the open water habitat in the Neches River Tract was normalized to that of an emergent marsh by applying a ratio of 5 to 1 (open water to emergent wetlands) and 10 to 1 (upland forested habitat). This results in the Neches River Tract containing a total of 181.36 acres of wetland equivalent acres.

Restoration credits are based on a preservation scenario which eliminates future threats of degradation and subsequent natural resource service losses to the Neches River Tracts. Although these tracts are mostly comprised of emergent wetlands and shallow open water habitat, there is a band of upland habitat located along the western boundary of the tract, adjacent to a navigable oxbow of the Neches River. As such, there is a greater potential to develop, or otherwise utilize this upland area in a manner that would reduce its service flows. In addition, there is a greater threat of development of adjacent areas, and in particular, the island immediately to the south, across the oxbow from the Neches River Tracts, appears to contain uplands which could be developed or disturbed in the future. The development of adjacent properties would likely have an additional impact on the level of services provided by the Neches River Tract habitat over time.

Restoration credits are based on a preservation scenario which eliminates future threats of degradation to the Neches River Tracts. The Trustees credit scenario assumed that if the property is not protected in perpetuity, there will be a 10% loss of the future ecological services provided by the property over time. Ecological service losses would begin at 0% in 2016 and build up to a 10% loss in 2026. This 10% loss would then be maintained indefinitely into the future. This preservation scenario results in a credit of 2.56 DSAYS per acre preserved. Given the restoration goal of 488.56 emergent wetland equivalent DSAYS, it would require the preservation of approximately 190.85 (488.56 / 2.56) wetland equivalent acres within the Neches River Tracts to satisfy this requirement.

7.2.2 Evaluation of Proposed Restoration Action

The Trustees consider this project to be non-preferred because the Neches River Tracts would provide slightly less than the required level of compensation. In addition, given the

location and associated land value of these tracts, this would be a less cost-effective alternative.

7.3 Non-Preferred Alternative – Preservation of Old River Cove Tracts

The Old River Cove Tracts are comprised of five tracts aligned contiguously from north to south and ranging in size from approximately 100 to 370 acres (Figure 5). Habitat found in these tracts is generally uniform and comprises a complex of emergent wetlands and shallow ponds or channels. These tracts were considered to consist of a single uniform emergent marsh habitat. For purposes of scaling, the entire acreage of these tracts was applied in a one to one ratio to the wetland equivalent acres established at the Site.

7.3.1 Habitat Equivalency Analysis

Restoration credits are based on a preservation scenario which eliminates future threats of degradation to the Old River Cove Tracts. The Trustees credit scenario assumes that if the property is not protected, there will be a 5% loss of future services provided by the property over time. Service losses would begin at 0% in 2016 and build up to a 5% loss in 2026. This 5% loss would then be maintained indefinitely into the future. This preservation scenario results in a credit of 1.28 DSAYS per acre preserved. Given the restoration goal of 488.56 emergent wetland equivalent DSAYS, it would require the preservation of approximately 381.7 acres (488.56 / 1.28) of the Old River Cove parcels to satisfy this requirement.

7.3.2 Evaluation of Proposed Restoration Action

The Trustees consider this project to be non-preferred because they believe the threat of future development of the tracts, or their degradation due to human impacts is low relative to other restoration options considered.

7.4 Non-Preferred Alternative - No Action

Under the “No Action” alternative, the Trustees would take no action to restore, rehabilitate, replace, or acquire natural resources or services equivalent to those lost due to hazardous substance releases from the DuPont West Marsh Site.

Under laws applicable to those releases, the Trustees are authorized to seek and recover compensation for interim losses on behalf of the public and implement actions that restore, replace, or provide services equivalent to those lost. Within the Sabine Lake/Neches River Estuarine ecosystem, there are feasible and appropriate opportunities to restore, replace, or provide services equivalent to those lost due to the release of hazardous substances and subsequent injuries. Under the “No Action” alternative, restoration actions needed to make

the environment and public whole for its losses would not occur. This is inconsistent with the goals of the natural resource damage provisions of CERCLA. The Trustees have determined that the "No Action" alternative (*i.e.*, no restoration) should be rejected on this basis.

8 NEPA ANALYSIS

As noted in Section 1.2 above, under NEPA federal agencies must evaluate the potential environmental impacts of proposed federal actions on the quality of the human environment. NEPA defines the human environment in 40 C.F.R. § 1508.14 to include the "natural and physical environment and the relationship of people with that environment." According to 40 C.F.R. § 1508.8, all reasonably foreseeable direct and indirect effects of implementing a project, including beneficial effects, must be evaluated. When complying with NEPA, federal agencies may either (1) prepare an EIS if they conclude that impacts are potentially significant, (2) prepare an EA to evaluate the need for an EIS and to consider these effects of the proposed action, or (3) apply a CE if the action is one that falls into an identified category of actions which do not individually or cumulatively have a significant effect on the human environment.

A CE, as defined by the Council on Environmental Quality, is "a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a federal agency in implementation of these regulations and for which, therefore, neither an environmental assessment nor an environmental impact statement is required."

DOI has established rules for the implementation of NEPA, including actions that are categorically excluded (36 CFR 220.6). This includes the acquisition of land or interest in land, accepting the donation of lands or interests in land, and the purchasing fee, conservation easement, reserved interest deed, or other interests in lands as described in 36 CFR 220.6(d)(6) and 516 DM 8.5. NOAA has similar guidelines found in NOAA Administrative Order (NAO) 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act (May 20, 1999). The applicable categorical exclusion is found in Section 6.03b.2, entitled "Categorical Exclusions for Restoration Actions."[2]

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2. Specifically, section 6.03b.2 provides as follows:

> 6.03b.2. Categorical Exclusions for Restoration Actions. The Damage Assessment and Restoration Program policy states that restoration actions pursuant to CERCLA, OPA, and NMSA constitute major Federal actions that may pose significant impacts on the quality of the human environment, and are not per se entitled to a CE. Restoration actions that do not individually or cumulatively have significant impacts on the human environment (e.g., actions with limited degree, geographic extent, and duration) may be eligible for categorical exclusion (40 CFR 1508.4), provided such actions meet all of the following criteria:
>
> 6.03b.2(a) are intended to restore an ecosystem, habitat, biotic community, or population of

In this instance, the federal Trustees note that a conservation easement, by its very nature, would have no impacts on the environment. It is designed expressly to preserve the status quo and prevent impacts. Accordingly, NOAA and the USFWS have preliminarily concluded that this action qualifies for a CE. NOAA and USFWS documents identifying and adopting the appropriate CEs for this action are included as an attachment to this DARP/CE.

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living resources to a determinable pre-impact condition;
6.03b.2(b) use for transplant only organisms currently or formerly present at the site or in its immediate vicinity;
6.03b.2(c) do not require substantial dredging, excavation, or placement of fill; and
6.03b.2(d) do not involve a significant added risk of human or environmental exposure to toxic or hazardous substances.

9 COMPLIANCE WITH OTHER LAWS

The major environmental statute that guides the restoration of the injured resources and lost services for the Site is CERCLA. This statute sets forth a specific process of environmental impact analysis and public review. Additionally, the Trustees must comply with several additional federal, state, and local applicable statutes, regulations, and policies. Relevant and potentially relevant statutes, regulations, and policies are discussed below.

9.1 COASTAL ZONE MANAGEMENT ACT, 16 U.S.C. §§ 1451 *ET SEQ.*, 15 C.F.R. PART 923

The goal of the Coastal Zone Management Act (CZMA) is to encourage states to preserve, protect, develop, and, where possible, restore and enhance the nation's coastal resources. Section 1456 of the CZMA requires that any federal action inside or outside of the coastal zone be consistent, to the maximum extent practicable, with the enforceable policies of a state's federally approved Coastal Zone Management Program. Regulations adopted under the CZMA outline procedures applicable to determining the consistency of federal actions with state approved plans. The Federal Trustees have preliminarily determined that the acquisition of a conservation easement on the Orange Count Tract, proposed in Section 6 of this DARP/CE, is consistent with the Texas CZMA Program.

9.2 ENDANGERED SPECIES ACT (ESA), 16 U.S.C. §§ 1531 *ET SEQ.*, 50 C.F.R. PARTS 17, 222, & 224

The ESA directs all federal agencies to conserve endangered and threatened species and their habitats to the extent their authority allows. Protection of wildlife and preservation of habitat are central objectives in this effort. Under the ESA, the Department of Commerce (through NOAA) and the Department of the Interior (through USFWS) publish lists of endangered and threatened species. Section 7 of the Act requires federal agencies to consult with these departments to minimize the effects of federal actions on these listed species.

As noted above, several federal and state-listed species may frequent the areas impacted by the Site. They also frequent area of the Trustees' proposed restoration project. The acquisition of a conservation easement on the Orange County Tract, as proposed in this DARP/CE will not adversely impact any threatened or endangered species. Rather, the actions would preserve habitats beneficial to supporting ecosystems for such species.

9.3 FISH AND WILDLIFE CONSERVATION ACT, 16 U.S.C. §§ 2901 *ET SEQ.*

This Act encourages all federal agencies to use their statutory and administrative authorities, to the maximum extent practicable and consistent with their statutory responsibilities, to conserve

and to promote the conservation and protection of non-game fish and wildlife species and their habitats. The acquisition of a conservation easement on the Orange County Tract will preserve fish and bird habitat.

9.4 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT, AS AMENDED AND REAUTHORIZED BY THE SUSTAINABLE FISHERIES ACT (PUBLIC LAW 104-297) (MAGNUSON-STEVENS ACT), 16 U.S.C. §§ 1801 *ET SEQ.*

The Magnuson-Stevens Act, as amended and reauthorized by the Sustainable Fisheries Act (Public Law 104-297), established a program to promote the protection of EFH through the review of projects that affect or have the potential to affect such habitat that are conducted under federal permits, licenses, or other authorities. Once EFH is identified and described in fishery management plans by the appropriate fishery management council(s), federal agencies are obliged to consult with the Secretary of Commerce, via consultation with NOAA's National Marine Fisheries Service, with respect to any action proposed to be authorized, funded or undertaken by such agency that *may* adversely impact any EFH. The acquisition of a conservation easement on the Orange County Tract will not result in adverse impacts on any EFH designated under the Act.

9.5 MARINE MAMMAL PROTECTION ACT, 16 U.S.C. §§ 1361 *ET SEQ.*

The Marine Mammal Protection Act provides authority for the long-term management and protection of marine mammals, including maintenance of their ecosystem. It establishes a moratorium on the taking and importation of marine mammals and marine mammal products, with limited exceptions involving scientific research, incidental taking, subsistence activities by Alaskan natives, and hardship. The DOC is responsible for whales, dolphins, seals, and sea lions. The DOI is responsible for all other marine mammals. The acquisition of a conservation easement on the Orange County Tract will not impact any marine mammals.

9.6 MIGRATORY BIRD TREATY ACT, 16 U.S.C. §§ 703-712

The Migratory Bird Treaty Act provides for the protection of migratory birds. Specifically, the Act prohibits activities in which migratory birds would be pursued, hunted, taken, captured, killed, attempted to be taken, captured or killed, possessed, offered for sale, sold, offered to purchase, purchased, delivered for shipment, shipped, caused to be shipped, delivered for transportation, transported, caused to be transported, carried, or caused to be carried by any means whatever, received for shipment, transported or carried, or exported, at any time, or in any manner. The acquisition of a conservation easement on the Orange County Tract will have no adverse effect on migratory birds.

9.7 Migratory Bird Conservation Act, 16 U.S.C. §§ 715 *et seq.*

The Act provides authority for the U. S. DOI to acquire and manage lands for conservation of migratory birds. The acquisition of a conservation easement on the Orange County Tract will preserve 500 acres of marsh habitat threatened by degradation through human use. The acquisition will preserve and habitats that are important to the USFWS' efforts to conserve migratory birds and wildlife, consistent with this Act.

9.8 National Historic Preservation Act, 16 U.S.C. §§ 470 *et seq*, & Archaeological Resources Protection Act, 16 U.S.C. § 470aa-mm.

These statutes require federal agencies, or federally funded entities, to consider the impacts of their proposed actions on historic properties and cultural or archeological resources. The proposed restoration projects do not involve and will not occur near any site listed on the National Register of Historic Places and the Trustees have no information indicating that there are known sites or properties eligible for listing on the National Register of Historic Places, or any cultural or archeological resources, in the vicinity of the project areas Even if such resources were present, the proposed project seeks only to preserve the existing condition of the property and would, therefore, not adversely impact any existing cultural, scientific, or historic resources.

9.9 Information Quality Act, Public Law 106-554

Information disseminated by federal agencies to the public after October 1, 2002, is subject to guidelines developed by each agency pursuant to Section 515 of Public Law 106-554 that are intended to ensure and maximize the quality of information (i.e., the objectivity, utility and integrity) each agency disseminates to the public. This DARP/CE is an information product covered by information quality guidelines established by NOAA and DOI for this purpose. The quality of the information contained herein has been certified to be consistent with applicable guidelines.

9.10 Executive Order Number 11514 (35 Fed. Reg. 4247) – Protection and Enhancement of Environmental Quality

This Executive Order directs federal agencies to monitor, evaluate, and control their activities in order to protect and enhance the quality of the nation's environment, to inform and seek the reviews of the public about these activities, to share data gathered on existing or potential environmental problems or control methods, and cooperate with other governmental agencies. The proposed project and the release of this DARP/CE are consistent with the goals of this

Order. The proposed project is the product of inter-governmental cooperation and will protect and enhance the environment. The restoration planning process has and continues to provide the public with information about the restoration effort.

9.11 Executive Order 12898 (59 Fed. Reg. 7629) - Environmental Justice

This Executive Order directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. There are no low-income or ethnic minority communities that would be adversely affected by the proposed projects. The proposed restoration projects will enhance the quality of the environment for all populations.

9.12 Executive Order Number 11988 (42 Fed. Reg. 26,951) – Floodplain Management

This Executive Order requires federal agencies to consider flood hazards and the natural and beneficial values served by floodplains in carrying out responsibilities involving federally financed or assisted construction and improvements and federal activities and programs affecting land use. While the proposed restoration project will take place within a floodplain, it is consistent with this Order as it involves activities that will serve only to preserve the beneficial values of the floodplain.

9.13 Executive Order Number 11990 (42 Fed. Reg. 26,961) - Protection of Wetlands

This Executive Order directs federal agencies to take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out agency responsibilities for acquiring, managing, and disposing of federal lands and facilities; providing federally undertaken, financed, or assisted construction and improvements; and conducting federal activities and programs affecting land use, including water and related land resources planning, regulating, and licensing activities. The proposed conservation project is compliant with this Executive Order as it will operate to protect existing wetlands and the services they provide.

9.14 Executive Order Number 12962 (60 Fed. Reg. 30,769) - Recreational Fisheries

This Executive Order directs federal agencies to, among other things, foster and promote restoration that benefits and supports viable, healthy, and sustainable recreational fisheries. The proposed projects will preserve habitats that will help support and sustain recreational fisheries in the upper Sabine Lake and the Sabine-Neches watershed.

FIGURES

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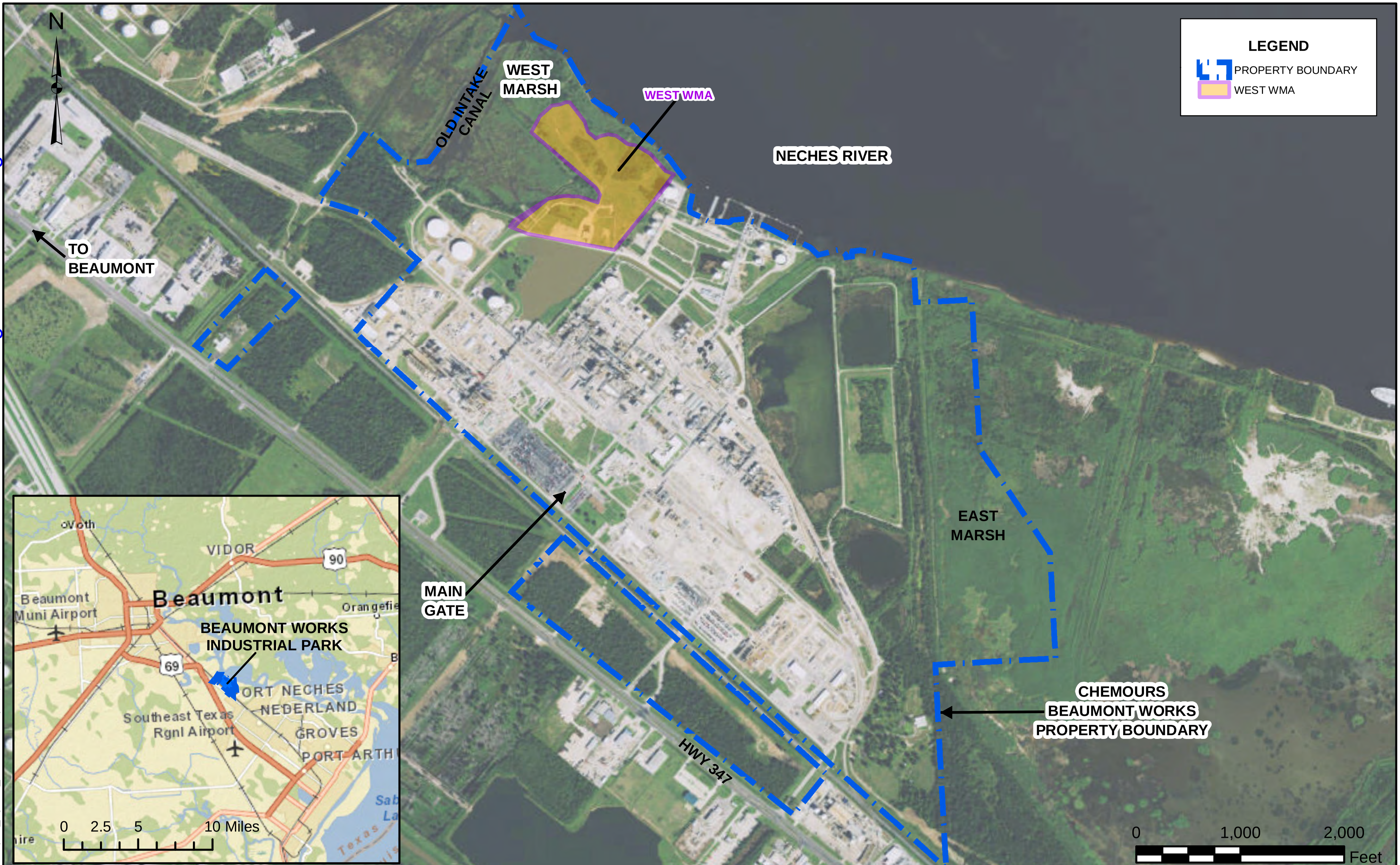
Document Path: F:\GIS\Beaumont\Project_figures_mxd\EA Project (2015)\FIGURE1 SITE LOCATION MAP.mxd



PARSONS

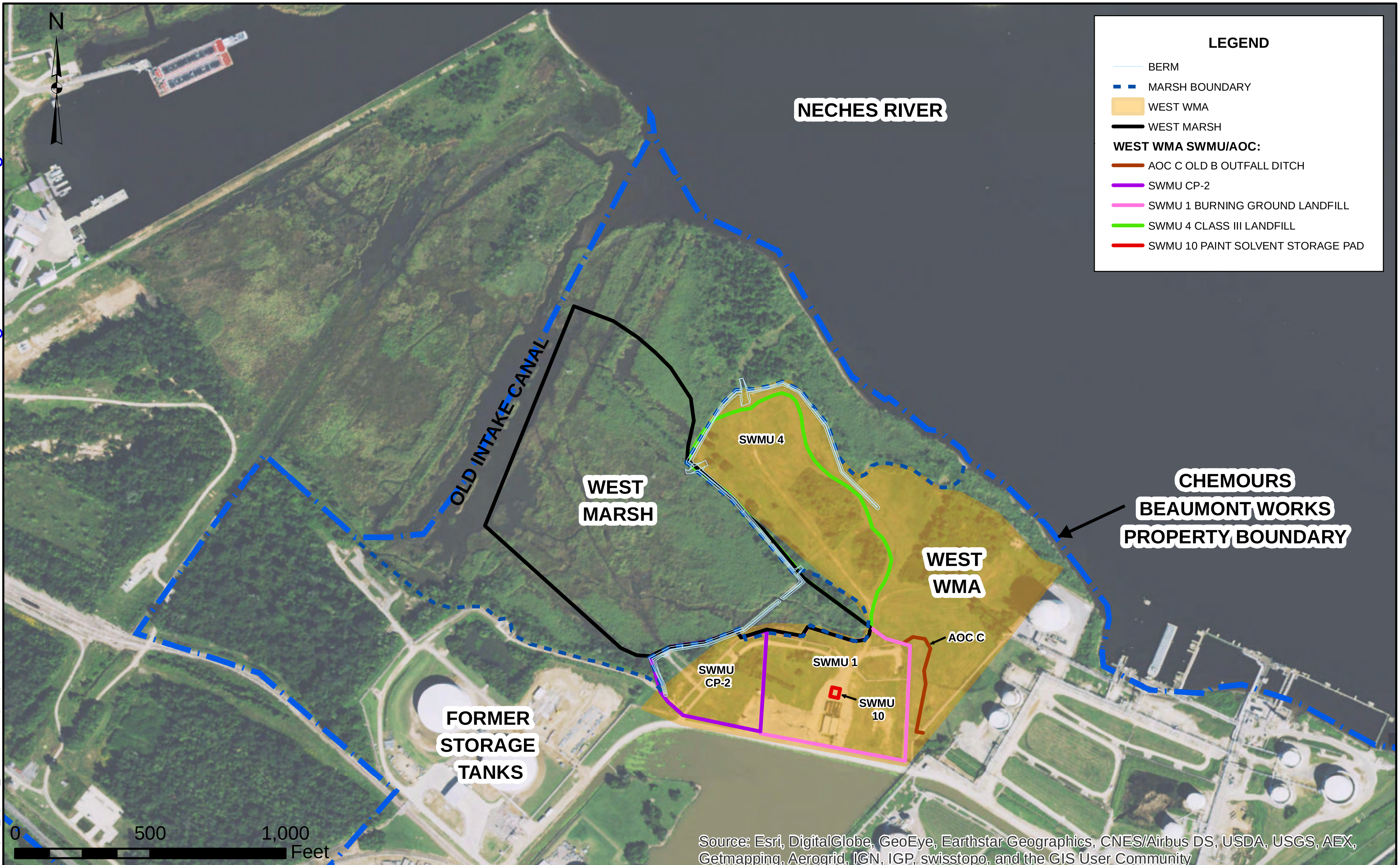
Parsons Environment & Infrastructure

2200 West Loop South
Suite 200
Houston, Texas 77027

Title:

Figure 1. Site Location Map
DuPont Beaumont Works West Marsh DARP/EA
Jefferson County, Texas

Drawn/Approved: RAH/	File Project Number: 449299.03010
Date: 8/20/2015	Figure Number: 1
Revised:	
File Name: FIGURE1 SITE LOCATION MAP	



PARSONS

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Figure 2. West Marsh and West Waste Management Areas
DuPont Beaumont Works West Marsh DARP/EA
Jefferson County, Texas

Drawn/Approved: RAH/	File Project Number: 449299.03010
Date: 8/26/2015	Figure Number: 2
Revised:	
File Name: FIGURE2 WEST MARSH AND WWMA MAP	

Figure 3. Sabine-Neches Estuarine System

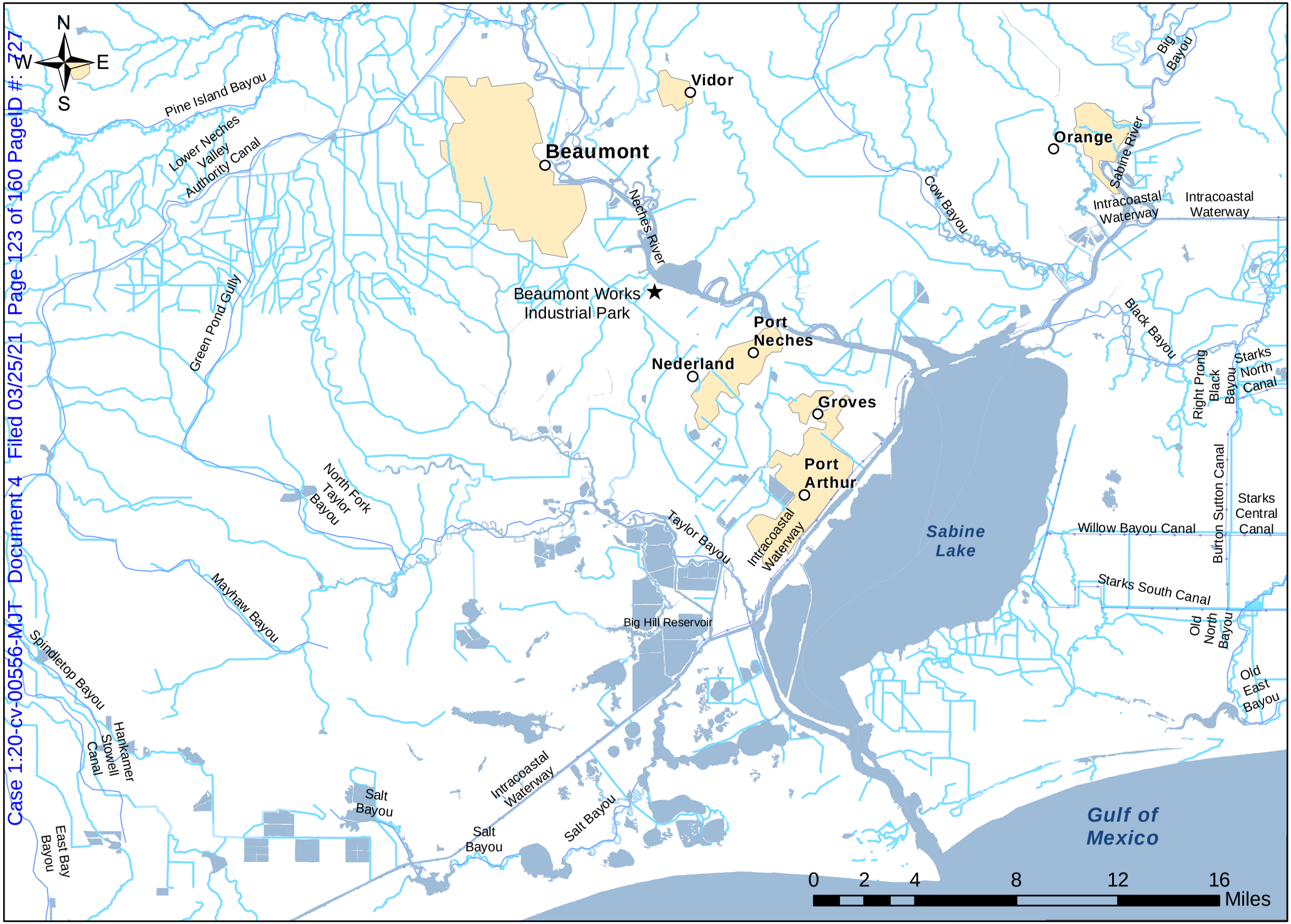


Figure 4. Delineated Benthic and Sediment Injuries

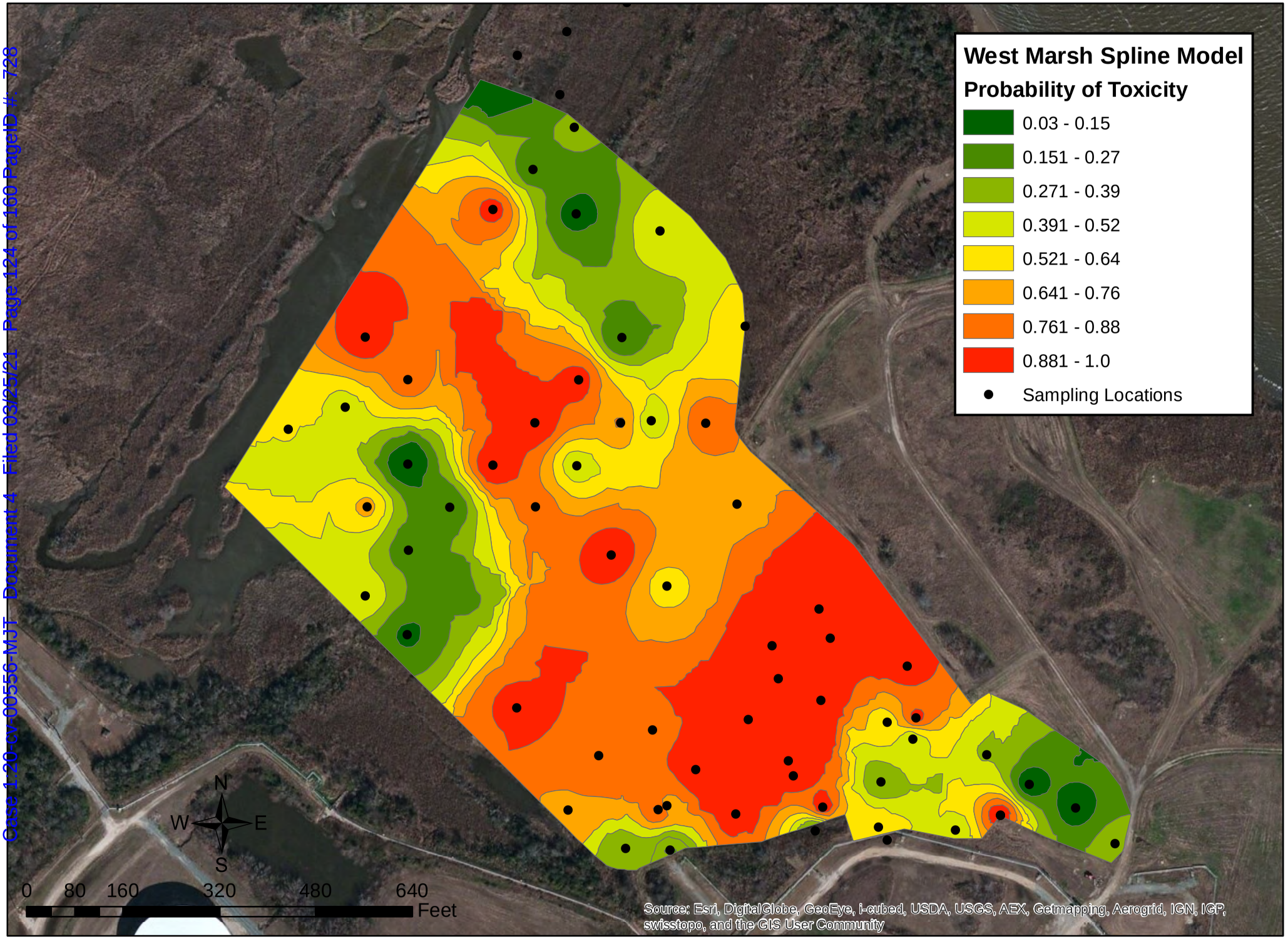
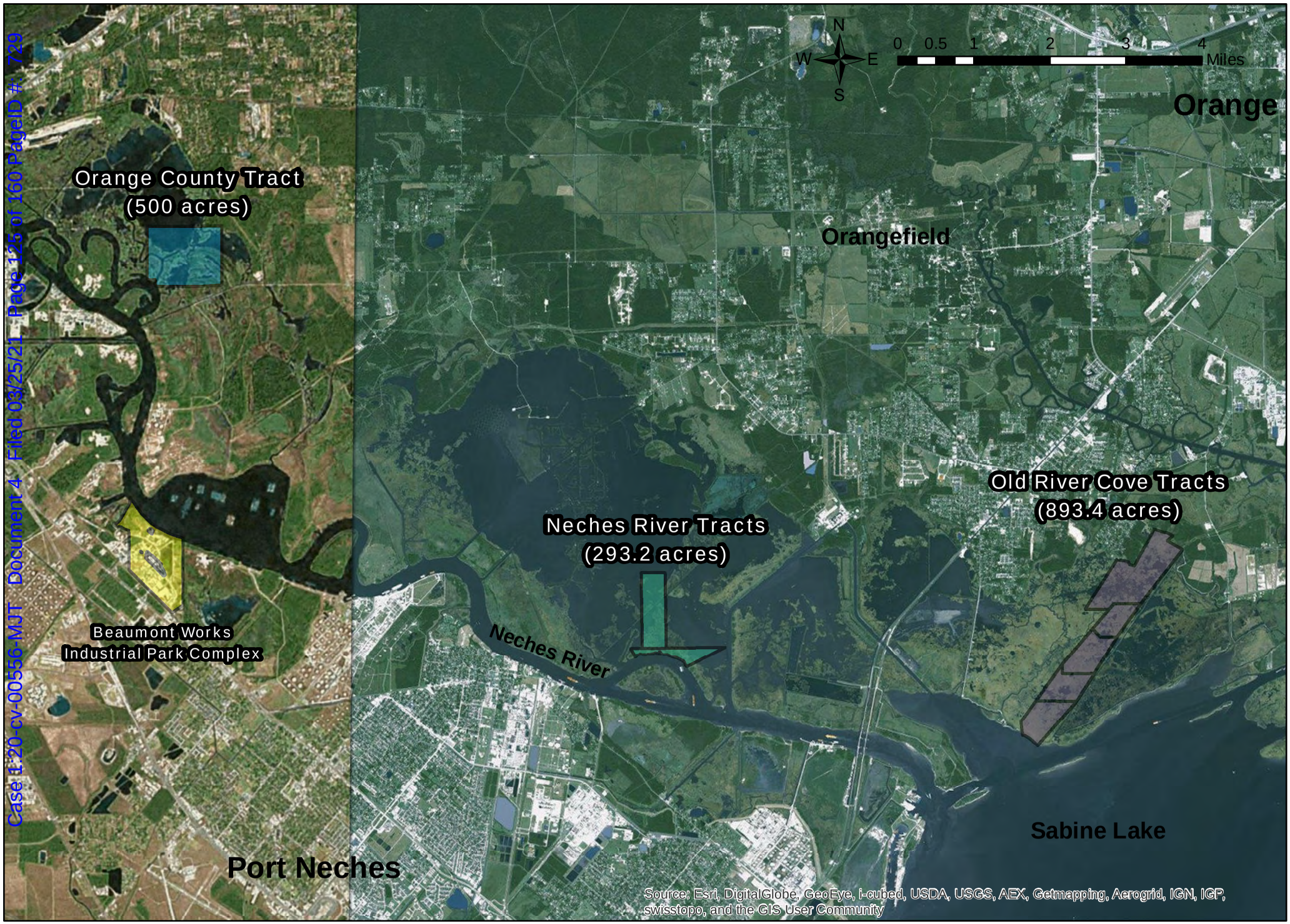


Figure 5. Restoration Alternatives



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

JUL 25 2016

MEMORANDUM FOR: The Record

FROM: Christopher Doley, Division Chief
NOAA Restoration Center

SUBJECT: Categorical Exclusion (CE) for DuPont Beaumont NRDA Restoration Plan, 500-acre "Orange County Tract" Preservation

NOAA Administrative Order (NAO) 216-6, May 20, 1999, as preserved by NAO 216-6A, "Compliance with the National Environmental Policy Act, Executive Orders 12114, Environmental Effects Abroad of Major Federal Actions; 11988 and 13690, Floodplain Management; and 11990, Protection of Wetlands,", requires all proposed projects to be reviewed with respect to environmental consequences on the human environment. This memorandum addresses the consequences of the Restoration Plan for the DuPont Beaumont Works West Marsh by the Texas NRDA trustee council, to conduct the activities described below.

Description of Project(s)
The proposed action would allow for natural recovery of injuries documented at the DuPont Beaumont Works site ("the Site") and would preserve a 500-acre tract (the "Orange County Tract") located on the eastern bank of the Neches River approximately 3.5 river miles upstream of the Site. Habitat on this tract is comprised of tidal intermediate wetlands (emergent marsh, high marsh, small shallow ponds, and channels), expanses of open water and upland forested habitat. These coastal habitats would protect resident and migratory fish and wildlife and would be preserved in perpetuity through the placement of a conservation easement to be held by the Big Thicket Natural Heritage Trust, a local conservation group. This action will be implemented by DuPont with oversight by the Texas NRDA trustee council pursuant to the terms of a legal settlement agreement for natural resource damages claims for the Site as specified in a court-approved Consent Decree.

Effects of the Project(s)
The Texas NRDA Trustee Council determined that natural recovery of the Site combined with off-site habitat preservation will achieve compensation of benthic resources lost and/or injured due to exposure to hazardous substances. The project is limited to preservation of existing, undeveloped land in its natural state. There are no anticipated direct, indirect, or cumulative adverse effects. In addition, no adverse or significant impacts on any listed species are anticipated from this habitat preservation. The Restoration Plan has been reviewed by the NOAA Trustee Council representative for the NOAA Restoration Center, and necessary documentation has been provided to support a categorical exclusion under NEPA.

Categorical Exclusion (CE)
This project would not result in any changes to the human environment. As defined in Sections 5.05 and 6.03b.2 of NAO 216-6, as preserved by NAO 216-6A, the proposed work would not individually or cumulatively have significant impacts on the human environment, and the direct, indirect, and cumulative effects of this action are negligible. This project is eligible for this CE because it meets all of the criteria for this CE: (a) it is intended to restore an ecosystem, habitat, biotic community, or population of living resources to a determinable pre-impact condition, and would achieve this by preventing impacts of potential future development and continued degradation through human use currently threatening the ecological integrity of the site; (b) does not transplant any organisms; (c) does not require substantial dredging, excavation, or placement of fill; and (d) does not involve a significant added risk of human or environmental exposure to toxic or hazardous substances. As such, it is categorically excluded from the need to prepare an Environmental Assessment.

APPENDIX B:

CONSERVATION EASEMENT

DEED OF CONSERVATION EASEMENT

STATE OF TEXAS §
§
COUNTY OF ORANGE §

DATE: _____, 2019

GRANTOR/OWNER: The Conservation Fund,
a Maryland Non-Profit Corporation
1655 N. Fort Myer Dr.
Suite 1300
Arlington, VA 22309-3199

GRANTEE/CONSERVANCY: Big Thicket Natural Heritage Trust
P.O. Box 1049
Kountze, Texas 77625

I. RECITALS

For Purposes of this Conservation Easement ("Conservation Easement"), the Grantor, who is the current Owner, and all subsequent Owners of the subject Property, will be referred to as the "Owner" throughout this Conservation Easement. The Grantee, which includes its trustees, directors, officers, staff and authorized agents, will be referred to as the "Grantee" throughout this Conservation Easement. Third Parties with rights of enforcement are the Texas Parks and Wildlife Department, the Texas Commission on Environmental Quality, the Texas General Land Office and the United States Department of the Interior represented by the U.S. Fish and Wildlife Service which will be collectively referred to as "Third Parties" throughout this Conservation Easement.

PROPERTY: The property subject to this Conservation Easement is located in Orange County, Texas, which will be referred to as the "Property" throughout this Conservation Easement and which is more particularly described as follows: 474.73 acre tract of wetland habitat, more or less, as described in Exhibit A, attached to and incorporated herein.

CONVEYANCE: For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Owner conveys and warrants to the Grantee this perpetual and assignable, upon the written consent of Third Parties and Owner, Conservation Easement over the Property. Owner also warrants that Owner has good and sufficient title to the Property, free from all encumbrances other than those disclosed in the title commitment provided by Grantor to Grantee, and hereby promises to defend the same against all claims that may be made against the Property. This Conservation Easement, and the requirements and restrictions of this Conservation Easement, run in perpetuity with the Property. The scope of this Conservation Easement is set forth in this agreement.

QUALIFIED CONSERVATION EASEMENT HOLDER: The Grantee is a qualified recipient of this Conservation Easement as defined under Section 170(h) of the Internal Revenue Code and Chapter 183 of the Texas Natural Resources Code (or any successor provisions), is committed to preserving the Conservation Values of the Property and is committed to upholding the terms of this Conservation Easement. The Grantee protects natural habitats of fish, wildlife, plants, and the ecosystems that support them. The Grantee also preserves open spaces, including ranches, farms forests and wetlands, where such preservation is for the scenic enjoyment of the general public or pursuant to clearly delineated governmental conservation policies and where it will yield a significant public benefit. The Grantee is a publicly funded, non-profit 501(c)(3) organization.

PURPOSE OF CONSERVATION EASEMENT: The purpose of this Conservation Easement is to preserve in perpetuity a combined total of approximately 474.73 acres of wetlands/aquatic, woodlands/riparian, and grassland habitats on the Property; to prevent any use of the Property that will significantly impair or interfere with the Conservation Values of the Property, while allowing for traditional uses on the Property that are compatible with and not destructive of the Conservation Values of the Property.

FEDERAL AND STATE LAW: (i) This Conservation Easement is created pursuant to Conservation Easements, Chapter 183 of the Texas Natural Resources Code. (ii) This Conservation Easement is established for conservation purposes pursuant to the Internal Revenue Code, as amended at 26 USC §§170(h)(1)-(6) and under applicable Treasury Regulations at 26 CFR §1.170A-14 et seq. ("Treasury Regulations"), and (iii) all other applicable State and Federal laws and regulations.

CONSERVATION VALUES: The Property possesses natural, scenic, historic, open space, scientific, biological, or ecological resources of importance to the Owner, the Grantee, Third Parties and the public. These values are referred to as the "Conservation Values" in this Conservation Easement. The Conservation Values of this Property include the following:

A. Open Space and Scenic Values:

1. The Property provides relief from proximity to urban areas.

2. The Property lies within an area for which there is a reasonable possibility that the Grantee may acquire other property rights on nearby or adjacent properties to expand the Conservation Values preserved by this Conservation Easement.

B. Public Policy:

1. The Property is preserved pursuant to a clearly delineated federal, state, or local conservation policy and yields a significant public benefit. Legislation, regulations, and policy statements that establish relevant public policy include, but are not limited to the following:

a. Conservation easements, as provided by Chapter 183 of the Texas Natural Resources Code (or any successor provision then applicable);

b. Protection of all wild animals as property of the State of Texas as provided by Section 1.011 of the Texas Parks and Wildlife Code (or any successor provision then applicable);

c. Conservation of water resources as provided by Chapters 16 and 26 of the Texas Water Code (or any successor provision then applicable).

2. The Third Parties have recognized the importance of the Property as an ecological resource, by designating the conservation of this land as appropriate compensation for injuries to other natural resources as described in a document entitled the "Damage Assessment and Restoration Plan/NEPA Categorical Exclusion for DuPont Beaumont Works West Marsh, Jefferson County, Texas" (June 6, 2016) ("Restoration Plan") and consistent with the Restoration Project as implemented in accordance with the Consent Decree in *United States of America and the State of Texas vs. E.I DuPont De Numours & Co.,* Docket No. _____ ("Consent Decree").

C. Wildlife Habitat

1. The Property contains significant habitat in which fish, wildlife, plants, or the ecosystems that support them, thrive in a relatively natural condition.

2. The Property is highly diverse from a habitat perspective, including eight (8) unique habitat types described in Exhibit D, Baseline Study of the Property, each of which serves an independent natural resource function. The Property consists entirely of open, undeveloped, tidally-influenced wetland complex habitat. This diverse and sustainable habitat supports a biologically diverse collection of animals and plants as further described in the Baseline Study of the Property.

3. The Property contains areas that represent good examples of terrestrial or aquatic communities as further described in Exhibit D, Baseline Study of the Property.

4. A unique component of the Property is the land is positioned on two Natural Resource Conservation Services (NRCS), Major Land Resource Areas. The western half of the subject property is located in the Gulf Coast Marsh Area, while the eastern half of the subject property is located within the Gulf Coast Prairies. The eastern bank of the Neches River makes up the southwestern corner of the Property and is where Meyer Bayou flows into the Neches River.

5. The topography of the Property varies from very flat across the mud flats and marshland to very slightly sloping terrain along forested areas that rise in evaluation high enough to support a vegetative community typical of upland forested habitat types. A few large vegetated islands (40-100 ft diameter) and many small vegetated islands (5-25 ft diameter) are scattered throughout the open-water areas.

NOW, THEREFORE, the Owner, the Grantee and Third Parties have the common purpose of conserving the above-described Conservation Values of the Property in perpetuity, and the State of Texas has authorized the creation of Conservation Easements pursuant to Chapter 183 of the Texas Natural Resources Code, and Owner, the Grantee and Third Parties wish to avail themselves of the provisions of that law.

II. TERMS AND CONDITIONS OF THIS CONSERVATION EASEMENT

A. Baseline Documentation

Specific Conservation Values of the Property have been documented in a natural resource inventory, dated September 2014 and updated with a November 2018 addendum and signed by the Owner and the Grantee as Exhibit D, attached to and incorporated herein. This "Baseline Documentation Report" consists of maps, a depiction of all existing human-made modifications, prominent vegetation, identification of flora and fauna, land use history, distinct natural features, and photographs. The parties acknowledge that this Baseline Documentation Report is a reasonably accurate representation of the Property at the time of this conveyance. The parties also acknowledge that the Baseline Documentation Report is intended to serve as an objective information baseline for monitoring compliance with the terms of this conveyance, but that it is not intended to preclude the use of other evidence to establish the present condition of the Property if there is a controversy over its use.

B. Density

The Owner agrees that it will not include the Property, or any portion of it, as part of the gross area of other property not subject to this Conservation Easement for the purposes of determining density, lot coverage, permissible lot yield, or open space requirements under otherwise applicable laws, regulations or ordinances controlling land use and building density. No development rights that have been encumbered or extinguished by this Conservation Easement shall be transferred to any other lands pursuant to a transferable development rights scheme, cluster development arrangement or otherwise.

C. Prohibited Actions

Any activity on, or use of, the Property that is inconsistent with the Purposes of this Conservation Easement or that is detrimental to the Conservation Values is prohibited. By way of example, but not by way of limitation, the activities and uses that are explicitly prohibited, except as provided for in Section II.E.1 of this Conservation Easement, are described in Exhibit **B**, attached to and incorporated herein.

D. Landowner's Reserved Rights

The Owner retains all ownership rights that are not restricted by this Conservation Easement. By way of example and subject to the limitations set forth herein, the activities and uses that are expressly permitted are described in Exhibit C, attached to and incorporated herein.

E. Rights and Duties of the Grantee and Third Parties

1. The Owner confers the following rights upon the Grantee and Third Parties to perpetually maintain the Conservation Values of the Property:

a. Right to Enter: The Grantee or its representative and Third Parties or their representatives have the right to enter the Property at reasonable times for the purposes of (i) inspecting the Property to determine compliance with the terms of this Conservation Easement, and (ii) obtaining evidence for the purpose of seeking judicial enforcement of this Conservation Easement. The Grantee and Third Parties agree that this entry will be done in a manner that will not unreasonably interfere with the Owner's permitted uses of the Property. The Grantee and Third Parties also agree to provide advance written notice to the Landowner prior to entering the Property, except in any case where immediate entry is necessary to prevent, terminate, or mitigate damage to, or the destruction of, the Conservation Values, or to prevent or mitigate a violation of the terms of this Conservation Easement in which case reasonable notice to the Owner shall be sufficient. Further, Owner, Grantee and Third Parties may execute a separate agreement after creation of this Conservation Easement to authorize appropriate subcontractors and/or volunteers to enforce the terms of this Conservation Easement. Any such agreement shall not diminish the enforcement rights of the Grantee and Third Parties.

Except as otherwise provided herein, the general public is not granted access to this Property under this Conservation Easement.

2. Signs: With agreement by the Owner, the Grantee has the right to place signs on the Property that identify the land as protected by this Conservation Easement. The size, design, number and location of any such signs are subject to the Owner's approval. Such approval shall not be unreasonably withheld by the Owner.

F. Inspection: The Grantee shall inspect the Property at least once annually in order to monitor the general condition of the Property and compliance with the terms of this Conservation Easement. The Grantee shall give notice to Third Parties at least fourteen (14) days in advance of the annual inspection trip in order to allow their participation at their option. Within sixty (60) days after the date of each annual inspection trip, the Grantee shall prepare and provide to the Owner and Third Parties an annual monitoring report outlining the findings and/or deficiencies observed or discovered during the annual inspection trip to the Property. The Grantee and Third Parties shall give notice to each other of any additional planned inspection trips to the Property at least fourteen (14) days in advance of each trip in order to allow participation of Third Parties or the Grantee at their option. However, in the event of an inspection by Grantee or Third Parties under emergency circumstances, such as to investigate a potential ongoing violation of this Conservation Easement, Grantee and Third Parties shall provide notice of inspection to each other that is reasonable under

the circumstances. The Grantee and Third Parties shall provide each other with written summaries of each other's findings and/or deficiencies observed or discovered during each and every additional inspection to the Property within thirty (30) days of completion of each inspection trip.

3. Conservation Easement Enforcement: The Grantee shall be the primary enforcer of this Conservation Easement. If Third Parties and the Grantee agree that a violation of this Conservation Easement is occurring or has occurred, and that enforcement is warranted, the Grantee shall enforce the terms of this Conservation Easement, and Third Parties may join the enforcement action at their option. If Third Parties disagree with the Grantee that a violation of this Conservation Easement is occurring or has occurred, the Grantee may enforce the terms of this Conservation Easement without the concurrence of Third Parties. If the Grantee disagrees with Third Parties that a violation of this Conservation Easement is occurring or has occurred, Third Parties may enforce the terms of this Conservation Easement at their option without the concurrence of the Grantee.

4. This section addresses cumulative remedies of the Grantee and Third Parties and limitations on these remedies:

   a. Acts Beyond Owner's Control: The Grantee and Third Parties may not bring an action against the Owner for modifications to the Property resulting from causes beyond the Owners' control, including, but not limited to, natural disasters such as unintentional fires, floods, drought, storms, or natural earth movement.

      In the event the terms of this Conservation Easement are violated by unauthorized actions of entities not parties to this Conservation Easement that Owner could not reasonably have anticipated or prevented, the Owner agrees, at the Grantee's and/or Third Parties' option, to join in any suit, to assign the Owner's right of action to the Grantee and/or Third Parties or their representatives, or to appoint the Grantee and/or Third Parties or their representatives as the Owner's attorney-in-fact, for the purposes of pursuing an enforcement action against the responsible parties.

   b. Notice of Violation: If the Grantee and/or Third Parties determine that the Owner is in violation of this Conservation Easement, or that a violation is threatened, the Grantee and/or Third Parties shall provide written notice to the Owner within thirty (30) days of such determination. The written notice will: (i) identify the violation, and (ii) request corrective action to cure the violation and, where the Property has been injured, restore the Property.

      However, if at any time the Grantee and/or Third Parties determine that a violation or a threatened violation is causing or threatens to cause immediate and irreparable harm to the Conservation Values of the Property, then Grantee and/or Third Parties may immediately pursue any and all available lawful remedies to prevent or limit such harm without prior notice and without

awaiting Owner's opportunity to cure the alleged violation. In a situation where a violation or a threatened violation is not causing or threatening to cause immediate or irreparable harm to the Conservation Values of the Property and, therefore, prior notice to the Owner is required, the Grantee and Third Parties may pursue their lawful remedies without waiting for the Owner to cure only if the Owner does not cure or begin to cure the violation in a timely manner in accordance with Paragraph II.E.4.d ("Owner Failure to Act"). In either of these two situations, the Owner agrees to reimburse all reasonable costs, including attorney's fees, related to the violation and its resolution.

c. Corrective Action: The Owner agrees that the Grantee and/or Third Parties reserve the right to assert the following hierarchy of corrective actions to any and all unauthorized violations of this Conservation Easement:

(i) Partial Restoration of this Conservation Easement: Owner shall restore the damaged area or feature of the Property to its condition prior to the violation within a reasonable time according to a plan approved by the Grantee and Third Parties, which approval shall not be unreasonably withheld;

(ii) Partial Replacement of This Conservation Easement: If the Grantee and Third Parties determine that restoration is not likely to be successful on all of the damaged area or feature of the Property, then the Owner may convey, within one year of the notice of violation (or a longer period if agreed by Grantee and Third Parties), a new conservation easement acceptable to and approved by the Grantee and Third Parties on a nearby parcel of land possessing the equivalent Conservation Values that existed on the damaged area or feature of the Property prior to the violation;

(iii) Complete Replacement of This Conservation Easement: If the Grantee and Third Parties determine that options (i), and (ii) will not be effective, then the Owner shall provide a cash settlement to the Grantee and Third Parties adequate to enable Grantee and Third Parties to acquire another conservation easement with provisions substantially similar to those contained in this Conservation Easement on another property of equivalent acreage and possessing substantially similar Conservation Values to those on the Property covered by this Conservation Easement. Upon full payment and acknowledgment by the Grantee and Third Parties that such payment constitutes an adequate cash settlement, and upon ratification by a court pursuant to Section II.M.1, this Conservation Easement will become void and Owner's obligations hereunder shall for all purposes of the Grantee and Third Parties be extinguished. Any cash settlement received under this subsection shall be placed in a trust account to be used only for the purpose of carrying out further land preservation activities

consistent with the goals of the Restoration Plan at an alternate property. Funds may be expended out of the trust account only in accordance with written authorization from Grantee and Third Parties.

d. Owner Failure to Act: If the Owner does not i) promptly begin implementing reasonable and appropriate corrective measures requested by the Grantee and Third Parties, or ii) fails to promptly notify the Grantee and Third Parties of extenuating circumstances, or iii) fails to complete corrective measures within sixty (60) days after written notice, or if completion within sixty (60) days is not feasible, such other appropriate timeline given for compliance by Grantee and/or Third Parties at their sole discretion, the Grantee and/or Third Parties, may bring an action in law or in equity to enforce the terms of this Conservation Easement. In the case of immediate or irreparable harm, or if an Owner is unable to be notified, the Grantee and/or Third Parties may invoke these same remedies without notification and/or awaiting the expiration of the sixty (60) day period.

e. Remedies: The Owner agrees that the Grantee and Third Parties may seek equitable remedies in addition to money damages to address any violation(s) of the terms of this Conservation Easement. The Grantee and/or Third Parties are entitled to seek to enjoin the violation through a temporary restraining order or through temporary or permanent injunctive relief and to seek specific performance, declaratory relief, restitution, reimbursement of expenses, and/or an order compelling the Owner to restore the Property. If the court determines that Grantee and Third Parties complied with all provisions herein and that Owner has failed to comply with this Conservation Easement, the Owner shall also reimburse the Grantee and/or Third Parties for all reasonable litigation costs and reasonable attorney's fees, and all reasonable costs of necessary corrective action or Property restoration incurred by the Grantee and/or Third Parties.

f. Delay in Enforcement. A delay in enforcement by the Grantee and/or Third Parties shall not be construed as a waiver of the Grantee's and/or Third Parties' rights to eventually enforce the terms of this Conservation Easement.

F. Notification of Exercise of Reserved Right

1. The purpose of requiring the Owner to notify the Grantee and Third Parties' representatives prior to undertaking certain reserved rights is to afford the Grantee and Third Parties an opportunity to review the activities in question and to ensure all parties agree that any such activities are designed and will be carried out in a manner consistent with the Purposes of this Conservation Easement. Accordingly, the Grantee and Third Parties shall reserve the right to review, approve, or conditionally approve any such permitted activity requiring prior notice provided that no such activity shall diminish the Conservation Values of the Property. This notification requirement applies only to the following permitted activities:

a. Right to Convey. Owner shall notify the Grantee and Third Parties prior to the conveyance of the Property. Owner shall incorporate the terms of this Conservation Easement in any deed or other legal instrument by which Owner divests any interest in all or a portion of the Property, including, without limitation, a leasehold interest or mineral rights. Before or at the time Owner notifies the Grantee and Third Parties of the transfer, Owner must provide documentation to the Grantee and Third Parties that the party taking any interest in all or a portion of the Property, including, without limitation, a leasehold interest in the Property or mineral rights, has been notified of and has agreed to comply with this Conservation Easement and the requirements and restrictions of this Conservation Easement. This Conservation Easement and the requirements and restrictions of this Conservation Easement, run in perpetuity with the Property. The failure of Owner to comply with any requirement of this Section will not affect enforceability of the Conservation Easement or its perpetual duration.

b. Right to Maintain and Replace Existing Structures. Owner shall submit a plan to the Grantee and Third Parties for review and approval as required in Exhibit C prior to beginning renovation or replacement of existing structures.

c. Right to Restore, Enhance, and Manage Native Plant and Wildlife Habitat. Owner shall submit a conservation plan to the Grantee and Third Parties for review and approval as required in Exhibit C prior to beginning any restoration, enhancement and management activities beyond those specified in the Restoration Project referenced in Section I.B.2 herein as defined in the Consent Decree. All restoration, enhancement, and management activities shall be consistent with the Conservation Values as outlined in this Conservation Easement.

d. Right to Use Agrichemicals and Biological Controls. Owner shall notify the Grantee and Third Parties and request consent as required by Exhibit C prior to using agrichemicals or biological controls on the Property.

e. Rights Associated with Other Easements. Owner shall notify the Grantee and Third Parties and request consent as required by Exhibit C prior to modifying existing easements or granting a new easement on the Property.

2. Whenever notice is required, the Owner shall notify the Grantee and Third Parties' representatives in writing not less than thirty (30) days prior to the date the Owner intends to undertake the activity in question. The notice shall describe the proposed activity in sufficient detail to permit the Grantee and Third Parties to make an informed judgment as to the proposed activity's consistency with the Purposes of this Conservation Easement.

3. It shall also be the responsibility of the Owner to notify the Grantee and Third Parties in writing:

   a. a reasonable amount of time prior to any and all meetings, negotiations or discussions regarding the mineral rights of the Property;

   b. no less than thirty (30) days after any owner or authorized lessee of mineral rights has begun any on-site exploration for or extraction from the Property of any type of subsurface mineral if the Owner has knowledge of such activity; and

   c. no less than thirty (30) days after Owner receives any notice of cessation of any such activity.

   The Owner shall be responsible for restoring any surface damage that may result from any exploration for, extraction of, or translocation of *(e.g.*, pipelines) subsurface minerals such that the topography, substrate composition and vegetative cover of the restored area is consistent with the Purposes of this Conservation Easement. To facilitate accommodation, the Grantee and Third Parties reserve the right to attend and participate in all non-confidential meetings, negotiations or discussions regarding activities impacting Conservation Values associated with the exploration for, extraction of, or translocation of said minerals if the Owner has knowledge of such meetings, negotiations or discussions in order to protect its interest in this Conservation Easement. All subsurface mineral activity must comply with Exhibit B, Section 8.

G. Dispute Resolution

This section governs disputes among the Grantee and Third Parties. Any dispute among the Grantee and Third Parties that arises under or with respect to this Conservation Easement shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends another party a written Notice of Dispute. If the parties to the dispute are unable to resolve the dispute through these informal means, they may elect to resolve the dispute through mutually agreeable alternative dispute resolution procedures within a sixty (60)- day period after the dispute arises unless the period for resolution by mutually agreeable alternative dispute resolution procedures is modified by written agreement of the parties to the dispute or, failing that, through judicial means.

H. Disclaimer of Legal and Tax Implications

Grantee and Third Parties disclaim any representations concerning the tax and legal implications of this conservation easement transaction. The Owner is advised by the Grantee and Third Parties to seek legal and financial advice from qualified professionals.

I. Ownership Costs

In accepting this Conservation Easement, the Grantee and Third Parties shall have no liability or other obligation for (i) upkeep and maintenance, (ii) costs, (iii) liabilities, (iv) taxes, (v) assessments, (vi) fees, (vii) charges of whatever description, or (viii) insurance of any kind related to the Property. The Owner remains solely responsible for obtaining any applicable governmental permits and/or approvals for any activity or use allowed by this Conservation Easement, and all such activities or uses shall be undertaken in accordance with all applicable federal, state and local laws, regulations, and requirements. The Grantee, its members, trustees, or directors, officers, employees, and agents have no liability arising from injury or death to any person or physical damage to any personal property on the Property. Third Parties, their Commissioners, officials, directors, employees, and agents have no liability arising from injury or death to any person or physical damage to any personal property on the Property.

J. **Indemnification**

The Owner, to the extent allowed by applicable law, agrees to release, hold harmless, defend and indemnify Third Parties from any and all liabilities including, but not limited to, injury, losses, damages, judgments, costs, expenses and fees that the indemnified party may suffer or incur as a result of or arising out of the activities on the Property that causes injury to a person or damage to any property.

The Grantee, to the extent allowed by applicable law, agree to release, hold harmless, defend and indemnify Third Parties from any and all liabilities including, but not limited to, injury, losses, damages, judgments, costs, expenses and fees that the indemnified party may suffer or incur as a result of or arising out of the activities of the Grantee on the Property that causes injury to a person or damage to any property.

Third Parties do not waive their sovereign immunity from suit or liability by entering into and signing this Conservation Easement.

K. Hazardous Materials

The Owner warrants that the Owner has no knowledge of the deposition, release or storage of hazardous substances or hazardous wastes, as defined by any local, state or federal law, on the Property. The Owner agrees to protect and defend the Grantee and Third Parties against any claims that allege personal injury or damage to property due to the release or threatened release of hazardous substances, hazardous materials, hazardous wastes, or oil on the Property.

L. Litigation

The Owner warrants that it has no knowledge of any pending or threatened litigation relating in any way to the Property. The Owner also warrants that it has no knowledge of any civil or criminal proceedings or investigations that have at any time related to the Property. However, this Conservation Easement has been placed on the Property as compensation for

alleged injuries to natural resources and other property damage caused by releases of hazardous substances, hazardous materials, hazardous wastes, or oil. The restoration activities and the placing of this Conservation Easement on the Property are undertaken pursuant to the Consent Decree to compensate for injuries to the environment caused by the alleged releases of hazardous substances, hazardous materials, hazardous wastes, or oil..

M. Termination

This Conservation Easement may be extinguished only by a change in condition that causes it to be impossible to fulfill this Conservation Easement's Purposes, or by a condemning authority's legal exercise of power of eminent domain, as follows.

1. Unexpected Change in Conditions: If subsequent circumstances render the Purposes of this Conservation Easement impossible to fulfill, then this Conservation Easement may be partially or entirely terminated only by judicial proceedings. The share of compensation received under this subsection and allocated to Grantee and Third Parties shall be placed in a trust account for the purpose of conducting additional land preservation activities at an alternate property consistent with the goals of the Restoration Plan. The Grantee and Third Parties shall be named as co-trustees on the account with equal rights to fund the additional land preservation activities. Funds may be expended out of the trust account only in accordance with written authorization from the Grantee and Third Parties.

2. Changes in Economic Condition: In making the grant of this Conservation Easement, the Owner has considered the possibility that uses prohibited by the terms of this Conservation Easement may become more economically valuable than permitted uses, and that neighboring properties may in the future be put entirely to such prohibited uses. The Owner believes that any such changes in the use of neighboring properties will increase the benefit to the public of the continuation of this Conservation Easement, and the Grantee, Third Parties and Owner intend that any such changes shall not be deemed to be circumstances justifying the termination or extinguishment of this Conservation Easement.

3. Eminent Domain: If the Property is taken, in whole or in part, by the lawful exercise of the power of eminent domain so as to render it impossible to fulfill the Purposes of this Conservation Easement, then Owner, the Grantee and, at their option, Third Parties, shall act jointly to realize the action most favored by the Grantee and Third Parties according to the following order of preference:

   a. Avoiding the Taking of the Property and Preserving the Property in its Present Condition: Owner and the Grantee shall jointly take actions to formally request that the intended proceeding completely avoid the taking of the Property. Third Parties may join the action at their option.

b. Minimizing and Supplementing any Resulting Loss to the Property: If the Property cannot be wholly preserved as a result of the intended condemnation proceeding after Owner, Grantee and, at their option, Third Parties, have made all attempts to completely avoid the taking of the Property, then Owner and Grantee shall jointly take actions to formally request that the condemning authority minimizes the taking of the Property and the impact of the taking on the Conservation Values. Third Parties may join such actions at their option. Additionally, Owner and Grantee shall formally request that, within one year of notice of the intended proceeding, the condemning authority supplement any resulting loss of the Property, on at least a 1:1 acreage basis with a supplemental conservation easement containing provisions substantially similar to those contained in this Conservation Easement on nearby land acceptable to the Grantee and Third Parties or if acquisition within one year is not feasible, within a longer time period agreed to by Grantee and Third Parties. Third Parties may join in the formal request at their option.

c. Mitigating the Loss of the Property: If options (a) and (b) are not successful or are not acceptable to the Grantee and Third Parties, Owner and Grantee shall jointly take actions to formally request through the intended proceeding that, within two years of notice of the intended condemnation proceeding, the condemning authority mitigate its taking of this Property, on at least a 1:1 acreage basis with a replacement conservation easement containing provisions substantially similar to those contained in this Conservation Easement on nearby land acceptable to Grantee and Third Parties, or if acquisition within one year is not feasible, within a longer time period agreed to by Grantee and Third Parties. Third Parties may join in the formal request at their option; or

d. Recover Full Value: If options (a) through (c) are not successful or acceptable to the Grantee and Third Parties, Owner and the Grantee shall jointly take actions to recover the full value of the interests in the Property subject to the taking and all direct or incidental damages resulting from the taking. Third Parties may join such actions at their option. The share of compensation received under this subsection and allocated to Grantee and Third Parties shall be placed in a trust account for the purpose of conducting additional land preservation activities consistent with the goals of the Restoration Plan at the Property or at an alternate property. Funds may be expended out of the trust account only in accordance with written authorization from Grantee and Third Parties. The Grantee and Third Parties shall be named as co-trustees on the account with equal rights to fund the additional land preservation activities, which shall require the concurrence of both Grantee and Third Parties.

N. Amendments

If circumstances arise under which an amendment to or modification of this Conservation Easement would be appropriate or necessary, the Owner, the Grantee and Third Parties may agree jointly to amend this Conservation Easement. However, no amendment shall be

allowed that will affect the qualification of this Conservation Easement or the status of the Grantee under any applicable laws, including Chapter 183 of the Texas Natural Resources Code or Section 170(h) of the Internal Revenue Code. Further, any amendment shall be consistent with the Purposes of this Conservation Easement, shall not diminish the Conservation Values of the Property, and shall not affect the perpetual duration of this Conservation Easement, and shall not convey private inurement or impermissible private benefit to any person. Any such amendment shall be recorded in the official records of Orange County, Texas, and at the expense of the party initiating the amendment.

O. Liberal Construction

This Conservation Easement shall be liberally construed in favor of maintaining the Purposes herein and the Conservation Values of the Property and in accordance with Chapter 183 of the Texas Natural Resources Code (or any successor provision then applicable).

P. Notices

1. For purposes of this Conservation Easement, notices may be provided to all parties by delivery or by mailing a written notice to the party (at the last known address of a party) by First Class mail (certified, return receipt requested). All notices shall be deemed delivered and effective upon actual receipt if given personally or by private courier, or upon deposit with the United States Postal Service if given by mail. A party providing notice shall make a good faith attempt to determine that notice was actually received.

2. This Conservation Easement establishes the Texas Commission on Environmental Quality, Office of Waste, at the address below, as the Third Parties' representative for purposes of receiving notices or communications related to this Conservation Easement. The Third Parties may change the Third Parties' representative by providing Owner, the Grantee and the other Third Parties with not less than ten (10) calendar days' written notice of such change.

Texas Commission on Environmental Quality
Natural Resource Trustee Program, MC-225
P.O. Box 13087
Austin, Texas 78711-3087
Telephone: (512) 239-2523

3. This Conservation Easement establishes the Conservation Director of the Grantee, at the address below, as the Grantee's representative for purposes of receiving notices or communications related to this Conservation Easement. The Grantee may change its representative by providing Owner and the Third Parties' Representative with not less than ten (10) calendar days' written notice of such change.

Big Thicket Natural Heritage Trust
P.O. Box 1049
Kountze, Texas 77625

4. This Conservation Easement establishes Paul Hurt, at the address below, as Owner's representative for purposes of receiving notices or communications related to this Conservation Easement. Owner may change its representative by providing the Grantee and the Third Parties' representative with not less than ten (10) calendar days' written notice of such change.

The Conservation Fund
1655 N. Fort Myer Dr.
Suite 1300
Arlington, VA 22309-3199

Q. Severability

If any portion of this Conservation Easement is determined to be invalid by a competent court of law, the remaining provisions will remain in force.

R. Successors

This Conservation Easement is binding upon, and inures to the benefit of, the Owner's, the Grantee's and Third Parties' successors in interest. This Conservation Easement, and the requirements and restrictions of this Conservation Easement, run in perpetuity with the Property. All subsequent Owners of the Property are bound to all provisions of this Conservation Easement to the same extent as the current Owner. Owner shall incorporate the terms of this Conservation Easement in any deed or other legal instrument by which Owner divests any interest in all or a portion of the Property, including, without limitation, a leasehold interest. In the event that Owner divests any interest in all or a portion of the Property, including, without limitation, a leasehold interest of the Property, Owner shall notify the Grantee and Third Parties in writing at least thirty (30) days prior to such transfer. Before or at the time Owner notifies the Grantee and Third Parties of the transfer, Owner must provide documentation to the Grantee and Third Parties that the party taking any interest in all or a portion of the Property, including, without limitation, a leasehold interest the Property, has been notified, and has agreed to comply with this Conservation Easement and the requirements and restrictions of this Conservation Easement. The failure of Owner to comply with any requirement in this Section does not affect the enforceability of this Conservation Easement or its perpetual duration.

S. Placement of Additional Encumbrances on Property

Owner covenants that it will not hereafter attempt to convey any additional lease, profit, license or easement on the Property, including but not limited to oil, gas and mineral leases, or any easement for utility service or transmission lines, without the written consent of the Grantee and Third Parties. Any attempted grant in violation of this provision shall be voidable by Grantee and any Third Party at their sole discretion. Any liens or security interests that Owner places on the Property after the effective date of this Conservation Easement shall be subordinate to the Grantee's and Third Parties' interests in this Conservation Easement and subject to the terms of this Conservation Easement.

T. Cessation of Existence

If the Grantee shall cease to exist or if it fails to be a "qualified organization" for purposes of Internal Revenue Code Section 170(h)(3) or Chapter 183 of the Texas Natural Resources Code (or any successor provisions then applicable), or if the Grantee is no longer authorized to acquire and hold conservation easements, then this Conservation Easement shall become vested in another entity as outlined below. Selection of such other entity must be approved in writing by Third Parties, and such entity shall be a "qualified organization" for purposes of Internal Revenue Code Section 170(h)(3) and Chapter 183 of the Texas Natural Resources Code (or any successor provisions then applicable). The Grantee's rights and responsibilities will be assigned to an entity having similar conservation purposes to which such right may be awarded under the *cy pres* doctrine. Any assignment of this Conservation Easement shall obligate the Grantee to (i) require that the conservation Purposes continue to be carried out, and (ii) transfer to the new holder the remaining balance of conservation easement stewardship funds allocated to this Conservation Easement.

U. Assigning this Conservation Easement to another Holder

The Grantee may transfer this Conservation Easement to a similar entity, but the Grantee may only assign its rights and obligations under this Conservation Easement to a qualified organization as defined under Section 170(h) of the Internal Revenue Code (or any successor provision then applicable). Such assignment must be approved in writing by Third Parties. The holder must be authorized to acquire and hold conservation easements under Chapter 183 of the Texas Natural Resources Code (or any successor provision then applicable) and any applicable laws of the United States. Any assignment of this Conservation Easement shall obligate the Grantee, and any subsequent holder of this Conservation Easement, to (i) require that the Conservation Values of this Property are protected and preserved in perpetuity, and (ii) transfer to the new holder the remaining balance of conservation easement stewardship funds allocated to this Conservation Easement. The Grantee agrees to give written notice to Owner and Third Parties' Representative of an assignment at least thirty (30) days prior to the date of such assignment. The failure of the Grantee to give this written notice to the Owner or Third Parties' Representative shall not affect the validity of the assignment and it shall not impair the validity of this Conservation Easement or limit its enforceability in any way.

V. Termination of Rights and Obligations

A party's rights and obligations under this Conservation Easement terminate upon transfer of that party's interest in the Property. Liability for acts or omissions occurring prior to transfer will survive the transfer.

W. Texas Law

This Conservation Easement will be construed in accordance with Texas law except where this Conservation Easement invokes other law.

X. Entire Agreement

This Conservation Easement sets forth the entire agreement of the parties. It is intended to supersede all prior discussions or understandings. No alteration or variation of this Conservation Easement shall be valid or binding unless contained in an amendment that complies with Section N.

Y. Merger

The parties agree that the terms of this Conservation Easement shall survive any merger of the fee and easement interest in the Property. In the case of acquisition of the fee and easement interest in the Property in the same party, the Owner at the time of the merger shall convey the fee interest to another party or this Conservation Easement to another qualified Holder within 180 days of such merger. Until the Owner conveys this Conservation Easement to a new Holder, the Owner shall manage the Property as if it were the Holder in accordance with the terms and restrictions of this Conservation Easement.

Z. Counterparts

The parties may execute this instrument in two or more counterparts which together shall constitute one and the same document.

AA. Certifications

Each undersigned representative of a party to this Conservation Easement certifies that he or she is fully authorized to execute this Conservation Easement on behalf of the party represented and to legally bind the party represented to the terms and conditions of this Conservation Easement.

GRANTOR/OWNER:

The Conservation Fund

By: _____

Signature

_____

Printed Name

_____

Title

STATE OF TEXAS)
)
COUNTY OF Orange)

Acknowledged before me on this _____ day of _____, 20__ by _____, known to me to be the _____, on behalf of said corporation.

_____
Notary Public in and for the State of Texas
My commission expires: _____

GRANTEE/CONSERVANCY:

Big Thicket Natural Heritage Trust

By: _____
Ellen Buchanan, President

STATE OF TEXAS)
)
COUNTY OF JEFFERSON)

Acknowledged before me on this _____ day of _____, 20__ by Ellen Buchanan, known to me to be the President of the Big Thicket Natural Heritage Trust.

_____
Notary Public in and for the State of Texas
My commission expires: _____

AFTER RECORDING SEND ORIGINAL DOCUMENT TO:

Big Thicket Natural Heritage Trust
P.O. Box 1049
Kountze, Texas 77625

THIRD PARTY:

Texas Parks and Wildlife Department

By: _____
Carter Smith, Executive Director

STATE OF TEXAS)
)
COUNTY OF TRAVIS)

Acknowledged before me on this _____ day of _____, 20__ by Carter Smith, known to me to be the Executive Director of the Texas Parks and Wildlife Department.

_____
Notary Public in and for the State of Texas
My commission expires: _____

THIRD PARTY:

Texas Commission on Environmental Quality

By: _____
Stephanie Bergeron Perdue, Deputy Executive Director

STATE OF TEXAS)
)
COUNTY OF TRAVIS)

Acknowledged before me on this _____ day of _____, 20__ by Stephanie Bergeron Perdue, known to me to be the Executive Director of the Texas Commission on Environmental Quality.

_____
Notary Public in and for the State of Texas
My commission expires: _____
_____

THIRD PARTY:

Texas General Land Office

By: _____
Mark Havens
Chief Clerk and Deputy Land Commissioner

STATE OF TEXAS)
)
COUNTY OF TRAVIS)

Acknowledged before me on this _____ day of _____, 20__ by Mark Havens, known to me to be the Chief Clerk and Deputy Land Commissioner of the Texas General Land Office.

_____
Notary Public in and for the State of Texas
My commission expires: _____

THIRD PARTY:

United States Fish and Wildlife Service

By: _____
Dr. Benjamin N. Tuggle
Regional Director, Southwest Region

STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

Acknowledged before me on this _____ day of _____, 20__ by Dr. Benjamin N. Tuggle, known to me to be the Regional Director of the Southwest Region of the United States Fish and Wildlife Service.

_____
Notary Public in and for the State of New Mexico
My commission expires: _____

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

EXHIBIT B
PROHIBITED ACTIONS

The following uses and practices are inconsistent with the Purposes of this Conservation Easement or detrimental to the Conservation Values and shall be prohibited upon or within the Property.

1. Commercial Activities. Any commercial activity on the Property is prohibited except to the extent allowed by Section 8 (Mineral Extraction) or by Exhibit C, Section 6.

2. Construction on the Property. Construction of any structures on the Property is expressly prohibited, unless otherwise specifically allowed by this Conservation Easement.

3. Cutting Vegetation. Except where permitted under Exhibit C, or by the prior written consent of the Grantee and Third Parties, any cutting of native trees or vegetation is prohibited on the Property. Where such consent is sought, the Grantee and Third Parties will consider whether the trees or vegetation pose a threat to human life or property, whether the removal is consistent with the Conservation Values of the landscape as outlined in this Conservation Easement, such removal is necessary, or whether the removal is associated with permitted activities as specified in Section 4 of Exhibit C.

4. Division or Subdivision of Property. Any division, subdivision, or partition of the Property or recording of a subdivision plan for the Property is prohibited.

5. Dumping, Storing or Accumulating. There shall be no dumping, storing or accumulating of, without limitation, any solid or hazardous wastes, hazardous substances, toxic substances, pollutants or contaminants, or oil. The Owner may compost bio-degradable materials, but only as authorized in Exhibit C.

6. Feed Lot. The establishment or maintenance of any commercial feed lot is prohibited on the Property. A commercial feed lot shall be defined for purposes of this Conservation Easement as a confined area or facility within which the land is not grazed or cropped annually and which is used to receive livestock that have been raised off the Property for feeding and fattening for market.

7. Industrial Activities. Any industrial activity on the Property is prohibited.

8. Mineral Extraction. Any mining or alteration of the surface of the Property, which includes the use of quarrying or consumptive or depleting methods of extraction, that will consume or deplete the surface estate, including, but not limited to, the removal of topsoil, sand, gravel, rock, and peat, is expressly prohibited. Owner, mineral owner or authorized lessee are permitted to explore for and/or extract subsurface minerals provided that the Owner,

mineral owner or authorized lessee responsible for any surface damage shall reclaim any such damage so that topography, substrate composition and vegetative cover of the reclaimed area is restored in a manner that is consistent with the purposes of this Conservation Easement. If exploration or extraction by a mineral owner or authorized lessee other than Owner results in surface damage and the mineral owner or authorized lessee does not, or will not, voluntarily reclaim the damaged area then the Owner shall undertake such restoration or compel the responsible party to undertake such reclamation through appropriate legal action. Grantee and Third Parties shall be a necessary party to any surface use agreement, lease, or other consent entered into by Owner for the production of subsurface minerals on the Property. Grantee and Third Parties are not entitled to proceeds, but are parties to any such consent in order to ensure that any production of the subsurface minerals takes place in a manner protective of the Conservations Values herein to the extent possible. Any surface use agreement, lease, or other consent entered into by Owner for production of subsurface minerals on the Property without the joinder of Grantee and Third Parties is voidable by Grantee or any Third Party at their sole discretion.

9. Land Surface Alteration. Owner may perform surface alteration to control erosion, and to maintain the integrity of erosion control infrastructure such as dams and spillways, and for Property maintenance, pursuant to a plan submitted to Grantee for its approval. Otherwise, any excavation or fill work that would reduce the area within any flood plain, alter the natural flow of water across the Property, or change the natural grade elevation of the Property is prohibited.

10. Horses and Motorized Vehicles. Horseback riding and the operation of motorized off-road vehicles such as, but not limited to, all-terrain vehicles, sport utility vehicles, motorcycles, dune buggies, or snowmobiles, is prohibited off of designated roads on the Property, except as necessary for maintenance activities as defined in Section 2 of Exhibit C ("Right to Maintain and Replace Existing Structures"), fire protection, emergency purposes, or as necessary for restoration or enhancement activities conducted in accordance with Section 4 of Exhibit C ("Right to Restore, Enhance and Manage Native Wildlife Habitat"). Use of horses or motorized vehicles that would adversely affect the Conservation Values of the Property is not permitted for maintenance activities.

11. Roads. The establishment of any new road, regardless of surface type (e.g., "dirt," gravel, asphalt, concrete), is prohibited on the Property, unless such road establishment serves the Purposes of this Conservation Easement and is done with the prior written approval of Grantee and Third Parties.

12. Signs and Billboards. Billboards are prohibited on the Property. Grantee may place educational signs on the Property with written approval of Owner and Third Parties. Such

approval shall not be unreasonably withheld by Owner or Third Parties. All other signs are generally prohibited on the Property, except the following signs may be displayed to provide or indicate:

- The name and address of the property or the Owner's name.
- The name and address of the Grantee and Third Parties.
- The area is protected by a conservation easement.
- Prohibition of any unauthorized entry or use.
- An advertisement for the sale or rent of the Property.

13. Telecommunications Facility. Any telecommunications broadcast, relay or translator facility or device is prohibited on the Property.

14. Pollution, Disturbance to Hydrology. There shall be no pollution, depletion, extraction, pumping or transport of surface water, natural water courses, lakes, ponds, marshes, wetlands, subsurface water or any other water bodies, nor shall activities be conducted on the Property that would be detrimental to water quality or that could alter the natural water level or flow in or over the Property, except as expressly allowed herein, or except for the depletion, extraction, drilling, pumping or transport of water that is necessary for the management, enhancement or restoration purposes that are consistent with the intent and Purpose of this Conservation Easement and with Section 4 of Exhibit C ("Right to Restore, Enhance and Manage Native Plant and Wildlife Habitat"). Commercial water sales are expressly prohibited.

15. Transfer of Development Rights. The transfer of any development rights to any property, whether or not adjacent to the property is prohibited.

16. Biocides. There shall be no use of pesticides, including but not limited to insecticides, fungicides, rodenticides and herbicides, except as associated with activities permitted in accordance with Exhibit C.

17. Livestock. Placement or grazing of domestic livestock or other domesticated animal species on the Property is prohibited. However, to the extent it is consistent with the Purposes of this Conservation Easement and not detrimental to the Conservation Values of the Property, livestock may be used for vegetation management or as an educational tool in association with land management practices upon prior written approval by the Grantee and Third Parties.

18. Invasive Species. There shall be no planting of invasive or non- native plant species anywhere on the Property, nor shall any invasive or non- native insects, fish, reptiles,

amphibians, birds or mammals be introduced to the Property unless the introduction of same furthers the intent of this Conservation Easement, is not detrimental to the Conservation Values of the Property and is done with prior written approval of Grantee and Third Parties. The Grantee and/or Third Parties will provide a list of potentially invasive species to the Owner upon request.

19. Hunting, Fishing or Trapping. Hunting, fishing or trapping is prohibited on the Property except as authorized in Exhibit C.

20. Public Use. Use of the Property by members of the general public for active recreational purposes is prohibited except as authorized in Exhibit C.

EXHIBIT C
RESERVED RIGHTS

The Owner retains all ownership rights that are not expressly restricted by this Conservation Easement. The following rights are consistent with the Purposes of this Conservation Easement and are expressly permitted upon or within the Property:

1. Right to Convey. The Owner retains the right to sell, mortgage, bequeath, or donate the Property. Any conveyance will remain subject to the terms of this Conservation Easement and each subsequent Owner will be bound by all obligations in this agreement. Owner shall notify the Grantee and Third Parties at least thirty (30) days prior to the conveyance of the Property and the document of conveyance shall expressly refer to this Conservation Easement. The failure of Owner to perform any action required by this Section will not affect the perpetual duration of this Conservation Easement or its enforceability.

2. Right to Maintain and Replace Existing Structures. The Owner retains the right to maintain, renovate, and replace the existing structure(s) in substantially the same location and size on the Property as noted in the Baseline Documentation Report in Exhibit D. Any expansion or replacement may not substantially alter the character or function of the structure. Prior to beginning renovation or replacement of the existing structures, the Owner will provide a written plan to the Grantee and Third Parties for the Grantee's and Third Parties' review and approval. Such approval shall not be unreasonably withheld. Upon agreement between Owner, Grantee and Third Parties, an existing structure may be completely removed and not replaced. Additionally, if a structure is removed by natural processes, Owner, Grantee and Third Parties may agree that it will not be replaced.

3. Right to Prohibit Unauthorized Entry. The Owner may prohibit entry on the Property of unauthorized persons.

4. Right to Restore, Enhance and Manage Native Plant and Wildlife Habitat. The Owner may restore, enhance, and manage native plant and wildlife habitat in a manner consistent with a conservation plan approved by the Grantee and Third Parties and prepared by a qualified conservation professional acceptable to the Grantee and Third Parties.

   The Owner is permitted seasonally and temporarily to store fencing materials, posts, feed, equipment and other personal property necessary to conduct habitat restoration, enhancement or management activities on the Property in a location and manner that is not unsightly and that does not impair the Conservation Values of the Property. Owner may not store such materials for longer than sixty (60) days without notice and approval by the Grantee for the

purposes of preserving the Conservation Values on the Property. The Owner is permitted to compost bio-degradable materials resulting from the habitat restoration, enhancement or management practices on the Property.

5. Right to Use Agrichemicals and Biological Controls. The Owner is permitted, with prior written consent of Grantee and Third Parties, to use biological controls licensed for the control of pests and agrichemicals only as necessary to accomplish the habitat restoration, enhancement or management goals in accordance with the Conservation Values of this Conservation Easement, or to control problem animals or invasive species detrimental to the Conservation Values of the Property, provided that any agrichemicals or biological controls are used according to applicable government regulations.

6. Hunting, Fishing or Trapping. The Owner may conduct and allow hunting, fishing, and trapping activities only to the extent such activities would not interfere with the Purpose of this Conservation Easement or impair the Conservation Values of the Property and in accordance with all applicable federal, state and local laws, restrictions, and ordinances and the provisions of this Conservation Easement. Guests of Owner may conduct hunting, fishing, and trapping activities only when Owner is physically present on the Property. Owner may place or allow temporary, removable structures such as observation decks or blinds associated with the activities permitted under this Section 6. Commercial leasing for hunting, trapping, and fishing is prohibited on the Property except with prior written approval by the Grantee and Third Parties.

7. Rights Associated with Other Easements. The continued use and maintenance of existing easements of record granted prior to this Conservation Easement are permitted. Any modifications to these existing easements require the consent of the Grantee and Third Parties. Any new easements voluntarily granted by the Owner shall require the prior written consent of the Grantee and Third Parties, which shall not be unreasonably withheld, conditioned, or delayed, and must protect the Conservation Values of the Property, and be consistent with the Purposes of this Conservation Easement. Neither the Grantee nor Third Parties shall be entitled to any of the proceeds of the new easements.

8. Right to Conduct Limited Educational Activities. Owner, in its sole and non- reviewable discretion, may permit Grantee and select third parties to conduct limited non- invasive educational activities on the Property that are consistent with the Purpose of this Conservation Easement and that will not impair the Conservation Values of the Property. To the extent Owner may allow the conduct of such activities, those activities would be governed by whatever requirements Owner may choose to impose that are consistent with the terms, requirements and Conservation Values of this Conservation Easement.

9. Right to Construct Limited Structures. Upon prior written approval by the Grantee and Third Parties, Owner may construct limited structures that do not constitute dwellings or habitations for the purpose of property maintenance or livestock activities permitted in Exhibit B, Section 17 (such as a barn, animal shelter, or storage shed), to the extent that such construction would not interfere with the Purpose of this Conservation Easement or impair the Conservation Values of the Property. No residential structures are permitted on the Property. This Section 9 does not apply to temporary, removable structures associated with activities permitted under Section 6 of Exhibit C, such as duck blinds.

10. Right to Allow Passive Recreational Use. Owner may allow passive recreational use (such as hiking, photography, or bird watching) to the extent that such use would not interfere with the Purpose of this Conservation Easement or impair the Conservation Values of the Property.

EXHIBIT D

BASELINE DOCUMENTATION REPORT

APPENDIX C:

PROPERTY DESCRIPTION

(With Associated Deed)

371980

COUNTY CLERK
SCANNED

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM THIS INSTRUMENT BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER AND/OR YOUR DRIVER'S LICENSE NUMBER.

QUITCLAIM DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF ORANGE §

ORANGE COUNTY, LTD., a Texas limited partnership ("**Grantor**"), for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, has QUITCLAIMED and by these presents does QUITCLAIM unto THE CONSERVATION FUND, a Maryland non-profit corporation ("**Grantee**"), the real property in Orange County, Texas, fully described in Exhibit A hereto and all improvements located thereon, together with all of Grantor's right, title and interest (if any) in and to (i) any and all rights, titles, powers, privileges, easements, licenses, rights-of-way and interests appurtenant to the land, if any, and (ii) all rights, titles, powers, privileges, licenses, easements, rights-of-way and interests, if any, of Grantor, either at law or in equity, in possession or in expectancy, in and to any land lying in the streets, highways, roads, alleys, rights-of-way or sidewalks, open or proposed, in front of, above, over, under, through or adjoining the land and in and to any strips or gores of real estate adjoining the land (collectively, the "**Property**").

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereunto in anywise belonging, unto Grantee, its successors and assigns forever, WITHOUT ANY WARRANTIES OR REPRESENTATIONS BY GRANTOR, EXPRESS OR IMPLIED, OR ARISING BY OPERATION OF LAW, INCLUDING, BUT IN NO WAY LIMITED TO, ANY WARRANTY OF CONDITION, MERCHANTABILITY, HABITABILITY OR FITNESS FOR A PARTICULAR USE, OR WITH RESPECT TO THE VALUE, PROFITABILITY OR MARKETABILITY OF THE PROPERTY; so that neither Grantor nor Grantor's heirs, administrators, executors, successors and/or assigns shall have, claim or demand any right or title to the Property or any part thereof.

Grantor hereby retains unto itself, its successors and assigns, any and all minerals, oil and gas in, on or under the Property. The term "minerals, oil and gas" for all purposes of this instrument is defined to include, oil, gas, sulphur and all other hydrocarbon substances, whether liquid, gaseous or solid, all fissionable minerals and materials, including, but not limited to, uranium, thorium, vanadium, molybdenum, rhenium and all coal, lignite, zinc, lead, iron, copper, gold and other minerals and ores, whether known or unknown and irrespective of the depth at which the same may be found (but expressly excluding sand, gravel, rock, stone and caliche and similar materials considered part of the surface estate); provided, however, that Grantor hereby waives its right to extract any fissionable minerals and materials and any coal, lignite, zinc, lead,

GF # 11-19325

iron, copper, gold and other ores by way of surface mining, strip mining or *in situ* leach mining on the surface of the Property.

Grantee, by its acceptance hereof, hereby assumes payment of all standby charges, ad valorem taxes and assessments with respect to the 2011 calendar year and subsequent calendar years not yet due and payable, and any rollback taxes due to this conveyance or Grantee's use of the Property, each to the extent attributable to all or any portion of the Property.

Grantee's address is: 1655 N. Fort Myer Drive, Suite 1300,
Arlington, Virginia 22209.

EXECUTED this 17th day of August, 2011.

GRANTOR:

ORANGE COUNTY, LTD.,
a Texas limited partnership

By: OCI Management, LLC,
a Texas limited liability company,
its general partner

By: _____
Allen Mann
Sole Manager and President

STATE OF TEXAS §
§
COUNTY OF DALLAS §

BEFORE ME, the undersigned authority, on this day personally appeared Allen Mann, Sole Manager and President of OCI Management, LLC, a Texas limited liability company, in its capacity as the general partner of Orange County, Ltd., a Texas limited partnership, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated, and as the act and deed of said limited liability company and limited partnership.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 17th day of August, 2011.

_____
Notary Public - State of Texas

MARCIA K ALLEN
My Commission Expires
December 4, 2014

WHEN RECORDED RETURN TO:

The Conservation Fund
1655 N. Fort Myer Drive
Suite 1300
Arlington, VA 22209
Attn: Carolyn McCoy
11-119375

Exhibit A - Legal Description

EXHIBIT A

LEGAL DESCRIPTION

All that certain 474.73 acre tract or parcel of land, more or less, out of the WILLIAM STEPHENSON LEAGUE, A-23 and being the same as called 500 acre Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas and being more particularly described as follows;

COMMENCING, at a point having a NAD83, Texas Central Zone State Plane Coordinates of, N: 10,045,471.6 feet and E: 4,301,797.8 feet, said point being a found flat iron, as shown on that certain survey by J.L. Sims, Jr. with WORTECH Land Surveyors, Inc., dated March 10, 2005, under their file number 2005-002 and being the Northeast corner of the WILLIAM ALLEN LEAGUE, A-28, said point of commencement also being S85°54'46"W (all bearings shown hereon are Grid NAD83), a distance of 3877.70 feet from a found Buggy Axle monumenting the Southeast corner of the WILLIAM STEPHENSON LEAGUE, A-23, and from said point of commencement run;

THENCE run S86°01'06"W along the South line of the WILLIAM STEPHENSON LEAGUE, A-23 and passing the Northeast corner of the G.C. & S.F. RR. SURVEY, SECTION NO. 1, A-239, at a distance of 5033.82 feet and continuing for a total distance of 6730.6 feet to a found ¾" Iron Pipe and the Southeast corner of called 500 acre Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. A Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas and the Point of Beginning. From said Point of Beginning run;

THENCE run S 85°49'15" W (called West) along the South line of the WILLIAM STEPHENSON LEAGUE, A-23 and the South line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas and along the North line of the J.W. HILL SURVEY, A-251 for a distance of 4555.26 feet (called 1636.7 varas or 4546.39 feet) to a point on the East bank of the Neches River, from whence is a found concrete monument, stamped EBT for the Southwest corner of the WILLIAM STEPHENSON LEAGUE, A-23, also being the Northwest corner of the J.W. HILL SURVEY, A-251, bears S85°49'15"W a distance of 19.12 feet;
THENCE in a Northwesterly direction along the East bank of the Neches River the following eleven (11) courses, (1) N 29°46'02" W a distance of 28.41 feet; (2) N 09°13'00" W a distance of 50.21 feet; (3) N 12°28'31" E a distance of 134.18 feet; (4) N 81°40'55" W a distance of 206.10 feet;
(5) S 65°05'49" W a distance of 50.07 feet; (6) N 82°09'17" W a distance of 100.45 feet; (7) N 49°22'31" W a distance of 50.30 feet; (8) N 87°19'29" W a distance of 50.40 feet; (9) N 69°00'50" W a distance of 200.07 feet;

(10) N 81°42'22" W a distance of 50.22 feet; (11) N 73°08'09" W a distance of 24.50 feet to its intersection with the West line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas, from whence a found concrete monument, stamped EBT, being the Southwest corner of the aforementioned called 500 acre Tract One, bears S04°02'01"E a distance of 43.66 feet ;

THENCE leaving the bank of the Neches River and run N 04°02'01" W (called North) along the West line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas for a distance of 3556.43 feet to a found concrete monument and the Northwest corner of the called 500 acre tract, said monument also shown on that certain plat of survey by Mustang Engineering, Inc, William J. Cash, Jr., RPLS, dated May 31, 2001 for Orange County, LC , and as being an interior ell corner for Orange County LC, as recorded in Volume 874, page 974 and also the Edward Arnaud, Inc, called 1074.92 acre tract, as described in Volume 1473, page 781 of the Official Public Records of Real Property of Orange County, Texas;

THENCE run N 85°12'12" E (called East) along the North line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 and the South line of the Edward Arnaud, Inc, called 1074.92 acre tract, as described in Volume 1473, page 781 of the Official Public Records of Real Property of Orange County, Texas and passing a found 1&1/2" Iron Pipe at the Southeastern most corner of the aforementioned called 1074.92 acre tract at a distance of 2490.74 feet (W.J. Cash, Jr. survey N86°00'40"E, 2490.58 feet) and continuing along the North line of the called 500 acre tract and the South line of that certain called 1616.66 acre tract to William Edward Winfree, field notes by Earl James Verrett, PS, dated November 2, 1984 and as recorded in Volume 854, page 935 for a total distance of 5259.90 feet to a found concrete monument, stamped EBT and the Northeast corner of the called 500 acre,

Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 and an interior ell corner of the called 1616.66 acre tract to William Edward Winfree, field notes by Earl James Verrett, PS, dated November 2, 1984 and as recorded in Volume 854, page 935 of the Official Public Records of Real Property of Orange County, Texas;

THENCE run S 03°27'47" E (called South) along the East line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 and the most easterly West line of the called 1616.66 acre tract to William Edward Winfree, field notes by Earl James Verrett, PS, dated November 2, 1984 and as recorded in Volume 854, page 935 of the Official Public Records of Real Property of Orange County, Texas for a distance of 4011.59 feet, (called 1510.5 varas = 4195.83 feet), (Earl James Verrett survey S01°34'19"W, 4011.01 feet), to

the Point of Beginning, containing 474.73 acres, more or less and being subject to all easements, rights of way or servitudes, recorded, unrecorded, visible or invisible.

(6) FB 3 RT
STC
25.00 + 11.00

STATE OF TEXAS COUNTY OF ORANGE

I hereby certify that this instrument was filed on the date and time stamped hereon by me and was duly recorded in the Official Public Records of Real Property of Orange County, Texas on **08/19/2011**.

ORANGE COUNTY STATE OF TEXAS

Karen Jo Vance

COUNTY CLERK, Orange County, Texas

FILED FOR RECORD
ORANGE COUNTY CLERK

11 AUG 19 P4:04

KAREN JO VANCE

Karen Jo Vance

371979

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM THIS INSTRUMENT BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER AND/OR YOUR DRIVER'S LICENSE NUMBER.

SPECIAL WARRANTY DEED

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF ORANGE §

ORANGE COUNTY, LTD., a Texas limited partnership ("**Grantor**"), for and in consideration of the sum of TEN AND NO/100 Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, has GRANTED, BARGAINED, SOLD, and CONVEYED and by these presents does GRANT, BARGAIN, SELL, AND CONVEY unto THE CONSERVATION FUND, a Maryland non-profit corporation ("**Grantee**") the real property in Orange County, Texas, fully described in Exhibit A hereto and all improvements located thereon, together with (i) any and all rights, titles, powers, privileges, easements, licenses, rights-of-way and interests appurtenant to the land, and (ii) all rights, titles, powers, privileges, licenses, easements, rights-of-way and interests, if any, of Grantor, either at law or in equity, in possession or in expectancy, in and to any land lying in the streets, highways, roads, alleys, rights-of-way or sidewalks, open or proposed, in front of, above, over, under, through or adjoining the land and in and to any strips or gores of land adjoining the land described herein (collectively, the "**Property**").

This Special Warranty Deed and the conveyance hereinabove set forth is executed by Grantor and accepted by Grantee subject to (i) any and all validly existing encumbrances, conditions and restrictions, relating to the Property as reflected by the real property records of Orange County, Texas as of the date hereof, and (ii) any and all validly existing signage leases affecting the Property as of the date hereof (collectively, the "**Permitted Encumbrances**"). This conveyance is also being made by Grantor and accepted by Grantee subject to taxes for the year 2011, rollback taxes due to this conveyance or Grantee's use of the Property, utility district assessments and standby fees, if any, the payment of which Grantee assumes.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereto in any wise belonging unto Grantee, Grantee's heirs, executors, administrators, personal representatives, successors and assigns forever and subject to the Permitted Encumbrances, and Grantor does hereby bind itself, its successors and assigns, to WARRANT AND FOREVER DEFEND all and singular the Property unto Grantee, Grantee's heirs, executors, administrators, personal representatives, successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by, through or under Grantor, but not otherwise, subject, however, to the Permitted Encumbrances.

Grantor hereby retains unto itself, its successors and assigns, any and all minerals, oil and gas in, on or under the Property. The term "minerals, oil and gas" for all purposes of this

GF# 11-119375

instrument is defined to include, oil, gas, sulphur and all other hydrocarbon substances, whether liquid, gaseous or solid, all fissionable minerals and materials, including, but not limited to, uranium, thorium, vanadium, molybdenum, rhenium and all coal, lignite, zinc, lead, iron, copper, gold and other minerals and ores, whether known or unknown and irrespective of the depth at which the same may be found (but expressly excluding sand, gravel, rock, stone and caliche and similar materials considered part of the surface estate); provided, however, that Grantor hereby waives its right to extract any fissionable minerals and materials and any coal, lignite, zinc, lead, iron, copper, gold and other ores by way of surface mining, strip mining or *in situ* leach mining on the surface of the Property.

GRANTEE ACKNOWLEDGES AND AGREES THAT GRANTOR IS CONVEYING TO GRANTEE AND GRANTEE ACCEPTS THE PROPERTY "AS IS, WHERE IS, WITH ANY AND ALL FAULTS AND LATENT AND PATENT DEFECTS AND WITHOUT ANY EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY BY GRANTOR." EXCEPT FOR THE SPECIAL WARRANTY OF TITLE EXPRESSLY SET FORTH IN THIS SPECIAL WARRANTY DEED, GRANTEE HAS NOT RELIED AND WILL NOT RELY ON, AND GRANTOR HAS NOT MADE AND IS NOT LIABLE FOR OR BOUND BY, ANY EXPRESS OR IMPLIED WARRANTIES, GUARANTEES, STATEMENTS, REPRESENTATIONS OR INFORMATION PERTAINING TO THE PROPERTY OR RELATING THERETO (INCLUDING SPECIFICALLY, WITHOUT LIMITATION, INFORMATION PACKAGES DISTRIBUTED WITH RESPECT TO THE PROPERTY) MADE OR FURNISHED BY GRANTOR, OR ANY PROPERTY MANAGER, CONSULTANT, ADVISOR, REAL ESTATE BROKER, AGENT OR THIRD PARTY REPRESENTING OR PURPORTING TO REPRESENT GRANTOR, TO WHOMEVER MADE OR GIVEN, DIRECTLY OR INDIRECTLY, ORALLY OR IN WRITING. GRANTEE ACKNOWLEDGES AND AGREES THAT, EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS SPECIAL WARRANTY DEED, NEITHER GRANTOR, NOR ANY INDIVIDUAL, CORPORATION, PARTNERSHIP, LIMITED LIABILITY COMPANY, TRUST OR OTHER ENTITY DIRECTLY OR INDIRECTLY IN CONTROL OF GRANTOR OR CONTROLLED BY OR UNDER COMMON CONTROL WITH GRANTOR ("GRANTOR AFFILIATE") OR ANY OFFICER, DIRECTOR, OWNER, PARTNER, EMPLOYEE, AGENT, PROPERTY MANAGER, OR BROKER OF GRANTOR OR ANY GRANTOR AFFILIATE (EACH BEING A "GRANTOR-RELATED PARTY") HAS MADE, AND GRANTOR HEREBY DISCLAIMS, ANY REPRESENTATION OR WARRANTY, EITHER EXPRESS OR IMPLIED, AS TO THE HABITABILITY, MERCHANTABILITY, SUITABILITY, QUALITY, CONDITION, LAYOUT, FOOTAGE, EXPENSES, OPERATION OR FITNESS FOR ANY PARTICULAR PURPOSE WITH REGARD TO THE PROPERTY, INCLUDING, BUT NOT LIMITED TO, REPRESENTATIONS OR WARRANTIES AS TO (A) ENVIRONMENTAL MATTERS RELATING TO THE PROPERTY, INCLUDING, WITHOUT LIMITATION, THE PRESENCE OF ANY HAZARDOUS, TOXIC OR REGULATED SUBSTANCE AS DEFINED IN ANY APPLICABLE FEDERAL, STATE OR LOCAL GOVERNMENTAL LAW, RULE, REGULATION OR ORDINANCE, OR ANY OTHER POLLUTANT OR CONTAMINANT OF ANY KIND IN, ON, UNDER OR IN THE VICINITY OF THE PROPERTY, (B) GEOLOGICAL CONDITIONS, INCLUDING, WITHOUT LIMITATION, SUBSIDENCE, SUBSURFACE CONDITIONS, WATER TABLE, UNDERGROUND WATER RESERVOIRS, LIMITATIONS REGARDING THE WITHDRAWAL OF WATER, AND GEOLOGICAL

FAULTS AND THE RESULTING DAMAGE OF PAST AND/OR FUTURE FAULTING, (C) WHETHER, AND TO THE EXTENT TO WHICH THE PROPERTY OR ANY PORTION THEREOF IS AFFECTED BY ANY STREAM (SURFACE OR UNDERGROUND), BODY OF WATER, WETLANDS, FLOOD PRONE AREA, FLOOD PLAIN, FLOODWAY OR SPECIAL FLOOD HAZARD, (D) DRAINAGE, (E) SOIL CONDITIONS, INCLUDING, WITHOUT LIMITATION, THE EXISTENCE OF INSTABILITY, PAST SOIL REPAIRS, SOIL ADDITIONS OR CONDITIONS OF SOIL FILL, OR SUSCEPTIBILITY TO LAND SLIDES, OR THE SUFFICIENCY OF ANY UNDERSHORING, (F) THE PRESENCE OF ENDANGERED SPECIES OR ANY ENVIRONMENTALLY SENSITIVE OR PROTECTED AREAS, (G) ZONING OR BUILDING ENTITLEMENTS TO WHICH THE PROPERTY OR ANY PORTION THEREOF MAY BE ENTITLED, (H) THE AVAILABILITY OF ANY UTILITIES TO THE PROPERTY OR ANY PORTION THEREOF INCLUDING, WITHOUT LIMITATION, WATER, SEWAGE, GAS AND ELECTRIC, (I) USAGES OF ADJOINING PROPERTY, (J) ACCESS TO THE PROPERTY OR ANY PORTION THEREOF, (K) THE CONDITION OR USE OF THE PROPERTY OR COMPLIANCE OF THE PROPERTY WITH ANY OR ALL PAST, PRESENT OR FUTURE FEDERAL, STATE OR LOCAL ORDINANCES, RULES, REGULATIONS OR LAWS, BUILDING, FIRE OR ZONING ORDINANCES, CODES, OR OTHER SIMILAR LAWS, (L) THE EXISTENCE OR NON-EXISTENCE OF UNDERGROUND STORAGE TANKS, SURFACE IMPOUNDMENTS, OR LANDFILLS, (M) ANY OTHER MATTER AFFECTING THE STABILITY AND INTEGRITY OF THE PROPERTY, OR (N) THE POTENTIAL FOR FURTHER DEVELOPMENT OF THE PROPERTY (COLLECTIVELY, THE "DISCLAIMED WARRANTIES"). GRANTEE HEREBY WAIVES, TO THE EXTENT PERMITTED BY LAW, THE DISCLAIMED WARRANTIES WITH REGARD TO THE PROPERTY.

Grantee's address is: 1655 N. Fort Myer Drive, Suite 1300
Arlington, Virginia 22209

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EXECUTED this 17th day of August, 2011.

GRANTOR:

ORANGE COUNTY, LTD.,
a Texas limited partnership

By: OCI Management, LLC,
a Texas limited liability company,
its general partner

By: _____
Allen Mann
Sole Manager and President

STATE OF TEXAS §
§
COUNTY OF DALLAS §

BEFORE ME, the undersigned authority, on this day personally appeared Allen Mann, Sole Manager and President of OCI Management, LLC, a Texas limited liability company, in its capacity as the general partner of Orange County, Ltd., a Texas limited partnership, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated, and as the act and deed of said limited liability company and limited partnership.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 17th day of August, 2011.

_____
Notary Public - State of Texas

MARCIA K ALLEN
My Commission Expires
December 4, 2014

WHEN RECORDED RETURN TO:

The Conservation Fund
1655 N. Fort Myer Drive
Suite 1300
Arlington, VA 22209
Attn: Carolyn McCoy

11-119375

EXHIBIT A

LEGAL DESCRIPTION

Tract 1

That certain 188.25 acre tract out of the West end of the T. H. BREECE LEAGUE A-3, in Orange County, Texas, on the waters of the Neches River more particularly described in the map recorded in Volume 2, Page 66, of the Map Records of Orange County, Texas, and being all of the T. H. BREECE LEAGUE lying West of the Beaumont Water Works Canal which was conveyed to the Mayor of the City of Beaumont in Volume 21, page 616, Deed Records, Orange County, Texas, SAVE AND EXCEPT THEREFROM the following tracts:

(1) 21.25 acres conveyed to Keith Hotchkiss in Volume 51, Page 190, Deed Records, Orange County, Texas.

(2) 0.51 acres conveyed to H. H. Turner in Volume 210, Page 543, Deed Records, Orange County, Texas

Tract 2:

All that certain tract or parcel of land lying and being situated in the County of Orange, State of Texas, being out of and a part of the WILLIAM STEPHENSON LEAGUE, and being more particularly described as follows, to wit:

BEGINNING at the Southwest or lower river corner of the William Stephenson League in said Orange County, for the beginning corner of this survey;

THENCE East with the South boundary line of said William Stephenson League 1636.7 varas to the southwest corner of a certain five hundred (500) acre tract;

THENCE North and parallel with the back or most eastward line of said Stephenson League, 1510.5 varas to the division line of said League;

THENCE West and with the division line of said League 1868.7 varas to the northwest corner of this survey;

THENCE South and parallel with the back line of said League to the Neches River;

THENCE down the river with its meanders to the PLACE OF BEGINNING, containing within the foregoing boundaries five hundred (500) acres of land, more or less.

(5) PB 3 RT STC 21.00-41.00

FILED FOR RECORD
ORANGE COUNTY CLERK

11 AUG 19 P4:04

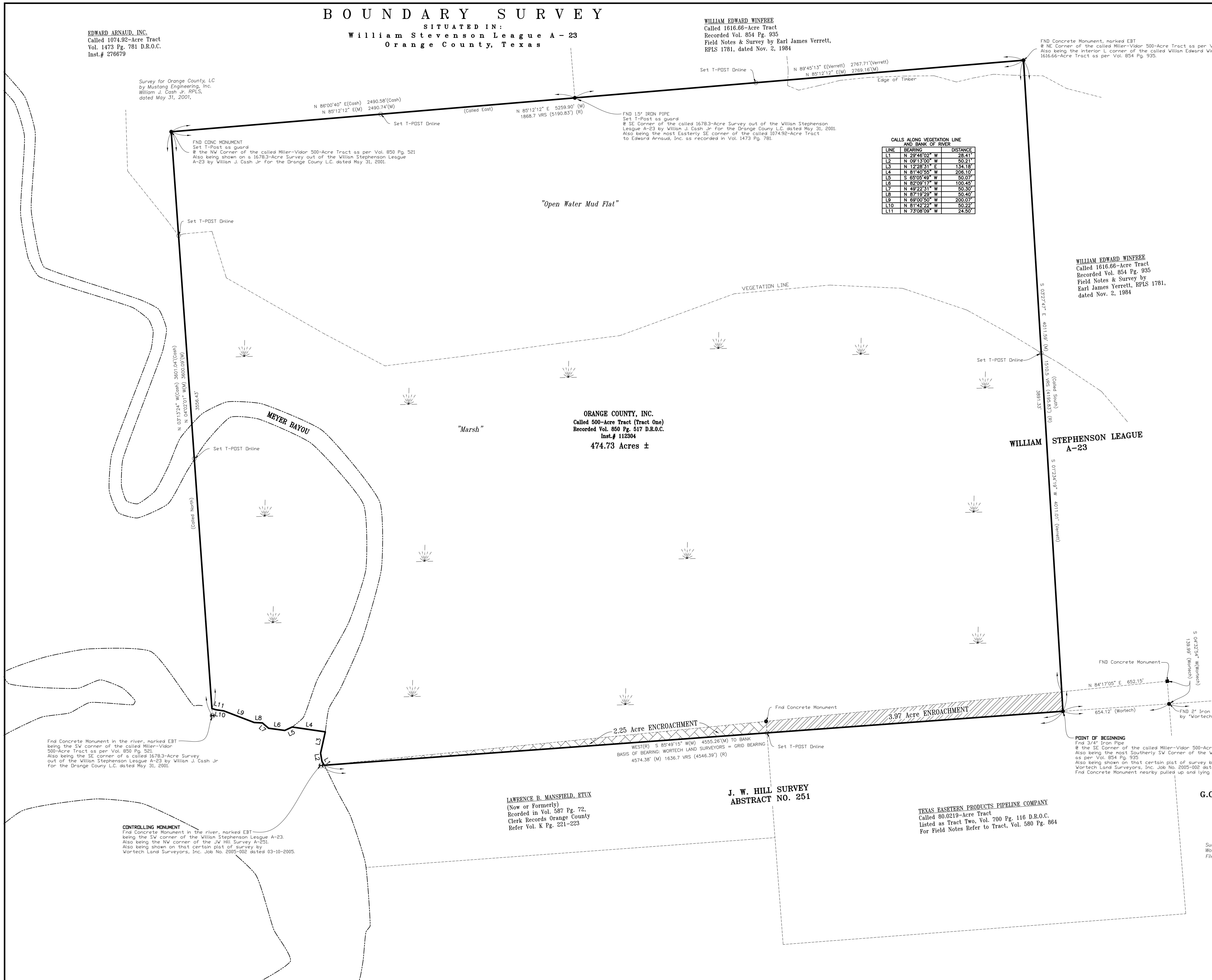
KAREN JO VANCE

BOUNDARY SURVEY

SITUATED IN:

William Stevenson League A-23

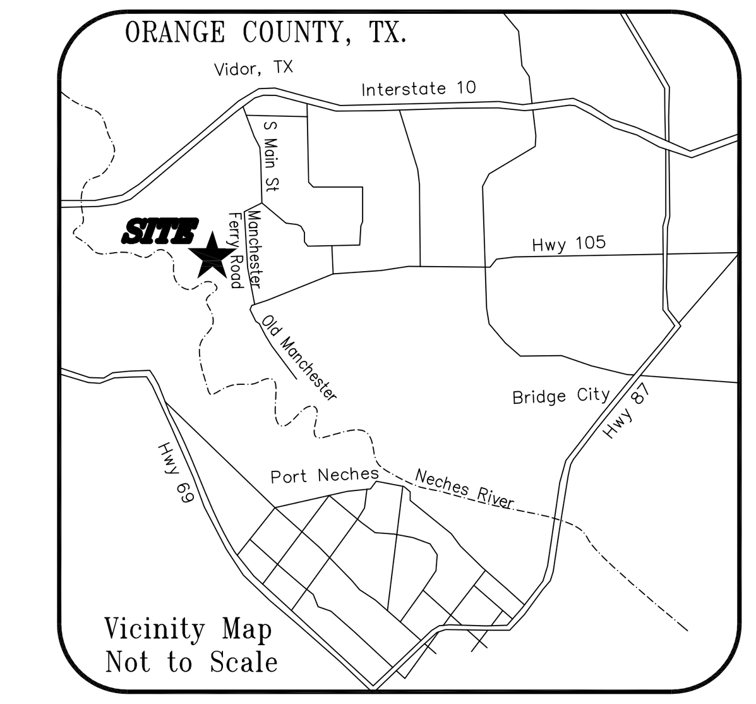
Orange County, Texas



WILLIAM ALLEN LEAGUE ABSTRACT NO. 28

POINT OF COMMENCEMENT
CONTROLLING MONUMENT
Fnd Flat Iron
@ NE Corner of William Alan League A-28
SE Corner of William Stephenson League A-23
Found Buggy Axle bears N 85°54'46" E - 3877.70'

XY NAD83 COORD
N: 10,045,471.6 Ft.
E: 4,301,797.8 Ft.



Basis of Bearings:
All bearings shown hereon are GRID based on prior survey by Wortech Land Surveyors

CALLS ALONG VEGETATION LINE AND BANK OF RIVER

LINE	BEARING	DISTANCE
L1	N 29°46'02" W	28.41'
L2	N 09°13'00" W	50.21'
L3	N 12°28'31" E	134.18'
L4	N 81°40'55" W	206.10'
L5	S 65°05'49" W	50.07'
L6	N 82°09'17" W	100.45'
L7	N 49°22'31" W	50.30'
L8	N 87°19'29" W	50.40'
L9	N 69°00'50" W	200.07'
L10	N 81°42'22" W	50.22'
L11	N 73°08'09" W	24.50'

FIELD NOTES for a 474.73 Acre tract, out of the William Stephenson League, A-23, Orange County, Texas

All that certain 474.73 acre tract or parcel of land, more or less, out of the WILLIAM STEPHENSON LEAGUE, A-23 and being the same as called 500 acre Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas and being more particularly described as follows;

COMMENCING, at a point having a NAD83, Texas Central Zone State Plane Coordinates of, N: 10,045,471.6 feet and E: 4,301,797.8 feet, said point being a found flat iron, as shown on that certain survey by J.L. Sims, Jr. with WORTECH Land Surveyors, Inc., dated March 10, 2005, under their file number 2005-002 and being the Northeast corner of the WILLIAM ALLEN LEAGUE, A-28, said point of commencement also being S85°54'46"W (all bearings shown hereon are Grid NAD83), a distance of 3877.70 feet from a found Buggy Axle monumenting the Southeast corner of the WILLIAM STEPHENSON LEAGUE, A-23, and from said point of commencement run;

THENCE run S86°01'06"W along the South line of the WILLIAM STEPHENSON LEAGUE, A-23 and passing the Northeast corner of the G.C. & S.F. RR. SURVEY, SECTION NO. 1, A-239, at a distance of 5033.82 feet and continuing for a total distance of 6730.6 feet to a found ¾" Iron Pipe and the Southeast corner of called 500 acre Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. A Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas and the Point of Beginning. From said Point of Beginning run;

THENCE run S 85°49'15" W (called West) along the South line of the WILLIAM STEPHENSON LEAGUE, A-23 and the South line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas and along the North line of the J.W. HILL SURVEY, A-251 for a distance of 4555.26 feet (called 1636.7 varas or 4546.39 feet) to a point on the East bank of the Neches River, from whence is a found concrete monument, stamped EBT for the Southwest corner of the WILLIAM STEPHENSON LEAGUE, A-23, also being the Northwest corner of the J.W. HILL SURVEY, A-251, bears S85°49'15"W a distance of 19.12 feet;

THENCE in a Northwesterly direction along the East bank of the Neches River the following eleven (11) courses, (1) N 29°46'02" W a distance of 28.41 feet; (2) N 09°13'00" W a distance of 50.21 feet; (3) N 12°28'31" E a distance of 134.18 feet; (4) N 81°40'55" W a distance of 206.10 feet;
(5) S 65°05'49" W a distance of 50.07 feet; (6) N 82°09'17" W a distance of 100.45 feet; (7) N 49°22'31" W a distance of 50.30 feet; (8) N 87°19'29" W a distance of 50.40 feet; (9) N 69°00'50" W a distance of 200.07 feet;
(10) N 81°42'22" W a distance of 50.22 feet; (11) N 73°08'09" W a distance of 24.50 feet to its intersection with the West line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas, from whence a found concrete monument, stamped EBT, being the Southwest corner of the aforementioned called 500 acre Tract One, bears S04°02'01"E a distance of 43.66 feet ;

THENCE leaving the bank of the Neches River and run N 04°02'01" W (called North) along the West line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 of the Official Public Records of Real Property of Orange County, Texas for a distance of 3556.43 feet to a found concrete monument and the Northwest corner of the called 500 acre tract, said monument also shown on that certain plat of survey by Mustang Engineering, Inc, William J. Cash, Jr., RPLS, dated May 31, 2001 for Orange County, LC , and as being an interior ell corner for Orange County LC, as recorded in Volume 874, page 974 and also the Edward Arnaud, Inc, called 1074.92 acre tract, as described in Volume 1473, page 781 of the Official Public Records of Real Property of Orange County, Texas;

THENCE run N 85°12'12" E (called East) along the North line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 and the South line of the Edward Arnaud, Inc, called 1074.92 acre tract, as described in Volume 1473, page 781 of the Official Public Records of Real Property of Orange County, Texas and passing a found 1&1/2" Iron Pipe at the Southeastern most corner of the aforementioned called 1074.92 acre tract at a distance of 2490.74 feet (W.J. Cash, Jr. survey N86°00'40"E, 2490.58 feet) and continuing along the North line of the called 500 acre tract and the South line of that certain called 1616.66 acre tract to William Edward Winfree, field notes by Earl James Verrett, PS, dated November 2, 1984 and as recorded in Volume 854, page 935 for a total distance of 5259.90 feet to a found concrete monument, stamped EBT and the Northeast corner of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 and an interior ell corner of the called 1616.66 acre tract to William Edward Winfree, field notes by Earl James Verrett, PS, dated November 2, 1984 and as recorded in Volume 854, page 935 of the Official Public Records of Real Property of Orange County, Texas;

THENCE run S 03°27'47" E (called South) along the East line of the called 500 acre, Tract One, as described in that certain Special Warranty Deed from Vidar, Ltd. a Texas limited partnership to Orange County, Inc. a Texas corporation and recorded in Volume 850, page 517 and the most easterly West line of the called 1616.66 acre tract to William Edward Winfree, field notes by Earl James Verrett, PS, dated November 2, 1984 and as recorded in Volume 854, page 935 of the Official Public Records of Real Property of Orange County, Texas for a distance of 4011.59 feet, (called 1510.5 varas = 4195.83 feet), (Earl James Verrett survey S01°34'19"W, 4011.01 feet), to the Point of Beginning, containing 474.73 acres, more or less and being subject to all easements, rights of way or servitudes, recorded, unrecorded, visible or invisible.

LEGEND

- SET 5/8" IRON ROD W/CAP
- FOUND MONUMENTS
- INTERIOR/ADJACENT LOT LINES
- PROPERTY LINES
- EASEMENT/RIGHT OF WAY LINES
- FENCE LINES
- ELECTRIC LINES
- POWER POLE
- TELEPHONE BOX
- (M) MEASURED
- (R) RECORD
- MANSFIELD ENCROACHMENT
- TEXAS EASTERN ENCROACHMENT
- MARSH

NOTE:
THE WORD "CERTIFY" AS USED HEREIN IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE SURVEYOR, BASED UPON HIS BEST KNOWLEDGE, INFORMATION, AND BELIEF. AS SUCH, IT DOES NOT CONSTITUTE A GUARANTEE NOR A WARRANTY, EXPRESSED OR IMPLIED.

FLOOD INFORMATION NOT SHOWN HEREON, UNLESS SPECIFICALLY REQUESTED IN WRITING BY CLIENT.

THE SERVITUDES AND RESTRICTIONS SHOWN ON THIS SURVEY ARE LIMITED TO THOSE SET FORTH IN THE DESCRIPTION FURNISHED US AND THIS PLAT IS NO REPRESENTATION THAT ALL APPLICABLE SERVITUDES AND RESTRICTIONS ARE SHOWN HEREON. THE SURVEYOR HAS MADE NO TITLE SEARCH OR PUBLIC RECORD SEARCH IN COMPILING THE DATA FOR THIS SURVEY.

I CERTIFY THIS SURVEY AND PLAT WAS PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION, AND THERE ARE NO VISIBLE ENCROACHMENTS EITHER WAY ACROSS THE PROPERTY OTHER THAN THOSE SHOWN HEREON. MADE AT THE REQUEST OF:

TEXAS CONSERVATION FUND

"NECHES RIVER TRACT BELOW I-10"
in William Stevenson League,
Abstract No. 23,
Orange County, Texas

Collins & Associates
Land Surveyors, Inc.
815 Mulberry St. Westlake, LA 70669
337.439.5808 Phone 337.439.3339 Fax

DATE OF FIELD SURVEY:

STATE OF TEXAS REGISTERED VIRGIL T. COLLINS 5032 PROFESSIONAL LAND SURVEYOR

Virgil T. Collins, P.L.S. TX. #5032

DATE:	SCALE:	NOTES	DRAWN BY:	CHECKED BY:	JOB NO.:	PLAT No.:
7/21/2011	1" = 300'	FILE	RTG	VTC	211230	211230

THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1B CONDITION IV SURVEY

APPENDIX D:

BASELINE DOCUMENTATION

CASTILAW
ENVIRONMENTAL SERVICES, LLC

November 6, 2018

Ms. Ellen Buchanan
Big Thicket Natural Heritage Trust
P.O. Box 1489
Kountze, Texas 77625

RE: Addendum to the 2014 Baseline Documentation Report Associated with the Orange County Wetland Project Located in Orange County, Texas
Castilaw Environmental Services, LLC - Project No. 18-BTNHT-03

Ms. Buchanan,

This letter serves as an addendum to the 2014 Baseline Documentation Report that was prepared in September 2014 in association with the Orange County Wetland Project, comprised of approximately 474.73 acres, located along the Neches River in Orange County, Texas. The field activities performed in association with this project were conducted in March 2014. At that time, CES personnel thought that a pipeline corridor was possibly being constructed along the approximate western half of the northern boundary of the subject property due to the presence of heavy equipment and excavation activities being performed. During a 2015 monitoring event, CES personnel realized that it was actually an earthen berm that had been constructed along the approximate western half of the northern boundary of the subject property. The berm had been placed along this portion of the subject property to separate it from a marsh grass restoration project that had been implemented on the northerly adjacent property.

When initially constructed, the berm was approximately 20 feet wide and 3 ft above the water surface at high tide. The berm is comprised of soil, however, there is a significant amount of woody debris mixed into the soil. Consequently, the berm has continued to erode over the last several years and some sediment has encroached onto the extreme northern portion of the subject property in several locations. However, it does not appear that erosion associated with the berm has negatively affected the subject property.

CES has performed three monitoring events, 2015, 2017 and 2018, associated with this project since the 2014 Baseline Documentation Report. The baseline documentation report and all of the monitoring reports are included as appendices to this addendum letter.

510 E. Pilar Street
Nacogdoches, Texas 75961
Office: 936-559-9991 Fax: 936-559-9993

Closing

Please do not hesitate to contact me should you have any questions or comments regarding this addendum. Thank you for the opportunity to provide environmental services to the Big Thicket Natural Heritage Trust.

Thank You,

Anthony Castilaw
Principal

Appendices: Appendix A – 2014 Baseline Documentation Report
Appendix B – 2015 Annual Monitoring Report
Appendix C – 2017 Annual Monitoring Report
Appendix D – 2018 Annual Monitoring Report

APPENDIX A

2014 BASELINE DOCUMENTATION REPORT

BIG THICKET NATURAL HERITAGE TRUST
ORANGE COUNTY WETLAND PROJECT
BASELINE DOCUMENTATION REPORT
ORANGE COUNTY, TEXAS

CASTILAW ENVIRONMENTAL SERVICES, LLC
PROJECT NO. 14-CES-30

SEPTEMBER 2014

BIG THICKET NATURAL HERITAGE TRUST
ORANGE COUNTY WETLAND PROJECT
BASELINE DOCUMENTATION REPORT
ORANGE COUNTY, TEXAS

PREPARED BY:
CASTILAW ENVIRONMENTAL SERVICES, LLC
510 E. PILAR STREET
NACOGDOCHES, TEXAS 75961
(936) 559-9991

CASTILAW
ENVIRONMENTAL SERVICES, LLC

TABLE OF CONTENTS

Page

TABLE OF CONTENTS
(Continued)

Page

1.0 SUMMARY

Castilaw Environmental Services, LLC (CES) was contracted by the Big Thicket Natural Heritage Trust (BTNHT) to perform a Baseline Documentation Survey of the Orange County Wetland Project (Subject Property). The subject property is comprised of approximately 474.73 acres of predominately tidally-influenced wetland complex habitat located east of the Neches River and north of Old Mansfield Ferry Road in Orange County, Texas. The subject property is currently owned by The Conservation Fund.

CES conducted a preliminary reconnaissance of the subject property in early March 2014 to identify and locate access points necessary to adequately evaluate the subject property. The baseline documentation survey was performed on July 17 & 18, 2014 during the height of the growing season in order to obtain an accurate representation of the vegetative community. CES was able to evaluate and classify the entire subject property by both boat and pedestrian surveys from various boat access points. While in the field completing the survey, CES biologists recorded the distinct natural features, vegetative communities, fauna observed, man-made structures, and any observed potential hazards, as well as performing a visual observation of the adjacent properties. Based on the data obtained during the field reconnaissance and utilizing various mapping data sources, CES developed a land cover classification of the subject property. Because the subject property is highly diverse from a habitat perspective, the land cover classification was divided into eight (8) unique habitat types which serve an independent natural resource functions. The subject property provides habitat for a diverse range of plant and animal species, while also providing many recreational opportunities. Additionally, the subject property has a high scenic value since it is situated within very close proximity to a highly industrialized section of the Neches River. The current and future demand placed on this habitat type by oil & gas-related exploration activities gives credence to the need to protect these limited natural resources with the use of conservations easements.

This report documents the specific conservation values of the subject property in a natural resource inventory. This "Baseline Documentation Report" consists of maps, prominent vegetation, identification of flora and fauna, soils and geology, land use history, observed and potential hazards, distinct natural features, and photographic documentation. This document identifies the conservation values of the subject property in a natural resource inventory and its inclusion into a larger overall conservation objective, while also assessing the adjacent land use and potential for threats to the conservation easement. Representative photographs, along with their cardinal direction and coordinates, were taken for each land cover class and will be utilized for the future annual monitoring of the subject property.

2.0 INTRODUCTION

This section presents the purpose, scope of services, assumptions, limitations, and special terms and conditions. This report documents the conservation value of the subject property, the potential for development or other impactful uses of the subject property, and the subject property's inclusion into an overall larger conservation objective.

2.1 Purpose

The purpose of this conservation easement is to preserve in perpetuity approximately 474.73 acres of a unique tidally-influenced marshland/wooded wetland complex, located near a highly industrialized segment of the Neches River. The conservation easement will prevent any future use that will significantly impair or interfere with the conservation value of the subject property. In addition to protecting the natural resources, this easement will seek to allow traditional uses of the land which are compatible with and not destructive of the conservation values of the subject property.

2.2 Detailed Scope of Services

CES was contracted by BTNHT to perform a baseline documentation survey of the subject property. The baseline documentation survey was performed based on the scope of work that was provided to CES by BTNHT. Mr. Anthony Castilaw, CES President and Sr. Environmental Specialist and Mr. Adam Miller, CES Sr. Environmental Specialist, were the Environmental Professionals who conducted the baseline documentation survey. Refer to Appendix 16.1 for a copy of their resumes.

In addition to the initial inventory component of the baseline survey, CES will inspect the subject property at least once annually in order to monitor the general condition of the subject property and ensure compliance with the terms of the conservation easement. Each annual inspection trip will take place within thirty (30) days of the anniversary date of the baseline documentation report. CES will give notice to all third parties at least fourteen (14) days in advance of the annual inspection trip in order to allow their participation at their option. Approximately thirty (30) days after the date of each annual inspection trip, CES will prepare and provide to the subject property owner and all third parties an annual monitoring report outlining the findings and any deficiencies observed or discovered during the annual inspection trip to the subject property. CES and all third parties shall give notice to each other of any additional planned inspection trips to the subject property at least fourteen (14) days in advance of each trip in order to allow participation of any third parties or CES at their option. CES and all third parties shall provide each other with written summaries of each other's findings and/or deficiencies observed or discovered during each and every additional inspection to the subject property within approximately thirty (30) days of completion of each inspection trip.

2.3 Limitations and Exceptions

The subject property is a wetland complex spanning across open-water, thick marshland, and forested meander scars. Depending upon the time of year, tide, and/or general vegetation composition, certain areas of the subject property may be relatively inaccessible and challenging from an access perspective. The access data gathering during a site reconnaissance trip completed on March 26, 2014 was advantageous in efficiently surveying the subject property from various open-water points. The baseline documentation survey was conducted by boating across the subject property at high tide and conducting a pedestrian survey by walking from the boat at various access points in order classify each habitat type. Observation of the entire ground surface at the subject property was limited in some areas due to the soil moisture and extremely dense and nearly impassable herbaceous layer of vegetation. CES personnel were able overcome these limitations and accessed the entire subject property to the extent necessary to view and accurately classify the subject property.

2.4 Special Terms and Conditions

There were no special terms and/or conditions associated with this baseline documentation survey. This material is designed to provide accurate, authoritative information in regard to the subject matter covered.

3.0 SITE DESCRIPTION

3.1 Location

The subject property is located near Vidor, Orange County, Texas and is situated on the eastern side of the Neches River. Specifically, it is situated along the east bank of a meander cut off by the Neches River shipping canal at the confluence of Meyer Bayou and the Neches River. This confluence is located approximately 5.85 miles downstream of the Interstate-10 crossing. The nearest road access point to the subject property is Old Mansfield Ferry Road located near the southern boundary of the subject property. A canal parallels the north side of Old Mansfield Ferry Road and impedes direct access to the subject property.

A general location map and subject property location map are provided as Figure 1 (Appendix 16.2) and Figure 2 (Appendix 16.3), respectively.

3.2 Site and Vicinity General Characteristics

The subject property is comprised of approximately 474.73 acres located east of the confluence of Meyer Bayou and the Neches River, and north of Old Mansfield Ferry Road in Orange County, Texas. The subject property consists entirely of vacant, undeveloped, tidally-influenced wetland complex habitat. A unique component of the subject property is the land is positioned on two Natural Resource Conservation Services (NRCS), Major Land Resource Areas (MLRAs). The western half of the subject property is located in the Gulf Coast Marsh Area (mlra 151), while the eastern half of the subject property is located within the Gulf Coast Prairies (mlra 150A). Photographic documentation for the subject property is included in Appendix 16.9 of this report.

The eastern bank of the Neches River makes up the southwestern corner of the subject property and is where Meyer Bayou flows into the Neches River. The portion of the Neches River that adjoins the subject property is actually a meander of the river which has been cut off by the Neches River shipping channel. The subject property is situated in close proximity to one of the largest conglomerations of petrochemical facilities and shipping complexes (Port of Beaumont) in the United States. These facilities and complexes are located on the western side of the Neches River within approximately 1.0-mile of the subject property.

Single-family residential development associated with the City of Vidor, Texas is located approximately 1.0-mile north and northeast of the subject property. The general wetland complex habitat that comprises the subject property continues southeast of the subject property along the Neches River towards Gum Island before reaching Sabine Lake.

3.3 Current Use of the Subject Property

The subject property consists of vacant, undeveloped, tidally influenced wetland complex. Current uses of the subject property have been in the form of recreational fishing and

migratory game bird hunting. The predominant function of the subject property is wildlife habitat in addition to all the invaluable functions wetland areas provide.

3.4 Descriptions of Structures, Roads and Other Improvements

There are no structures, roads, or other improvements on the subject property.

3.5 Current Uses of Adjoining Properties

Adjoining properties were visually examined during the site visit to make a cursory assessment of the current land use and the potential for issues that may have an impact on the subject property. Reconnaissance of adjoining properties was performed by viewing land use from legal boundaries or by walking upon the adjoining properties that were legally accessible. Adjoining development to the subject property is as follows:

North

A mud flat borders the majority of the subject property to the north; however, there is an area near the northeastern portion of the subject property that contains forestland. At the time of the site visit, a pipeline corridor was being constructed along the northern boundary of the subject property from the northwest corner to the edge of the forestland where the pipeline corridor then turned in a northerly direction. The side cast of soil was positioned directly along the boundary of the subject property; however, it did not appear to encroach on the subject property.

South

Marshland and forested meander scars adjoins the subject property to the south with Old Mansfield Ferry Road located beyond. The area beyond Old Mansfield Ferry Road to the south is heavily utilized for oil & gas exploration activities, as well as for other industrial purposes.

East

Marshland, open water, and forested meander scars adjoin the subject property to the east with a pipeline corridor located further east. Beyond the pipeline corridor, the elevation begins to rise slightly and some areas of pastureland are present.

West

Marshland adjoins the subject property to the west. Star Bayou, a cut off meander of the Neches River and forested wetland complex, are located further west. Petrochemical facilities and shipping complexes (Port of Beaumont) are located on the western side of the Neches River within approximately 1.0-mile of the subject property.

3.6 Known Encroachments

There is a survey overlap on the southern boundary of the subject property. The company that performed the surveying activities, Collins and Associates, stated that this overlap is likely a historic era error that predated the use of modern survey equipment. This overlap encompasses a total of 6.23 acres. This encroachment consists of 2.26 acres on the Lawrence B. Mansfield tract and 3.97 acres on the Texas Eastern Products Pipeline Company tract.

4.0 INVENTORY REPORT

4.1 Topography

The general area is characterized by nearly level plains with low local relief. The topography of the subject property varies from very flat across the mud flats and marshland to very slightly sloping terrain along the forested meander scars. These forested meander scars rise in evaluation high enough to support a vegetative community typical of upland forested habitat types. A few large vegetated islands (40-100 ft diameter) and many small vegetated islands (5-25 ft diameter) were scattered throughout the open-water areas. Additionally, there were small localized depressions located within the marshland habitat which were generally void of vegetation and potentially a result of tree wind throw.

4.2 Soils and Geology

The soil types within the subject property consisted of the Larose mucky peat, 0 to 1 percent slopes, frequently flooded (LmA); Spurger-Camptown complex, 0 to 1 percent slopes (StA); Zummo muck, 0 to 1 percent slopes, frequently flooded, tidal (ZuA); and a small amount of Orcadia-Aris complex, 0 to 1 percent slopes (OsA).

The StA soil type comprises the southeastern portion of the subject property along the meander scars. The Spurger soil type has historically been forested and has commonly been converted to pastureland or utilized for commercial timber production. However, the Camptown soil type is not considered commercially productive due to the unevenness of the surface topography and high soil moisture content which are major limiting factors. These limiting factors reduce the practical use of standard forestry equipment, which can create deep ruts and ponding which then creates conditions that make unimproved roads and skid trails slick and near impassable. The soil description was consistent with the observed soil complex that transitioned from marshland through cypress-dominated forested wetland habitat and into upland mixed hardwood forest habitat.

The LmA soil type comprises the western half of the subject property. The LmA soil type has historically been marshland that is capable of a high yield of marsh grasses. However, this soil can easily be damaged by changes to the drainage, salinity, or the water table level. The Larose soil is utilized by non-game wildlife; predominantly reptiles, birds, and crustaceans. Additionally, this soil plays an important role in providing detritus to the estuary ecosystem. The soil description was consistent with the observed soil complex comprised of predominantly marshland and mud flat habitat.

The ZuA soil type comprises the southeastern corner of the subject property. The ZuA was historically marshland. This soil is susceptible to marsh erosion in which the movement water removes the soil surface leaving a barren area. These barren areas can be difficult to re-vegetate once marsh erosion occurs. The Zummo soil is an important soil type for game and non-game species, as well as providing detritus to the marine estuary ecosystem.

The subject property is positioned geologically on Alluvium and the Deweyville Formation. The Deweyville (Qd) geologic formation comprises the areas of meander scars along the southeast portion of subject property, as well as the small forested portion near the northeastern corner of the subject property. This formation consists of sand, silts, clay, gravel, and the general locations include point bar, natural levees, recent and older sand dune deposits, and relict meanders of a larger curvature than those of present stream channel. The Qd formation is located at places along the Guadalupe, Nueces, Jacinto, Trinity, Neches, and Sabine Rivers. Alluvium (Qal) comprises the majority of the subject property and in particular, the areas consisting of the mud flat habitat, marshland, and open water areas. This alluvium is loose, unconsolidated sediment that from a geologic stand point has been recently deposited.

4.3 Hydrology

The majority of the subject property is hydrologically influenced by both tidal exchange and freshwater inflows. The wetland areas flooding characteristics are predominantly determined by tidal movement and the inflows of freshwater from the adjacent rivers; however, there is one (1) unique isolated freshwater meander scar within the boundaries of the subject property that is driven hydrologically by precipitation only. The majority of the subject property, excluding the upland portions of the meander scars, remain flooded or saturated within the upper portion of the soil profile throughout the year.

4.4 Watershed

The subject property is located at the lower end of Neches River Basin. This river basin begins in Van Zandt County and flows through the Piney Woods of East Texas before entering the highly industrialized Orange and Jefferson Counties. This stream segment is identified as "Segment 0601 – Neches River Tidal" and is from the confluence with Sabine Lake in Orange County to a point 7.0 miles upstream of Interstate-10. The predominant economic use of this segment of the Neches River is a shipping canal associated with petrochemical and chemical manufacturing, shipping, and commercial activities. This segment consists primarily of an approximate 40-foot (ft) deep navigation channel maintained by the Jefferson County Waterway and overseen by the United States Army Corps of Engineers. This portion of the watershed is also utilized for recreational fishing and migratory game bird hunting.

4.5 Land Cover Classifications and Vegetative Communities

The subject property has been sub-divided by land cover types based on the vegetative community observed during the field reconnaissance, as well as the major hydrologic source of water. Based on our professional opinion, CES has divided the subject property into eight (8) classification types. These classification types closely aligns with those identified within the U.S. Fish and Wildlife, National Wetland Inventory data set which divided the subject property into nine (9) classifications. The classifications are as follows: emergent-dominated, tidally-influenced marsh land, cypress-dominated forested wetland meander scars, upland pine/hardwood-dominated forested meander scars, mud flats,

isolated freshwater open water, shrub/scrub wetland, tidally-influenced open water, and the lower perennial Meyer Bayou.

Emergent-Dominated, Tidally-Influenced Marshland

Marshland is defined here as wetlands frequently or continually inundated with water and dominated by soft-stemmed vegetation adapted to saturated soil conditions. This habitat type is located throughout the subject property and comprises approximately 165 acres. This habitat type is hydrologically fed by both tidal exchange and freshwater inflows.

Marshland in the Southeast Quadrant

The southeast portion of the subject property is dominated by an extremely dense herbaceous layer with very few scattered baldcypress (*Taxodium distichum*) ranging from 15 to 20 ft in height. There are a few open water channels that cross through this habitat type and connect this habitat type to Meyer Bayou and the Neches River. The vegetation community was dominated by common cattail (*Typha latifolia*), Gulf coast spike rush (*Eleocharis cellulosa*), wiregrass (*Spartina patens*), maidencane (*Panicum hemitomon*), delta duck potato (*Sagittaria platyphylla*), and soft-stem bulrush (*Schoenoplectus tabernaemontani*). Additional vegetation included swamp smart weed (*Polygonum hydropiperoides*), curley-leaf dock (*Rumex crispus*), Gulf coast waterhemp (*Amaranthus australis*), Lake acanthus (*Hygrophila lacustris*), saltmarsh morning glory (*Ipomoea sagittata*), and a few scattered Chinese tallow (*Triadica sebifera*) and baldcypress.

Marshland around the Mud Flat in the Northwest Quadrant

A large, mostly unvegetated mud flat is located along the northwestern portion of the subject property. There were some large vegetated island features, 40 to 100 ft in diameter, located within the mud flat in this area. These larger islands were dominated by extremely dense, nearly impassible, softstem bulrush with scattered morning glory and hedge bendweed. Smaller vegetated island features, 10 to 30 ft in diameter, were also present in this area. They were observed to be scattered and were typically situated near the edge of the mud flat. These small islands were dominated by duck potato. The marshland habitat that comprises the edge of the mud flat was dominated by phragmites (*Phragmites australis*), wiregrass, softstem bulrush. Additional vegetation included morning glory, Lake acanthes, deer pea (*Vigna luteola*), curly leaf dock, blue iris (*Iris virginica*), hedge bindweed (*Calystegia sepium*), and Gulf Coast water hemp.

Marshland West of Meyer Bayou in the Southwest Quadrant

The area west of Meyer Bayou within the subject property consisted of extremely dense emergent-dominated marshland. This habitat was dominated by phragmites, wiregrass, common cattail, delta duck potato, softstem bulrush, and hedge bendweed. Additional vegetation included Gulf Coast water hemp, morning glory, Lake acanthes, dee pea, swamp smartweed, and water spangles (*Salvinia minima*).

Marshland Meander Scar Transition Leading into Baldcypress-Dominated Wetland

The vegetated transition along the meander scars were dominated by swamp smartweed, dwarf palmetto (*Sabal minor*), maidencane, and hedge bindweed.

Additional vegetation included curly leaf dock, red maple (*Acer rubrum*), baldcypress, Chinese tallow, and water spangles.

Cypress-Dominated, Tidally-Influenced, Forested Wetland Meander Scars

The entire meander scar is comprised of a progression of transitions from open-water to marshland to baldcypress-dominated wetland and into the upland mixed pine/hardwood habitat type. These features generally take on a crescent-like shape on the landscape. The transition between the marshland and the upland forested habitat type consisted of a cypress- dominated forested wetland habitat type.

The vegetative community within this habitat type was dominated by baldcypress, water hickory (*Carya aquatica*), water locust (*Gleditsia aquatica*), red maple (*Acer rubrum*), wax myrtle, and maidencane. Additional vegetation included deer pea, swamp smartweed, palmetto, water oak (*Quercus nigra*), Chinese tallow, and Spanish moss (*Tillandsia usneoides*).

Upland Pine/Hardwood-Dominated Forested Meander Scars

The upland forested meander scars are located topographically on the highest section ridge of the meander scar. This upland forested habitat type comprises approximately 42 acres of the subject property. These areas are dominated by trees species which are typical of upland mesic habitat types. The trees ranged from 40 to 70 ft in height and were differentiated by the dominance of pine/hardwood mixed woods and mixed hardwoods.

The vegetative community within the pine/hardwood mixed woods habitat type was dominated by loblolly pine (*Pinus taeda*), yaupon (*Ilex vomitoria*), red maple, Alabama supplejack (*Berchemia scandens*), poison ivy (*Toxicodendron radicans*), water oak, and Spanish moss. The forest floor was bare of herbaceous vegetation.

The vegetative community within the mixed hardwoods habitat type was dominated by willow oak (*Quercus phellos*), water oak, sweetgum (*Liquidambar styraciflua*), American elm (*Ulmus americana*), water hickory, yaupon, laural oak (*Quercus laurifolia*), dwarf palmetto, roundleaf greenbrier (*Smilax rotundifolia*), Indian woodoats (*Chasmanthium latifolium*), Chinese tallow, sweet bay (*Magnolia virginiana*), St. Andrew's cross (*Hypericum hypericoides*), wax myrtle (*Morella cerifera*), poison ivy, and southern dewberry (*Rubus trivialis*).

Mud Flats

A large expanse of mud flat habitat type comprises the northern and northwestern portions of the subject property. The mud flat habitat is generally un-vegetated and has an abundance of remnant baldcypress stumps. The site investigation of this portion of the subject property was conducted during the phase of high tide at which point the water depth varied from six (6) inches to two (2) feet in depth.

Isolated Freshwater Open Water Meander Scar

The isolated freshwater open water meander scar comprised approximately 4 acres of the subject property and made up a unique micro-habitat surrounded by tidal influence. This

area is isolated from the tidal exchange and hydrologically driven by precipitation. The forestland adjacent to this feature is comprised of loblolly pine, baldcypress, sweetgum, yaupon, American holly (*Ilex opaca*), Chinese tallow, southern dewberry, muscadine (*Vitis rotundifolia*), and cypress panicgrass (*Dichanthelium dichotomum*). The water line and small vegetated islands within the freshwater areas were comprised of common cattail, maidencane, eastern baccharis (*Baccharis halimifolia*), wax myrtle, twoheaded water-starwort (*Callitriche heterophylla*), duck potato, inland rush (*Juncus interior*), red maple, Gulf coast water hemp, and western brackenfern (*Pteridium aquilinum*).

Shrub/Scrub Wetland

There was shrub/scrub-dominated wetland habitat located on the bank of Meyer Bayou. The vegetation in the shrub layer was dominated by laurel oak, eastern baccharis (*Baccharis halimifolia*), red maple, water hickory, baldcypress, Chinese tallow, and sugarberry (*Celtis laevigata*). The herbaceous layer was very dense, consisting of johnson grass (*Sorghum halepense*), trumpet creeper, crossvine, dwarf palmetto, climbing hempvine (*Mikania scandens*), Oleny bulrush (*Scripus americanus*), Longs sedge (*Carex longii*), peppervine (*Ampelopsis arborea*), Asiatic dayflower (*Commelina communis*), and water locust.

Tidally-Influenced Open Water

The tidally-influenced open water habitat comprised approximately 110 acres of the subject property. This habitat type remains inundated year round at a depth in which rooted vegetation cannot establish. The vegetative communities lining these open water habitats are described below.

Central Portion of the Subject Property

The vegetated areas lining the open-water habitat and the scattered vegetated islands were comprised of maidencane, duck potato, phragmites, swamp smartweed, retrorse flatsedge (*Cyperus retrorsus*), and beaked spikerush (*Eleocharis rostellata*). Additionally there are areas along water line and vegetated islands that are solely dominated by thick softstem bulrush.

Southern Portion of the Subject Property

The areas lining the open-water habitat and the scattered vegetated islands were comprised of phragmites, duck potato, wiregrass, softstem bulrush, seedbox (*Ludwigia urguayensis*), Gulf Coast water hemp, southern swamp-lily (*Crinum americanum*), deer pea, swamp dock (*Rumex verticillatus*), giant cane (*Arundinaria gigantea*), and Lake acanthus.

Northeastern Portion of the Subject Property

The areas lining the open water habitat and the scattered vegetated islands were comprised of softstem bulrush, common cattail, and duck potato. The vegetated areas lining the open water habitat and the small scattered hummocks were comprised of soft stem bulrush, swamp smartweed, phragmites, morning glory, and giant cane.

Lower Perennial Meyer Bayou

Meyer Bayou extends through the subject property along the southwest corner and varies in width from approximately 105 ft to 180 ft. There is approximately 3,050 linear feet (lf) of frontage along the eastern bank and 2,695 lf of frontage along the western bank of Meyer Bayou. The banks associated with Meyer Bayou are well stabilized and are heavily vegetated. Meyer Bayou enters the Neches River at southwestern corner of the property. There is approximately 815 lf of frontage along the Neches River.

The vegetation composition along the bank of Myer Bayou consists of eastern baccharis, willow oak, dwarf palmetto, partridge pea (*Chamaecrista fasciculata*), climbing hempvine, cat greenbrier (*Smilax glauca*), and trumpet creeper (*Campsis radicans*).

The ridge that runs along a cut through the open-water feature that connects Meyer Bayou to the mud flat has a vegetative community consisting of eastern baccharis, water locust, willow oak, sugarberry, yaupon, deciduous holly, Chinese tallow, climbing hempvine, and southern dewberry. This ridge transitions towards marshland and this transition is comprised of horseweed (Conyza canadensis), Lake acanhtis, giant cutgrass (*Zizaniopsis miliacea*), great ragweed (*Ambrosia trifida*), deer pea, dwarf palmetto, phragmites, Japanese honeysuckle (*Lonicera japonica*), southern dewberry, crossvine (*Bignonia capreolata*), and ovate false fiddleleaf (*Hydrolea ovate).*

4.6 Forest Resources

The forested meander scars located on the subject property form a very unique upland habitat type as they are surrounded by marshland and tidally-influenced open water habitat types. This feature brings vegetative species typical of an upland pine/hardwood mix habitat type into a predominately tidally-influenced marshland habitat type setting. Also, a transition zone, comprised of species typical of cypress-dominated wetland habitat, is located between the upland forest habitat and the marshland or open water habitats. Based on the small amount of acreage comprising the upland habitat type, the high soil moisture, and limited access, these forest resources are best suited for wildlife habitat as opposed to any potential commercial timber activities.

4.7 Agricultural Resources

Due to the salinity, tidal inundation, and flooding regime, the subject property is not well suited for crop production, pastureland, rangeland, or commercial timber production. The soil types that comprise the subject property are those described commonly as supporting marsh grasses. Due to soil saturation and ever fluctuating inundation, the use of standard farm equipment would be limited on land that would need intensive management for efficient production. There is merchantable timber located along the meander scars; however, the limited access and moist soil conditions would create challenges in harvesting the timber, as well as the future replanting, thinning and management of the site. Additionally, due to the low soil strength, cattle grazing is not ideal within the boundaries of the subject property. The natural resources of the subject property are best suited for use as wildlife habitat.

4.8 Wildlife

The subject property is comprised of many unique habitat types situated along the Neches River corridor within both the Gulf Coast Marsh Area and Gulf Coastal Prairies mlra's. These habitat types support a plethora of bird, insect, mammal, amphibians, reptile, fish and mussel species. The subject property is a part of an overall habitat type that provides critical wintering grounds for millions of migratory ducks, geese, and shorebirds. Common species include the American alligator (*Alligator mississippiensis*), and fur-bearing animals such as the common raccoon (*Procyon lotor*), North American river otter (*Lontra canadensis*), and American mink (*Neovison vison*).

The subject property is part of both the Mississippi and Central migration flyways, providing critical habitat to migratory birds. Bird species that were observed utilizing the subject property during the summer season of the baseline documentation survey included: Tri-colored heron (*Egretta tricolor*), yellow-crowned night-heron (*Nyctanassa violacea*), little blue heron (*Egretta caerulea*), great blue heron (*Ardea herodias*), red-winged black bird (*Agelaius phoeniceus*), belted kingfisher (*Ceryle alcyon*), marsh wren (*Cistothorus palustris*), roseate spoonbill (*Platalea ajaja*), ruby-throated hummingbird (*Archilochus colubris*), osprey (*Pandion haliaetus*), eastern phoebe (*Sayornis phoebe*), green heron (*Butorides virescens*), great egret (*Ardea alba*), red-tailed hawk (*Buteo jamaicensis*), and the audible observation of a least bittern (*Ixbrychus exilis*).

4.9 Rare or Endangered Species

Species accounts and habitat requirements were collected and reviewed from the Texas Parks and Wildlife Department (TPWD). A survey was not conducted to identify the presence or absence of any threatened or endangered species, however the habitat requirement descriptions match habitat requirements for many of the species listed below. According to county lists provided by the TPWD for Orange County the following species are listed as threatened or endangered; the American Peregrine Falcon (*Falco peregrinus anatum*), bald eagle (*Haliaeetus leucophalus*), Peregrine Falcon (*Falco peregrinus*), piping plover (*Charadrius melodus*), Sprague's pipit (*Anthus spragueii*), swallow-tailed kite (*Elanoides forficatus*), white-faced ibis (*Plegadis chihi*), wood stork (*Mycteria Americana*), black bear (*Ursus americanus*), Louisiana black bear (*Ursus americanus luteolus*), Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), Louisiana pigtoe (*Pleurobema riddellii*), sandbank pocketbook (*Lampsilis satura*), southern hickorynut (*Obovaria jacksoniana*), Texas heelsplitter (*Potamilus amphichaenus*), Texas pigtoe (*Fusconaia askewi*), Alligator snapping turtle (*Macrochelys temminckii*), northern scarlet snake (*Cemophora coccinea copei*), Texas horned lizard (*Phrynosoma cornutum*), and timber rattlesnake (*Crotalus horridus*).

4.10 Cultural Resources

There was no cultural resources surveys performed in association with this project.

5.0 LAND HISTORY AND MANAGMENT

5.1 Past Disturbances

The major relatively recent disturbance associated which occurred on the subject property and adjoining properties involved the clear-cutting of baldcypress-dominated forest habitat in the early 20th century. The soil types comprises the majority of the subject property are types susceptible to marsh erosion following disturbances which is a process by which over time the movement of water removes the soil surface, creating barren areas that are difficult to revegetate. The mud flat habitat within the subject property consists of remnant baldcypress stumps that are spread out across the unvegetated, mostly barren flat. Baldcypress trees have not reestablished and were observed to be isolated mostly to the meander scars. There were a few scattered baldcypress trees across the marshland; however, no baldcypress seedlings were observed during the baseline documentation survey.

5.2 Management Plan(s) in Effect

There presently are no management plans in effect on the subject property.

5.3 Local or Regional Designations and Restrictions

There were no local or regional designations and restrictions on the subject property.

5.4 Acres under Each Habitat Land Use

The land area is not currently under any active management. Based on the CES land cover classification, there are eight (8) land cover classes within the subject property. These classes are divided into emergent-dominated, tidally-influenced marshland; cypress-dominated forested wetland meander scars; upland pine/hardwood-dominated forested meander scars; mud flats; isolated freshwater open water; shrub/scrub wetland; tidally-influenced open water; and lower perennial Meyer Bayou. The acreages associated with these land cover classifications within the subject property are as follows:

- Emergent-dominated, tidally-influenced marshland - 165 acres (34%);
- Tidally-influenced open water - 110 acres (23%)
- Mud flats – 97 acres (20%);
- Cypress-dominated forested wetland meander scars - 45 acres (9%);
- Upland pine/hardwood dominated forest - 42 acres (9%);
- Shrub/scrub wetland - 10 acres (2%);
- Lower perennial Meyer Bayou - 9 acres (2%); and
- Isolated freshwater open-water - 4 acres (1%)

The Natural Resource Conservation Service's Major Land Resource Area splits the subject property between the Gulf Coast Marsh (mlra 151) and the Gulf Coast Prairies (mlra 150A). The western half of the subject property is located in the Gulf Coast Marsh, which

comprises about 8,495 square miles along the Gulf Coast from Mississippi to Texas. The land use within mlra 151 consists of cropland (16%), grassland (6%), forest (8%), urban development (3%), water (33%), and other (34%). The eastern half of the subject property is located within the Gulf Coast Prairies, which comprises about 16,365 square miles along the Gulf Coast of Louisiana and Texas. The land use within mlra 150A consists of cropland (32%), grassland (40%), forest (5%), urban development (16%), water (5%), and other (2%).

5.5 Adjacent Lands Protected

There are no lands directly adjacent to the subject property that are protected beyond USACE regulatory authority; however, this conservation easement will bring additional protected lands into a larger conservation objective of protecting lands within the Neches River Basin. The subject property will join other lands currently protected within the Neches River basin where over 82,500 acres are protected by the Big Thicket National Preserve, Neches River National Wildlife Refuge, and other protected private lands.

5.6 Adjacent Land Attributes, Uses, and Conflicts

The adjacent land shares a similar wetland complex habitat characteristic, wetland function, and vegetation composition to the subject property. The portion of the Neches River bordering the subject property is situated along a meander which has been cut off by a deep water shipping channel that is overseen by the U.S. Army Corps of Engineers and maintained locally by the Jefferson County Waterway & Navigation District. Routine dredging activities within the channel will continue to occur within the navigable shipping channel. Impacts to the subject property or to the cut off meander of the Neches River as a result of the dredging activity is not known; however, based on the distance from the shipping channel to the meandering section of the river along the subject property, impacts will most likely be negligible.

Oil & gas-related exploration activities within close proximity to the subject property may alter localized hydrology by building up surface sites and linear projects, such as roads and pipeline corridors. Depending on the proximity of any potential projects in relation to the subject property, impacts will most likely be negligible.

Due to the close proximity of the subject property in relation to various petrochemical facilities and shipping complexes (Port of Beaumont), the potential does exist for chemical and petroleum spills that could potentially negatively impact the subject property.

5.7 Amount and Type of Public Access

The amount of public access is to the subject property is unknown, and likely limited only to those accessing the subject property by boat. The subject property is primarily utilized for recreational purposes such as fishing, trapping crab, and hunting migratory game birds. The main access to the subject property is by boating from the Neches River and traveling up Meyer Bayou at the confluence of the Neches River and Meyer Bayou. From the mouth of

Meyer Bayou, various portions of the subject property may be accessed through open-water channels that extend through portions of the subject property. The majority of the subject property can be accessed by boat; however, the tide level dictates the type of boats that can be utilized in certain areas. Accessing the subject property by land is very limited as Old Mansfield Ferry Road, located near the southern boundary, is the nearest road access point. Further limiting access by foot is a canal that extends along the north side of Old Mansfield Ferry Road.

5.8 Development Threats

Residential development within or directly adjacent to the subject property is unlikely due the tidal flooding regime and fresh water inflows. These moist soil characteristics are not conducive to stabilization or the use of septic systems. Residential development is located on the upland terraces approximately 1.0-mile north and northeast of the subject property, but residential expansion in the direction of the subject property is very unlikely.

The main development threat to the general area is associated with oil & gas-related exploration activities, and the development of associated well pads, pipelines, and access roads. During the field reconnaissance of the baseline survey, the construction of a pipeline corridor was observed along the northern boundary of the subject property. This activity included trenching activities and the placement of a spoil pile directly adjacent to the northern boundary of the subject property.

Similar activities, consisting of a network of well pads along with their associated pipelines and access roads, are located within a similar topographic setting northwest of the subject property; an existing pipeline corridor is located to the east of the subject property; and Old Mansfield Ferry Road, located near the southern boundary of the subject property, is a heavily traveled access road leading to an area of active oil & gas-related exploration activities located south of the subject property along the bank of the Neches River.

5.9 Population Density in Area

The subject property is located along a highly industrialized section of the Neches River corridor. The City of Beaumont is located west of the subject property and has a population of approximately 118,000, while the city of Vidor is located north-northeast of the subject property and has a population of approximately 11,000. The entire Beaumont-Port Arthur-Orange metropolitan area, referred to as the Golden Triangle, has a population of approximately 385,090.

6.0 HAZARDS REPORT

An objective of the site reconnaissance is to determine if any hazards, pollution, unauthorized activities, or any trespassing or vandalism has occurred that will have a negative impact on the conservation goal.

6.1 Observed Hazards

There were no hazards observed in association with the subject property during the site reconnaissance.

6.2 Previous Environmental Assessments

A Phase I Environmental Site Assessment of the subject property was performed in July 2011 by CES. The assessment revealed no evidence of recognized environmental conditions in association with the subject property.

6.3 Potential Pollution from Outside Sources

Water quality concerns associated with the lower 14 miles of the Neches River (Segment 0601) are oil and grease, arsenic, manganese, and nickel in the sediment.

6.4 Trespassing or Vandalism Issues

There was no evidence of trespassing or areas of vandalism observed during the site reconnaissance. There is an encroachment overlap on the southern boundary of the subject property. This overlap encompasses a total of 6.23 acres, consisting of 2.26 acres on the Lawrence B. Mansfield tract and 3.97 acres on the Texas Eastern Products Pipeline Company tract. There was no development or activity within the encroachment area.

6.5 Other Concerns

There were no additional concerns associated with the goal of establishing and maintaining a conservation easement within the subject property.

7.0 SITE RECONNAISSANCE

The objective of the site reconnaissance is to obtain information detailing the conservation values of the property and natural resources in connection with the subject property by visual and physical observation of the property. The subject property and adjoining properties were visually inspected on July 16 & 17, 2014, by Mr. Anthony Castilaw and Mr. Adam Miller.

7.1 Methodology and Limiting Conditions

The site reconnaissance was performed by utilizing both a pedestrian and boat survey. It should be noted that portions of the subject property are relatively inaccessible due to high soil moisture and extremely dense vegetation. However, these limitation were overcome and CES covered the subject property to the extent necessary to classify the unique individual land cover types.

7.2 General Site Setting

The subject property is situated on relatively flat terrain at an elevation of approximately 1 to 3 ft above mean sea level (msl). Very gently sloping terrain was observed along the meander scars which rise to an elevation high enough to support vegetation common to upland and mesic habitat types.

7.3 Exterior Observations

The subject property is comprised of approximately 474.73 acres of land situated along the Neches River in Orange County, Texas. The wetland complex comprising the subject property yields a diverse habitat ranging consisting of open water, mud flats, tidally-influenced marshland, upland forested meander scars, and an isolated fresh water feature. Overall, the subject property appears to be undisturbed by any recent activities and yields a scenic quality within a highly industrialized segment of the Neches River.

7.4 Interior Observations

The subject property consists entirely of vacant, undeveloped, tidally-influenced wetland complex. This wetland complex blends many distinct habitat types that transition into one another to create a unique wildlife habitat type. There were no improvements or structures observed within the boundaries of the subject property during the site reconnaissance.

8.0 FINDINGS

The following information is a summary of general findings observed in connection with the subject property:

- The subject property is comprised of approximately 474.73 acres of a tidally-influenced, highly diverse wetland complex split by the mlra 151 Gulf Coast Marsh Area and the mlra 150A Gulf Coast Prairies. This convergence of land areas and unique meander scars within the boundaries of the subject property create a sanctuary for a large diversity of wildlife and plant species.

- CES classified the land cover type of the subject property into eight (8) unique habitat types which closely mimic the U.S. Fish and Wildlife, National Wetland Inventory classification data set. The classifications include: emergent-dominated, tidally-influenced marsh land, cypress-dominated forested wetland meander scars, upland pine/hardwood-dominated forested meander scars, mud flats, isolated freshwater open water, shrub/scrub wetland, tidally-influenced open water, and the lower perennial Meyer Bayou.

- A Phase I Environmental Site Assessment of the subject property was performed in July 2011 by CES. The assessment revealed no evidence of recognized environmental conditions in association with the subject property. Additionally, there were no recognized environmental conditions observed in association with the subject property during the recent site reconnaissance.

- The conservation easement associated with this project will bring additional protected lands into a larger overall conservation objective encompassing over 82,000 acres of land within the Neches River Basin.

9.0 CONCLUSIONS

Based on our findings, the subject property consists of a very unique wetland complex habitat type that provides critical habitat for a plethora of plant and animal species. In addition, the natural resources provide recreational opportunities for sportsmen in the form of fishing and hunting migratory game birds. The demand on this limited natural resource will continue to rise within this highly industrialized segment of the Neches River and, in fact, this demand was observed during the site reconnaissance in the form of the development of a pipeline corridor along the northern boundary of the subject property. In our opinion, a conservation easement on this particular property will protect a limited natural resource, while also joining a larger overall conservation objective within the Neches River Basin.

10.0 REFERENCES

NRCS, 2006 United States Department of Agriculture, Natural Resources Conservation Service. 2006. Soil Survey of Jefferson and Orange Counties, Texas.

NRCS, 2006 United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

TCEQ, 2004 Texas Commission on Environmental Quality. 2004. Atlas of Texas Surface Waters. Segment 06 – Neches River.

TPWD, 2014 Texas Parks and Wildlife Department. Rare, Threatened, and Endangered Species of Texas GIS Portal. Website access August 2014. http://www.tpwd.state.tx.us/gis/ris/es/.

11.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

This Baseline Documentation Survey was performed by Mr. Anthony Castilaw and Mr. Adam Miller, both of CES. We, the undersigned signatories, do hereby certify that the information contained in this baseline documentation report, including referenced attachments, for the Orange County Wetland BTNHT Conservation Easement as collected on July 16 & 17, 2014, is correct and accurate to the best of our knowledge.

Anthony Castilaw

Anthony Castilaw

Adam Miller

Adam Miller

APPENDIX 16.1

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

ANTHONY RAY CASTILAW

Castilaw Environmental Services, LLC
510 E. Pilar Street
Nacogdoches, Texas 75961
(936) 559-9991

EDUCATION:

Stephen F. Austin State University, Nacogdoches, Texas
Bachelor of Science in Biology
Major: Biology (Emphasis: Aquatics) Minor: Forestry (Emphasis: Wildlife)

WORK EXPERIENCE:

Castilaw Environmental Services, LLC, Nacogdoches, Texas - President / Sr. Environmental Specialist (10/05 – Present)

Work Summary:

- Founded Castilaw Environmental Services, LLC in October 2005;
- Wetland Services (Wetland Determinations, Delineations, Permitting, and Mitigation Assistance);
- Threatened & Endangered (T&E) Species Surveys;
- Phase I & II Environmental Site Assessments;
- Storm Water Pollution Prevention Plans (SWP3);
- Environmental Inspection Services;
- Records Review with Risk Assessment (RSRA);
- Mapping and GIS Services;
- FEMA Disaster Assistance; and
- Environmental Training

Advanced Ecology, Inc., Center, Texas - Project Manager / Sr. Biologist (4/04 – 10/05)

Work Summary:

- Project Administration;
- Wetland Services (Wetland Determinations, Delineations, and Permitting);
- Environmental Regulatory Compliance; and
- Phase I Environmental Site Assessments

SI Group, L.P., Beaumont, Texas - Sr. Project Scientist (1/04 – 4/04)

Work Summary:

- Project Administration;
- Environmental Regulatory Compliance; and
- Phase I & II Environmental Site Assessments

Huntsman Petrochemical Corporation, Dayton, Texas – Sr. Environmental Engineer (2/03 – 1/04)

Work Summary:

Served as the environmental representative for the Dayton, Texas facility. Main duties included the following:

- Identified, initiated and/or completed all necessary environmental permitting resulting from modifications, capital projects and/or applicable environmental regulations;
- Prepared and submitted the annual Emissions Inventory (EI), Toxic Release Inventory (TRI) and Annual Waste Summary (AWS) for the facility;
- Worked closely with Operations, Process and Maintenance personnel on a daily basis to ensure environmental compliance. This included conducting environmental training classes, regular site audits and overall environmental awareness through formal and informal communication;
- Coordinated all hazardous, non-hazardous and wastewater shipments;
- Responsible for over-site of the Leak Detection and Repair (LDAR) and RCRA Program;
- Responsible for coordinating necessary stack testing;
- Responsible for all Federal, State and/or County Incident Reporting requirements associated with environmental releases or spills; and
- Responsible for over-site of annual environmental budget

Huntsman Petrochemical Corporation, Port Neches, Texas - Environmental Engineer (10/99 – 02/03)

Work Summary:

- Unit Representative for the Ethylene Oxide and Glycol Units (9 Units) from 10/99 to 12/01 and a Unit Representative for the Ethanolamines and Surfactants Units (6 Units) from 12/01 to 2/03 at the Huntsman Oxides and Olefins Plant;
- Identified, initiated and/or completed all necessary environmental permitting resulting from modifications and/or capital projects;
- Worked closely with Operations, Process and Maintenance personnel on a daily basis to ensure environmental compliance; and

- Responsible for all Incident Reporting requirements associated with environmental releases or spills in assigned areas

C-K Associates, Inc., Beaumont, Texas - Environmental Specialist (3/97 – 10/99)

Work Summary:

- Coordinated, performed and/or reviewed more than 350 Phase I and Phase II Environmental Site Assessments of oil & gas fields, nursing care facilities, assisted living facilities, commercial properties, industrial properties, and undeveloped properties in approximately 30 states;
- Performed Leak Detection and Repair (LDAR) compliance audits for chemical manufacturing facilities; and
- Assisted in developing numerous Spill Prevention, Control and Countermeasures (SPCC) plans for oil & gas well locations, as well as industrial facilities

Westhollow Technology Center, Houston, Texas – Separations / Physical Chemistry Department Research Technician (8/94 – 9/95)

Work Summary:

- Provided technical support to Shell Oil refineries, offshore drilling rigs, and Shell Oil customers by conducting surface science experiments (surface tension, contact angles, etc.) on oil and gasoline products in laboratory studies and research projects.

HIGHLIGHTS:

- Since 1997, I have performed and/or supervised RSRAs, property assessments, and Phase I & II Environmental Site Assessments of several thousand properties throughout the United States following American Society for Testing and Materials (ASTM), Small Business Administration (SBA), Fannie Mae, National Park Service (NPS), and/or client-specific formats.

- Since 2007, CES has performed Phase I ESAs associated with large-scale (100 – 18,000 acres) acquisition projects that have been ultimately acquired by the National Park Service (NPS), Texas Parks & Wildlife Department, and/or U.S. Fish & Wildlife Service. Several of these Phase I ESAs were performed in association with expansion efforts of the Big Thicket National Preserve in southeast Texas; El Malpais National Monument in New Mexico; Glacier National Park in Montana; the San Antonio Missions National Historical Park in San Antonio, Texas; and the Petrified Forest National Park in Arizona.

- Since 2006, CES has performed over 2,000 oil & gas-related wetland investigations and T&E species surveys associated with proposed well locations, pipeline corridors (well connects, laterals, trunklines, and gathering systems), compressor stations, and associated facilities.

PROFESSIONAL TRAINING COURSES:

- 40-Hour Hazardous Waste Operations/Emergency Response Training
- Various Texas Wetland Training Courses (2007 – 2014)
- Texas Watershed Steward Program, 2010
- Texas Watershed Planning Short Course, June 2008
- FEMA Public Assistance Operations I & II Training Courses, 2006
- 40-Hour United States Army Corps of Engineers Wetland Delineators Certification Training Program, 1998 and 2005

ADAM JAMES MILLER
Castilaw Environmental Services, LLC
510 E. Pilar Street
Nacogdoches, Texas 75961
(936) 559-9991

EDUCATION

University	Degree	Concentration	Year
Stephen F. Austin State University	Master of Science	Env. Science	2007
The University of Oklahoma	Bachelor of Science	Zoology	2005
Carl Albert State College	Associate of Arts	Education	2002

WORK EXPERIENCE

Castilaw Environmental Services, LLC, Nacogdoches, Texas – Senior Environmental Specialist (05/10 – Present)

Work Summary:

- Wetland Services (Wetland Determinations & Delineations, Functional Assessments, Permitting, and Mitigation Assistance);
- Environmental Inspection Services Associated with Oil & Gas-Related Pipeline and Facility Projects;
- Shade Tree Analysis (STA), Wildlife Habitat Appraisal Procedure (WHAP), and Wetland Services for the U.S. Army Corps of Engineers – Sam Rayburn Reservoir Office;
- Development of Water Budgets for Proposed Wetland Mitigation Banks;
- Storm Water Pollution Prevention Plans (SWP3);
- Threatened & Endangered Species Surveys;
- Phase I Environmental Site Assessments; and
- Mapping and GIS Data Management Services

Waters of East Texas Center, Division of Environmental Science, Stephen F. Austin State University, Nacogdoches, Texas, Research Associate (01/08 - 05/10)

Work Summary:

I served as the coordinator for field research and data analysis under the guidance of eleven research faculty members. Also, I conducted research on a wide variety of projects related to wetlands and water quality with a focus on the East Texas region.

Select list of research projects:

- Co-authored "A regional guidebook for applying the hydrogeomorphic approach to the functional assessment of forested wetlands in alluvial valleys of east Texas" ERDC/EL TR-10-17.

- As a member of the assessment team, I collected field data at reference wetland sites across the southeast U.S. used in developing the functional indices for "A regional guidebook for applying the hydrogeomorphic approach to assessing wetland functions of forested wetland in alluvial valleys of the coastal plain of the southeastern United States" ERDC/EL TR-13-1.

- Wrote and lead the monitoring program to verify wetland hydrology and the creation of new lacustrine wetlands by the filling of a new reservoir 'Lake Naconiche'.

- Developed planting protocol for oak re-establishment within the Trinity River floodplain for the City of Dallas.

- Developed and implemented soil and vegetation sampling protocol to determine Phosphorous sinks within created wetlands near Richland Chambers Reservoir.

- Literature compilation of historic and current water quality data published within the Angelina/Neches River Basin. Developed summary report of the state of the basin. Project completed for the Texas Commission of Environmental Quality.

- Conducted review of riparian area survey methodologies for determination of flow regime requirements necessary to maintain the riparian area below the Toledo Bend dam structure. Project competed for the Texas Water Development Board.

Arthur Temple College of Forestry and Agriculture, Stephen F. Austin State University, Nacogdoches, Texas, Research/Teaching Assistant (01/06 - 12/08)

Work Summary:

- Conducted research focused on thesis research and taught undergraduate courses;
- Assessed long term impacts to soil and vegetation characteristics related to abandoned natural gas drilling pads on Barksdale Air Force Base;
- Conducted field reconnaissance for wetland characteristics development based on the hydrogeomorphic setting on the landscape; and
- Taught three semesters of the laboratory section of a sophomore level forest ecology course.

U.S. Army Corps of Engineers, Tulsa District, Hugo Lake, Oklahoma, Seasonal Park Ranger (04/08 – 11/08)

Work Summary:

- Conducted routine park patrols, completed visitor surveys, and issued warnings and citations under Section 327 of Title 36 CFR;
- Executed the wildlife manage program and assisted in controlled burns; and
- Performed interpretive programs related to dam structure and performed fishing programs with local schools.

PUBLICATIONS

Miller, A.J., Williams, H.M., Farrish, K., Oswald, B.P., and Unger, D. 2007. A comparison of soil plant characteristics between abandoned natural gas drill pads and adjacent areas, Barksdale Air Force Base, Bossier City, Louisiana. Thesis. Stephen F. Austin State University.

Miller, A., Williams, H Farrish, K., Oswald, B.P., and Unger, D. 2009. A comparison of soil plant characteristics between abandoned natural gas drill pads and adjacent areas, Barksdale Air Force Base, Bossier City, Louisiana. Proceedings of the Society of American Foresters. Orlando, Florida.

Miller, A., McNamee, R., Williams, H., and Brown, M. 2009. A GIS modeling methodology for delineating the riparian ecotone in the Western Gulf Coastal Plain. Proceedings of the Society of American Foresters. Orlando, Florida.

Miller, A. J., McNamee, R.S., Williams, H.M. Brown, M.B. 2009. Riparian Area: The Sabine River Riparian Area: A Definition and Methodology for Delineation. Contract #0704830783. Texas Water Development Board. Austin, TX.

Williams, H.M., Miller, A.J., McNamee, R.S., and Klimas, C.V. 2010. A regional guidebook for applying the hydrogeomorphic approach to the functional assessment of forested wetlands in alluvial valleys of East Texas. ERDC/EL TR-10-17, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

APPENDIX 16.2

FIGURE 1
LOCATION MAP

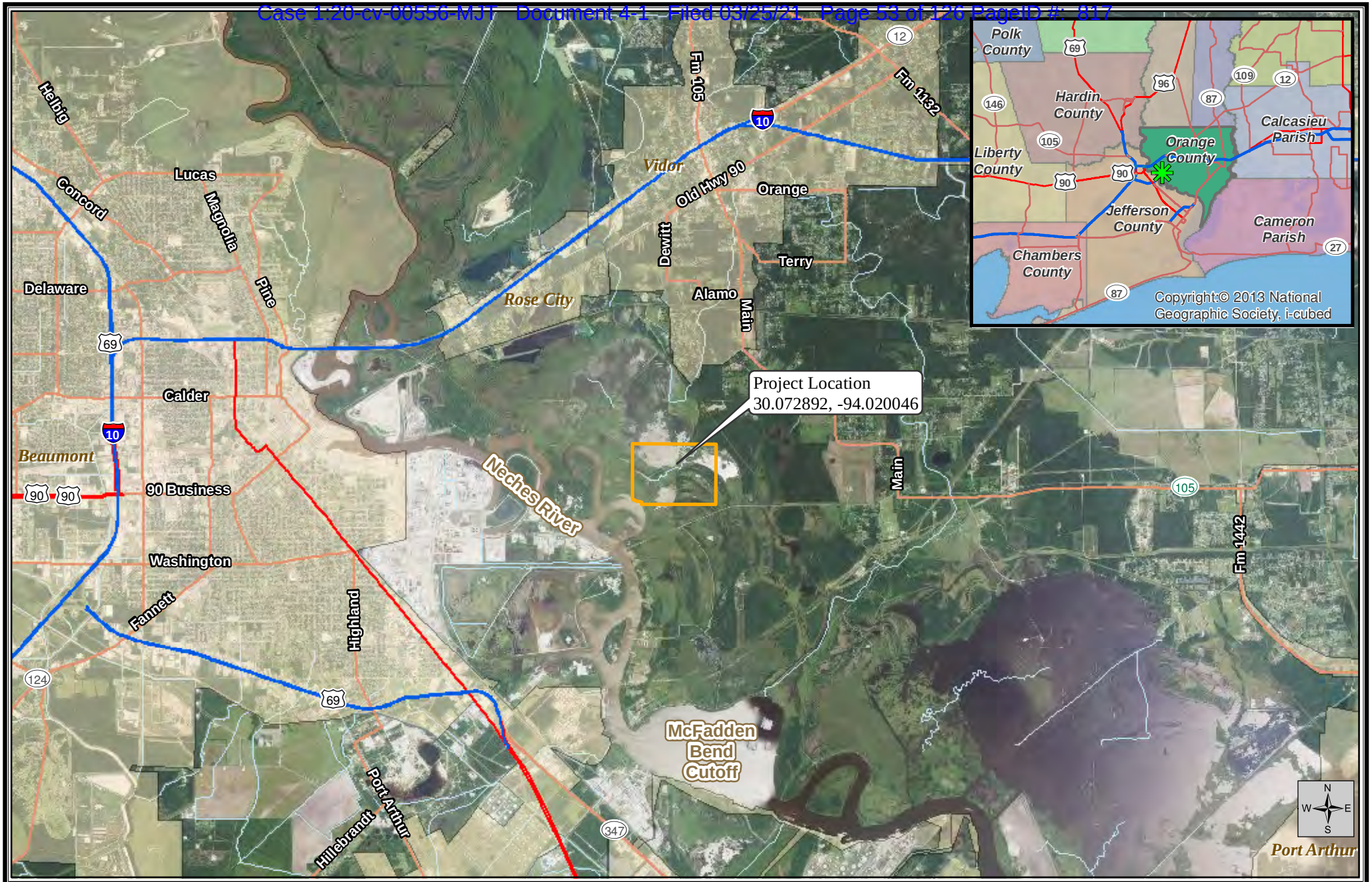


Figure 1 of 7 Location Map	**Orange County Wetland BTNHT Conservation Easement**	**Date: August 25, 2014**
CASTILAW ENVIRONMENTAL SERVICES, LLC NACOGDOCHES, TX 936-559-9991	0 1 2 3 4 5 Miles **Big Thicket Natural Heritage Trust** **Orange County, Texas**	Subject Property
Created By: G. Lindsey & P. Pearson CES Project No. 14-CES-30	Datum: NAD83 Imagery Source: NAIP & NGS Vector Source: CES & ESRI	

APPENDIX 16.3

FIGURE 3
SUBJECT PROPERTY
LOCATION MAP

Figure 2 of 7
2012 Aerial Photograph

Orange County Wetland BTNHT Conservation Easement

Date: August 25, 2014

CASTILAW
ENVIRONMENTAL SERVICES, LLC
NACOGDOCHES, TX
936-559-9991

0 250 500 1,000 1,500 2,000 2,500 3,000 Feet

Big Thicket Natural Heritage Trust
Orange County, Texas

Created By:
G. Lindsey & P. Pearson
CES Project No. 14-CES-30

Datum: NAD83
Imagery Source: NAIP
Vector Source: CES

Subject Property

APPENDIX 16.4

FIGURE 3
TOPOGRAPHIC MAP

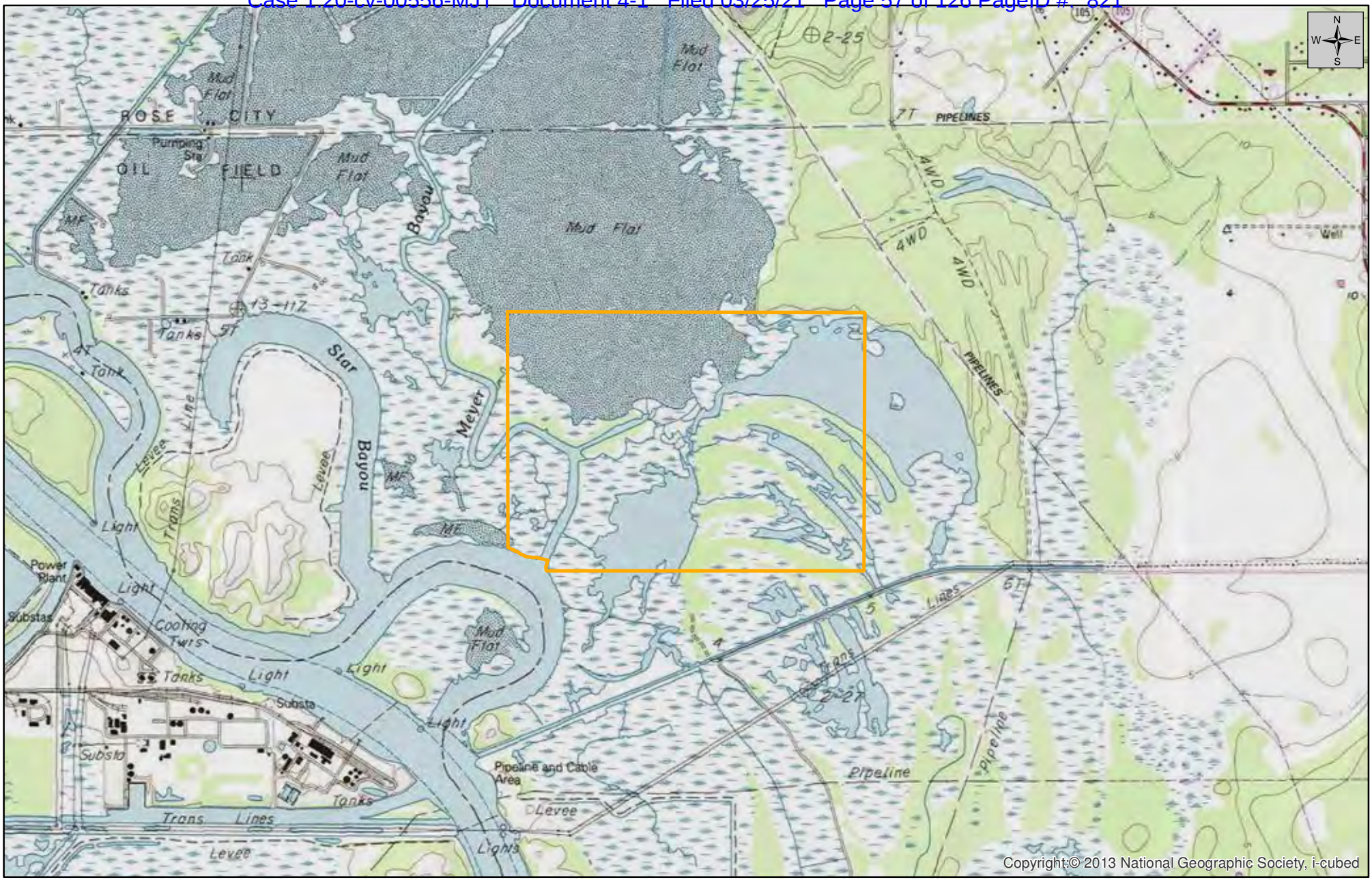


Figure 3 of 7 Topographic Map	Orange County Wetland - BTNHT Conservation Easement	Date: August 25, 2014

CASTILAW ENVIRONMENTAL SERVICES, LLC
NACOGDOCHES, TX
936-559-9991

0 1,000 2,000 4,000 6,000 8,000 10,000 Feet

Big Thicket Natural Heritage Trust
Orange County, Texas

Created By:
Garret Lindsey
CES Project No. 14-CES-30

Datum: NAD83
Imagery Source: NGS
Quads: Beaumont East & Terry
Vector Source: CES

Subject Property

APPENDIX 16.5

FIGURE 4
SOILS MAP

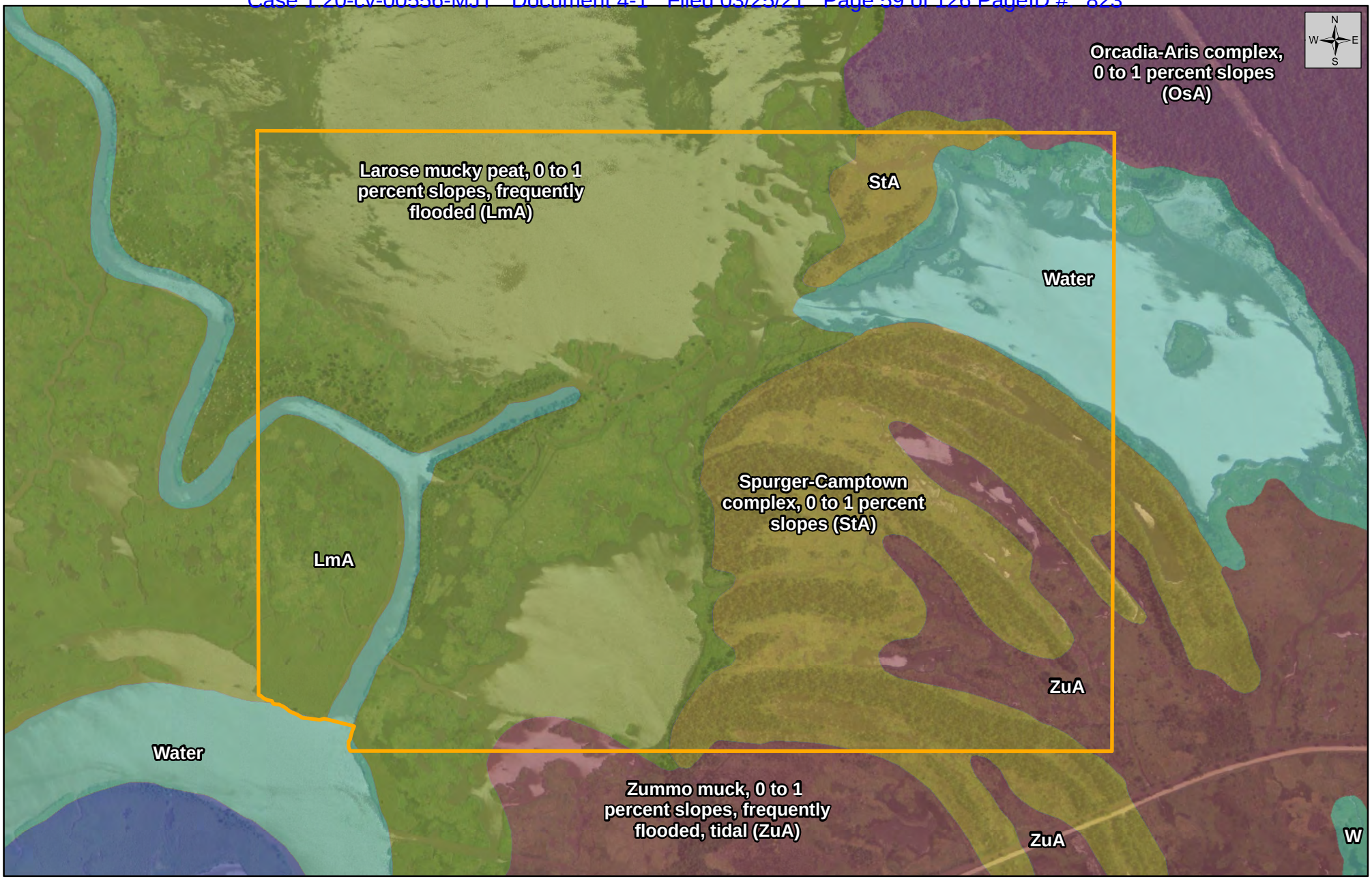


Figure 4 of 7
Soils Map

Orange County Wetland BTNHT Conservation Easement

Date: August 27, 2014

CASTILAW
ENVIRONMENTAL SERVICES, LLC
NACOGDOCHES, TX
936-559-9991

0 250 500 1,000 1,500 2,000 2,500 3,000 3,500 Feet

Big Thicket Natural Heritage Trust
Orange County, Texas

Created By:
G. Lindsey & P. Pearson
CES Project No. 14-CES-30

Datum: NAD83
Imagery Source: NAIP
Vector Source: CES & NRCS

Subject Property

APPENDIX 16.6

FIGURE 5
GEOLOGIC MAP

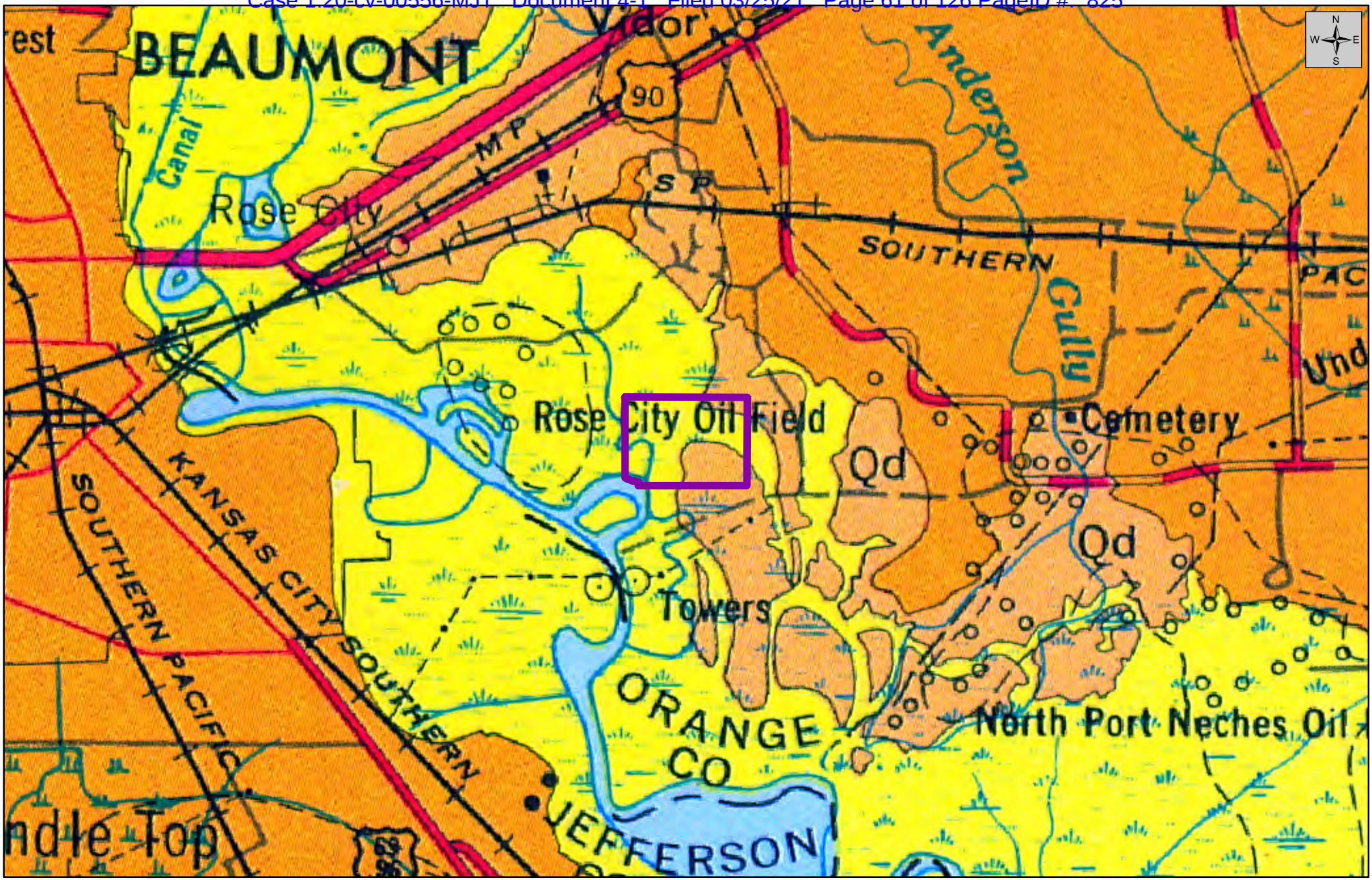


Figure 5 of 7
Geologic Atlas

Orange County Wetland BTNHT Conservation Easement

Date: August 25, 2014

CASTILAW
ENVIRONMENTAL SERVICES, LLC
NACOGDOCHES, TX
936-559-9991

0 5,000 10,000 20,000 30,000 Feet

Big Thicket Natural Heritage Trust
Orange County, Texas

Created By:
Garret Lindsey
CES Project No. 14-CES-30

Datum: NAD83
Imagery Source: Bureau of Economic Geology
Vector Source: CES

- Subject Property
- Alluvium (Qal)
- Beaumont Formation (Qb)
- Deweyville Formation (Qd)

APPENDIX 16.7

FIGURE 6
NATIONAL WETLANDS INVENTORY MAP

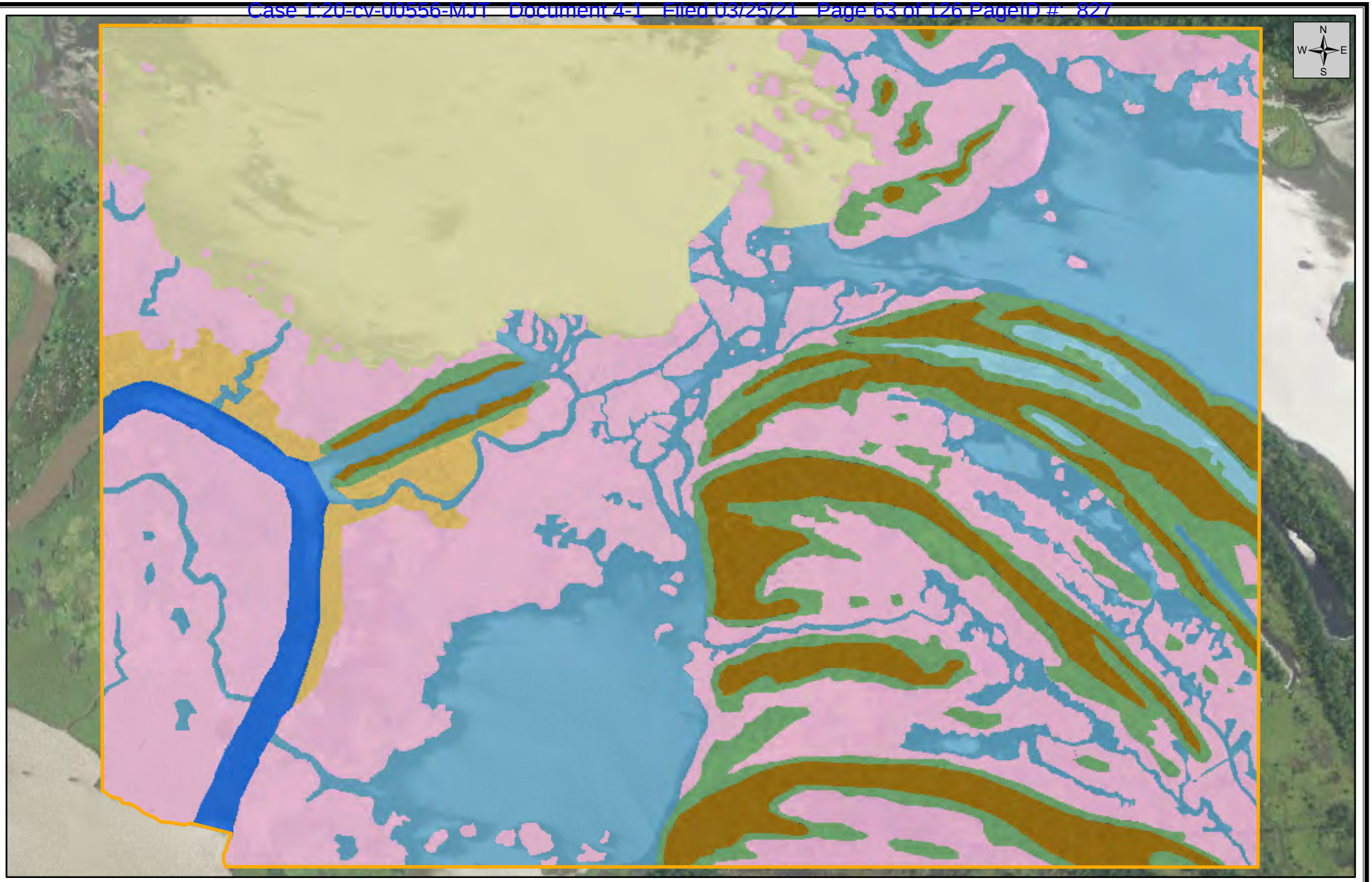


Figure 6 of 7
Landscape Classification

Orange County Wetland BTNHT Conservation Easement

Date: August 25, 2014

CASTILAW
ENVIRONMENTAL SERVICES, LLC
NACOGDOCHES, TX
936-559-9991

0 250 500 1,000 1,500 2,000 2,500 Feet

Big Thicket Natural Heritage Trust
Orange County, Texas

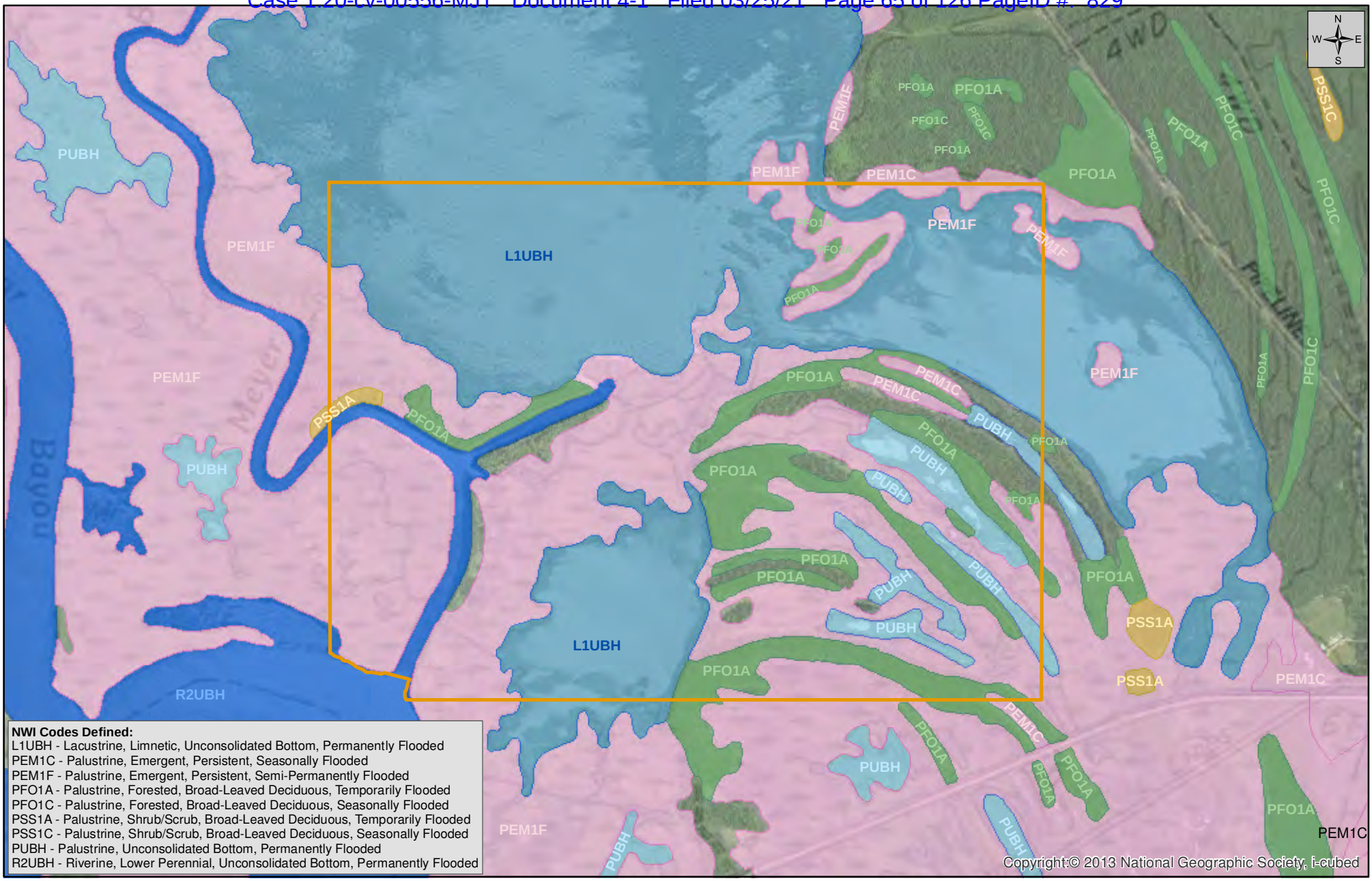
Created By:
G. Lindsey & P. Pearson
CES Project No. 14-CES-30

Datum: NAD83
Imagery Source: NAIP
Vector Source: CES

- Meyer Bayou
- Tidally Influenced Waters
- Isolated Fresh Water
- Emergent Marsh
- Forested Wetland
- Shrub/Scrub Wetland
- Mud Flat
- Upland Mixed Forest
- Subject Property

APPENDIX 16.8

FIGURE 7
LAND COVER
CLASSIFICATION MAP



NWI Codes Defined:
L1UBH - Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded
PEM1C - Palustrine, Emergent, Persistent, Seasonally Flooded
PEM1F - Palustrine, Emergent, Persistent, Semi-Permanently Flooded
PFO1A - Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded
PFO1C - Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded
PSS1A - Palustrine, Shrub/Scrub, Broad-Leaved Deciduous, Temporarily Flooded
PSS1C - Palustrine, Shrub/Scrub, Broad-Leaved Deciduous, Seasonally Flooded
PUBH - Palustrine, Unconsolidated Bottom, Permanently Flooded
R2UBH - Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded

Figure 7 of 7
National Wetlands Inventory

Orange County Wetland BTNHT Conservation Easement

Date: August 25, 2014

CASTILAW
ENVIRONMENTAL SERVICES, LLC
NACOGDOCHES, TX
936-559-9991

0 400 800 1,600 2,400 3,200 4,000 Feet

Big Thicket Natural Heritage Trust
Orange County, Texas

Created By:
G. Lindsey & P. Pearson
CES Project No. 14-CES-30

Datum: NAD83
Imagery Source: NAIP & NGS
Vector Source: CES & USFWS

- NWI - Fresh Water Pond
- NWI - Fresh Water Lake
- NWI - Riverine
- NWI - Emergent Wetland
- NWI - Forested Wetland
- NWI - Shrub/Scrub Wetland
- Subject Property

APPENDIX 16.9

PHOTOGRAPHIC DOCUMENTATION

Photograph 1 – A view showing a representative view of the tidally influenced marshland within the southeast portion of the subject property. This photograph was taken facing north at 30.068920,-94.01251.

Photograph 2 – A view showing a representative view of tidally influenced marshland with scattered baldcypress within the northwest portion of the subject property. This photograph was taken facing south at 30.073900, -94.021540.

Photograph 3 – A view showing a representative view of the dense vegetation comprising the marshland situated west of Meyer Bayou. This photograph was taken facing north at 30.070088, -94.027180.

Photograph 4 – A view showing a representative view of the transition from marshland to baldcypress-dominated forest habitat within the southeast portion of the subject property. This photograph was taken facing west at 30.068920, -94.01251.

Photograph 5 – A view showing a representative view of the upland pine/hardwood mix forest habitat type along a meander scar within the southeast portion of the subject property. This photograph was taken facing east at 30.069084, -94.012848.

Photograph 6 – A view showing a representative view of the upland hardwood-dominated forest habitat type along a meander scar near the center of the subject property. This photograph was taken facing south at 30.067453, -94.0020307.

Photograph 7 – A view showing the isolated freshwater meander scar situated within the southeastern portion of the subject property. This photograph was taken facing north at 30.072410, -94.012175.

Photograph 8 – A second view showing the isolated freshwater meander scar. This photograph was taken facing south at 30.072410, -94.012175.

Photograph 9 – A view showing a tidally-influenced open water meander scar which is situated within the southern portion of the subject property. This photograph was taken facing north at 30.071210, -94.013299.

Photograph 10 – A view showing tidally-influenced open water within the northeastern portion of the subject property. This photograph was taken facing west at 30.072359, -94.00772.

Photograph 11 – A view showing tidally-influenced open water within a meander scar near the southeastern boundary of the subject property. This photograph was taken facing southeast at 30.071685, -94.012983.

Photograph 12 – A view showing tidally-influenced open water within the southern portion of the subject property. This photograph was taken facing east at 30.068896, -94.023876.

Photograph 13 – A view showing tidally-influenced open water within the northeastern portion of the subject property. This photograph was taken facing south from 30.075995, -94.015354.

Photograph 14 – A view showing a vegetated island within tidally-influenced open water. This photograph was taken facing south at 30.067181, -94.022038.

Photograph 15 – A view showing the large open water feature and adjacent upland mixed woods habitat connecting Meyer Bayou to the mud flat. This photograph was taken facing northwest at 30.073311, -94.022834.

Photograph 16 – A view the showing the large open water feature connecting Meyer Bayou to the mud flat. The majority of the baldcypress trees in the background of this photograph have died. This photograph was taken facing west at 30.073311, -94.022834.

Photograph 17 – A view showing the mud flat located in the northern portion of the subject property. This photograph was taken facing north at 30.074298, -94.021269.

Photograph 18 – A view showing the pipeline corridor that is being constructed along the northern boundary of the subject property. The trench has been dug and the spoil pile has been built up above the high tide water level. This photograph was taken facing east from the northwest corner of the subject property at 30.07797, -94.029181.

Photograph 19 – A view showing the densely vegetated ridge along the open water connecting Meyer Bayou to the mud flat. This photograph was taken facing south at 30.07316, -94.022890.

Photograph 20 – A view showing the thick shrub/scrub-dominated wetland habitat along the bank of Meyer Bayou. This photograph was taken facing north at 30.073474, -94.028272.

Photograph 21 – A representative view showing a small open water channel that is typical throughout portions of the subject property. This photograph was taken facing south at 30.068069, -94.011628.

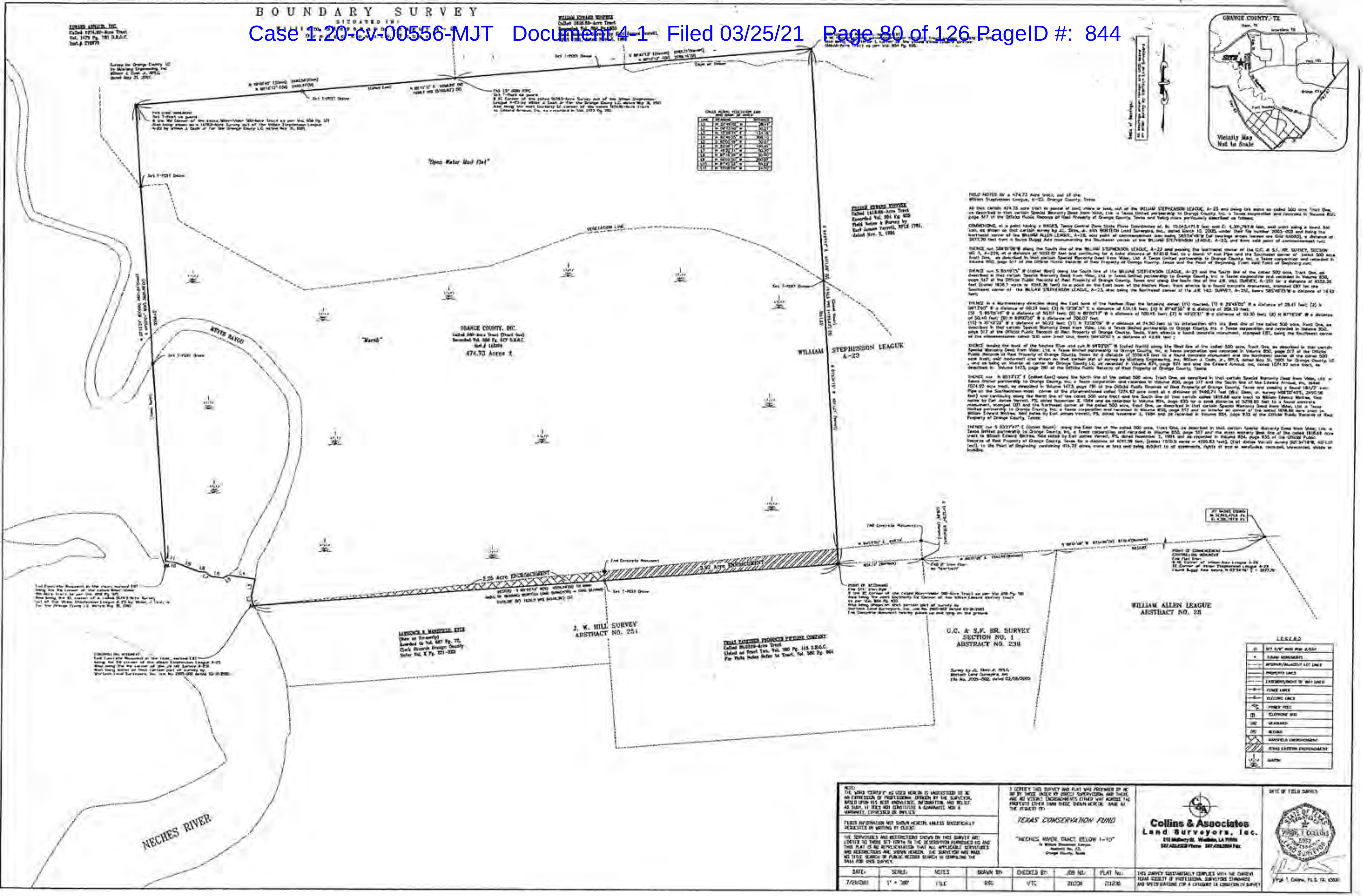
Photograph 22 – A view showing dense emergent vegetation on a large island feature located near the southern portion of the subject property. This photograph was taken facing north at 30.068933, -94.023930.

Photograph 23 – A representative view showing a depression which is void of vegetation. This is typical throughout the marshland habitat within the subject property. This photograph was taken facing west at 30.073474, -94.028272.

Photograph 24 – A representative view showing small vegetated islands within the open water of the subject property. This photograph was taken facing north at 30.07229, -94.00763.

APPENDIX 16.10

SURVEY PLAT


BOUNDARY SURVEY
ORANGE COUNTY, TX
Vicinity Map
Not to Scale
"Open Water Mud Flat"
VEGETATION LINE
"Marsh"
ORANGE COUNTY, INC.
474.73 Acres ±
WILLIAM STEPHENSON LEAGUE
A-23
NEECHES RIVER
WILLIAM ALLEN LEAGUE
ABSTRACT NO. 28
J. W. HILL SURVEY
ABSTRACT NO. 251
G.C. & S.F. RR. SURVEY
SECTION NO. 1
ABSTRACT NO. 239
NOTE:
THE WORD "CERTIFY" AS USED HEREIN IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE SURVEYOR, BASED UPON HIS BEST KNOWLEDGE, INFORMATION, AND BELIEF. AS SUCH, IT DOES NOT CONSTITUTE A GUARANTEE NOR A WARRANTY, EXPRESSED OR IMPLIED.
TEXAS CONSERVATION FUND
"NECHES RIVER TRACT BELOW I-10"
Collins & Associates
Land Surveyors, Inc.
DATE OF FIELD SURVEY:
DATE: 7/29/2011
SCALE: 1" = 300'
NOTES: FILE
DRAWN BY: RHG
CHECKED BY: VTC
JOB NO.: 211230
PLAT No.: 211230
STATE OF TEXAS
VIRGIL T. COLLINS
LAND SURVEYOR

APPENDIX B

2015 ANNUAL MONITORING REPORT

2015 Annual Monitoring – Orange County Wetland Project

To: Ellen Buchanan – Big Thicket Natural Heritage Trust
From: Anthony Castilaw and Adam Miller – Castilaw Environmental Services, LLC
Project Name: Orange County Wetland Project – Orange County, Texas
Date Visited: September 23, 2015

MANAGEMENT PLAN AND DISPOSITION STRATEGY SHOULD BE REVIEWED PRIOR TO VISITING THE PROPERTY.

Were the boundaries walked or observed? _X_Yes __ No If no, please describe area viewed.

The boundaries of the subject property were walked when possible. Also, a boat was utilized for access purposes in other portions of the subject property.

Were photographs taken of the site while monitoring? _X_Yes __No

Photographic documentation is attached.

Are there any land management issues associated with the subject property or adjacent properties?

A berm has been placed along the majority of the northern boundary of the subject property. The berm is eroding in places which is allowing sediment to move into the subject property. Marsh grass restoration activities are occurring on the northern adjacent tract of land. These activities will potentially alter the hydrology in the vicinity of the subject property. Also, a pipeline that is associated with the marsh grass restoration activities extend through the subject property. The pipeline has been placed along the edge of Meyers Bayou.

Notes:

No structures or modifications to the landscape within the boundaries of the easement have occurred. Two (2) paralleling pipelines located within Meyers Bayou were identified entering the easement. These pipes enter the easement from the Neches River at the mouth of Meyers Bayou and follows along buoys that mark the pipe as it is positioned directly adjacent to the eastern bank. These pipes turn north out of the river across land at the western boundary of the easement. These pipes are directed in a northern direction across land as it parallels the western boundary of the easement to the northwestern corner before turning northwest and entering the three (3) berm cells. These cells comprise approximately 185 acres of former open-water mud flat which is to be converted into a marsh grass restoration area.

General impression of the subject property: Is something happening on a neighboring tract that could affect the subject property? Are there signs of trash dumping, trespassing, or other potential adverse activities?

The tract of land directly adjacent to the northern boundary of the subject property has been converted from a tidally influenced open-water/mud flat feature with an average depth of 1 to 3 ft into a sand flat marsh grass restoration area. The marsh grass restoration cells are separated from the easement by an actively eroding berm that was installed August 2014. The berm is approximately 20 ft wide and 3 ft above the water surface at high tide. The berm is made of soil and woody debris that has been dug from the adjacent property. Because the berm is comprised of pieces of woody debris and is not stabilized with a dense herbaceous vegetation, the ebb and flow of the tide appears to be slowly eroding the berm. It is unknown what influence the filling of the approximate 185 acre cells with sediment to an elevation to support marsh grass will have on local flooding regime of the subject property.

Does the subject property appear to be in compliance with the trust?

Yes, the subject property does appear to be compliance with the trust at this time.

Report Reviewed and Approved by:

_____

Big Thicket Natural Heritage Trust **Date**

FIGURE

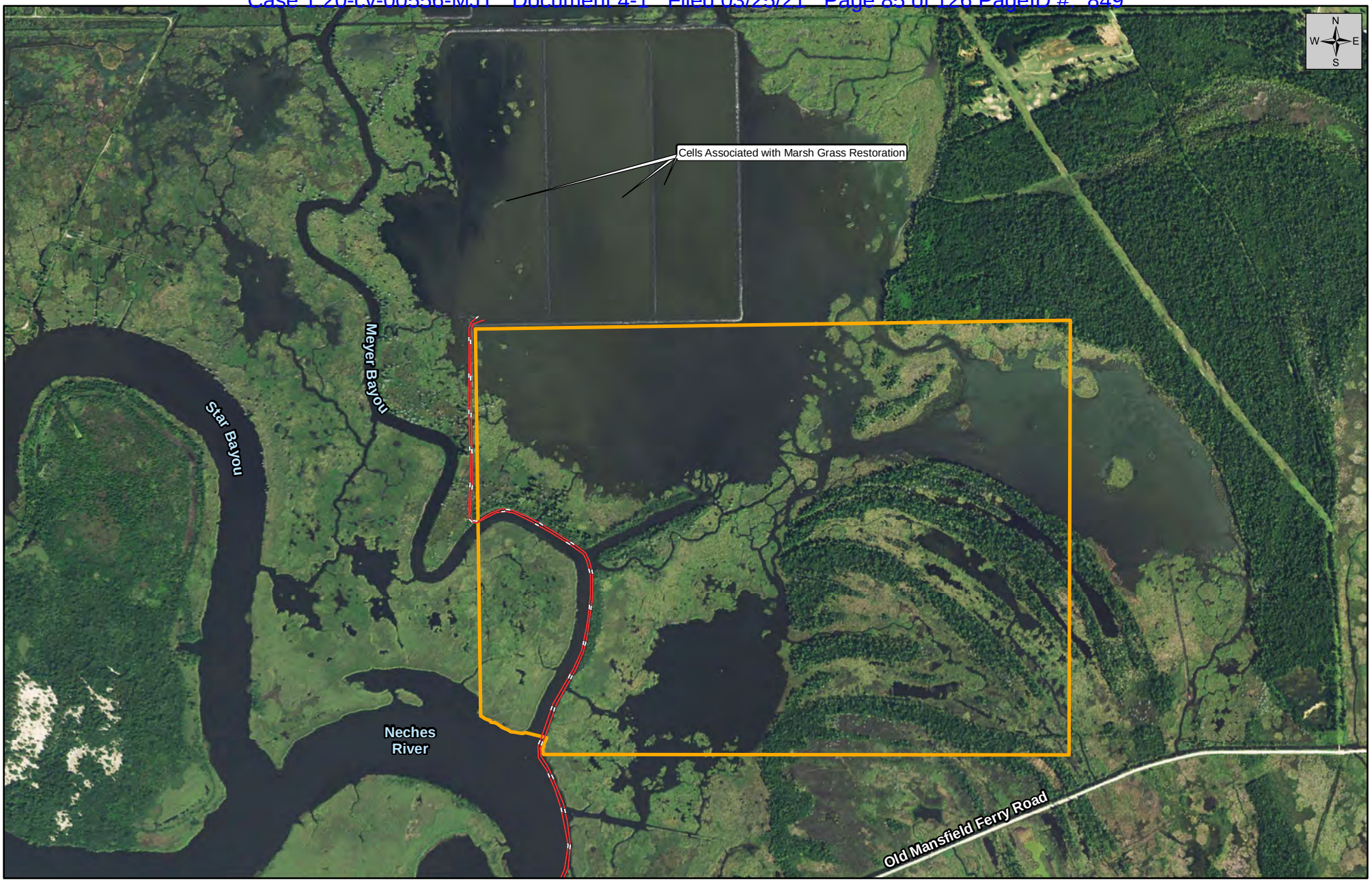


Figure 1 of 1
2014 Aerial Photograph

Orange County Wetland BTNHT Conservation Easement

Date: November 10, 2015

CASTILAW
ENVIRONMENTAL SERVICES, LLC
NACOGDOCHES, TX
936-559-9991

0 250 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 Feet

Big Thicket Natural Heritage Trust
Orange County, Texas

Created By:
Adam Miller
CES Project No. 15-CES-347

Datum: NAD83 Zone 15
Imagery Source: NAIP
Vector Source: CES

Pipeline
Subject Property

PHOTOGRAPHIC DOCUMENTATION

Photograph 1 – A view showing a representative view of the tidally influenced marshland within the southeast portion of the subject property. This photograph was taken facing north at 30.068943,-94.012207.

Photograph 2 – A view showing a representative view of tidally influenced marshland with scattered baldcypress within the northwest portion of the subject property. This photograph was taken facing south at 30.074203, -94.021241.

Photograph 3 – A view showing a representative view of the dense vegetation comprising the marshland situated west of Meyer Bayou. This photograph was taken facing north at 30.069903, -94.027135.

Photograph 4 – A view showing a representative view of the transition from marshland to baldcypress-dominated forest habitat within the southeast portion of the subject property. This photograph was taken facing west at 30.069365, -94.012645.

Photograph 5 – A view showing a representative view of the upland pine/hardwood mix forest habitat type along a meander scar within the southeast portion of the subject property. This photograph was taken facing east at 30.069386, -94.013116.

Photograph 6 – A view showing a representative view of the upland hardwood-dominated forest habitat type along a meander scar near the center of the subject property. This photograph was taken facing south at 30.067834, -94.020091.

Photograph 7 – A view showing the isolated freshwater meander scar situated within the southeastern portion of the subject property. This photograph was taken facing north at 30.072596, -94.012461.

Photograph 8 – A second view showing the isolated freshwater meander scar. This photograph was taken facing south at 30.072417, -94.012220.

Photograph 9 – A view showing a tidally-influenced open water meander scar which is situated within the southern portion of the subject property. This photograph was taken facing north at 30.071699, -94.014289.

Photograph 10 – A view showing tidally-influenced open water within the northeastern portion of the subject property. This photograph was taken facing west at 30.068141, -94.024017.

Photograph 11 – A view showing tidally-influenced open water within a meander scar near the southeastern boundary of the subject property. This photograph was taken facing southeast at 30.071685, -94.012983.

Photograph 12 – A view showing tidally-influenced open water within the southern portion of the subject property. This photograph was taken facing east at 30.068768, -94.023664.

Photograph 13 – A view showing tidally-influenced open water within the northeastern portion of the subject property. This photograph was taken facing south from 30.075003, -94.014900.

Photograph 14 – A view showing a vegetated island within tidally-influenced open water. This photograph was taken facing south at 30.067855, -94.021879.

Photograph 15 – A view showing the large open water feature and adjacent upland mixed woods habitat connecting Meyer Bayou to the mud flat. This photograph was taken facing northwest at 30.073443, -94.022802.

Photograph 16 – A view the showing the large open water feature connecting Meyer Bayou to the mud flat. The majority of the baldcypress trees in the background of this photograph have died. This photograph was taken facing west at 30.073692, -94.022491.

Photograph 17 – A view showing the mud flat located in the northern portion of the subject property. This photograph was taken facing north at 30.075156, -94.024151.

Photograph 18 – A view showing the pipeline corridor that is being constructed along the northern boundary of the subject property. The trench has been dug and the spoil pile has been built up above the high tide water level. This photograph was taken facing east from the northwest corner of the subject property at 30.07797, -94.029181.

Photograph 19 – A view showing the densely vegetated ridge along the open water connecting Meyer Bayou to the mud flat. This photograph was taken facing south at 30.073161, -94.022775.

Photograph 20 – A view showing the thick shrub/scrub-dominated wetland habitat along the bank of Meyer Bayou. This photograph was taken facing north at 30.072838, -94.028157.

Photograph 21 – A representative view showing a small open water channel that is typical throughout portions of the subject property. This photograph was taken facing south at 30.068024, -94.011670.

Photograph 22 – A view showing dense emergent vegetation on a large island feature located near the southern portion of the subject property. This photograph was taken facing north at 30.068891, -94.024178.

Photograph 23 – A representative view showing a depression which is void of vegetation. This is typical throughout the marshland habitat within the subject property. This photograph was taken facing west at 30.068730, -94.026814.

Photograph 24 – A representative view showing small vegetated islands within the open water of the subject property. This photograph was taken facing north at 30.07229, -94.00763.

Photograph 25 – A representative view showing a depression which is void of vegetation. This is typical throughout the marshland habitat within the subject property. This photograph was taken facing west at 30.068730, -94.026814.

Photograph 26 – A representative view showing small vegetated islands within the open water of the subject property. This photograph was taken facing north at 30.07229, -94.00763.

Photograph 27 – A representative view showing the pipe as it is positioned in Meyers Bayou adjacent to the eastern bank. The pipe varies between above and underwater along Meyers Bayou. This photograph was taken facing west at 30.070429, -94.025820.

Photograph 28 – A view showing buoys marking the pipe at the mouth of the cut-off channel along Meyers Bayou. This photograph was taken facing north at 30.072150, -94.025836.

Photograph 29 – A view showing where the pipes leave Meyers Bayou and cross land at the western boundary of the easement. This photograph was taken facing west at 30.072861, -94.028957.

Photograph 30 – A view showing the pipe as it parallels the western boundary of the easement. This photograph was taken facing south from the northwest corner at 30.077940, -94.029169.

Photograph 31 – A view showing the pipe enter the sand filled cells north of the easement. This photograph was taken facing northwest at 30.078097, -94.029036.

Photograph 32 – A view showing the sand filled cell within the former open-water area. This photograph was taken facing north at 30.078135, -94.027317.

Photograph 33 – A representative view showing the berm separating the easement from the sand filled cells. Tidal water has begun to erode the berm. This photograph was taken facing west at 30.078089, -94.023803.

Photograph 34 – A view showing the eastern most cell. This cell has not entirely been filled at the date the photograph was taken. This photograph was taken facing north at 30.072290, -94.007630.

APPENDIX C

2017 ANNUAL MONITORING REPORT

2017 Annual Monitoring – Orange County Wetland Project

To: Ellen Buchanan – Big Thicket Natural Heritage Trust
From: Anthony Castilaw and Joseph Gerland – Castilaw Environmental Services, LLC
Project Name: Orange County Wetland Project – Orange County, Texas
Date Visited: July 13, 2017

MANAGEMENT PLAN AND DISPOSITION STRATEGY SHOULD BE REVIEWED PRIOR TO VISITING THE PROPERTY

Were the boundaries walked or observed? _X_Yes __ No If no, please describe area viewed.

A portion of the northern boundary of the subject property was walked due to the presence of the levee. Other property boundaries were observed from a pontoon boat.

Were photographs taken of the site while monitoring? _X_Yes __No

Photographic documentation is attached.

Are there any land management issues associated with the subject property or adjacent properties?

A levee, first observed during its construction in 2014, is present along a portion of the northern boundary of the subject property. The levee is associated with a marsh grass restoration project located adjacent to the northern boundary of the subject property. The levee is in very poor condition and is allowing sediment to move into the subject property.

Notes:

No structures or modifications to the landscape within the boundaries of the easement have occurred.

General impression of the subject property: Is something happening on a neighboring tract that could affect the subject property? Are there signs of trash dumping, trespassing, or other potential adverse activities?

- The tract of land directly adjacent to the northern boundary of the subject property has been converted from a tidally influenced open-water/mud flat feature into a sand flat marsh grass restoration area. The marsh grass restoration cells are separated from the subject property by an actively eroding levee that was constructed August 2014. The levee is comprised of soil and woody debris, and is in very poor condition. It is allowing sediment to wash onto the northern portions of the subject property situated adjacent to the levee.

- There were no signs of trash dumping, trespassing, or other potential adverse activities identified in association with the subject property.

Does the subject property appear to be in compliance with the trust?

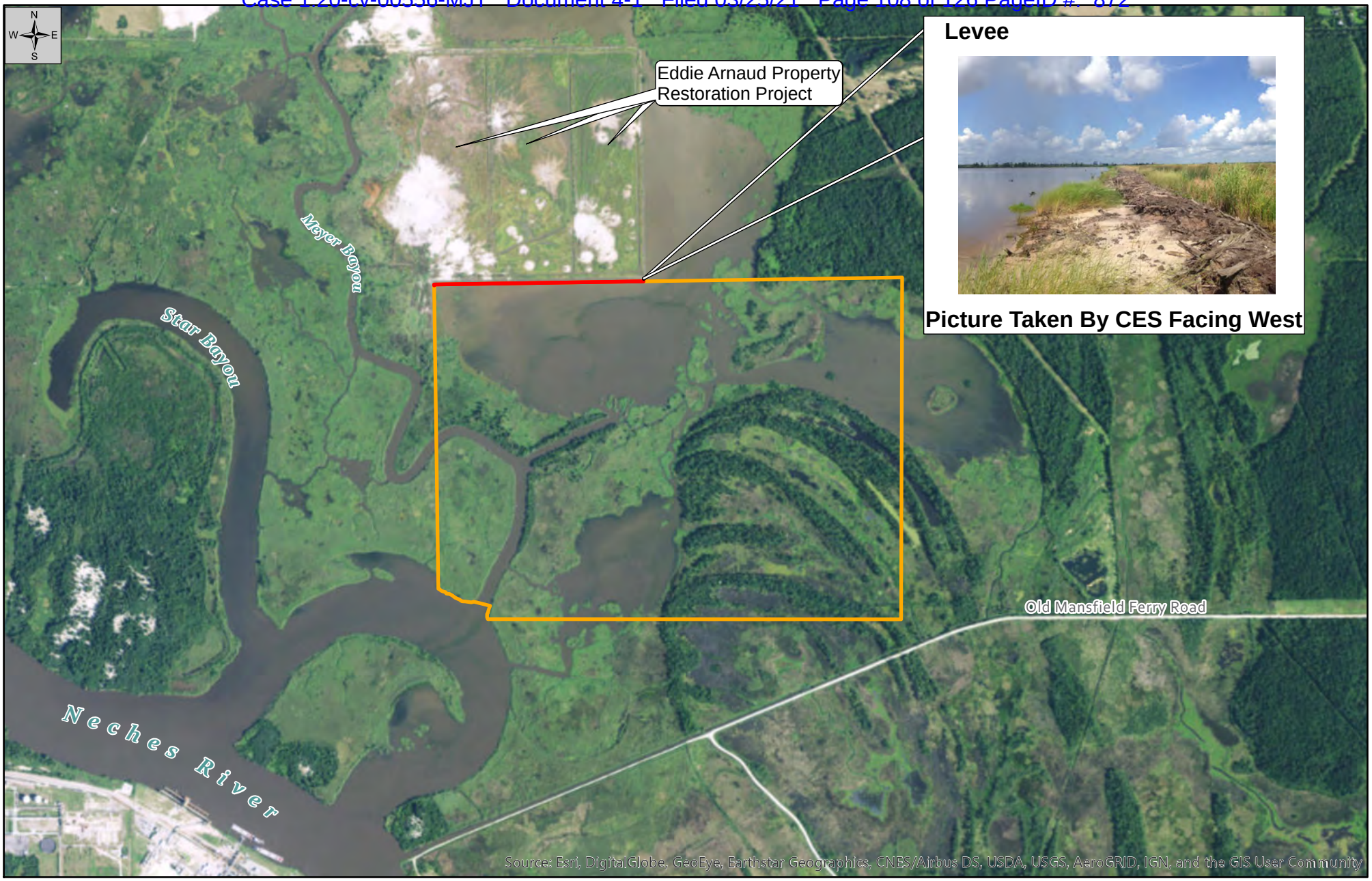
Yes, the subject property does appear to be compliance with the trust at this time.

Report Reviewed and Approved by:

_____

Big Thicket Natural Heritage Trust **Date**

FIGURE



2017 Aerial Photograph	**Orange County Wetland BTNHT Conservation Easement**	**Date: July 20, 2017**
CASTILAW ENVIRONMENTAL SERVICES, LLC NACOGDOCHES, TX 936-559-9991	0 — 4,000 — 8,000 Feet **Big Thicket Natural Heritage Trust** **Orange County, Texas**	**Subject Property**
Created By: Joseph Gerland Coordinates: 30.074403, -94.021381	Datum: NAD83 Zone 15N Imagery Source: NAIP Vector Source: CES	

PHOTOGRAPHIC DOCUMENTATION

Photograph 1 – A view west along the northern boundary of the subject property showing the levee that was constructed along a portion of the northern boundary of the subject property. The subject property is on the left side of this photograph and the marsh grass restoration project property is on the right.

Photograph 2 – A view east along the levee. The subject property is on the right side of this photograph.

Photograph 3 – A view north along the eastern side of the eastern-most cell associated with the marsh grass restoration project.

Photograph 4 – A view east along the northern boundary of the subject property showing areas not affected by the marsh grass restoration project. The view also shows open-water habitat located in the northern portion of the subject property.

Photograph 5 – A view showing one of the cells associated with the marsh grass restoration project situated north of the levee.

Photograph 6 – Another view showing one of the cells associated with the marsh grass restoration project situated north of the levee.

Photograph 7 – A view showing dense marshland vegetation along the western side of Meyer Bayou.

Photograph 8 – A view showing tidally-influenced open water habitat within the southern portion of the subject property. These areas are typically very shallow.

Photograph 9 – A view showing vegetated islands within the tidally-influenced open water habitat. These features are very common throughout the subject property.

Photograph 10 – A view showing the large open water feature that connects Meyer Bayou to the northern portion of the subject property containing the mud flat.

Photograph 11 – A view showing the area in which the large open water feature transitions into the mud flat.

Photograph 12 – A view showing typical marsh habitat around the edges of the mud flat.

APPENDIX D

2018 ANNUAL MONITORING REPORT

2018 Annual Monitoring – Orange County Wetland Project

To: Ellen Buchanan – Big Thicket Natural Heritage Trust
From: Anthony Castilaw – Castilaw Environmental Services, LLC
Project Name: Orange County Wetland Project – Orange County, Texas
Date Visited: October 3, 2018

MANAGEMENT PLAN AND DISPOSITION STRATEGY SHOULD BE REVIEWED PRIOR TO VISITING THE PROPERTY

Were the boundaries walked or observed? _X_ Yes __ No If no, please describe area viewed.

A portion of the northern boundary of the subject property was walked due to the presence of the levee. Other property boundaries were observed from a pontoon boat.

Were photographs taken of the site while monitoring? _X_ Yes __No

Photographic documentation is attached.

Are there any land management issues associated with the subject property or adjacent properties?

A levee, first observed during its construction in 2014, is present along a portion of the northern boundary of the subject property. The levee is associated with a marsh grass restoration project located adjacent to the northern boundary of the subject property. The levee is in very poor condition and is allowing some sediment to move into the subject property.

Notes:

No structures or modifications to the landscape within the boundaries of the easement have occurred.

General impression of the subject property: Is something happening on a neighboring tract that could affect the subject property? Are there signs of trash dumping, trespassing, or other potential adverse activities?

- The tract of land directly adjacent to the northern boundary of the subject property has been converted from a tidally influenced open-water/mud flat feature into a sand flat marsh grass restoration area. The marsh grass restoration cells are separated from the subject property by an actively eroding levee that was constructed August 2014. The levee is comprised of soil and woody debris, and is in very poor condition in some areas. It is allowing sediment to wash onto the northern portions of the subject property situated adjacent to the levee.

- There were no signs of trash dumping, trespassing, or other potential adverse activities identified in association with the subject property.

Does the subject property appear to be in compliance with the trust?

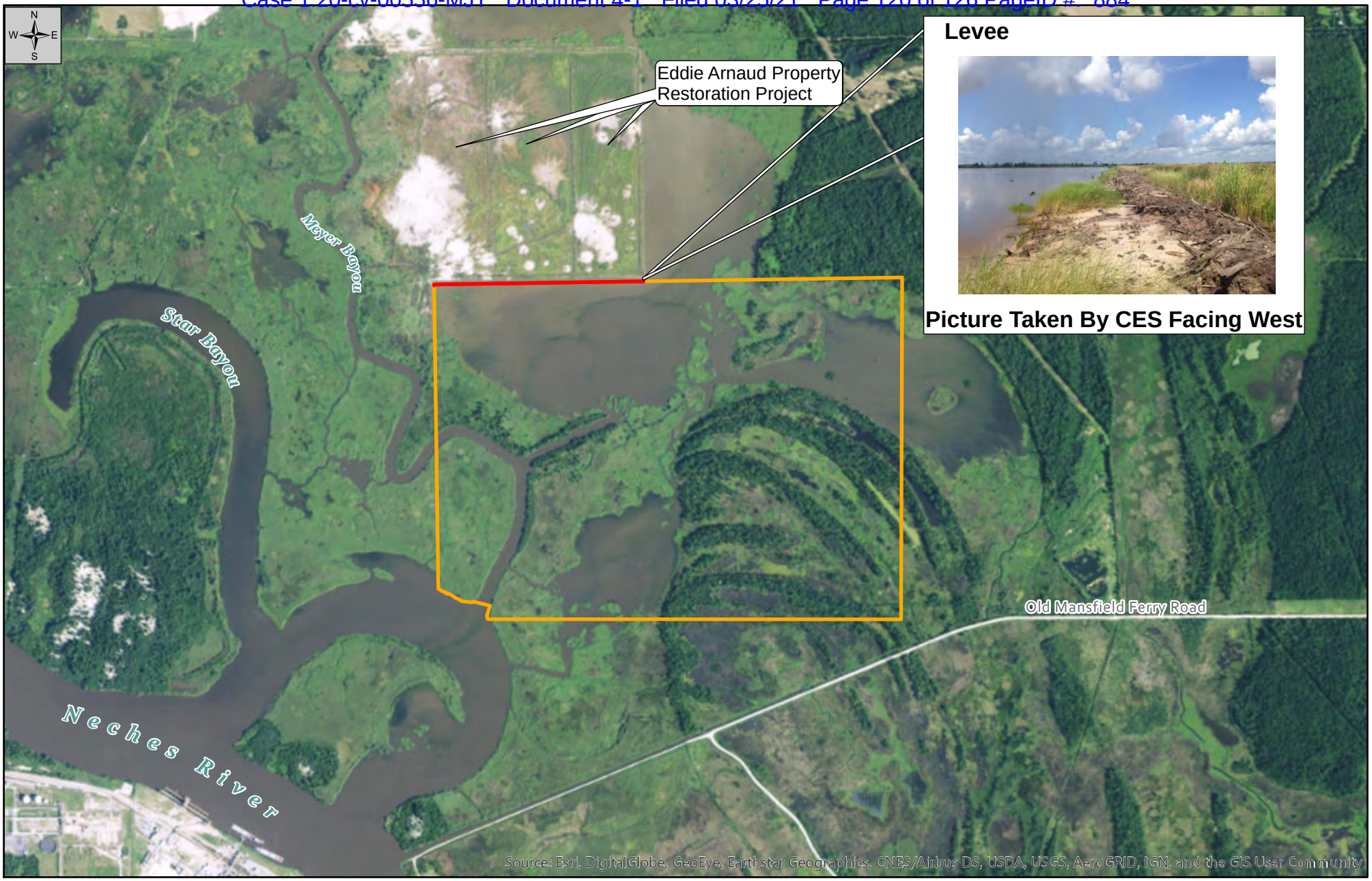
Yes, the subject property does appear to be compliance with the trust at this time.

Report Reviewed and Approved by:

_____

Big Thicket Natural Heritage Trust **Date**

FIGURE



2017 Aerial Photograph	**Orange County Wetland BTNHT Conservation Easement**	Date: July 20, 2017
CASTILAW ENVIRONMENTAL SERVICES, LLC NACOGDOCHES, TX 936-559-9991	0 — 4,000 — 8,000 Feet **Big Thicket Natural Heritage Trust** **Orange County, Texas**	Subject Property

Created By: Joseph Gerland
Coordinates: 30.074403, -94.021381

Datum: NAD83 Zone 15N
Imagery Source: NAIP
Vector Source: CES

PHOTOGRAPHIC DOCUMENTATION

Photograph 1 – A view west along the northern boundary of the subject property showing the levee that was constructed along a portion of the northern boundary of the subject property. The subject property is on the left side of this photograph and the marsh grass restoration project property is on the right.

Photograph 2 – A view east along the levee. The subject property is on the right side of this photograph.

Photograph 3 – Another view west along the levee. Portions of the levee are in poor condition due to the quality of materials that were used in constructing the levee.

Photograph 4 – A view north from the levee showing one of the cells associated with the marsh grass restoration project.

Photograph 5 – A view showing a duck blind that is currently being built along the levee.

Photograph 6 – A view east from Meyers Bayou showing open water habitat and marshland vegetation in the southern portion of the subject property.

Photograph 7 – Another view showing open water habitat and marshland vegetation in the southern portion of the subject property.

Photograph 8 – A view showing open water habitat and marshland vegetation in the northern portion of the subject property.

Photograph 9 – A view showing vegetated islands and open water habitat in the northern portion of the subject property.

Photograph 10 – A view showing open water habitat in the northern portion of the subject property.