

Draft Environmental Assessment

City of Mont Belvieu

Cotton Bayou Diversion and Relief Channel,
HMGP / DR-1791-TX Project #293

Mont Belvieu, Chambers County, Texas

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FEMA

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Table of Contents

1.0	INTRODUCTION	1
1.1	Project Limits	1
1.2	Existing Facility	1
1.3	Funding	1
2.0	PURPOSE AND NEED	1
3.0	ALTERNATIVES	2
3.1	Alternative 1: No Action	2
3.2	Alternative 2: Proposed Action – Construction of Detention and Conveyance Channels	2
3.3	Alternatives Considered but Dismissed	3
4.0	affected ENVIRONMENTAL and potential impacts	4
4.1	Physical Resources	4
4.1.1	Geology, Soils, and Seismicity	4
4.1.2	Air Quality	5
4.1.3	Climate Change.....	6
4.2	Water Resources.....	7
4.2.1	Water Quality	7
4.2.2	Waters of the U.S., Including Wetlands.....	8
4.2.3	Floodplains.....	8
4.3	Coastal Resources	10
4.4	Biological Resources.....	10
4.4.1	Threatened and Endangered Species and Critical Habitat	10
4.4.2	Fish and Wildlife.....	17
4.5	Cultural Resources	18
4.5.1	Historic Properties.....	18
4.5.2	American Indian Cultural/Religious Sites.....	19
4.6	Socioeconomic Resources.....	20
4.6.1	Environmental Justice	20
4.6.2	Hazardous Material	21
4.6.3	Noise	22
4.6.4	Traffic.....	23
4.6.5	Public Services and Utilities	23
4.6.6	Public Health and Safety	24
4.7	Cumulative Impacts.....	24
5.0	SUMMARY AnD MITIGATION MEASURES	25
6.0	RESOURCE AGENCY COORDINATION, PUBLIC INVOLVEMENT, AND PERMITS	29
6.1	Agency Coordination	29
6.2	Public Involvement	30
6.3	Permits.....	30
7.0	REFERENCES	30
8.0	LIST OF PREPARERS	33

Appendices

A Figures

Figure 1	Project Location on USGS Map Base
Figure 2	Project Location on Aerial Photo Base
Figure 3	Detention Basin locations on Aerial Photo Base
Figure 4	USDA Farmland Conversion Impact Rating Map

Exhibits

1-16	30% Design Drawings
17	National Wetlands Inventory
18	FEMA Map Panel 4801190155C
19	FEMA Map Panel 4801220010A

B Project Area Photographs

C Agency Coordination

D Public Notice

Tables

Table 1 – Federal List of Endangered and Threatened Species in Chambers County

Table 2 – Texas Parks and Wildlife Department Rare, Threatened, and Endangered Species in Chambers County

Table 3 – Socioeconomic Factors

Table 4 – Summary of Potential Impacts and Mitigation Measures

LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
ADT	Average daily traffic
AIRFA	American Indian Religious Freedom Act
BCA	Benefit Cost Analysis
BHISD	Barbers Hill Independent School District
BMP	Best Management Practice
CAA	Clean Air Act
CBWWTP	Cotton Bayou Wastewater Treatment Plant
CFR	Code of Federal Regulations
CGP	Construction General Permit
CO	carbon monoxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FM	Farm to Market Road
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination Act
GLO	General Land Office
GOM	Gulf of Mexico
HGB	Houston-Galveston-Brazoria
HMGP	Hazard Mitigation Grant Program
HUC	Hydrologic Unit Code
IH-10	Interstate Highway 10
MSATs	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Grave Protection and Repatriation Act

NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NOAA	National Oceanographic and Atmospheric Association
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O ₃	ozone
OEJ	Office of Environmental Justice
PM ₁₀	particulate matter less than 10 microns
PM _{2.5}	particulate matter less than 2.5 microns
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
SHPO	State Historic Preservation Officer
SO ₂	sulfur dioxide
SW _{3P}	Storm Water Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
TCMP	Texas Coastal Management Program
TDEM	Texas Division of Emergency Management
THC	Texas Historical Commission
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TSS	Total Suspended Solids
TWDB	Texas Water Development Board
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

1.1 Project Limits

The City of Mont Belvieu proposes to construct flood control facilities along and adjacent to Cotton Bayou (DR 1791293), which is located within the City of Mont Belvieu, Chambers County, Texas, east of Eagle Drive (FM 3180). The proposed project includes improvements on both sides of Cotton Bayou between Lakes of Champions and the Southern Canal, approximately 7,500 feet (1.42 miles). Most of the proposed facilities are located within public right-of-way. One detention site will have to be acquired.

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality regulations to implement NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508), and the Federal Emergency Management Agency's (FEMA) regulations implementing NEPA (44 CFR Part 10). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this EA is to analyze the potential environmental impacts of the proposed project. FEMA will use the findings in this EA to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.2 Existing Facility

The existing Cotton Bayou Channel is an earthen channel approximately 10-feet deep with a 30-foot bottom width and 4 to 1 side slopes. Even though this channel was improved in recent years, it remains inadequate to convey the 100-year flow as represented in the FEMA floodplain map.

1.3 Funding

The project is proposed for funding under FEMA's Hazard Mitigation Grant Program (HMGP), DR-1791-TX Project #293. Funding for this project is 75 percent federal funds, 25 percent local funds. The estimated cost of the proposed project is \$869,487 as of January 20, 2012. The City has committed to providing the required matching funds contingent upon grant approval.

2.0 PURPOSE AND NEED

The existing Cotton Bayou Channel is inadequate to convey the 100-year flood event and experienced flooding during Hurricane Ike (see pictures in Appendix B). The infrastructure, public facilities, and private residences along Cotton Bayou remain at risk of flooding and damage. Public schools and private residences are at risk of being cut off from emergency services when flood waters are not adequately drained from the Cotton Bayou area. Flood potential is high in the Mont Belvieu area due to its proximity to the coast and its exposure to tropical storms and other rain events. Therefore, there is a need to reduce flooding risk to existing public buildings, schools and residences resulting from widespread rainfall, the lack of conveyance capacity of Cotton Bayou, and systems conveying storm water to the bayou.

Through HMGP, FEMA provides grants to states and local governments to implement long-term hazard mitigation measures. The purpose of HMGP is to reduce the loss of life and property due to natural

disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

3.0 ALTERNATIVES

Two alternatives were considered for evaluation in this document. These alternatives consisted of 1) the No Action Alternative and 2) Construction of Detention and Conveyance Channels.

3.1 Alternative 1: No Action

Under the No Action Alternative, no improvements would be made to Cotton Bayou. The infrastructure, public facilities and private residences along Cotton Bayou would remain at risk of flooding and damage. In addition, public schools and private residences would remain at risk of being cut off from emergency services when flood water does not drain to Cotton Bayou.

3.2 Alternative 2: Proposed Action – Construction of Detention and Conveyance Channels

Under the Construction of Detention and Conveyance Channel Alternative, the City of Mont Belvieu proposes detention at two locations adjacent to Cotton Bayou to reduce the water surface elevation in the Bayou during extreme events. Several lateral channel systems are proposed to relieve flooding in adjacent properties and neighborhoods and to convey flood waters to Cotton Bayou. The reduced water surface elevations in the bayou afforded by the proposed detention will allow the channels to flow and discharge to the bayou (see Appendix A for 30% design drawings). Proposed improvements include (See Figures 1-2 of Appendix A):

- Detention Basin 1 is located just south of the Southern Canal which crosses Cotton Bayou at the upper end of the damage reach (Latitude: 29.84757; Longitude: -94.85214). This detention basin is located on 8 acres of land the City is voluntarily acquiring on the west side of Cotton Bayou. The purchase of this land will represent part of the City's financial match. It will provide 30 acre feet of storage.
- A side weir for Detention Basin 1 is proposed on an upper reach of Cotton Bayou approximately 600 feet downstream of Cedar Point Lateral water canal that will allow some waters from higher intensity, lower frequency, storm events to be detained during periods of high flow and will be released back into Cotton Bayou as the water surface begins to fall.
- Detention Basin 2 is located on City property immediately east of Cotton Bayou and north of Perry Road that also includes their wastewater treatment plant (Latitude: 29.84554; Longitude: -94.84267). The plant occupies the western portion of this 24 acre parcel. Just east of the plant is a planned detention basin for the Eagle Drive project. There is an unused portion of land east of that. It is proposed to extend the Eagle Drive detention basin east to the property limits increasing the capacity by an additional 10 acre foot. The outlet structure of the existing detention basin will be modified in final design to accommodate the additional inflow and storage.
- A second side weir for Detention Basin 2 located approximately 0.2-river miles upstream of Interstate 10 is proposed and will perform the same action as the side weir proposed upstream (discussed above).

- Channel System A includes the new construction of 1,750 feet of open channel 3.25 feet deep with 3 to 1 side slopes and a bottom width as much as 6 feet. It extends west from Cotton Bayou on the north side of Lakes of Champions Drive to the Barbers Hill Independent School District (BHISD) Elementary School and Intermediate School. It includes a north-south channel between the two schools and a north-south channel on the west side of the intermediate school. This system also includes a 24-inch diameter culvert under the access road to the intermediate school.
- Channel System B includes the new construction of open channels and storm drains to the BHISD Professional Development Center. The system includes 2,817 feet of open channel 2.5 to 3.0 feet deep with 3 to 1 side slopes and bottom widths up to 6.0 feet. It also includes a 215 foot storm drain 24 inches in diameter. It extends north as a channel along the east side of the access road from the south side of the campus, west beneath the access road as a storm drain where access is tight and then again as an open channel and then turns north at the west side of the building. In addition there is a channel system that extends south from the access road to the north side of the elementary school.
- Channel System C includes the new construction of 1,025 feet of open channel 2.5 feet deep with 3 to 1 side slopes and 55 feet of storm drain outfall pipe at the BHISD Bus Barn. The channel on the north side collects site ponding and discharges it to the drainage ditch along the south side of Perry Road. The channels on the east and south sides collect site ponding and discharge directly to Cotton Bayou.
- Channel System D includes the new construction of 770 feet of open channel 2.0 to 2.5 feet deep with 3 to 1 side slopes and 25 feet of storm drain outfall pipe at the BHISD Maintenance Building. There are channels on the north and east side of the facility to collect site ponding and convey it to the Perry Road southern ditch.
- Channel System E includes the new construction of 1,095 feet of open channel 3.0 to 4.0 feet deep with 3 to 1 side slopes, 80 feet of 36-inch culvert and 80 feet of 54-inch storm drain outfall pipe at the Mont Belvieu Public Works Facility. Channels run the length of the facility on its east and west side. A collector channel is located adjacent to Perry Road on the south side of the facility. A culvert beneath the access road connects the collector channel. The system discharges to the Perry Road outfall through a 54-inch storm drain.
- Channel System F includes the new construction of 1,050 feet of open channel 3.0 feet deep with 3 to 1 side slopes, a 24-inch culvert under the access road and two 40-foot 36-inch discharge pipes that connect directly to Cotton Bayou. The channel system flanks the facility on its northern, western and southern sides.
- Channel System G includes the new construction of 2,500 feet of open channel 3.0 feet deep with 3 to 1 side slopes and a bottom width of 12.0 feet. It also includes 24-inch culverts under site access roads. The channel system collects ponding along the building's east side and discharges to Cotton Bayou through an existing channel at the northern end of the site.

3.3 Alternatives Considered but Dismissed

The concept under which this project was initially submitted in the grant application has been dismissed. This was a diversion channel between Cotton Bayou and Old River situated just north of Interstate Highway 10 (IH-10). A revised cost estimate dropped the benefit cost analysis (BCA) below 1.0. In addition, while it was effective at lowering the water surface elevation in Cotton Bayou at the lower end of the damage reach, it was not sufficiently effective at lowering the water surface elevation at the upper end of the damage reach.

Another diversion channel was considered that would convey flow west to Hackberry Gully. An existing channel south of Lakes of Champions Drive currently drains east to Cotton Bayou would be reversed and extended west to Hackberry Gully. The City plans to construct a detention basin on Hackberry Gully on land that it owns. This project would increase the size of that basin. This alternative was dismissed because there was insufficient elevation change between Cotton Bayou and Hackberry Gully to make this alternative effective.

4.0 AFFECTED ENVIRONMENTAL AND POTENTIAL IMPACTS

This section describes potential impacts of the No-Action Alternative and Proposed Action Alternative. Where potential impacts exist, mitigation to offset the impacts is detailed.

4.1 Physical Resources

4.1.1 Geology, Soils, and Seismicity

The City of Mont Belvieu is located in southeast Texas and sits on the geologic formation known as the Beaumont Formation (Texas Water Development Board, (TWDB) 2010) in a region known as the Gulf Coastal Prairie region. Mont Belvieu is served by the Lower Trinity watershed (USGS HUC 120302030306). Cotton Bayou is the main watercourse that drains the east side of Mont Belvieu. Hackberry Gully is a major tributary that flows into Cotton Bayou, south of IH-10 where Cotton Bayou empties into Cotton Lake.

According to the US Geological Survey (USGS) 7.5-minute topographic map for Cove quadrangle the elevations encountered along Cotton Bayou range from 30-ft to 40-ft with a slope in a southerly direction to the outfall of Cotton Lake to Trinity Bay (Figure 1).

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) online Web Soil Survey indicates the proposed project area contains soils described as Leton-Mory complex, Levelled, (Fs); Lake Charles clay, 0 to 1 percent slopes (LaA); and Morey Silt loam, leveled (Mo).

The *Soil Survey of Chambers County, TX* (1976) classifies the soils in the project area as Beaumont-Morey-Lake Charles association. A soil association is a landscape that has a distinctive proportional pattern of soil. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. Soils in the Beaumont-Morey-Lake Charles association are described as acidic to neutral, clayey, and loamy soils. These soils are generally flat (slopes from 0 to 1 percent) and do not drain well.

The purpose of the Farmland Protection Policy Act (FPPA) (P.L. 07-98, Sec 1539-1549; 7 U.S. Code 4201, et seq.) is to minimize the unnecessary conversion of farmland to non-agricultural uses as a result of federal actions. Part of the responsibilities of the NRCS includes protecting significant lands from conversion that result in the loss of a food or environmental resource. According to the soil survey land in the Beaumont-Morey-Lake Charles association is prime farm land if drained and is well suited for crops, pasture, range, wildlife habitat and trees. Both proposed detention basins are located on prime farmland soil.

Southeast Texas is not prone to major earthquakes. There are approximately 85 miles of mapped historically active faults in the Houston area; however the underlying clays cause the faults to move slowly helping reduce the friction between plates and the likelihood of an earthquake.

No-Action Alternative

The No-Action Alternative would have no impacts on the soils, geology, or prime or unique farmlands of the project area. Mont Belvieu is located in Seismic Zone 0, the zone with the lowest potential of seismic activity.

Proposed Action Alternative

The proposed project would cause a disturbance to the soils as part of project construction. Excavation is necessary in order to construct detention basins and channels although one pond site is already planned and the other is minimal in size. This excavation exposes soil to erosion and requires the implementation of water runoff best management practices (BMPs) during construction such as silt fence. The geology in the project area would remain unaffected due to construction.

The NRCS was contacted to evaluate the proposed detention sites as required by the Farmland Protection Policy Act. The farmland conversion impact rating (Form AD-1006) indicates that the project site represents a minimal loss of farm land. Although the land is considered prime farmland, the site is close to urban areas, will not interfere with existing farmlands and will not have a negative effect on farm support services (Appendix C). The construction of the detention basins will have a beneficial effect on the area including farmland by lessening peak flows during flooding.

4.1.2 Air Quality

The Clean Air Act (CAA) requires that states adopt ambient air quality standards. The standards have been established in order to protect the public from potentially harmful amounts of pollutants. Under the CAA, the U.S. Environmental Protection Agency (EPA) establishes primary air quality standards which protect the public health; including the health of populations that are sensitive to air quality such as people with asthma, children, and older adults. The EPA has established National Ambient Air Quality Standards (NAAQS) for six air pollutants. These pollutants include sulfur dioxide (SO₂), particulate matter with a diameter less than or equal to ten micrometers (PM₁₀) and 2.5 micrometers (PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and lead. The EPA has designated specific areas as NAAQS attainment or non-attainment areas. Non-attainment areas are areas that do not meet (or that contribute to ambient air quality in a nearby area that does not meet) the quality standard for a pollutant. Chambers County is currently designated as a non-attainment area for ozone and attainment for all other NAAQS air pollutants.

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries). Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic

compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

This project area is located in Chambers County which is in an EPA non-attainment area and located in the Houston-Galveston-Brazoria (HGB) non-attainment area for ozone. Houston-Galveston-Brazoria area is a region that includes eight (8) counties: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, & Waller.

No-Action Alternative

The No Action Alternative would have no impacts to air quality in the project area or cause an impact elsewhere.

Proposed Action Alternative

During construction of detention basins and channels, diesel powered equipment and vehicles are used and soil is moved. These two items will have a temporary impact on the air quality in the project area from particulate matter and non-road MSATs. The potential impacts to air quality will be minimized by use of dust control techniques such as covering, sprinkling, dust suppression techniques, etc. MSATs will be reduced by using updated vehicles that require cleaner diesel, limit idling, etc. Vehicle running times on site will be kept to a minimum and engines will be properly maintained. Following construction of the detention basins and channels, there will be no impact to air quality associated with the proposed action alternative.

4.1.3 Climate Change

Chambers County has a subtropical, humid climate. The average annual temperature is 82°F with an annual precipitation of 49-inches per year.

Predominant winds are out of the southeast and south from the Gulf of Mexico (GOM). In January polar air and prevailing northerly winds usher in high pressure. Mild winters and relatively cool summer nights are influenced by winds from the GOM. The proximity to the GOM also accounts for abundant rainfall for the area, with the exception of the occasional extended dry period. Location of the project area makes it susceptible to tropical storms and hurricanes which deliver heavy rainfall.

No-Activity Alternative

The No-Action Alternative would have no impact on the climate.

Proposed Action Alternative

The work described in the previous section may cause a temporary increase in air pollutant emissions from construction activities, equipment, and vehicles. Due to the temporary nature of these emissions, it is anticipated that the proposed construction will have no impact on the climate.

4.2 Water Resources

4.2.1 Water Quality

Water quality is one indicator of the overall health of water resources and the environment that surrounds them. The water quality of water resources is affected by numerous natural and man-made factors. Pollutant source loading can be categorized as either point source or nonpoint source loading. Point source loading can be described as pollutants coming from a single source such as certain types of industrial developments and wastewater treatment. Nonpoint source pollution can be described as runoff, from rain, which flows over and through the ground and picks up pollution from different man-made or natural sources ultimately depositing them into watercourses or carrying them into the ground water. The type of land development present in the project area indicates that nonpoint source pollution is an important factor affecting the water quality of the Cotton Bayou area. Development in the Cotton Bayou watershed consists of undeveloped/agricultural land to the east of Cotton Bayou while to the west development primarily consists of developments that include larger amounts of green space (e.g. schools and municipal sites). Cotton Bayou watershed, located east of Houston, TX in the City of Mont Belvieu, services 16.5-mi², and reaches from its headwaters in Mont Belvieu flowing in a southeasterly direction to Trinity Bay, which is approximately 6.6-miles in length. Hackberry Gully is a principal tributary to Cotton Bayou and has similar land development and loading sources.

No-Action Alternative

Under the “No-Action” Alternative, no construction would occur and there would be no change to the impacts to water quality.

Proposed Action Alternative

Under the Proposed Action Alternative, construction would take place along the existing bank of Cotton Bayou. A side weir is proposed on an upper reach of Cotton Bayou approximately 600 feet downstream of Cedar Point Lateral water canal that will allow some waters from higher intensity, lower frequency, storm events to be detained during periods of high flow and will be released back into Cotton Bayou as the water surface begins to fall. A second side weir located approximately 0.2-river miles upstream of Interstate 10 is proposed and will perform the same action as the side weir proposed upstream (discussed above). Removing this volume of higher flow will reduce flooding impacts along Cotton Bayou.

The Project will disturb more than one acre. The City of Mont Belvieu will be responsible for obtaining a Texas Pollutant Discharge Elimination System (TPDES) storm water permit under the Texas Commission on Environmental Quality’s (TCEQ) General Construction Permit before the start of construction and complying with all permit conditions. Any effects to water quality associated with the construction of the new facility would be short term and minimized by the use of Best Management Practices (BMPs).

Since excavation and grading would be part of the proposed alternatives, potential short term adverse impacts to water quality include the potential for erosion and sedimentation during construction. This impact will be minimized by implementation of BMPs, as required under the TPDES permit. There will be a beneficial effect on water quality by lessening peak flows during flooding reducing erosion and suspended solids delivered to the bayou.

4.2.2 Waters of the U.S., Including Wetlands

Following guidelines set forth in Section 404 of the Clean Water Act (CWA) the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. are defined as all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide in 33 CFR 328.3. Federal agencies, under directive of Executive Order (EO) 11990, are directed to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the values of wetlands on federal properties.

Section 404 of the CWA requires a permit from the USACE to perform activities that involve the discharge of dredged or fill material into the waters of the U.S. Cotton Bayou is a water of the U.S. The project will be conducted under Nationwide Permit 3 for Maintenance (defined in 33 CFR 330).

Using the National Wetlands Inventory shapefile downloaded from the U.S. Fish & Wildlife Service, updated September 26, 2011, it shows the nearest wetlands (Cedar Point Lateral canal) to be located approximately 400-ft away from the project area. This identified wetland is outside the project area as shown in Exhibit 17.

No-Action Alternative

Under the No-Action Alternative, there would be no impacts to waters of the U.S. including jurisdictional or non-jurisdictional wetlands.

Proposed Action Alternative

The proposed drainage ditches and detention basins will be constructed in uplands. No impacts to wetlands from the proposed project are expected as the identified wetlands are outside of the project area. Proposed drainage channels will tie into existing drainage channels and Cotton Bayou. The inlets and outlets will be located above the ordinary high water mark. No fill will be placed into waters of the U.S. There are no navigable waters in the area; therefore, the proposed project would not have compliance issues under Section 10 of the Rivers and Harbors Act of 1899. The applicant must maintain documentation of compliance with applicable nationwide permit (NWP), exemption from requirements, or obtain individual permits from the U.S. Army Corps of Engineers prior to construction, unless exempt by the NWP from pre-construction notification. Applicant must comply with all applicable permit conditions.

4.2.3 Floodplains

Executive Order 11988 (Floodplain Management) requires federal agencies to avoid direct or indirect support of development within the 100-year (yr) floodplain whenever there is a practicable alternative. FEMA uses Flood Insurance Rate Maps (FIRMs) to identify the regulatory floodplain for the National Flood Insurance Program (NFIP). According to the City of Mont Belvieu, TX and Chambers County (unincorporated areas) FEMA FIRM panels 4801220010A (dated August 16, 1982) and 4801190155C (December 2, 1992), the majority of the proposed project, including both detention basins, is outside the limits of the 100-yr floodplain (Zone A) and is located in Zone C. A small portion of Channel System A

is located within Zone A, area of 100-year flooding. Exhibits 18 and 19 (Appendix A) shows the location of the 100-yr flood zone identified by FEMA in relation to the project limits.

No-Action Alternative

Under the “No-Action” Alternative, no construction would occur and there would be no impacts to the floodplain. Properties and structures along the reach of Cotton Bayou in the studied area would remain at risk of sustaining damage due to flooding.

Proposed Action Alternative

Excavation of the detention would occur outside the 100-yr floodplain. The proposed side weir(s), and outlet(s) would have minimal impacts on the 100-yr floodplain. The additional capacity provided by the proposed detention will reduce flooding of properties, structures, and assets in the Cotton Bayou area. It is not the intent of this project to increase development along Cotton Bayou but rather to provide relief of structural flooding and to reduce damages due to flooding. The proposed action alternative would have the beneficial effect of reducing the floodplain.

In compliance with FEMA regulations implementing Executive Order 11988, Floodplain Management, FEMA is required to carry out the 8-step decision-making process for actions that are proposed in the floodplain per 44 CFR §9.6. Step 1 is to determine whether the project is located in the floodplain. FEMA has determined that a small portion of the proposed Channel System A is located in the 100-year floodplain, Zone A, as depicted on Flood Insurance Rate Map (FIRM) Community Panel 4801220010A, dated August 16, 1982.

Step 2 is to notify and involve the public in the decision-making process, which will be incorporated into the notice of availability for this EA.

Step 3 is to identify and evaluate practicable alternatives to locating the proposed project in the floodplain, including alternative sites and actions outside of the floodplain. The purpose of the project is to reduce flooding in the Cotton Bayou area by building detention basins to capture stormwater and reduce flood elevations in the bayou. Eventually this detained water will be released back into Cotton Bayou as the water surface begins to fall following a rain event. The purpose of Channel System A is to convey stormwater from areas surrounding the Barbers Hill Independent School District to Cotton Bayou, and therefore this drainage feature must run through Zone A to connect and discharge into the bayou. Therefore there is no practicable alternate location or action outside of the floodplain that would meet the purpose and need of this particular component of the project.

Step 4 is to identify impacts associated with occupancy and modification of the floodplain and support of floodplain development that could result from pursuing the Proposed Action Alternative. Construction of Channel System A would not increase the flood hazard potential to other structures. The regulatory floodplain in Mont Belvieu and surrounding areas is not expansive. The proposed project is intended to reduce flood risk to existing structures that lie outside of the floodplain and it is not anticipated that it would encourage development in the floodplain beyond what is already in place.

Step 5 is to develop measures to minimize the impacts and restore and preserve the floodplain. The overall project is intended to reduce flood levels in Cotton Bayou during a storm event. The City of Mont Belvieu must coordinate with the local floodplain administrator and obtain required permits prior to initiating work. All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files.

Step 6 is to determine whether the proposed action is practicable and to reevaluate alternatives. Per the discussion above, the Proposed Action Alternative, including the small portions of Channel System A that lie within the 100-year floodplain, is the only practicable alternative.

Step 7 requires that the public be provided with an explanation of any final decision that the floodplain is the only practicable alternative. In accordance with 44 CFR §9.12, the City of Mont Belvieu must prepare and provide a final public notice 15 days prior to the start of construction activities. Documentation of the final public notice is to be forwarded to FEMA for inclusion in the permanent project files.

Step 8 is the review of the implementation and post-implementation phases of the proposed action to ensure that the requirements stated in 44 CFR Part 9.11 are fully implemented. The proposed project will be constructed in accordance with applicable floodplain development requirements.

4.3 Coastal Resources

The Coastal Zone Management Act (CZMA) of 1972 was established to provide management of the nation's coastal resources, and balance economic development with environmental conservation. The CZMA is administered through the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management (OCRM). The overall program objectives of the CZMA are to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." The Texas Land Commissioner chairs a public/private council called the Coastal Coordination Council. This council manages The Texas Coastal Management Program (TCMP) which is in place to ensure the long-term environmental and economic health of the Texas coast through the management of the state's coastal natural resource areas.

The project area does not lie within the coastal boundary of the TCMP and is not subject to criteria set forth by the TCMP and CZMA.

4.4 Biological Resources

4.4.1 Threatened and Endangered Species and Critical Habitat

4.4.1.1 Federal Regulations

Section 7 of the Endangered Species Act (ESA) of 1973 requires federal agencies to ensure any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. Since its inception, the ESA has regulated many types of activities affecting plants and wildlife that have been classified as endangered or threatened. NOAA's National

Marine Fisheries Services (NMFS) and the U.S. Fish and Wildlife Service (USFWS) share the responsibility of implementing the ESA. The USFWS has the primary responsibility of managing land and freshwater species. The NMFS manages marine and anadromous species (i.e. a species that lives its adult life in the ocean then moves to freshwater to reproduce). NOAA considers a species endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future.

Per the USFWS Endangered Species Program’s website, species listed on the Federal List of Endangered and Threatened Species that are known to or are believed to occur in Chambers County and if suitable habitat is located within the project area is presented in the table below:

Table 1: Federal List of Endangered and Threatened Species in Chambers County

Common Name	Scientific Name	Status	Desirable Habitat	Suitable Habitat in Project Area
Reptiles				
Loggerhead Sea Turtle	<i>Caretta caretta</i>	T	Gulf and bay system.	No
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	E	Gulf and bay system.	No
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	E	Gulf and bay system. Adults stay within the shallow waters of the Gulf of Mexico.	No
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	E	Gulf and bay system; warm shallow waters especially in rocky marine environments such as coral reefs and jetties; juveniles found in floating mats of sea plants.	No
Green Sea Turtle	<i>Chelonia mydas</i>	E	Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches.	No
Birds				

Piping Plover	Charadrius melodus	E	Wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats.	No
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4.4.1.2 State Regulations

Texas legislature authorized the Texas Parks and Wildlife Department (TPWD) to establish a list of endangered and threatened animals (1973) and threatened and endangered plant species (1988). A threatened animal or plant species is one that is likely to become endangered in the future. An endangered animal or plant is one that is threatened with statewide extinction or in danger of extinction throughout all or a significant portion of its range, respectively.

TPWD prohibits the taking, possession, transportation, or sale of any designated endangered or threatened animal species without the issuance of a permit. Commerce in threatened and endangered plants or collecting listed plants from public land without a TPWD permit is against state law. Some species, both animal and plant, appear on the Federal List of Endangered and Threatened Species as well and are provided additional protection by the USFWS.

Title 31 of the Texas Administrative Code (TAC) under sections 65.171 - 65.176 within chapters 67 and 68 of the Texas Parks and Wildlife (TPW) contains the laws and regulations relating to endangered or threatened animal species. Endangered or threatened plant species laws and regulations can be found in the TAC under the TPW Code in Chapter 88 Sections 69.01 - 69.9. A listing of endangered or threatened animal and plant species in Chambers County are presented below in Table 2.

Table 2: Texas Parks and Wildlife Department Rare, Threatened, and Endangered Species of Chambers County

Common Name	Scientific Name	Status	Desirable Habitat	Suitable Habitat in Project Area
Birds				
American Peregrine Falcon	Falco peregrinus anatum	T	Nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along	No

Common Name	Scientific Name	Status	Desirable Habitat	Suitable Habitat in Project Area
			coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	No
Brown Pelican	<i>Pelecanus occidentalis</i>	E	Largely coastal and near shore areas where it roosts and nests on islands and spoil banks.	No
Peregrine Falcon	<i>Falco peregrinus</i>	T	Migrates across the state from more northern breeding areas in US and Canada to winter along coast and farther south.	No
Piping Plover	<i>Charadrius melodus</i>	E	Wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats.	No
Reddish Egret	<i>Egretta rufescens</i>	T	Resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear	No

Common Name	Scientific Name	Status	Desirable Habitat	Suitable Habitat in Project Area
Swallow-tailed Kite	Elanoides forficatus	T	Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees	No
White-faced Ibis	Plegadis chihi	T	Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats	No
Wood Stork	Mycteria americana	T	Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960	No
Fishes				
Smalltooth sawfish	Pristis pectinata	E	Young found very close to shore in muddy and sandy	No

Common Name	Scientific Name	Status	Desirable Habitat	Suitable Habitat in Project Area
			bottoms, seldom descending to depths greater than 32 feet; in sheltered bays, on shallow banks, and in estuaries or river mouths; adult sawfish are encountered in various habitat types (mangrove, reef, seagrass, and coral), in varying salinity regimes and temperatures, and at various water depths	
Mammals				
Louisiana black bear	Ursus americanus luteolus	T	possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas	No
Red wolf	Canis rufus	E	Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	No
Mollusks				
Louisiana pigtoe	Pleurobema riddellii	T	Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins	No
Reptiles				
Alligator snapping turtle	Macrochelys temminckii	T	Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also	No

Common Name	Scientific Name	Status	Desirable Habitat	Suitable Habitat in Project Area
			swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers	
Atlantic Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	E	Gulf and bay system; warm shallow waters especially in rocky marine environments such as coral reefs and jetties; juveniles found in floating mats of sea plants.	No
Green Sea Turtle	<i>Chelonia mydas</i>	T	Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches.	No
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	E	Gulf and bay system. Adults stay within the Shallow waters of the Gulf of Mexico.	No
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	E	Gulf and bay system.	No
Loggerhead Sea Turtle	<i>Caretta caretta</i>	T	Gulf and bay system.	No
Northern scarlet snake	<i>Cemophora coccinea copei</i>	T	Mixed hardwood scrub on sandy soils.	No
Smooth green snake	<i>Liochlorophis vernalis</i>	T	Gulf Coastal Plain; mesic coastal shortgrass prairie vegetation; prefers dense vegetation	No
Texas horned lizard	<i>Phrynosoma</i>	T	Open, arid and semi-arid regions with sparse	No

Common Name	Scientific Name	Status	Desirable Habitat	Suitable Habitat in Project Area
	cornutum		vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive	
Timber/Canebrake rattlesnake	Crotalus horridus	T	Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto	No

No-Action Alternative

Under the No-Action Alternative, there would be no impacts to biological resources, including state or federally protected threatened and endangered species.

Proposed Action Alternative

It has been determined that the proposed project will have no effect on the threatened or endangered species or critical habitat of the species listed in Table 1 or Table 2. The proposed project is not anticipated to have any effect on any other listed species. The project was submitted to the Texas Parks & Wildlife Department for review (correspondence included in the Appendix). They determined that the project would have no significant adverse impacts.

4.4.2 Fish and Wildlife

Chambers County lies in a region known as the Austroriparian Biotic Province (Blair, 1950). The current land use in the project area has, if they previously existed, brush, trees, and grasslands. The type of development in the area includes enlarged amounts of green space.

The Fish and Wildlife Coordination Act (FWCA) was enacted to protect fish and wildlife when federal actions result in the modification of natural streams or bodies of water. Coordination with the USFWS is required if a natural stream or water body modification is included in a proposed project.

Under Section 305(b) of the Magnuson-Stevens Fishery Management and Conservation Act (1996), the Fishery Management Councils (FMC) and other federal agencies are required to identify and protect important marine and anadromous fish habitat, Essential Fish Habitat (EFH). EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The project does not contain tidally influenced waters but does discharge into the lower 3.5-miles of Cotton Bayou which is considered tidally influenced therefore EFH will have to be considered.

The skies above Chambers County are listed as part of the North American Flyway, particularly the Mississippi Flyway. This designation is the result of neo-tropical birds passing over Chambers County annually on their way to warmer climates. The Migratory Bird Treaty Act (MBTA) protects many of the species and states that it is unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory birds, including the feathers or other parts, nests, eggs, or migratory bird parts.

No-Action Alternative

Under the No-Action Alternative, there would be no impacts to wildlife and/or fish.

Proposed Action Alternative

The proposed action alternative will not result in the modification of a natural stream or water body and no fish habitat will be disturbed. The proposed project will not impact EFH. Long term, the project will help to improve water quality which would represent a benefit to downstream receiving bodies, including Cotton Bayou, and any aquatic habitat. Pursuant to the FWCA, coordination with the USFWS would not be necessary for the proposed project. Wildlife habitat will be disturbed on a short-term basis during construction as some vegetation will be removed to construct the detention basins. Over time, the detention basins will return to grassy areas and will be replaced with habitat similar to the pre-existing habitat for the long term. It is expected that wildlife that previously habituated the area will return. Migratory bird species are not known to nest at or otherwise inhabit the project site nor are they expected to be present at the project site during construction, therefore there are no anticipated impacts to migratory bird species as a result of the proposed project.

4.5 Cultural Resources

4.5.1 Historic Properties

Section 106 of the National Historic Preservation Act (NHPA) as amended requires federal agencies to take into account the effect(s) a project would have on historic properties and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on federal projects. Historic properties are defined as archeological sites, buildings, structures, sites, objects, districts, or other historic resources listed in or are eligible for listing in the NRHP. The ACHP, through 36 CFR 800.4, federal

agencies are required to identify and evaluate historic-age resources for NRHP eligibility and assess the effects that the undertaking would have on historic properties.

In 1953 the Texas State Legislature established the Texas State Historical Survey Committee, with the task of identifying important historic sites across the state. Later, in 1973 the Texas Legislature changed the name to the Texas Historical Commission (THC) and gave the body more protective powers.

The THC has approximately 187 historical records in Chambers County of which 5-7 are within Mont Belvieu city limits. The majority of sites in Mont Belvieu designated as historic by THC are cemeteries and are located at least a mile from the project location. This lack of proximity to the project location gives indication that there would not be conflict between the proposed work and any THC sites.

No-Action Alternatives

Under the No-Action Alternative, there would be no impact to historic properties.

Proposed Action Alternatives

No records of historic properties from the THC or the National Register of Historic Places (NRHP) have been found within the project location. The proposed project was coordinated with the State Historic Preservation Office (SHPO), which is housed at the THC. Correspondence documenting coordination activities with the SHPO is included in Appendix C. In a letter dated April 3, 2012, the SHPO concluded that the project would not affect historic properties and that the project could proceed as planned. Based on archival research and corresponded with the SHPO, FEMA has made the determination that the proposed project will have no impact to historic properties.

In the event that archeological deposits, including any Native American pottery, stone tools, bones, or human remains are uncovered, the project shall be halted and all project work in the immediate vicinity of the discovery will stop and reasonable efforts will be made to avoid or minimize harm to the finds. These archeological items will be secured and access to the sensitive area will be restricted. The applicant will inform FEMA immediately and FEMA will consult with the State Historic Preservation Officer (SHPO). Work will not resume in the sensitive areas until FEMA determines that the proper measures have been taken and that the project is in compliance with the NHPA.

4.5.2 American Indian Cultural/Religious Sites

The American Indian Religious Freedom Act of 1978 (AIRFA) states that it is the policy of the United States to protect and preserve the inherent right of freedom to believe, express, and exercise their traditional religions. Federal agencies are directed to evaluate their policies and procedures to determine if changes are needed to ensure that agency practices do not disrupt these rights and freedoms.

The Native American Grave Protection and Repatriation Act (NAGPRA) requires federal agencies and museums receiving federal funds to locate, inventory, and determine the ultimate disposition of cultural items, including tribal remains, sacred objects, funerary objects, and cultural inherited objects under their possession or control. The Act also requires these materials as well as those discovered during

excavations and inadvertent discoveries be subject of consultation with the proper Native American tribes.

The project area falls within a range of land that is known to have been inhabited by a Native American tribe called the Karankawa. The Karankawa land ranged from Chambers County down the Texas coast to Kleberg County. The only two National Historic Trails in Texas do not pass through Chambers County.

No-Action Alternative

The No-Action Alternative would have no effect on cultural resources of the area.

Proposed Action Alternative

Under the Proposed Action Alternative, no impacts to archeological or cultural resources are anticipated. In the event that archeological deposits, including any Native American pottery, stone tools, bones, or human remains are uncovered, the project shall be halted and all project work in the immediate vicinity of the discovery will stop and reasonable efforts will be made to avoid or minimize harm to the finds. These archeological items will be secured and access to the sensitive area will be restricted. The applicant will inform FEMA immediately and FEMA will consult with the State Historic Preservation Officer (SHPO). Work will not resume in the sensitive areas until FEMA determines that the proper measures have been taken and that the project is in compliance with the NHPA.

4.6 Socioeconomic Resources

4.6.1 Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” was signed in 1994. The Order was intended to promote nondiscrimination in federal programs that affect human health and environment and mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of programs on minority and low-income populations. The Executive Order provides for fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (defined by the Environmental Protection Agency (EPA)) as Environmental Justice (EJ). The Office of Environmental Justice (OEJ) carries out the EPA’s mandate to perform all of the Agency’s work, including setting standards, permitting facilities, awarding grants, issuing licenses and regulations, and reviewing proposed actions by federal agencies. This Executive Order also tasks federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible.

The study area for Environmental Justice included a 1.0-mile radius from the center of the project location.

The socioeconomic environment is presented in Table 3 below:

Table 3 Socioeconomic Factors

Overview					
Total Persons:	277	Land Area:	97.7%	Households in Area:	98
Population Density:	89.59 /sq mi	Water Area:	2.3%	Housing Units in Area:	108
Percent Minority:	13.8%	Persons Below Poverty Level:	16 (5.8%)	Households on Public Assistance:	2
Percent Urban:	0%	Housing Units Built <1970:	11%	Housing Units Built <1950:	6%

Income	
Income Breakdown	Households (%)
Less than \$15,000:	7 (7.5%)
\$15,000 - \$25,000:	10 (10.4%)
\$25,000 - \$50,000:	25 (25.7%)
\$50,000 - \$75,000:	22 (22.3%)
Greater than \$75,000:	29 (29.6%)

Tenure	
Tenure Breakdown	Households (%)
Occupied Housing Units:	98 (100.0%)
Owner Occupied:	81 (82.3%)
Renter Occupied	17 (17.7%)

No-Action Alternative

The No-Action Alternative would not have disproportionate impacts on minority or low-income populations.

Proposed Action Alternative

The Proposed Action Alternative is not expected to have an adverse or a disproportionate impact on minority or low-income populations. The benefits of the proposed project are expected to be proportional to all residents in the area.

4.6.2 Hazardous Material

Hazardous waste is a solid waste or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may; (1) cause, or significantly

contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or; (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. The Resource Conservation and Recovery Act (RCRA) of 1976 placed the handling and disposal of hazardous wastes under Federal/State regulation. RCRA gave the EPA the authority to control hazardous waste from the “cradle-to-grave.” The intent of the RCRA is to require federal agencies to assess the impact that debris, debris removal, hazardous wastes, and hazardous waste clean-up projects will have on air and water quality and take actions to prevent degradation of those resources. In Texas, a combination of federal and state laws regulates hazardous materials and wastes.

A review of Texas Commission of Environmental Quality (TCEQ) data (update Nov 30, 2010) indicates there are no superfund sites within the proposed project limits. In fact, The Cotton Bayou Waste Water Treatment Plant (CBWWTP) is the only source of hazardous material indicated from either TCEQ or EPA data; the hazardous material from CBWWTP that is of concern is Chlorine, used in the disinfection of the sanitary waste.

EPA sources indicate that there are no hospitals within 1-mile of the CBWWTP. There are 98 households within that distance. In addition, there is an elementary school, an intermediate school, a high school and a professional development center within that distance.

No-Action Alternative

The No-Action Alternative would not disturb any hazardous materials or create any potential hazard to human health.

Proposed Action Alternative

Construction of the proposed project does not have the potential of intercepting contaminated soils and/or groundwater. It is not anticipated that households or school facilities will have an increased exposure to hazardous materials as a result of this project. The Proposed Action Alternative would not disturb any hazardous materials or create any potential hazard to human health.

Unusable equipment, debris and material shall be disposed of in an approved manner and location. In the event significant items (or evidence thereof) are discovered during implementation of the project, applicant shall handle, manage, and dispose of petroleum products, hazardous materials and toxic waste in accordance to the requirements and to the satisfaction of the governing local, state and federal agencies.

4.6.3 Noise

Noise is any sound that is undesired or interferes with one’s hearing of something. Sound becomes a pollutant when it interferes with normal activities such as sleeping, conversation, or diminishes one’s quality of life. Although the EPA concluded, in 1981, that noise issues were best handled on the State and local levels, it retained the authority to investigate and study noise and its effect, disseminate information to the public, respond to noise related inquiries, and evaluate regulations in place for protecting the public health and welfare, pursuant to the Noise Control Act of 1972, and the Quiet Communities Act of 1978.

Chapter 14 Sections 48-57 of the City of Mont Belvieu’s Code of Ordinances addresses noise related regulations. Section 50 requires a maximum of 65-dB (A) (decibels, A-weighting scale) during the daytime hours and 58-dB (A) during night hours in residential properties. It also defines 68-dB (A) as the

maximum for nonresidential properties. These measurements are to be taken at the nearest property line adjacent to the work area, per Section 56 of Chapter 14 of Mont Belvieu's Ordinances.

Properties in proximity to proposed construction areas include residential as close as .33 miles and place of worship as close as .25 – .33 miles. In addition, the proposed sheet-flow channels will be constructed on school property. Noise levels within and adjacent to the project area would increase during construction due to the construction equipment and increased traffic necessary to complete the project.

No-Action Alternative

The No-Action Alternative would not cause impacts to noise receivers resulting from the construction.

Proposed Action Alternative

Under the Proposed Action Alternative, minor, temporary short-term increases in noise levels are anticipated during the construction period. Local noise ordinances would be adhered to and construction would take place during normal business hours. Once construction is complete, noise levels will return to pre-construction levels.

4.6.4 Traffic

The project will utilize local roads to haul excavation from the detention basin north of Perry Road and the collector channels to an unpaved extension of Perry Road eastwardly beyond the CBWWTP where the haul site is located.

No-Action Alternative

The No-Action Alternative would have no effect on transportation in the area.

Proposed Action Alternative

With a light volume of average daily traffic (ADT), it is not anticipated that the Proposed Action Alternative would have a significant impact on traffic in the area. Traffic will increase slightly during construction but then it is anticipated that it will return to pre-construction levels after construction is complete.

4.6.5 Public Services and Utilities

The project location is within the public service jurisdictions of the Mont Belvieu Volunteer Fire Department, Mont Belvieu Police Department, Chambers County Sheriff's Department, and Chambers County Precinct 4 Constable.

The proposed swale construction either improves conveyance of existing swales or proposes new swales that have a designed depth that does not exceed 3 feet. Current swale design/improvement avoids conflicts with existing utilities such as existing overhead power lines. Proposed detention ponds are located in areas of minimal development; therefore there are no anticipated utility conflicts.

No-Action Alternative

The No-Action Alternative would have no effect on public services or utilities.

Proposed Action Alternative

There are no impacts anticipated to public services or utilities, due to design and location of swales and ponds, respectively.

4.6.6 Public Health and Safety

Safety and security issues that were considered in this EA include the health and safety of area residents, the public at-large, and the protection of personnel involved in activities related to the construction of the proposed project.

No-Action Alternative

Under the No-Action Alternative there would continue to be losses due to flooding in the area.

Proposed Action Alternative

The Proposed Action Alternative will reduce structural flooding and losses due to flooding along Cotton Bayou. The proposed detention ponds will allow the water surface elevation in the bayou to be reduced during high intensity rainfall events. The proposed swales and swale improvements will allow water to runoff the surface of a location that is currently experiencing flooding.

4.7 Cumulative Impacts

The CEQ regulations for implementing NEPA require an assessment of cumulative effects during the decision-making process for federal projects. Cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects considered for the proposed action were determined by combining the effects of the actions with other past, present, and reasonably foreseeable future actions.

Project construction impacts on environmental resources are expected to be temporary and minimal as recommended practices for construction and maintenance are employed. No activities that violate existing state or federal water quality standards are anticipated. Local and regional governments (including Chambers County as well as the City of Mont Belvieu) include the management of storm water through SW3Ps in their comprehensive planning efforts to control the discharge of pollutants. As urbanization in the project area continues at its current and projected rate and new projects are constructed, stringent requirements for storm water management as well as BMPs are enforced to prevent cumulative impacts on water quality and quantity.

With appropriate implementation of regulation and control strategies it is expected that future potential effects to the area's water quality would be substantially reduced. The proposed project would not contribute to significant cumulative impacts to the area's water quality.

No cumulative impacts to wetlands and waters of the U.S. will occur as there would be no direct effects to this resource as a result of the proposed project.

The proposed project, in combination with the current and future proposed projects along Cotton Bayou, would lead to temporary impacts to floodplains with a net long term increase in floodplain capacity. The proposed project would reduce the water surface elevations in the affected area and facilitate sheet flow migration to the bayou.

The cumulative effects to floodplains would be positive and beneficial to flood storage and damage reduction in the vicinity of the project area. No other cumulative effects to environmental resources beyond short term construction-related effects and long term beneficial effects are anticipated.

5.0 SUMMARY AND MITIGATION MEASURES

The NEPA guidelines and regulations define mitigation as (1) avoiding adverse impacts by not taking an action, (2) minimizing impacts by limiting the degree of action, (3) rectifying by repairing, rehabilitating, or restoring the affected environment, (4) reducing or eliminating impacts over time through preservation and maintenance activities and (5) compensating for an impact by replacing or providing substitute resources or environments. During the development of the proposed project, mitigation measures were incorporated and considered in an effort to avoid and minimize impacts to the greatest extent practicable, while meeting the project purpose and need. The following list summarizes the conditions or mitigation measures to offset those impacts.

The following table summarizes the potential impacts of the Proposed Action Alternative and conditions or mitigation measures to offset those impacts.

Table 4 – Summary of Potential Impacts and Mitigation Measures

Affected Environment/ Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
Geology, Soils and Seismicity	No impacts to underlying geology are anticipated. Soils at the site would be temporarily disturbed during construction.	TCEQ/TPDES	Excavated soil and waste materials must be managed and disposed of in accordance with applicable local, state, and federal regulations. If contaminated materials are discovered during the construction activities, the work must cease until the appropriate procedures can be implemented and permits obtained.

Affected Environment/ Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
	The project is located in Seismic Zone 0. No impacts are anticipated.		An SW3P will be prepared as part of the construction plans and a TPDES permit will be obtained. BMPs will include silt fences, inlet barriers, etc. to control erosion and runoff.
Air Quality	Short-term impacts to air quality would occur during construction.	TCEQ	Sprinkling and other dust abatement techniques will be used. Tier 2 & 3 engines will be used as well as clean fuels and limited idling.
Water Quality	Short term disturbance of soils during construction. Long term the project will have a beneficial effect on water quality. It will lessen peaks during flooding reducing erosion and suspended solids during flooding.	TCEQ	BMPs implemented according to the SW3P under the TPDES permit mention above will lessen the short-term impacts.
Waters of the U.S. including Wetlands	No fill will be placed within waters of the U.S.	USACE. The applicant must maintain documentation of compliance with applicable nationwide permit (NWP), exemption from requirements, or obtain individual permits from the U.S. Army Corps of Engineers prior to construction, unless exempt by the NWP from pre-construction notification. Applicant must comply with all applicable permit conditions.	None.

Affected Environment/ Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
Floodplains	Construction of the project will have the effect of lessening flooding on adjacent property.	Chambers County Flood Control District	The City of Mont Belvieu must coordinate with the local floodplain administrator and obtain required permits prior to initiating work. All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files
Coastal Resources	Short-term increase in sediment in the bayou. Long-term there will be a decrease in sediment entering the bayou during storms.		On the short term, BMPs implemented according to the SW3P under the NPDES permit mention above will lessen the short-term impacts of sediment to the bayou.
Biological Resources/Threatened and Endangered Species and Critical Habitat	The project will have no effect on endangered or threatened species.	USFWS/TPWD	None.
Fish and Wildlife	Wildlife habitat will be disturbed on the short term but will be replaced with similar habitat for the long term. No fish habitat will be disturbed.		The major areas disturbed by construction of the two detention basins will be returned to a grassy condition. It is expected that wildlife that previously habituated the area will return.
Historic Properties	The proposed project will have no impact to historic properties.	THC	In the event that archeological deposits, including any Native American pottery, stone tools, bones, or human remains are uncovered, the project shall be halted and all project work in the immediate vicinity of the discovery will stop and reasonable efforts will be made to avoid or minimize harm to the finds. These archeological items will be secured and access to the sensitive area will be restricted. The applicant will inform FEMA immediately and FEMA will consult with the State Historic

Affected Environment/ Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
			Preservation Officer (SHPO). Work will not resume in the sensitive areas until FEMA determines that the proper measures have been taken and that the project is in compliance with the NHPA.
American Indian Cultural/Religious Sites	No historical trails are located in the project area. The proposed project will have no impact to historic properties.	THC	In the event that archeological deposits, including any Native American pottery, stone tools, bones, or human remains are uncovered, the project shall be halted and all project work in the immediate vicinity of the discovery will stop and reasonable efforts will be made to avoid or minimize harm to the finds. These archeological items will be secured and access to the sensitive area will be restricted. The applicant will inform FEMA immediately and FEMA will consult with the State Historic Preservation Officer (SHPO). Work will not resume in the sensitive areas until FEMA determines that the proper measures have been taken and that the project is in compliance with the NHPA.
Environmental Justice	No disproportionate impact to minority or low-income populations.		None.
Hazardous Material	There should be no impacts to the public as a result of this project.	TCEQ	Unusable equipment, debris and material shall be disposed of in an approved manner and location. In the event significant items (or evidence thereof) are discovered during implementation of the project, applicant shall handle, manage, and dispose of petroleum products, hazardous materials and toxic waste in accordance to the requirements and to the satisfaction of the governing local, state and federal agencies.
Noise	Minor, short-term increases in the noise level due to construction	TCEQ	These increases will be minimized as the contractor will be required to follow local noise ordinances. Once construction is complete, noise levels

Affected Environment/ Resource Area	Impacts	Agency Coordination/ Permits	Mitigation/BMPs
	activities will occur.		will return to pre-construction levels.
Traffic	Hauling of excavated material from the detention sites and collector channels will cause a slight increase in traffic volume on local streets.	Mont Belvieu	The contractor will be required to prepare a traffic control plan approved by the City that will minimize the impact on traffic. After construction is complete, normal traffic patterns will resume.
Public Services and Utilities	The proposed project will not impact services and does not conflict with utilities.	Mont Belvieu	None.
Public Health and Safety	Positive impacts to public safety are anticipated, because the risk of flooding within the community adjacent to Cotton Bayou would be reduced. Short-term, minor safety impacts would result from construction activities.	Mont Belvieu	City will monitor construction and ensure it follows OSHA regulations.

6.0 RESOURCE AGENCY COORDINATION, PUBLIC INVOLVEMENT, AND PERMITS

6.1 Agency Coordination

As part of the development of this EA, federal and state resource protection agencies were contacted. It is anticipated that permits and/or approvals would be necessary as described below in Section 6.3 of this Draft EA from local, state, and Federal regulatory agencies. The following agencies have been contacted regarding affected environment of the proposed project site. Resource agency comment request and response letters are attached in Appendix C.

- Texas Historical Commission
- USDA Natural Resources Conservation Services
- Texas Parks and Wildlife Department
- Texas Commission on Environmental Quality
- Texas Department of Public Safety
- U.S. Army Corps of Engineers

6.2 Public Involvement

The public will be invited to comment on the proposed action and the Draft EA. A legal notice will be posted in the Baytown Sun and on FEMA's website (<http://www.fema.gov/plan/ehp/envdocuments/ea-region6.shtm>). Additionally, the Draft EA will be made available for review for a period of 30 days at the City of Mont Belvieu City Hall located at 11607 Eagle Drive, Mont Belvieu, Texas 77580. The draft EA will be with the City Secretary's office. A copy of the draft public notice is attached in Appendix D.

6.3 Permits

This section summarizes the permits that will be required for this project. The permits, impacts and commitments relevant to the proposed project are as follows:

- 402 Commitments

The project will include more than 5 acres of earth disturbance; therefore TCEQ's Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) applies.

- 404 Commitments

The applicant must maintain documentation of compliance with applicable nationwide permit (NWP), exemption from requirements, or obtain individual permits from the U.S. Army Corps of Engineers prior to construction, unless exempt by the NWP from pre-construction notification. Applicant must comply with all applicable permit conditions.

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Appendix A
Figures and Exhibits

Appendix B
Project Area Photographs

Appendix C
Agency Coordination

Appendix D
Public Notice