CDBG Mitigation Grant Application Proposed Project: Calhoun County & Seadrift Drainage Project

This project will mitigate future impacts due to extreme flooding events and increase the resiliency of the existing drainage system in Seadrift. The City often experiences flooding due to the inability of the drainage system to quickly drain water runoff and inadequate ditch and culvert capacity, leaving many residential sectors flooded with standing water for a moderate amount of time. Many of the upstream properties along the drainage system have also flooded during storm events due to the slow drain time of the drainage system. Heron Slough is one of the main drainage passages and encompasses a large portion of the city. The slough has to drain underneath a total of six road crossings, with four of the crossings being made of repurposed train materials as culverts. Currently these crossings are at the end of their life and are in dire need of replacement. Failure of the crossings would cause catastrophic impacts and threaten the wellbeing of the residents.

The project will improve the Heron Slough drainage course and it contributing city ditches. The slough will be cleaned out and increased in capacity. Tributary city ditches that flow to the slough will be increased in capacity and their culverts appropriately sized. The four upstream crossings will be upgraded to make them more resistant to erosion and retain a higher structural strength during and after a storm event. A diversion culvert will be created from 9th Street to the seawall. A concrete weir will be constructed in the existing box culvert crossing in order to divert water runoff down the new culvert instead of going into Heron Slough.



CDBG-MIT: Budget Justification of Retail Costs (Former Table 2)

Cost Verification Controls must be in place	e to	assure that co	onstructi	on costs are reas	iona	able and consistent v	with	market costs	at th	e time and place
	T	(0 - H)		construction.				the second s		
Applicant/Subrecipient:	County of Calhoun, Texas									
Site/Activity Title:	Calhoun County - Seadrift Drainage Improvements									
Eligible Activity:	L									
Materials/Facilities/Services		\$/Unit	Unit	Quantity		Construction	1	Acquisition		Total
Ditch Improvements 0-3 ft depth	\$	40.00	LF	35000	\$	1,400,000.00	\$	-	\$	1,400,000.00
Ditch Improvements 3-6 ft depth	\$	80.00	LF	2800	\$	224,000.00	\$		\$	224,000.00
Concrete Riprap	\$	63.00	SY	555	\$	34,965.00	\$		\$	34,965.00
New Bridge	\$	300,000.00	EA	4	\$	1,200,000.00	\$	-	\$	1,200,000.00
Upsize Residential Driveway Culvert with Safety End Treatment (Small)	\$	4,500.00	EA	200	\$	900,000.00			\$	900,000.00
Upsize Culvert with Safety End Treatment (Small)	\$	8,000.00	EA	55	\$	440,000.00	\$	-	\$	440,000.00
Upsize Culvert with Safety End Treatment (Medium)	\$	10,000.00	EA	12	\$	120,000.00	\$	-	\$	120,000.00
Upsize Culvert with Safety End Treatment (Large)	\$	35,000.00	EA	6	\$	210,000.00	\$		\$	210,000.00
Ditch Improvements, Clean Out and Vegitation Removal - Medium Width / Light Vegitation	\$	120.00	LF	3500	\$	420,000.00	\$	-	\$	420,000.00
Ditch Improvements, Clean Out and Vegitation Removal - Large Width / Dense Vegitation	\$	400.00	LF	3250	\$	1,300,000.00	\$	-	\$	1,300,000.00
Property Purchase/Easements per acre	\$	15,000.00	EA	8			\$	120,000.00		
New Diversion Box Culvert Under Roadway	\$	1,500.00	LF	1760	\$	2,640,000.00	\$	-	\$	2,640,000.00
Seawall Outfall Structure	\$	50,000.00	EA	1	\$	50,000.00	\$	ą	\$	50,000.00
TOTAL	\$	424,703.00			\$	8,938,965.00	\$	120,000.00	\$	8,938,965.00

Occasional drainage channel clean out and grass maintenance approximately \$10,000.00 per year

2. Identify and explain any special engineering activities.

None Known



Date: 4509 Phone Number: A, P.E. with Signature of Registered Engineer/Architect Responsible For

Budget Justification:



205 W. Live Oak • Port Lavaca, TX 77979 • p: (361)552-4509 • f: (361)552-4987 Texas Firm Registration No. F04188

MEMO

To: Calhoun County

From: G&W Engineers, Inc.

Date: October 02, 2020

RE: Engineering Justification Memo for Calhoun County Seadrift Drainage Project

The City of Seadrift is located in South East Texas along the coast of the Gulf of Mexico in Calhoun County. Since the City of Seadrift and Calhoun County is located along the coast the structures and drainage within the County and City are frequently damaged and strained by hurricanes and tropical storms. All of Calhoun County is a designated catastrophe area according to TDI and is certainly susceptible to potentially damaging coastal storm events. The City is frequently affected by these storm events, and this Seadrift Drainage Project is vital to community and their ability to rapidly drain the storm water runoff away from the city. This project will mitigate future impacts and increase the resiliency of the existing drainage system of the City.

<u>Past</u>

In the past the City has experienced flooding due to the inability of the drainage system to drain the runoff. Many of the previous storm event have left the surrounding residential sector flooded with standing water for a moderate amount of time. Past storms have also eroded the land surrounding the four upstream bridges that control access across Heron Slough with the most recent being the 2017 Hurricane Harvey disaster. Heron Slough is a natural drainage passage dating back to pre-Seadrift. As time has went on and the City was established, the original townsite sold lots that had the slough through it or backing it. At the time no easements were incorporated into the original townsite and therefore property owners essentially owned portions of the land. As Seadrift has grown, so has the demand for the drainage course and the amount of water it transfers to the bay. Additionally, TxDOT has added provisions to the roadside ditches for highway ditches and lands to drain into the City from the County and increase the demand of the channel furthermore.

<u>Present</u>

Currently the drainage along the Heron Slough is one of the main drainage passages of storm water runoff away from the residential sector of the city and encompasses a large portion of the City. The slough has to drain underneath a total of six road crossings with four of the crossings being made of repurposed train materials as culverts. These were placed decades ago and have been subject to salt water corrosion and deterioration over the years. Currently these crossings are at the end of their life and are in dire need of replacement. Should they remain in place for a significant period of foreseeable

future, then failure is certainly to happen in future events. Failure of the crossings would cause catastrophic impacts and threaten the wellbeing of the residents. Many of the residents in this area being low to middle income. Many of the upstream properties along the drainage system have flooded during storm events due to the slow drain time of the drainage system and inadequate ditch and culvert capacity.

<u>Future</u>

The proposed project is an improvement of the current drainage system known as Heron Slough drainage course and it contributing city ditches. This will allow for an increased flow rate of the runoff. The increase in drainage capacity to the surrounding properties will decrease the need to rely on external financial assistance after a storm event and mitigate future impacts of storm events. The project proposes to upgrade the current condition of the four upstream crossings which included an improved bridge structure which will be more resistant to erosion and retain a higher structural strength making crossing during and after a storm event safer and more reliable. This will positively impact the ability of the community to move out before a storm event, as well as, back in after the storm passes. The main drainage channel known as Heron Slough is to be cleaned out and increased in capacity as appropriate. Tributary city ditches which flow to the slough are to be increased in capacity, as well as, their culverts are to be appropriately sized. This will decrease the amount of flooding currently experienced during other tropical cyclones and rain disasters. The project will also decrease the friction along the bottom of the channel. The future Heron Slough shall have the capacity and characteristics needed to mitigate all of the current and potential problems of the future.

A diversion culvert is also proposed intersecting the 9th street box culvert crossing and taking a percentage of the upstream storm water due south under the 9th street entirely for approximately 1,765 linear feet to its final terminus with the Seadrift Seawall. A concrete weir will be constructed in the existing box culvert crossing in order to divert a percentage portion of runoff down the new culvert. In high flows water elevation will be above the weir allow for drainage in both directions. This will significantly mitigate the current flood conditions and affect all infrastructure up stream of this point which so desperately needs these improvements.





PRELIMINARY

	Image: state stat	CONCRETE LINE DITCH (3,000± S.F.)
VC. NING ● 7979	DRAWN BY: D.J.G. CHECKED BY: S.P.M. DATE:	SCALE: 1" = 600' JOB NO.: 5310.013 SHEET NO.:

OCT. 02, 2020

Calhoun County City of Seadrift Drainage Improvements Census Map

Seadrift Drainage Improvements
Seadrift Citywide Area of Benefit

CT: 500 BG: 2

> CT: 500 BG: 3

BG: 1

CT: 500

So<mark>u</mark>rce: Esri, Maxar, GeoEye, Earthsta



0.28

0 14

0.42



TxCDBG RACE AND ETHNICITY / GENDER CALCULATOR

INSTRUCTIONS AND DATA SOURCE

Data Source: Most Recent ACS 5-year Est. - Table DP05

City Applicants: Enter city-wide data as refected on Table DP05

County Applicants: Enter census tract data as reflected on Table DP05

APPLICANT:	Calhoun County-City of Seadrift					
Sex and Age	ENTER DP0	5 DATA HERE				
Male:	7	712				
Female:	7	734				
One Race						
White:	1241					
Black or African American:	26					
American Indian and Alaska Native:	0					
Asian:		64				
Native Hawiian and Other Pacific Islander:	0					
Some Other Race:	0					
Two or more races:	115					
-White and Black or African American:	0					
-White and American Indian and Alaska Native:	101					
-White and Asian:	14					
-Black or African American and American Indian and Alaska Native:	0					
Hispanic or Latino and Race						
Hispanic or Latino (of any race):	480					
Not Hispanic or Latino:	966					
-White alone:	808					
-Black or African American alone:	26					
-American Indian and Alaska Native alone:	0					
-Asian alone:	64					
-Native Hawiian and Other Pacific Islander alone:	0					
-Some other race alone:	0					
-Two or more races:	68					
Enter Number of Project Beneficiaries:	1535					
Gender of Project Beneficiaries						
Male	756					
Female		779				
Race and Ethnicity of Project Beneficiaries	Hispanic	Non-Hispanic				
White	460	857				
Black/African American	0	28				
American Indian/Alaska Native	0	0				
Asian	0	68				
Native Hawiian/Other Pacific Islander	0	0				
Some Other Race	0	0				
White and Black/African American	0	0				
White and American Indian/Alaska Native	44	64				
White and Asian	6	8				
Black/African American and American Indian/Alaska Native	0	0				
Other multi racial	0	0				
Total:	1	535				