San Jacinto River Authority
CDBG-MIT Hurricane Harvey
Flood Mitigation Competition Application
Caney Creek Reservoir Upstream of FM 1097

San Jacinto River Authority

For more questions, contact:
floodmanagementdivision@sjra.net

Community Development Block Grant Mitigation (CDBG-MIT) Overview

In February 2018, congress appropriated $12 billion in Community Development Block Grant (CDBG) funds specifically for mitigation activities for qualifying disasters in 2015, 2016, and 2017, and the US Department of Housing and Urban Development (HUD) was able to allocate an additional $3.9 billion, bringing the amount available for mitigation to nearly $16 billion. As a part of this allocation, HUD has provided $4,297,189,000 in CDBG-MIT funds to the State of Texas through their notice published in the Federal Register, 84 FR 45838. The Texas General Land Office (GLO) has been designated by Governor Greg Abbott to administer CDBG-MIT funds on behalf of the State of Texas.

The Community Development Block Grant Mitigation (CDBG-MIT) Program is a unique and significant opportunity for eligible grantees to use this assistance in areas impacted by recent disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses. HUD defines mitigation as:

> "Those activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters."

The State of Texas developed the action plan, "The State of Texas CDBG Mitigation Action Plan: Building Stronger for a Resilient Future" to implement the mitigation funds provided to Texas. As part of the plan, a mitigation competition has been created for the 2015 floods, the 2016 floods, and the Hurricane Harvey flood event. For the Hurricane Harvey flood mitigation competition over $2 billion dollars in funds are available. An application period for the first $1 billion dollars of Hurricane Harvey competition funds is currently open, with applications due October 28th.

The funds are available to communities in the most impacted and distressed areas of the Hurricane Harvey event, which includes the counties within the San Jacinto River Authority's jurisdiction: Montgomery, Liberty, San Jacinto, Waller, and Walker Counties. Eligible applicants can request between $3 million and $100 million per project application. Projects exceeding $100 million are considered covered projects and will require an amendment to the State's action plan.

PROJECT SCOPE OF WORK

San Jacinto River Authority

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The San Jacinto River Authority (SJRA) intends to apply to the GLO's Hurricane Harvey Flood Mitigation Competition as part of the CDBG-MIT program. The selected project for application is the Caney Creek Reservoir Upstream of FM 1097, which was identified as a priority project during the San Jacinto River Regional Watershed Master Drainage Plan study.

The proposed detention basin will be located on the main stem of Caney Creek, upstream of FM 1097 and 2.9 miles north-east of Willis, Texas. This site was chosen based on several factors, including its ability to reduce flood risks downstream, limited development within the existing footprint, and the steeper terrain which allowed for necessary flood mitigation volume within a smaller footprint to minimize property acquisitions.

The Caney Creek project consists of a 1.2-mile-long earthen impoundment that will capture runoff from approximately 48.5 square miles of the upper watershed of Caney Creek. The basin will be in-line with Caney Creek, storing and releasing the upstream runoff and releasing it via a primary 53-foot-high concrete outfall structure that includes five 10 foot X 10 foot RCB culverts. A 500-foot-long spillway will be integrated into the basin as well to pass larger flow events from the 1% annual-chance event up to the probable maximum flood (PMF) safely.

The basin is expected to provide 13,900 acre-feet of storage during the 1% annual-chance rainfall event, spread over 1500+ acres of the basin footprint. The project will require acquisition of parcels currently situated in the basin footprint. Utilities and roadways within the basin footprint may require relocation or elevation (roadways). Wetlands and streams within the basin footprint that may be impacted will require mitigation in the watershed.

Hydrologic and hydraulic modeling of the basin has shown flood risk reduction benefits for the 1% annual-chance event of 2+ feet, on average, between SH 105 and highway 59/69 with a maximum water surface reduction of 5+ feet between the reservoir and FM 1097. Downstream of highway 59/69, the average reduction is nearly 1 foot.

These reductions in flood elevations are expected to benefit more than 6800 structures along Caney Creek and even along the lower portions of Peach Creek and the East Fork San Jacinto River. The expected instances of flooding over a 50-year timeframe is expected to be reduced by more than 700. Most of the benefits would be realized in the neighborhoods around SH 242, FM 1484, and New Caney upstream of Highway 59/69. More than 51% of the population benefitting from the project is low to moderate income.

The project would also provide an increase in the level of service (LOS) of crossing roadways and railroads downstream of the project. More than 5 feet reductions in the 1% annual-chance flood elevation are expected at FM 1097, 3+ feet reductions at FM 1494, 2+ feet reductions at SH 105, and 1+ feet reductions at Highway 59 / 69.

PROJECT MAPPING

San Jacinto River Authority

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N

0 1.25 2.5 5 Miles

Detention at FM 1097
Caney Creek
Latitude: 30.47808; Longitude: -95.43940

Walker Co.

San Jacinto Co.

Liberty Co.

Montgomery Co.

Harris Co.

Caney Creek

Peach Creek

East Fork San Jacinto River

San Jacinto River

Limit of Project Service Area

Legend

- Detention at FM 1097 Caney Creek
- Project Service Area
- Streams
- County Boundary
- Municipal Boundary

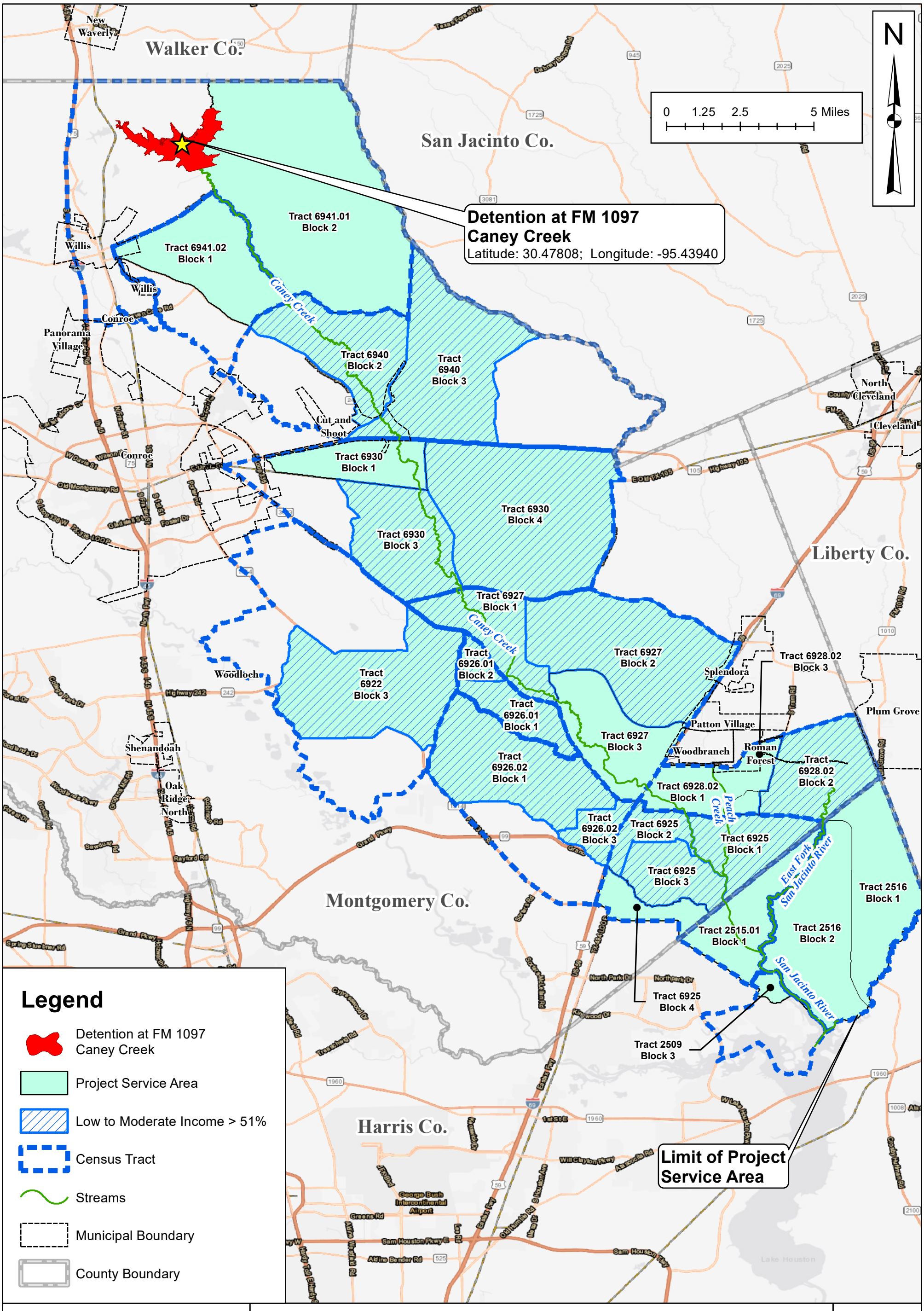
San Jacinto River Authority

ARCADIS

CDBG-MIT Hurricane Harvey
Flood Mitigation Competition Application

Caney Creek Reservoir Upstream of FM 1097
Project Area Map

Exhibit
1
(1 of 2)



San Jacinto River Authority

ARCADIS

CDBG-MIT Hurricane Harvey
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Caney Creek Reservoir Upstream of FM 1097
Project Beneficiary Map

Exhibit
2
(2 of 2)

GEOID	Geoname	Stusab	Countyname	State	County	Tract	Blckgrp	Low	Lowmod	Lowmoduniv	Lowmod_pct
483396941021	Block Group 1, Census Tract 6941.02, Montgomery County, Texas	TX	Montgomery County	48	339	694102	1	1115	1930	4060	47.54%
483396927002	Block Group 2, Census Tract 6927, Montgomery County, Texas	TX	Montgomery County	48	339	692700	2	470	980	1830	53.55%
482012516002	Block Group 2, Census Tract 2516, Harris County, Texas	TX	Harris County	48	201	251600	2	275	715	4680	15.28%
483396926012	Block Group 2, Census Tract 6926.01, Montgomery County, Texas	TX	Montgomery County	48	339	692601	2	775	1145	1755	65.24%
483396926023	Block Group 3, Census Tract 6926.02, Montgomery County, Texas	TX	Montgomery County	48	339	692602	3	1460	1935	2490	77.71%
483396930004	Block Group 4, Census Tract 6930, Montgomery County, Texas	TX	Montgomery County	48	339	693000	4	2155	3485	5200	67.02%
483396940002	Block Group 2, Census Tract 6940, Montgomery County, Texas	TX	Montgomery County	48	339	694000	2	665	1150	1730	66.47%
483396925002	Block Group 2, Census Tract 6925, Montgomery County, Texas	TX	Montgomery County	48	339	692500	2	370	1290	1890	68.25%
483396925001	Block Group 1, Census Tract 6925, Montgomery County, Texas	TX	Montgomery County	48	339	692500	1	120	680	1030	66.02%
483396925003	Block Group 3, Census Tract 6925, Montgomery County, Texas	TX	Montgomery County	48	339	692500	3	560	1080	1715	62.97%
483396925004	Block Group 4, Census Tract 6925, Montgomery County, Texas	TX	Montgomery County	48	339	692500	4	1585	2175	4345	50.06%
482012516001	Block Group 1, Census Tract 2516, Harris County, Texas	TX	Harris County	48	201	251600	1	335	715	1505	47.51%
482012509003	Block Group 3, Census Tract 2509, Harris County, Texas	TX	Harris County	48	201	250900	3	0	0	1355	0.00%
483396926021	Block Group 1, Census Tract 6926.02, Montgomery County, Texas	TX	Montgomery County	48	339	692602	1	1355	1840	2360	77.97%
483396941012	Block Group 2, Census Tract 6941.01, Montgomery County, Texas	TX	Montgomery County	48	339	694101	2	785	1380	2825	48.85%
483396922003	Block Group 3, Census Tract 6922, Montgomery County, Texas	TX	Montgomery County	48	339	692200	3	1710	3340	5795	57.64%
482012515011	Block Group 1, Census Tract 2515.01, Harris County, Texas	TX	Harris County	48	201	251501	1	475	505	5390	9.37%
483396928021	Block Group 1, Census Tract 6928.02, Montgomery County, Texas	TX	Montgomery County	48	339	692802	1	540	805	1610	50.00%
483396927003	Block Group 3, Census Tract 6927, Montgomery County, Texas	TX	Montgomery County	48	339	692700	3	975	1350	2685	50.28%
483396926011	Block Group 1, Census Tract 6926.01, Montgomery County, Texas	TX	Montgomery County	48	339	692601	1	1115	1700	2820	60.28%
483396927001	Block Group 1, Census Tract 6927, Montgomery County, Texas	TX	Montgomery County	48	339	692700	1	925	1740	2705	64.33%
483396928022	Block Group 2, Census Tract 6928.02, Montgomery County, Texas	TX	Montgomery County	48	339	692802	2	880	1400	1965	71.25%
483396928023	Block Group 3, Census Tract 6928.02, Montgomery County, Texas	TX	Montgomery County	48	339	692802	3	580	835	1720	48.55%
483396930001	Block Group 1, Census Tract 6930, Montgomery County, Texas	TX	Montgomery County	48	339	693000	1	620	665	1655	40.18%
483396930003	Block Group 3, Census Tract 6930, Montgomery County, Texas	TX	Montgomery County	48	339	693000	3	760	1195	1800	66.39%
483396940003	Block Group 3, Census Tract 6940, Montgomery County, Texas	TX	Montgomery County	48	339	694000	3	865	1720	3280	52.44%
			Total					21,470	35,755	70,195	51%

BUDGET & SOURCES OF FUNDING

San Jacinto River Authority

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CANEY CREEK RESERVOIR UPSTREAM OF FM 1097 TOTAL PROJECT COST	
Grand Total	**$168,415,955**

SUMMARY OF PROJECT COSTS AND FUNDING SOURCE	
BUDGET CATEGORIES	**FUNDING SOURCE: CDBG-MIT**
Construction	$65,002,925
Engineering	$7,800,351
Acquisition	$50,452,322
Environmental	$7,991,250
TOTAL (2020 DOLLARS)	**$131,246,848**
12-Year Cost Escalation	**$37,169,107**
PROJECT TOTAL (2032 DOLLARS)	**$168,415,955**

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

Cost Verification Controls must be in place to assure that construction costs are reasonable and consistent with market costs at the time and place of construction.

Applicant/Subrecipient:	San Jacinto River Authority					
Site/Activity Title:	Caney Creek Reservoir Upstream of FM 1097					
Eligible Activity:	Flood Mitigation					
Materials/Facilities/Services	**$/Unit**	**Unit**	**Quantity**	**Construction**	**Acquisition**	**Total**
GENERAL						
Mobilization & Demobilization	$ 2,381,000	LS	1	$ 2,381,000	$ -	$ 2,381,000
Temporary Erosion and Sediment Control	$ 910,000	LS	1	$ 910,000	$ -	$ 910,000
Site Preparation and Site Maintenance	$ 150,000	LS	1	$ 150,000	$ -	$ 150,000
Care of Water	$ 1,360,000	LS	1	$ 1,360,000	$ -	$ 1,360,000
Clearing and Grubbing	$ 10,000	AC	45	$ 450,000	$ -	$ 450,000
Utility Conflicts/Relocation	$ 1,000,000	EA	0	$ -	$ -	$ -
DAM CONSTRUCTION						
Excavation	$ 10	CY	150,000	$ 1,500,000	$ -	$ 1,500,000
Embankment (Compacted Fill at 4:1 SS)	$ 15	CY	1,490,000	$ 22,350,000	$ -	$ 22,350,000
Embankment Internal Drainage	$ 70	CY	72,000	$ 5,040,000	$ -	$ 5,040,000
Miscellaneous Internal Drainage	$ 500,000	LS	1	$ 500,000	$ -	$ 500,000
Spillway (Roller Compacted Concrete)	$ 205	CY	41,000	$ 8,405,000	$ -	$ 8,405,000
Principal Spillway Outlet (10'x10')	$ 1,500	LF	2,384	$ 3,576,000	$ -	$ 3,576,000
Erosion Control (Rock Riprap)	$ 175	CY	2,230	$ 390,250	$ -	$ 390,250
Instrumentation	$ 550,000	LS	1	$ 550,000	$ -	$ 550,000
Topsoil	$ 5	SY	199,000	$ 995,000	$ -	$ 995,000
Seeding	$ 4,000	AC	230	$ 920,000	$ -	$ 920,000
Site Restoration	$ 75,000	LS	1	$ 75,000	$ -	$ 75,000
Access Roadway (Flex Base)	$ 90	CY	5,000	$ 450,000	$ -	$ 450,000
	$ -		0	$ -	$ -	$ -
	$ -		0	$ -	$ -	$ -
	$ -		0	$ -	$ -	$ -
				$ 50,002,250.00		$ 50,002,250.00
SUBTOTAL						**$ 50,002,250.00**
CONTINGENCY	30%					**$ 15,000,675.00**
CONSTRUCTION TOTAL (2020 DOLLARS)						**$ 65,002,925**

Engineering/Survey					12%	$ 7,800,351
Environmental Permitting -Wetlands Mitigation	125,000	AC	1.2	$ 150,000	$ -	$ 150,000
Environmental Permitting-Stream Mitigation	3,750	LF	1291	$ 4,841,250	$ -	$ 4,841,250
Environmental Impact Statement	3,000,000	EA	1	$ 3,000,000	$ -	$ 3,000,000
Land Acquisition	Varies	EA	182	$ -	$ 50,452,322	$ 50,452,322
PROJECT TOTAL (2020 DOLLARS)						**$ 131,246,848**
12-Year Cost Escalation Factor (Avg.Inflation - 2.1%/Cum.Inflation - 28.32%)						**$ 37,169,107**
PROJECT TOTAL (2032 DOLLARS)						**$ 168,415,955**

1. Identify and explain the annual projected operation and maintenance costs associated with the proposed activities.

There will be regular operation and maintenance of the proposed detention basin. This includes regular mowing of the dam, maintenance of the access road, inspection, maintenance of the outfall structure, and repair throughout the life of the dam and basin. The annualized maintenance costs for the dam are estimated to be $1,100,000

2. Identify and explain any special engineering activities.

Date:	
Phone Number:	

Seal

Signature of Registered Engineer/Architect Responsible For Budget Justification: