

Coastal Protection and Restoration Authority of Louisiana (CPRA)

2022 Operations, Maintenance and Monitoring Report

for

South White Lake Shoreline Protection

State Project Number ME-22 Priority Project List 13

December 2022 Vermilion Parish

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Preface

This report includes monitoring data collected through January 2019, and annual Maintenance Inspections through May 2022. Additionally, damage assessments were performed following the recent impacts of Hurricanes Laura and Delta. The South White Lake Shoreline Protection project (ME-22) project is federally sponsored by the U.S. Army Corps of Engineers (USACE) and locally sponsored by the Coastal Protection and Restoration Authority of Louisiana (CPRA) under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA, Public Law 101-646, Title III). ME-22 is listed on the 12th CWPPRA Priority Project List (PPL-12).

The 2022 report is the first and final report for this project. For additional information, please refer to supplementary documents on the CPRA website: http://cims.coastal.la.gov/.

I. Introduction

The South White Lake Shoreline Protection project area encompasses the southern shoreline of White Lake from Will's Point to the western shore of Bear Lake. The lake is approximately 54,500 surface acres (~85 square miles). Due to the shallow depth of the lake (~7 ft), wind driven waves easily form. The total area of the South White Lake Shoreline Protection project is approximately 5,473 acres (2,215 ha) and was originally separated into four sub-areas during the project planning and selection process, designated as A through D. However, Sub-Areas B and C have since been omitted from the project area. It was determined that the marsh in these two sub-areas was not experiencing high enough rates of erosion to warrant protection. In contrast, Sub-Area A, which encompasses the western end of the project area, and Sub-Area D, which is located along the eastern portion of the project area, are experiencing significant erosion rates (Stead 2004) (Figure 1). Sub-area A is composed of inshore emergent marsh (1935 acres [783 ha]) and open water (2782 acres [1126 ha]) habitats (U.S. Army Corps of Engineers [USACE] 2004). Sub-Area D is comprised of approximately 424 acres (172 ha) of emergent marsh as a 300 ft (91 m) wide strip along the entire length of the project area and 332 acres (134 ha) of open water .

Approximately 61,500 ft (18,745 m) of the southern shore of White Lake will be protected through the construction of a foreshore rock dike. The dike will be constructed to an elevation of 3.5 ft (North American Vertical Datum of 1988 [NAVD88]). Gaps for fisheries access will be placed at approximately 1,000-ft intervals. Approximately 157 acres (64 ha) of emergent marsh will be created between the breakwater and existing shoreline through the beneficial use of dredged material. Shoreline loss will be prevented and marsh will be created south of the breakwater. Stabilizing the shoreline will create and/or protect approximately 844 acres (342 ha) of marsh over the 20-year project life.

Erosion rates, calculated by comparing aerial photographs from 1978-1979 to those taken in 1997- 1998, revealed an annual shoreline loss rate of 15 ft (4.5 m) (USACE 2004). Construction of the foreshore dike will prevent the lake from breaching into adjacent marsh areas and will protect interior marsh, which without the structure, will be subjected to increased wave energy (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority [LCWCRTF & WCRA] 1999). Construction of the foreshore rock dike was completed in August 2006.



The Shoreline Protection Foundation Improvement Demonstration (LA-06) project, authorized through the CWPPRA 13th priority project list, has been incorporated into the design of the ME-22 project. The goal is to improve the cost effectiveness of shoreline protection projects in coastal Louisiana by applying a sand foundation beneath rock dikes. The project objective is to evaluate alternatives to achieving bearing capacity and consolidation settlement design tolerances to reduce 20-year project life cycle costs, as compared to traditional approaches (Stead 2004).







Figure 1. South White Lake Shoreline Protection project area map with associated project features.



II. Maintenance Activity

a. Project Feature Inspection Procedures

The purpose of the annual inspection of the South White Lake Shoreline Protection Project (ME-22) is to evaluate the constructed project features, identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, CPRA shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs. The annual inspection report also contains a summary of maintenance projects, if any, which were completed since completion of constructed project features and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C.

An inspection of the South White Lake Shoreline Protection Project (ME-22) was held on May 18, 2022 under partly cloudy skies and warm temperatures. In attendance were Stan Aucoin, Jody White & Phillip Parker from CPRA and Kristen Butcher from the USACE. All parties met in Lafayette and traveled to the boat launch on the Old Intracoastal Waterway and then west to the project site. The annual inspection began at approximately 10:30 a.m. on the eastern end the project.

The field inspection included a complete visual inspection of all project features. Staff gauge readings where available were used to determine approximate elevations of water, earthen embankments, rock dike and other project features. Photographs were taken at each project feature (see Appendix B) and Field Inspection notes were completed in the field to record measurements and any notable deficiencies (see Appendix D).

b. Inspection Results

The rock dike is in excellent post construction condition. Water levels were too low to access the dike along the northern shore of Bear Lake. Low areas noticed during previous inspections in this area where there was some initial settling during construction seem to have stabilized, as best seen from a distance, and the dike appears to still be functional in these areas. They will continue to be monitored during future inspections. Signage along the entire project is also in good condition. Approximately six (6) signs were noticed as completely missing. Reflective taping on nearly all signs has deteriorated. The spoil bank material placed behind the rock dike generated from the flotation excavation is nearly covered in natural vegetation. (Photos: Appendix B, Photo 1)

c. Maintenance Recommendations

i.Immediate/ Emergency Repairs None



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ii.Programmatic/ Routine Repairs

With the project life nearing the end of the CWPPRA life, it is recommended that missing signs be replaced. New reflective taping should be placed on all signs where required.

d. Maintenance History

General Maintenance:

No maintenance has been required on this project.

Structure Operations: There are no active operations associated with this project.

III. Operation Activity

a. Operation Plan

There are no water control structures with operational features associated with this project; therefore, no Structural Operation Plan is required.

b. Actual Operations

There are no water control structures with operational features associated with this project, therefore no required structural operations.



IV. Monitoring Activity

a. Monitoring Goals

The objectives of the South White Lake Shoreline Protection Project are:

- 1. Stop erosion along the southern shoreline of White Lake from Will's Point to the western shore of Bear Lake and as a result, protect 844 acres (342 ha) of interior emergent marsh over the 20-year project life.
- 2. Create 157 acres (64 ha) of emergent marsh between the White Lake shoreline and foreshore rock dike shoreline through the beneficial use of dredged material.

b. Monitoring Elements

Aerial Photography:

For project specific data, near-vertical color-infrared aerial photography (1:12,000 scale) was used to measure vegetated and non-vegetated areas for the project area. The photography was obtained in 2005 and 2018. The photography was checked for flight accuracy, color correctness, and clarity and was subsequently archived. Aerial photography was scanned, mosaicked, and georectified by USGS/NWRC personnel according to standard operating procedures (Steyer et al. 1995, revised 2000).

Shoreline Change:

The shoreline position was measured using aerial photography from 2005 (pre-construction) and Google Earth 2019 imagery. The difference in change between these two shorelines was used to estimate the area of wetlands protected by the foreshore rock dike installed along the bank line.

CRMS-Wetlands (CRMS) Supplemental

As ME-22 is a shoreline protection project, there are no CRMS-*Wetlands* monitoring stations available in the project area, however CRMS0626 and CRMS1100 are located just south of White Lake. Hydrologic data from these stations will be available to assist in evaluating this project.

c. Monitoring Results and Discussion

Aerial Photography:

Imagery collected in 2005 (Figure 2) indicated that between the foreshore rock dike and the White Lake shoreline there was one acre of land and 216 acres of water. Subsequent imagery obtained in 2018 (Figure 3) shows an increase in land to 80 acres with 137 acres of water. While the project goal to create 157 acres of emergent marsh was not achieved, the installation of a foreshore rock dike and beneficial use of dredge material was successful in creating 79 acres of new emergent marsh where there was once only water.



The project area as a whole claimed 2,695 acres of land in 2005 and 4,227 acres of land in 2018. However, the imagery collected in October of 2005 was obtained about a month after Hurricane Rita hit coastal Louisiana. In consequence, this area still exhibits signs of storm surge impacts from Rita. Moreover, the imagery collected in 2018 reflects drought conditions, in which water levels were much lower than normal. As such, it is difficult to ascertain just how many acres of land can be attributed to the project.



Figure 2. Analysis showing the acreage of land and water in the project area of South White Lake Shoreline Protection (ME-22) in 2005.





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Figure 3. Analysis showing the acreage of land and water in the project area of South White Lake Shoreline Protection (ME-22) in 2018.

Shoreline Change:

The ME-22 project was successful in abating shoreline erosion and aiding in the protection of 844 acres of interior emergent marsh. Shoreline change analyses done between 1978-1979 and 1997-1998 showed erosion rates of -4.5 m/yr (USACE 2004). Current analysis of the shorelines between 2005 and 2019 revealed a positive overall shoreline change (Figures 4-7, Table 1). Changes ranged from -5.41 m/yr to 10.93 m/yr with an average of 2.48 m/yr.

In addition to shoreline change analysis, the effect of fish dips in the rock dike was evaluated. Acres of marsh created behind sections of rock dike were calculated. Land gain behind 16 sections of rock dike averaged 4.22 acres. Multiplying this average by 57, the number of gaps in the rock dike, in total, if there were no gaps, an additional 240.5 acres of land could have accumulated behind the rock dike (Figure 8).







Figure 4. Overall shoreline change rates between 2005 (pre-construction) and 2019. Initial construction was completed in August 2006; Hurricane Lili occurred in October 2002, Hurricane Rita occurred in September 2005, Hurricane Ike occurred in September 2008 and Hurricane Barry occurred in July 2019.





Figure 5. Shoreline change rates of Sub-set One between 2005 (pre-construction) and 2019.





Figure 6. Shoreline change rates of Fish Dip Sub-set between 2005 (pre-construction) and 2019.







Figure 7. Shoreline change rates of Sub-set 2 between 2005 (pre-construction) and 2019.

Table 1.	Shoreline change	e among three s	sub-sets of the	e ME-22 pro	iect between	2005-2019
I able II	Shorenne enung	e among ance a	sub sets of the	c will 22 pro		2005 2017.

	Min (m/yr)	Max (m/yr)	Mean (m/yr)
Stretch One	-2.46	10.93	3.14
Stretch Two	-5.41	6.24	0.96
Fish Dip sub-set	-4.73	9.51	2.4
Total	-5.41	10.93	2.48







Figure 8. Portion of fish dips used to analyze potential land gain behind the rock dike.

CRMS Supplemental:

Nearby CRMS stations, CRMS0626 and CRMS1100 show monthly average water level in the area to be 0.82 ft and 1.32 ft, respectively (Figure 9). Furthermore, monthly average salinity levels are 2.07 ppt and 1.50 ppt, respectively (Figure 10). These monthly averages are from 2007/2008 – 2021. There does not appear to be much fluctuation in the surrounding area.





Figure 9. Monthly water level and salinity averages from 2006 – 2021 at CRMS0626.



Figure 10. Monthly water level and salinity averages from 2006 – 2021 at CRMS1100.



V. Conclusions

a. Project Effectiveness

The foreshore rock dike constructed along the southern shore of White Lake from Will's Point to Bear Lake has been successful in achieving the goals of reducing erosion rates and protecting interior emergent marsh.

b. Recommended Improvements

Upon analysis of the effect of fish dips incorporated into the rock dike, it is recommended to remove the fish dips and install a continuous length of foreshore rock dike, or at the very least, reduce the number of fish dips and install in more specific areas. This would allow more emergent marsh to accumulate between the existing marsh and the rock dike.

c. Lessons Learned

Rock dikes installed for erosion control seem to provide sufficient protection against erosion as long as there is continued maintenance.

d. End of Project Life

The ME-22 project has successfully abated shoreline erosion and created additional marsh acreage where foreshore rock dikes were installed. In order for this additional acreage to sustain itself, the rock dike should be maintained over time. Should the rock dike be left with no maintenance or removed completely, more than likely bank line erosion would continue and be exacerbated by storm events.



VI. Literature Cited

- Bourbaghs, M., Johnston, C.A., Regal, R.R., 2006. Properties and performance of the floristic quality index in Great Lakes coastal wetlands. Wetlands 26, 718-735.
- Chabreck, R. H., and G. Linscombe 1968. Vegetative type map of the Louisiana coastal marshes. New Orleans: Louisiana Department of Wildlife and Fisheries. Scale 1:62,500.

_____. 1978. Vegetative type map of the Louisiana coastal marshes. New Orleans: Louisiana Department of Wildlife and Fisheries. Scale 1:62,500.

_____. 1988. Vegetative type map of the Louisiana coastal marshes. New Orleans: Louisiana Department of Wildlife and Fisheries. Scale 1:62,500.

- Cohen, M.J., Carstenn, S., Lane, C.R., 2004. Floristic quality indices for biotic assessment of depressional marsh condition in Florida. Ecological Applications 14, 784-794.
- Louisiana Department of Natural Resources Coastal Restoration and Management Division, Coastal Engineering Division, and Coastal Restoration Division. 2004. 2004
 Operations, Maintenance and Monitoring Report for Oaks-Avery Hydrologic Restoration Project (TV-13a). Louisiana Department of Natural Resources, Coastal Restoration Division.
- Mendelssohn, I. A., M. W. Hester, F. J. Monteferrante and F. Talbot 1991. Experimental dune building and vegetative stabilization in a sand-deficient barrier island setting on the Louisiana coast, USA. Journal of Coastal Research 7(1) :137-149.
- Natural Resources Conservation Service 1998. Environmental Assessment, Oaks/Avery Canal Hydrologic Restoration Project, Vegetative Plantings. U. S. Department of Agriculture, Natural Resources Conservation Service, Iberia Parish, Louisiana. 5 pp.
- O'Neil, T. 1949. Map of the southern part of Louisiana showing vegetation types of the Louisiana marshes. Louisiana Department of Wildlife and Fisheries New Orleans.
- Steyer, G. D., and R. E. Stewart, Jr. 1992. Monitoring program for coastal wetlands planning, protection, and restoration acts projects. Open-file report no. 93-01. Lafayette, LA.: U.S. Geological Service, National Wetlands Center. 85 pp.
- U.S. Army Corps of Engineers. 2004. Environmental Assessment: South White Lake Shoreline Protection. New Orleans: U.S. Army Corps of Engineers. 25pp.





APPENDIX A (Inspection Photographs)







Photo 1—typical section of rock dike



Photo 2—fish gap where sign is missing







Photo 3—typical sign with deteriorated reflective tape





APPENDIX B (Three Year Budget Projection)





SOUTH WHITE LAKE SHORELINE PROTECTION/ ME-22 / C.150022.8 / PPL 12 Three-Year Operations & Maintenance Budgets 07/01/2022 - 06/30/2025

Project Manager	<u>O & M Manager</u>	Federal Sponsor	Prepared By				
Stan Aucoin	Stan Aucoin	COE	Jody White				
	2022/2023 (-16)	2023/2024 (-17)	2024/2025 (-18)				
Maintenance Inspection			\$ 15,708.00				
Structure Operation							
State Administration	\$7,269.00	\$ 7,269.00	\$ 10,000.00				
Federal Administration		\$-	\$ 1,000.00				
Maintenance/Rehabilitation							
22/23 Description:							
E&D							
Construction							
Construction Oversight							
Sub Total - Maint. And Rehab.	\$-						
23/24 Description:							
F&D		\$					
Construction		¢					
Construction Oversight		¢ ¢					
Construction Oversign	Sub Total - Maint And Rebah	\$ -					
	Sub Total - Maint, And Renab.	Ψ					
24/25 Description: Replace Signa	ge and piles						
E&D							
Construction			\$ 36,550.00				
Construction Oversight			\$ 10,000.00				
		Sub Total - Maint. And Rehab.	\$ 46,550.00				
	2022/2023 (-16)	2023/2024 (-17)	2024/2025 (-18)				
Total O&M Budgets	\$ 7,269.00	\$ 7,269.00	\$ 73,258.00				
Unexpended O & M Ru	<u>aı)</u> Idaet		<u> </u>				
Remaining O & M Bud	get (Projected)		\$ 470.78				
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OPERATION AND MAINTENANCE BUDGET WORKSHEET

SOUTH WHITE LAKE SHORELINE PROTECTION/ ME-22 / C.150022.8 / PPL 12 / 2022-2023

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL			
O&M Inspection and Report	EACH	0	\$0.00	\$0.00			
General Structure Maintenance	LUMP	0	\$0.00	\$0.00			
Engineering and Design	LUMP	0	\$0.00	\$0.00			
Operations Contract	LUMP	0	\$0.00	\$0.00			
Construction Oversight	LUMP	0	\$10,000.00	\$0.00			
ADMINISTRATION							
State Admin.	LUMP	1	\$7,269.00	\$7,269.00			
FEDERAL SPONSOR Admin.	LUMP	0	\$0.00	\$0.00			

-	\$7,269.00			
OTHER				\$0.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
FEDERAL SPONSOR Admin.	LUMP	0	\$0.00	\$0.00
State Admin.	LUMP	1	\$7,269.00	\$7,269.00

MAINTENANCE / CONSTRUCTION

	SURVEY				
SURVEY DESCRIPTION:					
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
			тс	TAL SURVEY COSTS:	\$0.00

GEOTECHNICAL

GEOTECH DESCRIPTION:					
	Borings	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
	TOTAL GEOTECHNICAL COSTS				\$0.00

	CONSTRUCTION					
CONSTRUCTION DESCRIPTION:						
	Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
	Bank Paving	7184	1.9	0	\$85.00	\$0.00
	Rip Rap - Structures (LUMP)	0	0.0	0	\$0.00	\$0.00
	Crushed Stone - Breaches	0	0.0	0	\$0.00	\$0.00
	Filter Cloth / Geogrid Fabric		SQ YD	0	\$9.00	\$0.00
	Navigation Aid		EACH	0	\$0.00	\$0.00
	Signage & Pile		EACH	0	\$29,050.00	\$0.00
	General Excavation / Fill		CU YD	0	\$0.00	\$0.00
	Dredging		CU YD	0	\$0.00	\$0.00
	Sheet Piles (Lin Ft or Sq Yds)		SQ FT	0	\$0.00	\$0.00
	Batter Piles (each or lump sum)		LN FT	0	\$0.00	\$0.00
	Timber Members (each or lump sum)			0	\$0.00	\$0.00
	Hardware		LUMP	0	\$0.00	\$0.00
	Materials		LUMP	0	\$0.00	\$0.00
	Mob / Demob		LUMP	0	\$7,500.00	\$0.00
	Contingency (25%)		LUMP	0	\$0.00	\$0.00
	General Structure Maintenance		LUMP	0	\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
	-		•	TOTAL CO	NSTRUCTION COSTS:	\$0.00

TOTAL OPERATIONS AND MAINTENANCE BUDGET:

\$7,269.00



OPERATION AND MAINTENANCE BUDGET WORKSHEET

SOUTH WHITE LAKE SHORELINE PROTECTION/ ME-22 / C.150022.8 / PPL 12 / 2023-2024

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL			
O&M Inspection and Report	EACH	0	\$15,708.00	\$0.00			
General Structure Maintenance	LUMP	0	\$0.00	\$0.00			
Engineering and Design	LUMP	0		\$0.00			
Operations Contract	LUMP	0	\$0.00	\$0.00			
Construction Oversight	LUMP	0	\$10,000.00	\$0.00			
ADMINISTRATION							

State Admin.	LUMP	1	\$7,269.00	\$7,269.00
FEDERAL SPONSOR Admin.	LUMP	0	\$0.00	\$0.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
	\$7,269.00			

MAINTENANCE / CONSTRUCTION

	SURVEY				
SURVEY DESCRIPTION:					
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
		\$0.00			

GEOTECHNICAL

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GEOTECH DESCRIPTION:					
	Borings	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
			TOTAL GE	OTECHNICAL COSTS:	\$0.00

	CONSTRUCTION					
CONSTRUCTION DESCRIPTION:						
	Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
	Bank Paving	7184	1.9	0	\$85.00	\$0.00
	Rip Rap - Structures (LUMP)	0	0.0	0	\$0.00	\$0.00
	Crushed Stone - Breaches	0	0.0	0	\$0.00	\$0.00
	Filter Cloth / Geogrid Fabric		SQ YD	0	\$9.00	\$0.00
	Navigation Aid		EACH	0	\$0.00	\$0.00
	Signage & Pile		EACH	0	\$29,050.00	\$0.00
	General Excavation / Fill		CU YD	0	\$0.00	\$0.00
	Dredging		CU YD	0	\$0.00	\$0.00
	Sheet Piles (Lin Ft or Sq Yds)		SQ FT	0	\$0.00	\$0.00
	Batter Piles (each or lump sum)		LN FT	0	\$0.00	\$0.00
	Timber Members (each or lump sum)			0	\$0.00	\$0.00
	Hardware		LUMP	0	\$0.00	\$0.00
	Materials		LUMP	0	\$0.00	\$0.00
	Mob / Demob		LUMP	0	\$7,500.00	\$0.00
	Contingency (25%)		LUMP	0	\$0.00	\$0.00
	General Structure Maintenance		LUMP	0	\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
	OTHER				\$0.00	\$0.00
				TOTAL CO	NSTRUCTION COSTS:	\$0.00

TOTAL CONSTRUCTION COSTS:

TOTAL OPERATIONS AND MAINTENANCE BUDGET:

\$7,269.00





OPERATION AND MAINTENANCE BUDGET WORKSHEET

SOUTH WHITE LAKE SHORELINE PROTECTION/ ME-22 / C.150022.8 / PPL 12 / 2024-2025

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$15,708.00	\$15,708.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	0		\$0.00
Operations Contract	LUMP	0	\$0.00	\$0.00
Construction Oversight	LUMP	1	\$10,000.00	\$10,000.00
	ADM	INISTRAT	ION	
State Admin.	LUMP	1	\$10,000.00	\$10,000.00
FEDERAL SPONSOR Admin.	LUMP	1	\$1,000.00	\$1,000.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
		TOTAL ADM	INISTRATION COSTS:	\$11,000.00

TOTAL ADMINISTRATION COSTS:

MAINTENANCE / CONSTRUCTION

	SURVEY				
SURVEY DESCRIPTION:					
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
	\$0.00				

GEOTECHNICAL

GEOTECH DESCRIPTION:							
	Borings	EACH	0	\$0.00	\$0.00		
	OTHER				\$0.00		
	TOTAL GEOTECHNICAL COSTS: \$0						

CONSTRUCTION					
Replacement of 7 signs and three piles					
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
Bank Paving	7184	1.9	0	\$85.00	\$0.00
Rip Rap - Structures (LUMP)	0	0.0	0	\$0.00	\$0.00
Crushed Stone - Breaches	0	0.0	0	\$0.00	\$0.00
Filter Cloth / Geogrid Fabric		SQ YD	0	\$9.00	\$0.00
Navigation Aid		EACH	0	\$0.00	\$0.00
Signage & Pile		EACH	1	\$29,050.00	\$29,050.00
General Excavation / Fill		CU YD	0	\$0.00	\$0.00
Dredging		CU YD	0	\$0.00	\$0.00
Sheet Piles (Lin Ft or Sq Yds)		SQ FT	0	\$0.00	\$0.00
Batter Piles (each or lump sum)		LN FT	0	\$0.00	\$0.00
Timber Members (each or lump sum)			0	\$0.00	\$0.00
Hardware		LUMP	0	\$0.00	\$0.00
Materials		LUMP	0	\$0.00	\$0.00
Mob / Demob		LUMP	1	\$7,500.00	\$7,500.00
Contingency (25%)		LUMP	0	\$0.00	\$0.00
General Structure Maintenance		LUMP	0	\$0.00	\$0.00
OTHER				\$0.00	\$0.00
OTHER				\$0.00	\$0.00
OTHER				\$0.00	\$0.00
			TOTAL CO	NSTRUCTION COSTS:	\$36,550.00
	CONSTRUCTION Replacement of 7 signs and three piles Rip Rap Bank Paving Rip Rap Bank Paving Rip Rap - Structures (LUMP) Crushed Stone - Breaches Filter Cloth / Geogrid Fabric Navigation Aid Signage & Pile General Excavation / Fill Dredging Sheet Piles (Lin Ft or Sq Yds) Batter Piles (each or lump sum) Timber Members (each or lump sum) Hardware Materials Mob / Demob Contingency (25%) General Structure Maintenance OTHER OTHER	CONSTRUCTION Replacement of 7 signs and three piles. Rip Rap LIN FT Bank Paving 7184 Rip Rap - Structures (LUMP) 0 Crushed Stone - Breaches 0 Filter Cloth / Geogrid Fabric Navigation Aid Signage & Pile General Excavation / Fill Dredging Sheet Piles (Lin Ft or Sq Yds) Batter Piles (each or lump sum) Timber Members (each or lump sum) Hardware Materials Mob / Demob Contingency (25%) General Structure Maintenance OTHER OTHER	CONSTRUCTION Replacement of 7 signs and three piles. Rip Rap LIN FT TON / FT Bank Paving 7184 1.9 Rip Rap - Structures (LUMP) 0 0.0 Crushed Stone - Breaches 0 0.0 Filter Cloth / Geogrid Fabric SQ YD Navigation Aid EACH Signage & Pile EACH General Excavation / Fill CU YD Dredging CU YD Sheet Piles (Lin Ft or Sq Yds) SQ FT Batter Piles (each or lump sum) LN FT Timber Members (each or lump sum) LUMP Materials LUMP Mob / Demob LUMP Contigency (25%) LUMP OTHER OTHER	CONSTRUCTION Replacement of 7 signs and three piles. Rip Rap LIN FT TON / FT TONS Bank Paving 7184 1.9 0 Rip Rap - Structures (LUMP) 0 0.0 0 Crushed Stone - Breaches 0 0.0 0 Filter Cloth / Geogrid Fabric SQ YD 0 Navigation Aid EACH 0 Signage & Pile EACH 1 General Excavation / Fill CU YD 0 Dredging CU YD 0 Sheet Piles (Lin Ft or Sq Yds) SQ FT 0 Batter Piles (each or lump sum) LN FT 0 Hardware LUMP 0 Materials LUMP 0 Mob / Demob LUMP 0 General Structure Maintenance LUMP 0 OTHER O O 0	CONSTRUCTION Replacement of 7 signs and three piles. Rip Rap LIN FT TON / FT TONS UNIT PRICE Bank Paving 7184 1.9 0 \$85.00 Rip Rap - Structures (LUMP) 0 0.0 0 \$0.00 Crushed Stone - Breaches 0 0.0 0 \$0.00 Filter Cloth / Geogrid Fabric SQ YD 0 \$9.00 Navigation Aid EACH 0 \$0.00 Signage & Pile EACH 1 \$29,050.00 General Excavation / Fill CU YD 0 \$0.00 Dredging CU YD 0 \$0.00 Shett Piles (Lin Ft or Sq Yds) SQ FT 0 \$0.00 Batter Piles (each or lump sum) LN FT 0 \$0.00 Hardware LUMP 0 \$0.00 Materials LUMP 0 \$0.00 Materials LUMP 0 \$0.00 General Structure Maintenance LUMP 0 \$0.00 OTHE

TOTAL OPERATIONS AND MAINTENANCE BUDGET:

\$73,258.00





APPENDIX C (Field Inspection Notes)





		MAINTENANCE INSPECTION REPORT CHECK SHEET						
Project No. / Nan		(s/Avery Canal Hydr	ologic Restor	ation	Date of Inspections: September 11 & October 14, 2020			
TTOJECTNO. / TNAI			biogic Residi	auon				
Structure No.	N/A				Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA)			
Structure Descrip	tion: Earthen c	canal plug (Union Ca	nal)					
					Water Level			
Type of Inspection	on: Annual				Weater Conditions: sunny and warm			
Item	Condition	Pysical Damage	Corrosion	Photo #	Observations and Remarks			
Steel Bulkhood	NI/A							
Conc	IN/A							
7 Caps Stool Croting	NI/A							
Steel Grating	IVA							
Stop Logs	N/A							
Stop Logs	IVA							
Hardware	N/A							
Timber Piles	N/A							
Timber Wales	N/A							
Galv. Pile Caps	N/A							
Vegetation	Good			9-10	Vegetation Flourishing.			
0.								
Signage	NVA							
/Supports								
Din Pan/dika	NI/A							
	INA							
Fathern	Good			9-10	The earthen canal plug had experienced settlement initially, but is in good condition and does not require mainten-			
Embankment	0000			0.10	ance at this time			
Embananon								
What are the cor	ditions of the ex	kisting levees?						
Are there any no	ticable breache	es?						
Settlement of roc	k plugs and rock	k weirs?						
Position of stoplo	gs at the time of	f the inspection?						
Are there any sig	ns of vandalism	?						



26

X

		MAINTENANO			ICE INSPECTION REPORT CHECK SHEET
Project No. / Nam		s/Avery Canal Hydro	logic Restor	ation	Date of Inspections: September 11 & October 14, 2020
Trojectivo. / Tvan		Grivery Canariyan			
Structure No.	N/A				Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA)
Structure Descrip	tion: Spoilbank	Maintenance (Oaks	Canal)		
					Water Level
Type of Inspection	on: Annual				Weater Conditions: sunny and warm
ltom	Condition	Bhysical Domogo	Corregion	Dhoto #	Observations and Bemarka
item	Condition	Filysical Damage	CONOSION	FIIOLO #	
Steel Bulkhead	N/A				
/ Caps					
Steel Grating	N/A				
Stop Logs	N/A				
Hardwara	NI/A				
i la uware					
Timber Piles	N/A				
Timber Wales	N/A				
Cabi Dila Cana	NI/ A				
Gaiv. Plie Caps	IN/A				
Vegetation	Good			8	Vegetation Flourishing.
				-	
Signage	N/A				
/Supports					
Din Dan (fill)	NI/ A				
кір кар (ііі)	INA				
Earthen	Good			8	Spoilbank looks good. Plug is still holding up.
Embankment					
What are the con	ditions of the ex	visting levees?			
Are there any no	ticeable breach	ies?			
Settlement of rock	c plugs and rock	K Well'S?			
Are there any sig	ns of vandalism	2			
o aloro any sig		•			





			N	IAINTENAN	ICE INSPECTION REPORT CHECK SHEET
Project No. / Nam	e· TV-13a Oak	s/Avery Canal Hydro	ologic Restor	ation	Date of Inspections: September 11 & October 14, 2020
r rojoot no. / nam					
Structure No.	N/A				Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA)
Structure Descrip	tion: Shoreline	vegetation			
					Water Level
Type of Inspection	on: Annual				Weater Conditions: sunny and warm
Itom	Condition	Physical Damage	Correction	Photo #	Observations and Pomarks
item	Condition	Filysical Damage	CONTOSION	FIIOLO #	
Steel Bulkhead	N/A				
/ Caps					
Steel Grating	N/A				
0.000	N1/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Tirebar Walso	N1/A				
Timber wates	IN/A				
Galv. Pile Caps	N/A				
Vegetation	N/A				Not inspected.
Ciana an	N1/A				
Signage /Supports	IN/A				
Jouppons					
Rip Rap (fill)	N/A				
/ /					
Earthen	N/A				
Embankment					
L		l		L	
What are the con	ditions of the ex	kisting levees?			
Are there any no	ticeable breach	les?			
Settlement of rocl	k plugs and rocl	k weirs?			
Position of stoplo	gs at the time of	the inspection?			
Are there any sig	ns of vandalism	?			



			N	IAINTENAN	ICE INSPECTION REPORT CHECK SHEET
Project No. / Nam	ne∵ TV-13a Oak	s/Avery Canal Hydro	plogic Restor	ation	Date of Inspections: September 11 & October 14, 2020
110,000110.7110				allon	
Structure No.	N/A				Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA)
Structure Descrip	otion: Rock dike	along southern ban	k of GIWW		
					Water Level
Type of Inspection	on: Annual				Weater Conditions: sunny and warm
ltem	Condition	Pysical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead	N/A				
/ Caps					
Steel Grating	N/A				
Stop Logo	NI/A				
Stop Logs	INA				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	NI/A				
Timber Wales	IWA				
Galv. Pile Caps	N/A				
Vegetation	N/A				
Signago	NI/A				
/Supports	IVA				
/ouppons					
Rip Rap (fill)	Excellent			7	Rock dike is in good condition.
Eathern	N/A				
Embankment					
	l	l		l	
What are the con	ditions of the ex	istina levees?			
Are there any no	ticable breache	s?			
Settlement of roc	k plugs and rock	weirs?			
Position of stoplo	gs at the time of	the inspection?			
Are there any signs of vandalism?					





Maintenance Inspection Report CHECK SHEET Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration Date of Inspections: September 11 & October 14, 2020 Structure No. N/A Structure Description: Rock plug
Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration Date of Inspections: September 11 & October 14, 2020 Structure No. N/A Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA) Structure Description: Rock plug
Project No. / Name: IV-13a Gaks/Avery Canal Hydrologic Restoration Date of Inspections: September 11 & October 14, 2020 Structure No. N/A Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA) Structure Description: Rock plug
Structure No. N/A Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA)
Structure No. INFA
Structure Description: Rock plug
Si uciule Description. Rock plug
Water Loval
Type of Inspection: Annual Water Conditions: supply and warm
Type of inspection. Annual weater conductors, suffry and warm
Item Condition Pysical Damage Corrosion Photo # Observations and Remarks
Steel Bulkhead N/A
Steel Grating N/A
Stop Logs N/A
Hardware N/A
Timber Piles N/A
Timber Wales N/A
Galv. Pile Caps N/A
Vegetation N/A
Signage N/A
/Supports
Dia Dee // III Dee / C Nation and this trip. No access to seek styry. No langer a second synthesized for two
Rip Rap (fill) Poor 6 Not inspected on this trip. No access to rock plug. No longer a necessary project reature.
Esthorn N/A
Laurent IVA
What are the conditions of the existing levees?
Are there any noticable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?



			N	AINTENAN	ICE INSPECTION REPORT CHECK SHEET
Droject No. / Nor		(Avony Conol Hydr	logio Dootor	otion	Data of Inancational Contembor 11 & October 14, 2020
Project No. / Mari	le. TV-15a Oar			auon	Date of hispections. September 11 & October 14, 2020
Structure No.	N/A				Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA)
Structure Descrip	otion: Spoilbank	Maintenance Unio	n Canal		
					Water Level
Type of Inspection	on: Annual				Weater Conditions: sunny and warm
ltem	Condition	Pysical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead	N/A				
/ Caps					
Steel Grating	N/A				
Stop Logs	N/A				
Herdware	NI/A				
Haluwale	IVA				
Timber Piles	N/A				
Timber Wales	N/A				
	N 1/A				
Gaiv. Pile Caps	N/A				
Vegetation	N/A				
vogotation	107				
Signage	N/A				
/Supports					
51 5 ((11))					
Rip Rap (fill)	N/A				
Eathern	Excellent				Spoilbank looks great. Difficult to differentiate renaired section from established sections
Embankment	Execuent				opendarini toono great. Dimetarite amerentata repared section non established sections.
What are the con	ditions of the ex	visting levees?			
Are there any no	oticable breache	es?			
Settlement of roc	k plugs and rocl	k weirs?			
Position of stoplo	gs at the time of	the inspection?			
Are there any sig	ins of vandalism	ſ			





			N	AINTENAN	ICE INSPECTION REPORT CHECK SHEET		
					Data of transmission of the Cost transmission of the Cost of the C		
Project No. / Nam	ie: TV-13a Oak	S/Avery Canal Hydro	Diogic Restor	auon	Date of inspections: September 11 & October 14, 2020		
Structure No. Cowpath Structure					Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA)		
Structure Description: Fixed crest weir							
Tune of loop of					Water Level		
Type of Inspection: Annual					Weater Conditions. Sunny and warm		
ltem	Condition	Pysical Damage	Corrosion	Photo #	Observations and Remarks		
-				5	West side of structure still seems to be attached to rest of structure, but no longer embedded. Could not be		
Steel Bulkhead	Failed				seen due to high water level.		
/ Caps	N1/A			-			
Steel Grating	N/A						
Stop Logs	N/A						
Hardware	Failed						
T 1 D1	N1/A			-			
Timber Piles	N/A						
Timber Wales	NI/A						
TITIDEI Wales	IWA						
Galy Pile Caps	Failed						
Call in the Cape	. anoa						
Vegetation	N/A						
Signage	OK						
/Supports							
Rip Rap (fill)	N/A						
F 4				1			
Eathern	Good						
<u> </u>	L	1	1				
What are the conditions of the existing levees?							
Are there any no	ticable breache	es?					
Settlement of rocl	k plugs and rock	k weirs?					
Position of stoplo	gs at the time of	the inspection?					
Are there any signs of vandalism?							





			N	IAINTENAN	ICE INSPECTION REPORT CHECK SHEET		
Project No. / Nam	ne∙ TV-13a Oak	s/Avery Canal Hydro	logic Restor	ation	Date of Inspections: September 11 & October 14, 2020		
TTOJECTNO. / TNAI				auon	Date of hispections. September 11 & October 14, 2020		
Structure No.	N/A				Inspector(s): Dion Broussard, Stan Aucoin, Maggie Luent, Mel Guidry (CPRA)		
Structure Descrip	otion: rock pavi	ng at Oaks Canal					
		Ĭ			Water Level		
Type of Inspection: Annual					Weater Conditions: sunny and warm		
ltam	Condition	Ducieal Damana	Connolon	Dhata #	Observations and Demontra		
item	Condition	Pysical Damage	Corrosion	Photo #	Ubservations and Remarks		
Steel Bulkhead	N/A						
/ Caps							
Steel Grating	N/A						
Stop Logs	N/A						
l la ashera as	N1/A						
Hardware	N/A						
Timber Piles	N/A						
Timber Wales	N/A						
Galv. Pile Caps	N/A						
Vegetation	NI/A						
vegetation	IWA						
Signage	N/A						
/Supports							
Rip Rap (fill)	Excellent			2-4	Rock in excellent condition.		
Fothorn	NI/A						
Embankment	INA						
What are the con	ditions of the ex	isting levees?					
Are there any no	ticable breache	s?					
Settlement of rock plugs and rock weirs?							
Position of stoplo	gs at the time of	the inspection?					
Are there any signs of vandalism?							

