

LMNED-PP

13 September 1968

SUBJECT: Increased Costs of Authorized Hurricane Protection Projects

Division Engineer, Lower Mississippi Valley  
ATTN: LMVED-TD

1. Hurricane protection projects have been authorized for four areas in the New Orleans District. The "New Orleans to Venice, Louisiana" project (see inclosure 1) was authorized by Public Law 874-87th Congress, 2d Session, approved 23 October 1962. The "Lake Pontchartrain, Louisiana and Vicinity" project (see inclosure 2); the "Morgan City, Louisiana and Vicinity" project (see inclosure 3); and the "Grand Isle, Louisiana and Vicinity" project (see inclosure 4) were authorized by Public Law 289-89th Congress, 1st Session, approved 27 October 1965.

2. Planning is well underway on all four of the projects and construction is underway on the New Orleans to Venice and the Lake Pontchartrain projects. It is apparent at this time that the final cost of each project will greatly exceed the survey report cost and this is creating several problems. The benefit-to-cost ratios are lower and in some cases becoming marginal and the increased local requirements may be more than the cooperating agencies can support. In addition, obtaining adequate Federal funds will require longer periods of time, thereby substantially delaying completion dates.

3. New Orleans to Venice, Louisiana.

a. The New Orleans to Venice project (see inclosure 1), as authorized, provided for protection of four separate reaches in the Mississippi Delta below New Orleans to Venice, Louisiana--two reaches each on the west and east banks, respectively, of the Mississippi River as follows:

Reach A - City Price to Empire  
Reach B - Empire to Venice  
Reach C - Phoenix to Bohemia  
Reach E - Violet to Varret

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Subsequent to authorization, the area to be protected by Reach E was included in the modified Chalmette Area Plan of the Lake Pontchartrain project; therefore, Reach E has been eliminated.

b. The total cost (see inclosure 5) for Reaches A, B, and C of the project, based on June 1961 price levels and appearing in the document on which authorization was based, is \$9,615,000, comprising of \$8,334,000 for construction, \$744,000 for lands and damages, and \$537,000 for relocations.

c. Based on a request from local interests, Reach B has been divided into two reaches--Reach B1 - Empire to Fort Jackson and Reach B2 - Fort Jackson to Venice. In addition, the levee alignment for Reach B1 has been modified at the request of local interests to include a larger area of land at an increased cost. These modifications constitute betterments to the local sponsor and are subject to the local sponsor providing all additional cost for betterments. The latest cost estimate (see inclosure 5) for Reaches A, B1, B2, and C, based on projecting costs presented in the general design memorandum for Reach B1 to 1 July 1968 price levels, is \$43,400,000, comprising of \$39,675,000 for construction, \$1,880,000 for lands and damages, and \$1,845,000 for relocations. The latest cost given above includes \$6,421,500 for betterments, comprising of \$6,158,500 for construction, \$119,800 for lands and damages, and \$143,200 for relocations.

#### 4. Lake Pontchartrain, Louisiana and Vicinity.

a. The Lake Pontchartrain project (see inclosure 2) consists of two separate and distinct major features--the Chalmette Area Plan and the Lake Pontchartrain Barrier Plan. The major alignment changes that have been made to this project subsequent to authorization are the extension of the Chalmette levee and the relocation of the Chef Menteur Pass Complex.

b. The total cost (see inclosure 6) for the Chalmette Area Plan, based on December 1961 price levels and appearing in the document on which authorization was based, is \$15,143,000, comprising of \$14,244,000 for construction, \$452,000 for lands and damages, and \$477,000 for relocations. The latest cost estimate (see inclosure 6) for the Chalmette Area Plan, based on projecting costs presented in the general design memorandum for the original Chalmette Area Plan and in the letter report for the Chalmette Extension and on costs presented in the detail design memorandum for the Bayou Bienvenue and Bayou Dupre Control Structures, is \$38,310,000, comprising of \$34,160,000 for construction, \$2,929,000 for lands and damages, and \$1,221,000 for relocations. The latest costs given above include approximately \$16,100,000 for the Chalmette Extension.

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c. The total cost (see inclosure 6) for the Lake Pontchartrain Barrier Plan, based on December 1961 price levels and appearing in the document on which authorization was based, is \$64,703,000, comprising of \$59,676,000 for construction, \$4,479,000 for lands and damages, and \$548,000 for relocations. The latest cost estimate (see inclosure 6) for the Lake Pontchartrain Barrier Plan, based on projecting costs presented in the general design memorandum for the Citrus Back Levee to 1 July 1968 and on costs presented in the supplemental general design memorandum for the Inner Harbor Navigation Canal Remaining Levees, is \$127,690,000, comprising of \$110,292,000 for construction, \$15,264,000 for lands and damages, and \$2,134,000 for relocations.

### 5. Morgan City, Louisiana and Vicinity.

a. The Morgan City project (see inclosure 3) provides protection for two areas--the Morgan City area and the Franklin and Vicinity area. The Morgan City area involves two reaches--A and B.

b. The total cost (see inclosure 7) for Reaches A and B, based on May 1963 price levels and appearing in the document on which authorization was based, is \$1,506,000, comprising of \$989,000 for construction, \$505,000 for lands and damages, and \$12,000 for relocations. The latest cost estimate (see inclosure 7) for Reaches A and B, based on projecting costs presented in the authorizing documents to 1 July 1968 price levels, is \$2,067,000, comprising of \$1,380,000 for construction, \$672,000 for lands and damages, and \$15,000 for relocations.

c. The total cost (see inclosure 7) for the Franklin reach, based on May 1963 price levels and appearing in the document on which authorization was based, is \$2,943,000, comprising of \$2,308,000 for construction, \$97,000 for lands and damages, and \$538,000 for relocations. The latest cost estimate (see inclosure 7) for the Franklin reach, based on a draft general design memorandum, is \$6,810,000, comprising of \$4,180,000 for construction, \$240,000 for lands and damages, and \$2,390,000 for relocations.

### 6. Grand Isle, Louisiana and Vicinity.

a. The Grand Isle project (see inclosure 4) provides for a loop levee along both banks of Bayou Lafourche from Golden Meadow to Larose with control structures in the bayou in or near these towns.

b. The total cost (see inclosure 8) for the project, based on December 1960 price levels and appearing in the document on which authorization was based, is \$7,857,000, comprising of \$6,323,000 for

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construction, \$322,000 for lands and damages, and \$1,212,000 for relocations. The latest cost estimate (see inclosure 8), based on a draft general design memorandum, is \$37,056,000, comprising of \$30,959,000 for construction, \$4,574,000 for lands and damages, and \$1,523,000 for relocations. The latest costs given above include approximately \$3,150,000 for extending the protection 2 miles below Golden Meadow.

7. As indicated by the above figures, the estimated current costs for the authorized hurricane protection projects are two to four times as high as the costs presented in the authorizing documents, and these figures are expected to increase further as more detail design is accomplished. Some of the increase can be contributed to revised alignments; however, most of the increase is caused by changes in design criteria. The development of more severe hurricane parameters by the U. S. Weather Bureau subsequent to submittal of the survey reports resulted in increases of 2 or 3 feet in the elevation of the protective systems. Releveling in the areas by the U. S. Coast and Geodetic Survey resulted in reducing existing ground surface elevations referred to mean sea level by approximately 1 foot, producing a corresponding increase in effective levee heights, since the changed ground elevations do not materially alter computed levee grades referred to mean sea level. These increases in the levee elevations added considerably to the cross sections. In addition, the cross sections of the survey reports were designed for a factor of safety of 1.2 whereas the cross sections of the design memorandums were designed for a factor of safety of 1.3.

8. It appears that the costs of the hurricane protection projects could be reduced considerably by modifying the soils design criteria. Accordingly, it is requested that an early meeting between NOD and LMVD personnel be held in New Orleans to discuss reasons for the increased costs of the projects, particularly with respect to the soils design criteria currently in use and to arrive at a future course of action for each project.

- 8 Incl (dupe)
- 1. Map 2-32
- 2. Map 2-35
- 3. Map 2-36
- 4. Map 2-34
- 5. New Orleans to Venice cost est.
- 6. Lake Pontchartrain cost est.
- 7. Morgan City cost est.
- 8. Grand Isle cost est.

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NEW ORLEANS TO VENICE, LA.

Estimated Cost  
(In thousands of dollars)

Project as Authorized  
Price level - June 1961

Reach	Total cost			Mon-Federal Cost			Total non-Federal cost
	Con- struction cost	Federal cost	Lands and damages	Relo- cations	Cash or equiva- lent work		
A	3,043.0	2,130.0	218.0	257.0	438.0		913.0
B	3,743.0	2,620.0	435.0	184.0	504.0		1,123.0
C	2,829.0	1,980.0	91.0	96.0	662.0		849.0
Total	9,615.0	6,730.0	744.0	537.0	1,604.0		2,885.0

Estimated Current Cost  
Price level - July 1968

A	10,033.8	8,487.5	7,023.7	900.0	646.3	1,463.8	3,010.1
B1	17,313.7	16,377.2	7,624.5	300.6	635.9	8,752.7	9,689.2
B2	5,876.1	5,405.3	4,113.3	277.1	193.7	1,292.0	1,762.8
C	10,176.4	9,405.0	7,123.5	402.3	369.1	2,281.5	3,052.9
Total	43,400.0	39,675.0	25,885.0	1,880.1	1,845.0	13,790.0	17,515.0

LAKE PONTCHARTRAIN, LA. AND VICINITY

Estimated Cost  
(In thousands of dollars)

Project as Authorized  
Price level - December 1961

Area	Non-Federal Cost				Total non-Federal cost		
	Con- struction cost	Federal cost	Lands and damages	Relo- cations			
Thalmette Lake Pontchartrain Barrier Plan	15,143.0	14,244.0	10,600.0	452.0	447.0	3,644.0	4,543.0
Total	64,703.0	59,676.0	41,200.0	4,479.0	548.0	18,476.0	23,053.0
	79,846.0	73,920.0	51,800.0	4,931.0	995.0	22,120.0	27,596.0

Estimated Current Cost  
Price level - July 1968

Thalmette Lake Pontchartrain Barrier Plan	38,310.0	34,160.0	26,817.0	2,929.0	1,221.0	7,343.0	11,493.0
Total	127,690.0	110,292.0	86,745.0	15,264.0	2,134.0	23,547.0	40,945.0
	166,000.0	144,452.0	113,562.0	18,193.0	3,355.0	30,890.0	52,438.0

MORGAN CITY, LA. AND VICINITY

Estimated Cost  
(In thousands of dollars)

Project as Authorized  
Price level - May 1963

Reach	Mon-Federal Cost				Total non-Federal cost
	Total cost	Construction cost	Federal cost	Lands and damages	
A	1,426.0	944.0	944.0	470.0	482.0
B	80.0	45.0	45.0	35.0	35.0
Franklin	<u>2,943.0</u>	<u>2,308.0</u>	<u>2,060.0</u>	<u>97.0</u>	<u>883.0</u>
Total	4,449.0	3,297.0	3,049.0	602.0	1,400.0

Reach	Mon-Federal Cost				Total non-Federal cost
	Total cost	Construction cost	Federal cost	Lands and damages	
A	1,956.0	1,315.0	1,315.0	626.0	641.0
B	111.0	65.0	65.0	46.0	46.0
Franklin	<u>6,810.0</u>	<u>4,180.0</u>	<u>4,180.0</u>	<u>240.0</u>	<u>2,630.0</u>
Total	8,877.0	5,560.0	5,560.0	912.0	3,317.0

Estimated Current Cost  
Price level - July 1968

GRAND ISLE, LA. AND VICINITY

Estimated Cost  
(In thousands of dollars)

Project as Authorized  
Price level - December 1960

Reach	Non-Federal Cost			Total non-Federal cost
	Total cost	Federal cost	Cash or equivalent work	
Golden Meadow to Larose	7,857.0	5,500.0	823.0	2,357.0

Estimated Current Cost  
Price level - July 1968

Golden Meadow to Larose	37,056.0	25,939.0	5,020.0	11,117.0
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