LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

PART VI –C (ARCHIVES)

WATERBODY MANAGEMENT PLAN SERIES

BUNDICK LAKE

AQUATIC VEGETATION TYPE MAPS
AND NARRATIVES

VEGETATIVE TYPE MAP NARRATIVES

BUNDICK LAKE
September 2007
Eric Shanks

Bundick Lake, in Beauregard Parish, was surveyed for the presence of aquatic vegetation on September 25, 2007. On the day of the survey the water was relatively clear with secchi disk reading of 65 cm. Water levels in the lake were at pool stage (95' MSL).

The heaviest infestation of aquatic vegetation was alligatorweed (*Alternanthera philoxeroides*). This plant was observed in light amounts along most of the shoreline with heavy infestations in shallow coves, especially on the north end of the lake.

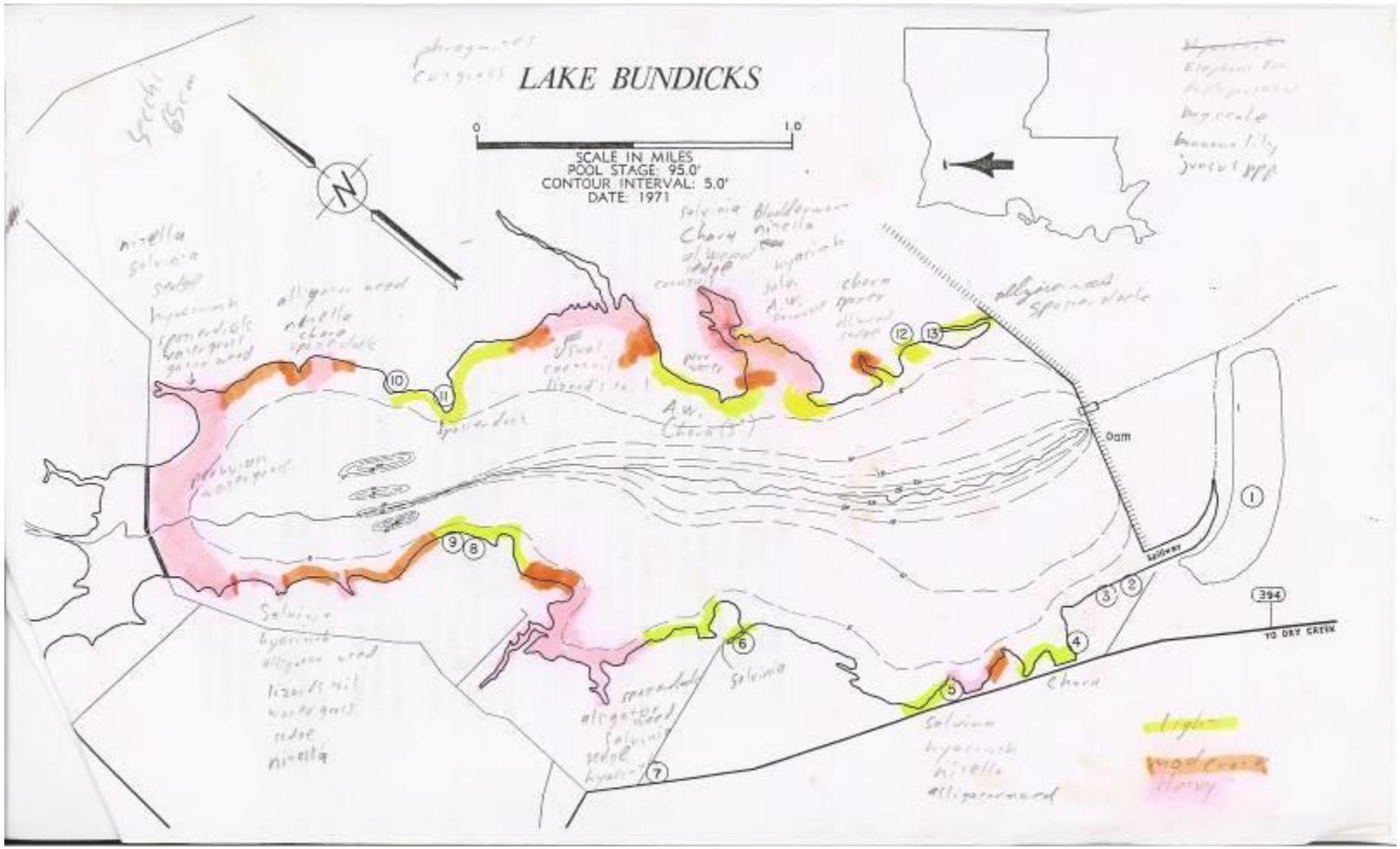
Floating plants observed included common salvinia (*Salvinia minima*) and water hyacinth (*Eichhornia crassipes*) present in light to heavy amounts in some coves and on the north end of the lake.

Submersed aquatic plants that were observed on the Bundick Lake survey in light to heavy amounts included stonewort (*Nitella spp.*) and muskgrass (*Chara spp.*). These plants were found in the two to four foot contour with some heavy infestations in the shallow coves on the northern and eastern end of the lake. Moderate to heavy infestations of coontail (*Ceratophyllum demersum*) were present in coves on the eastern shore of the lake.

Spatterdock (*Nuphar luteum*) and water sedge (*Cyperus spp.*) were observed along much of the shoreline, and moderate amounts were found in most of the coves around the lake.

Peruvian water grass (*Luziola peruviana*) was still present in the Baptist Cove along the east side of the lake in a heavy infestation. Of particular note, light amounts were also observed on the north end of the lake, present for the first time outside of Baptist cove.

Other plants observed in trace to light amounts were maidencane (*Panicum hemitomon*), smartweed (*Polygonum hydropiperoides*), duck potato (*Sagittaria spp.*), bagscale (*Sacciolepis striata*), giant cutgrass (*Zizaniopsis miliacea*), elephant ear (*Taro spp.*), lizard's tail (*Saururus cernus*), banana lily (*Nymphoides aquatica*), spikerush (*Eliocharis spp.*), water grass (*Luziola fluitans*), and common reed (*Phragmites australis*) with most of these occurring on the north end of the lake.


LAKE BUNDICKS
0
1.0
SCALE IN MILES
POOL STAGE: 95.0'
CONTOUR INTERVAL: 5.0'
DATE: 1971
N
Dam
Spillway
394
TO DRY CREEK
10
11
12
13
9
8
6
7
5
4
3
2
1

BUNDICK LAKE
September 2008
Eric Shanks

Bundick Lake, in Beauregard Parish, was surveyed for the presence of aquatic vegetation on September 30, 2008. On the day of the survey water clarity was 46cm as measured by secchi disk. Water levels in the lake were at pool stage (95' MSL).

The heaviest infestations of aquatic vegetation were alligatorweed (*Alternanthera philoxeroides*) and spatterdock (*Nuphar luteum*). Spatterdock was present in light amounts around most of the lake with moderate to heavy amounts on the western and northern parts of the lake. While heavy infestations of alligatorweed were present in these same areas, the amounts were much reduced from last year, with spatterdock appearing to replace much of it.

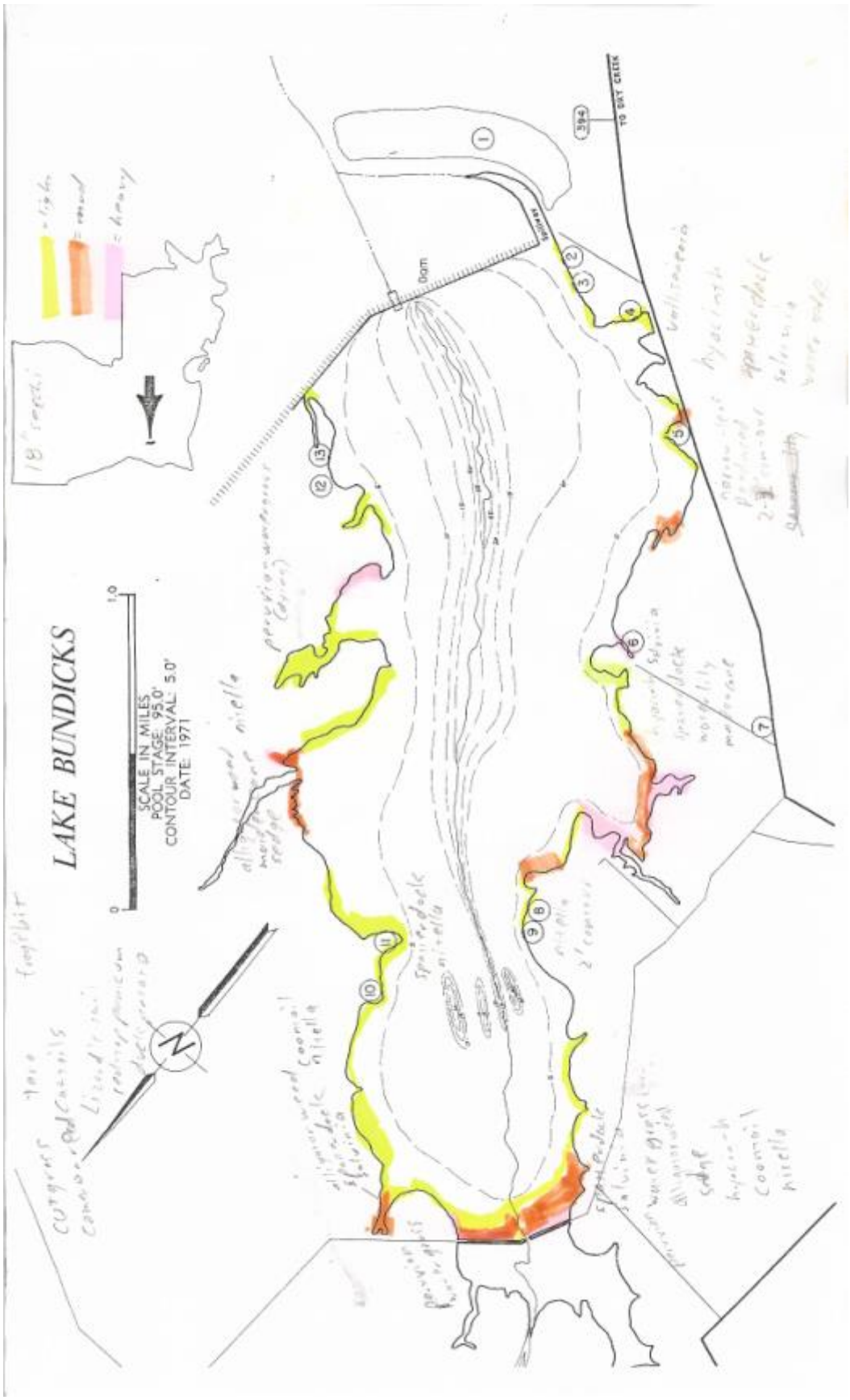
Floating plants observed included common salvinia (*Salvinia minima*) and water hyacinth (*Eichhornia crassipes*) present in light to moderate amounts in some coves and on the north end of the lake, with lesser infestations than last year.

Stonewort (*Nitella spp.*) was the predominant submersed aquatic plant that was observed in light to moderate amounts in the 2' to 3' contour and some shallow coves on the eastern side of the lake. Light to moderate infestations of coontail (*Ceratophyllum demersum*) were present in the northern part of the lake.

Efforts to control Peruvian water grass (*Luziola peruviana*) appeared to be successful this year as only light amounts were present in the Baptist Cove, a drastic reduction from last year. Trace amounts were also observed on the north end of the lake.

Other plants observed in trace to light amounts were maidencane (*Panicum hemitomon*), water sedge (*Cyperus spp.*), cattail (*Typha spp.*), red-top panicum (*Panicum rididulum*), smartweed (*Polygonum hydropiperoides*), duck potato (*Sagittaria spp.*), giant cutgrass (*Zizaniopsis miliacea*), elephant ear (*Taro spp.*), lizard's tail (*Saururus cernus*), American water lily (*Nymphaea odorata*), spikerush (*Eliocharis spp.*), water grass (*Luziola fluitans*), frog's bit (*Limnobium spongia*), and common reed (*Phragmites australis*) with most of these occurring on the north end of the lake.

Vegetative Type Map 2008



BUNDICK LAKE
September 2009
Eric Shanks

Bundick Lake, in Beauregard Parish, was surveyed for the presence of aquatic vegetation on September 17, 2009. On the day of the survey water clarity was 51cm as measured by secchi disk. Water levels in the lake were at pool stage (95' MSL).

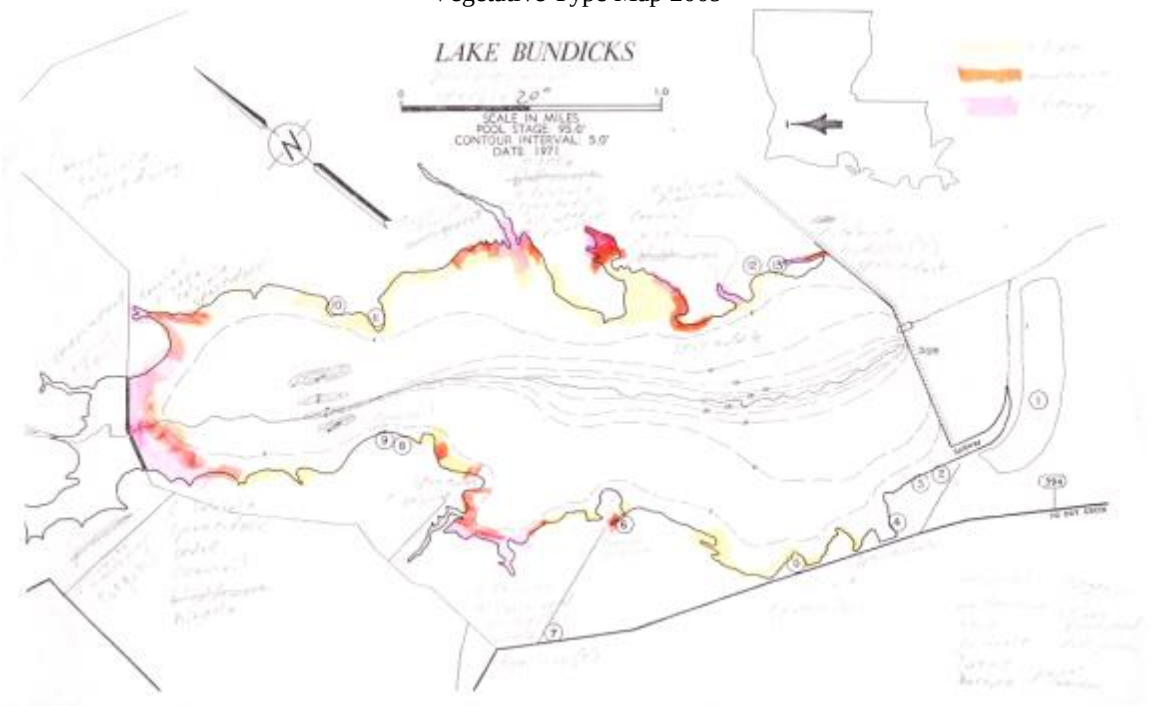
The most common aquatic vegetation observed were common salvinia (*Salvinia minima*) and spatterdock (*Nuphar luteum*). Heavy infestations of salvinia occurred on the north end of the lake with light to moderate infestations on the western shoreline. Much of the salvinia in the Hopewell bridge area appeared to be dying from district spray efforts. Spatterdock was present in light amounts around most of the lake with moderate to heavy amounts on the northern part of the lake.

Stonewort (*Nitella spp.*) and coontail (*Ceratophyllum demersum*) were the predominant submersed aquatic plants observed. Stonewort was present in light to moderate amounts in the 2' to 3' contour with some heavy accumulations on the northern and eastern shores of the lake. Light to moderate amounts of coontail were present along the 2' to 5' contour except for the southwestern quarter of the lake.

Emersed plants alligatorweed (*Alternanthera philoxeroides*) and American cupscale grass (*Sacciolepis striata*) were present in light amounts with one heavy infestation of each on opposite shores of the lake and some heavy infestations of cupscale grass in the northern section. Efforts to control Peruvian water grass (*Luziola peruviana*) and alligatorweed continued to be successful as we observed continuing reductions of both from last year.

Other plants observed in trace to light aggregations were maidencane (*Panicum hemitomon*), water sedge (*Cyperus spp.*), smartweed (*Polygonum hydropiperoides*), duck potato (*Sagittaria spp.*), giant cutgrass (*Zizaniopsis miliacea*), southern cutgrass (*Leersia spp.*), elephant ear (*Taro spp.*), primrose (*Ludwigia spp.*), American lotus (*Nelumbo lutea*), bacopa (*Bacopa spp.*), Illinois pondweed (*Potamogeton illinoensis*), parrot feather (*Myriophyllum aquaticum*), hydrilla (*Hydrilla verticillata*), banana lily (*Nymphoides aquatica*), and water hyacinth (*Eichhornia crassipes*), with most of these occurring on the northern half of the lake.

Vegetative Type Map 2009



BUNDICK LAKE
September 2010
George Melancon

Bundick Lake, in Beauregard Parish, was surveyed for the presence of aquatic vegetation on September 19, 2010. On the day of the survey water clarity was 69cm as measured by secchi disk. Water levels in the lake were at pool stage (95' MSL).

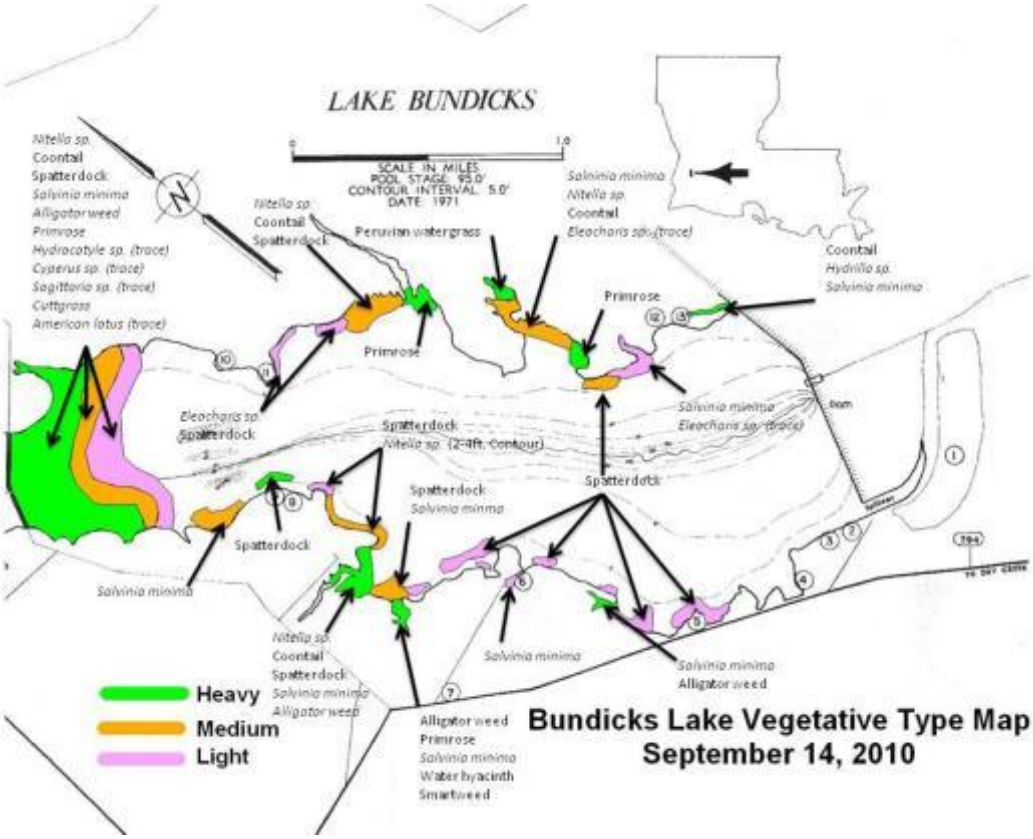
Areas of observed occurrence were designated as "Heavy", "Medium", or "Light". The most common aquatic vegetations observed were primrose (*Ludwigia spp.)*, common salvinia (*Salvinia minima*), and spatterdock (*Nuphar luteum*). Heavy infestations of aquatic vegetation occurred on the north end of the lake and several bays and covers around the perimeter. Predominant species associated with these areas were common salvinia, spatterdock, alligatorweed (*Alternanthera philoxeroides*), and coontail (*Ceratophyllum demersum*).

A heavy infestation of aquatic vegetation was observed in a small canal near the north end of the dam. This area contained moderate amounts of coontail, common salvinia, duckweed (*Lemna. sp.*), and hydrilla (*Hydrilla verticillata*). The hydrilla appears to be confined to this small area, far it was observed in no other location.

Submerged aquatic vegetation (SAV) most commonly observed were stonewort (*Nitella spp.*) and coontail (*Ceratophyllum demersum*). Occurrences were generally regarded as medium to light at the 2-4ft contours. Spikerush *(Eliocharis spp.)* was also found in light to trace amounts in several locations around the lake.

Other species of aquatic plants found in light to trace amounts include water pennywort (*Hydrocotyle spp.),* giant cutgrass (*Zizaniopsis miliacea*), American lotus (*Nelumbo lutea*), duck potato (*Sagittaria spp.*), water sedge (*Cyperus spp.*), and smartweed (*Polygonum hydropiperoides*).

Peruvian water grass (*Luziola peruviana*) continues to be found in high concentrations near the Baptist Cove area; however the spray efforts by District 5 spray crew have reduced the affected area to only about 10 acres or less. Efforts will continue to treat this area to prevent expansion.



BUNDICK LAKE
October 2011
George Melancon

Bundick Lake, in Beauregard Parish, was surveyed for the presence of aquatic vegetation on October 26, 2011. On the day of the survey water clarity was 12cm as measured by secchi disk which is significantly lower than past years. Water levels in the lake were well below pool stage due to prolonged drought conditions. This limited our access to some areas of the lake.

Areas of observed occurrence were designated as "Heavy", "Medium", or "Light". The most common aquatic vegetations observed were primrose (*Ludwigia spp.),* common salvinia (*Salvinia minima*), and spatterdock (*Nuphar luteum*). Heavy infestations of aquatic vegetation occurred on the north end of the lake and several bays and covers around the perimeter. Predominant species associated with these areas were common salvinia, spatterdock, and alligatorweed (*Alternanthera philoxeroides*).

Very little submerged aquatic vegetation (SAV) was observed possibly due to the reduced water clarity.

Other species of aquatic plants found in light to trace amounts include water pennywort (*Hydrocotyle sp.),* giant cutgrass (*Zizaniopsis miliacea*), American lotus (*Nelumbo lutea*), duck potato (*Sagittaria spp.*), water sedge (*Cyperus spp.*), and smartweed (*Polygonum hydropiperoides*).

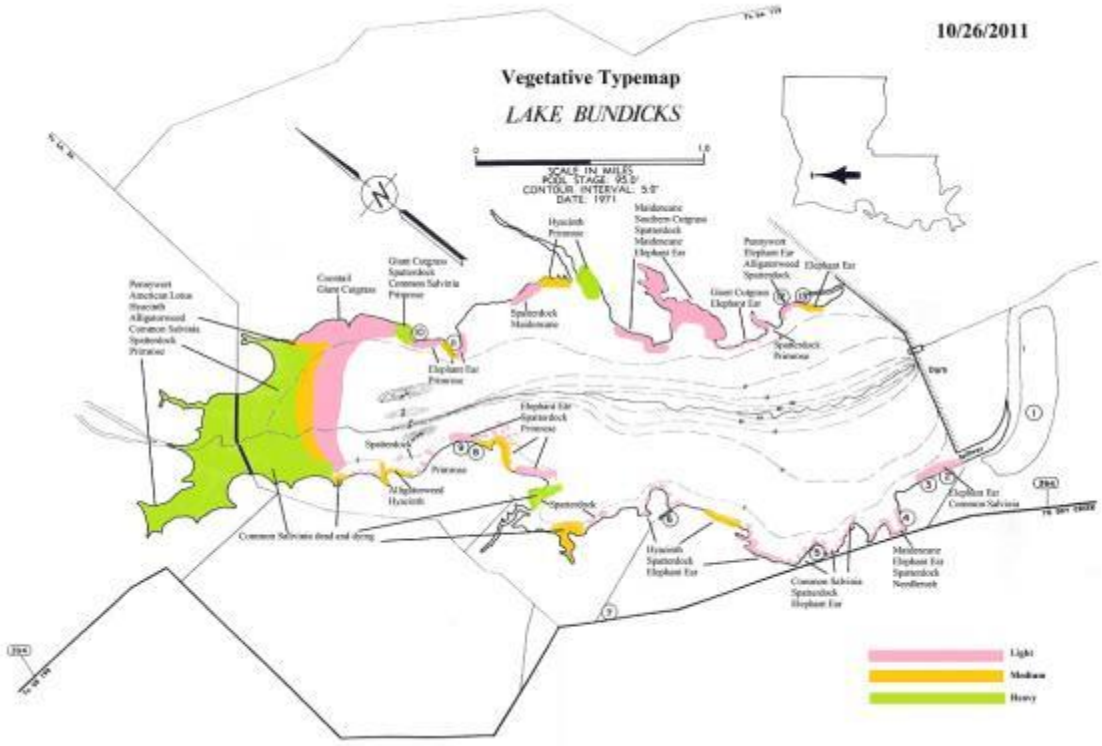
District 5 spray crews have successfully accomplished control of Peruvian water grass (*Luziola peruviana*) in the Baptist Cover area with the aid of the new surface drive spray rigs. Very little was observed in this area during the survey.

This year spray crews began targeting the heavy infestations of aquatic vegetation located in the shallow flats on the north side of the lake. Historically these areas have been a chronic problem due to limited access with the traditional equipment. However due to the low water levels access has remained limited. Once water levels return to normal the surface drive equipment will allow spray crews to access these areas and increase control.

10/26/2011

Vegetative Typemap

LAKE BUNDICKS



APPENDIX III

Bundick Lake Flood Analysis Correspondence 1962-1983

STATE OF LOUISIANA

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

INTRADEPARTMENTAL CORRESPONDENCE
P. O. Box 1399
Lake Charles, Louisiana 70602
(318) 439-2406

IN REPLY PLEASE REFER TO FILE NO.

January 4, 1983

REFERRED TO

_____ REFERRED FOR ACTION
_____ ANSWER FOR MY SIGNATURE
_____ FOR FILE
_____ FOR YOUR INFORMATION
_____ FOR SIGNATURE
_____ RETURN TO ME
_____ PLEASE SEE ME
_____ PLEASE TELEPHONE ME
_____ FOR APPROVAL
_____ PLEASE ADVISE ME

BY _____ DATE _____
BY _____ DATE _____
BY _____ DATE _____
BY _____ DATE _____

Mr. Richard Bennett
Programs Administrator
Federal and State Programs
DOTD, Office of Public Works
P. O. Box 44155, Capitol Station
Baton Rouge, Louisiana 70804

Re: Bundicks Lake Flooding
Beauregard Parish

Dear Mr. Bennett:

Reference is made to your recent inquiry pertaining to the above subject.

Research of our files, the courthouse records in DeRidder, and discussions with former Bundicks Lake Commission members reveal that only R/W grants were obtained to elevation 95.0 ft. MSL in the lake area. Apparently information of grants obtained to the elevation of 105.0 ft. MSL as reported in 1978 was erroneous information received from the Police Jury.

Please find attached for your information several pieces of correspondence, newspaper clippings, and designs which will give you a history of what has transpired in the past on Bundicks Lake flooding.

Should additional information be required, please advise me.

Sincerely yours,

OLIVIER BROUSSARD III, P.E.
DISTRICT ADMINISTRATOR

B. J. LANDRY
DISTRICT PUBLIC WORKS ENGINEER

BJL/caa
Attachment as noted.
cc: Gang 001
Gang 357✓
Mr. Arthur Theis

RPR

RECOMMENDED FOR APPROVAL _____ DATE _____
RECOMMENDED FOR APPROVAL _____ DATE _____
RECOMMENDED FOR APPROVAL _____ DATE _____

STATE OF LOUISIANA
HOUSE OF REPRESENTATIVES
BATON ROUGE

JAMES DAVID CAIN
DISTRICT 32

Phone Office 328-6460
Phone Home 328-6460
BOX 427
DRY CREEK, LA. 70637

COMMITTEES:
AGRICULTURE
TRANSPORTATION & HIGHWAYS
JUDICIARY C
INTERIM COMMITTEES:
CORRECTIONAL INSTITUTIONS
EDUCATION

March 19, 1973

RECEIVED
MAR 20 1973
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE, LA.

Roy Aguillard, Director
Department of Public Works
P. O. Box 44155, Capitol Station
Baton Rouge, Louisiana 70804

Dear Mr. Aguillard:

To confirm the conversation we had in your office, Friday, March 16, I want to request formally by this letter the improvement plan for the management of Bundicks Lake, Beauregard Parish, as proposed by the Louisiana Wild Life and Fisheries Commission.

As you know by the study of your department, the Wild Life and Fisheries Commission had four recommendations or priorties. I want to formally confirm our conversation where you stated priorty No. 1 would be done in the next year 1974.

We want to include at least one priorty each year there after.

Of course, as you know, I would like to have all four done at once but realizing your budget and the cost of this project, I understand your reluctance to approve them all at one time.

Please confirm this correspondence so I can report to my Parish Police Jury and the Bundicks Lake Commission your plan to carry out the recommendations. stated in a letter to me from your department dated February 19, 1973.

Sincerely,

James David Cain

James David Cain
Representative

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
P. O. BOX 44155, CAPITOL STATION
BATON ROUGE, LA. 70804

ROY AGUILLARD
DIRECTOR

February 19, 1973

Beauregard Parish Police Jury
Post Office Box 310
DeRidder, Louisiana 70634

Gentlemen:

In response to requests made by the Chairman of the Bundicks Game & Fish Commission, Representative James D. Cain, and the Beauregard Parish Police Jury, the Department of Public Works has reviewed the preliminary improvement plan for management of Bundicks Lake as proposed by the Louisiana Wild Life & Fisheries Commission in their report of November 30, 1972. We have prepared basic engineering information with cost estimates relative to this management program.

We will first make a summary statement with cost information in relation to the four recommendations contained in the Wild Life & Fisheries Commission report. Recommendation No. 1 suggested that certain areas in the lake be cleared of standing and fallen timber. Using the map provided by the report, it has been estimated that the acreage involved is 800 acres and the cost of clearing this amount by contract would be $300,000.

Recommendation No. 2 is related to the emergency spillway. The proposed lowering of the emergency spillway five feet to elevation 98.0 would result in a stage lowering of only one foot for a storm similar to that of November, 1966. Due to the type material in this emergency spillway, lowering would not be feasible and the cost of stabilizing or construction of a permanent type spillway necessary would be excessively expensive for the benefits obtained.

Recommendation No. 3 relates to the capacity of the present control structure. Construction of an additional spillway of capacity needed to prevent flooding of existing buildings would cost approximately $1,000,000.

Recommendation No. 4 is giving consideration to raising the pool stage, which could only result in additional flood hazards.

Bundicks Lake Reservoir was completed in November 1962 at a cost of approximately $952,000. The principal spillway is of concrete 200 feet in length with a crest elevation of 95.0 feet mean sea level. The emergency spillway is of undisturbed earth 500 feet in length at elevation 103.0 feet mean sea level. The drainage area contributing to the reservoir is 208 square miles. There is a five foot by five foot drawdown structure for draining the lake during periods of no rainfall for management purposes.

Shortly after the lake was put into operation, it was brought to our attention that an increasing number of camps were being constructed along the perimeter of Bundicks Creek Lake at floor elevations which were not sufficiently high to avoid flooding during surcharges of the lake level. The attached letter of April 17, 1962 was sent to the Bundicks Game & Fish Commission and it is our understanding it was published in the DeRidder newspaper. Hydraulic studies were made prior to construction of this reservoir and additional studies made over the past years and these studies have shown that the reservoir stage can be expected to surcharge to elevation 103.0 feet on an average of once in 20 years. Floods of the magnitude of the one which occurred in early November, 1966 surcharged the lake stage to elevation 100.5 feet and can be expected on an average of once in about 10 years. The maximum rainstorm of record over the entire watershed would raise the lake to elevation 107.0 feet.

The operation of the gate in the five foot by five foot drawdown structure will have no measurable effect on surcharge stages in the lake resulting from medium and major rainstorms. For example, when the lake is at elevation 100.0, the rate of flow spilling over the concrete spillway is in excess of 20 times the rate that would flow through the drawdown structure. At a stage of 103.0 feet, this rate over the spillway would increase by 35 times that through the drawdown structure.

Referring to Recommendation No. 1 of the lake management plan, we have made a breakdown of costs for clearing the lake in the order of priority set by the Wild Life & Fisheries Commission's report. This is as follows:

Priority No. 1	-	265 acres	- $99,375.00
Priority No. 2	-	195 acres	- 73,125.00
Priority No. 3	-	245 acres	- 91,875.00
Priority No. 4	-	95 acres	- 35,625.00

Clearing and burning of the timber in the lake as recommended will be rather expensive due to the hazards and difficulties of burning that will be involved. The total cost as stated for performing and completing the clearing specified is $300,000. Attached is a map from the management report showing the location of the priority areas.

In reference to Recommendation No. 2, we could not recommend the lowering of the emergency spillway to 98 feet mean sea level. A study by our Hydraulics Section shows that very little benefit would result from this proposal. The reduction in major flood heights

would be minimal and the lowering of the emergency spillway would result in storm runoff spilling over it once every year or two resulting in its deterioration and destruction. The material in this spillway is very erodible and would become washed full of gullies from the first few floods. Providing a permanent type structure at this location would be too expensive for the benefits achieved. Degrading of the emergency spillway is not recommended.

Recommendation No. 3 does not relate to the management of aquatic weed control. It only relates to surcharge elevations obtained under various storm conditions. The construction of 300 feet of additional spillway at elevation 95.0 feet, giving a total length of 500 feet for the lake spillway, would result in lowering the surcharge stage in the lake only two feet for a recurrence of the flood of November, 1966. Thus, the stage would have been 98.5 feet instead of 100.5 feet that occurred. A flood of 20 year recurring probability would surcharge the lake to elevate 100.0 feet or slightly higher with the 500 foot spillway in place. A solution which would provide better control of flood surcharge heights would be to construct an additional spillway equipped with radial gates. The gates would be opened to pass floods th rough at reduced surcharge stages. This has an additional advantage in that the lake could be partially emptied before a major flood. A spillway so equipped with an aggregate length of 80 feet with crest elevation of 83 feet would result in an expected surcharge stage of 97.5 feet for a flood that will surcharge to 101.5 feet under existing conditions. The estimated cost for this additional spillway is $1,000,000. Attached is a sketch showing the type structure considered.

As stated above, Recommendation No. 4 could result in increased flood hazards to the existing buildings and roads around the perimeter of Bundicks Creek Lake. Costs of any plan which would be considered for this proposal would be very expensive.

Although not included in the Wild Life & Fisheries Commission management plan, we have prepared a cost estimate for installation of an additional drawdown structure if it were considered desirable to lower the lake during dry or no rain periods at a faster rate than is now possible. The estimated cost for such an additional drawdown structure of similar dimensions to the present one is $205,000. We are not recommending this additional structure but are only providing it for your information since the data is available.

I hope that the information provided will satisfy your needs. If more detailed data or explanation of any of the hydraulic or cost estimate information is required, we will be happy to meet with you and answer your questions.

Very truly yours,

Roy Aguillard

ROY AGUILLARD
DIRECTOR

DVC:dz
Attachments

cc: Honorable Bryan A. Poston
Honorable James D. Cain
Mr. G. M. McGregor, Chairman
Bundicks Game & Fish Commission

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE

LEON GARY
DIRECTOR

May 4, 1966

Mr. J. E. Haggar, Manager
DeRidder Chamber of Commerce
P. O. Box 309
DeRidder, Louisiana

Dear Mr. Haggar:

Reference is made to your letter of April 22, 1966 requesting pertinent data and information on Bundicks Lake. The following is a tabulation of pertinent data:

Drainage Area	= 208 sq. mi.
Pool Stage	= 95.0 above mean sea level (MSL)
Lake Area	= 1750 acres
Lake Volume	= 9200 Ac.-Ft.
Lake Depth at Dam	= 12.0 ft.
Average Depth of Lake	= 5.2 ft.
Length of Shoreline	14 mi.
Length of Main Spillway (Concrete)	= 200 ft.
Length of Secondary Spillway (Turfed)	= 500 ft.
Elevation of Secondary Spillway	= 103.0 (MSL)

The gated drawdown structure is one 5 ft. x 5 ft. x 262 ft. reinforced concrete box conduit with a lift gate on the lake end.

This gated structure was designed to lower the lake stage during periods of low inflow to the lake. During periods of extreme low flow the lake can be emptied in a period of about two weeks. The operation of this structure would not make any measurable difference on the heights of water in the lake during medium and major rain storms. With an empty lake it would fill and be spilling over the main spillway several days before the peak flow of most medium to major floods into the lake. With a surcharge of the lake's stage to elevation 100.0 msl or 5.0 feet above the spillway crest the rate of spilling would be in excess of 20 times the rate that would flow through the drawdown structure with the gate open. For a surcharge of 8.0 feet or just when the secondary spillway would go into use, this rate would have increased to 35 times that through the drawdown structure.

Hydrologic and hydraulics computations show that on an average of once in about ten years rain storms on the lake's watershed will cause the lake level to surcharge to elevation 100.0 msl. On an average of once in about 20 years the lake level can be expected to surcharge to elevation 103.0. The maximum rain storm of record over the entire watershed would raise the lake level to elevation 107.0.

On the basis of the daily stream flow since January, 1939, of Bundicks Creek near Dry Creek, with a drainage area of 238 square miles, the discharge into the lake area has ranged from about 40 cubic feet per second (cfs) to about 35,000 cfs with an average daily discharge of some 360 cfs or 263,000 acre-feet* per year.

Under existing uses of the lake, water will spill continuously over the main spillway except, of course, when the drawdown gate is open. Continuous withdrawals from the lake of amounts up to 15,000,000 gallons per day could be made without lowering the lake's stage below the crest elevation of the main spillway.

If additional data and information are needed, please feel free to call on us.

Sincerely,

CALVIN T. WATTS
Assistant Director

CTW:lk

cc: Mr. J. B. LeDoux

*An acre-foot is the quantity of water required to inundate an acre in area to a depth of one foot. (43,560 cubic feet or 326,000 gallons)

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE

LEON GARY
DIRECTOR

November 29, 1966

MEMORANDUM

TO: Mr. Hu B. Myers, Chief Engineer

FROM: C. K. Oakes, Chief Hydraulics Section CKO

SUBJECT: Bundick Creek Reservoir Flooding

In accordance with your instructions a study has been made of the hydrologic aspects of Bundick Creek Reservoir relative to lowering surcharge stages resulting from major floods.

The principal spillway is of concrete 200 feet in length with a crest elevation at 95.0 m.s.l. The emergency spillway is of undisturbed earth 500 feet in length at elevation 103.0 The drainage area contributing to the reservoir is 208 square miles.

On the basis of daily stream flow records of Bundick Creek, since January 1939, some 5 or 6 miles downstream of the dam with a drainage area of 238 square miles, on an average of once in about 20 years floods can be expected that will surcharge the reservoir stage to elevation 103.0 Floods of the magnitude of the one which occurred in early November of this year, which surcharged the stage to elevation 100.5, can be expected on an average of once in about 10 years.

The operation of the gate in the 5 ft. x 5 ft. drawdown structure will have no measurable effect on surcharge stages resulting from floods. For example when the lake level is at elevation 100.0 the rate of flow spilling over the spillway is in excess of 20 times the rate that would flow through the drawdown structure. At a stage of 103.0 this rate would increase to 35 times that through the drawdown structure.

There have been frequent reports of homes and camps being flooded by pool stages of 100.0 and less. Local interests have indicated a desire to lower or degrade the emergency spillway as a solution to the flooding. Hydraulics computations show that lowering the emergency spillway 4.0 feet to elevation 99.0 would only effect a reduction in stage of about 0.5 of a foot to elevation 100.0 for the flood of November, 1966. Degrading it 5.0 feet or to elevation 98.0 would result in a stage lowering of only 1.0 foot or to elevation 99.5 for the same flood.

MEMORANDUM

TO: MR. Hu B. Myers, Chief Engineer
FROM: Mr. C. K. Oakes, Chief Hydraulics Section

November 22, 1966

An emergency spillway at elevation 98.0 would result in floods spilling over it once every year or two and twice during some years. The material in this spillway is very erodable and would become washed full of gullies from the first few floods. Degrading the emergency spillway is not recommended.

The construction of 300 feet of additional spillway at elevation 95.0 giving a total length of 500 feet, would result in lowering the surcharge stage only 2.0 feet for a recurrence of the recent flood. Thus the stage would have been 98.5 instead of the 100.5 that occurred. A flood of 20 year recurring probability would surcharge the lake to elevation 100.0 or slightly higher with the 500-foot spillway.

One other solution is to construct an additional spillway at a lower elevation equipped with radial gates. The gates would be opened to pass floods through at reduced surcharge stages. This has an additional advantage in that the lake could be partly emptied before a major flood. A spillway so equipped with an aggregate length of 80 feet at a crest elevation of 83.0 would result in a peak surcharge stage of 97.5 for a flood that will surcharge to 101.5 under existing conditions.

An additional spillway 80 feet in length at crest elevation 83.0 equipped with radial gates is recommended.

/jr

November 29, 1966

Senator Jesse H. Knowles
636 West LaGrange
Lake Charles, Louisiana

Dear Senator Knowles:

In accordance with your request, a study has been made of the hydrologic aspects of Bundicks Creek Reservoir relative to lowering surcharge stages resulting from major rain storms.

The principal spillway is concrete, 200 feet in length, with a crest elevation at 95.0' m.s.l. The emergency spillway is of undisturbed earth, 500 feet in length at elevation 103.0' m.s.l. The drainage area contributing to the reservoir is 208 square miles.

On the basis of daily stream flow records of Bundicks Creek since January, 1939, floods that will surcharge the reservoir stage to elevation 103.0 can be expected on an average of once in 20 years. Floods of the magnitude of the one which occurred in early November of this year, which surcharged the lake stage to elevation 100.5, can be expected on an average of once in about 10 years. The maximum rain storm of record on the entire watershed would raise the lake to elevation 107.0.

The operation of the gate in the 5 ft. x 5 ft. drawdown structure will have no measurable effect on surcharge stages in the lake resulting from medium and major rain storms. For example, when the lake level is at elevation 100.0 the rate of flow spilling over the concrete spillway is in excess of 20 times the rate that would flow through the drawdown structure. At a stage of 103.0 this rate over the spillway would increase to 35 times that through the drawdown structure.

A field reconnaissance of the Bundicks Lake area was made by our District Engineer, Mr. George Johns, on November 16, 1966, to determine the effects of the rain of November 11 and 12, 1966. The amount of rainfall within the lake watershed varied from 6 to 11 inches, causing the lake level to rise rapidly from the pool stage of 95.0 feet m.s.l. to a high of 100.5 feet. Approximately sixty (60) camps within the marginal area around the lake perimeter, having floor elevations less than 100.5 feet m.s.l. experienced moderate to heavy damages from the rising waters. Also, quite a few wharves were damaged from floating debris.

The general trend of thought of the local camp owners was that lowering of the emergency spillway four (4) feet to elevation 99.0 would afford relief to the area for future rains of similar magnitude. A study by our Hydraulic Section shows that very little benefit would result from this proposal. Lowering the emergency spillway four (4) feet to elevation 99.0 would only effect a reduction in stage of

about 0.5 of a foot or to elevation 100.0 for the rain storm of November 11 and 12, 1966. Lowering the emergency spillway five (5) feet or to elevation 98.0 would result in a stage lowering of only one (1) foot or to elevation 99.5 for the same storm.

Lowering the emergency spillway to 98.0 would result in floods spilling over it once every year or two and twice during some years. The material in the emergency spillway at this elevation is very sandy and very erodable and would become gullied and subject to washing out in a short time. The necessary protective measures which would have to be constructed to hold the emergency spillway at this lower elevation would be expensive.

Sincerely yours,

LEON GARY
Director

/esr

December 7, 1948

General file

MEMORANDUM

TO : Mr. Ira H. Myers, Chief Engineer

FROM : Cayce B. Sexton, Structural Design Section

SUBJECT: Preliminary estimate of construction cost for the proposed gated spillway for the existing Sandhills Lake, Beauregard Parish

NOTE: See attached sketches.

1.	Clearing and Grubbing	-	0	Acres @	$300.00	= $1,800.00
2.	Channel Excavation	-	80,000	Cu.Yds.@	0.40	= 34,000.00
3.	Structural Excavation	-	30,000	Cu.Yds.@	1.25	= 37,500.00
4.	Filter Materials	-	500	Cu.Yds.@	12.00	= 6,000.00
5.	Steel Sheet Piling	-	8,825	Sq.Ft. @	4.00	= 35,340.00
6.	Timber Piling	-	13,140	Lin.Ft.@	3.50	= 45,990.00
7.	Reinforcing Steel	-	477,000	Lbs. @	0.20	= 84,400.00
8.	Concrete	-	3,160	Cu.Yds.@	65.00	= 204,750.00
9.	Trash Screen	-		Lump Sum		= 10,000.00
10.	Handrailing and Misc.	-		Lump Sum		= 10,000.00
11.	60' x 27' Tainter Gate	-	2	Each	$35,000.00	= 70,000.00
12.	Tainter Gate Hoist	-	2	Each	$20,000.00	= 40,000.00
13.	Electrical Installation	-		Lump Sum		= 10,000.00
14.	Backfill	-	10,000	Cu.Yds.@	0.60	= 6,000.00

BJH

15.	Seeding or Sodding	-	2 Acres	@ $300.00	= $ 600.00
16.	Gravel	-	265 Cu.Yds.	@ 10.00	= 2,650.00
17.	Riprap	-	1,300 Tons	@ 18.00	= 23,400.00
				TOTAL	= $632,439.00

/an
Attachments

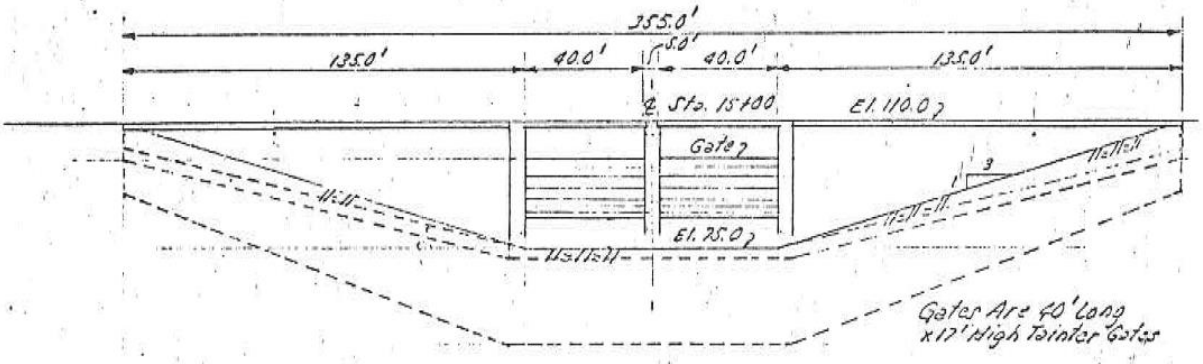
cc - Mr. Daniel V. Cronap
Mr. George T. Johns
Mr. C. K. Oakes

ENGINEERING DIVISION

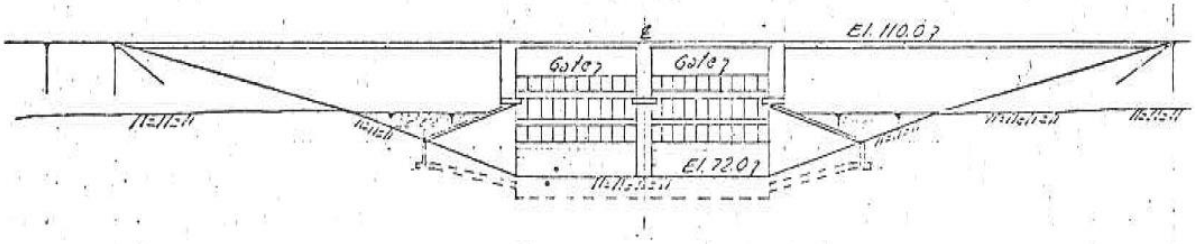
DPW 24 — Page No. 2

PARISH	COMPUTED BY	DATE
Beauregard	Sexton	11-28-66
SUBJECT	**CHECKED BY**	**DATE**
Bundicks Lake Gated Spillway		

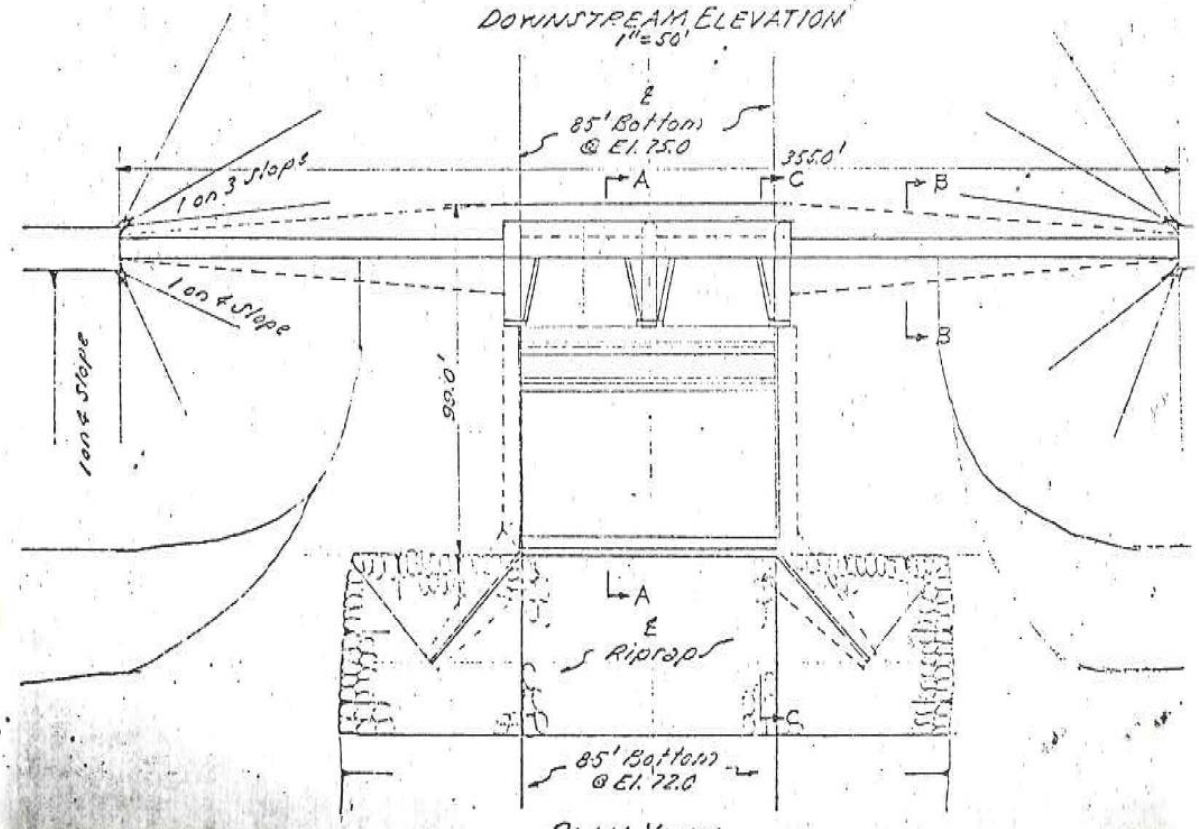
Sketches



UPSTREAM ELEVATION
1" = 50'



DOWNSTREAM ELEVATION
1" = 50'



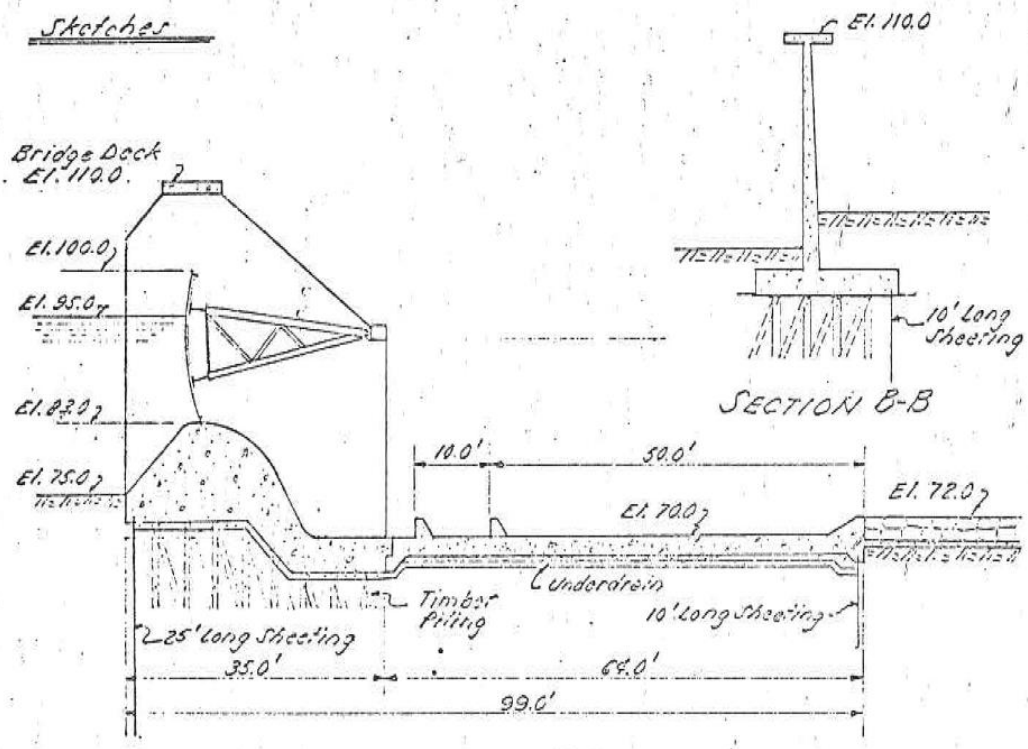
PLAN VIEW

ENGINEERING DIVISION

DPW 24

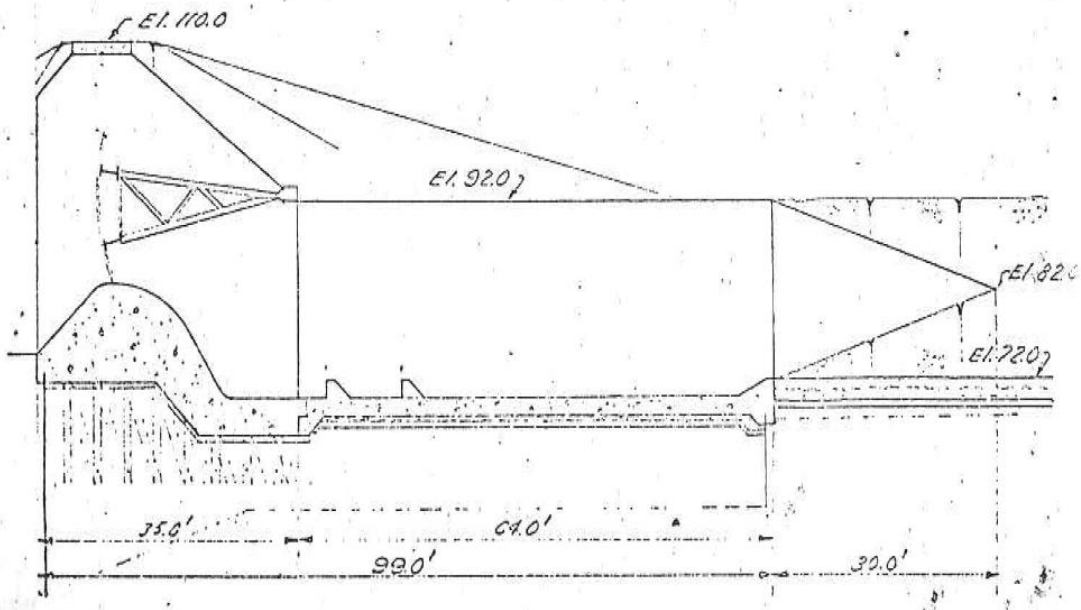
PARISH	COMPUTED BY	DATE
Beauregard	Sexton	12-1-66
SUBJECT Bundicks Lake Gated Spillway	CHECKED BY	DATE

Sketches



SECTION A-A
1" = 20'

SECTION B-B



VIEW C-C
1" = 20'

April 17, 1962

Mr. J. B. Ledoux, Chairman
Bundicks Game and Fish Commission
202 Wilson Street
De Ridder, Louisiana

Dear Mr. Ledoux:

It has been brought to my attention that an increasing number of camps are being constructed in subdivisions along the perimeter of Bundicks Creek Lake at floor elevations which are not sufficiently high to avoid flooding during surcharges of the lake level. You are therefore requested to give some publicity to this matter so that future builders of camps will take into account the higher lake levels which may be expected temporarily as result of rainfall in the Bundicks Creek watershed.

The lake pool stage is elevation 95.0 feet above mean sea level. The lake may be expected to remain at or a matter of a few inches above that level for the greater part of each year. However, the lake level may be expected to rise temporarily to an elevation of 100.0 feet above mean sea level once every 10 years, and to a level of 103.0 feet above msl once in 20 years. The maximum rain storm of record occurring over the entire watershed would raise the lake level to a height of 107.0 feet above mean sea level.

There is nothing greatly wrong with the location of a camp on a lakefront lot having an elevation of say 98.0 to 103.0 feet above mean sea level. Any buildings constructed on such parcels of ground should be so constructed as to have a floor level of not less than 105.0 feet above msl. On the lots only a few feet above pool stage (lots having general elevations of 96.0 to 100.00 feet above msl), the adoption of a piling-supported

structure raised so as to permit use of the area under the camp except during high lake stages is most adaptable. It is also obvious that access to the low-lying lots or camp sites will be temporarily cut off except by boat.

Your assistance in making this information known to developers of subdivisions, docks and boat sheds, and to the general public, will be greatly appreciated.

Yours very truly,

CLAUDE KIRKPATRICK
Director

/hb
cc - C. K. Oakes
T. C. Morgan