

ENGINEERING APPENDIX, BAYOU SORREL LOCK FEASIBILITY STUDY  
 INDEPENDENT TECHNICAL REVIEW COMMENTS

Reviewing Office: ED-SR

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	ED-SRWurzel	ED-SR	80	C6.3.3	Modify this paragraph to reflect that the existing facility crosses two channels, the existing lock access channel and the east access channel. These channels are separated by the EABPL.	Concur; paragraph was changed accordingly.
2	ED-SRWurzel	ED-SR	80	C6.3.5	Add to this paragraph a discussion on hot tapping, explaining that hot-tapping is typically used by owners, particularly to provide continuous use of the pipeline during the installation of new sections or bypasses.	Concur; however, since this review was conducted, the pipeline owner has notified the COE that the pipeline will be removed from service. Thus, the comment is no longer applicable.
3	ED-SRWurzel	ED-SR	80	C6.3.5	If the plan for relocation include traversing the two channels as well as the EABPL, this should be discussed in this section. Directional drilling under these 3 items should be reviewed by Geotechnical Branch. If directional drilling under EABPL is not allowed, two shorter directional drills under the channels may be possible with an over-land crossing across the EABPL. Discussion should also touch on what plan is more economical and constructible.	Concur; however, since this review was conducted, the pipeline owner has notified the COE that the pipeline will be removed from service. Thus, the comment is no longer applicable.
4	ED-SRWurzel	ED-SR	80	C6.3.5	Discussion should mention that additional right-of-way may be required for the owner to perform the relocation.	Concur; however, since this review was conducted, the pipeline owner has notified the COE that the pipeline will be removed from service. Thus, the comment is no longer applicable.
5	ED-SRWurzel	ED-SR	80	C6.3.5	Discussion should mention that upon determination of access roads to be used during construction, the roads will be investigated, and affected facility owners contacted.	Concur. A new paragraph entitled "Impacts to Facilities Crossed by Access Roads to the Construction Site" was added.
6	ED-SRWurzel	ED-SR		Annex 1	Revise the "ITEM" for Account 02300 to "Relocation of 10-inch Florida Gas Transmission (FGT) Pipeline". Consider breaking out the costs for hot-tapping and directional drilling, if available.	Concur; however, since this review was conducted, the pipeline owner has notified the COE that the pipeline will be removed from service. Thus, the comment is no longer applicable.

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Reviewing Office: PPPMD

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	PPPMD/Broussard	ED-H	9	C2.2.3.2	The scenario mentioned in this paragraph of using the decommissioned old lock for diversion has not been an option. The height of the old lock is 8-feet below the design grade of the EABPL. Modification of the old lock is not possible to meet the flood protection design grade. Current plans are to place a permanent closure across the old lock at the required grade.	Concur. Appropriate changes have been made to the report text.
2	PPPMD/Broussard	ED-H	37	C2.3.4	Only 1,200-foot chamber were considered for this study.	Concur. References to all other chamber lengths will be deleted.
3	PPPMD/Broussard	ED-H	71	C2.4.8	Reference is made to the Value Engineering (VE) Study performed in Mar 00. A proposal was developed to reduce the length of the east guidewall from 1200 to 800 feet, and the west guidewall from 800 to 400 feet. This proposal saved an estimated \$3,177,600. This proposal should be discussed in this appendix.	Concur, with exception. The west guide wall can be reduced to 400 feet. The east guide wall will remain at 1200 feet per Operations Division's request and EM 1110-2-2602, Section 5-5, "Approach Walls", paragraph b.
4	PPPMD/Broussard	ED-SR	79	C6.3.1	This paragraph only identifies a 10-inch gas pipeline as the only facility affected by the proposed lock. Please determine if the public boat launch just north of the new lock location will be affected.	At this time, it does not appear that the public boat north of the new lock location will be permanently affected. Temporary closure may be required while construction in this area is underway.
5	PPPMD/Broussard	ED-T	86	C7.6	This paragraph should discuss the structural alternative of modifying the lock to meet the flood control objective. Also, it should address the non-structural alternative of flood-fighting an event.	Concur. Appropriate text will be added to the Engineering Appendix.
6	PPPMD/Broussard	ED-SP, OD	98	C12.4	Included in design is a new set of spare gates. This paragraph should discuss how the spare gates will be used.	Do not concur. According to Mr. Mike Park of Operations Division, spare gates are not required for this lock.
7	PPPMD/Broussard	ED-T	102	C17.2.4	This paragraph should discuss the construction sequence in years. For example, items 1 thru 5 will be accomplished in the first year, etc. The only place that addresses construction time frame is the cost estimate.	Concur. Text has been revised accordingly.
8	PPPMD/Broussard	ED-SP, ED-C	N/A	Annex 1	Mitigation costs (\$157,000) are not included in the chart of accounts.	Concur. Estimate will be revised accordingly.
9	PPPMD/Broussard	ED-SP	N/A	N/A	General comment. The Engineering Appendix should discuss why only one site was selected.	Concur.

PPPMD

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Reviewing Office: ED-LL

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	ED-LL/Martin	ED-T/ED-F	N/A	General	Will the recommended design grade for the Lower Atchafalaya Basin Re-Evaluation Study be taken into account in setting the design grade for the tie-in levees?	This study is ongoing, and, as of now, a new design grade has not been established. Future phases of the lock replacement project will reflect the new elevation when available.
2	ED-LL/Martin	ED-SP	N/A	General	The report should be tabbed to help the reader go to the various sections.	The report will be bound using metal binders. Tabs will protrude from the text and are not appropriate for this application.

Reviewing Office: ED-LW

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ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	ED-LW/Weiser	ED-H	2	C2.1.2 Table C2	Table C2 shows monthly and annual precipitation for a 10-year period in its title. Possibly this should be changed to state that this is an average for each month and year over a 10-year period. Please clarify.	Concur. The title of Table C2 has been changed to "AVERAGE MONTHLY AND ANNUAL PRECIPITATION".
2	ED-LW/Weiser	ED-H	2	C2.1.4 Table C3	Was the data in Table C3 corrected for epoch changes due to benchmark settlement throughout that time frame to the current datum epoch? Please clarify.	Do not concur. No such adjustments were made through the entire period of records shown. As per ED-H's usual procedure for doing climatology write-ups, the data shown are based on the records as they are maintained and published by ED-H.C. These records do, however, incorporate periodic gage datum adjustments.
3	ED-LW/Weiser	ED-LW	78	C6.2.1	This paragraph indicates that the channel sections have a bottom elevation of -12.0 and -7.0 NGVD. However, Figures 1 and 2 in Annex 4 show the elevations to be in M.G. Please clarify; dredging quantities could be in question due to differences in the datum.	Concur. The datum of "MLG" for the GIWW Alternate Route is correct. The paragraph has been revised to show "MLG".
4	ED-LW/Weiser	ED-LW	N/A	N/A	Provide survey information used for quantities as well as the design epoch of the proposed lock, i.e., NGVD-27, NGVD-64, NGVD-83, etc.	Survey information was provided to ED-C for use in developing cost estimates; however, inclusion of this data into the report is not warranted.
5	ED-LW/Weiser	ED-T	102	C17.2.1	This paragraph refers to "East Acharafaya Basin Protection Levee" is this a correct label?	The label is correct.
6	ED-LW/Weiser	ED-F	103	C17.2.4	Paragraph C17.2.4 is a step-by-step construction method and sequence. However, the reviewer sees nothing on the handling of relief well runoff. To keep the hydrostatic head below -11.0 NGVD may cause some significant runoff from the walls. Has this issue been addressed?	Yes. A standard wellpoint installation discharges the flow out the excavation by pipe. The deep wells will be discharged by pipe so that they can be pumped over the earthen cofferdam. Once the water is over the earthen cofferdam, the water can either be discharged by ditch or pipe into Grand Bayou.
7	ED-LW/Weiser	ED-F	104	C17.2.4 Items 13 & 15	Items 13 and 15 mention sealing piezometers. Is this the existing piezometers from which current data has been obtained, or will additional piezometers be installed and observed during construction and then sealed? Please clarify.	Concur. We have added item 2 that states piezometers will be installed with the dewatering system. At the end of construction, all piezometers will be removed and sealed, including any piezometers now in place. Item 15 in paragraph 17.2.4 will be changed from "any corresponding piezometers" to "all piezometers".

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Reviewing Office: ED-LW

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
8	ED-LW/Weiser	ED-T	N/A	Annex 1	In the cost estimates, "Permanent Access" shows only road surfacing to be performed. The type of material for surfacing should also be given. The reviewer questions that no base preparation work is required for a permanent access. Please clarify.	We anticipate using only a gravel access road with minimal preparation, similar to the existing levee roads which were constructed for the levee enlargements north and south of the existing lock.
9	ED-LW/Weiser	ED-LW	N/A	Annex 1	As cited in above comment 3, the quantities should be verified as the design drawings indicate MLG as the vertical control.	Noted. The datum of "MLG" for the GIWW Alternate Route is correct.
10	ED-LW/Weiser	ED-F	N/A	Annex 3	There is an un-numbered page listing 5 piezometers for Bayou Sorrel Lock. This page should be numbered and a drawing should be referenced to indicate the locations of these piezometers. Please clarify.	Concur. This page will be numbered. Piezometer locations are shown on the plan drawing and will be referenced.
11	ED-LW/Weiser	ED-LW	N/A	Annex 4	The two plates in this Annex show the vertical datum as MLG. Please clarify.	Noted. The datum of "MLG" for the GIWW Alternate Route is correct. The plates are correct.
12	ED-LW/Weiser	ED-SP	N/A	Plate G2	Plate G2 is too dark to verify for correctness. Please clarify.	Concur. This plate will be shown more legibly in the final report.
13	ED-LW/Weiser	ED-F	N/A	N/A	Include plates for actual boring locations, piezometer locations and relief well locations, as well as necessary ditches to handle well runoff.	The plan drawing shows the actual location of the borings and piezometers. Dwg F21 shows the deep location with respect to the excavation. The design and installation of the dewatering system is the responsibility of the Contractor. A dewatering system was presented on plate F21 for cost estimating purposes. A line showing discharge into Grand Bayou will be included.

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Reviewing Office: ED-T

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	ED-T	ED-T	N/A	General	The drawings and calculations should show more information concerning the sector gate.	Concur. Additional details will be added.
2	ED-T	ED-T	N/A	General	Consideration should be given to not dewatering the chamber. The base slab and wall dimensions could be reduced. The lighter structure may reduce the number of piles. At the very least, consideration should be given to reducing the flotation factor of safety to 1.05 instead of 1.3. The 1.3 would still be required for the gate bays.	Do not concur. The dewatered case is not the critical design case; therefore, eliminating it would serve no purpose.
3	ED-T	ED-T	N/A	General	Concrete piles are usually the most economical. Recommend larger concrete piles be considered and a cost comparison tabulated.	Do not concur. A large cost savings, if any, is not anticipated. However, the use of larger piles will be investigated in the future design phases.
4	ED-T	ED-T	N/A	General	The hydraulic stage durations show a floodside high water of El. 18 and a protected side of high water at El. 8. The design stage of El. 28 greatly exceeds this. Recommend that floodside gate bay be designed for El. 31.7; the chamber and protected side gate bay can be lowered to El. 20 (approx.). There is a levee system that protects the chamber. How many lockages are expected when the water stage is at El. 28.07 St. Louis District closes the entire Mississippi River down when flood stage is approached?	Concur. The protected side chamber and gate bay monoliths have been lowered to El. 26.8, as per CEMVN-ED-HD chart dated 9 Nov 00, revised 17 Nov 00. The chart is entitled "GIWW Locks Study, Bayou Sorrell Lock Replacement, Tabulation of Duration Lock Shut Down Times for Various Design Grades for the Lock Chamber and Landside Gatebay".
5	ED-T	ED-T	N/A	General	Check the gate bay foundations to verify if battered piles are needed to resist lateral movement.	Battered piles are not required.
6	ED-T	ED-T	N/A	General	The Hydraulic Model Study for Algiers Lock shows the Hawser forces, as they relate to differential head, for this type of gate.	The information in the Hydraulic Model Study for Algiers Lock is not helpful in determining the Hawser forces. The size and sill elevation of Algiers Lock are very different from Bayou Sorrell's, and the gate operating schemes used for filling and emptying, in the model study, are different from those of Bayou Sorrell.
7	ED-T	ED-T	N/A	General	Consider using the existing maintenance building and shops.	Do not concur. Operations Division has requested and provided justification for new buildings and shops.

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ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
8	ED-T	ED-T	N/A	General	Emergency bulkheads are not required with sector gates (as discussed with Strecker of ED-G). The weight shown for the emergency bulkhead can be reduced to that of two needle girders. Based on the dewatering water stages shown in the report, the existing steel needle beams can be used. The only storage required would be for the 2 needle girders (assuming only one bay will be dewatered at a time).	Concur. Bulkheads have been deleted; needles and girders will be used instead.
9	ED-T	ED-T	N/A	General	Revisit the proposed location; we understand that the lock is situated on the worst soil in the immediate vicinity.	Do not concur. Soils in the new lock location are substantially better than adjoining soils. The location for the new lock was also chosen because any other location would have required substantial changes in the alignments of the adjoining EABP Levees.
10	ED-T	ED-T	82	C7.3.3.5	Sheet pile criteria has changed. Factored soil properties are used and the allowable is increased to 0.67 Fy.	Do not concur. This criteria only applies to temporary retaining structures, not permanent sheet piling.
11	ED-T	ED-T	82	C7.3.4	The design flood should not be considered an over-stress. However, we recommend that the design flood only be applied to the floodside gate bay. The dewatering case can extend over several months. Recommend that the overstress be reduced from 33% to 17%.	Concur. Design cases are being revised.
12	ED-T	ED-T	83	C7.4.4	Revise uplift conditions. Except for the reverse head, Condition 2 is not possible.	Concur. Uplift conditions are being reviewed by Geotechnical Branch.
13	ED-T	ED-T	Plates	General	A site plan is needed.	A site plan is included as plate G2.

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14	ED-T	ED-T	Plates	S-1	Leland Bowman Lock and the proposed IHNC Lock have shorter usable lock lengths. At those locks the usable length is measured from pintle to opposing gate skin plate. The 1200-foot space will accommodate a 5 low barge plus lug and provide a 50-foot buffer at each end. The Bayou Sorrel Study has a 1300-foot usable length. Unless there are site specific reasons, we should standardize the usable chamber length. Also, for this type of sector gate a 50 to 60-foot buffer should be considered between the barge low and gate opening. The turbulence dissipates within 50 feet of the gate pintle; the crossing currents are very advantageous. The model studies for Algiers Lock provide all of this information.	Concur. The usable length will be changed to 1,200 feet.
15	ED-T	ED-T	Plates	S-2	Add the plies to Section A, and add tip elevations to both sections.	Concur. Section A has been modified accordingly.
16	ED-T	ED-T	Plates	S-3	Guide Wall Length. For slow moving currents, the guide wall length can be reduced to 2/3 of the chamber length. The needed length should be verified. The guide walls usually only 100 to 300 feet in length; 800 feet is excessive. Note that paragraph C7.5.5 states that the guard wall is 400 foot long. The existing lock was placed in a precarious position; the protected side guide wall was always damaged. Presumably this has been corrected.	Concur, with exception. The west guide wall can be reduced to 400 feet. The east guide wall will remain at 1200 feet per Operations Division's request and EM 1110-2-2602, Section 5-5, "Approach Walls", paragraph b, "Length". Operations Division will be queried to determine if these wall lengths are necessary.
17		ED-T	Plates	S-3	Fender Construction. Timber guide walls are a maintenance problem. The problem is worsening with poorer quality wood and the threat of termites. Ops Div along with Gen Engr Sec are doing a lot of research on alternatives to wood. Life cycle costs must be considered. Modular concrete pontoons are the favorite, fixed or floating. There are also a variety of composite materials that should be investigated.	Concur. The approach walls have been changed to fiber reinforced plastic marine fender timbers as per Operations Division's request. The use of a floating guide wall will be investigated during future design phases.

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ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
18	ED-T	ED-T	Plates	S-3	Two of the control houses should be removed. One control house at each end of the structure should be able to operate the sector gates, but verify this with Ops Div. A second story is preferred; elevating the control house on columns can reduce the cost. Ops Div has discussed the use of cameras, remotely operating the lock from one control house.	Concur. Two control houses will be removed.
19	ED-T	ED-T	Plates	S-4	Gate Bay Modules: The 50 +/- thrust and machinery blocks are excessively long. The 174 monolith length can be reduced.	Concur. This will be addressed during future design phases after refinement of the loads.
20	ED-T	ED-T	Plates	S-11	The sector gate can be constructed from pipe chords. Pipe has better column and torsional properties. A buoyant chamber at the skin plate should be considered if the hinge and pinle bushing stresses are excessive.	Concur. The use of pipe members will be investigated during future design phases.
21	ED-T	ED-T	Plates	S-12	Indicate pile tips for cost estimating purposes.	Concur.
22	ED-T	ED-T	Plates	S-13	Note that lightweight fill is erroneously shown down to E1. -63. Also, the concrete hoop radius differs between the Plan view and Section A.	Concur.
23	ED-T	ED-T	Plates	S-14	The earthen chamber may be economical if the chamber side high water stages are reconsidered. See 4 above.	The earthen chamber is being reevaluated; however, the use of a T-wall is still required. Therefore, the U-frame option still appears to be more economical.
24	ED-T	ED-T	N/A	Calculations	The operating conditions shown in the calculations are different than those in the write-up. The calculations appear to be wrong.	Concur. Loading conditions will be revised.
25	ED-T	ED-T	N/A	Calculations	The hydraulic load factor (Hf) equal to 1.3 should only be applied to operating cases. For the construction and dewatered case, Hf = 1.0 is recommended.	Instead of reducing the Hf, a reduction was applied to the loads.
26	ED-T	ED-T	N/A	Cost Estimates	The following discrepancies are noted: 14" PPC @ Gatebay 74,500 lf 97,500 14" PPC @ Chamber 294,000 lf 250,000 GUIDE WALL FENDER 1,070 mbf 768 HAND RAIL 2000 lf 4000 DOLPHINS CONC. 800 cy 3,200 cy DOLPHINS TIMBER PILES 7777	Concur. Quantities have been adjusted where required.

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**ENGINEERING APPENDIX, BAYOU SORRELL LOCK FEASIBILITY STUDY  
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Reviewing Office: ED-C

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	ED-C	ED-T	N/A	General	<p>In the various cost estimates, the cost for the "Needle Storage Rack" (\$100,000) will be revised to include the cost of needle beams. The cost for bulkheads will be deleted from the estimates. The cost of the needle beams and the corresponding storage rack will be calculated by ED-C.</p>	<p>Concur. Needles, girders and storage racks have been added and the bulkheads deleted.</p>

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ENGINEERING APPENDIX, BAYOU SORREL LOCK FEASIBILITY STUDY  
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Reviewing Office: ED-F

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	ED-F/Tullier	ED-T ED-SP	82	C7.3.3.5	In the last sentence, change "inch" to "inches".	Concur.
2	ED-F/Tullier	ED-T	83	C7.4.4	In the second sentence, change "due to the difference in water elevation and" to "across".	Concur.
3	ED-F/Tullier	ED-T	83	C7.4.4	In the third sentence, change "caused by" to "due to".	Concur.
4	ED-F/Tullier	ED-T	103	C17.2.4 Item 2	If the test pile are driven before excavation, will caissons be needed?	Do not concur. The test piles will be driven after excavation.
5	ED-F/Tullier	ED-T ED-F	103	C17.2.4 Item 5b	The boring information presented only shows soils down to elevation -120. It is not explained here why elevation -182 was chosen as the pile tip elevation. Also, more guidance is needed to determine when excavation will be allowed after the wells are operational. Will certain piezometric readings be required?	Concur. Paragraph C4.6.3 states that a boring will be taken to determine the depth of the sand. The following sentence will be added to paragraph C4.7.1 before the penultimate sentence: "The depth of the deep wells on plate F21 will be adjusted based on the depth of the deep sand aquifer from the soil boring"
6	ED-F/Tullier	ED-T ED-SP	104	C17.2.4 Item 14	Change "Mobilization" to "Mobilize".	Concur.
7	ED-F/Tullier	ED-T	104	C17.2.4 Item 20	The second sentence seems disassociated with regard to the first. Do the dolphins and guidewalls really have electrical and mechanical components?	Yes, lights and firefighting equipment, if necessary.
8	ED-F/Tullier	ED-T	104	C17.2.4	Please explain where riprap is needed and what parts may be placed in the dry vs. wet.	Concur. Riprap will be designated on the drawings. Placement in the dry vs. wet will be investigated in future design phases.
9	ED-F/Tullier	ED-T	104	C17.2.4 Item 23	Perhaps "demobilize" should be "demolish"?	Concur, but "demobilize" has been changed to "decommission".
10	ED-F/Tullier	ED-F	N/A	Annex 3	Many of the test reports have no cohesion listed. Also, at the end of Annex 3, there are piezometer tables. Are these piezometer readings or tabulated results? Please add a title or heading to clarify.	Concur. Cohensions has been added. The piezometer tables are tabulated results, and the title "Bayou Sorrel Lock Tabulated Piezometer Readings" will be added.
11	ED-F/Tullier	ED-F	Plates	F21	The dewatering plate references "Fig. 4-10, Eq(4)", Fig. 4-10, Eq(2), Fig. 4-10, Eq(3), Fig. 4-24, Fig. 4-24a, Fig. 4-24b, and Fig. 4-24c. It is not clear where these figures are taken from. Please clarify.	Concur. An asterisk has been added to the end of the figures along with a note referencing TM-5-818, Dewatering and Groundwater Control".
12	ED-F/Tullier	ED-F	Plates	F22 & F23	Plates F22 and F23 present pile capacities for 14-inch concrete piles. There are no pile capacity curves for the 12-inch concrete piles needed for the T-walls or the 12-inch battered timber piles used for the guide walls.	The T-wall will use 14-inch square concrete piles. The timber pile capacities were based on empirical results. The timber guidewall is for cost estimating, and a float-in guidewall will be designed in the future.

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Reviewing Office: ED-F

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13	ED-F/Tullier	ED-F	Plates	F31 & F32	Please mark the sheelpile in the crown as permanent or temporary. Also, in the title block for plate F31, change "HIGHT" to "HIGH".	Concur. The sheet pile and crown width are temporary.
14	ED-F/Tullier	ED-F	Plates	F42	The 2-foot crown offset is normally based on a 10-foot crown which allows vehicle access through the other 8 feet. In this case, there is plenty of room to move the sheelpile away from the floodside edge. Please consider this.	Concur. The sheet pile and crown width are temporary.

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Reviewing Office: ED-H

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	ED-H/Powell	ED-SP	N/A	Table of Contents	Index of Plates, page 9. The Index of Plates does not match the plates included in the draft copy. There are two plates under "General", G1 and G2; however, the table of contents only shows one, G1. Also, Plate H1 in the draft copy follows the geotechnical plates; the table of contents shows it following the General plates.	Concur. The necessary corrections will be made.
2	ED-H/Powell	ED-H OD	6 & 7	C2.2.1.4 & C2.2.2	Freshwater Diversion Capability. These paragraphs describe the existing freshwater diversion plan as documented in the Water Control Plan (no date or citation on this document). This plan, however, differs from pages 99 - 100, paragraphs C12.3, "Low Water Operations", and C12.6.2, "Flooding Between Port Allen Lock and Bayou Sorrel Lock". The difference between the 2 sections needs to be checked and resolved.	Concur. Appropriate changes have been made to the report text.
3	ED-H/Powell	ED-H	31	C2.3.3.2	Water Use Support Classification and subsequent discussion on future with & without project conditions. This portion of the appendix specifically describes conditions on the GIWW alternate route. As part of the recommended plan, the East Access Channel will be rerouted. Does the write-up presented here apply also to the East Access Channel in the vicinity of Bayou Sorrel Lock?	Yes. Therefore, recommend no changes be made to the write-up.
4	ED-H/Powell	ED-H	67	C2.4.2.1	Incorporation of Lock into Line of Protection. Rewrite the second sentence in this paragraph to read "The MR&T Project Flood flow line for the proposed lock is 28.7 feet NGVD (DM No. 1, Hydraulic Design, Atchafalaya Basin, LA, Project Flood Flow Line, dated Jan 1987). The project flood stage presented here is the with-ALLE stage for structures; the text presents the stage as a levee stage.	Concur. The sentence will be written as suggested.

ENGINEERING APPENDIX, BAYOU SORREL LOCK FEASIBILITY STUDY  
INDEPENDENT TECHNICAL REVIEW COMMENTS

Reviewing Office: ED-H

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
5	ED-H/Powell	ED-H	68	C2.4.2.2	Design Stages and Design Heads for Various Loading Cases. The stages and heads presented here differ from those presented on page 83, paragraph C7.4.3, "Hydraulics". It is unclear if there is consistency or inconsistency between the 2 sections. If the stages and heads are different, the rationale for investigating a different set of operational modes should be presented. Of particular concern is the hydraulic and operational mode "Maximum Operating" on page 83, which shows a tailwater elevation of 4.0 ft NGVD. The project flood condition presented on page 68 shows a tailwater elevation of 8 feet or 0 feet NGVD.	ED-T load cases are being revised to correspond those of H&H Branch.
6	ED-H/Powell	ED-H	68	C2.4.2.2	Design Stages and Design Heads for Various Loading Cases. A discussion on the selection of 8 feet NGVD for the elevation of the cofferdam should be included somewhere in the Hydraulic Design section of the appendix.	Hydraulics Branch wasn't consulted relative to selection of the cofferdam elevation of 8 ft NGVD. It appears that the natural ground elevation in the area is about 5 ft NGVD or so, so the top of the cofferdam wouldn't be very much above natural ground. A determination of the most economically feasible elevation for the cofferdam (possibly based on a risk analysis) needs to be done in the next phase.
7	ED-H/Powell	ED-H ED-LW	78 & 79	C6.2	Channel Design. What is the bottom elevation of the GIWW alternate route channel adjacent to the proposed lock, -12 ft MLLG (Annex 4, Figures 1 and 2), or -15 feet NGVD? If the bottom elevation is -12 feet NGVD, it is unclear how the GIWW alternate route channel will transition into the lock with a sill elevation of -15 feet NGVD. There is no description nor plate showing this transition. Also, page 76, paragraph C4.8.1, "Levees", states stability analyses were performed with the GIWW alternate route channel bottom at elevation -15 feet NGVD (-19 feet NGVD plus 4 feet of riprap). Cost estimates presented in Annex 1 indicates a channel with bottom elevation of -12 feet (no datum given), which indicates no additional excavation for placement of riprap.	According to ED-LW, transitions details will be covered in more detail in future design phases. They add that no increase in costs are required at this time.

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**ENGINEERING APPENDIX, BAYOU SORREL LOCK FEASIBILITY STUDY  
INDEPENDENT TECHNICAL REVIEW COMMENTS**

Reviewing Office: ED-H

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
8	ED-H/Powell	ED-H	71	C2.4.7	Erosion Protection. This section indicates that the channel within the guidewalls will be protected with riprap. See comment 7 above. If there is a transition zone, will the riprap cover any part of the transition zone from the channel to the lock if in fact the bottom elevation of the channel is -12 feet NGVD? Has the cost for riprap protection been included in the cost estimates?	Riprap will be shown on the drawings, and included in the costs estimates.
9	ED-H/Powell	ED-H	71	C2.4.7	Erosion Protection. How was the design wave height selected? Conversations with S. Maynard of WES indicate that low waves may be on the order of 1 foot. Also, what is the rationale for protection of the channel bottom?	Design wave height was derived from Hudson's Equation using stone sizes that have remained stable in similar environments along existing channels in the District. The original stone sized for Bayou Sorrel Lock, 24-inch gradation, sustained damage. Hudson's formula predicts that the 24-inch gradation should have been stable for a 3-foot wave. Consequently, the 36-inch gradation, which has proved stable at Leland Bowman Lock and should be stable for a 4-foot wave, was selected for this location. Additionally, physical model tests performed in 1981 for the proposed Seabrook Lock indicated that the 36-inch stone gradation was the minimum thickness required for stability along the channel bottom based on the low horsepower and bottom clearance used in that model.
10	ED-H/Powell	ED-LW	78 & 79	C6.2	Channel Design. It is unclear how the East Access Channel (bottom elevation of -7 feet NGVD) will transition into the GIWW alternate route channel (bottom elevation of -12 feet NGVD). There is no description nor plate showing this transition. Also, Annex 4, Figure 2 shows the elevation as -7 feet MLG.	According to ED-LW, transitions details will be covered in more detail in future design phases. They add that no increase in costs are required at this time.
11	ED-H/Powell	ED-SP	99	C12.6.1	The word "drought" is misspelled as "draught".	Concur. Correction has been made.
12	ED-H/Powell	ED-H OD	99 & 100		A description of the preliminary water control plan is needed. What is described on page 6 differs from the operational plan described on pages 99 through 100 (see comment 2 above).	Concur. Appropriate changes have been made to the report text.

ENGINEERING APPENDIX, BAYOU SORRELL LOCK FEASIBILITY STUDY  
INDEPENDENT TECHNICAL REVIEW COMMENTS

Reviewing Office: ED-G

ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	PARA. NO.	COMMENT	RESOLUTION
1	ED-G/Sanchez	ED-G	86	C8.1.1a	Change the gate operating speed from 0.35 degrees per minute to 3.5 degrees per minute.	Concur.
2	ED-G/Sanchez	ED-G	89	C8.1.3.4	In the calculations for hinge and pinle friction for Case 1, include the calculations for the net hydrostatic load of 608 kips, and for the vertical application distance of 9.64 feet from the pinle.	Concur. A brief description of how the value was obtained has been included.
3	ED-G/Sanchez	ED-G	91	C8.1.4.3	Same as comment 2, except for Case 2.	Concur. A brief description of how the value was obtained has been included.
4	ED-G/Sanchez	ED-G	93	C8.1.5.1	In order to facilitate the checking of calculations, provide the source or the calculation for the area of the surface perpendicular to movement in the calculation for hydraulic drag force (i.e., 23.1 and 43.7).	The 23.1 foot value is from the "Gate Plan" shown on page 88 (gear lengths 12-feet + 11.1 feet). The 43.7 feet value is the total submerged height of the gate (El 28.7 down to El. -15.0). A similar explanation has been inserted in the calculations.
5	ED-G/Sanchez	ED-G	94	C8.1.6 Table 25	In the column "Gate Speed" for Case 1, change 0.35 deg/min to 3.5 deg/min. For Case 2, change 972 10 <sup>3</sup> RPM to 9.72 10 <sup>3</sup> RPM.	Concur.
6	ED-G/Sanchez	ED-G	94	C8.1.6 Table 25	Change the formula for "Drive Pinion Torque" to read as follows: $Drive\ Pinion\ Torque\ (T_{pinion}) = (Gate\ Operating\ Torque)(E_{gear})(R_{rack}/R_{pinion})$	The formula listed in the comment is correct, however, to get the values listed in Table C25, the intended formula is: $T_{pinion} = F_{rack} (R_{pinion}) / E_{gear}$
7	ED-G/Sanchez	ED-G	94	C8.1.6 Table 25	In the column "Drive Pinion Torque", change the values for all 3 cases as follows: "Case 1 - 28,600; Case 2 - 28,665; Case 3 - 14,014"	See reply to comment 6.
8	ED-G/Sanchez	ED-G	94	C8.1.6 Table 25	In the column "Motor Pressure", change the values for all 3 cases as follows: "Case 1 - 2162; Case 2 - 2167; Case 3 - 1059"	See reply to comment 6.
9	ED-G/Sanchez	ED-G	94	C8.1.6 Table 25	In the formula for "Motor Horsepower", change the value for motor pressure from 2137 to 2162, and the value for pump pressure from 2537 to 2562.	See reply to comment 6.
10	ED-G/Sanchez	ED-G	95	C8.1.7	Revise the last sentence of this paragraph to read: "Assume only one tooth in contact, and a factor of safety of 5."	See reply to comment 6.
11	ED-G/Sanchez	ED-G	N/A	N/A	Note that comments 7, 8 and 9 above are minor and do not affect the sizing of the drive machinery. They are presented only to maintain the accuracy of the calculations.	Noted.

General Note: Since the Independent Technical Review was conducted, the Mechanical Design Engineer has decided to delete the extensive calculations included in the draft of the Engineering Appendix. Therefore, comments 2 through 11 are no longer applicable. A copy of the revised mechanical section is attached.

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ITEM NO.	OFFICE/PERSON GENERATING COMMENT	OFFICE ADDRESSING COMMENTS	PAGE NO.	SECTION PARA. NO.	COMMENT	RESOLUTION
1	Troy Constance	PM-W	7	N/A	Middle-aged system, this implies 1/2 way through design life.	do not concur. Middle-aged refers to growth and development.
2	Troy Constance	PM-W	7	N/A	Why did traffic fluctuate? Does this reason help your case? If so, you should include this discussion.	Traffic fluctuations are not unusual at any location or whether the lock is relatively new or old. The reasons why can be many. For instance, in some years the lock may have been down due to scheduled or unscheduled closures for a larger period of time than other years; there may have been years when open pass lockages comprised a much larger percentage of total lockages than other years or the traffic fluctuations could have been the result of normal variations in shipping activity.
3	Troy Constance	PM-W	9	Table 2-3	Average should not include the 11.1 hrs. since it is high. And the average should be compared to a more efficient lock time.	do not concur. The table shows average delays for each year.
4	Troy Constance	PM-W	14	N/A	What does barge level mean?	Barge level means that the movement data we initially collect from WCSC represent individual barge movements.

5	Troy Constance	PM-W	18	N/A	There was no discussion as to how we went from system projections to Sorrel projections. Were the same distributions of traffic used? If so, doesn't that state that traffic will continue to use Sorrel regardless of the delay and that they will not seek other routes or transportation modes.	Since this study is essentially a study of the entire IWW System, traffic projections were developed for the IWW system, which, of course, includes traffic moving through Bayou Sorrel lock. In addition, these traffic projections were unconstrained traffic projections, meaning that these projections were developed assuming the movements experience no lock delays on the waterway. Later in the analysis, via the general Equilibrium Model (GEM) constrained traffic projections are developed which shows what traffic levels would be at each of the locks once lock delays are incorporated.
6	Troy Constance	PM-W	21	N/A	Cultural Resources, Why would we do this if we're going to replace or upgrade the Lock?	The paragraph has been revised to state justification.
7	Troy Constance	PM-W	23	N/A	What are the time savings of the Alt. Router?	concur. Time savings will be added.
8	Troy Constance	PM-W	28	N/A	Providing earthen levee closure..... wouldn't no action be preferred?	do not concur. No action would jeopardize the MR&T project and cause substantial flooding in the area. Estimated annual flood damages will be added.
9	Troy Constance	PM-W	30	N/A	Why one Location?	concur. A paragraph documenting why only one site was selected will be added.

10	Troy Constance	PM-W	31	PARA. B.	(adjusted for the deletion of small and negative gross cost savings movements), what does this mean and why is it removed?	Small movements are those movements carrying less than 1000 tons, generally less than one full barge load. Negative gross cost savings movements are those existing waterway movements that TVA had determined should not have traveled by water in the first place given the cost of traveling by water vs. the cost of traveling by rail. In an effort to control the size of the problem to be solved by GEM and still maintain realistic results these movements were deleted from the overall movement file.
11	Troy Constance	PM-W	31	N/A	What is WCSC?	Waterborne Commerce Statistics Center
12	Troy Constance	PM-W	31	N/A	Does speeding traffic thru Sorrel, increase delays at other locks? And if the above is true, then does the total net system benefits justify the incremental cost of increasing Sorrel lock dimensions?	The increased traffic through an improved Bayou Sorrel lock does increase the delays at Port Allen Lock especially in the later years of the project life. However the benefits that navigation accrues from a larger lock at Bayou Sorrel does outweigh the cost of additional delays at Port Allen. Consequently total net system benefits justify the incremental cost of increasing Bayou Sorrel lock dimensions.

13	Troy Constance	PM-W	33	Table 7-1	IHNC Lock. This is an authorized project under construction, therefore, the delays should drop dramatically upon completion of new lock, somewhere around 2010.	Six years ago when this analysis began the replacement of the IHNC Lock was considered uncertain at best. Today, the situation is less uncertain but there are still many hurdles that need to be crossed. As of this writing, plans are in motion to re-analyze some of the key components within the IHNC Study. However, due to the fact that less than half of one percent of Bayou Sorrel locks traffic passes through IHNC lock, the results of the Bayou Sorrel Lock Replacement Study would not have been affected if the assumption of a replacement of the IHNC lock were made in the analysis.
14	Troy Constance	PM-W	38	Table 7-5	This table says that today without project can accommodate more vessels than desiring to use it now. Further, that 68 years from now, even with project, Sorrel can only accommodate ½ the vessels that desire to use it. Table 2-11 indicates tonnages to triple but even with the improvements there's only 7% improvement of accommodation.	The reason why this affect occurs in the with-project condition is because nearly 100 percent of Bayou Sorrel lock traffic also passes through Port Allen lock. Consequently even though improvements at Bayou Sorrel lock decrease its traffic overall delay costs, it still has to incur high delays at Port Allen lock.
15	Troy Constance	PM-W	43	Table 7-8	There should be no savings for w/o project.	The savings that are referred to here are the savings produced from having the various commodities transported via the IWW as opposed to rail. These savings are then compared to what the savings would be if an improvement were made on the IWW such as increasing the dimensions of Bayou Sorrel lock.

16	Troy Constance	PM-W	51	N/A	floor/sill depths, Statement is backwards, shallower would fill faster.	As the floor elevation becomes shallower, fill and empty times must be slowed so as to not violate design safety parameters relative to turbulence within the chamber.
17	Division				The use of data from 1992 as the base year seems to be a little dated. Is more current data not available or is the analysis that old??	The analysis began in Feb. 1995. The most recent database completed by WCSC was for the year 1993. However, in 1993, the Mississippi River basin had experienced major flooding, severely affecting inland navigation over several months. Because of this, the 1992 WCSC database was used since this represented a more typical year of commerce on the inland waterway system.
18	Division				No engineering considerations are mentioned in the text. Is the design based on conventional construction only?? Are there any innovative design measures being considered?? The report should be written with the assumption that a reviewer has no knowledge of the project. Provide sufficient details so that a reviewer can fully understand the situation and rationale for what is being proposed.	Concur. Para. "C6.6.5 Float-In Structure has been added to the Engineering Appendix. A float-in lock structure was considered and not adopted. This type of structure is mostly beneficial where rights-of-way limitations and cofferdam construction produce excessive costs.

19	Division				<p>There are just summary costs used in the report. There should be a summary cost estimate included in the report so that the reviewer can understand what is really included in the costs that are presented. It might help answer such basic questions such as, "Is an earthen chamber lock really more expensive than a concrete chambered lock?"</p>	<p>do not concur. A detailed cost estimate is presented in the Engineering Appendix.</p>
20	Division				<p>Are O&amp;M costs included in the costs and/or economic analysis? Are there any special O&amp;M considerations that need to be made?</p>	<p>yes O&amp;M cost are included. Text will be added to describe O&amp;M considerations.</p>
21	Division		4		<p>Prior studies and reports should include non-Federal reports such as the Master Plan prepared by the State of LA (DNR). It is mentioned later in the text of the report.</p>	<p>concur.</p>
22	Division		21		<p>If documentation is being contemplated for the lock ( a property that is national register eligible) as a cultural resource that should be recognized in the report. If some other form of mitigation is being contemplated, that that should be discussed.</p>	<p>concur. The paragraph has been revised and the documentation is discussed in the EIS.</p>

23	Division		22		<p>The last paragraph starts with "Streamlined reliability analysis has been performed". The question is does the streamlined analysis conform with Corps guidelines for Reliability analysis?? Some rationale should be provided to explain how the streamlined procedure fulfills the requirements.</p>	<p>Since this structure is being evaluated for lockage capability and not structural reliability, CECW-PC memorandum dated Aug 96 stated, "A reliability analysis is required but the form of the reliability analysis should be streamlined. The report will present the age and condition of all other locks in the system." Therefore, we will include in the Engineering Appendix information that presents a general description of the other locks on the IWW system; information on inspection, maintenance and repair histories for each lock, including downtime; a discussion of the present condition of each lock and any known deficiencies; major maintenance, improvements, and repair activities anticipated through the operation and maintenance program; and a discussion on the potential for major rehabilitation.</p>
24	Division		23	PARA. A	<p>the jumbo barges mentioned here, are these petro-chemical barges or other bulk commodity barges?</p>	<p>they are petro-chemical barges.</p>
25	Division		23		<p>Explain that the 50-year life expectancy is economic life not real life of the structure. The basic question is "what kind of shape is the structure in? What would it take to extend the life another 50 years into the future?"</p>	<p>concur.</p>

26	Division		23		Could reconfiguring tows increase efficiency of the lock?? If so why haven't we done that already??	yes. Most of the traffic using Bayou Sorrel originate on the Mississippi River and use Port Allen and Leland Bowmen Locks with minimum delays. These tows are configured according to standard practices.
27	Division		23		We show tonnages for 1995 1996, and 1997. Why wasn't one of those years adopted as the base year?? (Remember we are now in 2001.) Does the 50 year life begin with the base year or is it some other year?	The analysis began in Feb. 1995. The most recent database completed by WCSC was for the year 1993. However, in 1993, the Mississippi River basin had experienced major flooding, severely affecting inland navigation over several months. Because of this, the 1992 WCSC database was used since this represented a more typical year of commerce on the inland waterway system.
28	Division		23		Did we consider a no growth scenario as part of the array of scenarios considered?	yes. See Section 7, para. 4b.
29	Division		23	PARA. B	Where are the bridges located across the Atchafalaya River that are in question?	Simmesport, Melville, and Krotz Springs, Louisiana
30	Division		24		Will the design of the new lock incorporate any anticipated future changes in the flow line. One might anticipate that as the Atchafalaya delta increases in size over time the flow line could change also?? (Just look at the changes that have taken place in the last 50 or so years.)	The Lower Atchafalaya Basin Re-Evaluation Study is ongoing, and as of now, a new design grade has not been established. Future phases of the lock replacement project will reflect the new elevation when available.

31	Division		27		Number 3 states that "Replacement of the IHNC Lock was not assumed." This lock is considered to be under construction. Shouldn't this be changed to include a new lock at the IHNC? What impact would this have on Bayou Sorrel?	do not concur. The sentence has been removed. Less than half of one percent of Bayou Sorrel locks traffic passes through IHNC lock; the results of the Bayou Sorrel Lock Replacement Study would not have been affected if the assumption of a replacement of the IHNC lock were made in the analysis.
32	Division		71		Coordination with DNR on the Atchafalaya Basin Master Plan should take place now to make sure that the lock replacement project is considered in their plan. That would also prevent any conflicts with their plans in the future.	concur.
33	Division		72		Suggest including summary economic data such as total first cost, recognize O&M costs, and who pays for what in the recommendations	concur.
34	Jake Terranova	Engineering	29	Para. 4B	The last sentence states that construction of a "Replacement-In-Kind" lock would require the existing lock to be shut down for approximately 3 years. Why is this so? It appears that a "Replacement-In-Kind" lock could be built in the same location contemplated for the 110-foot by 1200-foot, U-frame lock, which will allow the old lock to remain active.	Concur. The last sentence has been removed.

35	Jake Terranova	Engineering	1	Syllabus	The penultimate sentence on this page reads, "This alternative provides a significant reduction in delay time and will be constructed at the current elevation to pass the MR&T project flood." When first read, this sentence is slightly confusing because it implies that the new lock will be built to the elevation of the existing lock. Consider rewriting the sentence as follows: "This alternative provides a significant reduction in delay time and will be constructed to an elevation that will allow passage of the current MR&T project flood."	concur
36	Jake Terranova	Engineering	7	Para. 3A	The commodities passed through the lock (i.e., petroleum products, industrial chemicals, etc.) are capitalized in this paragraph, but not capitalized in other areas of this section. For consistency, no capitalization is recommended.	concur
37	Jake Terranova	Engineering	23	Para. 3A	The second subparagraph begins "The total tonnage...". Recommend revising to read "Of the total tonnage...."	concur
38	Jake Terranova	Engineering	29	Para. 4C	In the ninth line of this paragraph, change "... area. Thus..." to "... area, thus...."	concur
39	Jake Terranova	Engineering	30	Para. 4D	In the second to last line of this paragraph, change "...improvements. Thus...." to "...improvements, thus...."	concur
40	Jake Terranova	Engineering	31	Para. 1B	Add, "Also displayed are" to the beginning of the 3rd sentence of this paragraph.	concur

41	Jake Terranova	Engineering	44	Para. 2	In the seventh sentence, add, "are" between "65 acres" and "dredged".	concur
42	Jake Terranova	Engineering	46	Para. 1	In the 2nd line of the 3rd subparagraph, insert a comma between "costs" and "Construction".	concur
43	Jake Terranova	Engineering	46	Para. 1	In the 4th line of the 5th paragraph, delete "0" before "of".	concur
44	Jake Terranova	Engineering	52	Para. 3A	Change the 2nd word of the 2nd subparagraph to "rationale".	concur
45	Frank Vojkovich	Geotech	28	Para. 3C vol I	Most of the report refers to the flowline as EI 28.7 (see page 3). This paragraph states that the flowline is EI. 28.4. The paragraph also gives a design grade of EI. 31.9 with 3.5 ft freeboard. Please verify these numbers.	concur. Elevations have been revised.
46	Frank Vojkovich	Geotech	31	Para 1B vol I	Since we are now in 2001 projections for traffic in the year 2000 can be compared with the GEM results.	do not concur. See responses to comments #18 and #28.
47	Frank Vojkovich	Geotech	2	ED-LN Item 13	Volume 6, pg. 2 of ED-LN, Item 13. Under the resolution column change "shows the deep location with respect to the excavation." to "shows the deep well and well point location with respect to the excavation."	concur.
48	Frank Vojkovich	Geotech	1	ED-F vol 6 Item 5	Under the resolution column change "C4.6.3" to "C4.6.1". Change "C4.7.1" to "C4.6.1".	concur.

49	Michael Park	Operations	85	Appendix C Para. C7.5.5	Guide walls and Dolphins: This paragraph discusses the design and configuration of approach structures and indicates that the guide walls will be of timber construction. It was our understanding that the guide walls would be constructed of plastic materials in consideration of their better durability and environmental sustainability.	concur. The design will reflect a guidewall constructed of plastic material.
50	Michael Park	Operations	87	Appendix C Para. C8.1.2	<u>Gate Specifications and Design Data</u> It was our understanding that the top elevations of the north and south gates would vary. However, the differences in the north and south gates are not apparent in the specifications presented in this section.	concur. The design has been changed.
51	Michael Park	Operations	96	Appendix C Para. C8.1.11	<u>Gate Operating Machinery</u> The gate operating machinery should be designed to be readily interchanged with gate operating systems at Leland Bowman lock thus eliminating the need to maintain spare units.	Concur. During future design phase, the gate operating machinery will be detailed and specified to promote interchangeability with Leland Bowman Lock.
52	Michael Park	Operations	96	Appendix C Para. C8.1.12	<u>Water System:</u> In lieu of hose reels please investigate the feasibility of providing a system of monitors, which can be remotely activated. Operations personnel are not trained to fight fires. A remotely activated system would reduce safety hazards to personnel in the event of a fire.	Concur. We will investigate various remotely activated systems during future design phases.
53	Michael Park	Operations	96	Appendix C Para. C8.2.3	<u>Power Distribution:</u> We recommend inclusion of shore power for floating maintenance units in the proximity of each gate bay.	Concur. Requirements for shore power have been added to the Engineering Appendix.

54	Michael Park	Operations	97	Para. C8.2.4	Control System: We recommend changing the specifications for a 10 mbs IEEE 802.3 Ethernet protocol to 100 mbs, the Pentium III 450 Hz processor to Dell 800 Hz processor, and the Allen Bradley SLC 5/05 platform to the Allen Bradley PLC 5 or other state-of-the-art equipment as may be available at the time of construction.	Concur. References to specifics of PLC have been deleted from the Engineering Appendix.
55	Michael Park	Operations	98	Para. C8.2.10	<u>Lightning Protection System</u> : This paragraph makes an apparently erroneous reference to a pumping station.	Concur. Paragraph C8.2.10 has been deleted in its entirety.
56	Michael Park	Operations		Appendix C Annex 5	OMRR&R COST ESTIMATES: The cost estimates reflect maintenance requirements for timber guide walls. Please replace the cost estimates for maintenance of timber guide walls with cost estimates for guide walls constructed of plastic, which were provided separately.	concur. Cost will be replaced with plastic maintenance cost.
57	Nancy Powell	H&H		Syllabus. Para. 4	Rewrite. The Bayou Sorrel Lock is a feature of the Atchafalaya Basin Louisiana Project, which is part of the Flood Control, Mississippi River and Tributaries Project. The ABLP is designed to convey one-half of the MR&T project flood discharge, or 1,500,000 cfs, safely to the Gulf of Mexico.	concur.
58	Nancy Powell	H&H	1	Para. 1	Rewrite. The letter authorized modification of existing features where required, to pass the project flood, including modifying Bayou Sorrel Lock.	concur.

59	Nancy Powell	H&H	2		<p>Morganza Floodway. Rewrite. The Morganza Floodway is the east side artificial intake for the Lower Atchafalaya Basin Floodway extending from the Mississippi River to the latitude of Krotz Springs. It is bounded on the east by the Morganza Floodway lower guide levee and on the north and west by the Morganza Floodway upper guide levee and the east Atchafalaya River Levee. The Morganza Floodway comprises an area of 68,000 acres. Across the head of the floodway is a gated control structure almost 3/4 mile long. The floodway is used only to pass flood flows and has been operated only once, in 1973. The design capacity of the Morganza control structure and floodway is 600,000 cfs.</p>	concur.
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60	Nancy Powell	H&H	2		<p>The Atchafalaya Basin Floodway. Rewrite. The Lower Atchafalaya Basin Floodway covers an area about 14 miles wide by 65 miles long, extending from about the latitude of Krotz Springs to the approximate latitude of Morgan City. The floodway is bounded on the east by the East Atchafalaya Basin Protection Levee (EABPL) and on the west by the West Atchafalaya Basin Protection Levee (WABPL). The WABPL originates near Hamburg, Louisiana, at a junction with the Bayou des Glaisses fuseplug levee and proceeds in a southerly direction, terminating south of Berwick, Louisiana. The EABPL emanates from its intersection with the Morganza Floodway lower guide levee near Lottle and continues generally southward through Morgan City and along the LAR to Avoca Island Cutoff. The design capacity of the floodway is 1,500,000 cfs.</p>	concur.
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61	Nancy Powell	H&H	3	<p>The East Atchafalaya Basin Protection Levee (EABPL). Rewrite. The EABPL begins at the lower end of the Morganza Floodway lower guide levee and extends southward through Morgan City to Avoca Island Cutoff and includes Bayou Sorrel and Bayou Boeuf Locks. The length of this levee is 87.2 miles, including about 17.2 miles of floodwall in the vicinity of Morgan City.</p>	concur.
62	Nancy Powell	H&H	3	<p>d. MR&amp;T Atchafalaya Basin, LA, Project Flood Flow Line Design Memorandum. The correct title for this report is Mississippi River and Tributaries, Atchafalaya Basin, La. Project Flood Flow Line - Design Memorandum No 1, Hydraulic Design. The report was completed in November 1986 and revised in January 1987. The report produced an approved project flood flow line of 28.7 ft NGVD for the Bayou Sorrel Lock. This flow line elevation does not apply to the levees in the vicinity of the lock.</p>	concur.

63	Nancy Powell	H&H	18		Projected traffic growth for Bayou Sorrel Lock. As almost all of the traffic through Bayou Sorrel Lock also goes through Port Allen Lock, how do the projections for Bayou Sorrel Lock compare with Port Allen Lock? It would seem that any increase in traffic growth at Bayou Sorrel Lock would be constrained by limitations at Port Allen Lock.	concur. The impacts at Port Allen Lock was taken into account in the plan selection.
64	Nancy Powell	H&H	22		At the location of Bayou Sorrel Lock, the EABPL design grade elevation is 30.3 ft NGVD for a levee and 30.7 ft NGVD for a lock. (I am trying to verify this information with Don Alette who is on TDY)	concur.
65	Nancy Powell	H&H	23		The paragraph on tonnage indicates that a larger lock will be constructed at Port Allen Lock and at Leland Bowman Lock sometime during the 50-year planning horizon. On page 2 of the report, it states that capacity increases at these locks were feasible in the out years. Are the out years part of the 50-year planning horizon?	The sentence has been revised to clarify that Larger Locks at Port Allen and Leland Bowman ARE NOT part of the analysis.
66	Nancy Powell	H&H	23		The use of the term alternate route when applied to the Old River Lock/Atchafalaya River and Main Channel route is confusing particularly when the GIWW/Port Allen to Morgan City route is also called the GIWW alternate route. Recommend use of the term optional route.	concur.

67	Nancy Powell	H&H	24		At the location of Bayou Sorrel Lock, the EABPL design grade elevation is 30.3 ft NGVD for a levee and 30.7 ft NGVD for a lock. See comment for page 22.	concur.
68	Nancy Powell	H&H	24		Delete the reference to the 35-year flood frequency. Depending on where along the MR&T project a flood occurs, the frequency of occurrence varies greatly. For example, in the New Orleans reach, the frequency of the project flood flow is between 10- and 20-year; at Bayou Sorrel Lock, it is in excess of 100-year.	
69	Nancy Powell	H&H	26		At the location of Bayou Sorrel Lock, the EABPL design grade elevation is 30.3 ft NGVD for a levee and 30.7 ft NGVD for a lock. The approved project flood flow line is 28.3 ft NGVD for a levee and 28.7 ft NGVD for a lock. See comment for page 22.	concur.
70	Nancy Powell	H&H	26		Add a paragraph discussing the ongoing Lower Atchafalaya Basin Reevaluation Study and the possible change to the project flood flow line for Bayou Sorrel Lock.	concur.
71	Nancy Powell	H&H	26		One constraint is the Port Allen Lock. It would seem that any increase in traffic growth at Bayou Sorrel Lock would be constrained by limitations at Port Allen Lock until such time as Port Allen Lock is replaced.	do not concur. A replacement lock at Bayou Sorrel will not increase traffic growth.

72	Nancy Powell	H&H	26		Another possible constraint is the vessel traffic system at Morgan City. During the high water season, traffic is restricted at Morgan City.	do not concur. The Coast Guard in the Morgan City area was contacted concerning traffic restrictions. There is no written documentation that restricts traffic. Traffic restrictions are a case-by-case process.
73	Nancy Powell	H&H	26		Where is Table 5-6?	there is no reference to table 5-6.
74	Nancy Powell	H&H	28		At the location of Bayou Sorrel Lock, the EABPL design grade elevation is 30.3 ft NGVD for a levee and 30.7 ft NGVD for a lock. The design grade is 2 ft above the approved flow line. See comment for page 22.	
75	Nancy Powell	H&H	29		Why would the existing lock have to be shut down for approximately 3 years for the replacement in kind alternative? Could not the replacement lock be constructed in the same location as the other alternatives, so the existing lock could remain open?	concur.
76	Nancy Powell	H&H	29		The elevations shown here, -17, -19, and -23 ft NGVD, are sill elevations, not sill depths.	concur. Sentence has been removed.
77	Nancy Powell	H&H	30		Were structural measures such as bendway weirs evaluated to determine if Atchafalaya River navigation through the bridges could be improved? Bendway weirs have successfully improved navigation through bridges on the Mississippi River and are being studied in the Morgan City reach.	No. Once the determination was made to pursue Bayou Sorrel Lock only, any improvements away from the lock would have no affect on the Selected Plan.

78	Nancy Powell	H&H	31		Were the traffic restrictions at Morgan City entered into the GEM model?	this is a study of a system of nine locks on the GIWW with a focus on how the system would benefit from improving Bayou Sorrel Lock. Any other elements affecting navigation on the system (besides locks) are treated as occurring in both the without and with project conditions and hence would have no affect on the outcome of the analysis.
79	Nancy Powell	H&H	32		The report states that even though improvements at Bayou Sorrel Lock decrease its traffic overall delay costs, it still has to incur high delays at Port Allen Lock. Table 7-1 does not show any significant increase in delays at Port Allen Lock for without project condition, 2.32 hours in 1992 to 5.22 hours in 2060. Delays are not shown for Port Allen Lock for any of the with project alternatives.	The discussion on with-project conditions focused on Bayou Sorrel lock since this was the only improvement considered on the system. However, if need be, with-project delay estimates at Port Allen lock can be included in the final report.
80	Nancy Powell	H&H	46		The economic analysis assumes approximately 100 tows per year are expected to hire assist vessels for 56 ft lock, 75 tows for a 75 ft lock and no tows for a 110 ft lock. Were these quantities of assist vessels modeled in the GEM?	Assist boats were modeled in the GEM to the extent that the simulation analysis (used to estimate lock capacities) incorporated these values. The Lock capacity estimates were then used as an input to the GEM.

83	Nancy Powell	H&H	51		<p>Sensitivity analysis. It appears as if the 1200 x 110 x 15 concrete lock is justified based on cost savings due to accidents and assist boats and adjusting benefits for the earthen lock back two years because of the longer construction schedule of the earthen lock. Sensitivity analysis is used to identify those parameters and assumptions with the greatest potential for project formulation impact. Were sensitivity analyses performed on the cost savings due to accidents and assist boats and on the construction schedule?</p>	<p>Sensitivity analysis on cost savings due to accidents and assist boats were not performed in the analysis due to the large number of possible permutations involved, however, if need be, this analysis can be presented in the final report.</p>
84	Nancy Powell	H&H	51		<p>The report states that even though improvements at Bayou Sorrel Lock decrease its traffic overall delay costs, it still has to incur high delays at Port Allen Lock. Delays are not shown for Port Allen Lock for any of the with project alternatives for the high growth scenario. Nor is there a summary of the volume of traffic diverted off the system. There is no evidence presented that there are or will be high delays at Port Allen Lock.</p>	<p>See reply to comment #80.</p>

81	Nancy Powell	H&H	49		<p>It appears as if the 1200 x 110 x 15 concrete lock is justified based on cost savings due to accidents and assist boats and adjusting benefits for the earthen lock back two years because of the longer construction schedule of the earthen lock. Therefore, it is important that the report present data, computations, and analysis regarding these two items. Data on accidents and assist boats are not present, just statements that generally say the numbers are "reasonable." Also, the Engineering Appendix contains little or no information on how and why the construction schedule for the earthen lock is 5 years.</p>	<p>As the Economics Appendix states, the data on accidents and assist boats were values obtained from interviews from the towing industry and were not values calculated by some type of mathematical formula. How this data was then used in calculating average annual cost was discussed in section 8 of the Economics Appendix.</p>
82	Nancy Powell	H&H	51		<p>Lower sill elevations also reduce the lock entrance and exit times for a tow, in some cases significantly. Was any effort made to quantify the reduction in entrance and exit times in addition to the lower filling and emptying time and determine the benefits achieved?</p>	<p>yes. See Section 5, para. 4c. Of the main Report.</p>

85	Nancy Powell	H&H	52		<p>For the no growth after 20 years and low growth scenarios, tables that display average delays per tow and system benefits are not present in the report. Nor is there a summary of the volume of traffic diverted off the system.</p>	<p>Estimates on average delays/slow, system benefits, etc for the no growth after 20 years and low growth scenarios can be obtained by reviewing the appropriate tables presented in section 7 of the Economics appendix describing the mid growth scenario results. Holding constant the estimates from 2010 on for the no growth after 20-year scenario and from 1992 on for the low growth scenario will provide the type of information requested.</p>
86	Nancy Powell	H&H	71		<p>Operations Project Managers for Calcasieu Lock verified average industry cost for damages for a 75 ft width lock. Calcasieu Lock has a sill depth 2 ft shallower than the proposed Bayou Sorrel Lock. Was the different sill depth considered in the verification of the average industry cost for damages? With a shallower sill depth, there is a greater probability of the tow striking the sill, damaging the tow or the lock.</p>	<p>Differences between Calcasieu lock and the 75 ft alternatives at Bayou Sorrel lock were taken into account by the towboat industry when interviewed about estimates on accidents.</p>
87	Nancy Powell	H&H	72		<p>Was the cost for the mitigation plan (the additional gap and two sediment traps in the disposal area) considered in the cost of the project?</p>	<p>the cost have been added.</p>

88	Nancy Powell	H&H	73	<p>Beginning on page 47, the Economic Appendix states that a second probability distribution for head differential was developed for the year 2045 and used in the GEM model. On page 47 of the appendix, it states that the increase in project flood flow line will have the effect of increasing the probability of higher differential heads occurring. What effect did changing the head differential have on the economic analysis? Was a sensitivity analysis performed without the change in differential heads? If there is any effect and it can be quantified, it would seem that the MR&amp;T project would have to pay for any change in the lock dimensions that would be necessary because of the higher differential heads. This could change the allocation of costs between the project purposes of flood control and inland navigation.</p>	<p>Increasing head differentials overtime has the affect of lowering the lock capacity overtime as well. This in turn will produce higher delay estimates overtime than would otherwise have occurred if the increase in the project flood flow line were not assumed. An analysis assuming no change in differential heads overtime was not performed since this was determined to be an unrealistic assumption.</p>
89	Nancy Powell	H&H	EIS-1, EIS-2, EIS-10, EIS-11 and possibly elsewhere	<p>Project flood in the Atchafalaya Basin Louisiana Project, not project flood on the Atchafalaya River would be withstood with the new lock. Bayou Sorrel Lock is located on the EABPL; project flood must be 1,500,000 cfs for the statement to be true.</p>	<p>concur.</p>
90	Nancy Powell	H&H	EIS-9	<p>It is Mississippi Valley Division, not Mississippi River Division.</p>	<p>concur.</p>

91	Nancy Powell	H&H	EIS-23		The report indicates that the lock has the capability to process more than one tow per lockage, which has the effect of reducing the total number of lockages in the short run time frame and possibly in the long run as well. Is this a realistic assumption?	yes.
92	Nancy Powell	H&H	EIS-23		Does the GEM model indicate that the tows are clustered together such that processing more than one tow per lockage is a realistic assumption? At the Leland Bowman Lock, a 110 ft wide lock, how many instances have been documented that lock personnel processes more than one tow per lockage?	yes. An exact number is not known, but this is a common practice to pack the lock chamber as efficient as possible.
93	Nancy Powell	H&H	EIS-24		Waiting times for the without project scenario increase significantly, increasing the likelihood of noise. However, where will that increase in noise occur, only in the Bayou Sorrel area or also elsewhere? With delay times projected at over 100 hours for the without project alternative, are there sufficient anchorage areas for the tows to wait in the Bayou Sorrel area?	Additional information about where noise would increase has been added to this section. South of the lock there is unlimited mooring areas. North of the lock the area is limited.
94	Nancy Powell	H&H			There is no section in the main report or the value engineering appendix that addresses the value engineering study and provides information as to concurrence, non-concurrence or deferring the proposals made by the value engineering team.	concur. A section has been added to the main report as well as the VE report.

95	James Scott	Construction			The Report contains NOMINAL sizes of the proposed lock structure. Please consider adding a brief description of a detail of the selected plan known as the "pintle to pintle dimension."	concur.
96	Allen Matherne	Operations	Plate#S4	* no sump well on each end of gate bay * add recess across the 110' floor to sump hole approx. 2' in from	concur.	
97	Allen Matherne	Operations	Plate#S6	*face of lock chamber doesn't indicate dewatering beam location stop note: if Leland Bowman beams will be used to dewater, is it designed for higher head at Sorrel	concur.	
98	Allen Matherne	Operations	Plate#S11	* need more information on gates ( no walkways, hinge details, stainless steel seal plates, gear rack, lifting eyes )	concur.	
99	Allen Matherne	Operations	Plate #12	* guide wall plan wales located @ EL. -2'-0"	concur.	
100	Allen Matherne	Operations	Plate #M1	* design hydraulic motor the same as NOD is using at other locks * limit switches, remove mechanical chain type drive, use magnet type (no moving parts, electrical) * design machinery to be operated at each location as well as in the main operator house	Concur. Gate operating equipment will be detailed and specified in future design phases to allow interchangeability with similar equipment at Leland Bowman Lock. Magnetic type limit switches with no moving parts will be specified during future design phases along with operating capabilities.	

101	Louise Williams	Economics				<p>The current federal discount rate of 6-3/8% needs to be used in the Economic analysis when describing the average annual costs and benefits for the various alternatives in section 8 of the Economics appendix.</p>	<p>concur. The rate will be revised in the final draft. The rate change came after economic write-up was complete.</p>
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