US Army Corps
of Engineers®
Memphis District

DETAILED PROJECT REPORT

NORTHWEST TENNESSEE REGIONAL HARBOR

SECTION 107 OF THE RIVER &
HARBOR ACT OF 1960, AS AMENDED

AUGUST 2004

NORTHWEST TENNESSEE REGIONAL HARBOR
SECTION 107
JULY 2005

ERRATA SHEET

The August 2004 Northwest Tennessee Regional Harbor Detailed Project Report was approved by the Mississippi Valley Division on 24 February 2005. The U.S. Army Corps of Engineers, Memphis District and Mississippi Valley Division, have calculated the revised Federal and Non-Federal Allocation of Funds because of the addition of subsequent construction of the General Navigation Features (GNF) in future maintenance dredging of the harbor (See Table 1 and 2 of the errata sheet). This errata sheet updates the report cost information.

Average Annual Equivalent Costs:

Initial Investment	$280,618
Operations & Maintenance	$206,652
Local Service Facilities & Site Development	$870,823
Total Cost	$1,358,093
Annual Benefits	$2,506,950
Excess Benefits	$1,148,857
Benefit-Cost Ratio	1. 84
OMRR&R	$5,000,000

Federal and Non-Federal Allocations of Funds

a. Allocations to Date		
	Federal	Non-Federal
Feasibility	$324,500	$224,500
Plans & Specs	$359,600	$0
c. Remaining Requirements		
Construction: initial	$2,827,840	$354,160
subsequent	$488,060	$2,380,609
total	$3,315,900	$2,734,769
LERR: initial	$0	$701,900
subsequent	$0	$1,381,604
Total	$0	$2,083,504
c. Initial Total Allocations	$3,511,940[1]	$1,056,060
d. Subseq Total Allocations	$488,060	$3,762,213
e. Ultimate Total Allocations	$4,000,000[1]	$4,818,273

1 Includes feasibility costs.

TABLE 1
Northwest Tennessee Regional Harbor
FEDERAL/NON-FEDERAL ALLOCATION OF FUNDS
(2004 Price Levels)

Year	TPC	Non-Fed LERR's	Local Service Facilities & Site Dev. (1)	Total GNF Scheduled Construction	% (2)	Misc Non-Fed Credits (3)	Non-Fed Cash (4)	Fed Cash	
GENERAL NAVIGATION FEATURES AND O&M DREDGING									
FY 2005	259,600	0	0	259,600	7.3%	2,000	25,154	232,446	
FY 2006	801,900	701,900	0	100,000	2.8%	2,000	9,689	88,311	
FY 2007	2,189,900	0	421,900	1,768,000	49.9%	2,000	171,309	1,594,691	
FY 2008	8,789,000	0	7,375,000	1,414,000	39.9%	5,000	137,008	1,271,992	
FY 2009	2,465,300	0	2,465,300	0	0.0%	0	0	0	
FY 2010	4,215,700	0	4,215,700	0	0.0%	0	0	0	
Total Init Const	$18,721,400	$701,900	$14,477,900	$3,541,600	100.0%	$11,000	$343,160	$3,187,440	
Subseq Const	$4,250,273	$1,381,604	$0	$2,868,669	N/A	$2,000	$2,378,609	$488,060	
TOTAL CONST	$22,971,673	$2,083,504	$14,477,900	$6,410,269	100.0%	$13,000	$2,721,769	$3,675,500	(5)

(1) Local Service Facilities and Site Development are required for the project. Includes $336,800 reimbursement to Federal Government for dredging berthing area.

(2) Percentage is based on ratio of scheduled GNF construction cost in each year to total cost of GNF construction.

(3) Estimated non-Federal credits include participation on the project coodination team and non-Federal audits necessary to comply with the Single Audit Act Amendment of 1996 and OMB Circulars A-87 and A-133.

(4) The first 10 percent cash contribution, estimated to be $354,160, is required during the initial period of construction. The value of LERR's required for the GNF shall be credited towards the payment of the second 10 percent. Since LERR is greater than the second 10 percent, the non-Federal sponsor shall not be required to pay any additional cash, but they will be required to provided $701,900 in project LERR. There will be a LERR credit of $347,800 to apply to the second 10 percent GNF cost during subsequent periods for construction of dredged disposal areas. Further, there is no second 10 percent contribution required during subsequent construction due to LERRD credits.

(5) Excludes Federal planning costs of $324,500.

TABLE 2
Northwest Tennessee Regional Harbor
SUBSEQUENT CONSTRUCTION COSTS

Year	Subseq. Const. Cost @ Current Price Levels	Non-Fed LERR's	Price Level Factor (2)	Full Funded Subseq. Const. Cost	Full Funded Subseq Const Cost		Cum. FF Subseq Const Cost		Full Funded Non-Fed LERR's
					Fed	Non-Fed	Fed	Non-Fed	
FY 2013 (5th yr)	146,600	(1)	1.155	169,323	152,391	16,932	152,391	16,932	
FY 2018 (10th yr)	146,600	(1)	1.282	187,941	169,147	18,794	321,538	35,726	
FY 2023 (15th yr)	146,600	(1)	1.422	208,465	187,619	20,847	488,060	77,669	
FY 2028 (20th yr)	146,600	(1)	1.611	236,173	212,555	23,617		313,842	
FY 2033 (25th yr)	146,600	98,000	1.786	261,828	235,645	26,183		575,670	175,028
FY 2038 (30th yr)	146,600	98,000	1.981	290,415	261,373	29,041		866,084	194,138
FY 2043 (35th yr)	146,600	98,000	2.197	322,080	289,872	32,208		1,188,164	215,306
FY 2048 (40th yr)	146,600	98,000	2.436	357,118	321,406	35,712		1,545,282	238,728
FY 2053 (45th yr)	146,600	98,000	2.702	396,113	356,502	39,611		1,941,395	264,796
FY 2058 (50th yr)	146,600	98,000	2.996	439,214	395,292	43,921		2,380,609	293,608
Total Subseq. Const	$1,466,000	$588,000		$2,868,669	$2,581,802	$286,867	$488,060	$2,380,609	$1,381,604

(1) Sponsor provided 20 years worth of LERR's during initial construction.

(2) Factors from Table 1 of EC 11-2-187, 29 April 2005

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AUGUST 2004

SYLLABUS

This report presents the findings and results of the Section 107 feasibility study for the Northwest Tennessee Regional Harbor Project. The harbor is located near Tiptonville, Tennessee, at Mississippi River Mile 900. Lake County, Tennessee Executive, Macie Roberson, requested the study in a letter dated April 8, 1998. The local sponsor is the Northwest Tennessee Regional Harbor Port Authority.

Study findings show the need for construction of a harbor. Various companies and industries indicated via letters of interest that they would move commodities through the area if a harbor were made available. The project would result in annual transportation savings of $2,506,950.

This report presents a plan to construct a harbor and stabilize its banks. The plan consists of constructing a small harbor at approximately Mile 900 on the left descending bank. The site location is within the navigational servitude (Ordinary High Water Elevation is 285.0 NGVD). See Plate 1 for harbor location and Plate 2 for harbor features. The General Navigation Features (GNF) consists of a harbor approximately 9,000 feet long with a 130-foot bottom width and a 9-foot depth channel with an additional 2 feet over-dredge. A 300-foot diameter turning basin is located at the upper end of the channel. Side slopes are set at 1V:5H. It will require 872,900 cubic yards of dredging and 187,100 cubic yards of excavation. (The excavation includes 128,100 cubic yards for construction of disposal berms and 59,000 cubic yards to grade the harbor's landside slope.) To protect the harbor banks from erosive towboat prop wash, overbank erosion, and excessive velocities during flood conditions, 30,600 tons of riprap and 15,300 tons of filter/bedding material will be placed between elevations 256 to 271 National Geodetic Vertical Datum (NGVD). The Non-General Navigation Features of the plan include dredging 147,100 cubic yards to construct a berthing area at the upper end of the harbor and excavation of 47,600 cubic yards for the construction of disposal berms. These two items will be financed at 100 percent non-Federal expense. To summarize the plans design quantities, the total dredging quantity is 1.02 million cubic yards, the total excavation is 234,700 cubic yards, and 30,600 tons of riprap and 15,300 tons of filter/bedding material will be required. Dredged material from the project construction will be placed on land adjacent to the harbor because the State of Tennessee regulatory agencies would not issue water quality certification for harbor construction dredge disposal into the Mississippi River. These disposal sites are currently in agricultural production. A non-Federal cost of $14,477,900 is associated with the development of the Local Service Facilities and Site Development necessary to realize the benefits of the general navigation features.

Below are the economic data for the selected plan.

Estimated Project First Costs:	
Federal	$3,187,500
Non-Federal	$1,477,900
Total	$4,665,400
Average Annual Equiv. Cost:	
Initial Investment	$280,618
Operation & Maintenance	$206,652
Local Service Facilities & Site Development	$870,823
Total Cost	$1,358,093
Annual Benefits	$2,506,950
Excess Benefits	$1,148,857
Benefit-Cost Ratio	1.84

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SECTION 107

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NORTHWEST TENNESSEE REGIONAL HARBOR

STUDY AUTHORITY

The Northwest Tennessee Regional Harbor study was authorized under Section 107 of the River and Harbor Act of 1960. This Act, as amended, provides authority for the Chief of Engineers to develop and construct small navigation projects that have not been specifically authorized by Congress. The following excerpt from the Section of the amended Act states its background:

"Section 107 of the River and Harbor Act of 1960, as amended, provides authority for the Chief of Engineers to develop and construct small navigation projects that have not already been specifically authorized by Congress. A project is adopted for construction under Section 107 only after detailed investigation clearly demonstrates its engineering feasibility and economic justification. Each project selected must be complete within its own and is limited to a Federal cost of not more than $4,000,000. This Federal cost limitation includes all project-related costs and specifications, supervision and administration, and construction operation."

THE STUDY PROCESS

This investigation to determine the feasibility of constructing a slack water harbor in the vicinity of Tiptonville, Tennessee, is considered the "feasibility" phase of the study. During this phase, a Detailed Project Report (DPR) was developed outlining the study findings. The DPR serves as the basis for proceeding to the next phase of the project, which is the "plans and specifications" phase. Normally, the project would advance to its final phase, which is the "construction" phase, if in accordance with policy.

STUDY PURPOSE AND SCOPE

The purpose of this study is to investigate the demand/need for a harbor in Northwest Tennessee and if so, the resulting opportunity for improving the depressed economy of Lake County via adding a new river transport facility for shippers and the job prospects it could provide to area residents. The study focused on identifying the existing problems, needs, and opportunities of the study area and determining the relative merits of all alternative plans of improvement. Assessments of existing conditions, future without and future with project conditions were analyzed as part of the study. The study culminated with the identification of an optimum plan of improvement that was determined to be engineering, economically and environmentally feasible, showed Federal interest and was acceptable by the local sponsor.

STUDY PARTICIPANTS AND COORDINATION

Throughout the study process, close coordination was maintained with the local sponsor and other interested agencies and groups. Several formal and informal meetings were held with the local sponsor to keep them abreast of the current status of the study, discuss future progress of the study, receive sponsor's input into the study, and identify issues and concerns. Local interests provided data on potential commodity movements in the study area for development of economic studies. Other necessary data was received from the sponsor for incorporation into the study process. See Appendix I Pertinent Correspondence of this report for coordination letters with the sponsor and other interested agencies and groups.

PRIOR STUDIES AND PROJECTS IN THE STUDY AREA

In 1968, a Detailed Project Report was completed for New Madrid Harbor at Mile 889 on the Mississippi River (a previous Detailed Project Report for this harbor was submitted to the Corps Chief of Engineers in April 1965). The Memphis District Corps of Engineers constructed the harbor in 1970 as authorized by Section 107 of the River and Harbor Act of 1960. Adjacent to the City of New Madrid, Missouri, this harbor requires minimal maintenance. It is an old river bend that was cut off some years ago with flow through the harbor except at extremely low stages. This natural current of the Mississippi River minimizes silt deposition. The Federal Government maintained the facility until 1992.

In 1990, the New Madrid County Port Authority constructed the New Madrid County Harbor at Mississippi River Mile 885, downstream of the City of New Madrid. This slack water harbor is primarily used for grain export. In lieu of maintaining the Federally constructed New Madrid City Harbor, the Water Resources Development Act (WRDA) of 1992 directed the Secretary of the Army to maintain the New Madrid County Harbor. Section 104 of WRDA 1996 directed the Secretary of the Army to conduct a feasibility study for harbor enlargement using the authority of Section 107 of the River and Harbor Act of 1960. This harbor enlargement was completed in fiscal year 2000 and consisted of widening the existing harbor from its design bottom width of 150 feet to 225 feet along its entire 1500-foot length.

In 1978, a Draft Detailed Project Report was prepared for Pemiscot County Harbor at mile 849 on the Mississippi River. In 1980, the Memphis District Corps of Engineers constructed the harbor under the authority of Section 107 of the River and Harbor Act of 1960. This slack water harbor is along an old right bank chute of the Mississippi River just north of the City of Caruthersville, Missouri. The Federal Government currently performs annual maintenance. This slack water harbor is primarily used for grain export and fertilizer import. Section 104 of WRDA 1996 directed the Secretary of the Army to conduct a feasibility study for harbor enlargement using the authority of Section 107 of the River and Harbor Act of 1960. This harbor enlargement was completed in fiscal year 2001 and

consisted of widening the existing harbor entrance from its design bottom width of 150 feet to 225 feet along the lower 1,100 feet of channel.

Additionally, a March 2004 Draft New Madrid City Harbor, Missouri, Assumption of Maintenance Report was prepared. This report has not been approved.

RESOURCES AND ECONOMY OF THE STUDY AREA

This section of the report is intended to convey a general understanding of the natural development (environmental and human resources) and economy of the study area.

LOCATION AND DESCRIPTION

The project area is located on the west side of Lake County, Tennessee, adjacent to Cates Landing at Mississippi River Mile 900 (See Plate 1). This landing is elevated and is not subject to flooding. An old chute of the Mississippi River connects Cates Landing to the Mississippi River. In the past, the U.S. Army Corps of Engineers used this site to cast and store concrete mat used in stabilizing the banks of the Mississippi River. With the reduction for concrete mat on this portion of the Mississippi River, on December 15, 1992, the U.S. Army Corps of Engineers surplused this site to the General Services Administration, and the site was donated to Lake County, Tennessee for their use.

Cates Landing and the adjacent land is an area that Lake, Dyer and Obion Counties desire to develop into an industrial park. These counties formed a Port Authority that has taken over sponsorship of the development of a harbor project from the Lake County Government.

Cates Landing is adjacent to Tiptonville, Tennessee, and is near State Highways 78 and 22. State Highway 78 runs to Dyersburg, Tennessee, connecting with U.S. Highway 51, while Highway 22 runs into Union City, Tennessee, connecting with U.S. Highway 51. Additionally, the area has a regional airport at Reelfoot Lake with a 3,500-foot concrete airstrip that is all weather and lighted. The TennKen Railroad that operates from Dyersburg, Tennessee, to Hickman, Kentucky, serves the area. Finally, many carriers throughout the area provide truck transportation service.

CLIMATE

A humid, temperate climate prevails in the study area with long, hot summers and cool winters. Monthly temperatures vary from an average minimum of approximately 33 degrees Fahrenheit in January to an average maximum of about 91 degrees Fahrenheit in July. Precipitation averages about 45 to 50 inches per year with the heaviest rainfall usually occurring from January to April.

HUMAN RESOURCES

Demographic data for Lake County, Tennessee, is used in lieu of Cates Landing data because detailed demographic data for Cates Landing is not available. According to the 2000 U.S. Census Bureau, the population of Lake, Dyer, and Obion Counties was 77,683. The population in Lake County is 7,954 according to the 2000 census. Nearly, 82.3 percent of Lake County's population was 18 years and older as compared to 74.3 percent for the U.S. in 2000. Also, in 2000, high school graduates composed 56.0 percent of the county population compared to 80.4 percent in the U.S. (See Plate 4, Lake County Profile and Plate 5, Population Characteristics).

DEVELOPMENT AND ECONOMY

Land Use

Land use for the Northwest Tennessee study area is rural agricultural with low-density residential areas. The proposed project would affect some agricultural land in the area. The land use immediately adjacent to the harbor is agricultural.

Employment

The Lake County labor force was composed of 2,556 persons in 2000. The labor force for Lake County represents 37.8 percent of the county population that is 16 years and older compared to 63.9 percent for the U.S. Per capita income in 2000 for Lake County was $10,794 compared to $21,857 for the national average that year. Individuals with incomes below the poverty level in 2000 accounted for 23.6 percent of all persons in the county compared to 12.4 percent for the U.S. (See Plate 6, Business and Economic Profile).

MISSISSIPPI RIVER NAVIGATION

In the 1830's, the U.S. Congress commissioned the Army Corps of Engineers to begin river improvements. The Corps' first action was to remove stumps, snags, and other hazards to navigation. A more intricate plan was necessary, however, to deepen the river's channel and regulate its flow rate. As late as 1866, portions of the Mississippi River were so shallow in places that a person could wade across it.

Established in 1879, the Mississippi River Commission was the first federal oversight group designed to harness the Mississippi River for the purposes of commerce and development. First assigned to increase the minimum channel depth to four feet, the Corps was later assigned the present nine-foot minimum by the Rivers and Harbors Act in 1930. Achieving this depth requires dredging shallow spots, constructing dikes to restrict the channel during low flow and stabilizing the shoreline to protect the banks from erosion. These improvements created the necessary depth, but maintaining it fell on the lock and dam

system. Locks and dams were installed to prevent spring floodwaters from filling in the channel, changing the river's course, or damaging riverfront property while allowing for the passage of barges and other watercraft. Although locks are very expensive, river transportation remains the most cost efficient and safest method of commercial shipping.

The Mississippi River and its watershed has a drainage area of 1.25 million square miles. The river has a length of about 2,350 river miles from its headwaters in Minnesota to the Gulf of Mexico. The river drains approximately 41 percent of the contiguous United States including all or part of 31 states and two provinces in Canada. It is a major transportation artery that provides access to national and international markets for mid-continent producers via the highly cost-effective mode of barge and deep-sea vessel. The river is also becoming an important asset in meeting the goals of the North American Free Trade Agreement, allowing access to opportunities created by the agreement for businesses all along the river. Moreover, the river is linked to the nation's rail and highway system, making available the flexibility of a truly multi-modal system.

Five basic categories of commodities --- grain, agricultural chemicals, coal, cement and stone, and petroleum products --- are transported on this important waterway. Agricultural products from the Mississippi River corridor and the Midwest, raw materials, and finished goods can be shipped to a wide range of markets at a competitive price. This system of transportation is managed by numerous government agencies. Federal agencies include the U. S. Army Corps of Engineers, Coast Guard, and Department of Transportation. Other management agencies are state transportation departments and port authorities.

IDENTIFICATION OF PROBLEMS, NEEDS, AND OPPORTUNITIES

The Lake County area remains the poorest county in Tennessee. The county's main employment activity is agricultural. The non-agricultural commercial and industrial activities in Lake County as of 1991 are listed as follows: Keneric Corporation (apparel manufacturing with 55 employees), Rolane Industries Division of Apparel Tech Incorporated (apparel manufacturing with 300 employees), Banner Printing Company (Printing activity with 7 employees), Georgia Gulf Corporation (PVC Pellets Manufacturing with 72 employees), and Henry I. Siegel Company incorporated (apparel manufacturing with 210 employees). Since 1991, all of the apparel manufacturing industries has discontinued operations.

The Lake County area is in need of a harbor to make its proposed industrial site inter-modal, thus increasing the site's potential for local employment. In the past, several industries have indicated a desire to locate to the area if the harbor was constructed.

The Mississippi River is a tremendous natural resource. Therefore, local interests want to use it to provide even greater industrial and economic growth. They believe that construction of a harbor would allow for and encourage the expansion of transport opportunities and attract potential industry to locate in the Lake County region. Slack water type harbors reduce the hazards resulting from high stream velocities in fast water harbors. Industries prefer to invest in warehouses, docks and appurtenances on these types of harbors because the probability of incurring damage due to runaway barges and debris is significantly less. Slack water harbors also provide more safeguards in the containment of chemical and other hazardous material spills than do fast water harbors.

PLAN FORMULATION

During the study, the Project Delivery Team and the sponsor had many meetings to discuss sponsor needs and project financing. Meetings were held with resource agencies to determine their project concerns. The sponsor with the assistance of the Tennessee Valley Authority conducted a survey of possible industries that could use the proposed harbor and adjacent industrial park. Throughout this study process, the following plan formulation and evaluation criteria were used as a guide.

FORMULATION AND EVALUATION CRITERIA

Plans were evaluated according to the general criteria of:

a. acceptability or determination of a plan's acceptance by concerned publics;

b. completeness or accounting for all necessary investments or other actions to ensure that the planned effects are realized;

c. effectiveness or the extent to which a plan alleviates problems and achieves opportunity; and,

d. efficiency or the extent to which a plan is the most cost effective means of alleviating problems and achieving opportunities.

Applying these general criteria made it necessary to develop more detailed, project-oriented criteria as follows.

Technical Criteria

a. Plan development should consider safe efficient navigation under adverse weather conditions, high and low river stages, and other navigation hazards.

b. Plans should be compatible with local, regional, and state plans for land use and development.

c. Adjacent lands with road or highway transportation should be available.

d. Adjacent flood free lands should be available for site development.

e. The dredged channel should be within the navigational servitude.

Environmental Criteria

a. Fish and wildlife resources and cultural resources that might be adversely affected should be identified.

b. Use or destruction of natural resources should be minimized.

c. Plans should include measures to protect or enhance environmental resources.

d. There should be an assurance that adverse impacts be minimized to the fullest extent possible.

Economic Criteria

a. Tangible and intangible benefits should exceed costs.

b. There should be no more economical means of accomplishing the same purpose, which would be precluded from development if the plan were undertaken.

c. Economic values are based on current (2004) price levels, an economic life of 50-years, and an interest rate of 5.625 percent.

d. The scale of development should provide maximum net benefits.

PLANNING FOR NATIONAL ECONOMIC DEVELOPMENT

During the investigation, plans were identified and developed to maximize contributions to National Economic Development (NED) consistent with protecting the Nation's environment. The economic costs of a water resource project are the values foregone in alternative uses of the goods and services (and ultimately the factors of production) required for construction, operation, and maintenance of the project, plus the value of resources destroyed or otherwise adversely affected by the project. Economic costs

in this report include the initial investment cost, operation and maintenance costs, and minimum harbor site development costs that the locals would incur. The recommended plan will be the most engineering, economically, and environmentally feasible plan and will maximize contribution to the NED.

DETAILS FOR PLAN FORMULATION

Letters of interest received for this project identified the existing movement of estimated commodities that could be offloaded at this proposed harbor. The commodities are estimated to be 150,000 tons per year of calcium carbonate, 150,000 tons per year of petroleum products (gasoline & diesel), 50,000 tons per year of paper, 20,000 tons per year of steel coils, 23,750 tons per year of natural rubber, and 25,000 tons per year of soybean meal. The berthing of all barges will be inside the harbor at the upper end.

Channel dimensions were developed using guidance contained in Chapter 12, Paragraph 12-10 of Engineer Manual 1110-2-1611, dated 31 July 1997, "Layout and Design of Shallow-Draft Waterways." The proposed 9,000-foot long and 130-foot bottom width harbor with a 300-foot turning basin was selected. Dredged material from the project construction will be placed on land adjacent to the harbor because the State of Tennessee would not allow for Mississippi River disposal under water quality certification.

The harbor alignment was chosen for various reasons, to (a) provide a safe angle for ingress and egress, (b) reduce maintenance and construction dredging quantities, and (c) minimize environmental impacts. The 9-foot depth of the harbor is compatible with authorized dredging practices on the Mississippi River.

ALTERNATIVE SOLUTIONS

During the feasibility process, different alternatives were analyzed to achieve the optimum plan that has both a Federal interest and is acceptable by the local sponsor. Factors considered during the study were as stated below:

1. compatibility with existing or planned use of the surrounding area;
2. impacts to economic development in the community;
3. ease of acquiring land and disposal of dredged material;
4. access to the harbor; and
5. environmental impacts.

During the initial phase of the feasibility process, the Port Authority indicated that the reason they wanted to develop an inter-modal industrial park is to increase employment in the area. Since in the northwest part of the State of Tennessee, there exists easy access to

both roads and railroad lines, the Port Authority wanted to develop a harbor to achieve the goal of an inter-modal industrial park. The Project Delivery Team that includes the Port Authority identified the following five possible Mississippi River harbor sites: Cates Landing (River Mile 900.0), Wynnburg (River Mile 870.0), Ridgely (River Mile 857.5), Tennemo Landing (River Mile 840.5) and Heloise/Mitchell Point (River Mile 832.5). For these sites, information was developed and this information was provided to the Port Authority (see Appendix II). After reviewing this site information, the Port Authority eliminated both Tennemo Landing and Wynnburg because there was no Federal interest in construction of fast water ports. The Port Authority eliminated the sites of Ridgely and Heloise/Mitchell Point because the land adjacent to the proposed harbor and accompanying industrial park land is below the 100-year flood plain by 13 feet and 15 feet, respectively. Therefore, since the Cates Landing site was a slack water harbor and this site had accompanying land for industrial park development above the 100-year flood plain elevation, the Port Authority selected this site as the locally preferred location.

ALTERNATIVES CONSIDERED

Six alternatives were considered to provide river access to the proposed industrial park to be located at Cates Landing, Lake County, Tennessee, River Mile 900. All alternatives were located in an old chute of the Mississippi River and would be within the navigational servitude and fast lands would not be created. (Ordinary High Water Mark elevation at River Mile 900 is 285.0 National Geodetic Vertical Datum.) These alternatives are described in Table 1. Alternative 6 is the future without Federal action.

Table 1
Alternative Plans Considered

	Alternative Plans Considered					
Items	**1**	**2**	**3**	**4**	**5**	**6**
Canal Length, ft	14,000	13,800	8,500	5,000	9,000	NA
Canal Bottom-Width, ft	225	130	225	130	130	NA
Canal Depth, ft	9	9	9	9	9	NA
Diameter Turning Basin, ft	None	300	None	300	300	NA
Canal Side Slopes	1V:5H	1V:5H	1V:5H	1V:5H	1V:5H	NA
Canal Excavation, cy	3.1M	2.48M	4.1M	195,000	1.02M	NA
Canal Riprap	Yes	Yes	Yes	Yes	Yes	NA
Dredge Material Disposal Area	On Land	On Land	On Land	On Land	On Land	NA

SELECTION OF ALTERNATIVES FOR DETAIL ANALYSIS

From these six alternatives, alternatives 1 and 3 were removed from detailed analysis because the quantity of canal excavation was much more than alternatives 4 and 5. The project team viewed canal excavation as an indicator for cost and environmental impact. Thus, the smaller the quantity for canal excavation the smaller the construction cost and environmental impact. Alternative 2 was evaluated to bracket the NED plan. Alternative 6 the no federal action alternative was used as the basis for developing transportation savings benefit contrasting transportation cost by existing modes of transportation (no action mode) vis-a-vis transportation costs by barge (with project mode). Alternative 6 was considered not acceptable since the acceptance of this alternative would forego the transportation savings economic benefits of a navigation channel and would hinder the development of the proposed industrial park. Therefore, alternatives 4, 5 and 2 parametric costs were evaluated before a NED and selected plan was chosen.

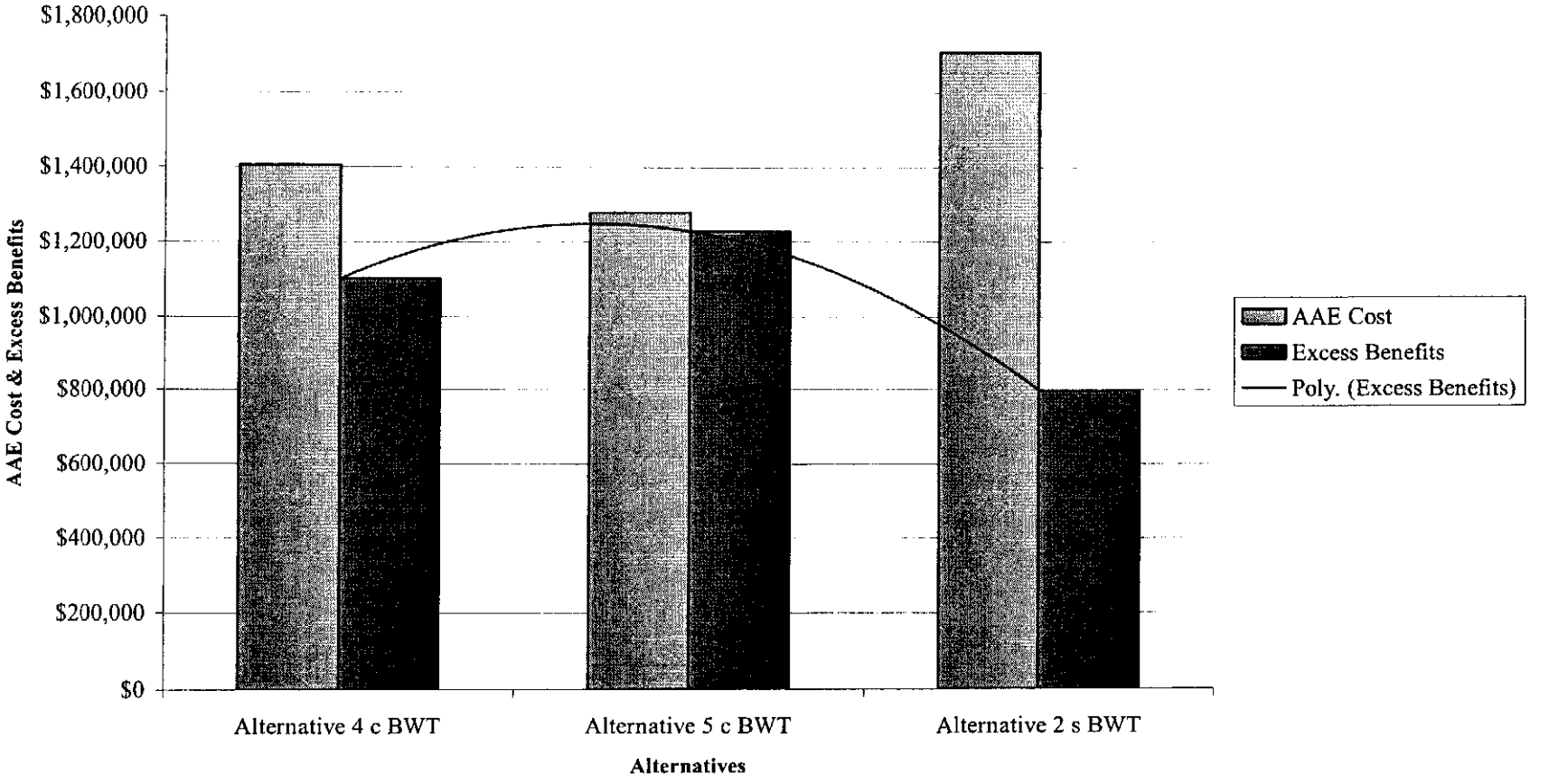
Table 2 and Figure 1 present the information developed for alternatives 4, 5 and 2 by the project team that consisted of the U.S. Army Corps of Engineers, Northwest Tennessee Regional Port Authority with assistance from their engineers Forcum Lannom Contractor and Garver Engineers and appropriate resource agencies. Additionally, the Port Authority received assistance from the following organizes: Tennessee Valley Authority Economic Development Agency, State of Tennessee Department of Economic Development, U.S. Department of Commerce Economic Development Agency and various other State of Tennessee and Federal agencies.

Table 2
Detailed Analysis for Alternatives 4, 5 and 2

Items	4 with Berthing Area	5 with Berthing Area	2 w/o Berthing Area
Top Elevation, ft NGVD	285.0	285.0	285.0
Bottom Elevation, ft NGVD	250.0	250.0	250.0
Harbor Area, acres	33	64	95
Canal Length, ft	5,000	9,000	13,800
Canal Bottom-Width, ft	130	130	130
Canal Depth, ft	9	9	9
Diameter Turning Basin, ft	300	300	300
Canal Side Slopes	1V:5H	1V:5H	1V:5H
Canal Excavation, cy	195,000	1,020,000	2,480,000
Riprap, tons	5,600	30,600	67,500
Filter Gravel, tons	2,800	15,300	33,750
Dredge Material Disposal Area, acres	16	86	276
Environmental Protection, ft	1,950	11,800	13,800
Estimated Clearing, acres	14	51	79
Estimated Average Maintenance Dredging, cy	111,000	122,000	122,000
Impact, acres	20 wet, 2 FW	60 wet, 14 FW	127 wet, 6 FW
Impact Habitat, AHUV	9	27	57
Mitigation (acres)	47	134	289
Construction Parametric Costs	$1,360,751	$4,265,496	$9,279,036
Total Present Value O&M	$2,663,828	$2,941,636	$5,641,110
Local Service Facilities & Site Development Costs	$19,331,800	$14,056,000	$13,504,950
Total Costs	$23,356,379	$21,263,132	$28,425,096
Annual Average Equivalent Costs	$1,404,849	$1,278,944	$1,709,724
Benefits	$2,506,950	$2,506,950	$2,506,950
Benefit/Cost Ratio	1.78	1.96	1.46
Excess Benefits	$1,102,101	$1,228,006	$797,226

Notes:
FW – Farmed Wetland
AHUV – Annualized Habitat Unit Value
Mitigation would include purchasing prior converted farmland within the batture land of the Mississippi Main Line Levee.

Figure 1
North West Tennessee Harbor: AAE Cost & Excess Benefits



ALTERNATIVE CHOSEN AS SELECTED PLAN

In Table 2, and Figure 1 the costs associated with the three alternatives evaluated in the study are in Parametric Costs. Alternatives 2 and 4 bracket the NED plan alternative 5, which has the lowest total cost and the second lowest first cost. In Table 2, the Parametric Cost of the berthing area is included in the canal excavation quantities for alternatives 4 and 5 but is not included in alternative 2 because the 130-foot bottom-width canal excavation yardage was so large that it was obvious that this alternative would not be either the NED or selected plan.

During development of Alternatives 4 and 5 parametric costs, the berthing area costs were included in the Canal Excavation cubic yardage. In order to calculate the final Local Service Facilities and Site Development Costs for Alternative 4 and 5, respectively, $178,400 needs to be added to Alternative 4 and add $421,900 needs to be added to Alternative 5 costs contained in Table 2. This yields a Local Service Facilities and Site Development Costs for Alternative 4 to be $19,510,200 and Alternative 5 to be $14,477,900. (Appendix 2 contains the details for the Local Service Facilities and Site Development Costs for Alternative 2, 4 and 5.)

Based on the alternative with the greatest excess benefits, Alternative 5 was chosen as the selected plan. At this point, the team prepared a MCACES cost estimate that is $4,665,430 (see Table 4 and Appendix 2). Table 3 presents a benefit-to-cost ratio of 1.84 when the calculation of the ratio uses the MCACES plus estimated associated Local Service Facilities and Site Development Costs of $14,477,900.

Table 3
Selected Plan Benefits and Costs

GNF MCACES Costs	$4,665,430
Total Present Value O&M	$3,435,704
Local Service Facilities & Site Development Costs	$14,477,900
Total Costs	$22,579,034
Average Annual Equivalent Costs [1]	$1,358,093
Benefits	$2,506,950
Benefit/Cost Ratio	1.84
Excess Benefits	$1,148,857

[1] Annual Average Equivalent Costs include: average annual values for first costs, O&M costs, and associated site development costs.

Table 4
NORTHWEST TENNESSEE REGIONAL HARBOR
MCACES ESTIMATED PROJECT FIRST COSTS
($000)

Item	Quantity	Unit	Total
LERR*	**356.0**	**AC**	**$811.0**
Land, Project Disposal	202.5	AC	469.0
Land, Mitigation	118.0	AC	176.9
Land Acquisition Cost			80.0
Project Subtotal	320.5		725.9
Land, Berth. Area Disposal	19.5	AC	45.1
Land, Mitigation	16.0	AC	24.0
Land, Acquisition Cost			16.0
Berthing Area Subtotal	35.5		85.1
Relocations			**0.0**
Harbor Construction			**3,131.4**
Project (Non-Dredge)			
Mob/Demob	1	JB	35.0
Clearing	51.0	AC	165.4
Excavation	187,100	CY	279.1
Filter Mat./Crushed Stone	15,300	TN	235.7
Riprap	30,600	TN	509.3
Environmental Protection	11,800	LF	29.6
Environmental Restoration	134.0	AC	80.8
Turfing	10.0	AC	9.1
Subtotal			1,343.9
Berthing Area			
Excavation	47,600	CY	82.7
Non-Dredge Subtotal			1,426.6
Project (Dredge)			
Mob/Demob	1	JB	385.9
Dredging	872,900	CY	1,128.6
Subtotal			1,514.5
Berthing Area			
Dredging	147,100	CY	190.3
Dredge Subtotal			1,704.8
E & D	**1**	**JB**	**394.4**
Project			359.6
Berthing Area			34.8
S & A	**1**	**JB**	**328.6**
Project			299.6
Berthing Area			29.0
Total			**$4,665.5**
Project			4,243.6
Berthing Area			421.9

*LERR-Lands, easements, rights-of-way, and relocations.

DISPOSAL OF DREDGED MATERIAL FROM PROJECT CONSTRUCTION

Construction of the harbor will require dredging of approximately 1.02 million cubic yards of material. Dredged material from the project construction will be placed on land adjacent to the harbor because the State of Tennessee regulatory agencies would not issue water quality certification for harbor construction dredge disposal into the Mississippi River. These disposal sites are currently in agricultural production. Placement of dredged material riverside of the levee on Site A will be to an elevation of 307.3 National Geodetic Vertical Datum (NGVD) that is below the 100-year flood elevation of 307.8 NGVD. Placement of dredged material landside of the levee on Site B is not restricted by the policy of creating flood free land because this site is presently at or above the 100-year flood elevation of 298.5 NGVD. Plate 2 shows the locations of both Sites A and B.

An initial 20-years of future dredged material disposal area is included in the project construction with the remaining 30-years of future disposal area being required in 5-year increments. Subsequent periods of construction for dredged material disposal dikes will be required every 5-years beginning on the 5th year. The cost of obtaining additional disposal areas in suitable areas beginning the 25-year is reflected in the project O&M costs. See Appendix X for the project Dredged Material Management Plan.

SELECTED PLAN

DESIGN

Harbor Channel and Fill

The NED and selected plan, Alternative 5, is the plan which is engineering, economically, and environmentally feasible. Also, this plan is acceptable by the local sponsor. The plan consists of constructing the following General Navigation Features (GNF) on the left descending bank at approximately Mississippi River Mile 900.0. The proposed harbor utilizes an area behind a trail dike that has been filled in with sediment throughout the years. The harbor entrance will be up an old river chute for 9,000 feet and ending in a 300-foot turning basin before reaching Cates Landing. The harbor will have a 130-foot bottom width and 9-foot channel depth with a 2-foot over-dredge. Channel dimensions were developed using guidance contained in Engineer Manual 1110-2-1611 with safety of towing operations the most important factor in determining harbor width. Side slopes are set at 1vertical to 5 horizontal. It will require 872,900 cubic yards of dredging and 187,100 cubic yards of excavation. (The excavation includes 128,100 cubic yards for construction of disposal berms and 59,000 cubic yards to grade the harbor's landside slope.) The footprint for the harbor excavation and dredging is approximately 64 acres. To protect the harbor banks from erosive towboat prop wash, over-bank erosion, and excessive velocities during flood conditions, 30,600 tons of riprap and 15,300 tons of filter/bedding material will be

placed between elevations 256 to 271 National Geodetic Vertical Datum (NGVD).

The Non-General Navigation Features of the plan include dredging 147,100 cubic yards to construct a berthing area at the upper end of the harbor and excavation of 47,600 cubic yards for the construction of disposal berms to hold this material. These two items will be financed at 100 percent non-Federal expense.

To summarize the plans design quantities, the total dredging quantity is 1.02 million cubic yards, the total excavation is 234,700 cubic yards, and 30,600 tons of riprap and 15,300 tons of filter/bedding material will be required.

There are two sites presently being farmed that have been identified for disposal of the dredged and excavated material. The riverward site (Site A) will be used for initial construction and contains 66 acres with some clearing required. The landside site (Site B) is 156 acres that contains 19.5 acres for initial construction and 136.5 acres for the 20-year future dredged material disposal area. This Site B will require minimal clearing. Both sites will require a containment dike to be built prior to placing the dredge material. These containment dikes will be built from the excavated material in the appropriate disposal area. The containment dikes will have a crown width of 20 feet and side slopes of 1V:3.5H. The existing Mississippi River levee will be used as a backstop for one side of riverward disposal area. Placement of dredged material on Site A will be to an elevation of 307.3 National Geodetic Vertical Datum (NGVD) that is below the 100-year flood elevation of 307.8 NGVD. Placement of dredged material on Site B is not restricted by the policy of creating flood free land because this site is presently at or above the 100-year flood elevation of 298.5 NGVD. Plate 2 shows the locations of both Sites A and B.

The harbor alignment was chosen to (a) provide a safe angle for ingress and egress, (b) reduce maintenance and construction dredging quantities, and (c) minimize environmental impacts. The 9-foot depth of the harbor is compatible with authorized dredging practices on the Mississippi River.

Project Operations & Maintenance

As stated above, one of the primary reasons for selecting the specified harbor alignment is to reduce both construction and maintenance dredging. Table 6 presents the estimated Operation and Maintenance frequency, quantity and costs for the harbor, disposal area, protection levee, and bank protection.

Based on the requirements set forth in Section 107 of the River and Harbors Act of 1960 and resultant USACE planning guidance, the Government's responsibility for operation and maintenance for this project is administratively limited by the Project Cooperation Agreement when the Government's expenditures for this responsibility have reached the greater of

(a) $4,500,000 less the Government's share of the construction features of the project, or
(b) 2.25 times the Federal costs of the project.

Both amounts are discounted based on present worth, starting with the date the sponsor accepts the project. Due to non-Federal participation in operating and maintaining the project, the parties understand and agree to consult hereto on the necessity and frequency of maintenance. The Government, however, shall make the final decision on when maintenance shall occur during the period of Federal participation. When Federal participation ceases, the operation and maintenance of the project becomes the responsibility of the local sponsor.

Table 10 displays calculations, which reflect the process required to compute the Federal Limit for Future Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R). These calculations are performed in order to determine the limit of Federal participation in operation and maintenance. They were computed in the following manner: First the Total Federal Costs $3,512,000 associated with project was computed. Next, the Estimated Average Annual Federal OMRR&R was determined using the following steps: (i) calculating the Total Project Limit = 2.25 times the Total Federal Costs ($3,512,000 x 2.25) = $7,902,000, then (ii) estimating the Federal Limit for Future OMRR&R by subtracting the Total Federal Cost from the Total Project Limit ($7,902,000 - $3,512,000) = $4,390,000.

Habitat Impacts

Harbor construction would impact 60 acres of wetlands and 14 acres of farm wetlands. The Habitat Evaluation System was used to quantify existing habitat values and make predictions of future habitat values over the 50-year project life. The loss of 60 acres of wetlands would result in a loss of 27 annualized habitat unit value (AHUV) over the project life. The loss of 27 AHUV and 14 acres of farm wetlands would be mitigated by planting bottomland hardwoods on 134 acres of prior converted farmland within the Mississippi River floodplain. A preliminary mitigation plan is included in Appendix IV, Section V.

A 404(b)(1) evaluation that analyzes the impacts of placing 30,600 tons of riprap into the Mississippi River, discharging 1.02 million cubic yards of dredged material into 25 acres of wetlands, and return water from dredging has been completed. The 404(b)(1) evaluation is found in Appendix IV, Section II. The evaluation indicates that there would not be a significant impact to water quality from implementing the recommended plan. Water quality certification from the State of Tennessee was granted on 16 July 2004.

Project Costs

Estimated first costs of the harbor improvement project are presented in Table 4 and sum to approximately $4,665,430. They are based on the MCACES Baseline Cost Estimate in Appendix II. Table 6 shows the estimated total average annual equivalent (AAE) operation and maintenance cost of approximately $206,652 ($206,600 rounded). The estimated Federal AAE operation and maintenance cost is approximately $201,597 ($201,600 rounded).

Associated Local Service Facilities and Site Development costs are all non-Federal expenses required to make the harbor operational. There is $14,477,900 in Associated Development Cost (non-GNF) features needed to achieve full use of the harbor. Some of these requirements are as follow: $1,549,000 in roadway improvements, $4,215,692 in railroad construction, $56,750 in utilities and wastewater construction, $5,373,334 in port facility with dolphins and winch system construction, $5,000 in Administration Building cost, $50,000 in parking areas construction, $55,000 in Warehouse, Storage Tanks, Storage Areas construction and $460,000 in land acquisition. Appendix II contains the complete list of Alternative 5 Associated Local Service Facilities and Site Development costs.

ECONOMIC ANALYSIS

The primary purpose of the economic analysis in a feasibility study is to demonstrate a Federal interest in constructing a project. The analysis will quantify the engineering, economic and environmental feasibility, the public interest and compare the benefits derived from such action to the cost of construction, operation and maintenance. Transportation cost savings comprise the tangible economic benefits generated by the project. These savings were computed as the difference between with and without project full transportation costs, including all handling charges, for each commodity category. Interested companies provided estimated commodity tonnage. The tonnage was used to determine the extent of potential waterborne traffic associated with the harbor as a basis for estimating the benefits.

Economic benefits and costs are presented in average annual equivalent values as a common measure to reflect differences in the time of accrual of benefits and costs. Assumptions used to estimate the average annual equivalent values for benefits and costs in this report include:

(1) a 50-year period of analysis;

(2) a single year during which construction and associated development costs are expended,

(3) constant transportation savings benefits over the 50-year project life;

(4) 2004 price levels; and,

(5) an interest rate of 5.625 percent.

It is assumed that project navigation benefits will start at the beginning of 2008 after construction of the harbor. These benefits are expected to be realized within the project's tributary area. The tributary area is defined as a geographically delineated region containing potential customers for a given class of water transportation services offered by firms. Separate tributary areas may, if necessary, be defined for each commodity by origin and destination. The annual transportation benefits are $2,506,950 and the annual costs are $1,358,093. These yield a benefit-to-cost ratio of 1.84.

ENVIRONMENTAL ASSESSMENT

An environmental assessment (EA) has been completed and is included as Appendix IV, Section I. The EA analyzes six alternatives including the no action alternative. The EA also analyzes site development that the local sponsor would implement.

The recommended plan consists of dredging a 9,000-foot long, 130-foot transitioning to a 225-foot bottom width, and a 300-foot turning basin navigation channel in the vicinity of Cates Landing, Mississippi River Mile 900, Lake County, Tennessee. Dredged material would be placed in two sites totaling 105 acres adjacent to the harbor. Interagency coordination was maintained throughout the planning process. The following issues were raised through the planning process and were used in the development of final alternatives:

1. Mississippi River Disposal

   Opposition was expressed over open river disposal of dredged material. Alternatives were formulated that utilized land disposal of dredged material as opposed to the less expensive river disposal.

2. Contaminated Sediments

   Sediment analysis was conducted in the proposed harbor area. Results indicate that the level of pollution present in the sediment is not of a level to pose a significant risk to the environment.

3. Impacts to Wetlands

   Protection of wetlands was a priority throughout the planning process. Alternative 1 would have resulted in the highest amount of wetland losses but the least expensive site development costs. Alternative 4 has the least amount of impacts to wetlands but the highest site development costs. The recommended plan offers a compromise between wetland impacts and site development costs.

   The impact to 60 acres of wetlands and 14 acres of farm wetlands would be mitigated by creating wetlands on 134 acres of prior converted farmland within the Mississippi River floodplain.

4. Potential Impacts to Reelfoot Lake

   Preliminary plans for industrial development indicated that sections of the industrial area including the proposed rail spur would take place within the Reelfoot Lake drainage area. Reelfoot Lake is a nationally significant ecosystem. All of the site development features have been moved out of the Reelfoot Drainage Basin. No significant impacts are expected.

5. Threatened and Endangered Species

The U.S. Fish and Wildlife Service indicated that three listed threatened or endangered species may be present in the harbor site. These species include the bald eagle, interior least tern, and the pallid sturgeon. A biological assessment was conducted to determine if the proposed project may adversely affect and jeopardize the continued existence of endangered species. The biological assessment concluded that the proposed project would not affect the least tern, pallid sturgeon, and bald eagle if certain precautions are taken during construction. These precautions include the following:

- Avoiding least tern nesting and fledging periods (15 June – 15 August). Least tern colonies are known to occur within the vicinity of the proposed harbor. However, no colonies have been observed within the harbor footprint. No dredging would be conducted during reported nesting and fledging periods to ensure no impact.

- Avoiding pallid sturgeon spawning and rearing periods (12 April to 30 June). Pallid sturgeon are a known inhabitant of the Mississippi River. However, the backwater habitat present at the proposed harbor location is not suitable pallid sturgeon habitat. No dredging would take place during reported spawning periods to ensure no impact.

- No river disposal of dredged material.

The Fish and Wildlife Service concurred with the findings of the biological assessment in a letter dated 13 April 2004.

6. Cultural Resources

A literature and records search was conducted on the harbor area and the proposed industrial site. This search revealed that there is a potential archaeological site that exists in the area of the industrial site. There are also three historic properties within the study area. One of these is associated with the archaeological site noted above. The other two are a pair of structures, but one of these may be the historical marker noting the 1862 Battle for Island No. 10. There is a potential for Civil War period military sites or features and some unrecorded historic period archaeological scatters associated with "tenant period" residences to occur in the harbor and industrial areas. There was no evidence found indicating any prehistoric occupation within five kilometers of the study area, but if any is present it most likely dates after 1000 BC.

A detailed cultural resource investigation has been made in the disposal areas. The survey did not find any evidence of significant cultural resources. The survey has been coordinated with the State Historic Preservation Officer.

Site development would not take place but for harbor construction. Therefore, a memorandum of agreement (MOA) has been signed between the District, local sponsor, and the State of Tennessee Historic Preservation Officer to ensure that no cultural resources are impacted during site and industrial development. The MOA provides guidelines that would be followed during site development.

7. Cumulative Impacts of Harbor Development

   Expected future cumulative impacts from industrial development could possibly degrade air and water quality, elevate noise levels, and permanently change visual resources (aesthetics). Existing environmental laws (e.g. Clean Air Act, Clean Water Act, Resource Conservation Recovery Act) would regulate expected industrial development. Therefore, no significant cumulative impacts are expected.

8. Cumulative Impacts of Potential Chip Mill

   Concern has been expressed over the possibility of a chip mill locating to the area if a harbor was made available. Economic benefits of a chip mill were not calculated as part of the economic analysis. There are no solid plans of a chip mill locating to the harbor. Data suggests that it would be unlikely for a chip mill to locate in northwest Tennessee.

The Fish and Wildlife Service has furnished a copy of a Coordination Act Report. The report is found in Appendix IV, Section VI. The EA underwent a 30-day public comment period. Comments in favor of the project were received from 10 elected officials, six state government agencies, 31 private businesses, 11 non-governmental organizations, and 64 private citizens. Concerns were expressed by the Environmental Protection Agency, National Resource Conservation Service, and Fish and Wildlife Service. State of Tennessee water quality certification was granted on 16 July 2004. The concerns have been resolved. A Finding of No Significant Impact has been completed.

REAL ESTATE

The real estate requirement for the General Navigation Feature (GNF) for the Northwest Tennessee Regional Harbor project is about 420 acres. The sponsor will need to purchase about 356 acres of land in fee. The disposal area will initially need a total of about 222 acres with 66 acres located on the riverside of the Mississippi River's Main Line Levee and 156 acres located on the landside of the levee. Disposal material will be placed against the levee. An additional 134 acres of frequently flooded agricultural lands will be needed for the mitigation of the disposal and harbor sites. The specific location of these mitigation lands is currently unidentified. The project will also require about 64 acres of the existing harbor channel and some of the land next to the channel that is located below the ordinary high water mark, which meets the criteria for navigational servitude.

TECHNICAL, LEGAL AND POLICY REVIEW

Technical, Legal and Policy review for the Northwest Tennessee Regional Harbor project has been conducted and the certifications are contained in Appendix VIII. The technical review team was composed of members having technical expertise in their respective area of work being reviewed. The technical review team members were from technical areas where experience and training as well as practice qualified them to be considered as top technical experts in their particular field of study. These areas included various functional offices of the District including hydraulics, geotechnical, surveying, cost engineering, design, environmental, economics, real estate, and other pertinent offices. The Office of Counsel performed the legal review. Project Development Branch performed the policy review.

DIVISION OF RESPONSIBILITY

Cost-sharing between Federal and non-Federal participants for the project will follow the criteria established by the Water Resources Development Act of 1986 (Public Law 99-662) and by Federal law and policy for works constructed under authority of Section 107 of the River and Harbor Act of 1960, as amended.

FEDERAL RESPONSIBILITY

The Federal government, subject to and using funds provided by the non-Federal interests and appropriated by Congress, would be responsible for the construction and maintenance of the general navigation features of the selected plan, up to a computed O&M limit of $4,390,000 (See Table 10).

NON-FEDERAL RESPONSIBILITIES

Local interests would be required to:

1. Provide cash contribution during project construction equal to 10 percent of the total cost of constructing the general navigation features;

2. Provide all lands, easements, rights-of-way, including lands for borrow and dredged material disposal areas, and relocations (LERR), as the Government may deem necessary for construction, operation, and maintenance of the general navigation features, and evidence to the Government supporting the local sponsor's legal authority to grant rights-of-way to such lands;

3. Construct and maintain, at its own expense, all project features other than those for general navigation, including dredged depths commensurate with those in related general navigation features in berthing areas and local access channels serving the general navigation features. Once the Federal limit of $4,390,000 for O&M has been reached on the general navigation features, then all maintenance will be non-Federal;

4. Provide and maintain adequate local service facilities including port facilities and berthing areas open to all on equal terms and provide necessary site development for the regional harbor;

5. Repayment with interest, over a period not to exceed 30 years following completion of the project or separable element thereof, an against the additional 10 percent of the total construction cost of the general navigation features assigned to commercial navigation. Credit is allowed for the values of lands, easements, rights-of-way, relocations and dredged material disposal areas against this 10 percent, except for utility relocation costs;

6. Pay all project costs in excess of the Federal statutory cost limitation of $4,000,000. In no instances shall the Government's share of project costs, including preauthorization planning costs (reconnaissance studies, feasibility studies, etc.) exceed this limitation;

7. Hold and save the United States free from all damages arising from the construction and operation of the completed work, except those damages due to the fault or negligence of the United States or its contractors;

8. Comply with the applicable provisions of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, Public law 91-646, approved January 2, 1971, in acquiring lands, easements, and rights-of-way for construction and subsequent operation and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedure in connection with said Act; and,

9. Comply with the provisions of Section 221, Public Law 611, River and Harbor and Flood Control Act of 1970.

10. Keep, and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20.

11. Perform, or cause to be performed, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for the construction, operation, and maintenance of the general navigation features of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal Government provides the Non-Federal Sponsor with prior specific written direction, in which case the Non-Federal Sponsor shall perform such investigations in accordance with such written direction.

12. Assume complete financial responsibility, as between the Federal Government and the Non-Federal Sponsor, for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for the construction, operation, or maintenance of the general navigation features of the project.

13. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA.

14. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)).

15. Provide a cash contribution equal to 10 percent of total archeological data recovery activity costs attributable to construction of the general navigation features of the project that exceed the statutory 1 percent of the total amount authorized to be appropriated.

COST-SHARING

1. Initial Construction

Table 5 shows the Federal and non-Federal allocation of costs for project construction with adjustments to reflect additional non-Federal cost associated with berthing area and additional cost above the Federal cost limit of $4,000,000. The total cost for construction of the harbor is estimated to be $4,665,430. The local sponsor is responsible for twenty percent of the general navigation feature cost. The first 10 percent cash contribution, estimated to be $354,100 is required during the period of project construction. The non-Federal interests shall pay a second 10 percent of the cost of the general navigation features of the project in cash over a period not to exceed 30 years, at an interest rate determined by the Secretary of the Treasury. The value of lands, easements, rights-of-way and relocations (LERR) required for the general navigation features shall be credited towards the payment required for the second 10 percent. LERR is greater than the second 10 percent, therefore the non-Federal interest shall not be required to pay any additional cash but they will initially be required to provide LERR for the GNF of the project estimated at $701,900. In addition, the non-Federal interest shall pay the Federal Government $336,800 up-front for the construction of the berthing area. Table 6 shows the Federal and Non-Federal allocations of costs by fiscal year.

2. Subsequent Periods of Construction

For this project, 20-years of future land needed for dredged material disposal area will be bought during project construction. After the 20th year, disposal area will be purchased by the sponsor every 5th year for as long as the project is authorized. GNF costs will include cost of the dredged disposal dikes/structures required for the initial construction of the project and for the first 5-years of future dredged material disposal area. Future GNF dredged disposal dike/structure construction will start on the 5th year and will occur every 5-years thereafter.

The sponsor will be required to cost share in each GNF construction of the dredged disposal dikes/structures. The cost sharing will be the same as the initial construction. Therefore, the local sponsor is responsible for twenty percent of the GNF cost. The first 10 percent cash contribution is required during each subsequent period of construction. The non-Federal interests shall pay a second 10 percent of the cost of the general navigation features of the subsequent periods of construction in cash. The value of LERR shall be credited towards the payment required for the second 10 percent. The sponsor will receive LERR credit for future land purchases. Unused past and future LERR credits will be credited against the second 10 percent for GNF construction of dredged disposal dikes/structures during the subsequent periods of construction.

The following is an example for the subsequent periods of construction for the 5th, 10th, 15th, and 20th years:

Item	Cost
Unused LERR Credit	$347,800
LERR for this subsequent period of construction	0
Total usable LERR Credit	$347,800
Construction of dredged disposal dikes/structure	$146,600
First 10% Construction cash	$ 14,700
Second 10% Construction cash (LERR credit)	$ 0
Revised Total usable LERR Credit	$333,100

The following is an example for the subsequent periods of construction for the 25th, 30th, 35th, 40th, 45th, and 50th years:

Item	Cost
Unused LERR Credit	$289,000
LERR for this subsequent period of construction	$ 98,000
Total usable LERR Credit	$387,000
Construction of dredged disposal dikes/structure	$146,600
First 10% Construction cash	$ 14,700
Second 10% Construction cash (LERR credit)	$ 0
Revised Total usable LERR Credit	$372,300

VIEWS OF NON-FEDERAL SPONSOR

Local interests have indicated support and agreement with the selected plan. They are aware of the natural resources they have in the Mississippi River and the potential it provides for further economic growth. They have reviewed a draft Project Cooperation Agreement (PCA) and agreed with the terms. They have developed a financing plan and it is contained in Appendix VII.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this investigation, it is concluded that:

- There is a demonstrable need for construction of a new harbor in the region;

- The selected plan encompasses the engineering, economic, and environmental feasibility of constructing a harbor near Tiptonville, Tennessee;

- The project sponsor desires the selected plan described in this report;

- A Federal interest in the project is demonstrated in this document via a resultant benefit cost ratio of 1.84 to 1.

I recommend that the plan selected herein for construction of a harbor near Tiptonville, Tennessee, be approved for implementation as a Federal project under the authority contained in Section 107 of the Rivers and Harbors Act of 1960, as amended. The estimated average annual Federal O&M costs are $201,600. The estimated cost for construction of the general navigation features of the recommended project is $3,541,600 with ultimate cost sharing of $3,187,500 Federal and $354,100 non-Federal. The non-Federal sponsor is also responsible for providing the lands, easements, rights-of-way, and relocations (LERR) estimated at $701,900 needed to construct the general navigation features. In addition the non-Federal sponsor will pay the Federal Government approximately $336,800 up-front for construction of the non-Federal berthing area and provide all LERR ($85,100) necessary to construct the berthing area. The construction of the berthing area will occur concurrent with the construction of the general navigation features of the recommended project. The construction of the berthing area brings the total construction cost to $4,665,430 with the Federal share being $3,187,500 and the non-Federal share being $1,477,900. The exact amount of non-Federal contributions, however, shall be determined by the actual project implementation costs in accordance with the requirements of local cooperation stated in the Project Cooperation Agreement.

Charles O. Smithers III
Colonel, Corps of Engineers
District Engineer

Table 5
NORTHWEST TENNESSEE REGIONAL HARBOR
ALLOCATION OF PROJECT FIRST COSTS
(COST-SHARING REQUIREMENTS)
(2004 Price Level in Thousands of Dollars)

Item	Federal	Non-Federal	Total
LERR	**0**	**701.9**	**701.9**
General Navigation Features (GNF)			
Lands and Damages	24.0		24.0
Construction	2,858.4		2,858.4
E&D	359.6		359.6
S&A	299.6		299.6
Subtotal	3,541.6		3,541.6
Initial 10% Cash	-354.1	354.1	
Second 10% Cash minus LERR credit	0	0	
Total GNF Costs	**3,187.5**	**354.1**	**3,541.6**
Total Project	**3,187.5**	**1,056**	**4,243.5**
Feasibility costs (Federal share for	324.5		
determining costs over $4 million			
Federal project limit)			
Subtotal	3,512.0		
Additional non-Federal cash to avoid	0	0	
exceeding the Federal cost limit.			
Local Service Facilities			
Berthing Area			
Construction, E&D, and S&A 1/		336.8	336.8
LERR		85.1	85.1
Subtotal Berthing Area		421.9	421.9
Port Facilities (includes dolphins, winch system, warehouse, and storage tanks, storage areas, etc.)		5,803.1	5,803.1
Subtotal for Local Service Facilities		**6,225.0**	**6,225.0**
Site Development (includes roadway improvements, railroad construction, parking, admin building, utilities, land acquisition, E&D, etc.)		**8,252.9**	**8,252.9**
Final Cost for Construction of Harbor	3,187.5	1,477.9	4,665.4
Final Project Cost Allocation	**3,187.5**	**15,557.6**	**18,741.4**

1/ Construction, E&D and S&A of the non-Federal berthing area will be performed by the Corps with the sponsor paying 100 percent of the costs up-front.

Table 6
NORTHWEST TENNESSEE REGIONAL HARBOR
FEDERAL/NON-FEDERAL ALLOCATION OF FUNDS BY FISCAL YEAR
(2004 Price Level in Thousands of Dollars)

		Non-Federal		
Year	Federal	LERR	Cash	Local Ser. Fac. & Site Dev.
FY 2005	259.6			
FY 2006	100.0	701.9		
FY 2007	1,413.9		354.1	421.9
FY 2008	1,414.0			7,375.0
FY 2009				2,465.3
FY 2010				4,215.7
Total	3,187.5	701.9	354.1	14,477.9

Note: The following is a listing of the calendar months and year for each fiscal year.

FY 2005 = 1 Oct 2004 to 30 Sep 2005
FY 2006 = 1 Oct 2005 to 30 Sep 2006
FY 2007 = 1 Oct 2006 to 30 Sep 2007
FY 2008 = 1 Oct 2007 to 30 Sep 2008
FY 2009 = 1 Oct 2008 to 30 Sep 2009
FY 2010 = 1 Oct 2009 to 30 Sep 2010

Table 7
NORTH WEST TENNESSEE HARBOR
OPERATION AND MAINTENANCE COST
(2004 $, 5.625% interest rate)

	Interval Years	Quantity	Unit	Unit Price		Cost Per Interval
Maintenance Dredging (Federal GNF Cost)	1	122,000	CY	$ 1.40		$170,800.00
Bank Repair & Grading (Federal GNF Cost)	3	30,600	TON	$ 14.25		$8721.00
Replace & Repair Riprap (Federal GNF Cost)	3	15,300	TON	$ 13.25		$4054.50
Filter Material (Bedding) (Federal GNF Cost)	1	20	AC	$ 30.00		$600.00
Future Dredge Disposal Site * (Non-Federal GNF Cost)	5		AC			$98,000
Future Dredge Disposal Retention Dikes (Federal GNF Cost)	5	95,200	CY	$ 1.25		$146,600
Total Present Value						$3,430,082
Total (Average Annual)						$206,652
Total (Rounded)						$206,600
Total Present Value: Federal						$3,346,041
Total (Average Annual): Federal						$201,597
Total (Rounded): Federal						$201,600

* Beginning on the 25th year.

	Table 8	
	North West Tennessee Harbor	
	AAE Associated Site Development Cost	
	(2004 $, 5.625% interest rate)	
First Cost		$14,477,900
Average Annual Equivalent Cost		$ 870,823

Table 9
ANNUAL BENEFIT – COST SUMMARY

(2004 $, 5.625 interest rate)

I. BENEFITS		Transportation Rates ($)[2]			Transportation
Commodity	Tonnage	Rail / Truck	Barge	Differential[3]	Savings ($)
Inbound:					
Calcium Carbonate (Bulk)	150,000	$15.50	$ 9.76	$ 5.74	$ 861,000
Natural Rubber	23,750	$48.00	$31.44	$16.56	$ 393,300
Paper (Container)	50,000	$165.45	$153.63	$11.82	$ 591,000
Petroleum (Gasoline)	150,000	$11.97	$10.56	$ 1.41	$ 105,750
Petroleum (Diesel)	150,000	$15.15	$ 9.18	$ 5.97	$ 447,750
Soybean Meal	25,000	$24.40	$22.53	$ 1.87	$ 46,750
Steel Coils	20,000	$23.68	$20.61	$ 3.07	$ 61,400
Total Benefits:	418,750				$2,506,950
II. AAE COSTS:					
Initial Investment					$ 280,618
Operation & Maintenance					$ 206,652
Site Development Cost:					$870,823
Total Cost:					$ 1,358,093
III. AAE ANNUAL TOTALS[4]					
Benefits					$2,506,950
Costs					$ 1,358,093
Excess Benefits					$1,148,857
Benefit/Cost Ratio:					1.84

2 Transportation Freight Rates include associated shipping and handling charges.
3 Differential value reflects difference between current mode and barge transportation rates.
4 AAE Total for Phase I and Phases I & II are displayed respectively for the following categories: Costs, Excess Benefits, and B/C Ratio.

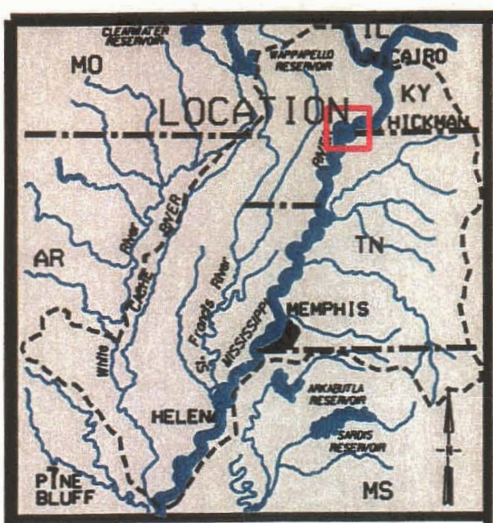
Table 10
NORTH WEST TENNESSEE HARBOR
TOTAL PROJECT LIMIT AND LIMIT ON FEDERAL OMRR&R
FOR SECTION 107 PROJECTS

The limit of Federal participation in operation and maintenance is as follows:

(1) Total Project Limit of Federal expenditure is computed as Total Project Limit = Total Federal Costs (feasibility through end of construction) x 2.25. The minimum total project limit is $4.5 million.

(2) The Limit for the Federal OMRR&R. Federal OMRR&R limit = Total Project Limit – Total Federal Costs (feasibility through end of construction).

	Project Data ($000)
1. Federal Costs	
Feasibility Study	$324.5
Plans and Specifications	$359.6
Construction	$2,824.2
Total Federal Cost	$3,512.0
Estimated Average Annual Equivalent Federal OMRR&R	$201.6
2. Total Project Limit	
Total Federal Cost * 2.25	$7,902.0
Total Project Limit	$7,902.0
3. Federal Limit for Future OMRR&R	
Total Project Limit	$7,902.0
-Total Federal Costs	$3,512.0
Federal Limit for Future OMRR&R	$4,390.0

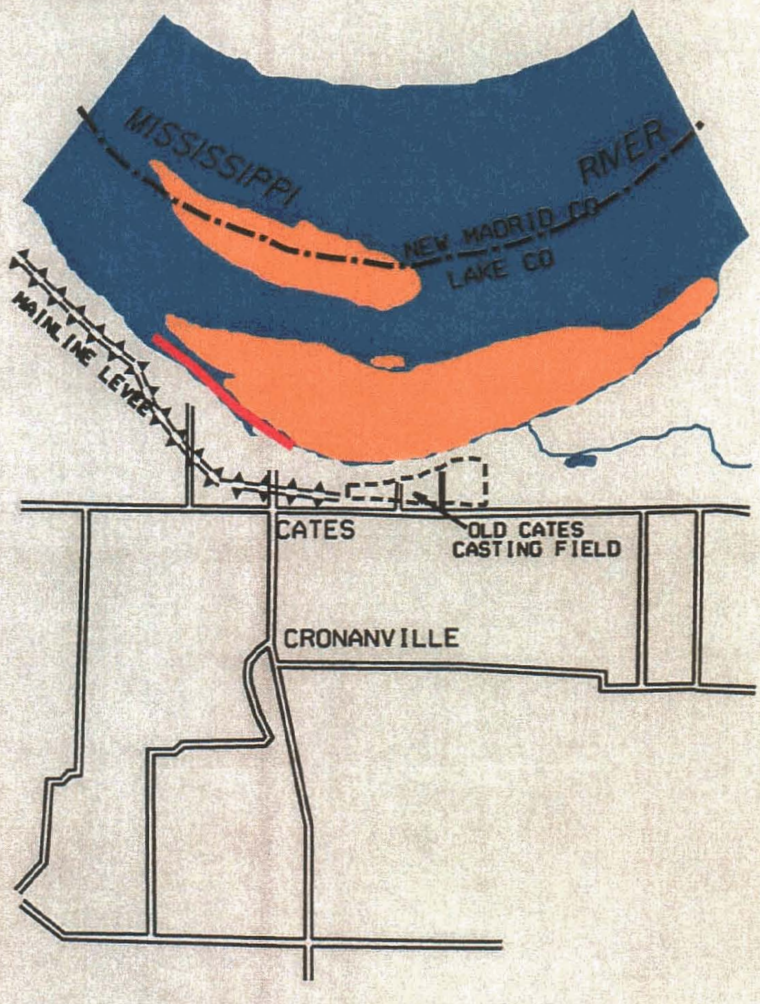


VICINITY MAP

N

LEGEND

PROPOSED HARBOR SITE



SCALE

1 1/2 0 1 MI

1 .5 0 1 KM

NORTHWEST TENNESSEE

REGIONAL HARBOR

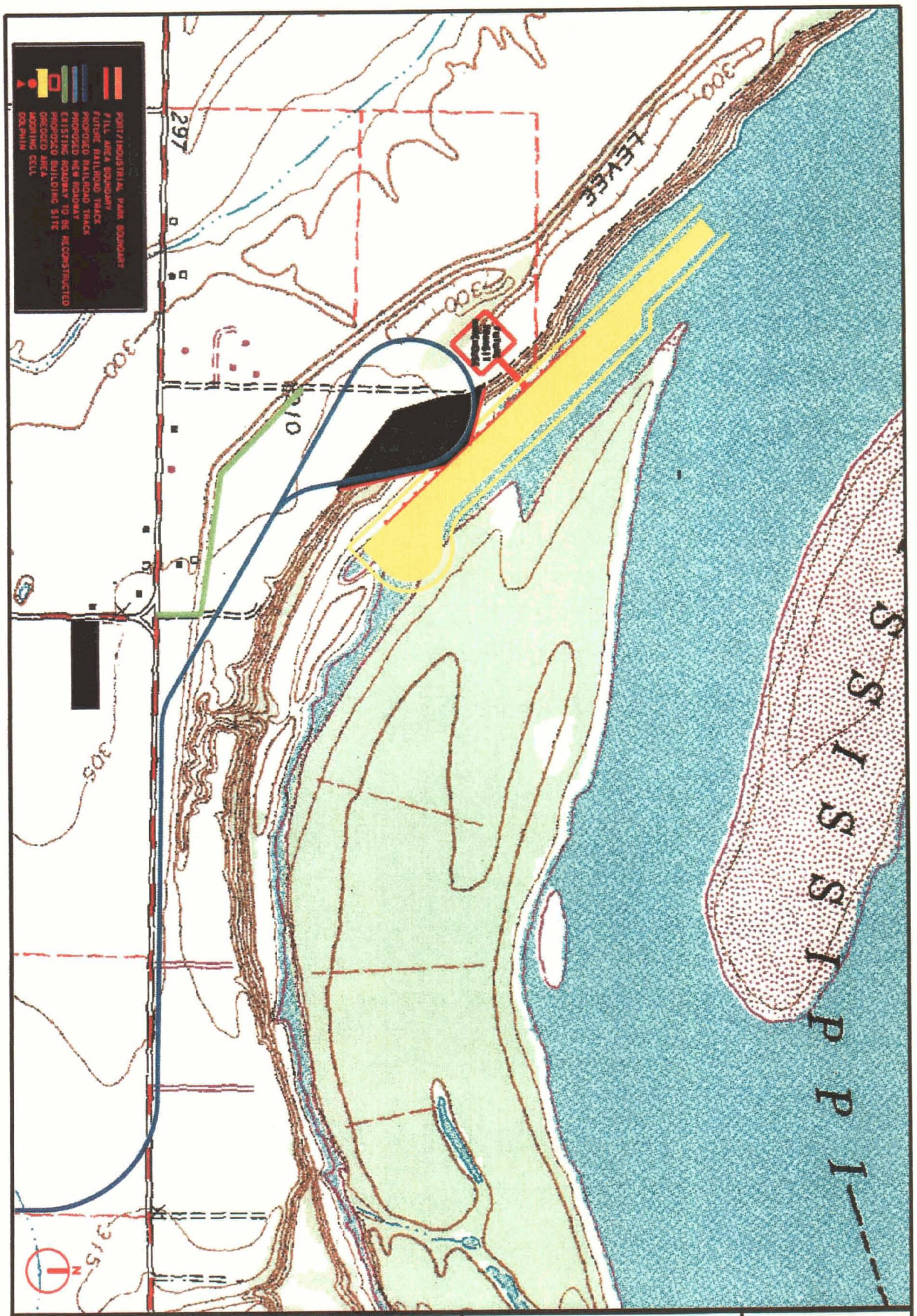
TENNESSEE

SECTION 107

U. S. ARMY ENGINEER DISTRICT, MEMPHIS

PLATE 1

DISPOSAL AREA B
DISPOSAL AREA A
TRAIL DIKE
HARBOR TERMINAL
UPPER HARBOR
ELEVATION 285.0 NGVD
HARBOR FOOTPRINT
ELEVATION 250.0 NGVD
NOTE:
CONTAINMENT DIKE
TO BE CONSTRUCTED
BETWEEN THE RED AND
ORANGE LINES IN THE
DISPOSAL AREAS.
8
4
U.S. Army Corps of Engineers
Memphis District
MEMPHIS, TENNESSEE
NORTHWEST TENNESSEE
PROPOSED HARBOR
LOCATION
PLATE 2



NORTHWEST TENNESSEE
PROPOSED HARBOR SITE
DEVELOPMENT

SITE PLAN

SCALE: 1" = 300'

GARVER ENGINEERS
"Engineers Since 1915"
253 WILSON PIKE CIRCLE BRENTWOOD, TENNESSEE 37027
(615) 377-1337 www.garver.com

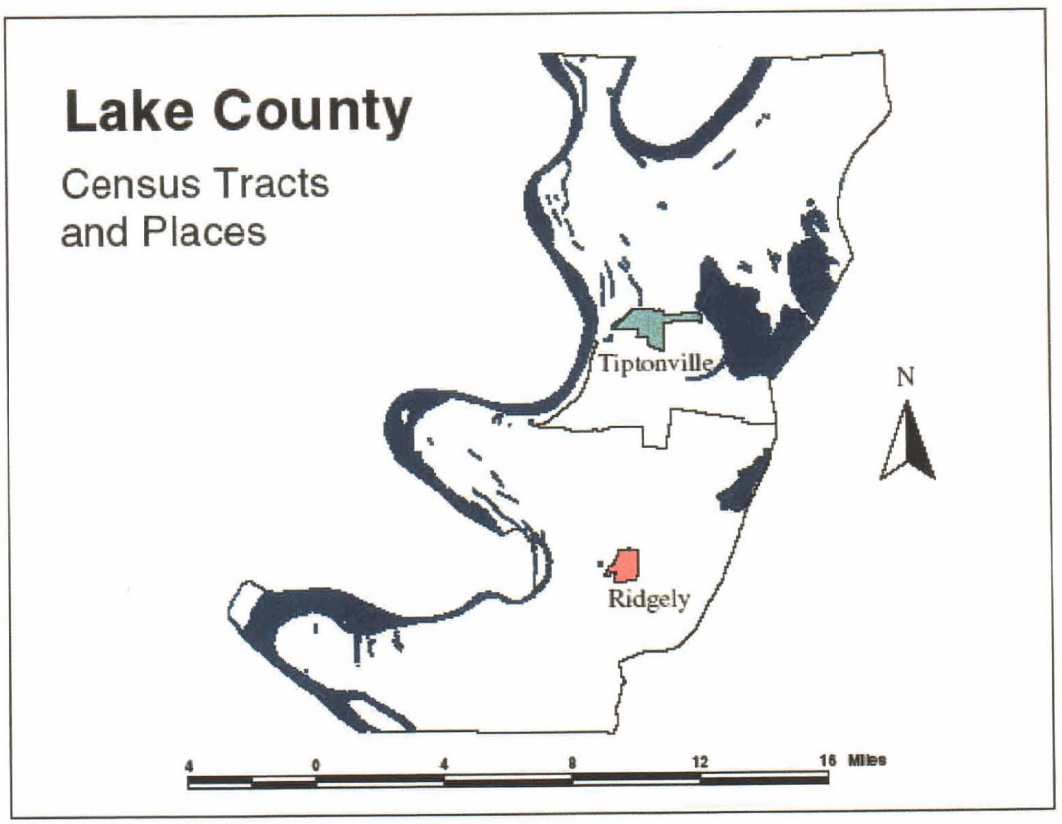
PLATE 3

Plate Number 4 Lake County Profile

COUNTY PROFILE

Name: Lake
FIPSCODE: 47095

Area: 163 Sq. miles
Population Density: 48.8



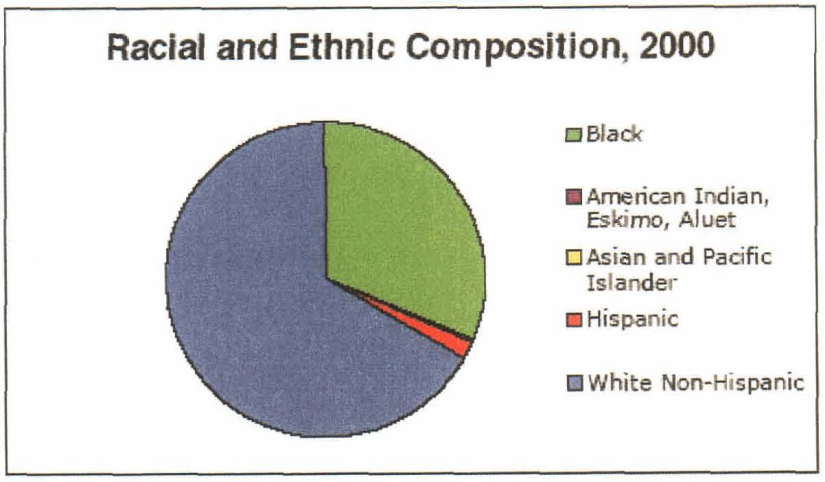
1999 Population estimates of Census Designated Places:

Place	Estimated Population 7/1/99	Estimated Population 4/1/90	Percentage Change
Ridgely	1,726	1,850	-6.7
Tiptonville	2,113	2,261	-6.6

Plate Number 5 Lake County Population Characteristics

Population Characteristics

2000 Population estimate:	7,954
1990-2000 Growth Rate:	11.6%
Population age 25+ with high school diploma, 1990:	49.6%
Population age 25+ with college degree, 1990:	5.0%
Births per 1000 population, 1994:	11.1
Deaths per 1000 population, 1994:	12.0
Infant Deaths per 1000 Live Births, 1994:	0.0



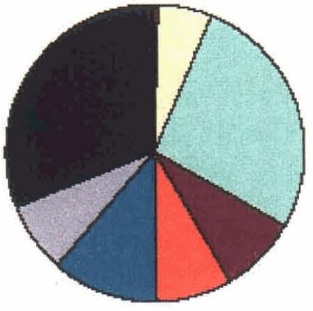
Business and Economic Profile

	Lake	Tennessee
Median Income (1997)	$21,682	$32,047
Population Below Poverty Level	30.2%	13.6%
Children Below Poverty Level	32.8%	18.9%
Home Ownership Rate	58.4%	68.0%

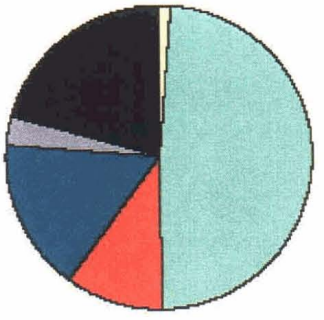
Land in Farms	From 1992 to 1997, it decreased 2% to 89,635 acres
Average Farm Size	From 1992 to 1997, it increased 4% to 1,120 acres (State value: 145 acres)
Market Value of Agricultural Goods Sold	Total Value in 1997: $23,404,000 From 1992 to 1997, the average per farm increased 4% to $292,546

1997 Payroll by SIC Code

Tennessee



Lake



APPENDIX I

PERTINENT CORRESPONDENCE

TABLE OF CONTENTS

PERTINENT CORRESPONDANCE

Date	Correspondence
3 Apr 1998	Letter of Harbor Study Request – Lake County, Tennessee
23 Mar 2001	The Northwest Tennessee Regional Port Authority Charter by Lake, Dyer and Obion Counties, Tennessee
23 Apr 2003	ASA(CW) Fact Sheet submittal by e-mail from CEMVM to CEMVD, request to continue study
25 Apr 2003	ASA(CW) Fact Sheet submittal by e-mail from CEMVD to HQUSACE, request to continue study
1 Aug 2003	e-mail from CEMVD to CEMVM to proceed on with the study

MACIE M. ROBERSON

County Executive, Lake County
Box 1 • Court House
229 Church Street
Tiptonville, Tennessee 38079

TELEPHONE
901/253-7382

April 3, 1998

Col. Gregory G. Bean
District Engineer
U.S. Army Engineer District, Memphis
167 North Main Street, B202
Memphis, Tennessee 38103-1894

Dear Sir:

As official representative of County of Lake, I have been authorized and directed to request the Corps of Engineers to make all investigations and reports which may be required to determine the feasibility and economic justification of a harbor project at Cates Landing on the Mississippi River. It is understood that such work authorized by Section 107 of the 1960 River and Harbor Act, as amended, is limited to a Federal cost of $4,000,000 must be complete within itself, and requires specified local cooperation.

If an acceptable plan for a navigation project and cost sharing is developed, the County of Lake, will be required to demonstrate the financial capability to provide its share of project costs and its legal ability to provide certain assurances concerning project implementation and operation and maintenance before actual project construction can begin.

Macie Roberson
County Executive, Lake County

Secretary of State
Division of Business Services
312 Eighth Avenue North
5th Floor, William R. Snodgrass Tower
Nashville, Tennessee 37243

DATE: 03/23/01
REQUEST NUMBER: 4153-1924
TELEPHONE CONTACT: (615) 741-2286
FILE DATE/TIME: 03/23/01 1152
EFFECTIVE DATE/TIME: 03/23/01 1152
CONTROL NUMBER: 0405480

TO:
JOHN M LANNOM
P.O. BOX 1729

DYERSBURG, TN 38024

RE:
THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY
OTHER CHARTER

CONGRATULATIONS UPON THE INCORPORATION OF THE ABOVE ENTITY IN THE STATE OF TENNESSEE, WITH AN EFFECTIVE DATE AS INDICATED.

WHEN CORRESPONDING WITH THIS OFFICE OR SUBMITTING DOCUMENTS FOR FILING, PLEASE REFER TO THE CORPORATION CONTROL NUMBER GIVEN ABOVE.

FOR: OTHER CHARTER ON DATE: 03/23/01

	FEES	
RECEIVED:	$100.00	$0.00
TOTAL PAYMENT RECEIVED:		$100.00

FROM:
JOHN M LANNOM (BOX 1729/422 MCGAUGHEY)
422 MCGAUGHEY ST
PO BOX 1729
DYERSBURG, TN 38024-0000

RECEIPT NUMBER: 00002836673
ACCOUNT NUMBER: 00253257

Riley C. Darnell

RILEY C. DARNELL
SECRETARY OF STATE

SS-4458

Record Book
422 Pg 275

FILED
RECEIVED
STATE OF TENNESSEE
01 MAR 23 AM 11:52
RILEY DARNELL
SECRETARY OF STATE

JOINT RESOLUTION OF THE LEGISLATIVE BODIES OF LAKE COUNTY, DYER COUNTY AND OBION COUNTY, TENNESSEE, FOR THE CREATION OF THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY

WHEREAS, on October 16, 2000, on November 2, 2000, and on November 20, 2000, respectively, the duly elected and constituted Legislative Body of Lake County, Tennessee, (hereinafter, the "Commissioners of Lake County"), the duly elected and constituted Legislative Body of Dyer County, Tennessee (hereinafter, the "Commissioners of Dyer County"), and the duly elected and constituted Legislative Body of Obion County (hereinafter, the "Commissioners of Obion County") each resolved to conduct a public hearing pursuant to Tenn. Code Ann. §§ 7-87-101, et seq., Port Authority Act, to determine whether the public convenience and necessity require the creation of the Northwest Tennessee Regional Port Authority for the operation of a Port and Harbor facility at Cates Landing in Northern Lake County, Tennessee; and

WHEREAS, notice of the aforementioned public hearings was duly published in accordance with Tenn. Code Ann. § 7-87-104; and

WHEREAS, the aforementioned public hearings were lawfully conducted on November 20, 20000, on November 13, 2000, and January 16, 2001, before the Commissioners of Lake County, the Commissioners of Dyer County and the Commissioners of Obion County, respectively, and all interested parties had an opportunity to be heard; and

WHEREAS, upon the conclusion of the aforementioned public hearings,

the Commissioners of Lake County, the Commissioners of Dyer County and the Commissioners of Obion County all determined that the public convenience and necessity require the creation of the Northwest Tennessee Regional Port Authority; and

WHEREAS, the Commissioners of Lake County, the Commissioners of Dyer County and the Commissioners of Obion County have further determined that the public convenience and necessity require the efforts of Lake County, Dyer County and Obion County in the establishment of the Northwest Tennessee Regional Port Authority to be undertaken jointly and in concert with each other;

THEREFORE, BE IT RESOLVED, by the Commissioners of Lake County, the Commissioners of Dyer County and the Commissioners of Obion County that the Northwest Tennessee Regional Port Authority shall be and is hereby created for the operation of a Port and Harbor Facility at Cates Landing in Northern Lake County, Tennessee, and in order to exercise of all powers and authority granted pursuant to Tenn. Code Ann. §§ 7-87-101 et. seq. as may be amended from time to time.

BE IT FURTHER RESOLVED, that the name and initial principal office address of the Port Authority shall be:

Northwest Tennessee Regional Port Authority
P. O. Box 747
2000 Commerce Avenue
Dyersburg, Tennessee 38024

BE IT FURTHER RESOLVED, that the complete name and address of the Port Authority's registered agent is John M. Lannom, 422 McGaughey Street, P.O. Box 1729, Dyersburg, Tennessee 38024, County of Dyer.

BE IT FURTHER RESOLVED, that pursuant to Tenn. Code Ann. § 7-87-105, the Commissioners of Lake County, the Commissioners of Dyer County and the Commissioners of Obion County have and do hereby confirm and approve the appointment by their respective Executive Officers of the following persons to serve as the initial Board of Commissioners of the Port Authority for the respective terms indicated below:

Lake County Commissioners

Name	Term
Bobby Woods 408 Cherry Street Tiptonville, TN 38079	8 years
Jerome Shumate 1000 Robertson Tiptonville, TN 38079	5 years
Marsha Mills 427 Wynn Street Tiptonville, TN 38079	4 years
Mac Forrester 630 Headden Drive Ridgely, TN 38080	1 year

Dyer County Commissioners

Name	Term
J. E. Williamson 2211 Cherokee Tr. Dyersburg, TN 38024	6 years
Ralph Henson 4775 Highway 78 Dyersburg, TN 38024	2 years

Obion County Commissioners

Name	Term
Jimmy Seals 3443 West Shawtown Road Troy, TN 38260	7 years
Dan Frankum 5525 Stanley Chapel Road Union City, TN 38261	3 years

BE IT FURTHER RESOLVED, that the Commissioners of Lake County, the Commissioners of Dyer County and the Commissioners of Obion County bind themselves to the other and agree to cooperate with each other in the adoption, execution and filing of the foregoing Resolution pursuant to Tenn. Code Ann. §§ 7-87-101, et seq., and in the undertaking and performance of all other actions necessary and required for the creation and establishment of the Northwest Tennessee Regional Port Authority.

BE IT FURTHER RESOLVED, that the Honorable Macy Roberson, Chief Executive Officer of Lake County, Tennessee, the Honorable James O. McCord, Chief Executive Officer of Dyer County, Tennessee, and the Honorable Norris Cranford, Chief Executive Officer of Obion County, Tennessee, shall be and are hereby authorized and empowered to execute the foregoing Resolution on behalf of their respective County Legislative Bodies for the purpose of establishing the Northwest Tennessee Regional Port Authority, confirming the appointment of the initial Board of Commissioners of said Port Authority, and for all other lawful purposes as contemplated by the Port Authority Act.

SO RESOLVED by the governing bodies of each of Lake County, Tennessee, Dyer County, Tennessee and Obion County, Tennessee, on the day and date below said.

LEGISLATIVE BODY OF LAKE COUNTY, TENNESSEE

By: [signature]

DATED 2-19-2001 ATTEST: [signature]

I, JoAnn Hicks Mills, the County Clerk of Lake County, Tennessee, do hereby certify that this Joint Resolution of the Legislative Bodies of Lake County, Dyer County and Obion County, Tennessee, for the Creation of the Northwest Tennessee Regional Port Authority was adopted by the duly elected and constituted Legislative Body of Lake County, Tennessee, on this the 19th day of February, 2001.

[signature]
JoAnn Hicks Mills

STATE OF TENNESSEE, LAKE COUNTY
This foregoing instrument and certificate were noted in
Note Book 12, Page 107 at 3:15 o'clock P. M. 4-4-01
and recorded in Misc Book 4 Series ___ Page 310-315
State Tax Paid $___ Fee ___ Recording Fee 5.50 Total $ 7.50
Witness my hand Data Fee $ 2.00
Receipt No. 989
Claudia Adcock
Register

Kim Walker, Register
Dyer County Tennessee

Rec #: 15075		Instrument 200102388
Rec'd:	5.50	MBk: 32 Pg 90
State:	0.00	
Clerk:	0.00	Recorded
EDP:	2.00	3/29/2001 at 10:18 am
Total:	7.50	in Record Book
		422 Pages 275-280

State of Tennessee, Obion County
This instrument was filed April 4, 2001
Time 4:10 P.M. and recorded in Charter Book 6
Page 42-52. State Tax paid $___ fee ___
Rec. Fee $ 5.50 Total $ 7.50.
Fee 2.00
Register [signature] Receipt No. 9000
Notebook No. pg. 202

Will pick up

LEGISLATIVE BODY OF DYER COUNTY, TENNESSEE

By: Jerry McCord

DATED 3-8-01 ATTEST: Patty Wallace

I, Diane Moore, the County Clerk of Dyer County, Tennessee, do hereby certify that this Joint Resolution of the Legislative Bodies of Lake County, Dyer County and Obion County, Tennessee, for the Creation of the Northwest Tennessee Regional Port Authority was adopted by the duly elected and constituted Legislative Body of Dyer County, Tennessee, on this the 12 day of March, 2001.

Diane Moore
Diane Moore

LEGISLATIVE BODY OF OBION COUNTY, TENNESSEE

By: Norin Crayford

DATED 3-19-01 ATTEST: Kay Calhoun

I, Vollie Jean Boehms, the County Clerk of Obion County, Tennessee, do hereby certify that this Joint Resolution of the Legislative Bodies of Lake County, Dyer County and Obion County, Tennessee, for the Creation of the Northwest Tennessee Regional Port Authority was adopted by the duly elected and constituted Legislative Body of Obion County, Tennessee, on this the 19 day of March, 2001.

Vollie Jean Boehms
Vollie Jean Boehms

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BY-LAWS
OF THE NORTHWEST TENNESSEE
REGIONAL PORT AUTHORITY

ARTICLE I - NAME

Section 1: The name of this corporate entity shall be The Northwest Tennessee Regional Port Authority, which shall be referred to hereinafter as the Authority.

ARTICLE II - GENERAL

Section 1: The purpose of the Authority is the development, construction and operation of a port located upon the Mississippi River in Lake County, Tennessee, pursuant to the laws of Tennessee and particularly Tenn. Code Ann. § 7-87-101, et seq, as amended.

Section 2: It is intended that the Authority will engage in any and all lawful activities under the law in furtherance of the purposes set forth in Section 1 above.

ARTICLE III - BOARD OF COMMISSIONERS

Section 1: The Government and policy-making responsibilities of the Authority shall be vested in the Board of Commissioners, which shall control its property, be responsible for its finances and direct its affairs. The Board shall adopt and approve the budget in January of each year or from such other time or times as the Board might elect. The Board shall also be authorized to obtain loans and financing for the Authority and its activities and to negotiate and approve the terms and conditions for the repayment and securing of same through the Authority's property. The Board shall also approve all contracts recommended by the Officers and entered into by the Authority and appoint such other officers, representatives or agents as shall be required by law or otherwise deemed necessary by the Board. The Board shall also exercise such other powers and actions as may be specifically authorized under the law including, without limitation, the powers enumerated in Tenn. Code Ann. §7-87-107.

Section 2: The Board of Commissioners shall consist of eight (8) voting members serving staggered terms ranging from one (1) to eight (8) years. Four (4) members of the Board shall be selected by the Legislative Body of Lake

County; Two (2) members of the Board shall be selected by each of the Legislative Bodies of Obion and Dyer County.

Section 3: The Board shall meet at least once each year during the month of May and at all other times and occasions as directed by the Chairman or a majority of the Board's members.

Section 4: A majority of the Board shall constitute a quorum in any vote undertaken by the Board, with the exception, however, of a vote to remove a standing Commissioner from the Board, which shall require a two-thirds (2/3) vote of the Board for removal.

Section 5: The Authority shall indemnify and hold its Commissioners or former Commissioners harmless for liability and expense, including attorneys' fees, arising from any claim or litigation involving the Authority and any Commissioner and their lawful actions undertaken pursuant to these By-Laws. No indemnification shall be provided to any person for his or her illegal activity or intentional misconduct. The Authority shall also effect and maintain, at all times, policies of Officer's and Commissioner's Liability Insurance with limits of liability acceptable to the Board which shall insure the Officers and Commissioners of the Authority and their actions undertaken in such capacities.

Section 6: Any officer or commissioner may resign at any time by giving notice to the Chairman of the Board. Any such resignation shall take effect at the time specified therein, or, if no time is specified, then upon its delivery.

Section 7: Vacancies occurring in any office or on the Board of Commissioners for any reason, including removal of an officer or commissioner, shall be filled by the County Executive of the County which said officer or commissioner represented.

ARTICLE IV - OFFICERS

Section 1: The officers of the Authority shall be the following:

Chair
Vice Chair
Board Secretary
President

Authority Secretary
Auditor
Legal Counsel
Treasurer
Chief Engineer

Section 2: CHAIR: The Chairman shall serve as the Chairman of the Board of Commissioners and shall preside at all meetings of the Board of Commissioners of the Authority.

The Chairman shall also render all other services required of him under these By-Laws or the Law, generally. The Chairman shall be elected each year by the Board of Commissioners.

Section 3: VICE CHAIR: The Vice Chairman shall exercise the powers and authority and perform the duties of the Chairman in the absence or disability of the Chairman and other duties as directed by the Chairman or the Board. The Vice Chairman shall be elected each year by the Board of Commissioners.

Section 4: BOARD SECRETARY: The Board Secretary shall keep and maintain the minutes of the meetings of the Board of Commissioners and all other records of the Authority with the assistance of the Authority Secretary and other duties as directed by the Chairman or the Board. The BoardSecretary shall be elected each year by the Board of Commissioners.

Section 5: PRESIDENT: The President shall serve as the Chief Executive Officer of the Authority and shall be responsible for the daily operations undertaken by the Authority in fulfillment of its purposes, and shall perform other duties as directed by the Chairman or the Board. The President shall be chosen by the Board of Commissioners and shall serve at the pleasure of the Board.

Section 6: AUTHORITY SECRETARY: The Authority Secretary shall, under the direction of the Board Secretary, keep and maintain the books and records of the Authority and perform such other reasonable duties as shall be delegated or required from time to time by the President and shall perform such other duties as directed by the Chairman, President or the Board. The Authority Secretary shall be appointed by the President and confirmed by the Board of Commissioners.

Section 7: AUDITOR: The Auditor shall keep and prepare the financial books and records of the Commission and such other specific records and accountings of the Authority as shall be required from time to time by the Board and the President.

Section 8: LEGAL COUNSEL: Legal Counsel for the Authority shall serve at the pleasure of the Board and shall be appointed by the President and approved by the Board.

Section 9: TREASURER: The Treasurer shall keep and be in charge of the funds of the Commission and the disbursement thereof toward payment of the lawful debts of the Authority subject to the direction of the Commission and the President. The Treasurer shall be appointed by the President and confirmed by the Board.

Section 10: CHIEF ENGINEER: The Chief Engineer shall provide professional engineering services to and for the benefit of the Authority and such other services and duties as shall be required from time to time by the President. The Chief Engineer shall be appointed by the President and approved by the Board.

ARTICLE V - AUDIT OF ACCOUNTS

Section 1: The Auditor shall examine and audit the books and accounts of the Authority at the conclusion of each fiscal year, and at such other times as the Commissioners may determine.

ARTICLE VI - PARLIAMENTARY RULES

Section 1: The proceedings of the meetings of the Authority shall be governed by and conducted according to the latest edition of Robert's Rules of Order.

ARTICLE VII - WHEN EFFECTIVE

Section 1: These By-Laws shall be effective when adopted.

Section 2: All By-Laws existing previous to said adoption are hereby repealed.

ARTICLE VIII - AMENDMENTS

Section 1: These By-Laws must be approved or may be amended by majority vote of the members of the Board.

ARTICLE IX - DISSOLUTION

Section1: Upon dissolution, the assets of the Authority shall be distributed in accordance with Tenn. Code Ann. §7-87-112, as amended.

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Lloyd, James W MVM

From: Lloyd, James W MVM
Sent: Wednesday, April 23, 2003 11:11 AM
To: Hill, Charles E MVD; Cool, Lexine MVD
Cc: Scherer, Jack V COL MVM; Belk, Edward E MVM; Callaway, Michael T MVM; Lloyd, James W MVM; Ward, Daniel D MVM; 'jew@despower.com'
Subject: Revised NW TN Harbor ASA(CW) Fact Sheet Resubmitted

Charles & Lexine,
Attached is the revised fact sheet. Please submit to HQ. Also, attached is a file showing the MVD comments and MVM responses.

If you have any questions, plaes contact me.
Jim
3343

ASACW NW TN larbor107 Fact She..

MVD Comments to ASACW FS with ...

SECTION 107 INLAND HARBOR FACT SHEET

1. a. Project Name: Northwest Tennessee Regional Harbor

b. Status: Feasibility Phase, FCSA executed March 2000, prior to ASA(CW) fact sheet requirement.

2. a. Corps District: Memphis, Tennessee

b. Sponsor: Northwest Tennessee Port Authority

3. Congressional Delegation: **Tanner**, **(TN-8)**, **Frist-TN** and **Alexander-TN**

4. Location: The project is located at Mississippi River Mile (RM) 900.0 on the left descending bank near Tiptonville, Tennessee.

5. Problem: The proposed project would provide river access to a proposed industrial park site that will be located on land owned by the non-Federal sponsor, Northwest Tennessee Regional Port Authority in Lake County, Tennessee (Cates Landing, RM 900).

6. Alternative Plans Considered.

Six alternatives were considered to provide river access to the proposed industrial park. All alternatives were located in an old chute of the Mississippi River and would be within navigational servitude and fast lands would not be created. (Ordinary High Water Mark elevation at RM 900 is 285.0 NGVD.) These alternatives are described in the following table.

Table of Alternative Plans Considered

	Alternative Plans Considered					
Items	**1**	**2**	**3**	**4**	**5**	**6**
Canal Length, ft	14,000	13,800	8,500	5,000	9,000	NA
Canal Bottom-Width, ft	225	130	225	130	130	NA
Canal Depth, ft	9	9	9	9	9	NA
Diameter Turning Basin, ft	None	300	None	300	300	NA
Canal Side Slopes	1V:5H	1V:5H	1V:5H	1V:5H	1V:5H	NA
Canal Excavation, cy	3.1M	2.48M	4.1M	117,000	1.02M	NA
Canal Riprap	Yes	Yes	Yes	Yes	Yes	NA
Dredge Material Disposal Area	On Land	On Land	On Land	On Land	On Land	NA

Alternative 6 consists of a future without Federal action. This is what would occur in absence of Federal intervention. Acceptance of this alternative would forego the

economic benefits of a new harbor and would hinder the development of the proposed industrial park.

7. Description of Most Likely Recommended Plan. Alternative 5 is the most likely recommended plan and would be constructed within the navigation servitude. The general navigation features consist of dredging a navigation canal on the left descending bank at RM 900 that would be approximately 9,000-foot long up an old river chute stopping 5,000 feet before Cates Landing. The navigation canal would have a bottom width of 130 feet and a turning basin of 300 foot, with a navigation depth of 9 feet with 2 feet for overdredging. The navigation canal would end at the potential site of the local service loading and unloading facilities. Side slopes are set at 1 Vertical to 5 Horizontal. It would require approximately 1,017,000 cubic yards of excavation. To protect the canal banks from erosive towboat prop wash, 30,600 tons of riprap and 15,300 tons of filter/bedding material are being placed between elevations 256 to 271. Dredged material from construction of the general navigation facilities would be placed on 85.5 acres disposal area on land adjacent to the canal because the State of Tennessee would not allow for Mississippi River disposal under water quality certification. This disposal site is currently in agricultural production. Based on geotechnical analysis, this dredge material is not suitable for industrial site development. The non-Federal sponsor's general purpose terminal and associated features (i.e., local service facilities) would be located outside the footprint of this dredge disposal area. This plan requires 96 acres of farmland reforested as mitigation for the construction of the general navigation features in wetlands. A 95 feet wide by 2,900 feet long berthing area would require an additional 147,100 cubic yards of dredging at a non-Federal cost of $326,000. Also, the general purpose terminal would be constructed to an elevation of 313.0 (just above the 500-year flood elevation) at 100 percent non-Federal cost. The land adjacent to this terminal would be constructed to an elevation of 312.0, which would be four feet above the 100-year flood elevation. Also at 100 percent non-Federal cost, the fill for this construction would be either pumped from the Mississippi River or excavated from adjacent fields. A non-Federal cost of $13,293,000 is associated with the development of the local service facilities necessary to realize the benefits of the general navigation features. These costs include the following: roadway improvements, railroad construction, utilities, wastewater, berthing area, port facility with dolphins and winch system, administration building, parking areas, warehouse, storage tanks, storage areas, and engineering/construction inspection costs.

The tentatively selected plan has an annual operation and maintenance dredging cost of $158,600 with an additional $4,000 for riprap repair every three years. The annual average equivalent (AAE) total cost is $1,231,900. AAE benefit of $ 2,401,200 are generated for 75,000 tons of diesel petroleum, 150,000 tons of bulk calcium carbonate, 20,000 tons of steel coils, 25,000 tons of soybean meal, 23,750 tons of natural rubber, and 50,000 tons of paper being shipped through the proposed harbor. The tentatively selected plan has a Benefit/Cost ratio of 1.94 to 1.0 and excess benefits of $1,169,300.

8. Is project the NED Plan? Yes

9. Scheduled Initial Construction award (FY): 2005

10. Authorization, appropriations act, or report language:

"House of Representatives, Energy and Water Development Appropriations Bill, 2001, Report 106-693, Small Navigation Projects (Section 107) –The Committee has provided $9,000,000 for Section 107 program. Within the amount provided, the recommendation includes: $50,000 for design of the Northwest Tennessee Regional Harbor project;"

11. Financial Information:

a. Feasibility Study Cost: $549,000 (Federal share $324,500)

b. Initial GNF Costs:
Total: $3,864,000 (Federal share: $3,091,000)
Plans and specifications: $375,000
Construction: $3,489,000

c. LERRD Costs: $381,000 (included in paragraph 11.b.)

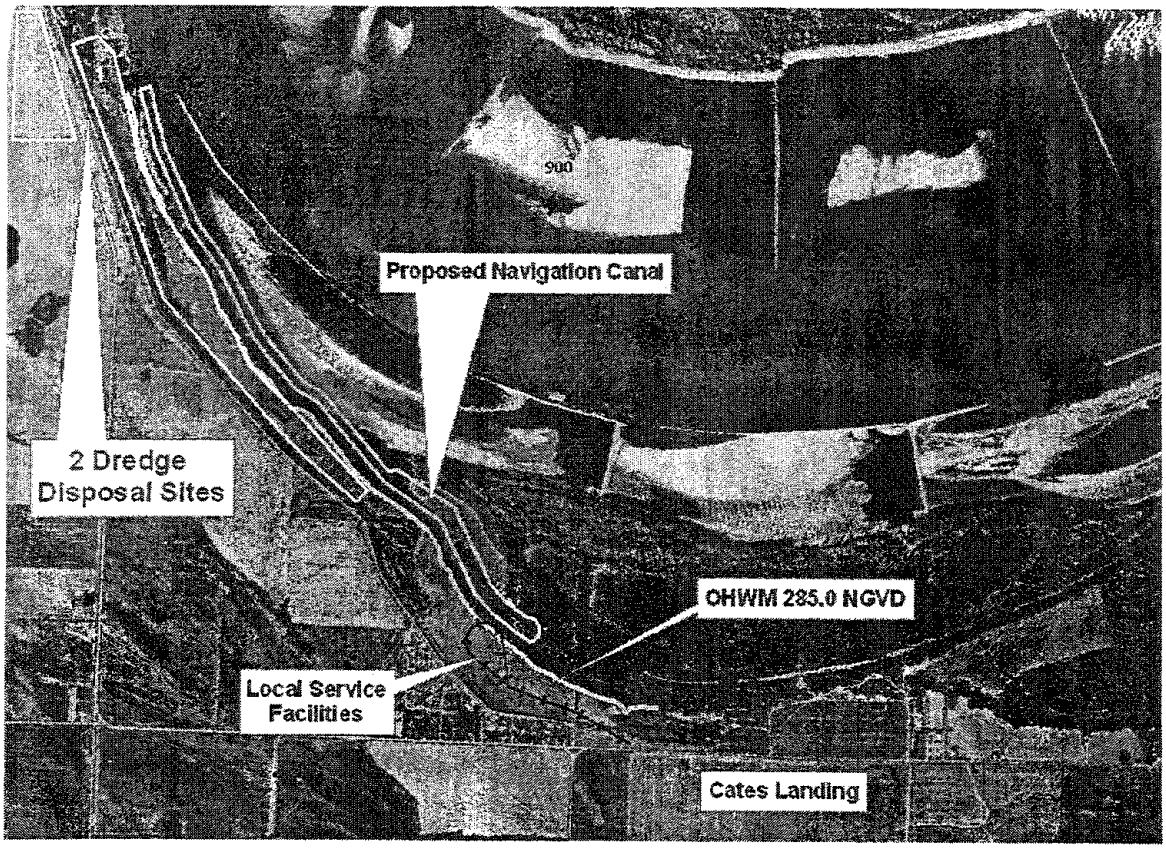
d. Local service facilities costs: $13,293,000 (includes berthing area to be built by US Army Corps of Engineers at 100% non-Federal cost of $326,000)

e. Ultimate Federal Cost: $3,415,500

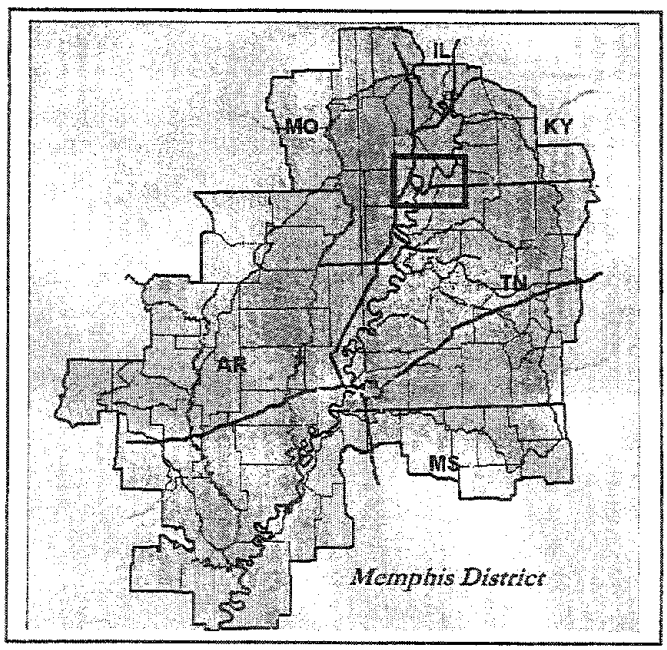
f. Benefit/Cost ratio: 1.94

12. Supplemental Information. To complete the feasibility study, $269,000 is needed. $191,000 is needed for additional NEPA coordination to resolve resource agencies concerns expressed over the potential of contaminated sediments, endangered and threatened species, wetland impacts, and cumulative impacts. $78,000 is needed to complete the other technical sections of the report.

13. Project Map: Tentatively Selected Plan, Alternative #5



Proposed Harbor Site Location within the Memphis District



April 15, 16, 21 & 22, 2003 MVD Comments to ASA(CW) Fact Sheet with MVM Responses.

Comment 1. Paragraph 5 should be reworded as follows: The proposed slack water harbor is to provide river access to a site that is adjacent to land owned by the local sponsor, Northwest Tennessee Regional Port Authority in Lake County, Tennessee (Cates Landing, RM 900). They want to develop the site into an industrial park.

Response: Paragraph 5 has been revised.

Comment 2. A table presenting the features of alternatives discussed would be a better way to present the alternatives than a write-up. The recommended plan could describe in its entirety in paragraph 7. However, if the write-ups are retained, then grammatical errors should be corrected.

Response: Alternative descriptions have been deleted and a table presenting the alternatives has been added to the fact sheet.

Comment 3. Delete the sentence about fast lands in parentheses in paragraph 7.

Response. Indicated sentence in paragraph 7 has been deleted.

Comment 4. Normally riprap is not considered GNF. However, if it is included as a GNF it must be demonstrated that the riprap is for the protection of the GNFs.

Response. In paragraph 7, the sentence "The harbor banks would be protected with 30,600 tons of riprap and 15,300 tons of filter/bedding material." has been revised to read "To protect the harbor banks from erosive towboat prop wash, 30,600 tons of riprap and 15,300 tons of filter/bedding material are being placed between elevations 256 to 271."

Comment 5. Delete the quote about Section 107 authority in paragraph 10. This section should include Congressional add language from House Report for FY 01 Appropriations (look up report number, etc. and quote language).

Response. The Section 107 authority has been replaced with the following sentence: "House of Representatives, Energy and Water Development Appropriations Bill, 2001, Report 106-693, Small Navigation Projects (Section 107) –The Committee has provided $9,000,000 for Section 107 program. Within the amount provided, the recommendation includes: $50,000 for design of the Northwest Tennessee Regional Harbor project;"

Comment 6. Paragraph 11b should cite implementation costs (P&S plus construction) only. The P&S and construction costs should add to the total. Clarification is needed.

Response. Costs have been revised.

Comment 7. The second and third paragraphs in section raise questions that do not need to be raised in this fact sheet, therefore, they should be deleted.

Response. In Section 12 Supplemental Information, the second and third paragraphs have been deleted.

Comment 8. The project cost breakdown table is much more info than needed for this fact sheet. If Section 11 is correct, it should be sufficient information for the fact sheet.

Response. The project cost breakdown table was provided for informational purposes. It will not be transmitted with the fact sheet in the future.

Comment 9. The map is good.

Response. None.

Comment 10. Pleas verify whether cultural resources survey or literature search has been conducted for the project area, including assessment of probability for shipwrecks and other historic sites related to the historic alignment of the navigation channel and Cates Landing.

Response. A cultural resource literature and records search has been conducted--no other work has been done. Cates Landing area has been cleared because of the previous destruction by the plant that was there. We have done nothing about shipwrecks, none were reported in the records search. We also have a draft MOA for cultural resources that is ready for signature.

Comment 11. A Real Estate Plan containing an assessment of the Non-Federal Sponsor's capability will be prepared and submitted as part of the decision document.

Response. The Northwest Tennessee Regional Harbor Section 107 Detailed Project Report will contain a Real Estate Plan assessing the Non-Federal Sponsor's capability.

Comment 12. On 22 April 2003, received comment on moving Berthing Area cost from paragraph 11.b. (Total) to paragraph 7.G. (Berthing Area/Port Facility w/ Dolphins and Winch System) and other text comments.

Response. The fact sheet has been revised per these comments.

Comment 13. Funds will not be approved until approval of the Fact Sheet by HQs is received.

Response. Request MVD assistance in obtaining HQs approval of this Fact Sheet.

Lloyd, James W MVM

From: Hill, Charles E MVD
Sent: Friday, April 25, 2003 2:22 PM
To: Lucyshyn, John HQ02
Cc: Lloyd, James W MVM; Cool, Lexine MVD; Harden, Michael MVD; Wilbanks, Rayford E MVD
Subject: Northwest TN Harbor ASA(CW) Fact Sheet

John,
Attached is Northwest Tennessee Sect 107 ASA(CW) Fact Sheet. Please review coordinate with ASA(CW).
Also attached is guidance from Steve Hudak requesting that Sect 107 Fact Sheets be reviewed by HQs and forwarded to OASA(CW) for concurrence to assure that proposed project is in compliance with the inland harbor policy.

POC is Charles Hill, 601-634-5844.

Thank you.

ASACW NW TN
larbor107 Fact She..

Continuing
uthorities Program..

23 April 2003

SECTION 107 INLAND HARBOR FACT SHEET

1. a. Project Name: Northwest Tennessee Regional Harbor

b. Status: Feasibility Phase, FCSA executed March 2000, prior to ASA(CW) fact sheet requirement.

2. a. Corps District: Memphis, Tennessee

b. Sponsor: Northwest Tennessee Port Authority

3. Congressional Delegation: **Tanner**, **(TN-8)**, **Frist-TN** and **Alexander-TN**

4. Location: The project is located at Mississippi River Mile (RM) 900.0 on the left descending bank near Tiptonville, Tennessee.

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Canal Depth, ft	9	9	9	9	9	NA
Diameter Turning Basin, ft	None	300	None	300	300	NA
Canal Side Slopes	1V:5H	1V:5H	1V:5H	1V:5H	1V:5H	NA
Canal Excavation, cy	3.1M	2.48M	4.1M	117,000	1.02M	NA
Canal Riprap	Yes	Yes	Yes	Yes	Yes	NA
Dredge Material Disposal Area	On Land	On Land	On Land	On Land	On Land	NA

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8. Is project the NED Plan? Yes

9. Scheduled Initial Construction award (FY): 2005

10. Authorization, appropriations act, or report language:

"House of Representatives, Energy and Water Development Appropriations Bill, 2001, Report 106-693, Small Navigation Projects (Section 107) –The Committee has provided $9,000,000 for Section 107 program. Within the amount provided, the recommendation includes: $50,000 for design of the Northwest Tennessee Regional Harbor project;"

11. Financial Information:

a. Feasibility Study Cost: $549,000 (Federal share $324,500)

b. Initial GNF Costs:
Total: $3,483,000 (Federal share: $3,135,000)
Plans and specifications: $375,000
Construction: $3,108,000

c. LERR costs for GNF: $381,000

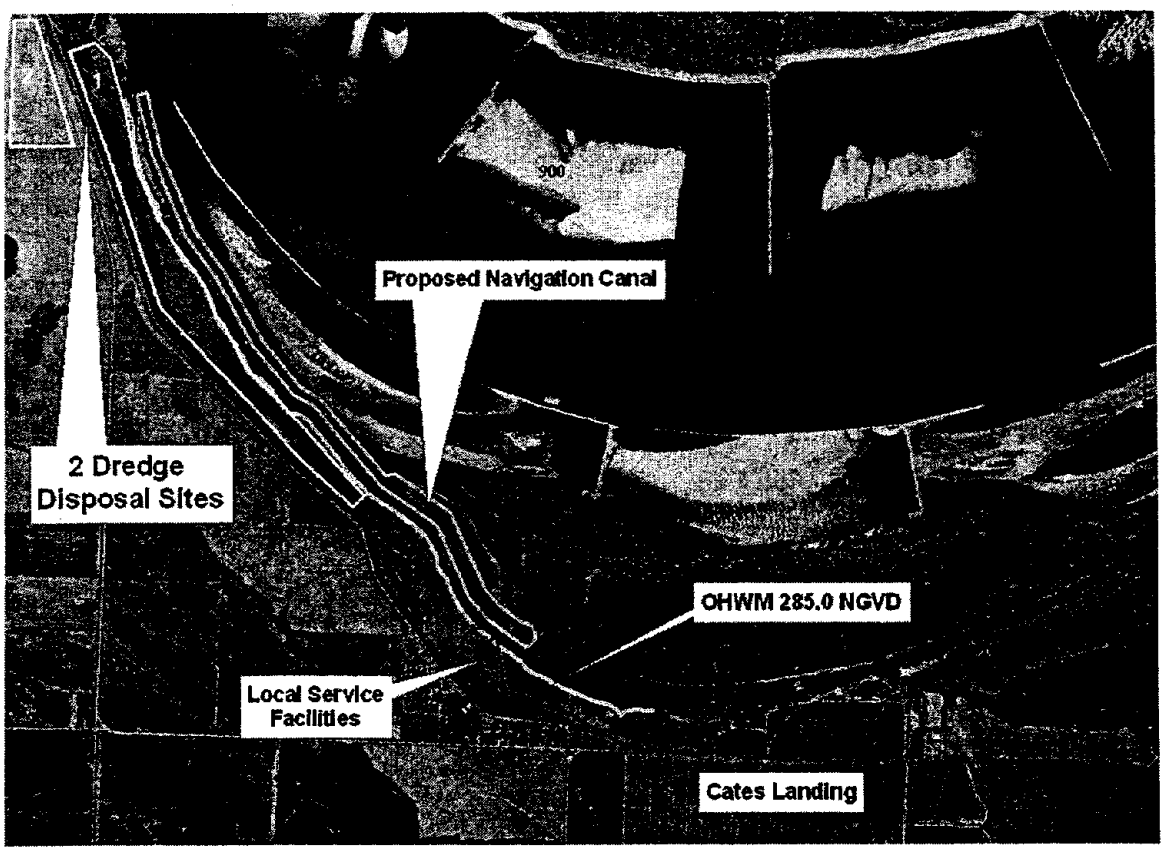
d. Local service facilities costs: $13,293,000 (includes berthing area to be built by US Army Corps of Engineers at 100% non-Federal cost of $326,000)

e. Ultimate Federal Cost: $3,459,500

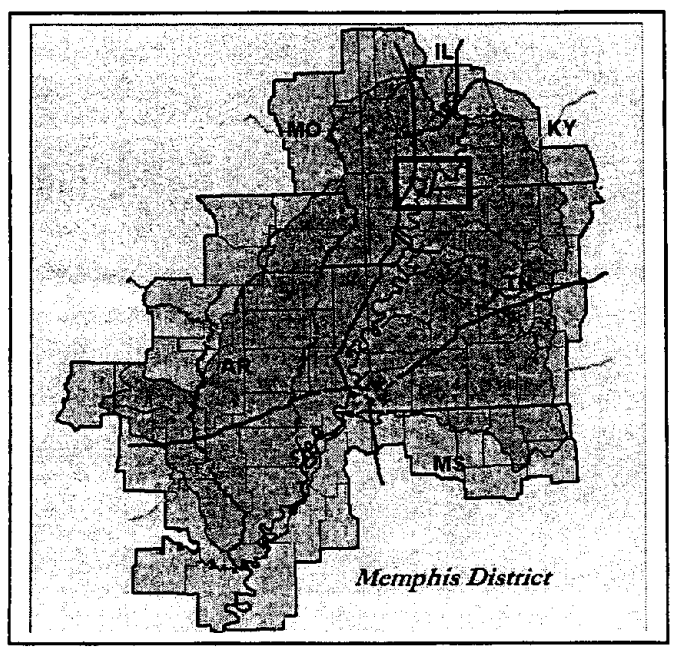
f. Benefit/Cost ratio: 1.94

12. Supplemental Information. To complete the feasibility study, $269,000 is needed. $191,000 is needed for additional NEPA coordination to resolve resource agencies concerns expressed over the potential of contaminated sediments, endangered and threatened species, wetland impacts, and cumulative impacts. $78,000 is needed to complete the other technical sections of the report.

13. Project Map: Most Likely Recommended Plan, Alternative #5



Proposed Harbor Site Location within the Memphis District



From: Cool, Lexine MVD
Sent: Tuesday, October 02, 2001 1:12 PM
To: Hill, Charles E MVD
Subject: FW: Updated Continuing Authorities Program Guidance
Charles,
Here is the guidance from HQ that we have to send up 107 fact sheets to ASA(CW).
Lexine

-----Original Message-----
From: Hudak, Steven J HQ02
Sent: Thursday, June 14, 2001 6:53 AM
To: David Lau; Denver Austin; Gary Bunn; Gary Earls; Gwen Albert; John Tsingos; John Wright; Lester Tong; Lexine Cool; Linda Hihara-Endo; Linda Monte; Martin Berndl; Mary McAlister; Stephen Sharman; Tim Winchell; Timothy Young; Wilbert Paynes; William Arnold; Anthony Leketa; Donald Basham; Frank Oliva; John Sassi; Michael White; Paul Robinson; Steven Stockton; William Dawson
Cc: Rangos, Russ HQ02; Brian Bryson; Bruce Heide; Carol Calza; Dennis Kern; Edmund Price; Henri Langlois; Jitka Braden; Joe Rees; John Broaddus; Joseph Bittner; Ken Hall; Kyle Jones; Leonard Henry; Pamela Caraway; Tom Harron; Vince Montante; Wanda Cook; David Kenyon; Larry Devick; Pete Luisa; Robert Soots; Steven Hudak; Robert Vining; William Augustine; mark.mugler@hqda.army.mil
Subject: Updated Continuing Authorities Program Guidance

1. The purpose of this email is to provide guidance for the following items:

a. Updating the CAP PRISM database for FY01 and FY02,

b. Updating the CAP PRISM 2101 schedules of obligations and expenditures.

c. Implementation guidance for inland harbors under the authority of Section 107 of the River and Harbor Act of 1960.

d. Implementation guidance on non-Federal costs which exceed the required cost sharing percentages for the nine CAP authorities.

2. Updating the CAP PRISM Database.

a. Please update information for studies and projects in all CAP authorities in the PRISM CAP database to reflect the most current schedules and costs by 6 July 2001. Items to be updated include the following:

(1). Active Projects. Update all on-going projects with the best estimate for FY 02, as well as revise the Total FY01 funding requirement to reflect what has been entered into the Current Level of the PRISM 2101s. Include any other changes to reflect the most current status, including total project costs and completion dates. HQ added a status code field in the database, now available. The status code will initially be populated with A for Active for all projects in the database. This will be the default status code in the system. Please change the A to C or T, as applicable, as defined below. CAP reports will be revised shortly to provide the option to run reports by status code.

(2). Completed or Terminated Projects. Additional option codes for the status indicator will be C for Completed and T for Terminated.

(3). State and Congressional District. Since March 2001, HQ has added two new fields to the database to identify states and congressional districts. Please update these fields for active, on-going projects.

(4). Congressional Adds. Congressionally added projects are those that are included in House, Senate, or conference report language. When a Congressional add project has been identified in a House or Senate report, you should request a PWI number for it. After the FY02 conference report has been released and the FY02 appropriations are enacted into law, please update the database with estimated cost data for all

Congressional adds.

b. Instructions for changes to the CAP database are provided in attachment 1. Procedures for accessing and revising this database are will be included in the next update of the PRISM manual. The manual is available on the PRISM web site.

3. Updating the CAP PRISM 2101 Schedules of Obligations and Expenditures. Please update the current level of the PRISM 2101 for expenditures for all CAP authorities by 6 July 2001. Do not include any increases to the total amount needed for your division in FY01 for Section 14 projects unless you receive approval from HQ.

4. Implementation Guidance for Inland Harbors under the Authority of Section 107 of the River and Harbor Act of 1960.

a. The Office of the Assistant Secretary of the Army (Civil Works) (OASA(CW)) has raised a concern that Section 107 CAP authority is being used to plan, design, and construct inland harbors that may not be consistent with long-standing Administration restrictions on so-called "slackwater" ports. The OASA(CW) concern arose out of a review of some of this year's appropriations report language for Congressional add section 107 CAP projects and other prior section 107 projects where it was not clear to OASA(CW) that the projects met the inland harbor eligibility criteria.

b. OASA(CW) has directed that they be provided with information on Section 107 inland studies and projects to assure that they are consistent with current policy for inland harbors. To this end, attachment 2 provides a fact sheet format to be prepared for all Section 107 inland harbor projects before construction funds can be committed or project cooperation agreements executed. The section 107 inland harbor project fact sheets will be submitted to your CECW-B area manager in accordance with the criteria included in attachment 3. After headquarters review, your area manager will forward the fact sheets to OASA(CW) for concurrence to assure that proposed projects are in compliance with the inland harbor policy. In the interim awaiting OASA(CW) concurrence, HQ will not commit construction funds and project cooperation agreements must not be executed for Section 107 inland harbor projects. However, funds will be provided for activities underway through completion of plans and specifications.

5. Implementation Guidance on Non-Federal Costs which Exceed the Required Cost Sharing Percentages for the Nine CAP Authorities.

a. OASA(CW) has also raised a concern about projects where the non-Federal costs will exceed the required cost sharing percentages for each authority. In accordance with OASA(CW) instructions, HQ will not commit construction funds for a project when the estimated non-Federal project cost exceeds the required percentage for that authority without OASA(CW) concurrence. When it is apparent that the estimated non-Federal project cost exceeds the required share and the non-Federal sponsor has agreed to pay the additional costs over the required cost sharing percentage, the division must submit a request to its CECW-B area manager to explain the circumstances for the increased non-Federal cost. The area manager will coordinate the case with the headquarters project delivery team and obtain OASA(CW) concurrence with the proposed cost sharing before HQ will commit construction funds to the project.

6. Updates should be completed by 6 July 2001, however, divisions should notify Leonard Henry, CECW-BE, (202) 761-5856 when your division has completed the requested updates to the PRISM CAP database and PRISM 2101 current schedule of obligations and expenditures.
□ATTACHMENT 1

Instructions for making changes to the CAP database in PRISM are provided below.

1. Access PRISM and proceed to the PRISM Main Menu.

2. From the Main Menu, click on #10, the CAP database.

3. Choose #1, the CAP Maintenance Screen.

4. You may enter a query (using F2/F3) at this point to select your district's records. Do this by tabbing over to EROC and entering the two-digit EROC for your district, for example, Memphis is B1; Wilmington is K7, etc. You may limit the records to a particular authority within your district by adding the CCS to the query.

5. When the first record pops up, change the record and then save your change by pressing the END key. If there are no changes, just click the down arrow key until you reach a record to be changed. Pay particular attention to the stage of the record in order to make the change to the correct stage of the project. To delete a record, hit Shift F5.

6. To access the next record, click the down arrow key, not the page down key. Continue until you have scrolled through all records to be changed. When all changes are complete, click the F10 button to exit. Print a report to verify your revisions and notify Division office that changes are complete.

ATTACHMENT 2

Implementation Guidance - Inland Harbors Under the Authority of Section 107 of the River and Harbor Act of 1960, as Amended

1. The OASA(CW), has raised a concern that Section 107 of the CAP is being used to plan, design, and construct inland harbors that may not be consistent with long-standing Administration restrictions on so-called "slackwater" ports. The OASA(CW) concern arose out of a review of some of the FY01 CAP add language in House and Senate reports and other Section 107 projects in the past where it was not clear to OASA(CW) that the projects met the eligibility criteria.

2. The criteria restricting certain types of ports on inland waters, which are also applicable to CAP projects, are cited in paragraph 3-2.d.(2) of ER 1105-2-100, as follows: "Land Creation or Enhancement at Inland Harbors. Federal participation in inland waterway harbor improvements under the Civil Works program is not warranted when: (1) resale or lease of lands used for disposal of excavated material can recover the cost of the improvements, or (2) the acquisition of land outside the navigation servitude is necessary for construction of the improvements and would permit local entities to control access to the project. The latter case is assumed to exist where the proposed improvement consists of a new channel cut into [fast] land."
Note: bracketed text reflects printing error in ER 1105-2-100 which omitted the word 'fast'.

3. OASA(CW) has directed that they be provided with information on Section 107 inland studies and projects to assure that they are consistent with current policy for inland harbors. To this end, a fact sheet (attachment 3) will be prepared for all current and future inland Section 107 activities until further notice. OASA(CW) has also directed that no construction funds be committed or project cooperation agreements executed for Section 107 inland harbor projects until OASA(CW) concurs that proposed projects are in compliance with the inland harbor policy.

4. Fact sheets will be transmitted electronically to your CECW-B area manager for headquarters review and transmission to OASA(CW) as follows:

a. Projects with Approved Feasibility Reports. Fact sheets are to be submitted within 45 days of the date of this guidance.

b. Projects in Feasibility Phase, FCSA Executed. Fact sheets will be submitted within 45 days of this guidance.

c. Feasibility Studies, FCSA Not Yet Executed or Not Required. The fact sheet will be transmitted as soon as the basic features of the likely recommended plan are identified. We prefer that the fact sheet be transmitted prior to execution of the FCSA, as we want to avoid undue controversy if policy issues arise after a sponsor has made significant financial commitments to a project that may not be implemented.

d. Changes in Project Recommendations. In the event that there is a change in project features after a fact sheet has been reviewed by OASA(CW), an updated fact sheet will be transmitted noting the change and its impact on policy compliance.

5. Our objective is to maintain, through frequent, open communication with OASA(CW), an atmosphere of trust and support for the CAP. We cannot succeed without your understanding and support.

ATTACHMENT 3

SECTION 107 INLAND HARBOR FACT SHEET

1. a. Project Name: Official name of project

b. Status: [Feasibility Phase, No FCSA Required/Feasibility, FCSA not yet Executed, Plans and Specifications, Project not yet Approved/Plans and Specifications, Project Approved]

2. a. Corps District:

b. Sponsor:

3. Congressional Delegation: List affected House and Senate members. Include congressional District numbers.

4. Location: Provide one or two sentences, sufficient to locate the vicinity of the study/project area.

5. Problem: Briefly describe the problem and the scope of the study/project in general terms.

6. Alternative Plans Considered. List the features of each alternative, explain why the alternative was not selected, and state whether the alternative met policy criteria.

7. Description of [Likely Recommended/Recommended/Approved] Plan. Include a brief narrative description of the recommended plan, including major features and expected outputs. Give full coverage to features sensitive to the eligibility criteria of paragraph 3-2.d.(2) of ER 1105-2-100.

8. Is project the NED Plan? If not, provide rationale for deviating from the NED Plan.

9. Scheduled Initial Construction award (FY):

10. Authorization, appropriations act, or report language: Cite specific provisions, and attach copies of language.

11. Financial Information:

a. Feasibility Study Cost: $ (Federal share: $)

b. Initial GNF Costs:
Total: $ (Federal share: $)
(Plans and specifications: $)
(Construction: $)

c. LERRD Costs: $

d. Local service facilities costs: $

e. Ultimate Federal Cost: $

f . Benefit/Cost ratio:

12. Supplemental Information: Any additional information which may impact on an implementation decision on this project.

13. Project Map: Attach a map of the project area showing the navigation servitude boundaries superimposed over the general navigation features and local service facilities. The boundaries between the GNF and LSF must be clearly delineated.

Lloyd, James W MVM

From: Lloyd, James W MVM
Sent: Friday, August 01, 2003 10:19 AM
To: Callaway, Michael T MVM; Belk, Edward E MVM; Ward, Daniel D MVM
Cc: Lloyd, James W MVM
Subject: HQ Says to Proceed On with NW TN Harbor Section 107

I will get with Danny and we will determine the FY03 and FY04 funding requirements and revise the study schedule. I will send these to you soon.
Jim
3343

-----Original Message-----
From: Cool, Lexine MVD
Sent: Friday, August 01, 2003 10:03 AM
To: Lloyd, James W MVM
Cc: Abernathy, Dennis W MVM
Subject: FW: NW TN Harbor Section 107

Looks like you didn't get this message Jim. Isn't it a later message than the one you sent me?
-----Original Message-----
From: Heide, Bruce HQ02
Sent: Thursday, July 24, 2003 2:12 PM
To: Hill, Charles E MVD
Cc: Belk, Edward E MVM; Cool, Lexine MVD; Reeder, James A MVM; Lucyshyn, John HQ02; Jones, Kyle L HQ02; Harden, Michael MVD
Subject: FW: NW TN Harbor Section 107

Charles- Note in the following that the subject project has been declared consistent with policy by ASA(CW). I believe you have copies of previous e-mail indicating that HQUSACE also declared the project consistent with policy. Proceed on.

Bruce-
-----Original Message-----
From: Mugler, Mark W Mr ASA-CW [mailto:Mark.Mugler@us.army.mil]
Sent: Thursday, July 24, 2003 2:56 PM
To: 'Bruce.Heide@HQ02.USACE.ARMY.MIL'
Subject: RE: NW TN Harbor Section 107

You just got it.

> -----Original Message-----
> **From:** Bruce.Heide@HQ02.USACE.ARMY.MIL [mailto:Bruce.Heide@HQ02.USACE.ARMY.MIL]
> **Sent:** Thursday, July 24, 2003 2:48 PM
> **To:** Mugler, Mark W Mr ASA-CW
> **Cc:** Breyman, Terry L Mr ASA-CW; John.Lucyshyn@HQ02.USACE.ARMY.MIL; edward.e.belk@us.army.mil
> **Subject:** RE: NW TN Harbor Section 107
>
> Mark- Okay. Will someone be sending me something to that effect for our Pearl Harbor files?
>
> Bruce-
>
> > -----Original Message-----
> > **From:** Mugler, Mark W Mr ASA-CW [mailto:Mark.Mugler@us.army.mil]
> > **Sent:** Wednesday, July 23, 2003 2:42 PM
> > **To:** 'Bruce.Heide@HQ02.USACE.ARMY.MIL'

Cc: Breyman, Terry L Mr ASA-CW
Subject: RE: NW TN Harbor Section 107

Bruce - yes, we have determined that the project meets the requirements with respect to fast land cuts and land creation, and I left a message with the staffer for Cong. Tanner. Of course, the project needs to comply with all other applicable policies (selection of NED plan, etc.).

-----Original Message-----
From: Bruce.Heide@HQ02.USACE.ARMY.MIL [mailto:Bruce.Heide@HQ02.USACE.ARMY.MIL]
Sent: Wednesday, July 23, 2003 1:51 PM
To: Mugler, Mark W Mr ASA-CW
Subject: FW: NW TN Harbor Section 107

Mark- Just came across this going through my e-mail.

Bruce-
-----Original Message-----
From: Belk, Edward E MVM
Sent: Wednesday, July 16, 2003 5:27 PM
To: Heide, Bruce HQ02; Lucyshyn, John HQ02
Subject: RE: NW TN Harbor Section 107

Just got further feedback from Mr. Tanner. He just got off the phone with Mr. Dunlop who advised that policy review has now been completed and confirmed the project will be approved.

FYI.

Eddie

Edward E. Belk, Jr. P.E.
Deputy for Project Management
U. S. Army Corps of Engineers
Memphis District CEMVM-PM
901.544.3798 Cell 901.634.2465
Edward.E.Belk@mvm02.usace.army.mil

-----Original Message-----
From: Belk, Edward E MVM
Sent: Wednesday, July 16, 2003 3:46 PM
To: Heide, Bruce HQ02; Lucyshyn, John HQ02
Subject: RE: NW TN Harbor Section 107

Any feedback on status of OASA approval memo? COL Scherer is getting calls from Mr. Tanner again.

Thanks.

Eddie

Edward E. Belk, Jr. P.E.
Deputy for Project Management
U. S. Army Corps of Engineers
Memphis District CEMVM-PM
901.544.3798 Cell 901.634.2465
Edward.E.Belk@mvm02.usace.army.mil

-----Original Message-----

From: Heide, Bruce HQ02
Sent: Thursday, July 10, 2003 9:19 AM
To: Scherer, Jack V COL MVM; Belk, Edward E MVM; Reeder, James A MVM
Cc: Lucyshyn, John HQ02
Subject: FW: NW TN Harbor Section 107

COL Scherer, Eddie, Jim- More guidance from ASA(CW) office. I understand that we will probably get a request for more plan formulation and selection information but, in the interim, keep moving forward with the DPR (feasibility).

Bruce-

-----Original Message-----
From: Mugler, Mark W Mr ASA-CW [mailto:Mark.Mugler@hqda.army.mil]
Sent: Thursday, July 10, 2003 10:08 AM
To: 'Bruce.Heide@HQ02.USACE.ARMY.MIL'
Cc: Breyman, Terry L Mr ASA-CW; Smyth, James J HQ02; Tornblom, Claudia L Ms ASA-CW
Subject: RE: NW TN Harbor Section 107

Bruce: I have checked with Mr. Dunlop, I have some additional information from Mr. Smyth, and I think I can elaborate on the funding situation. Here is a more accurate statement.

(a) Under a narrow interpretation of past decisions, the project would squeak by OASA(CW) policy review; (b) Mr. Dunlop's instincts are to agree with USACE narrow interpretation of policy, but he cautions that policy review is still under way and the end result could be different from his instincts; and (c) Proceed as if we had his approval.

The basic policy issue of land enhancement from fast land cuts and creation of flood free land will be resolved shortly and Mr. Smyth's team will document the resolution of the issue. However, Mr. Smyth's team has other concerns with plan formulation and selection and will engage in follow-on discussions of those concerns.

"Proceeding as if we had his approval" means continuing feasibility study work now, while the decision on the basic policy issue is pending. Should the decision be that the project is inconsistent with policy, the feasibility study would be terminated, unless additional work could be performed within the cumulative amount of funds identified for the project in Committee Reports.

> -----Original Message-----
> **From:** Bruce.Heide@HQ02.USACE.ARMY.MIL
> [mailto:Bruce.Heide@HQ02.USACE.ARMY.MIL]
> **Sent:** Wednesday, July 09, 2003 9:31 AM
> **To:** Mugler, Mark W Mr ASA-CW; Breyman, Terry L Mr ASA-CW
> **Subject:** FW: NW TN Harbor Section 107
>
> Mark/Terry- Please verify that the following is accurate.
>
> Bruce-
>
> -----Original Message-----
> **From:** Belk, Edward E MVM
> **Sent:** Tuesday, July 08, 2003 6:53 PM
> **To:** Heide, Bruce HQ02
> **Subject:** FW: NW TN Harbor Section 107
>
> Bruce, FYI.
>
> **Edward E. Belk, Jr. P.E.**

Deputy for Project Management
U. S. Army Corps of Engineers
Memphis District CEMVM-PM
901.544.3798 Cell 901.634.2465
Edward.E.Belk@mvm02.usace.army.mil

-----Original Message-----

From: Belk, Edward E MVM

Sent: Tuesday, July 08, 2003 5:52 PM

To: Theriot, Edwin MVD

Cc: Scherer, Jack V COL MVM; Cobb, Stephen MVD; Lloyd, James W MVM; Ross, Linda Storey MVM

Subject: NW TN Harbor Section 107

Ed, Congressman Tanner called COL Scherer a few times again today about NW TN Harbor. He also talked with Mr. Dunlop in OASA(CW) this afternoon. Mr. Tanner requested latest feedback on OASA(CW) policy outlook for the project, because he needs some assurance to secure time-sensitive DRA funds through Governor Bredesen.

Mr. Dunlop advised Mr. Tanner (a) that the project will squeek by OASA(CW) policy review; (b) that OASA(CW) agrees with USACE narrow interpretation of policy as applied to this project; and (c) to proceed as if we had his approval. He said Mr. Smythe will prepare and sign necessary project approval memo upon his return to the office next week. That would allow USACE to then release funds to complete the study, hopefully in short order upon that approval.

Mr. Tanner asked that we touch base at HQUSACE and OASA levels to corroborate internally what he heard from Mr. Dunlop, and provide feedback accordingly. Would appreciate anything you can do to help secure higher HQ feedback.

v/r

Eddie

Edward E. Belk, Jr. P.E.
Deputy for Project Management
U. S. Army Corps of Engineers
Memphis District CEMVM-PM
901.544.3798 Cell 901.634.2465
Edward.E.Belk@mvm02.usace.army.mil

APPENDIX II

ENGINEERING

TABLE OF CONTENTS

ENGINEERING

SECTION	TITLE
I	Geotechnical Engineering
II	River Engineering
III	Alternative 5 MCACES Baseline Cost Estimate with Estimated Yearly O&M Costs
IV	Detailed Analysis for Alternatives 4, 5 and 2
V	Local Service Facilities and Site Development Costs
VI	Possible Mississippi River Harbor Sites

SECTION I

GEOTECHNICAL ENGINEERING

NORTHWEST TENNESSEE REGIONAL HARBOR

GEOLOGY AND SOILS

1. **General**. This report presents the results of a foundation soils investigation for the proposed harbor that is to be constructed north of Tiptonville, Tennessee, at approximate Mississippi River Mile 900. The proposed harbor will be approximately 9000 feet in length. The harbor will parallel the existing Madrid Bend Levee and will be located northwest of Cates Landing, the former Corps of Engineers casting field. The Madrid Bend Levee terminates immediately west (downstream) of Cates Landing. The harbor will have a 130 to 225-foot bottom width channel excavated to an elevation of 250 ft NGVD. Included herein are the results of the foundation exploration and soil testing program, the geology of the area, and slope stability analyses.

Current recommendations call for the disposal of excavated material immediately southwest of the proposed harbor. Additional borings, soil testing and slope stability analyses will be required in order to adequately design the harbor slopes and to assess the impacts of the proposed soil disposal areas on the stability of the harbor slopes and the existing levee. Additional slope stability for the harbor and disposal area and settlement analyses for the existing levee and the proposed disposal area will also be required prior to finalizing the design. The additional testing and analysis will be performed during the final design phase.

2. **Geology**. Based on a review of geological maps, the project appears to be located predominantly on point bar deposits of the Mississippi River. These point bar deposits are recently deposited and are loosely consolidated. These surface deposits tend to be composed of thin strata of clay, silt, and sand with intermixed lenses of sandy material. Point bar deposits can also include clay swales, which are generally composed of high plasticity clays that have low cohesive strengths. These surface deposits are underlain by substratum sands, which range from fine sand through gravelly sand to sandy gravel. The Undifferentiated Tertiary deposits underlie the substratum sands. A single Tertiary boring (2-NWTH-00) taken as part of this study indicates the Tertiary to be around 80 feet below the ground surface in the eastern portion of the site. Review of available geological maps indicates that the depth to the Tertiary deposits increases to the west. A geologic map for the site is presented as Plate 1.

3. **Subsurface Investigation**. The subsurface investigation for this project consisted of four undisturbed borings taken along the original proposed harbor channel location. Of these original borings, only Boring 2-NWTH-00 is located adjacent to the footprint as proposed in Alternative 5. The borings were drilled in May 2000. These borings were sampled with a 5-inch auger, 5-inch thin wall tubes, and/or split spoon samplers. In general, Borings 2-NWTH-00 through 4-NWTH-00 indicate the upper surface deposits to consist of 28 to 39 feet of normally consolidated, high plasticity clay with lenses of silt and sand. Boring 5-NWTH-00, located in the extreme eastern portion of the harbor, indicates the upper surface deposits to consist of alternating, thin layers of high plasticity clay, low/moderate plasticity clay, silt, and sand to a depth of 47 feet. Sands underlie the upper deposits. The Tertiary clay deposits were encountered below the sands at a depth of 82

feet. The boring locations are shown on Plate 2 and the boring logs are presented as Plate 13. The standard boring legend for the Unified Soil Classification System is presented as Plate 12.

4. **Laboratory Testing**. Classification, natural density, moisture contents, Atterberg limits, and unconfined compression tests were performed on representative samples by the Memphis District Soils Laboratory. Mechanical analyses were performed on selected sand samples to determine grain size distributions and D_{10} sizes.

5. **Design Shear Strengths**. a. Clays. The selection of design values for the Q and R conditions were based on consistencies given in the boring logs, natural densities, moisture contents, Atterberg limits, and unconfined compression tests. Design values for the S-case were based on the PI versus ϕ' relationship contained in WES Technical Report No. 31-604, June 1962.

b. Silts. The design shear strengths for silts were selected conservatively using DIVR 1110-1-400, Section 5, Part 4, Item 1, March 1973, past experience with similar soils, and consistencies given in the boring logs. Design values of ϕ=20°, c=300 psf were selected for Q and R shear strength conditions. Design values of ϕ=28°, c=0 psf were selected for the S case strengths.

c. Sands. Design values for the coarse-grained soils were selected based on past experience with similar soils, suggested values in the above DIVR, and correlations between standard penetration tests (N-values) and the angle of internal friction (φ). Cohesive values were taken as zero for all loading conditions.

6. **Slope Stability Analysis.** a. Methodology. Slope stability analyses were conducted for the harbor slopes using criteria set forth in DIVR 1110-1-400 for type "A" projects. The slopes were analyzed for the loading cases appropriate for the soil conditions encountered at each boring location. The loading cases with their minimum factors of safety for type "A" projects are presented below.

Table 1
Required Factors of Safety

Loading Case	Minimum Factor of Safety
After Construction (AC)	1.3
Partial Pool (PP)	1.3
Sudden Drawdown (SD)	1.2
Longterm	1.25

The stability analyses of the appropriate loading conditions were performed using the software package GEOSLOPE that is available through GEOCOMP Corporation. Geoslope is based on the Fortran Program STABL3 that was developed at Purdue University. The program's capability to analyze both circular and non-circular failure surfaces was used in the analysis of slopes. The critical factor of safety for each side of the harbor was also calculated manually.

Selection of the after drawdown water table of 161 feet for this analysis was based on the Low Water Reference Plane (LWRP) of the Mississippi River at the site location. The dredged line for the proposed harbor was assumed to be at elevation 250; 11 feet below LWRP. Before drawdown water tables were conservatively assumed to be at the top of the upper most silt or sand layers.

b. Harbor Slopes. Stability analysis of the proposed harbor channel was performed for all four of the borings performed for the project. After Construction (AC), Sudden Drawdown (SD) and Longterm loading conditions were assumed for the analysis. Stability analyses were performed at each boring location based on topography both riverside and landside of the harbor.

For the analysis on the riverside of the harbor, soil stratification was taken directly from the borings performed as part of this study (2-NWTH-00 through 5-NWTH-00). For the analysis on the landside of the harbor, borings from the Slough Landing Revetment were included in order to more accurately depict subsurface conditions. Borings 2-NWTH-00 through 5-NWTH-00 were assumed to represent recent river sediments, deposited over the last 50 years. Borings performed in 1949 as part of the design of the Slough Landing Revetment were used to represent the soils located within the river bluff, present prior to 1950. The division between the old river bluff and the more recent deposits was determined for this analysis by extending the slope of the currently exposed bluff down through the existing soil profile. The locations of the Slough Landing Borings are presented on Plate 3 and the boring logs are on Plate 14.

Slopes for the proposed harbor of 1V on 5H resulted in adequate factors of safety for overall stability. Results of the analysis are presented on Plates 4 through 11.

As noted previously, additional borings and slope stability analyses will be required during the final design phase. Additional soil data may impact the recommended slopes. In addition, the recommended slopes may also be impacted by the location and height of the excess excavated material disposal area.

c. Harbor Protection Levee. A harbor protection levee will not be required.

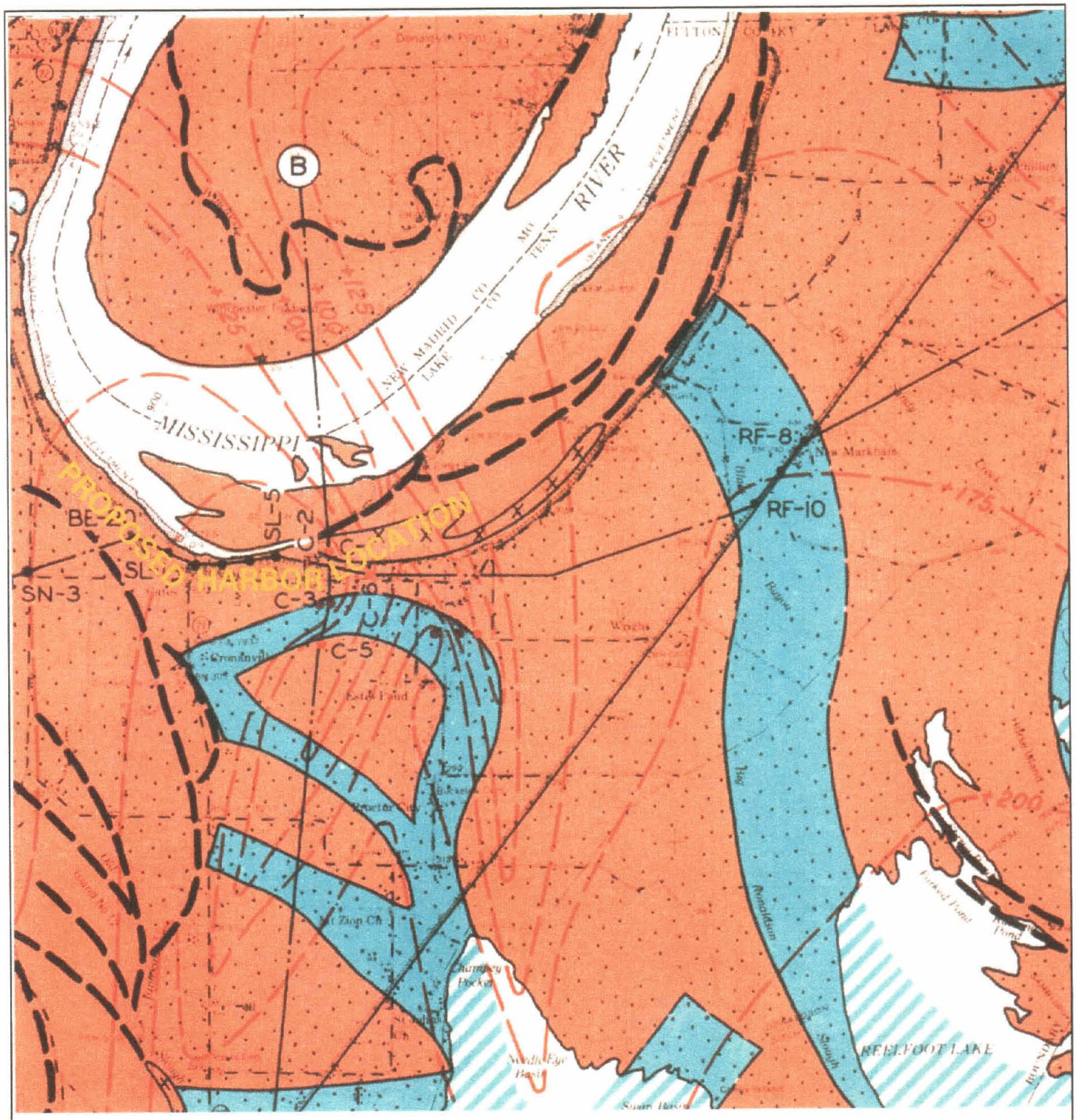
d. Containment Dike. The scope and location of this project has changes since borings were performed in 1999. Additional geotechnical borings and analyses will be required during the plans and specification phase to address the design and construction of the proposed containment dikes.

e. Settlement of Dredged Material. The scope and location of this project has changes since borings were performed in 1999. Additional geotechnical borings and analyses will be required during the plans and specification phase to address settlement of the dredged material.

7. **Stone Protection**. Stone paving will protect critical elements of the harbor project and associated features. The harbor entrance and landside harbor channel slopes will be protected to a +10 elevation with 18 inches of 125/250 pound riprap stone underlain by 12 inches of crushed stone filter material. The gradation of the stone material is shown in the following table.

Table 2
Graded Stone "C"

Stone Weight (lb)	% of Total Weight
200 - 250	5 maximum
75 - 200	10 - 50
25 - 75	20 - 60
6 - 25	10 - 40
0 - 6	15 maximum



LEGEND

- ALLUVIAL APRON
- NATURAL LEVEE
- POINT BAR
- ABANDONED CHANNEL OR "CLAY PLUG"
- BRAIDED-RELICT ALLUVIAL FAN
- ABANDONED COURSE
- ELEVATION OF TOP OF TERTIARY IN FEET MSL
- SWALE-LIKE AREAS OF VARIOUS ORIGINS CONTAINING THICK FINE-GRAINED DEPOSITS
- MAJOR SWALES
- SELECTED SWALES ILLUSTRATING TRENDS OF MEANDERS
- CORPS OF ENGINEER BORINGS
- (S) SMALLER STREAMS
- BORINGS USED TO CONTOUR BURIED TERTIARY SURFACE

N

APPROXIMATE SCALE:

1 : 68,500

MISSISSIPPI RIVER AND TRIBUTARIES

NW TENNESSEE HARBOR

GENERAL VICINITY AND GEOLOGIC MAP

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

PLATE 1

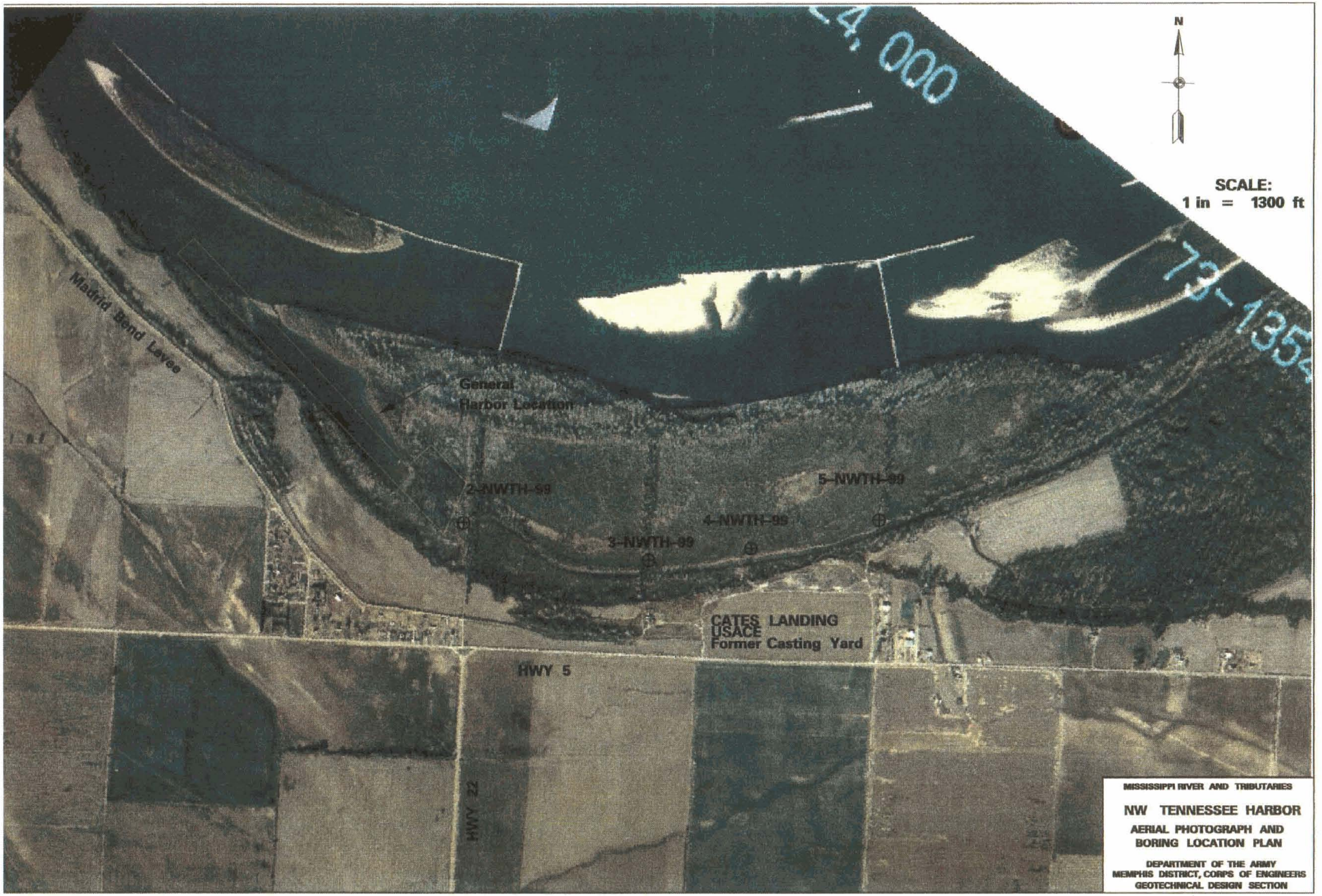
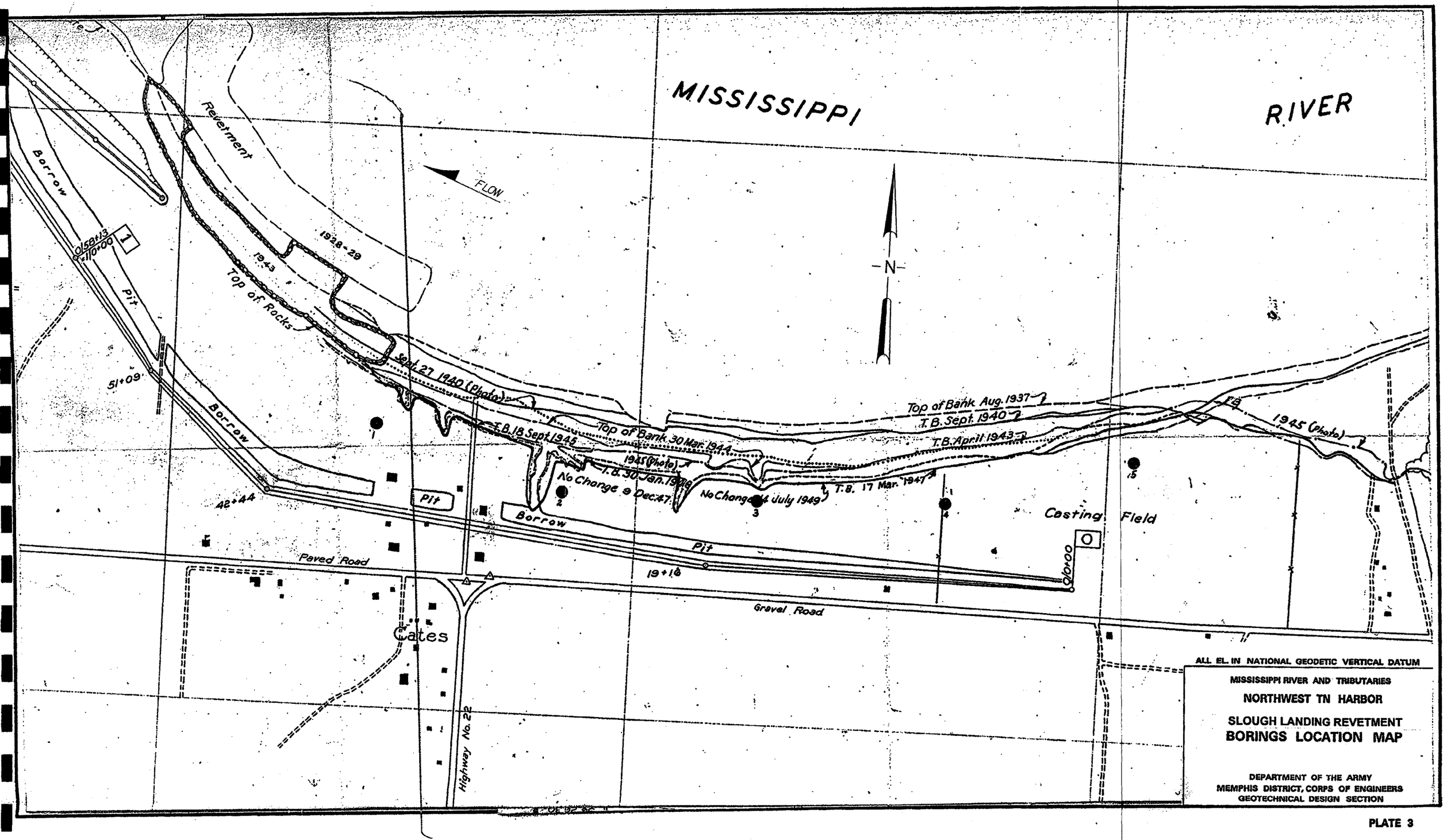

N
SCALE:
1 in = 1300 ft
Madrid Bend Levee
General
Harbor Location
2-NWTH-99
3-NWTH-99
4-NWTH-99
5-NWTH-99
CATES LANDING
USACE
Former Casting Yard
HWY 5
HWY 22
MISSISSIPPI RIVER AND TRIBUTARIES
NW TENNESSEE HARBOR
AERIAL PHOTOGRAPH AND
BORING LOCATION PLAN
DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

PLATE 2



ALL EL. IN NATIONAL GEODETIC VERTICAL DATUM

MISSISSIPPI RIVER AND TRIBUTARIES

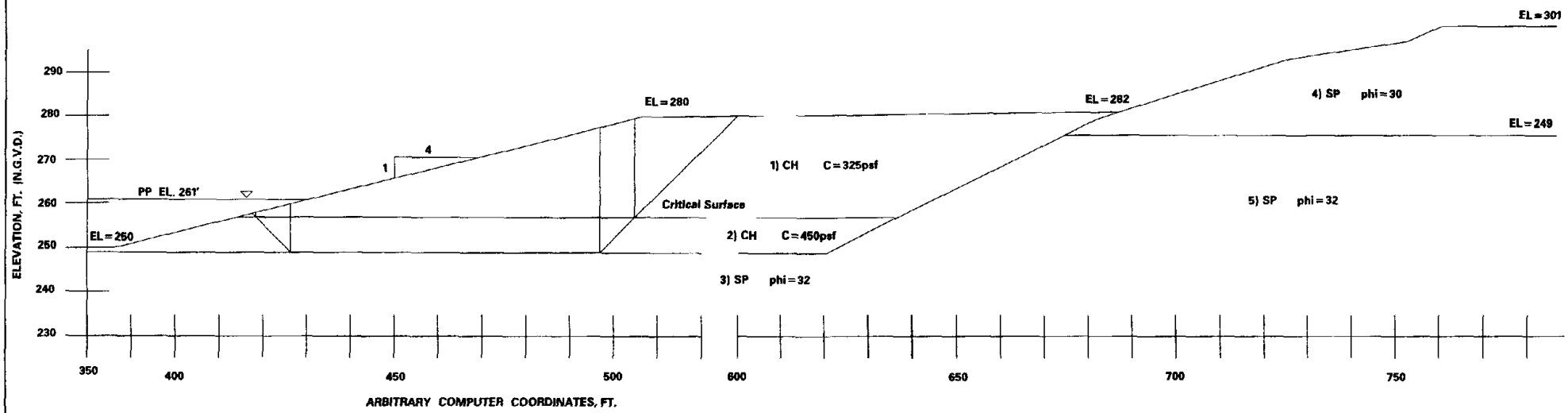
NORTHWEST TN HARBOR

SLOUGH LANDING REVETMENT

BORINGS LOCATION MAP

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

PLATE 3



LONG TERM STABILITY

$$FS = \frac{\text{TAN phi}}{\text{TAN I}}$$

FS = M [30 TAN(20)/30]

FS = M(0.364); for M=4.0: FS=1.46

SOIL SHEAR STRENGTHS - BORING 2-NWTH-00

SOIL NO.	SOIL TYPE	ELEVATION (N.G.V.D.)	UNIT WT. (PCF)	Q		R		S	
				phi (-)	C (PSF)	phi (-)	C (PSF)	phi (-)	C (PSF)
1	CH	280.00	110	0	325	10	160	20	0
2	CH	257.00	110	0	450	10	225	20	0
3	SP	249.00	125	32	0	32	0	32	0
4	SP	301.00	125	30	0	30	0	30	0
5	SP	276.00	125	32	0	32	0	32	0

FACTORS OF SAFETY

ARC Failure		Block Failure	
AC	PP	AC	PP
1.428	1.439*	1.328**	1.369*

* Critical Pool EL=261'

** Case Presented

Manual Calculations on Following Page

MISSISSIPPI RIVER AND TRIBUTARIES

NORTHWEST TN HARBOR

SLOPE STABILITY ANALYSIS

Landside of Harbor

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

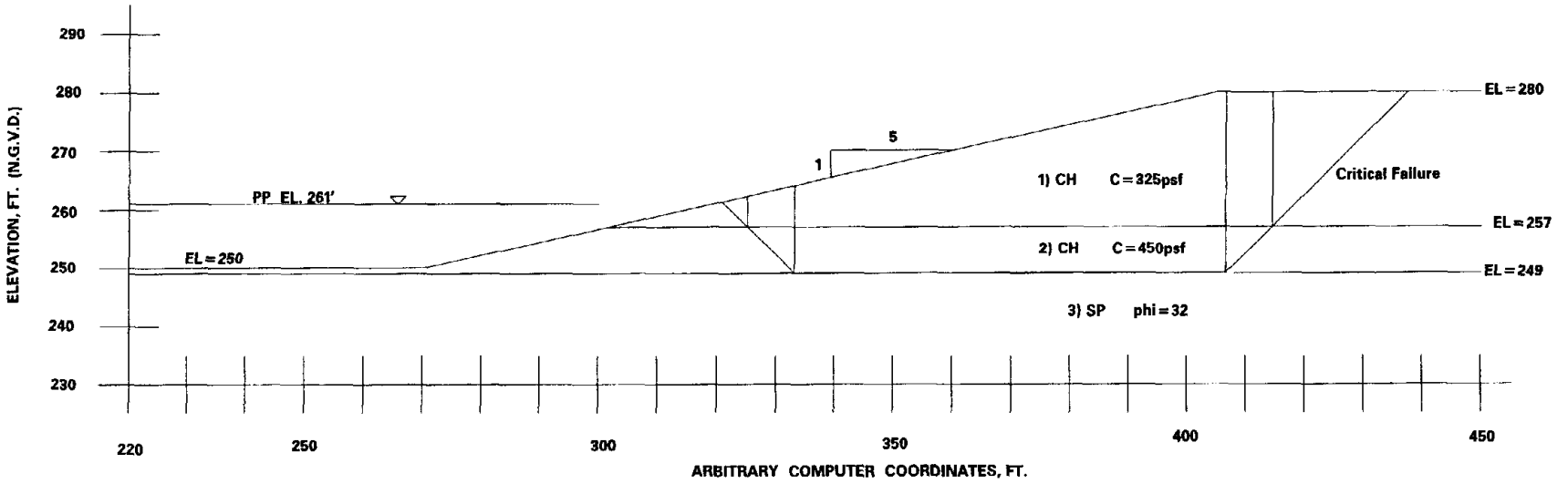
PLATE 4

Determine Factor of Safety Manually
Boring 2-NWTH-00
Landside of Harbor

							Active Block		Passive Block		Neutral Block	
Slice No.	Resist wt. lbs	Drive wt. lbs	ϕ deg	c lbs	H (FT)	l (ft)	Drive Force	Resist Force	Drive Force	Resist Force	Drive Force	Resist Force
1	29348.20	29348.20	0.00	325.00	23.25	32.8762	29348.20	15110.55				
2	22299.27	22299.27	0.00	450.00	7.93	11.2147	22299.27	7137.00				
3	152895.30	152895.30	0.00	450.00	0.00	70.44						31698.00
3	152895.30	152895.30	-89.27	450.00	0.00	70.44						
4	5208.73	5208.73	0.00	450.00	7.93	11.2147			5208.73	7137.00		
5	45.33	45.33	0.00	325.00	1.02	1.1483			45.33	659.75		
				Summations:			51647.46	22247.55	5254.06	7796.75		31698.00

FS= 1.330842261

From Geoslope = 1.328 difference= -0.002842261



LONG TERM STABILITY

$$FS = \frac{TAN\ phi}{TAN\ I}$$

$$FS = M\ [23TAN(20) + 8TAN(20)]/31$$

$$FS = M(0.364);\ \text{for } M=5.0:\ FS=1.82$$

FACTORS OF SAFETY

ARC Failure		Block Failure	
AC	PP	AC	PP
1.609	1.610*	1.496**	1.499*

* Critical Pool EL=261'
** Case Presented

SOIL SHEAR STRENGTHS - BORING 2-NWTH-00

SOIL NO.	SOIL TYPE	ELEVATION (N.G.V.D.)	UNIT WT. (PCF)	Q		R		S	
				phi (°)	C (PSF)	phi (°)	C (PSF)	phi (°)	C (PSF)
1	CH	280.00	110	0	325	10	160	20	0
2	CH	257.00	110	0	450	10	225	20	0
3	SP	249.00	125	32	0	32	0	32	0
4	CH	195.00	110	0	450	10	225	20	0

MISSISSIPPI RIVER AND TRIBUTARIES

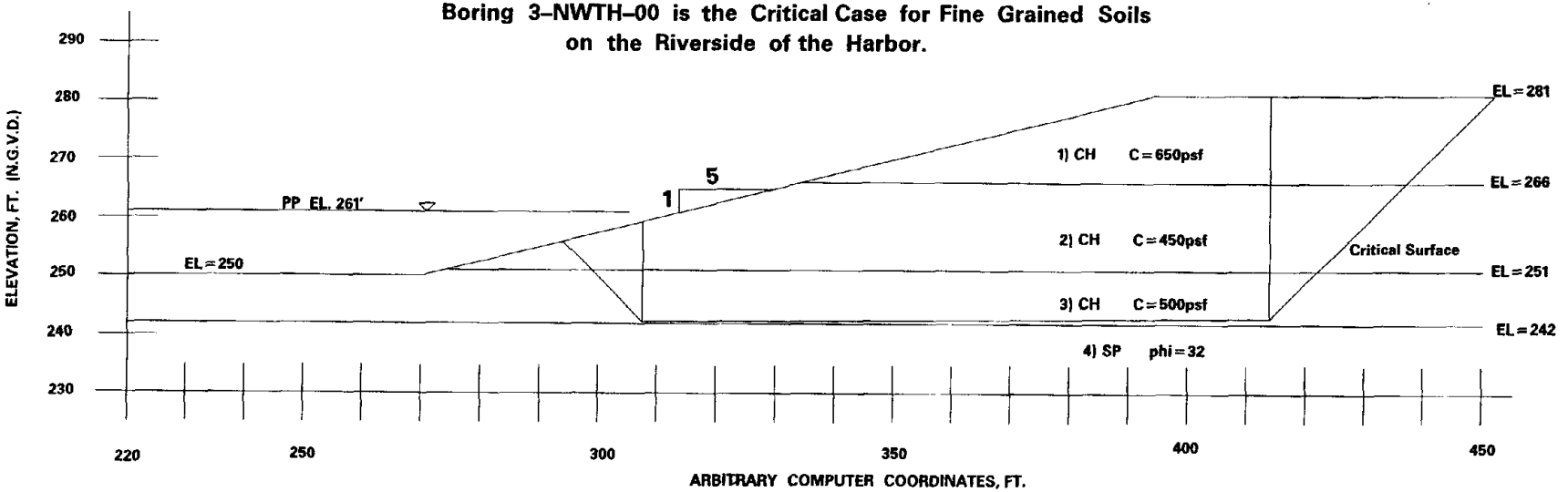
NORTHWEST TN HARBOR

SLOPE STABILITY ANALYSIS
Riverside of Harbor

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

PLATE 5

Boring 3–NWTH–00 is the Critical Case for Fine Grained Soils on the Riverside of the Harbor.



LONG TERM STABILITY

$$FS = \frac{\text{TAN phi}}{\text{TAN I}}$$

FS = M [15 TAN(22)+15 TAN(20)+1 TAN(22)/31

FS = M(0.385); for M=5.0: FS=1.92

FACTORS OF SAFETY

ARC Failure		Block Failure	
AC	PP	AC	PP
1.594	1.629*	1.485**	1.578*

* Critical Pool EL=261'
** Case Presented
Manual Calculation Presented on Following Page

SOIL SHEAR STRENGTHS – BORING 3-NWTH-00

SOIL NO.	SOIL TYPE	ELEVATION (N.G.V.D.)	UNIT WT. (PCF)	Q		R		S	
				phi (-)	C (PSF)	phi (-)	C (PSF)	phi (-)	C (PSF)
1	CH	281.00	115	0	650	11	325	22	0
2	CH	266.00	110	0	450	10	225	20	0
3	CH	251.00	110	0	500	11	250	22	0
4	SP	242.00	125	32	0	32	0	32	0

MISSISSIPPI RIVER AND TRIBUTARIES

NORTHWEST TN HARBOR

SLOPE STABILITY ANALYSIS
Riverside of Harbor

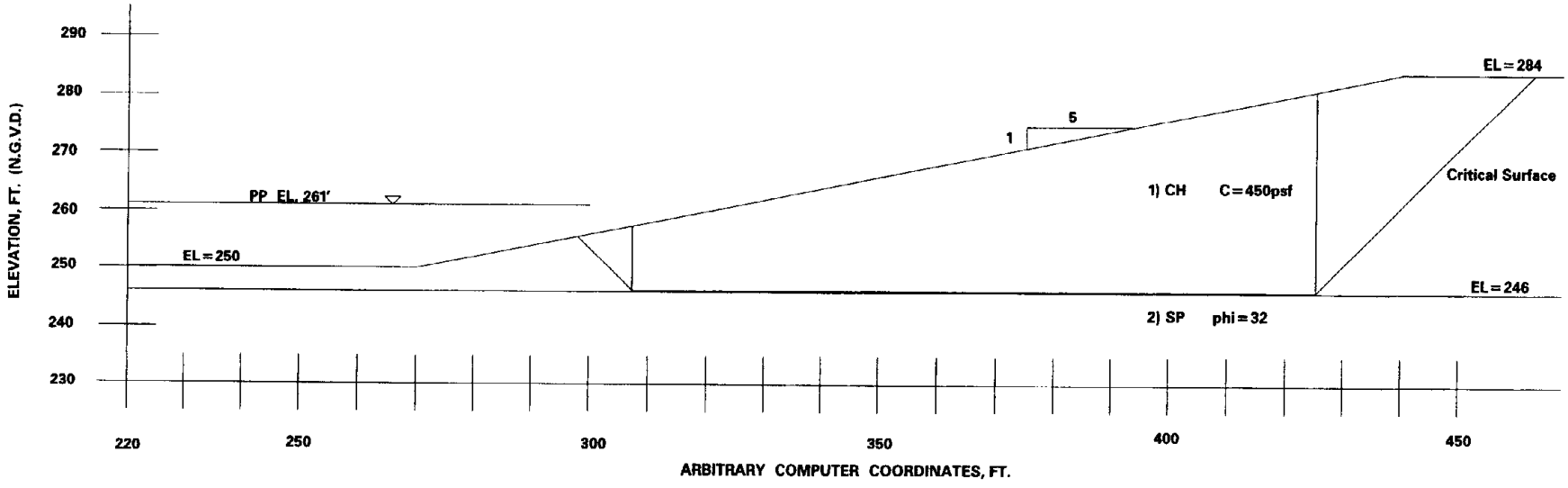
DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

Determine Factor of Safety Manually
Boring 3-NWTH-00
Riverside of Harbor

							Active Block		Passive Block		Neutral Block	
Slice No.	Resist wt. lbs	Drive wt. lbs	ϕ deg	c lbs	H (FT)	l (ft)	Drive Force	Resist Force	Drive Force	Resist Force	Drive Force	Resist Force
1	12937.50	12937.50	0.00	650.00	15.00	21.2132	12937.50	19500.00				
2	38250.00	38250.00	0.00	450.00	15.00	21.2132	38250.00	13500.00				
3	30538.72	30538.72	0.00	500.00	8.04	1.3199	30538.72	8044.00				
4	352712.19	352712.19	-89.27	500.00	0.68	106.3137	2256.20					
4	352712.19	352712.19	0.00	500.00	0.68	106.3137						53156.85
5	11146.80	11146.80	0.00	500.00	8.72	12.338			11146.80	8724.30		
6	1670.97	1670.97	0.00	450.00	4.93	6.972			1670.97	4437.00		
				Summations:			83982.42	41044.00	12817.76	13161.30		53156.85

FS= 1.508644141

From Geoslope = 1.485 *difference=* -0.023644141



LONG TERM STABILITY

$$FS = \frac{\text{TAN phi}}{\text{TAN I}}$$

FS = M [34 TAN(22)/34

FS = M(0.404); for M=5.0: FS=2.02

FACTORS OF SAFETY

ARC Failure		Block Failure	
AC	PP	AC	PP
1.666	1.699	1.510**	1.556

* Critical Pool EL=261'

** Case Presented

SOIL SHEAR STRENGTHS - BORING 4-NWTH-00

SOIL NO.	SOIL TYPE	ELEVATION (N.G.V.D.)	UNIT WT. (PCF)	Q		R		S	
				phi (°)	C (PSF)	phi (°)	C (PSF)	phi (°)	C (PSF)
1	CH	284.00	110	0	500	11	250	22	0
2	SP	246.00	120	32	0	32	0	32	0

MISSISSIPPI RIVER AND TRIBUTARIES

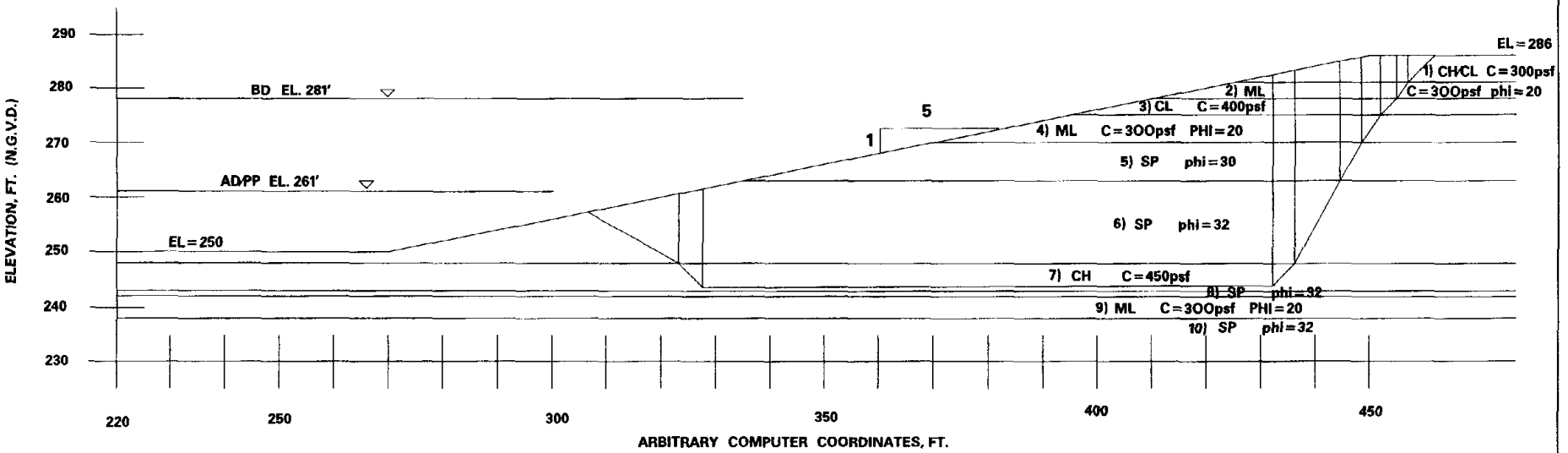
NORTHWEST TN HARBOR

SLOPE STABILITY ANALYSIS

Riverside of Harbor

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

PLATE 7



LONG TERM STABILITY

$$FS = \frac{\text{TAN phi}}{\text{TAN I}}$$

$$FS = M\ [4.5\ \text{TAN}(26) + 3.5\ \text{TAN}(28) + 3\ \text{TAN}(27) + 4\ \text{TAN}(28) + 7\ \text{TAN}(30) + 13\ \text{TAN}(32)]/36$$

$FS = M(0.552)$; *for* $M = 5.0$: $FS = 2.76$

FACTORS OF SAFETY

ARC Failure			Block Failure		
AC	SD	PP	AC	SD	PP
2.231	1.490	2.207*	1.544	1.291**	1.617*

* *Critical Pool EL = 261'*

** Case Presented

SOIL SHEAR STRENGTHS – BORING 5-NWTH-00

SOIL NO.	SOIL TYPE	ELEVATION (N.G.V.D.)	UNIT WT. (PCF)	Q		R		S	
				phi (°)	C (PSF)	phi (°)	C (PSF)	phi (°)	C (PSF)
1	CH/CL	286.00	115	0	750	13	150	26	0
2	ML	281.00	120	20	300	20	300	28	0
3	CL	278.00	115	0	500	13	200	27	0
4	ML	275.00	120	20	300	20	300	28	0
5	SP	270.00	125	30	0	30	0	30	0
6	SP	263.00	125	32	0	32	0	32	0
7	CH	248.00	115	0	450	9	150	18	0
8	SP	243.00	125	0	0	32	0	32	0
9	ML	242.00	120	20	300	20	300	28	0
10	SP	238.00	125	32	0	32	0	32	0

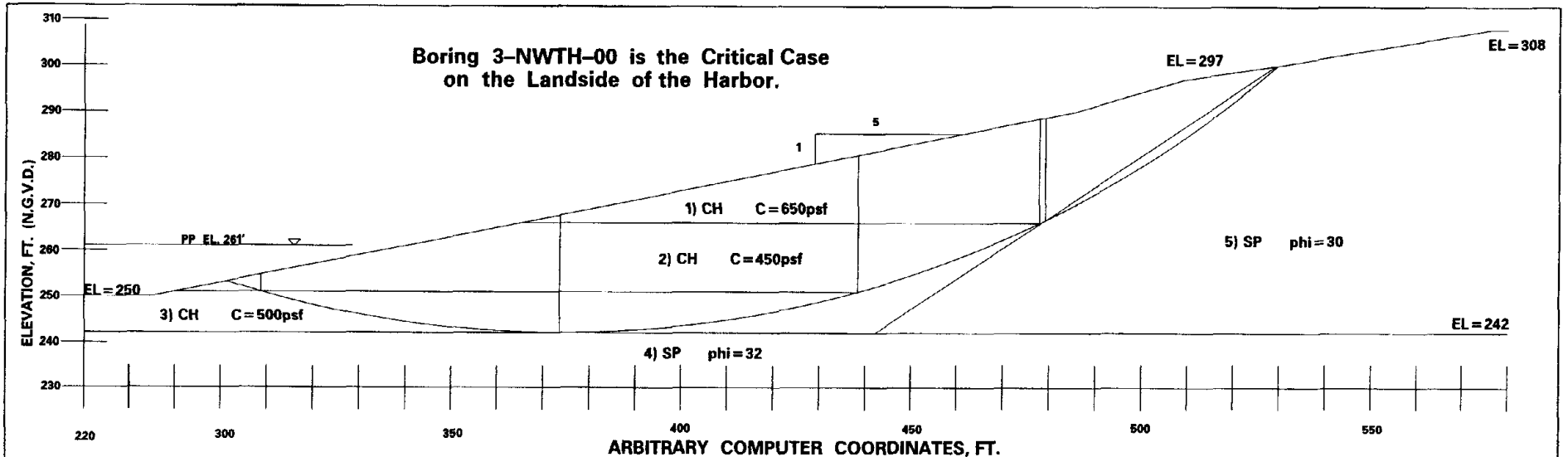
MISSISSIPPI RIVER AND TRIBUTARIES

NORTHWEST TN HARBOR

SLOPE STABILITY ANALYSIS

Riverside of Harbor

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION



LONG TERM STABILITY

$$FS = \frac{\text{TAN phi}}{\text{TAN I}}$$

FS = M 50 TAN(22)/50

FS = M(0.404); for M=5.0: FS=2.02

FACTORS OF SAFETY

ARC Failure		Block Failure	
AC	PP	AC	PP
1.298**	1.357*	1.300	1.373*

* Critical Pool EL=261'

** Case Presented

Manual Calculations Presented on Following Page

SOIL SHEAR STRENGTHS - BORING 3-NWTH-00

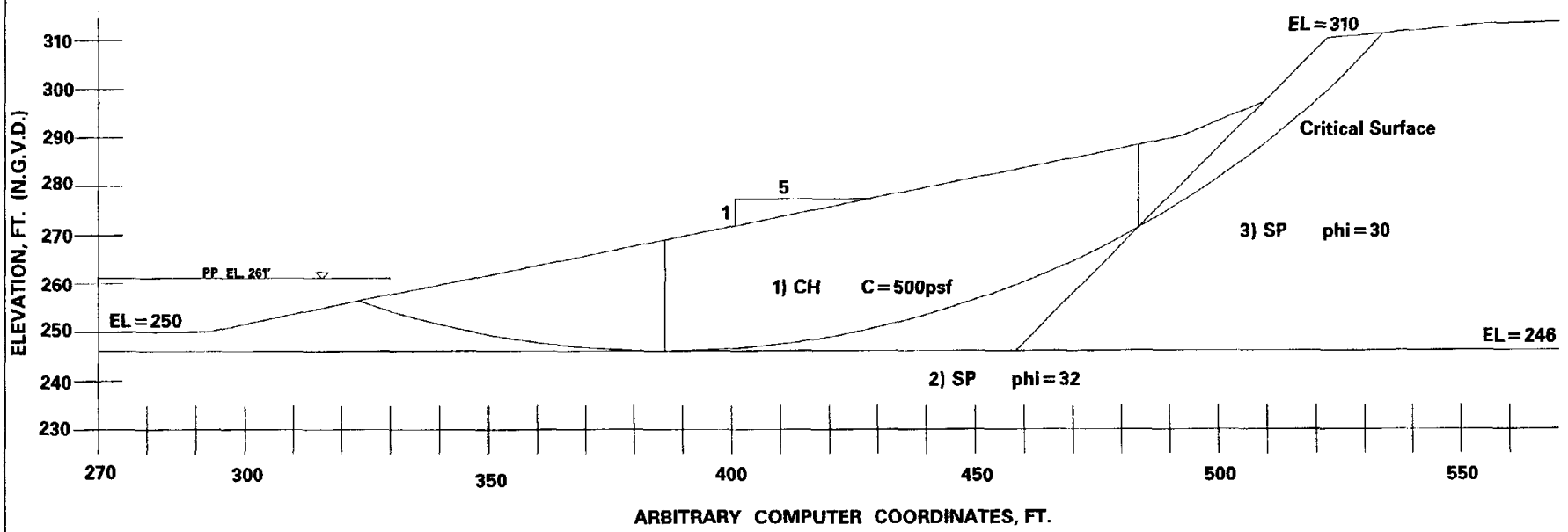
SOIL NO.	SOIL TYPE	ELEVATION (N.G.V.D.)	UNIT WT. (PCF)	Q		R		S	
				phi (°)	C (PSF)	phi (°)	C (PSF)	phi (°)	C (PSF)
1	CH	281.00	115	0	650	11	375	22	0
2	CH	261.00	110	0	450	11	225	22	0
3	CH	251.00	110	0	500	11	250	22	0
4	SP	242.00	125	32	0	32	0	32	0
5	SP	308.00	125	30	0	30	0	30	0

MISSISSIPPI RIVER AND TRIBUTARIES

NORTHWEST TN HARBOR

SLOPE STABILITY ANALYSIS
Landside of Harbor

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION



LONG TERM STABILITY

$$FS = \frac{\text{TAN phi}}{\text{TAN I}}$$

FS = M [47 TAN(22)]/47

FS = M(0.404); for M=5.0: FS=2.02

FACTORS OF SAFETY

ARC Failure		Block Failure	
AC	PP	AC	PP
1.337**	1.361	1.370	1.402

* Critical Pool EL= 261'

** Case Presented

SOIL SHEAR STRENGTHS - BORING 4-NWTH-00

SOIL NO.	SOIL TYPE	ELEVATION (N.G.V.D.)	UNIT WT. (PCF)	Q		R		S	
				phi (°)	C (PSF)	phi (°)	C (PSF)	phi (°)	C (PSF)
1	CH	284.00	110	0	500	11	250	22	0
2	SP	246.00	125	32	0	32	0	32	0
3	SP	310.00	125	30	0	30	0	30	0

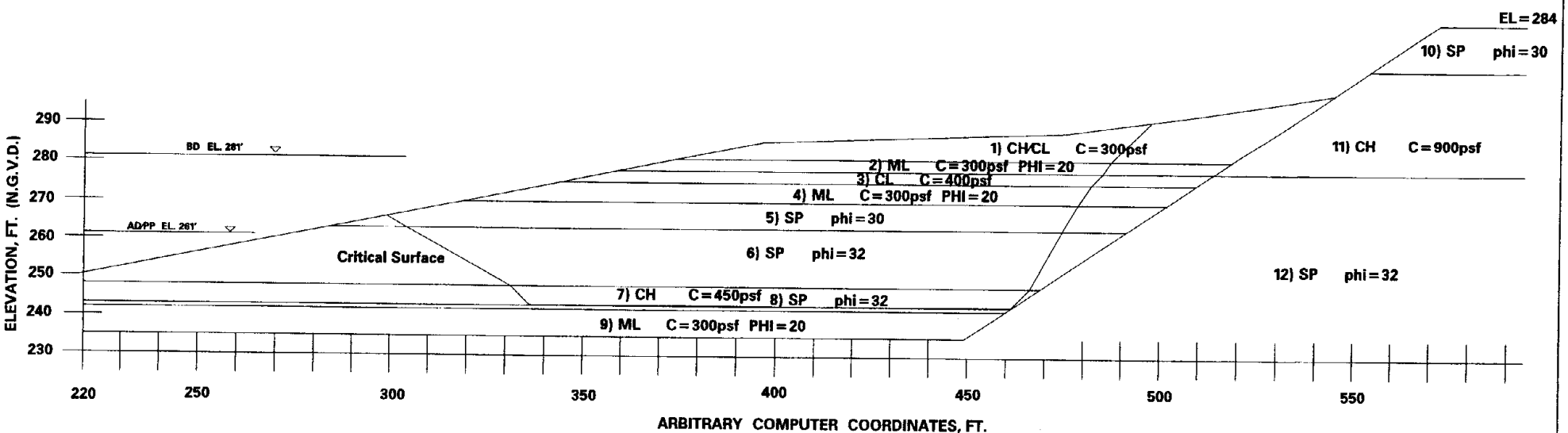
MISSISSIPPI RIVER AND TRIBUTARIES

NORTHWEST TN HARBOR

SLOPE STABILITY ANALYSIS

Landside of Harbor

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION



LONG TERM STABILITY

$$FS = \frac{\text{TAN phi}}{\text{TAN I}}$$

$$FS = M\ [4.5\ \text{TAN}(26) + 3.5\ \text{TAN}(28) + 3\ \text{TAN}(27) + 4\ \text{TAN}(28) + 7\ \text{TAN}(30) + 13\ \text{TAN}(32)]/36$$

$$FS = M(0.552);\ \text{for } M = 5.0:\ FS = 2.76$$

SOIL SHEAR STRENGTHS - BORING 5-NWTH-00

SOIL NO.	SOIL TYPE	ELEVATION (N.G.V.D.)	UNIT WT. (PCF)	Q phi (-)	Q C (PSF)	R phi (-)	R C (PSF)	S phi (-)	S C (PSF)
1	CH/CL	286.0	115	0	750	13	150	26	0
2	ML	281.0	120	20	300	20	300	28	0
3	CL	278.0	115	0	500	13	200	27	0
4	ML	275.0	120	20	300	20	300	28	0
5	SP	270.0	125	30	0	30	0	30	0
6	SP	263.0	125	32	0	32	0	32	0
7	CH	248.0	115	0	450	9	150	18	0
8	SP	243.0	125	0	0	32	0	32	0
9	ML	242.0	120	20	300	20	300	28	0
10	SP	317.0	125	30	0	30	0	30	0
11	CH	305.0	115	0	900	9	0	18	0
12	SP	278.0 /235.0	125	32	0	32	0	32	0

FACTOR OF SAFETY

A&C Failure			B Block Failure		
A&C	SD	PP	AC	SD	PP
2.203	1.490	2.013*	1.471	1.247**	1.511*

* Critical Pool EL = 261'
** Case Presented

MISSISSIPPI RIVER AND TRIBUTARIES

NORTHWEST TN HARBOR

SLOPE STABILITY ANALYSIS
Landside of Harbor

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

PLATE 11

UNIFIED SOIL CLASSIFICATION

MAJOR DIVISION		TYPE	LETTER SYMBOL	SYMBOL	TYPICAL NAMES
COARSE GRAINED SOILS More than half the material is larger than No. 200 sieve size	GRAVEL More than half of coarse fraction is larger than No. 4 sieve size	CLEAN GRAVEL (Little or No Fines)	GW		GRAVEL, Well Graded, gravel-sand mixtures, little or no fines
			GP		GRAVEL, Poorly Graded, gravel-sand mixtures, little or no fines
		GRAVEL WITH FINES (Appreciable Amount of Fines)	GM		SILTY GRAVEL, gravel-sand-silt mixtures
			GC		CLAYEY GRAVEL, gravel-sand-clay mixtures
	SAND More than half of coarse fraction is smaller than No. 4 sieve size	CLEAN SAND (Little or No Fines)	SW		SAND, Well Graded, gravelly sands
			SP		SAND, Poorly Graded, gravelly sands
		SAND WITH FINES (Appreciable Amount of Fines)	SM		SILTY SAND, sand-silt mixtures
			SC		CLAYEY SAND, sand-clay mixtures
FINE GRAINED SOILS More than half the material is smaller than No. 200 sieve size		SILTS AND CLAYS (Liquid Limit < 50)	ML		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity
			CL		LEAN CLAY; Sandy Clay; Silty Clay; of low to medium plasticity
			OL		ORGANIC SILTS, and organic silty clays of low plasticity
		SILTS AND CLAYS (Liquid Limit > 50)	MH		SILT, fine sandy or silty soil with high plasticity
			CH		FAT CLAY, inorganic clay of high plasticity
			OH		ORGANIC CLAYS of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt		PEAT, and other highly organic soil
WOOD			Wd		WOOD
MIXED SAMPLE			VM		Variable mixed silts, clays and sands
NO SAMPLE					

NOTE: Soils possessing characteristics of two groups are designated by combinations of group symbols.

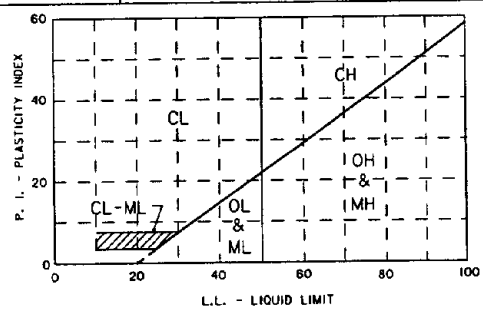
DESCRIPTIVE SYMBOL

COLOR

COLOR	SYMBOL
TAN	T
YELLOW	Y
RED	R
BLACK	BK
GRAY	Gr
LIGHT GRAY	lGr
DARK GRAY	dGr
BROWN	Br
LIGHT BROWN	lBr
DARK BROWN	dBr
BROWNISH - GRAY	brGr
GRAYISH - BROWN	grBr
GREENISH - GRAY	gnGr
GRAYISH - GREEN	grGn
GREEN	Gn
BLUE	Bl
BLUE - GREEN	BlGn
WHITE	Wh
MOTTLED	Mot

CONSISTENCY FOR COHESIVE SOILS

CONSISTENCY	COHESION IN LBS./SQ. FT. FROM UNCONFINED COMPRESSION TEST	SYMBOL
VERY SOFT	< 250	vSo
SOFT	250 - 500	So
MEDIUM	500 - 1000	M
STIFF	1000 - 2000	St
VERY STIFF	2000 - 4000	vSt
HARD	> 4000	H



PLASTICITY CHART
For classification of fine - grained soils

MODIFICATIONS

MODIFICATION	SYMBOL
Traces	Tr -
Fine	F
Medium	M
Coarse	C
Concretions	cc
Rootlets	rt
Lignite fragments	lg
Shale fragments	sh
Sandstone fragments	sds
Shell fragments	slf
Organic matter	O
Clay strata or lenses	CS
Silt strata or lenses	SIS
Sand strata or lenses	SS
Sandy	S
Gravelly	G
Boulders	B
Slickensides	SL
Wood	Wd
Oxidized	Ox
Saturated	sat
Lumps of Clay	Clp

NOTES:

FIGURES TO THE LEFT OF BORING UNDER COLUMN "W OR D_{10}"

Are natural water contents in percent dry weight

When underlined denotes D_{10} size in mm *

FIGURES TO THE LEFT OF BORING UNDER COLUMNS "LL" AND "PL"

Are liquid and plastic limits, respectively

SYMBOLS TO THE LEFT OF BORING

- ▽ Ground water surface and date observed
- (C) Denotes location of consolidation test * *
- (S) Denotes location of consolidation - drained direct shear test * *
- (R) Denotes location of consolidation - undrained triaxial compression test * *
- (Q) Denotes location of unconsolidated - undrained traxial compression test * *
- (T) Denotes location of sample subjected to consolidation test and each of the above three types of shear tests * *
- FW Denotes free water encountered in boring or sample
- o— Denotes channel grade

FIGURES TO THE RIGHT OF BORING

Are values of cohesion in lbs/sq. ft. from unconfined compression tests

In parentheses are driving resistances in blows per foot determined with a standard split spoon sampler (1 3/8" I.D. 2" O.D.) and a 140 lb. driving hammer with a 30" drop

Where underlined with a solid line denotes laboratory permeability in centimeters per second of undisturbed sample

Where underlined with a dashed line denotes laboratory permeability in centimeters per second of sample remoulded to the estimated natural void ratio

* The D_{10} size of a soil is the grain diameter in millimeters of which 10% of the soil is finer, and 90% coarser than size D_{10}

* * Results of these tests are available for inspection in the U. S. Army Engineer District Office if these symbols appear beside the boring logs on the drawings.

GENERAL NOTES:

While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local variations characteristic of subsurface materials of the region are anticipated and if encountered, such variations will not be considered as differing materially within purview of the contract clause entitled, "Differing Site Conditions".

Ground water elevations shown on boring logs represent ground water surfaces encountered in such borings on the dates shown. Absence of water surface data on certain borings indicates that no ground water data are available from the borings but does not necessarily mean that ground water will not be encountered at the locations or within the vertical reaches of such borings.

Consistency of cohesive soils shown on the boring logs is based on driller's log and visual examination and is approximate, except within those vertical reaches of the borings where shear strengths from unconfined compression tests are shown.

STANDARD BORING LEGEND

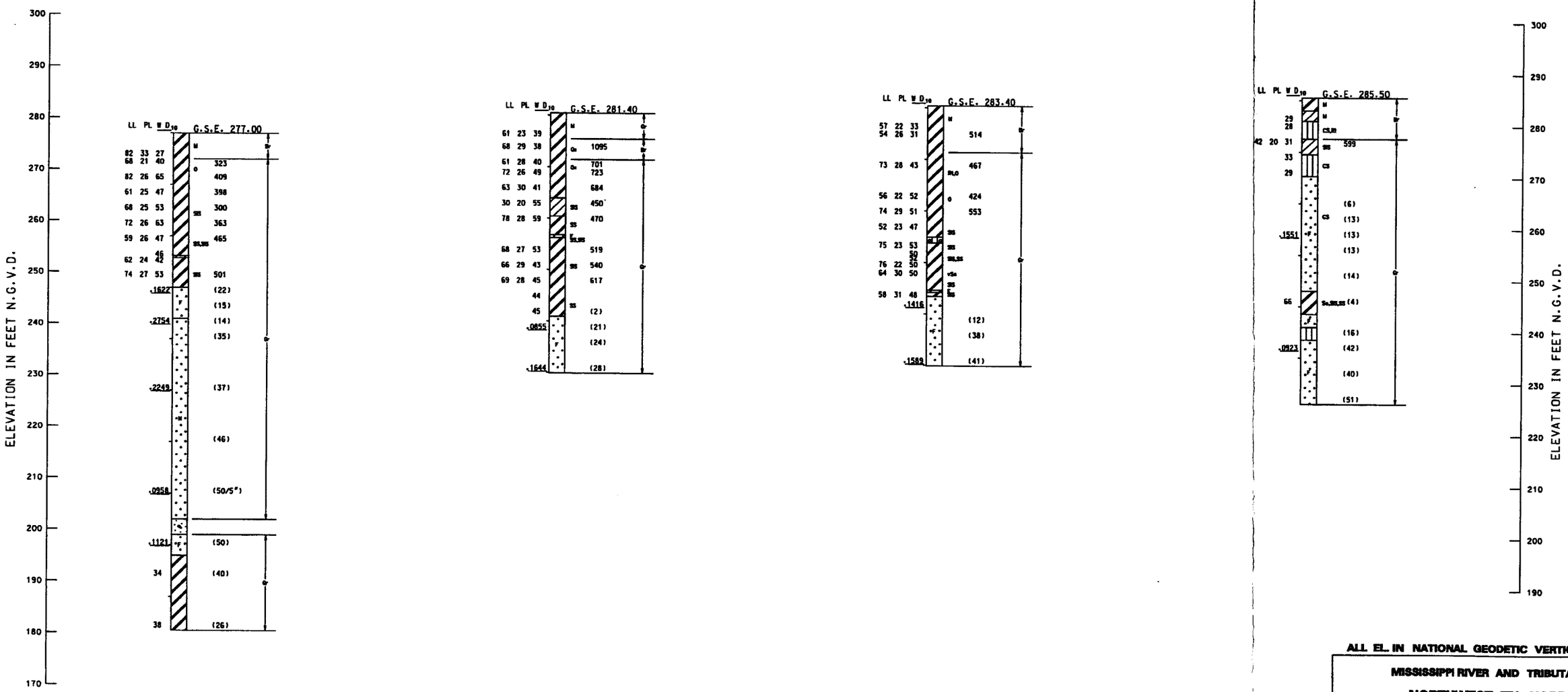
DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS

BOR. 2-NWTH-00
36°26'49.75"N 89°28'40.79"W
BOR. TYPE-AUG. 5" TUBE & SS
GROUND WATER EL. 274.2
23 MAY 00

BOR. 3-NMTH-00
36°26'46.33"N 89°28'16.87"W
BOR. TYPE-AUG. 5" TUBE & SS
GROUND WATER EL. 278.95
30 MAY 00

BOR. 4-NWTH-00
36°26'47.86"N 89°28'03.69"W
BOR. TYPE-AUG. 5" TUBE & SS
GROUND WATER EL. 277.9
22 MAY 00

BOR. 5-NWTH-00
36°26'51.10"N 89°27'47.37"W
BOR. TYPE-AUG. 5" TUBE & SS
GROUND WATER EL. 279.8
31 MAY 00



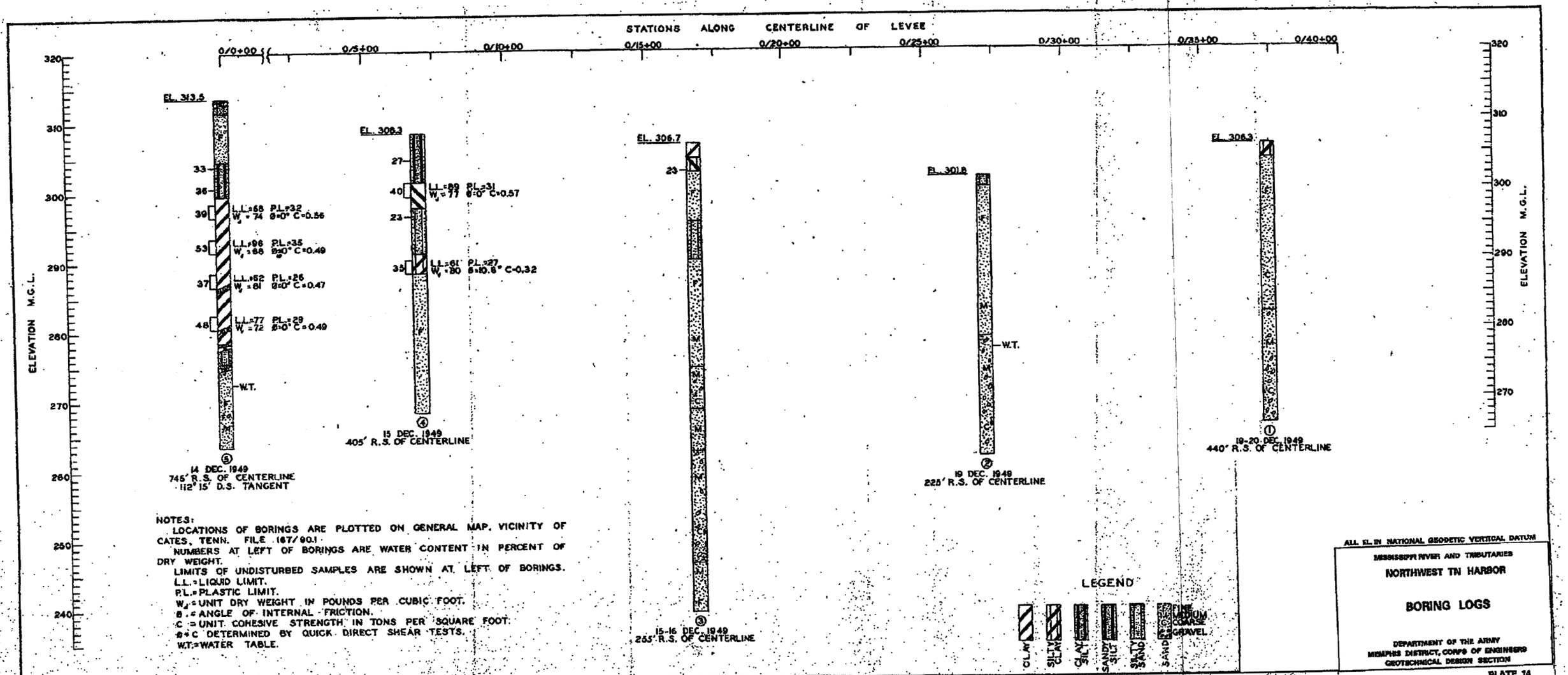
ALL EL. IN NATIONAL GEODETIC VERTICAL DATUM

MISSISSIPPI RIVER AND TRIBUTARIES

NORTHWEST TN HARBOR

BORING LOGS

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION



NOTES:

LOCATIONS OF BORINGS ARE PLOTTED ON GENERAL MAP, VICINITY OF CATES, TENN. FILE 167/90.1

NUMBERS AT LEFT OF BORINGS ARE WATER CONTENT IN PERCENT OF DRY WEIGHT.

LIMITS OF UNDISTURBED SAMPLES ARE SHOWN AT LEFT OF BORINGS.

L.L. = LIQUID LIMIT.

P.L. = PLASTIC LIMIT.

W_d = UNIT DRY WEIGHT IN POUNDS PER CUBIC FOOT.

ø = ANGLE OF INTERNAL FRICTION.

C = UNIT COHESIVE STRENGTH IN TONS PER SQUARE FOOT.

ø + C DETERMINED BY QUICK DIRECT SHEAR TESTS.

W.T. = WATER TABLE.

ALL EL. IN NATIONAL GEODETIC VERTICAL DATUM

MISSISSIPPI RIVER AND TRIBUTARIES

NORTHWEST TN HARBOR

BORING LOGS

DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
GEOTECHNICAL DESIGN SECTION

PLATE 14

SECTION II

RIVER ENGINEERING

River Engineering

Harbor Design

The plan (Alternative #5) consists of constructing a new harbor along the Mississippi River with an entrance location at approximately Mississippi River Mile 900 downstream of Cates Landing, Tennessee. The harbor alignment was chosen to provide a safe angle for ingress and egress, reduce maintenance and construction dredging quantities, and minimize environmental impacts.

The harbor will have a 130-foot bottom width with an alignment set to elevation 250.0. The bottom elevation is 11 feet below the established LWRP elevation at this location on the Mississippi River. Maintenance dredging is typically done to -11 LWRP to maintain the required 9-foot channel. At the upper end of the harbor there will be a 300-foot turning basin. A 95-foot wide by 2,900-foot long berthing area is included in the upper end of the harbor. The estimated dredging quantity is 1.02 million cubic yards. The side slopes were set to 1vertical to 5 horizontal as per Geotechnical investigation. 59,000 cubic yards of grading will be required to prepare the landside harbor's side slope. This slope of the harbor channel will have stone paving (30,600 tons of riprap and 15,300 tons of filter/bedding material) to a +10 elevation to protect from prop wash, overbank erosion, and excessive velocities during flood conditions. If additional soil borings reveal highly erodible soils to be excavated, additional stone protection may be required to protect from over-bank scour and piping of bank material due to seepage.

There are two sites presently being farmed that have been identified for disposal of the dredged and excavated material. The riverward site (Site A) will be used for initial construction and contains 66 acres with some clearing required. The landside site (Site B) is 156 acres that contains 19.5 acres for initial construction and 136.5 acres for the 20-year future dredged disposal area. This Site B will require minimal clearing. Both sites will require a containment dike to be built prior to placing the dredge and excavated material. These containment dikes will be built from the excavated material in the appropriate disposal area. The containment dikes will have a crown width of 20 feet and side slopes of 1V:3.5H. The existing Mississippi River levee will be used as a backstop for one side of riverward disposal area. Placement of dredged material on Site A will be to an elevation of 307.3 National Geodetic Vertical Datum (NGVD) that is below the 100-year flood elevation of 307.8 NGVD. Placement of dredged material on Site B is not restricted by the policy of creating flood free land because this site is presently at or above the 100-year flood elevation of 298.5 NGVD.

Operation and Maintenance Quantities for Dredging

The O&M quantities for dredging for the Northwest Tennessee Harbor Feasibility Study were determined from actual maintenance dredging quantities from the Caruthersville Harbor. The proposed harbor at River Mile 900 is similar to the present Caruthersville, Missouri Harbor, River Mile 849. The reasons why the Caruthersville, Missouri Harbor was chosen over other harbors are as follows: (1) They both are located in an old river chute at the downstream end of an island. (2) They both are in a curve with the main channel adjacent to their mouth. (3) They both are located in a 51-mile length of the river where no tributary enters. Therefore, they both

experience the similar flow and sediment load. [Sediment distribution in the Caruthersville Harbor is approximately as follows: 75% of dredging quantity in first 1,500 feet of harbor and remaining 25% of dredging quantity in second 1,000 feet of harbor. Therefore, estimated distance of sediment deposit from entrance of harbor is 2,500 feet.] (4) They both are approximately the same length and bottom width. (The Caruthersville, Missouri Harbor is 4,680 feet long and 150 feet in bottom width. Alternative 4 located at River Mile 900 is 5,000 feet long and 130 feet in bottom width.)

The average maintenance dredging quantity for the Caruthersville, Missouri Harbor is determined from the following historical quantities:

Table 1. Caruthersville, Missouri Harbor Historical Dredging Quantities

Dredging Dates	Cubic Yardage	Line No.	Remarks
Aug 29 - Sep 4, 2002	127,748	[1]	2001 Entrance BW Widened to 225'
Sep 5 - 22, 2001	356,993	[2]	Entrance BW Widened to 225'
Sep 4 - 10, 2000	100,424	[3]	
Jul, 4 – 10, 1999	144,571	[4]	
Jul 17 – 24, 1998	151,190	[5]	
Jul 26 – Aug 3, 1997	74,895	[6]	
Aug 28 – Sep 2, 1995	85,046	[7]	
Aug 25 – 31, 1994	120,085	[8]	
Jul 25 – Aug 14, 1993	122,960	[9]	

From Table 1, the dredging quantities for 2002 and 2001 were not used to calculate the average maintenance dredging quantity because the first 1,100 feet of the entrance of the harbor had been widened to a bottom width of 225 feet, thus not making it similar to the proposed harbor. The dredging quantities for 1997 and 1995 were eliminated from the calculation to provide a more conservative average maintenance dredging value. Therefore the years of 2000, 1999, 1998, 1994, and 1993 were used to calculate the average maintenance dredging quantity of 128,000 cubic yards.

Since both harbors are approximately the same length, converting the 128,000 cubic yards of average maintenance dredging for the Caruthersville, Missouri Harbor channel bottom width of 150 feet to the proposed harbor alternative 4 with a bottom width of 130 feet requires the following calculation:

Alternative 4
Estimated Average Maintenance = (128,000cy)((130 feet)/(150 feet)) = 111,000cy
Dredging Quantity

The estimated average maintenance dredging quantity for Alternative 5 can be determined using the following qualitative reasoning:

By reviewing the aerial photos for the Caruthersville, Missouri Harbor and the proposed Alternative 5 harbor at River Mile 900, it can be seen that the island above the Caruthersville Harbor is one body that has remnants of the old river chute. The proposed Alternative 5 harbor, which is 9,000 feet long, presently would be constructed below two islands. The larger island has remnants of the old river chute and the smaller island, which is forming because of a dike above, is separated from the other island by a chute, thus allowing high stage river flow to enter the harbor approximately midpoint in the channel. Since both islands are located below dikes, it is anticipated that the chute between them will close and the forming sand bar will become vegetated like both islands. When this closure occurs, then the sediment hydraulics will function like the Caruthersville, Missouri Harbor.

For this feasibility study, the Alternative 5 estimated average maintenance dredging quantity would be calculated by assuming that this alternative would experience an increase of sediment of 10% more than Alternative 4. Since operation and maintenance costs are for the 50-year life of the project and the closure between the two islands will occur within the first half of the life of the project, this value of increase is expectable.

Alternative 5
Estimated Average Maintenance = (111,000cy)(1.10) = 122,000cy
Dredging Quantity

SECTION III

ALTERNATIVE 5
MCACES BASELINE COST ESTIMATE

WITH ESTIMATED YEARLY O&M COSTS

NW TN HARBOR (W/TRANSISTION)
SECTION 107
STUDY ESTIMATE
ALTERNATIVE 5
WITH BOTTOM WIDTH TRANSIITION

Designed By:
Estimated By: USACE, MEMPHIS, CEMVD-ED-C

Prepared By: JOSEPH D. PENTECOST/JERRY WELCH
COST ENGINEERING BRANCH

Preparation Date: 12/09/04
Effective Date of Pricing: 12/09/04

Sales Tax: 9.25%

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This estimate is for Northwest Tennessee Harbor. The chosen design is about 9,000 LF long with a bottom width that ranges from 125 LF at the lower end to about 225 LF at the upper end. The work will consist of site clearing, excavation (mostly dredging), and bank protection. Approximately 1,020,000 cubic yards of material will have to be removed to construct the harbor. It was assumed that all of the harbor excavation would have to be done by dredging with the exception of revetment bank grading. Also, because of certain environmental regulations, it was assumed that all of the dredged material would be pumped to two upland disposal areas, one located on the riverside of the levee and a smaller site located on the landside of the levee and adjacent to the proposed harbor entrance.

It was originally assumed that all work on this project would be done as part of the District's yearly harbour maintenance contract, or when the dredge was in the general vicintiy while working on the contract. Because of the large amount of excavation, it was determined that the dredge would have to be brought in on a separate construction contract, so MOB & DEMOB costs are added to this estimate. Dredging costs are based upon the 2003 Mississippi River Harbors hourly rental contract with adjustments for production based upon a in-house Cost Engineering production program.

It was also originally assumed that all of the bank protection work on this project would be done as part of the District's yearly contract for dike repairs and upper bank paving. Again, because of the large amount of of both filter gravel and riprap that will be required for this project, it was determined that all rock work would be done under a separate contract and that this contract would cover any necessary bank grading needed before the filter gravel and riprap could be placed and also all necessary work required to place the gravel and riprap. Two quotes for the filter gravel and riprap were obtained from the two major suppliers who normally supply material for this type of work, Vulcan Materials and Tower Rock, or Luhr Bros. See the job notes for this project for the quote information and which quote was used.

Engineering & Design (PED) and Supervision & Administration (S&A) percentages were figured at 12% and 10% of the estimated construction costs. This is per Jim Lloyd, project manager. Contingency amounts (20% except for RE at 25%) were determined by the Project Delivery Team.

This estimate includes a revision to the real estate acquistion costs and the estimated quantity of material needed for the disposal area retention dikes.

Real estate costs for this project are based on the following estimated acreage (revised 12/08/04): Harbor Disposal Area for Construction, 85.5 acres, Future Harbor Disposal Area, 136.5 acres, and Mitigation land, 134 acres, for a total of 356 acres. Also, 64 acres of river channel will be provided to the local sponsors by the federal government at no charge under "Navigational Servitude." Total project acres estimated for the project is 420 acres.

The estimate was calculated with no escalation.

** CONTRACTOR SETTINGS **

		AMOUNT	PCT	PCT S	RISK	DIFF	SIZE	PERIOD	INVEST	ASSIST	SUBCON
AA PRIME CONTRACTOR											
OVERHEAD	P		13.00								
HOME OFFICE	P		0.00								
PROFIT	P		8.00								
BOND	C			(Class: B)							
BB L&D, RELOCATIONS, S&A, E&D COSTS											
OVERHEAD	P		0.00								
HOME OFFICE	P		0.00								
PROFIT	P		0.00								
BOND	P		0.00								
AB EARTHWORK AND ROCK SUBCONTRACTOR											
OVERHEAD	P		7.00								
HOME OFFICE	P		3.00								
PROFIT	P		13.00								
BOND	C			(Class: A)							

	QUANTITY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	4,009,180	656,250	0	4,665,430	4.57
TOTAL NW TN HARBOR (W/TRANSISTION)			4,009,180	656,250	0	4,665,430	

	QUANTITY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5							
10/ 1 LANDS AND DAMAGES	356.00	AC	668,000	143,000	0	811,000	2278.08
10/ 3 NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	2,738,670	392,750	0	3,131,430	3.07
10/ 5 PLANNING, ENGINEERING & DES	1.00	JB	328,640	65,730	0	394,370	394368.00
10/ 6 SUPERVISION & ADMINISTRATION	1.00	JB	273,870	54,770	0	328,640	328640.40
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	4,009,180	656,250	0	4,665,430	4.57
TOTAL NW TN HARBOR (W/TRANSISTION)			4,009,180	656,250	0	4,665,430	

	QUANTITY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5							
10/ 1 LANDS AND DAMAGES							
10/ 1. 1 PURCHASE LAND, PROJ (CROP LAND)	222.00	AC	411,200	102,960	0	514,160	2316.02
10/ 1. 2 PURCHASE LAND, MITIGATION	134.00	AC	160,800	40,040	0	200,840	1498.81
10/ 1. 3 LAND ACQUISTION COSTS			96,000	0	0	96,000	
TOTAL LANDS AND DAMAGES	356.00	AC	668,000	143,000	0	811,000	2278.08
10/ 2 RELOCATIONS							
10/ 2. 1 RELOCATIONS							
10/ 3 NW TENNESSEE HARBOR, ALT. 5							
10/ 3. 1 NW TENN HARBOR, ALT. 5 (ROCK)	45900.00	TN	1,188,840	237,770	0	1,426,600	31.08
10/ 3. 2 NW TENN HARBOR, ALT. 5 (DREDGE)	1020000	BCY	1,549,840	154,980	0	1,704,820	1.67
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	2,738,670	392,750	0	3,131,430	3.07
10/ 5 PLANNING, ENGINEERING & DES							
10/ 5. 1 PLANNING, ENGINEERING & DESIGN			328,640	65,730	0	394,370	
TOTAL PLANNING, ENGINEERING & DES	1.00	JB	328,640	65,730	0	394,370	394368.00
10/ 6 SUPERVISION & ADMINISTRATION							
10/ 6. 1 SUPERVISION & ADMINISTRATION	1.00	JB	273,870	54,770	0	328,640	328640.40
TOTAL SUPERVISION & ADMINISTRATION	1.00	JB	273,870	54,770	0	328,640	328640.40
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	4,009,180	656,250	0	4,665,430	4.57
TOTAL NW TN HARBOR (W/TRANSISTION)			4,009,180	656,250	0	4,665,430	

	QUANTITY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5							
10/ 1 LANDS AND DAMAGES							
10/ 1. 1 PURCHASE LAND, PROJ (CROP LAND)	222.00	AC	411,200	102,960	0	514,160	2316.02
10/ 1. 2 PURCHASE LAND, MITIGATION	134.00	AC	160,800	40,040	0	200,840	1498.81
10/ 1. 3 LAND ACQUISTION COSTS			96,000	0	0	96,000	
TOTAL LANDS AND DAMAGES	356.00	AC	668,000	143,000	0	811,000	2278.08
10/ 2 RELOCATIONS							
10/ 2. 1 RELOCATIONS							
10/ 3 NW TENNESSEE HARBOR, ALT. 5							
10/ 3. 1 NW TENN HARBOR, ALT. 5 (ROCK)							
10/ 3. 1.10 MOB/DEMOB	1.00	JB	29,120	5,820	0	34,940	34943.48
10/ 3. 1.20 CLEARING	51.00	AC	137,860	27,570	0	165,440	3243.87
10/ 3. 1.40 EXCAVATION	234700.00	BCY	301,500	60,300	0	361,800	1.54
10/ 3. 1.50 FILTER MATERIAL/CRUSHED STONE	15300.00	TN	196,440	39,290	0	235,730	15.41
10/ 3. 1.60 RIPRAP, 125/250 LB	30600.00	TON	424,370	84,870	0	509,250	16.64
10/ 3. 1.90 ENVIRONMENTAL PROTECTION	11800.00	LF	24,670	4,930	0	29,610	2.51
10/ 3. 1.91 ENVIRONMENTAL RESTORATION	134.00	AC	67,330	13,470	0	80,800	602.98
10/ 3. 1.95 TURFING	10.00	AC	7,540	1,510	0	9,040	904.47
TOTAL NW TENN HARBOR, ALT. 5 (ROCK)	45900.00	TN	1,188,840	237,770	0	1,426,600	31.08
10/ 3. 2 NW TENN HARBOR, ALT. 5 (DREDGE)							
10/ 3. 2.10 MOB/DEMOB (DREDGE)			350,850	35,090	0	385,940	
10/ 3. 2.20 EXCAVATION (DREDGE)	1020000	BCY	1,198,990	119,900	0	1,318,890	1.29
TOTAL NW TENN HARBOR, ALT. 5 (DREDGE)	1020000	BCY	1,549,840	154,980	0	1,704,820	1.67
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	2,738,670	392,750	0	3,131,430	3.07
10/ 5 PLANNING, ENGINEERING & DES							
10/ 5. 1 PLANNING, ENGINEERING & DESIGN			328,640	65,730	0	394,370	
TOTAL PLANNING, ENGINEERING & DES	1.00	JB	328,640	65,730	0	394,370	394368.00
10/ 6 SUPERVISION & ADMINISTRATION							

	QUANTITY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT COST
10/ 6. 1 SUPERVISION & ADMINISTRATION	1.00	JB	273,870	54,770	0	328,640	328640.40
TOTAL SUPERVISION & ADMINISTRATION	1.00	JB	273,870	54,770	0	328,640	328640.40
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	4,009,180	656,250	0	4,665,430	4.57
TOTAL NW TN HARBOR (W/TRANSISTION)			4,009,180	656,250	0	4,665,430	

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	3,471,410	229,330	30,380	249,000	29,060	4,009,180	3.93
TOTAL NW TN HARBOR (W/TRANSISTION)			3,471,410	229,330	30,380	249,000	29,060	4,009,180	
CONTINGENCY								656,250	
TOTAL INCL OWNER COSTS								4,665,430	

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5									
10/ 1 LANDS AND DAMAGES	356.00	AC	668,000	0	0	0	0	668,000	1876.40
10/ 3 NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	2,200,900	229,330	30,380	249,000	29,060	2,738,670	2.68
10/ 5 PLANNING, ENGINEERING & DES	1.00	JB	328,640	0	0	0	0	328,640	328640.00
10/ 6 SUPERVISION & ADMINISTRATION	1.00	JB	273,870	0	0	0	0	273,870	273867.00
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	3,471,410	229,330	30,380	249,000	29,060	4,009,180	3.93
TOTAL NW TN HARBOR (W/TRANSISTION)			3,471,410	229,330	30,380	249,000	29,060	4,009,180	
CONTINGENCY								656,250	
TOTAL INCL OWNER COSTS								4,665,430	

	QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5								
10/ 1 LANDS AND DAMAGES								
10/ 1. 1 PURCHASE LAND, PROJ (CROP LAND)	222.00 AC	411,200	0	0	0	0	411,200	1852.24
10/ 1. 2 PURCHASE LAND, MITIGATION	134.00 AC	160,800	0	0	0	0	160,800	1200.00
10/ 1. 3 LAND ACQUISTION COSTS		96,000	0	0	0	0	96,000	
TOTAL LANDS AND DAMAGES	356.00 AC	668,000	0	0	0	0	668,000	1876.40
10/ 2 RELOCATIONS								
10/ 2. 1 RELOCATIONS								
10/ 3 NW TENNESSEE HARBOR, ALT. 5								
10/ 3. 1 NW TENN HARBOR, ALT. 5 (ROCK)	45900.00 TN	946,370	66,250	30,380	135,590	10,250	1,188,840	25.90
10/ 3. 2 NW TENN HARBOR, ALT. 5 (DREDGE)	1020000 BCY	1,254,530	163,090	0	113,410	18,810	1,549,840	1.52
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000 BCY	2,200,900	229,330	30,380	249,000	29,060	2,738,670	2.68
10/ 5 PLANNING, ENGINEERING & DES								
10/ 5. 1 PLANNING, ENGINEERING & DESIGN		328,640	0	0	0	0	328,640	
TOTAL PLANNING, ENGINEERING & DES	1.00 JB	328,640	0	0	0	0	328,640	328640.00
10/ 6 SUPERVISION & ADMINISTRATION								
10/ 6. 1 SUPERVISION & ADMINISTRATION	1.00 JB	273,870	0	0	0	0	273,870	273867.00
TOTAL SUPERVISION & ADMINISTRATION	1.00 JB	273,870	0	0	0	0	273,870	273867.00
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000 BCY	3,471,410	229,330	30,380	249,000	29,060	4,009,180	3.93
TOTAL NW TN HARBOR (W/TRANSISTION)		3,471,410	229,330	30,380	249,000	29,060	4,009,180	
CONTINGENCY							656,250	
TOTAL INCL OWNER COSTS							4,665,430	

** PROJECT INDIRECT SUMMARY - Element (Rounded to 10's) **

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5									
10/ 1 LANDS AND DAMAGES									
10/ 1. 1 PURCHASE LAND, PROJ (CROP LAND)	222.00	AC	411,200	0	0	0	0	411,200	1852.24
10/ 1. 2 PURCHASE LAND, MITIGATION	134.00	AC	160,800	0	0	0	0	160,800	1200.00
10/ 1. 3 LAND ACQUISTION COSTS			96,000	0	0	0	0	96,000	
TOTAL LANDS AND DAMAGES	356.00	AC	668,000	0	0	0	0	668,000	1876.40
10/ 2 RELOCATIONS									
10/ 2. 1 RELOCATIONS									
10/ 3 NW TENNESSEE HARBOR, ALT. 5									
10/ 3. 1 NW TENN HARBOR, ALT. 5 (ROCK)									
10/ 3. 1.10 MOB/DEMOB	1.00	JB	23,180	1,620	740	3,320	250	29,120	29119.56
10/ 3. 1.20 CLEARING	51.00	AC	109,750	7,680	3,520	15,720	1,190	137,860	2703.22
10/ 3. 1.40 EXCAVATION	234700.00	BCY	240,010	16,800	7,700	34,390	2,600	301,500	1.28
10/ 3. 1.50 FILTER MATERIAL/CRUSHED STONE	15300.00	TN	156,370	10,950	5,020	22,400	1,690	196,440	12.84
10/ 3. 1.60 RIPRAP, 125/250 LB	30600.00	TON	337,820	23,650	10,840	48,400	3,660	424,370	13.87
10/ 3. 1.90 ENVIRONMENTAL PROTECTION	11800.00	LF	19,640	1,370	630	2,810	210	24,670	2.09
10/ 3. 1.91 ENVIRONMENTAL RESTORATION	134.00	AC	53,600	3,750	1,720	7,680	580	67,330	502.48
10/ 3. 1.95 TURFING	10.00	AC	6,000	420	190	860	60	7,540	753.72
TOTAL NW TENN HARBOR, ALT. 5 (ROCK)	45900.00	TN	946,370	66,250	30,380	135,590	10,250	1,188,840	25.90
10/ 3. 2 NW TENN HARBOR, ALT. 5 (DREDGE)									
10/ 3. 2.10 MOB/DEMOB (DREDGE)			284,000	36,920	0	25,670	4,260	350,850	
10/ 3. 2.20 EXCAVATION (DREDGE)	1020000	BCY	970,530	126,170	0	87,740	14,550	1,198,990	1.18
TOTAL NW TENN HARBOR, ALT. 5 (DREDGE)	1020000	BCY	1,254,530	163,090	0	113,410	18,810	1,549,840	1.52
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	2,200,900	229,330	30,380	249,000	29,060	2,738,670	2.68
10/ 5 PLANNING, ENGINEERING & DES									
10/ 5. 1 PLANNING, ENGINEERING & DESIGN			328,640	0	0	0	0	328,640	
TOTAL PLANNING, ENGINEERING & DES	1.00	JB	328,640	0	0	0	0	328,640	328640.00
10/ 6 SUPERVISION & ADMINISTRATION									

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
10/ 6. 1 SUPERVISION & ADMINISTRATION	1.00	JB	273,870	0	0	0	0	273,870	273867.00
TOTAL SUPERVISION & ADMINISTRATION	1.00	JB	273,870	0	0	0	0	273,870	273867.00
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	3,471,410	229,330	30,380	249,000	29,060	4,009,180	3.93
TOTAL NW TN HARBOR (W/TRANSISTION)			3,471,410	229,330	30,380	249,000	29,060	4,009,180	
CONTINGENCY								656,250	
TOTAL INCL OWNER COSTS								4,665,430	

	QUANTITY	UOM	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	175,780	1215840	282,690	1,797,100	3,471,410	3.40
TOTAL NW TN HARBOR (W/TRANSISTION)			175,780	1215840	282,690	1,797,100	3,471,410	
OVERHEAD							229,330	
SUBTOTAL							3,700,740	
HOME OFFICE							30,380	
SUBTOTAL							3,731,120	
PROFIT							249,000	
SUBTOTAL							3,980,120	
BOND							29,060	
TOTAL INCL INDIRECTS							4,009,180	
CONTINGENCY							656,250	
TOTAL INCL OWNER COSTS							4,665,430	

	QUANTITY	UOM	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5								
10/ 1 LANDS AND DAMAGES	356.00	AC	0	0	0	668,000	668,000	1876.40
10/ 3 NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	175,780	1215840	282,690	526,600	2,200,900	2.16
10/ 5 PLANNING, ENGINEERING & DES	1.00	JB	0	0	0	328,640	328,640	328640.00
10/ 6 SUPERVISION & ADMINISTRATION	1.00	JB	0	0	0	273,870	273,870	273867.00
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	175,780	1215840	282,690	1,797,100	3,471,410	3.40
TOTAL NW TN HARBOR (W/TRANSISTION)			175,780	1215840	282,690	1,797,100	3,471,410	
OVERHEAD							229,330	
SUBTOTAL							3,700,740	
HOME OFFICE							30,380	
SUBTOTAL							3,731,120	
PROFIT							249,000	
SUBTOTAL							3,980,120	
BOND							29,060	
TOTAL INCL INDIRECTS							4,009,180	
CONTINGENCY							656,250	
TOTAL INCL OWNER COSTS							4,665,430	

	QUANTITY UOM	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5							
10/ 1 LANDS AND DAMAGES							
10/ 1. 1 PURCHASE LAND, PROJ (CROP LAND)	222.00 AC	0	0	0	411,200	411,200	1852.24
10/ 1. 2 PURCHASE LAND, MITIGATION	134.00 AC	0	0	0	160,800	160,800	1200.00
10/ 1. 3 LAND ACQUISTION COSTS		0	0	0	96,000	96,000	
TOTAL LANDS AND DAMAGES	356.00 AC	0	0	0	668,000	668,000	1876.40
10/ 2 RELOCATIONS							
10/ 2. 1 RELOCATIONS							
10/ 3 NW TENNESSEE HARBOR, ALT. 5							
10/ 3. 1 NW TENN HARBOR, ALT. 5 (ROCK)	45900.00 TN	175,780	245,310	282,690	242,600	946,370	20.62
10/ 3. 2 NW TENN HARBOR, ALT. 5 (DREDGE)	1020000 BCY	0	970,530	0	284,000	1,254,530	1.23
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000 BCY	175,780	1215840	282,690	526,600	2,200,900	2.16
10/ 5 PLANNING, ENGINEERING & DES							
10/ 5. 1 PLANNING, ENGINEERING & DESIGN		0	0	0	328,640	328,640	
TOTAL PLANNING, ENGINEERING & DES	1.00 JB	0	0	0	328,640	328,640	328640.00
10/ 6 SUPERVISION & ADMINISTRATION							
10/ 6. 1 SUPERVISION & ADMINISTRATION	1.00 JB	0	0	0	273,870	273,870	273867.00
TOTAL SUPERVISION & ADMINISTRATION	1.00 JB	0	0	0	273,870	273,870	273867.00
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000 BCY	175,780	1215840	282,690	1,797,100	3,471,410	3.40
TOTAL NW TN HARBOR (W/TRANSISTION)		175,780	1215840	282,690	1,797,100	3,471,410	
OVERHEAD						229,330	
SUBTOTAL						3,700,740	
HOME OFFICE						30,380	
SUBTOTAL						3,731,120	
PROFIT						249,000	
SUBTOTAL						3,980,120	
BOND						29,060	

	QUANTITY	UOM	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
TOTAL INCL INDIRECTS							4,009,180	
CONTINGENCY							656,250	
TOTAL INCL OWNER COSTS							4,665,430	

	QUANTITY	UOM	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10 NW TENNESSEE HARBOR, ALT. 5								
10/ 1 LANDS AND DAMAGES								
10/ 1. 1 PURCHASE LAND, PROJ (CROP LAND)	222.00	AC	0	0	0	411,200	411,200	1852.24
10/ 1. 2 PURCHASE LAND, MITIGATION	134.00	AC	0	0	0	160,800	160,800	1200.00
10/ 1. 3 LAND ACQUISTION COSTS			0	0	0	96,000	96,000	
TOTAL LANDS AND DAMAGES	356.00	AC	0	0	0	668,000	668,000	1876.40
10/ 2 RELOCATIONS								
10/ 2. 1 RELOCATIONS								
10/ 3 NW TENNESSEE HARBOR, ALT. 5								
10/ 3. 1 NW TENN HARBOR, ALT. 5 (ROCK)								
10/ 3. 1.10 MOB/DEMOB	1.00	JB	7,410	10,470	0	5,300	23,180	23180.60
10/ 3. 1.20 CLEARING	51.00	AC	56,580	53,080	80	0	109,750	2151.90
10/ 3. 1.40 EXCAVATION	234700.00	BCY	76,720	123,290	0	40,000	240,010	1.02
10/ 3. 1.50 FILTER MATERIAL/CRUSHED STONE	15300.00	TN	11,620	19,460	79,400	45,900	156,370	10.22
10/ 3. 1.60 RIPRAP, 125/250 LB	30600.00	TON	23,230	38,920	183,870	91,800	337,820	11.04
10/ 3. 1.90 ENVIRONMENTAL PROTECTION	11800.00	LF	220	80	19,340	0	19,640	1.66
10/ 3. 1.91 ENVIRONMENTAL RESTORATION	134.00	AC	0	0	0	53,600	53,600	400.00
10/ 3. 1.95 TURFING	10.00	AC	0	0	0	6,000	6,000	600.00
TOTAL NW TENN HARBOR, ALT. 5 (ROCK)	45900.00	TN	175,780	245,310	282,690	242,600	946,370	20.62
10/ 3. 2 NW TENN HARBOR, ALT. 5 (DREDGE)								
10/ 3. 2.10 MOB/DEMOB (DREDGE)			0	0	0	284,000	284,000	
10/ 3. 2.20 EXCAVATION (DREDGE)	1020000	BCY	0	970,530	0	0	970,530	0.95
TOTAL NW TENN HARBOR, ALT. 5 (DREDGE)	1020000	BCY	0	970,530	0	284,000	1,254,530	1.23
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	175,780	1215840	282,690	526,600	2,200,900	2.16
10/ 5 PLANNING, ENGINEERING & DES								
10/ 5. 1 PLANNING, ENGINEERING & DESIGN			0	0	0	328,640	328,640	
TOTAL PLANNING, ENGINEERING & DES	1.00	JB	0	0	0	328,640	328,640	328640.00
10/ 6 SUPERVISION & ADMINISTRATION								

	QUANTITY	UOM	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10/ 6. 1 SUPERVISION & ADMINISTRATION	1.00	JB	0	0	0	273,870	273,870	273867.00
TOTAL SUPERVISION & ADMINISTRATION	1.00	JB	0	0	0	273,870	273,870	273867.00
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY	175,780	1215840	282,690	1,797,100	3,471,410	3.40
TOTAL NW TN HARBOR (W/TRANSISTION)			175,780	1215840	282,690	1,797,100	3,471,410	
OVERHEAD							229,330	
SUBTOTAL							3,700,740	
HOME OFFICE							30,380	
SUBTOTAL							3,731,120	
PROFIT							249,000	
SUBTOTAL							3,980,120	
BOND							29,060	
TOTAL INCL INDIRECTS							4,009,180	
CONTINGENCY							656,250	
TOTAL INCL OWNER COSTS							4,665,430	

	QUANTITY	UOM	** CONTRACT ** TOTAL	UNIT	** PROJECT ** TOTAL	COL%
10 NW TENNESSEE HARBOR, ALT. 5						
10. 1 LANDS AND DAMAGES						
10. 1. 1 PURCHASE LAND, PROJ (CROP LAND)	85.50	AC	411,200	4809	514,160	63.4%
10. 1. 2 PURCHASE LAND, MITIGATION	134.00	AC	160,800	1200	200,840	24.8%
10. 1. 3 LAND ACQUISTION COSTS	1.00	LS	96,000	96000	96,000	11.8%
10. 1 LANDS AND DAMAGES	219.50	AC	668,000	3043	811,000	17.4%
10. 2 RELOCATIONS						
10. 2. 1 RELOCATIONS	1.00	JB	0		0	%
10. 2 RELOCATIONS	1.00	JB	0		0	%
10. 3 NW TENNESSEE HARBOR, ALT. 5						
10. 3. 1 NW TENN HARBOR, ALT. 5 (ROCK)	45900.00	TN	1188840	25.90	1426600	45.6%
10. 3. 2 NW TENN HARBOR, ALT. 5 (DREDGE)	1020000.00	BCY	1549840	1.52	1704820	54.4%
10. 3 NW TENNESSEE HARBOR, ALT. 5	1020000.00	BCY	2738670	2.68	3131430	67.1%
10. 5 PLANNING, ENGINEERING & DES						
10. 5. 1 PLANNING, ENGINEERING & DESIGN	1.00	LS	328,640	328640	394,370	100%
10. 5 PLANNING, ENGINEERING & DES	1.00	JB	328,640	328640	394,370	8.5%
10. 6 SUPERVISION & ADMINISTRATION						
10. 6. 1 SUPERVISION & ADMINISTRATION	1.00	JB	273,870	273867	328,640	100%
10. 6 SUPERVISION & ADMINISTRATION	1.00	JB	273,870	273867	328,640	7.0%
10 NW TENNESSEE HARBOR, ALT. 5	1020000.00	BCY	4009180	3.93	4665430	100%
NW TN HARBOR (W/TRANSISTION)	1.00	LS	4009180	******	4665430	100%

0/AA. PRIME CONTRACTOR	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST

0/AA. PRIME CONTRACTOR

This item covers the prime contractor's overhead, profit, etc. For this project, it was determined that the prime contractor would be the dredge contractor. The cost shown was takend from the Memphis District's current (2003) Mississippi River Harbors contract (DACW66-03-B-0005).

0/BB. L&D, RELOCATIONS, S&A, E&D COSTS

This item covers any costs for the project that are not directly related to the construction phase.

0/CC. EARTHWORK AND ROCK SUBCONTRACTOR

These numbers reflect the cost of the sub and prime overhead and profit.

10/ 1. LANDS AND DAMAGES	QUANTY UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST

10. NW TENNESSEE HARBOR, ALT. 5
10/ 1. LANDS AND DAMAGES

Estimated land costs and acquistion costs obtained from Doug Young, Real Estate. It was assumed that the land where the harbor is to be constructed would be obtained under "Navigational Servitude" at no-charge. All other lands, such as disposal areas, would have to be purchased.

10/ 1. 1. PURCHASE LAND, PROJ (CROP LAND)

This item covers the purchase of the land for the dredge disposal area.

USR BB < > PURCHASE LAND (PROJECT)				0.00	0.00	0.00	1852.24	1852.24	
	222.00 AC		0.00	0	0	0	411,197	411,197	1852.24
TOTAL PURCHASE LAND, PROJ (CROP LAND)	222.00 AC			0	0	0	411,197	411,197	1852.24

10/ 1. 2. PURCHASE LAND, MITIGATION

This item covers the purchase of the required land for wetlands mitigation purposes.

USR BB < > PURCHASE LAND (MITIGATION)				0.00	0.00	0.00	1200.00	1200.00	
	134.00 AC		0.00	0	0	0	160,800	160,800	1200.00
TOTAL PURCHASE LAND, MITIGATION	134.00 AC			0	0	0	160,800	160,800	1200.00

10/ 1. 3. LAND ACQUISTION COSTS

This item covers the land acquistion costs, both federal and non-federal.

USR BB < > ACQUISTION COSTS (NON-FEDERAL)				0.00	0.00	0.00	6000.00	6000.00	
	12.00 EA		0.00	0	0	0	72,000	72,000	6000.00
Assumed 10 tracts.									
USR BB < > ACQUISTION COSTS (FEDERAL)				0.00	0.00	0.00	2000.00	2000.00	
	12.00 EA		0.00	0	0	0	24,000	24,000	2000.00
Assumed 10 tracts.									
TOTAL LAND ACQUISTION COSTS				0	0	0	96,000	96,000	
TOTAL LANDS AND DAMAGES	356.00 AC			0	0	0	667,997	667,997	1876.40

10/ 2. RELOCATIONS	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST

10/ 2. RELOCATIONS

10/ 2. 1. RELOCATIONS

There are no anticipated utlitiy relocations for this project.

TOTAL RELOCATIONS	1.00	JB			0	0	0	0	0	0.00
TOTAL RELOCATIONS	1.00	JB			0	0	0	0	0	0.00

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST

10/ 3. NW TENNESSEE HARBOR, ALT. 5

10/ 3. 1. NW TENN HARBOR, ALT. 5 (ROCK)

10/ 3. 1.10. MOB/DEMOB

This item covers the Mobilization/Demobilization costs for all of the equipment that will be used to do the work.

10/ 3. 1.10/ 1. MOB/DEMOB LAND-BASED EQUIPMENT

This item covers the cost to move the land-based equipment from the contractor's base of operation to the job site and to return once all work has been completed. All equipment will be carried on stand-by during the move.

10/ 3. 1.10/ 1. 1. MOB/DEMOB LAND-BASED EQUIPMENT ** OVERTIME **

This item covers the cost to MOB/DEMOB the equipment that will be used to do the land-based excavation portion of the work.

EP AB <	> DOZER,CWLR, D6M XL PS,W/BLADE				0.00	8.21	0.00	0.00	8.21	
	(ADD ATTACHMENTS)	28.00	HR	T15CA008	1.00	0	230	0	0	230	8.21
MAP AB <	> TRACTOR,WH,FARM, 80- 99HP, 2X4				0.00	2.17	0.00	0.00	2.17	
		14.00	HR	T25JD007	1.00	0	30	0	0	30	2.17
MAP AB <	> DOZER,CWLR, D-8R PS,W/BLADE				0.00	12.31	0.00	0.00	12.31	
	(ADD ATTACHMENTS)	28.00	HR	T15CA016	1.00	0	345	0	0	345	12.31
EP AB <	> BLADE, ANGLE, HYDR, D-8				0.00	2.00	0.00	0.00	2.00	
	(ADD D-8 TRACTOR)	28.00	HR	T10CA018	1.00	0	56	0	0	56	2.00
	TOTAL MOB/DEMOB LAND-BASED EQUIPMENT	14.00	HR			0	661	0	0	661	47.22

10/ 3. 1.10/ 1. 2. FREIGHT COSTS AND PERMITS

This item covers the cost to move the heavy equipment to and from the job site by a commercial hauler. The cost was computed by taking the total weight of all of the equipment to be moved and applying a $1.50 per CWT cost to move the equipment 150 miles. Permitting costs were calculated at 15% of the freight costs. The total estimated weight of the land-based equipment is about 838 CWT.

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
USR AB < > Freight Costs & Permits					0.00	0.00	0.00	5297.00	5297.00	
	1.00	LS		0.00	0	0	0	5,297	5,297	5297.00
TOTAL FREIGHT COSTS AND PERMITS					0	0	0	5,297	5,297	
10/ 3. 1.10/ 1. 3. MOB/DEMOB FLAT BED TRUCK ** OVERTIME **										
This item covers the cost of mobilizing and demobilizing the flatbed truck that will be used to carry small items and miscellaneous equipment to and from the job site.										
L USR AB < > MOB/DEMOB Flatbed Truck					15.47	14.63	0.00	0.00	30.11	
	8.00	HR	JTRUFLATBD	1.00	124	117	0	0	241	30.11
TOTAL MOB/DEMOB FLAT BED TRUCK	8.00	HR			124	117	0	0	241	30.11
TOTAL MOB/DEMOB LAND-BASED EQUIPMENT					124	778	0	5,297	6,199	
10/ 3. 1.10/ 2. MOB/DEMOB ROCK UNIT ** OVERTIME **										
This item covers the costs of moving the rock placing unit to the job site. Assumed a distance of 150 miles with an average upsteam/downstream speed of 8 MPH.										
USR AB < > MOB/DEMOB ROCK CONTRACTOR					151.85	201.94	0.00	0.00	353.78	
	48.00	HR	JMAR-RRDR3	1.00	7,289	9,693	0	0	16,982	353.78
TOTAL MOB/DEMOB ROCK UNIT	48.00	HR			7,289	9,693	0	0	16,982	353.78
TOTAL MOB/DEMOB	1.00	JB			7,412	10,471	0	5,297	23,181	23180.60

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10/ 3. 1.20. CLEARING										
This item covers the general site clearing for the disposal areas A and B. An aerial photograph of the site and photos taken at the sight indicate that nearly all of the clearing in the area where the harbor is to be constructed is medium to heavy tree and brush growth. It was also assumed that the clearing would be done during a low-water period and during the summer to allow for equipment access. The acreage shown represents the portion of the 85.3 acres total for both areas that may have to be cleared of vegetation. See the aerial photograph of the site to see the areas that needed to be cleared.										
10/ 3. 1.20/10. GENERAL CLEARING ** OVERTIME **										
This item covers the general clearing of the area where the proposed harbor and the excavated material disposal areas are to be located. The work will be done by dozers assisted by laborers using chainsaws. It was assumed that any resulting debris from this operation would be piled and burned on-site.										
USR AB < > GENERAL CLEARING					934.91	918.99	0.00	0.00	1853.90	
	51.00	AC	JDOZ2D8A1	0.14	47,680	46,868	0	0	94,549	1853.90
This item covers the clearing of the disposal areas. From the aerial photographs, assumed medium to heavy clearing in the area where the harbor is to be constructed. Some of the area has been under recent cultivation, so there may be little or no clearing needed.										
USR AB < > PILING AND BURNING					174.52	121.85	1.64	0.00	298.00	
	51.00	AC	JDOZ2D6A1	0.75	8,900	6,214	84	0	15,198	298.00
This item covers the piling and burning of the debris resulting from the clearing operation. Material cost shown is for diesel fuel.										
TOTAL GENERAL CLEARING	51.00	AC			56,581	53,083	84	0	109,747	2151.90
TOTAL CLEARING	51.00	AC			56,581	53,083	84	0	109,747	2151.90

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY UOM CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10/ 3. 1.40. EXCAVATION								
This item covers the excavation for the retention dikes and any bank grading work that may be required to place the riprap and filter material. The amount of excavation shwon represents the total amount of material that will be needed for the retention dikes and any possible bank grading. The amount of material shown represents the total amount of material from the retention dike excavation, about 128,100 BCY, plus the amount of bank grading that will be needed, about 59,000 BCY.								
10/ 3. 1.40/ 1. CONSTRUCT RETENTION DIKES ** OVERTIME **								
This item covers the construction of the retention dikes that will be needed to hold the fill that will be pumped in by the dredge. It was assumed that the work would be done by a dozer. Assumed height of dike is 6.8 LF with 1V-3.5H side slopes. For both disposal areas, the estimated total LF of dikes that will be needed is about 11,647 LF. The estimated amount of material needed to construct the dikes is estimated at 128,100 BCY. See backup information for details.								
USR AB < > GRADE & SEMI-COMPACT			0.20	0.31	0.00	0.00	0.51	
	175700 BCY JDOZ2D8A	400.00	35,263	54,555	0	0	89,818	0.51
This item covers the grading up and compacting of the retention dikes.								
USR AB < > CONSTRUCT SPILL BOXES			0.00	0.00	0.00	10000.00	10000.00	
	4.00 EA	0.00	0	0	0	40,000	40,000	10000.00
This item covers the construction of spill boxes that will be needed to drain the water out from the areas that will be used for the dredge fill. Assumed that four boxes would be needed.								
TOTAL CONSTRUCT RETENTION DIKES	175700 BCY		35,263	54,555	0	40,000	129,818	0.74

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY UOM CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10/ 3. 1.40/ 3. BANK SHAPING AND GRADING ** OVERTIME **								

This item covers the final grading and dressing of the bank slopes before the filter material and riprap can be placed. Assumed about two feet of grading from the top bank elevation of around 290 extending down slope to -5 LWRP (255.61). It was assumed that all material from the top bank elevation down to an elevation of +5 LWRP, about 265 NGVD, would be done by using dozers, which would push all material down slope to a point where the barge-mounted dragline could take over and pull the material into a trench that was dug as part of the dredging operation.

The amount of material shown, 59,000 BCY, assumes two feet (2 LF) of excavation within the elevation limits shown above, an average bank slope of 1V on 5H, and a total length of about 4,400 LF. This is the area where the filter gravel and rirprap is to be placed and also includes a portion of the turning basin.

The estimated amount of material that will have to be worked by dozer is around 42,000 BCY.

USR AB < > BANK GRADING-DOZER(S)			0.13	0.21	0.00	0.00	0.34	
	42000 BCY JDOZ2D8A	600.00	5,620	8,694	0	0	14,314	0.34
This item covers the amount of bank grading that will be done from the top bank elevation of around 290 down to around 265, which is about +5 LWRP.								
USR AB < > BANK GRADING-DRAGLINE			0.61	1.02	0.00	0.00	1.63	
	59000 BCY JMAR-RRDR2	250.00	35,837	60,038	0	0	95,875	1.63
This item covers the amount of bank grading that will be done by a barge-mounted dragline. The amount of material shown includes all of the material that was pushed downslope by the dozer. The material will be pulled off into a trench that was dug at the toe of the bank as part of the dredging operation.								
TOTAL BANK SHAPING AND GRADING	59000 BCY		41,456	68,732	0	0	110,189	1.87
TOTAL EXCAVATION	234700 BCY		76,719	123,287	0	40,000	240,006	1.02

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10/ 3. 1.50. FILTER MATERIAL/CRUSHED STONE ** OVERTIME **										
This item covers the crushed stone that will be placed under the riprap.										
USR AB < > PURCHASE (FILTER) CRUSHED STONE					0.00	0.00	5.19	0.00	5.19	
	15300	TN		0.00	0	0	79,397	0	79,397	5.19
This item covers the purchase of the required amount of filter stone. Price shown is FOB supplier's quarry and is based upon a quote from Tower Rock (Luhr Bros).										
USR AB < > TOWING TO JOB SITE					0.00	0.00	0.00	3.00	3.00	
	15300	TN		0.00	0	0	0	45,900	45,900	3.00
This item covers the delivery of the stone to the job site by barge.										
USR AB < > PLACE FILTER (CRUSHED) STONE					0.76	1.27	0.00	0.00	2.03	
	15300	TN	JMAR-RRDR2	200.00	11,616	19,462	0	0	31,077	2.03
This item covers the placing of the crushed stone.										
TOTAL FILTER MATERIAL/CRUSHED STONE	15300	TN			11,616	19,462	79,397	45,900	156,375	10.22
10/ 3. 1.60. RIPRAP, 125/250 LB ** OVERTIME **										
This item covers the placing of the 125 or 250 lb riprap at any specified location.										
USR AB < > PURCHASE 125/250 LB RIPRAP STONE					0.00	0.00	6.01	0.00	6.01	
	30600	TN		0.00	0	0	183,868	0	183,868	6.01
This item covers the purchase price of the required amount of 125 or 250 lb riprap stone. Price shown is FOB supplier's quarry and is based upon a quote from Tower Rock (Luhr Bros).										
USR AB < > TOWING, 125/250 LB RIPRAP STONE					0.00	0.00	0.00	3.00	3.00	
	30600	TN		0.00	0	0	0	91,800	91,800	3.00
This item covers the towing cost of the stone from the point of purchase to the job site. Towing quote from Luhr Bros.										

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
USR AB < > PLACING 125/250 LB RIPRAP STONE					0.76	1.27	0.00	0.00	2.03	
	30600	TN	JMAR-RRDR2	200.00	23,232	38,923	0	0	62,155	2.03
TOTAL RIPRAP, 125/250 LB	30600	TON			23,232	38,923	183,868	91,800	337,822	11.04

10/ 3. 1.90. ENVIRONMENTAL PROTECTION ** OVERTIME **

This item covers any required environmental protection. It was assumed that silt fencing/geotextile/straw bales would be placed around the areas that would be used for depositing the dredged material.

USR AB < > Environmental Protection					0.02	0.01	1.64	0.00	1.66	
	11800	LF	JTRACIMP	2000.00	223	80	19,337	0	19,641	1.66
This item covers the cost of installing any required environmental protection. Laborers using small tools will install either silt fencing geotextile, or straw bales.										
TOTAL ENVIRONMENTAL PROTECTION	11800	LF			223	80	19,337	0	19,641	1.66

10/ 3. 1.91. ENVIRONMENTAL RESTORATION

This item covers any required environmental restoration.

USR AB < > TREE PLANTING					0.00	0.00	0.00	400.00	400.00	
	134.00	AC		0.00	0	0	0	53,600	53,600	400.00
Cost shown based on historical data for similar work. Assumed that the trees were forestry seedlings, with about 436 - 500 trees being needed per acre. Cost shown includes the seedlings and the labor and all materials required to plant them.										
TOTAL ENVIRONMENTAL RESTORATION	134.00	AC			0	0	0	53,600	53,600	400.00

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY UOM CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
10/ 3. 1.95. TURFING								
This item covers the amount of turfing that may be needed for erosion control in the area between the top bank elevation of around 290 down to the top of the filter gravel/riprap, around elevation 270 and along the 4,400 LF of bank that was graded for the placement of filter gravel and riprap. The cost shown is based on historical data for fertilizing, seeding, and mulching.								
USR AB < > FERTILIZE, SEED, & MULCH			0.00	0.00	0.00	600.00	600.00	
	10.00 AC	0.00	0	0	0	6,000	6,000	600.00
TOTAL TURFING	10.00 AC		0	0	0	6,000	6,000	600.00
TOTAL NW TENN HARBOR, ALT. 5 (ROCK)	45900 TN		175,782	245,306	282,686	242,597	946,372	20.62
10/ 3. 2. NW TENN HARBOR, ALT. 5 (DREDGE)								
10/ 3. 2.10. MOB/DEMOB (DREDGE)								
This item covers the mob and demob costs to move the dredge and its attendant plant to and from the project site. The cost shown is from the current year's (2003) harbor maintenance contract.								
USR AA < > MOB/DEMOB (DREDGE)			0.00	0.00	0.00	284000.00	284000.00	
This cost was taken from 03-B-0005, Miss R. Harbors Dredging contract, direct costs.	1.00 LS	0.00	0	0	0	284,000	284,000	284000.00
TOTAL MOB/DEMOB (DREDGE)			0	0	0	284,000	284,000	
10/ 3. 2.20. EXCAVATION (DREDGE)								

This item covers the excavation of the area where the harbor is to be constructed. All material removed as a result of this operation will be placed in two designated disposal areas located adjacent to the site. Because of environmental concerns, no material will be discharged back into the river.

It was assumed that all excavation for this project would be done by using a cutterhead type dredge working from a water surface elevation of about 275-276 NGVD down to a bottom depth of about 250 NGVD, with a channel bottom width of ranging from 130 LF to 225 LF and side slopes of 1V on 5H. The cost for this item is based on the district's yearly harbor maintenance contract

10/ 3. NW TENNESSEE HARBOR, ALT. 5	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST
03-B-0005 OGE with 7.2 percent added to account for the low bid increase.										
USR AA < > Dredge Excavation					0.00	0.95	0.00	0.00	0.95	
	1020000	BCY	JMAR03DRED	1114.00	0	970,530	0	0	970,530	0.95
This item covers the cost of the dredge. Cost shown is from the district's yearly (2003) harbor maintenance contract.										
TOTAL EXCAVATION (DREDGE)	1020000	BCY			0	970,530	0	0	970,530	0.95
TOTAL NW TENN HARBOR, ALT. 5 (DREDGE)	1020000	BCY			0	970,530	0	284,000	1,254,530	1.23
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY			175,782	1215836	282,686	526,597	2,200,902	2.16

10/ 5. PLANNING, ENGINEERING & DES	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST

10/ 5. PLANNING, ENGINEERING & DES

10/ 5. 1. PLANNING, ENGINEERING & DESIGN

This figure was computed at 12% of the project's construction costs.

USR BB < > PED				0.00	0.00	0.00	328640.00	328640.00	
	1.00	LS	0.00	0	0	0	328,640	328,640	328640.00
TOTAL PLANNING, ENGINEERING & DESIGN				0	0	0	328,640	328,640	
TOTAL PLANNING, ENGINEERING & DES	1.00	JB		0	0	0	328,640	328,640	328640.00

10/ 6. SUPERVISION & ADMINISTRATION	QUANTY	UOM	CREW ID	OUTPUT	LABOR	EQUIPMN	MATERIAL	SUB	TOTAL COST	UNIT COST

10/ 6. SUPERVISION & ADMINISTRATION

10/ 6. 1. SUPERVISION & ADMINISTRATION

This figure was computed at 10% of the project's construction costs.

USR BB < > S & A				0.00	0.00	0.00	273867.00	273867.00	
	1.00	LS	0.00	0	0	0	273,867	273,867	273867.00
TOTAL SUPERVISION & ADMINISTRATION	1.00	JB		0	0	0	273,867	273,867	273867.00
TOTAL SUPERVISION & ADMINISTRATION	1.00	JB		0	0	0	273,867	273,867	273867.00
TOTAL NW TENNESSEE HARBOR, ALT. 5	1020000	BCY		175,782	1215836	282,686	1,797,101	3,471,406	3.40
TOTAL NW TN HARBOR (W/TRANSISTION)				175,782	1215836	282,686	1,797,101	3,471,406	

SRC	ITEM ID	DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	COST	**** EQUIP **** HOURS	COST	TOTAL COST
	JDOZ2D6A1	2/D6 Dozers/2 Laborers/Chainsaws			PROD = 100%				CREW HOURS =	68
MAP *	T15CA010 E	DOZER,CWLR, D-6H PS,W/BLADE	2.00	HR	45.08			2.00	90.16	90.16
USR	X-EQOPRMEDL	Outside Equip. Op. Medium	2.00	HR	29.41	2.00	58.82			58.82
USR	X-LABORER L	Outside Laborer (Semi-Skilled)	2.00	HR	21.49	2.00	42.98			42.98
NON	XMIXX020 E	SMALL TOOLS	2.00	HR	1.57			2.00	3.14	3.14
	TOTAL					4.00	101.80	4.00	93.30	195.10
	JDOZ2D8A	2 D8A Dozer w/blade and Operators			PROD = 0.00%				CREW HOURS =	509
MAP *	T15CA016 E	DOZER,CWLR, D-8R PS,W/BLADE	2.00	HR	57.49			2.00	114.97	114.97
EP *	T10CA018 E	BLADE, ANGLE, HYDR, D-8	2.00	HR	6.47			2.00	12.93	12.93
JRW *	X-EQOPRHVYL	Outside Eq Op/Heavy	2.00	HR	31.21	2.00	62.43			62.43
	TOTAL					2.00	62.43	4.00	127.91	190.34
	JDOZ2D8A1	2 D8A Dozers/2 Laborers/Chainsaws			PROD = 0.00%				CREW HOURS =	364
MAP *	T10CA017 E	BLADE, UNIVERSAL, HYDR, D-8	2.00	HR	7.25			2.00	14.50	14.50
MAP *	T15CA016 E	DOZER,CWLR, D-8R PS,W/BLADE	2.00	HR	57.49			2.00	114.97	114.97
USR	X-EQOPRMEDL	Outside Equip. Op. Medium	2.00	HR	29.41	2.00	58.82			58.82
USR	X-LABORER L	Outside Laborer (Semi-Skilled)	2.00	HR	21.49	2.00	42.98			42.98
NON	XMIXX020 E	SMALL TOOLS	2.00	HR	1.57			2.00	3.14	3.14
	TOTAL					4.00	101.80	6.00	132.61	234.41
	JMAR-RRDR2	REVET-DIKE REPAIR CREW (NO EXCAV,FEL,HYD EX)			PROD = 0.00%				CREW HOURS =	466
USR *	XX0Z9821 E	WK BT, 1800 HP (REG OPS) 70 HR	0.75	HR	73.16			0.75	54.87	54.87
USR *	XX0XX238 E	Barge, Mach, W/Spuds, 70 Hour	1.00	HR	16.40			1.00	16.40	16.40
USR *	XX0XX240 E	Barge, Fuel, 70 HR	1.00	HR	4.13			1.00	4.13	4.13
USR *	XX0XX242 E	JON BOAT 18' 75 HP & SPARE, 70H	0.25	HR	13.27			0.25	3.32	3.32
USR *	C85MA003AAE	VICON 4600, 140' BOOM, AGE ADJ	0.87	HR	199.87			0.87	173.89	173.89
EP *	B35HE027 E	BUCKET,DRAGLINE, 5.0CY, MEDWT	0.87	HR	4.38			0.87	3.81	3.81
EP *	B35HE027 U	BUCKET,DRAGLINE, 5.0CY, MEDWT	1.00	HR	1.45			1.00	1.45	1.45
EP *	T50FO002 E	TRK,HWY, 6,250GVW,4X4, 1/2T-PKU	0.30	HR	6.74			0.30	2.02	2.02
USR *	X-EQOPBOPRL	Outside Equip. Heavy, Boat Opr	1.00	HR	33.42	1.00	33.42			33.42
USR	X-EQOPRHVYL	Outside Equip. Op. Heavy	1.00	HR	31.21	1.00	31.21			31.21
USR	X-EQOPROLWL	Outside Oiler/Winchman	1.00	HR	28.07	1.00	28.07			28.07
USR *	X-LABORDH L	Outside Laborer/Deckhand	1.00	HR	25.40	1.00	25.40			25.40
	TOTAL					4.00	118.10	6.04	259.89	377.99
	JMAR-RRDR3	REVET-DIKE CREW (NO LB EQUIP) MOB/DEMOB			PROD = 0.00%				CREW HOURS =	48
USR *	XX0Z9822 E	WK BOAT, 1800 HP (SEVERE) 70 HR	1.00	HR	124.80			1.00	124.80	124.80
USR *	XX0XX238 E	Barge, Mach, W/Spuds, 70 Hour	1.00	HR	16.40			1.00	16.40	16.40
USR *	XX0XX240 E	Barge, Fuel, 70 HR	1.00	HR	4.13			1.00	4.13	4.13
USR *	XX0XX242 E	JON BOAT 18' 75 HP & SPARE, 70H	0.25	HR	13.27			0.25	3.32	3.32
USR *	C85MA003AAU	VICON 4600, 140' BOOM, AGE ADJ	1.00	HR	48.38			1.00	48.38	48.38
EP *	B35HE027 U	BUCKET,DRAGLINE, 5.0CY, MEDWT	1.00	HR	1.45			1.00	1.45	1.45
EP *	B35HE027 U	BUCKET,DRAGLINE, 5.0CY, MEDWT	1.00	HR	1.45			1.00	1.45	1.45
EP *	T50FO002 E	TRK,HWY, 6,250GVW,4X4, 1/2T-PKU	0.30	HR	6.74			0.30	2.02	2.02
USR *	X-EQOPBOPRL	Outside Equip. Heavy, Boat Opr	1.00	HR	33.42	1.00	33.42			33.42
USR	X-EQOPRHVYL	Outside Equip. Op. Heavy	1.00	HR	31.21	1.00	31.21			31.21

SRC	ITEM ID	DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	COST	**** EQUIP **** HOURS	COST	TOTAL COST
USR	X-EQOPROLWL	Outside Oiler/Winchman	1.00	HR	28.07	1.00	28.07			28.07
USR *	X-LABORDH L	Outside Laborer/Deckhand	1.00	HR	25.40	1.00	25.40			25.40
	TOTAL					4.00	118.10	6.55	201.96	320.07
	JMAR03DRED	Y03 CONTRACT HOURLY COST MR & HARBORS			PROD = 100%				CREW HOURS =	916
USR	XY03DREDGEE	Y03 HARBOR DREDGE HOURLY COST	1.00	HR	1060.00			1.00	1060.00	1060.00
	TOTAL					0.00	0.00	1.00	1060.00	1060.00
	JTRACIMP	TRACTOR, VARIOUS FARM IMPLEMENTS (TOWED)			PROD = 100%				CREW HOURS =	6
MAP *	T25JD007 E	TRACTOR,WH,FARM, 80- 99HP, 2X4	1.00	HR	12.22			1.00	12.22	12.22
NON *	XMIXX020 E	SMALL TOOLS	1.00	HR	1.57			1.00	1.57	1.57
USR	X-EQOPRMEDL	Outside Equip. Op. Medium	1.00	HR	29.41	1.00	29.41			29.41
	TOTAL					1.00	29.41	2.00	13.79	43.20
*	JTRUFLATBD	Truck + 8 X 16 Flatbed W/ Sides			PROD = 100%				CREW HOURS =	8
	T50FO011 E	TRK, HWY,F800,24,500 GVW, 2 AXL	1.00	HR	14.10			1.00	14.10	14.10
MAP	T40KF016 E	FLATBED, 8'x 16.0', W/SIDE RACK	1.00	HR	0.74			1.00	0.74	0.74
	X-TRKDVRHVL	Outside Truck Dr. Heavy	1.00	HR	12.04	1.00	12.04			12.04
	TOTAL					1.00	12.04	2.00	14.84	26.88

ITEM ID	DESCRIPTION		
10. NW TENNESSEE HARBOR, ALT. 5			
JDOZ2D6A1	2/D6 Dozers/2 Laborers/Chainsaws	PROD = 100%	CREW HOURS = 68
JDOZ2D8A	2 D8A Dozer w/blade and Operators	PROD = 0.00%	CREW HOURS = 509
JDOZ2D8A1	2 D8A Dozers/2 Laborers/Chainsaws	PROD = 0.00%	CREW HOURS = 364
JMAR-RRDR2	REVET-DIKE REPAIR CREW (NO EXCAV,FEL,HYD EX)	PROD = 0.00%	CREW HOURS = 466
JMAR-RRDR3	REVET-DIKE CREW (NO LB EQUIP) MOB/DEMOB	PROD = 0.00%	CREW HOURS = 48
JMAR03DRED	Y03 CONTRACT HOURLY COST MR & HARBORS	PROD = 100%	CREW HOURS = 916
JTRACIMP	TRACTOR, VARIOUS FARM IMPLEMENTS (TOWED)	PROD = 100%	CREW HOURS = 6
* JTRUFLATBD	Truck + 8 X 16 Flatbed W/ Sides	PROD = 100%	CREW HOURS = 8

ITEM ID	DESCRIPTION		
0/AA.	PRIME CONTRACTOR		
0/BB.	L&D, RELOCATIONS, S&A, E&D COSTS		
0/CC.	EARTHWORK AND ROCK SUBCONTRACTOR		
10/ 1.	LANDS AND DAMAGES		
10/ 2.	RELOCATIONS		
10/ 3.	NW TENNESSEE HARBOR, ALT. 5		
JDOZ2D6A1	2/D6 Dozers/2 Laborers/Chainsaws	PROD = 100%	CREW HOURS = 68
JDOZ2D8A	2 D8A Dozer w/blade and Operators	PROD = 0.00%	CREW HOURS = 509
JDOZ2D8A1	2 D8A Dozers/2 Laborers/Chainsaws	PROD = 0.00%	CREW HOURS = 364
JMAR-RRDR2	REVET-DIKE REPAIR CREW (NO EXCAV,FEL,HYD EX)	PROD = 0.00%	CREW HOURS = 466
JMAR-RRDR3	REVET-DIKE CREW (NO LB EQUIP) MOB/DEMOB	PROD = 0.00%	CREW HOURS = 48
JMAR03DRED	Y03 CONTRACT HOURLY COST MR & HARBORS	PROD = 100%	CREW HOURS = 916
JTRACIMP	TRACTOR, VARIOUS FARM IMPLEMENTS (TOWED)	PROD = 100%	CREW HOURS = 6
* JTRUFLATBD	Truck + 8 X 16 Flatbed W/ Sides	PROD = 100%	CREW HOURS = 8
10/ 5.	PLANNING, ENGINEERING & DES		
10/ 6.	SUPERVISION & ADMINISTRATION		

SRC	LABOR ID	DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	RATE	UOM	UPDATE	**** TOTAL **** DEFAULT	HOURS
USR	X-EQOPBOPR	Outside Equip. Heavy, Boat Opr	22.00	0.0%	33.7%	0.00	4.00	33.42	HR	12/31/03	0.00	514
WWM	X-EQOPRHVY	Outside Equip. Op. Heavy	20.35	0.0%	33.7%	0.00	4.00	31.21	HR	12/31/03	19.19	1532
USR	X-EQOPRMED	Outside Equip. Op. Medium	19.00	0.0%	33.7%	0.00	4.00	29.41	HR	12/31/03	17.43	870
E	X-EQOPROLW	Outside Oiler/Winchman	18.00	0.0%	33.7%	0.00	4.00	28.07	HR	12/31/03	0.00	514
USR	X-LABORDH	Outside Laborer/Deckhand	16.00	0.0%	33.7%	0.00	4.00	25.40	HR	12/31/03	0.00	514
USR	X-LABORER	Outside Laborer (Semi-Skilled)	13.08	0.0%	33.7%	0.00	4.00	21.49	HR	01/15/04	11.84	865
USR	X-TRKDVRHV	Outside Truck Dr. Heavy	9.00	0.0%	33.7%	0.00	0.00	12.04	HR	12/31/03	19.19	8

SRC	LABOR ID	DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	RATE	UOM	UPDATE	DEFAULT	HOURS
											**** TOTAL ****	
	10. NW TENNESSEE HARBOR, ALT. 5											
USR	X-EQOPBOPR	Outside Equip. Heavy, Boat Opr	22.00	0.0%	33.7%	0.00	4.00	33.42	HR	12/31/03	0.00	514
WWM	X-EQOPRHVY	Outside Equip. Op. Heavy	20.35	0.0%	33.7%	0.00	4.00	31.21	HR	12/31/03	19.19	1532
USR	X-EQOPRMED	Outside Equip. Op. Medium	19.00	0.0%	33.7%	0.00	4.00	29.41	HR	12/31/03	17.43	870
E	X-EQOPROLW	Outside Oiler/Winchman	18.00	0.0%	33.7%	0.00	4.00	28.07	HR	12/31/03	0.00	514
USR	X-LABORDH	Outside Laborer/Deckhand	16.00	0.0%	33.7%	0.00	4.00	25.40	HR	12/31/03	0.00	514
USR	X-LABORER	Outside Laborer (Semi-Skilled)	13.08	0.0%	33.7%	0.00	4.00	21.49	HR	01/15/04	11.84	865
USR	X-TRKDVRHV	Outside Truck Dr. Heavy	9.00	0.0%	33.7%	0.00	0.00	12.04	HR	12/31/03	19.19	8

SRC	LABOR ID	DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	RATE	UOM	UPDATE	DEFAULT	HOURS
											**** TOTAL ****	
	0/AA.	PRIME CONTRACTOR										
	0/BB.	L&D, RELOCATIONS, S&A, E&D COSTS										
	0/CC.	EARTHWORK AND ROCK SUBCONTRACTOR										
	10/ 1.	LANDS AND DAMAGES										
	10/ 2.	RELOCATIONS										
	10/ 3.	NW TENNESSEE HARBOR, ALT. 5										
USR	X-EQOPBOPR	Outside Equip. Heavy, Boat Opr	22.00	0.0%	33.7%	0.00	4.00	33.42	HR	12/31/03	0.00	514
WWM	X-EQOPRHVY	Outside Equip. Op. Heavy	20.35	0.0%	33.7%	0.00	4.00	31.21	HR	12/31/03	19.19	1532
USR	X-EQOPRMED	Outside Equip. Op. Medium	19.00	0.0%	33.7%	0.00	4.00	29.41	HR	12/31/03	17.43	870
E	X-EQOPROLW	Outside Oiler/Winchman	18.00	0.0%	33.7%	0.00	4.00	28.07	HR	12/31/03	0.00	514
USR	X-LABORDH	Outside Laborer/Deckhand	16.00	0.0%	33.7%	0.00	4.00	25.40	HR	12/31/03	0.00	514
USR	X-LABORER	Outside Laborer (Semi-Skilled)	13.08	0.0%	33.7%	0.00	4.00	21.49	HR	01/15/04	11.84	865
USR	X-TRKDVRHV	Outside Truck Dr. Heavy	9.00	0.0%	33.7%	0.00	0.00	12.04	HR	12/31/03	19.19	8
	10/ 5.	PLANNING, ENGINEERING & DES										
	10/ 6.	SUPERVISION & ADMINISTRATION										

** EQUIPMENT BACKUP **

SRC	ID.NO.	EQUIPMENT DESCRIPTION	DEPR	FCCM	FUEL	FOG	TR WR	TR REP	EQ REP	TOTAL RATE	** TOTAL ** HOURS
EP	B35HE027	BUCKET,DRAGLINE, 5.0CY, MEDWT	2.42	0.27					1.69	4.38 HR	966
USR	C85MA003AA	4600 VICON #3 (AGE ADJUSTED)	68.01	14.38	25.51	5.29			86.68	199.87 HR	453
MAP	T10CA017	BLADE, UNIVERSAL, HYDR, D-8	3.54	0.48		0.13			3.10	7.25 HR	729
EP	T10CA018	BLADE, ANGLE, HYDR, D-8	3.15	0.43		0.13			2.76	6.47 HR	1047
EP	T15CA008	DOZER,CWLR, D6M XL PS,W/BLADE	12.66	1.88	6.75	2.13			17.74	41.17 HR	28
MAP	T15CA010	DOZER,CWLR, D-6H PS,W/BLADE	13.57	2.02	7.96	2.51			19.02	45.08 HR	136
MAP	T15CA016	DOZER,CWLR, D-8R PS,W/BLADE	16.80	3.92	14.71	3.66			18.40	57.49 HR	1775
MAP	T25JD007	TRACTOR,WH,FARM, 80- 99HP, 2X4	3.71	0.40	3.76	0.94	0.73	0.09	2.59	12.22 HR	20
MAP	T40KF016	FLATBED, 8'x 16.0', W/SIDE RACKS	0.42	0.05					0.27	0.74 HR	8
EP	T50FO002	TRK,HWY, 6,250GVW,4X4, 1/2T-PKUP	1.79	0.20	2.54	0.63	0.17	0.02	1.39	6.74 HR	154
MAP	T50FO011	TRK,HWY, 24,500 GVW, 4X2, 2 AXLE	3.41	0.44	5.67	1.32	0.70	0.09	2.48	14.10 HR	8
NON	XMIXX020	SMALL TOOLS	0.50	0.22	0.16	0.07			0.63	1.57 HR	870
USR	XX0XX238	Barge, Mach, W/Spuds, 70 Hour	16.40							16.40 HR	514
USR	XX0XX240	Barge, Fuel, 70 HR	4.13							4.13 HR	514
USR	XX0XX242	JON BOAT 18' 75 HP & SPARE, 70HR	13.27							13.27 HR	128
USR	XX0Z9821	WK BT, 1800 HP (REG OPS) 70 HR	73.16							73.16 HR	349
USR	XX0Z9822	WK BOAT, 1800 HP (SEVERE) 70 HR	124.80							124.80 HR	48
USR	XY03DREDGE	Y03 HARBOR DREDGE HOURLY COST	1060.00							1060.00 HR	916

SRC	ID.NO.	EQUIPMENT DESCRIPTION	DEPR	FCCM	FUEL	FOG	TR WR	TR REP	EQ REP	TOTAL RATE	** TOTAL ** HOURS
		10. NW TENNESSEE HARBOR, ALT. 5									
EP	B35HE027	BUCKET,DRAGLINE, 5.0CY, MEDWT	2.42	0.27					1.69	4.38 HR	966
USR	C85MA003AA	4600 VICON #3 (AGE ADJUSTED)	68.01	14.38	25.51	5.29			86.68	199.87 HR	453
MAP	T10CA017	BLADE, UNIVERSAL, HYDR, D-8	3.54	0.48		0.13			3.10	7.25 HR	729
EP	T10CA018	BLADE, ANGLE, HYDR, D-8	3.15	0.43		0.13			2.76	6.47 HR	1047
EP	T15CA008	DOZER,CWLR, D6M XL PS,W/BLADE	12.66	1.88	6.75	2.13			17.74	41.17 HR	28
MAP	T15CA010	DOZER,CWLR, D-6H PS,W/BLADE	13.57	2.02	7.96	2.51			19.02	45.08 HR	136
MAP	T15CA016	DOZER,CWLR, D-8R PS,W/BLADE	16.80	3.92	14.71	3.66			18.40	57.49 HR	1775
MAP	T25JD007	TRACTOR,WH,FARM, 80- 99HP, 2X4	3.71	0.40	3.76	0.94	0.73	0.09	2.59	12.22 HR	20
MAP	T40KF016	FLATBED, 8'x 16.0', W/SIDE RACKS	0.42	0.05					0.27	0.74 HR	8
EP	T50FO002	TRK,HWY, 6,250GVW,4X4, 1/2T-PKUP	1.79	0.20	2.54	0.63	0.17	0.02	1.39	6.74 HR	154
MAP	T50FO011	TRK,HWY, 24,500 GVW, 4X2, 2 AXLE	3.41	0.44	5.67	1.32	0.70	0.09	2.48	14.10 HR	8
NON	XMIXX020	SMALL TOOLS	0.50	0.22	0.16	0.07			0.63	1.57 HR	870
USR	XX0XX238	Barge, Mach, W/Spuds, 70 Hour	16.40							16.40 HR	514
USR	XX0XX240	Barge, Fuel, 70 HR	4.13							4.13 HR	514
USR	XX0XX242	JON BOAT 18' 75 HP & SPARE, 70HR	13.27							13.27 HR	128
USR	XX0Z9821	WK BT, 1800 HP (REG OPS) 70 HR	73.16							73.16 HR	349
USR	XX0Z9822	WK BOAT, 1800 HP (SEVERE) 70 HR	124.80							124.80 HR	48
USR	XY03DREDGE	Y03 HARBOR DREDGE HOURLY COST	1060.00							1060.00 HR	916

SRC	ID.NO.	EQUIPMENT DESCRIPTION	DEPR	FCCM	FUEL	FOG	TR WR	TR REP	EQ REP	TOTAL RATE	** TOTAL ** HOURS
		0/AA. PRIME CONTRACTOR									
		0/BB. L&D, RELOCATIONS, S&A, E&D COSTS									
		0/CC. EARTHWORK AND ROCK SUBCONTRACTOR									
		10/ 1. LANDS AND DAMAGES									
		10/ 2. RELOCATIONS									
		10/ 3. NW TENNESSEE HARBOR, ALT. 5									
EP	B35HE027	BUCKET,DRAGLINE, 5.0CY, MEDWT	2.42	0.27					1.69	4.38 HR	966
USR	C85MA003AA	4600 VICON #3 (AGE ADJUSTED)	68.01	14.38	25.51	5.29			86.68	199.87 HR	453
MAP	T10CA017	BLADE, UNIVERSAL, HYDR, D-8	3.54	0.48		0.13			3.10	7.25 HR	729
EP	T10CA018	BLADE, ANGLE, HYDR, D-8	3.15	0.43		0.13			2.76	6.47 HR	1047
EP	T15CA008	DOZER,CWLR, D6M XL PS,W/BLADE	12.66	1.88	6.75	2.13			17.74	41.17 HR	28
MAP	T15CA010	DOZER,CWLR, D-6H PS,W/BLADE	13.57	2.02	7.96	2.51			19.02	45.08 HR	136
MAP	T15CA016	DOZER,CWLR, D-8R PS,W/BLADE	16.80	3.92	14.71	3.66			18.40	57.49 HR	1775
MAP	T25JD007	TRACTOR,WH,FARM, 80- 99HP, 2X4	3.71	0.40	3.76	0.94	0.73	0.09	2.59	12.22 HR	20
MAP	T40KF016	FLATBED, 8'x 16.0', W/SIDE RACKS	0.42	0.05					0.27	0.74 HR	8
EP	T50FO002	TRK,HWY, 6,250GVW,4X4, 1/2T-PKUP	1.79	0.20	2.54	0.63	0.17	0.02	1.39	6.74 HR	154
MAP	T50FO011	TRK,HWY, 24,500 GVW, 4X2, 2 AXLE	3.41	0.44	5.67	1.32	0.70	0.09	2.48	14.10 HR	8
NON	XMIXX020	SMALL TOOLS	0.50	0.22	0.16	0.07			0.63	1.57 HR	870
USR	XX0XX238	Barge, Mach, W/Spuds, 70 Hour	16.40							16.40 HR	514
USR	XX0XX240	Barge, Fuel, 70 HR	4.13							4.13 HR	514
USR	XX0XX242	JON BOAT 18' 75 HP & SPARE, 70HR	13.27							13.27 HR	128
USR	XX0Z9821	WK BT, 1800 HP (REG OPS) 70 HR	73.16							73.16 HR	349
USR	XX0Z9822	WK BOAT, 1800 HP (SEVERE) 70 HR	124.80							124.80 HR	48
USR	XY03DREDGE	Y03 HARBOR DREDGE HOURLY COST	1060.00							1060.00 HR	916
		10/ 5. PLANNING, ENGINEERING & DES									
		10/ 6. SUPERVISION & ADMINISTRATION									

ESTIMATED YEARLY O&M COSTS FOR NW TENNESSEE HARBOR (ALT. 5, BW TRANSITION)

PROJECT FEATURE	COMMENTS	INTERVAL YRS	ESTIMATED DESIGN QUANT*	PERCENT OF DESIGN	QUANT	UNIT	UNIT PRICE	COST PER INTERVAL
Harbor Maintenance								
Harbor Maintenance Dredging	Yearly Maintenance Dredging	1	**122,000**	100%	122,000	CY	$1.40	**$170,800.00**
Riprap, "R 125"	Replace & Repair Riprap	3	**30,600**	2%	612	TON	$14.25	**$8,721.00**
Filter Material	Riprap Bedding	3	**15,300**	2%	306	TON	$13.25	**$4,054.50**
Turf Mowing and Maintenance		1	**20**	100%	20	AC	$30.00	**$600.00**
Future Dredge Disposal Site		5			39	AC		**$98,000.00**
Future Dredge Disposal Retention Dikes		5	**95,200**		95,200	CY	$1.54	**$146,608.00**

Costs shown above are based on the estimated 2004 Harbor Maintenance contract for dredging and Riprap Repairs and Upper Bank Paving caontracts and covers harbor maintenance only.

*Estimated total quantites from construction estimate.

SECTION IV

DETAILED ANALYSIS

FOR ALTERNATIVES 4, 5 AND 2

Corps of Engineers, Memphis District

NORTHWEST TENNESSEE HARBOR (ALTERNATIVE 4, NO BW TRANSITION)

Preliminary Construction Estimate

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	COMMENT
01 LANDS AND DAMAGES					
Purchase Land (Project-Cropland)	29.0	AC	$2,286.00	$66,294	Includes Cost per Acre & Acquistion Costs
Purchase Land (Env. Mitigation)	47.0	AC	$2,215.74	$104,140	Includes Cost per Acre & Acquistion Costs plus Restoration Costs per Acre
01 LANDS AND DAMAGES				**$170,434**	
02 RELOCATIONS					
12 NAVAGATION PORTS AND HARBORS					
Mob/Demob	1	EA	$350,000.00	$350,000	Dredge, Land Based Equip, & Rock Placing Unit Mob/Demob
Clearing & Grubbing	13.5	AC	$1,073.00	$14,486	Assumes burying and burning debris on-site
Excavation, Dredged	117,000.0	CY	$1.30	$152,100	Assumes placing material within adjacent embankments. Cost includes retaining dikes, spillboxes, & bank grading for filter/riprap*
Environmental Protection	1,950	LF	$2.00	$3,900	
Filter/Bedding Material	2,800	TON	$12.00	$33,600	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
Riprap, "R 125"	5,600	TON	$11.42	$63,952	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
SUB-TOTAL				$618,038	
CONTINGENCIES (+/-10%)				$61,804	Consistent with feasibility level reports
12 NAVIGATION PORTS AND HARBORS				**$679,841**	
CONTRACTOR OVERHEAD (6% OF TOTAL)	6%			$40,790	
CONTRACTOR BOND (8% OF TOTAL)	8%			$54,387	
ONTRACTOR PROFIT (8% OF TOTAL)	8%			$54,387	
SUB-TOTAL (Construction Costs)				$829,406	
SUB-TOTAL (Construction Costs + Relocations)				**$829,406**	
30 PLANNING, E&D (12% Project Construction Costs)	12%			**$99,529**	
31 S&A (CONSTRUCTION MANAGEMENT) (10% of Project Construction Costs)	10%			**$82,941**	
TOTAL PROJECT COST				**$1,182,309**	

*Dredging Costs based on 2002 Harbor Maintenance Contract

ESTIMATED YEARLY O&M COSTS FOR NW TENNESSEE HARBOR (ALT. 4, NO TRANSITION)

PROJECT FEATURE	COMMENTS	INTERVAL YRS	ESTIMATED DESIGN QUANT*	PERCENT OF DESIGN	QUANT	UNIT	UNIT PRICE	COST
Harbor Maintenance								
Harbor Maintenance Dredging	Yearly Maintenance Dredging	1	111,000	100%	111,000	CY	$1.30	$144,300.00
Riprap "R 125"	Replace & Repair Riprap	3	5,600	2%	112	TON	$12.50	$1,400.00
Filter Material	Riprap Bedding	3	2,800	2%	56	TON	$12.65	$708.40
Future Dredge Disposal Site		5			39	ACRES	$2,286.00	$89,154.00

*Estimated total quantites from construction estimate.

Corps of Engineers, Memphis District

NORTHWEST TENNESSEE HARBOR (ALTERNATIVE 4, BW TRANSITION)

Preliminary Construction Estimate

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	COMMENT
01 LANDS AND DAMAGES					
Purchase Land (Project-Cropland)	35.0	AC	$2,203.13	$77,110	Includes Cost per Acre & Acquistion Costs
Purchase Land (Env. Mitigation)	47.0	AC	$2,250.00	$105,750	Includes Cost per Acre & Acquistion Costs plus Restoration Costs per Acre
01 LANDS AND DAMAGES				**$182,860**	
02 RELOCATIONS					
12 NAVAGATION PORTS AND HARBORS					
Mob/Demob	1	EA	$350,000.00	$350,000	Dredge, Land Based Equip, & Rock Placing Unit Mob/Demob
Clearing & Grubbing	13.5	AC	$1,073.00	$14,486	Assumes burying and burning debris on-site
Excavation, Dredged	195,000.0	CY	$1.30	$253,500	Assumes placing material within adjacent embankments. Cost includes retaining dikes, spillboxes, & bank grading for filter/riprap*
Environmental Protection	1,950	LF	$2.00	$3,900	
Filter/Bedding Material	2,800	TON	$12.00	$33,600	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
Riprap, "R 125"	5,600	TON	$11.42	$63,952	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
SUB-TOTAL				$719,438	
CONTINGENCIES (+/-10%)				$71,944	Consistent with feasibility level reports
12 NAVIGATION PORTS AND HARBORS				**$791,381**	
CONTRACTOR OVERHEAD (6% OF TOTAL)	6%			$47,483	
CONTRACTOR BOND (8% OF TOTAL)	8%			$63,311	
ONTRACTOR PROFIT (8% OF TOTAL)	8%			$63,311	
SUB-TOTAL (Construction Costs)				$965,485	
SUB-TOTAL (Construction Costs + Relocations)				**$965,485**	
30 PLANNING, E&D (12% Project Construction Costs)	12%			**$115,858**	
31 S&A (CONSTRUCTION MANAGEMENT) (10% of Project Construction Costs)	10%			**$96,549**	
TOTAL PROJECT COST				**$1,360,751**	

*Dredging Costs based on 2002 Harbor Maintenance Contract

ESTIMATED YEARLY O&M COSTS FOR NW TENNESSEE HARBOR (ALT. 4, BW TRANSITION)

PROJECT FEATURE	COMMENTS	INTERVAL YRS	ESTIMATED DESIGN QUANT*	PERCENT OF DESIGN	QUANT	UNIT	UNIT PRICE	COST
Harbor Maintenance								
Harbor Maintenance Dredging	Yearly Maintenance Dredging	1	111,000	100%	111,000	CY	$1.30	$144,300.00
"R 125" Riprap	Replace & Repair Riprap	3	5,600	2%	112	TON	$12.50	$1,400.00
Filter Material	Riprap Bedding	3	2,800	2%	56	TON	$12.65	$708.40
Future Dregde Disposal Site		5			39	ACRES	$2,203.13	$85,922.07

*Estimated total quantites from construction estimate.

Corps of Engineers, Memphis District

NORTHWEST TENNESSEE HARBOR (ALTERNATIVE 5, NO BW TRANSITION)

Preliminary Construction Estimate

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	COMMENT
01 LANDS AND DAMAGES					
Purchase Land (Project-Cropland)	85.0	AC	$2,236.36	$190,091	Includes Cost per Acre & Acquistion Costs
Purchase Land (Env. Mitigation)	118.0	AC	$2,223.73	$262,400	Includes Cost per Acre & Acquistion Costs plus Restoration Costs per Acre
01 LANDS AND DAMAGES				**$452,491**	
02 RELOCATIONS					
12 NAVAGATION PORTS AND HARBORS					
Mob/Demob	1	EA	$350,000.00	$350,000	Dredge, Land Based Equip, & Rock Placing Unit Mob/Demob
Clearing & Grubbing	51.0	AC	$1,073.00	$54,723	Assumes burying and burning debris on-site
Excavation, Dredged	870,000	CY	$1.30	$1,131,000	Assumes placing material within adjacent embankments. Cost includes retaining dikes, spillboxes, & bank grading for filter/riprap*
Environmental Protection	7,500	LF	$2.00	$15,000	
Filter/Bedding Material	15,300	TON	$12.00	$183,600	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
Riprap, "R 125"	30,600	TON	$11.42	$349,452	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
SUB-TOTAL				$2,083,775	
CONTINGENCIES (+/-10%)				$208,378	Consistent with feasibility level reports
12 NAVIGATION PORTS AND HARBORS				**$2,292,153**	
CONTRACTOR OVERHEAD (6% OF TOTAL)	6%			$137,529	
CONTRACTOR BOND (8% OF TOTAL)	8%			$183,372	
ONTRACTOR PROFIT (8% OF TOTAL)	8%			$183,372	
SUB-TOTAL (Construction Costs)				$2,796,426	
SUB-TOTAL (Construction Costs + Relocations)				**$2,796,426**	
30 PLANNING, E&D (12% Project Construction Costs)	12%			**$335,571**	
31 S&A (CONSTRUCTION MANAGEMENT) (10% of Project Construction Costs)	10%			**$279,643**	
TOTAL PROJECT COST				**$3,864,131**	

*Dredging Costs based on 2002 Harbor Maintenance Contract

ESTIMATED YEARLY O&M COSTS FOR NW TENNESSEE HARBOR (ALT. 5, NO BW TRANSITION)

PROJECT FEATURE	COMMENTS	INTERVAL YRS	ESTIMATED DESIGN QUANT*	PERCENT OF DESIGN	QUANT	UNIT	UNIT PRICE	COST
Harbor Maintenance								
Harbor Maintenance Dredging	Yearly Maintenance Dredging	1	122,000	100%	122,000	CY	$1.30	$158,600.00
Riprap, "R 125"	Replace & Repair Riprap	3	30,600	2%	612	TON	$12.50	$7,650.00
Filter Material	Riprap Bedding	3	15,300	2%	306	TON	$12.65	$3,870.90
Future O&M Dredge Disposal Site		5			39	ACRES	$2,236.36	$87,218.04

*Estimated total quantites from construction estimate.

Corps of Engineers, Memphis District

NORTHWEST TENNESSEE HARBOR (ALTERNATIVE 5, BW TRANSITION)

Preliminary Construction Estimate

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	COMMENT
01 LANDS AND DAMAGES					
Purchase Land (Project-Cropland)	104.5	AC	$2,184.92	$228,324	Includes Cost per Acre & Acquistion Costs
Purchase Land (Env. Mitigation)	134.0	AC	$2,180.52	$292,190	Includes Cost per Acre & Acquistion Costs plus Restoration Costs per Acre
01 LANDS AND DAMAGES				**$520,514**	
02 RELOCATIONS					
12 NAVAGATION PORTS AND HARBORS					
Mob/Demob	1	EA	$350,000.00	$350,000	Dredge, Land Based Equip, & Rock Placing Unit Mob/Demob
Clearing & Grubbing	51.0	AC	$1,073.00	$54,723	Assumes burying and burning debris on-site
Excavation, Dredged	1,020,000	CY	$1.30	$1,326,000	Assumes placing material within adjacent embankments. Cost includes retaining dikes, spillboxes, & bank grading for filter/riprap*
Environmental Protection	11,800	LF	$2.00	$23,600	
Filter/Bedding Material	15,300	TON	$12.00	$183,600	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
Riprap, "R 125"	30,600	TON	$11.42	$349,452	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
SUB-TOTAL				$2,287,375	
CONTINGENCIES (+/-10%)				$228,738	Consistent with feasibility level reports
12 NAVIGATION PORTS AND HARBORS				**$2,516,113**	
CONTRACTOR OVERHEAD (6% OF TOTAL)	6%			$150,967	
CONTRACTOR BOND (8% OF TOTAL)	8%			$201,289	
ONTRACTOR PROFIT (8% OF TOTAL)	8%			$201,289	
SUB-TOTAL (Construction Costs)				$3,069,657	
SUB-TOTAL (Construction Costs + Relocations)				**$3,069,657**	
30 PLANNING, E&D (12% Project Construction Costs)	12%			**$368,359**	
31 S&A (CONSTRUCTION MANAGEMENT) (10% of Project Construction Costs)	10%			**$306,966**	
TOTAL PROJECT COST				**$4,265,496**	

*Dredging Costs based on 2002 Harbor Maintenance Contract

ESTIMATED YEARLY O&M COSTS FOR NW TENNESSEE HARBOR (ALT. 5, BW TRANSITION)

PROJECT FEATURE	COMMENTS	INTERVAL YRS	ESTIMATED DESIGN QUANT*	PERCENT OF DESIGN	QUANT	UNIT	UNIT PRICE	COST
Harbor Maintenance								
Harbor Maintenance Dredging	Yearly Maintenance Dredging	1	122,000	100%	122,000	CY	$1.30	$158,600.00
Riprap, "R 125"	Replace & Repair Riprap	3	30,600	2%	612	TON	$12.50	$7,650.00
Filter Material	Riprap Bedding	3	15,300	2%	306	TON	$12.65	$3,870.90
uture O&M Dredge Dosposal Site Land		5			39	ACRES	$2,184.92	$85,211.88

*Estimated total quantites from construction estimate.

Corps of Engineers, Memphis District

NORTHWEST TENNESSEE HARBOR (ALTERNATIVE 2, NO BW TRANSITION)

Preliminary Construction Estimate

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT	COMMENT
01 LANDS AND DAMAGES					
Purchase Land (Project-Cropland)	315.0	AC	$2,184.92	$688,250	Includes Cost per Acre & Acquistion Costs
Purchase Land (Env. Mitigation)	289.0	AC	$2,180.52	$630,170	Includes Cost per Acre & Acquistion Costs plus Restoration Costs per Acre
01 LANDS AND DAMAGES				**$1,318,420**	
02 RELOCATIONS					
12 NAVAGATION PORTS AND HARBORS					
Mob/Demob	1	EA	$350,000.00	$350,000	Dredge, Land Based Equip, & Rock Placing Unit Mob/Demob
Clearing & Grubbing	79.0	AC	$1,073.00	$84,767	Assumes burying and burning debris on-site
Excavation, Dredged	2,480,000	CY	$1.30	$3,224,000	Assumes placing material within adjacent embankments. Cost includes retaining dikes, spillboxes, & bank grading for filter/riprap*
Environmental Protection	13,800	LF	$2.00	$27,600	
Filter/Bedding Material	33,750	TON	$12.00	$405,000	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
Riprap, "R 125"	67,500	TON	$11.42	$770,850	Based on 2003 UPB & Small Repairs Contract (Parcel 1)
SUB-TOTAL				$4,862,217	
CONTINGENCIES (+/-10%)				$486,222	Consistent with feasibility level reports
12 NAVIGATION PORTS AND HARBORS				**$5,348,439**	
CONTRACTOR OVERHEAD (6% OF TOTAL)	6%			$320,906	
CONTRACTOR BOND (8% OF TOTAL)	8%			$427,875	
ONTRACTOR PROFIT (8% OF TOTAL)	8%			$427,875	
SUB-TOTAL (Construction Costs)				$6,525,095	
SUB-TOTAL (Construction Costs + Relocations)				**$6,525,095**	
30 PLANNING, E&D (12% Project Construction Costs)	12%			**$783,011**	
31 S&A (CONSTRUCTION MANAGEMENT) (10% of Project Construction Costs)	10%			**$652,510**	
TOTAL PROJECT COST				**$9,279,036**	

*Dredging Costs based on 2002 Harbor Maintenance Contract

ESTIMATED YEARLY O&M COSTS FOR NW TENNESSEE HARBOR (ALT. 2, NO BW TRANSITION)

PROJECT FEATURE	COMMENTS	INTERVAL YRS	ESTIMATED DESIGN QUANT*	PERCENT OF DESIGN	QUANT	UNIT	UNIT PRICE	COST
Harbor Maintenance								
Harbor Maintenance Dredging	Yearly Maintenance Dredging	1	122,000	100%	122,000	CY	$1.30	$158,600.00
Riprap, "R 125"	Replace & Repair Riprap	3	67,500	2%	1,350	TON	$12.50	$16,875.00
Filter Material	Riprap Bedding	3	33,750	2%	675	TON	$12.65	$8,538.75
uture O&M Dredge Dosposal Site Land		5			39	ACRES	$2,184.92	$85,211.88

*Estimated total quantites from construction estimate.

SECTION V

LOCAL SERVICE FACILITIES
AND
SITE DEVELOPMENT COSTS

PORT LAND DEVELOPMENT (PHASE I)
MINIMAL CONSTRUCTION COST
TO OPERATE A RIVER PORT AT ALTERNATE #4 LOCATION

A. Map showing location		N/A
B. Drainage		N/A
C. Future Industrial Park Features – Boundary map w/ acres (Same as Cates)		N/A
D. Roadway Improvements –		$ 1,956,743
E. Railroad Construction –		-0-
F. Utilities and Wastewater		$ 138,500
G. Berthing Area/Port Facility w/o Dolphins and w/ 44 acre fill)		$ 6,908,272
H. Loading and Offloading Equipment – Lease Option		-0-
I. Administration Building – Temporary Modular Building – Set-up Cost		$ 5,000
J. Parking Areas – ½ Phase I and ½		$ 25,000
K. Warehouse, Storage Tanks, Storage Areas, etc. ½ Phase I and		$ 25,000
	Subtotal	$ 9,058,515
L. General Contingency (8%)		$ 724,485
		$ 9,783,000
Additional Cost		
M. Legal and Administrative		$ 50,000
N. Additional Land Acquisition Cost		$ 703,800*
O. Engineering Cost to Master Plan and Design Facilities		$ 720,000
P. On-site Construction Observation		$ 210,000
Q. Testing and Miscellaneous (includes test on fill)		$ 90,000
Total Phase I Port Land Development		$11,556,800

* Alternative 4 requires $243,800 more land acquisition than Alternative 5 because it is located 4,000 feet further down stream the river chute.

PORT LAND DEVELOPMENT (PHASE I AND II)
MINIMAL CONSTRUCTION COST
TO OPERATE A RIVER PORT AT ALTERNATE #4 LOCATION

A. Map showing location		N/A
B. Drainage		N/A
C. Future Industrial Park Features – Boundary map w/ acres		N/A
D. Roadway Improvements –		$ 2,636,743
E. Railroad Construction –		$ 5,233,997
F. Utilities and Wastewater		$ 138,500
G. Berthing Area/Port Facility w/ Dolphins, Winch System & Fill)		$ 7,508,272
H. Loading and Offloading Equipment – Lease Option		-0-
I. Administration Building – Temporary Modular Building – Set-up Cost		$ 5,000
J. Parking Areas – ½ Phase I and ½		$ 50,000
K. Warehouse, Storage Tanks, Storage Areas, etc. ½ Phase I and		$ 55,000
	Subtotal	$15,627,512
L. General Contingency (8%)		$ 1,250,488
		$16,878,000
Additional Cost		
M. Legal and Administrative		$ 75,000
N. Additional Land Acquisition Cost		703,800
O. Engineering Cost to Master Plan and Design Port		$ 1,175,000
P. On-site Construction Observation		$ 375,000
Q. Testing and Miscellaneous		$ 125,000
Total Phase I Port Land Development		$19,331,800

Miles of Roads

The route begins approximately one mile North of Titptonville on existing highway, State Route 78. From there, the route to the industrial park will be west approximately ½ mile of an existing county road requiring weight carrying capacity improvements. This will then intersect existing highway, State Route 22 and will continue north requiring approximately 3 miles of minor improvements to the existing highway, State Route 22. Two new transitional radius' will be constructed. In addition, there will be a new road constructed in phase II approximately 1 1/4 miles in length which will connect the port site to the industrial park road. This road will be constructed over the existing levee and will require both widening and paving for a two lane road.

	Phase I	Phase I & II	
• Right-of-way acquisition	$ 35,000	$ 35,000	1600 feet with 100 feet ROW= 3.67 acres, plus 2900 feet with additional 50 feet ROW=3.33 acres, at $2000.00/acre
• New Road Construction	$1,169,000	$1,169,000	6750 = 1600 = 8350 feet @ $140.00/ft.
• Earthwork for New Road	$ 258,750	$ 258,750	43,125 CY @ $6.00/CY
• Existing County Road	$ 232,000	$ 232,000	2900 ± lineal feet of existing county road with no drainage structures Signalization @ $80,00/LF
• Existing State Route 22	$ 0	$ 680,000	17,000 ft @ $40.00/ft of minor road improvements with extension of two existing drainage structures
• Rip Rap Facing	$ 206,760	$ 206,760	20,676 tons @ $10.00/ton
• Filter Stone	$ 55,233	$ 55,233	5814 tons @ $9.50/ton
Total Road Improvements	**$1,956,743**	**$2,636,743**	

Miles of Railroads – All Cost will be in Phase II

No improvements will be made in the first phase. Under Phase II, a rail spur is proposed beginning with two turnouts (delta-intersection) at the main line located just north of the planned access road. The rail will run perpendicular from the main line intersection approximately ½ mile in a northwest direction then curve north and continue north to the industrial park and port site. The route proposed to the industrial site is approximately 4 ½ miles in length from the TenKen short line to the port site. In addition, to get from the industrial park to the Alternate #4 site an additional 2 ½ miles of rail will be constructed. This additional rail length will require additional right-of-way acquisition, earthwork to match the top of levee elevation, new rail, and two new road crossings.

The route proposed is a total of 4 ½ miles in length from the existing KenTenn short line to the port site, with an additional 2 ½ miles from the industrial park to the alternate #4 site.

• Right-of-way acquisition	$ 160,000	70' R.O.W. 20,000± lineal feet = 32 Ac @ $5,000/Ac.
• New Railroad construction	$3,205,000	32,050 ± lineal feet of new rail @ $100/LF
• Earthwork	$ 395,316	65,886 CY @ $6.00/CY (all on-site)
• Road Crossings signage	$ 480,000	Four grade railroad crossings with signage.
• Turnouts	$ 160,000	Four turnouts
• Drainage Structures	$ 150,000	Seven drainage structures are required for the proposed route.
• Concrete Slab at Wharf Plus track in concrete	$ 485,688	
• Signalized Road Crossings	$0	None required.
• Rip-Rap	$ 206,760	20,676 tons @ $10.00/ton
• Filter Stone	$ 55,233	5814 tons @ $9.50/ton
Total Road Improvements	**$5,233,997**	

Utilities and Wastewater

Initially the only need for water and wastewater will be the port office. The office building will be located at the Alternate #4 site. There is presently a 4-inch water line which runs along the existing intersection of State Highway Route 22 and the New Markham county road. This line will be extended 1 ½ miles to the port site. The wastewater will be treated with a 3,000 gallon capacity package septic system.

• Water Supply Line	$ 33,000	6,600 LF – 2 inch water line @ $5.00/LF
• Packaged Septic System	$ 3,500	Based on a 3,000 gallon capacity system.
Total Water/ Wastewater Improvements	**$ 36,500**	

Note: Any additional water or wastewater treatment required for the industrial park prospects will be "bird-in hand" users. There is a 10-inch water line within 1 ¾ miles of the industrial site. There is presently a sewer connection approximately 2 ½ miles from the port site.

Power will be supplied to the Industrial Park by a TVA furnished electric substation. This substation will be located on the south side of New Markham Road in the industrial park. Three phase power will be required to the port site for the facility operation.

• Three phase power	$102,000	6,800 LF of power line extension @ $15.00/LF.
Total Power Improvements	**$102,000**	
Total Utilities and Wastewater	**$138,500**	

Port Facility

The proposed public port will have loading and unloading capabilities for various raw and finished products onto and off barges with direct access to the barge berthing area. A 300-foot turn-a-around for the tugboats will be provided at the end of the harbor.

The 44 acres adjacent to the General Purpose Terminal will be constructed to an elevation just above the 100 year flood elevation of 307.9 NGVD to give a surface elevation of around 309.00, which is four feet lower than the Cates Landing proposal (terminal surface elevation of 313.00 – above the 500 year flood plain elevation). The port bulkhead will be constructed of interlocking steel pilings. The pilings will be slightly longer at alternate #4 site due to the channel depth. The backfill behind the pilings will be select fill open grade stone and sand to allow for proper drainage. The select compacted fill will be capped off with both fifteen inch and nine inch thick reinforced concrete slab. Rail will be embedded into the concrete for rail access while also allowing for truck access. The following cost have been estimated to construct the General Purpose Terminal:

NO.	ITEM	AMOUNT	UNIT	COST	TOTAL
1	Bulkhead @ 85'	430	LF	$2,550	$1,096,500
2	Bulkhead @ 70'	225	LF	2,100	472,500
3	Bulkhead @ 55'	225	LF	1,650	371,250
4	Bulkhead @ 40'	225	LF	1,200	270,000
5	Curb	1105	LF	60	66,300
6	Anchor Wall	760	LF	500	380,000
7	Tie Rods	26,700	LF	20	534,000
8	Open Grade Stone	16,310	CY	25	407,750
9	Sand Fill	158,507	CY	2	317,014
10	15" Concrete Slab	975	SY	50	48,750
11	Winch & Breasting System	1	Lump Sum	180,000	180,000
12	Stone Toe Fill	3,300	CY	20	66,000
13	Drainage & Miscellaneous	1	Lump Sum	50,000	50,000
14	16' Cell	2	EA	225,000	450,000
15	Earthwork Fill	See Below*			2,198,272
				TOTAL	$6,908,272

Does not include earthwork fill.

* 165,960 CY behind levee @ $6.00/CY compacted dredgefill @ 2.00/CY; cap 10 Acres @ 12" deep x $6.00 = $96,800

Phase II Improvements

- 16' Cells 2 ea @ $225,000 — $450,000
- Dolphin 2 ea @ $75,000 — 150,000

$600,000

Total Phases I and II = $7,508,272

February 17, 2004 Site Development Costs and Features
For Cost/Benefit Analysis Alternate #5 – Lake County Tennessee

PORT LAND DEVELOPMENT (PHASE I)
MINIMAL CONSTRUCTION COST
TO OPERATE A RIVER PORT AT ALTERNATE #5 LOCATION

A. Map showing location		N/A
B. Drainage		N/A
C. Future Industrial Park Features – Boundary map w/ acres (Same as Cates)		N/A
D. Roadway Improvements –		$ 869,000
E. Railroad Construction –		-0-
F. Utilities and Wastewater		$ 56,750
G. Port Facility		$4,773,334
H. Loading and Offloading Equipment – Lease Option		-0-
I. Administration Building – Temporary Modular Building – Set-up Cost		$ 5,000
J. Parking Areas – ½ Phase I and ½		$ 25,000
K. Warehouse, Storage Tanks, Storage Areas, etc. ½ Phase I and		$ 25,000
	Subtotal	$5,754,084
L. General Contingency (8%)		$ 460,916
		$6,215,000

Additional Cost

M. Legal and Administrative	$ 50,000
N. Additional Land Acquisition Cost	$ 460,000
O. Engineering Cost to Master Plan and Design Port	$ 460,000
P. On-site Construction Observation	$ 140,000
Q. Testing and Miscellaneous	$ 50,000
Total Phase I Site Development Costs w/o Berthing Area	$7,375,000
Berthing Area Costs	$ 421,900
Total Phase I Site Development Costs	**$7,796,900**

SITE DEVELOPMENT COSTS (PHASE I AND II))
MINIMAL CONSTRUCTION COST
TO OPERATE A RIVER PORT AT ALTERNATE #5 LOCATION

A. Map showing location	N/A
B. Drainage	N/A
C. Future Industrial Park Features – Boundary map w/ acres	N/A
D. Roadway Improvements –	$ 1,549,000
E. Railroad Construction –	$ 4,215,692
F. Utilities and Wastewater	$ 56,750
G. Port Facility w/ Dolphins and Winch System	$ 5,373,334
H. Loading and Offloading Equipment – Lease Option	-0-
I. Administration Building – Temporary Modular Building – Set-up Cost	$ 5,000
J. Parking Areas – ½ Phase I and ½	$ 50,000
K. Warehouse, Storage Tanks, Storage Areas, etc. ½ Phase I and	$ 55,000
Subtotal	$11,304,776
L. General Contingency (8%)	$ 905,224
	$12,210,000
Additional Cost	
M. Legal and Administrative	$ 75,000
N. Additional Land Acquisition Cost (see Financing Plan)*	$ 460,000
O. Engineering Cost to Master Plan and Design Port	$ 905,000
P. On-site Construction Observation	$ 331,000
Q. Testing and Miscellaneous	$ 75,000
Total Phase I and Phase II Site Development Costs w/o Berthing Area	$14,056,000
Berthing Area Costs	$ 421,900
Total Phase I and II Site Development Costs	**$14,477,900**

* Does not include Phase II land cost which will be purchased and paid for when land is sold to tenants.

Miles of Roads

Same improvements will be made in the first phase. Phase II cost will include improvements to the existing highway, State Route 22 and an existing county road. The route begins approximately one mile North of Titptonville on existing highway, State Route 78. From there, the route to the industrial park will be west approximately ½ mile of an existing county road requiring weight carrying capacity improvements. This will then intersect existing highway, State Route 22 and will continue north requiring approximately 3 miles of minor improvements to the existing highway, State Route 22. Two new transitional radii will be constructed. In addition, there will be a new road constructed inside the port area which will connect the port site to the industrial park road. This road will be constructed over the existing levee.

	Phase I	Phase II	Phase I & II	
• Right-of-way acquisition	$35,000	$0	$35,000	1600 feet with 100 feet ROW = 3.67 acres, plus 2900 feet with additional 50 feet ROW=3.33 acres, at $5000/acre
• New Road Construction	$602,000	$0	$602,000	2700 feet plus 1600 feet @ $140.00/ft.
• Existing County Road	$232,000	$0	$232,000	2900 ± lineal feet of existing county road with no drainage structures Signalization @ $80.00/LF
• Existing State Route 22	$0	$680,000	$680,000	17,000 ft @ $40.00/ft of minor road improvements with extension of two existing drainage structures
Total Road Improvements	**$869,000**	**$680,000**	**$1,549,000**	
x 1.20 =	**$1,050,000**	**$820,000**	**$1,875,000**	

February 17, 2004 Site Development Costs and Features
For Cost/Benefit Analysis Alternate #5 – Lake County Tennessee

Miles of Railroad – All Cost will be in Phase II

No improvements will be made in the first phase. Under Phase II, a rail spur is proposed beginning with two turnouts (delta-intersection) at the main line located just north of the planned access road. The rail will run perpendicular from the main line intersection approximately ½ mile in a northwest direction then curve north and continue north to the industrial park and port site. The route proposed to the industrial site is approximately 4 ½ miles in length from the TenKen short line to the port site. In addition, to get from the industrial park to the Jolly Landing site an additional 2 ½ miles of rail will be constructed. This additional rail length will require additional right-of-way acquisition, earthwork to match the top of levee elevation, new rail, and two new road crossings.

The route proposed is a total of 4 ½ miles in length from the existing KenTenn short line to the port site, with an additional ½ miles from the industrial park to the port site.

• Right-of-way acquisition	$ 160,000	70' R.O.W. 20,000± lineal feet = 32 Ac @ $5,000/Ac
• New Railroad	$2,800,000	28,000 lineal feet of new rail @ $100/LF construction.
• Earthwork	$ 5,004	834 CY @ $6.00/CY
• Road Crossings	$ 480,000	Four grade railroad crossings with signage.
• Turnouts	$ 160,000	Four turnouts
• Drainage Structures	$ 125,000	Five minor drainage structures are required for the proposed route.
• Concrete Slab at Wharf	$ 485,688	Plus track in concrete
• Signalized Road Crossings	$ 0	
Total Road Improvements	**$4,215,692 x 1.20 = $5,060,000**	

Utilities and Wastewater

Initially the only need for water and wastewater will be the port office. The office building will be located at the Jolly Landing site. There is presently a 4-inch water line which runs along the existing intersection of State Highway Route 22 and the New Markham county road. This line will be extended ¾ mile to the port site. The wastewater will be treated with a 3,000 gallon capacity package septic system.

• Water Supply Line	$12,750	2,550 LF – 2 inch water line @ $5.00/LF
• Packaged Septic System	$ 3,500	Based on a 3,000 gallon capacity system
Total Water/ Wastewater Improvements	**$16,250 x 1.20 = $20,000**	

Note: Any additional water or wastewater treatment required for the industrial park prospects will be "bird-in hand" users. There is a 10-inch water line within 1 ¾ miles of the industrial site. There is presently a sewer connection approximately 2 ½ miles from the port site.

Power will be supplied to the Industrial Park by a TVA furnished electric substation. This substation will be located on the south side of New Markham Road in the industrial park. Three phase power will be required to the port site for the facility operation.

• Three phase power	$40,500	2,700 LF of power line extension @ $15.00/LF.
Total Power Improvements	**$40,500 x 1.20 = $50,000**	
Total Utilities and Wastewater	**$56,750 x 1.20 = $70,000**	

Port Facility

The proposed public port will have loading and unloading capabilities for various raw and finished products onto and off barges with direct access to the barge berthing area. A 300-foot turn-a-around for the tugboats will be provided at the end of the harbor.

The 44 acres adjacent to the General Purpose Terminal will be constructed to an elevation of around 308.0, which is the 100 year flood elevation. The General Purpose Terminal bulkhead will be constructed to a surface elevation of 308.0. The port bulkhead will be constructed of interlocking steel pilings. The backfill behind the pilings will be select fill open grade stone and sand to allow for proper drainage. The select compacted fill will be capped off with both fifteen inch and nine inch thick reinforced concrete slab. Rail will be embedded into the concrete for rail access while also allowing for truck access. The following costs have been estimated to construct the General Purpose Terminal:

NO.	ITEM	AMOUNT	UNIT	COST	TOTAL
1	Bulkhead @ 85'	430	LF	$2,550	$1,096,500
2	Bulkhead @ 70'	225	LF	2,100	472,500
3	Bulkhead @ 55'	225	LF	1,650	371,250
4	Bulkhead @ 40'	225	LF	1,200	270,000
5	Curb	1105	LF	60	66,300
6	Anchor Wall	760	LF	500	380,000
7	Tie Rods	26,700	LF	20	534,000
8	Open Grade Stone	16,310	CY	25	407,750
9	Sand Fill	139,142	CY	2	278,284
10	15" Concrete Slab	975	SY	50	48,750
11	Winch System & Breasting System	1	Lump Sum	180,000	180,000
12	Stone Toe Fill	3,300	CY	20	66,000
13	Drainage & Miscellaneous	1	Lump Sum	25,000	50,000
14	16' Cell	2	Each	225,000	450,000
15	Earthwork fill	17,000	CY	6	102,000
				TOTAL	$4,773,334

Subtotal Port Improvements $4,773,334 x 1.20 = $5,730,000

Phase II Improvements

- 16' Cells 2 ea @ $225,000 $450,000
- Dolphin 2 ea @ $75,000 150,000

$600,000 x 1.20 = $720,000

Total Phases I and II = 5,373,334 x 1.20 = $6,450,000

October 07, 2004 **Site Development Costs and Features**
For Cost/Benefit Analysis Alternate #2 – Lake County Tennessee

PORT LAND DEVELOPMENT (PHASE I)
MINIMAL CONSTRUCTION COST
TO OPERATE A RIVER PORT LOCATED AT ALTERNATE #2

A. Map showing location		N/A
B. Drainage		N/A
C. Future Industrial Park Features – Boundary map w/ acres (Same as Cates)		N/A
D. Roadway Improvements –		$ 901,000
E. Railroad Construction –		-0-
F. Utilities and Wastewater		$ 51,000
G. Port Facility		$4,773,334
H. Loading and Offloading Equipment – Lease Option		-0-
I. Administration Building – Temporary Modular Building – Set-up Cost		$ 5,000
J. Parking Areas – ½ Phase I and ½		$ 25,000
K. Warehouse, Storage Tanks, Storage Areas, etc. ½ Phase I and		$ 25,000
	Subtotal	$5,780,334
L. General Contingency (8%)		$ 462,427
		$6,242,761

Additional Cost

M. Legal and Administrative	$ 50,000
N. Additional Land Acquisition Cost (See Port Facility Estimate)	$ 460,000
O. Engineering Cost to Master Plan and Design Port	$ 443,900
P. Testing and Miscellaneous	$ 50,000
Total Phase I Site Development Costs w/o Berthing Area	$7,246,661
Berthing Area Costs	$ 0
Total Phase I Site Development Costs	**$7,246,661**

October 07, 2004 **Site Development Costs and Features**
For Cost/Benefit Analysis Alternate #2 – Lake County Tennessee

SITE DEVELOPMENT COSTS (PHASE I AND II)
MINIMAL CONSTRUCTION COST
TO OPERATE A RIVER PORT AT ALTERNATE #2 LOCATION

A. Map showing location	N/A
B. Drainage	N/A
C. Future Industrial Park Features – Boundary map w/ acres	N/A
D. Roadway Improvements –	$ 1,581,000
E. Railroad Construction –	$ 3,735,692
F. Utilities and Wastewater	$ 51,000
G. Port Facility w/ Dolphins and Winch System	$ 5,373,334
H. Loading and Offloading Equipment – Lease Option	-0-
I. Administration Building – Temporary Modular Building – Set-up Cost	$ 5,000
J. Parking Areas – ½ Phase I and ½	$ 25,000
K. Warehouse, Storage Tanks, Storage Areas, etc. ½ Phase I and	$ 25,000
Subtotal	$10,796,026
L. General Contingency (8%)	$ 863,682
	$11,659,708

Additional Cost

M. Legal and Administrative	$ 75,000
N. Additional Land Acquisition Cost (see Financing Plan)	$ 460,000
O. Engineering Cost to Master Plan and Design Port	$ 905,000
P. On-site Construction Observation	$ 330,242
Q. Testing and Miscellaneous	$ 75,000
Total Phase I and Phase II Site Development Costs w/o Berthing Area	$13,504,950
Berthing Area Costs	$ 0
Total Phase I and II Site Development Costs	**$13,504,950**

October 07, 2004 **Site Development Costs and Features**
For Cost/Benefit Analysis Alternate #2 – Lake County Tennessee

Miles of Roads

Same improvements will be made in the first phase. Phase II cost will include improvements to the existing highway, State Route 22 and an existing county road. The route begins approximately one mile North of Tiptonville on existing highway, State Route 78. From there, the route to the industrial park will be west approximately ½ mile of an existing county road requiring weight carrying capacity improvements. This will then intersect existing highway, State Route 22 and will continue north requiring approximately 3 miles of minor improvements to the existing highway, State Route 22, then east on existing county road (New Markham) 0.5 miles to the new Port Access Road. Two new transitional radius' will be constructed and a new access road will be constructed running north 450 lineal feet connecting the existing county road to the new general purpose port terminal.

	Phase I	Phase II	Phase I & II	
• Right-of-way acquisition	$17,000	$0	$17,000	2900 feet with additional 50 feet ROW=3.33 acres, at $5000/acre
• New Road Construction	$441,000	$0	$441,000	2700 feet plus 450 feet @ $140.00/ft.
• Existing County Road	$443,000	$0	$443,000	5540 ± lineal feet of existing county road (incls. 0.5 miles of New Markham county road Improvements) with no drainage structures Signalization @ $80.00/LF
• Existing State Route 22	$0	$680,000	$680,000	17,000 ft @ $40.00/ft of minor road improvements with extension of two existing drainage structures
Total Road Improvements	**$901,000**	**$680,000**	**$1,581,000**	

October 07, 2004 **Site Development Costs and Features**
For Cost/Benefit Analysis Alternate #2 – Lake County Tennessee

Miles of Railroad – All Cost will be in Phase II

No improvements will be made in the first phase. Under Phase II, a rail spur is proposed beginning with two turnouts (delta-intersection) at the main line located just north of the planned access road. The rail will run perpendicular from the main line intersection approximately ½ mile in a northwest direction then curve north and continue north to the industrial park and port site. The route proposed to the industrial site is approximately 3 ½ miles in length from the TenKen short line to the port site. The rail costs includes right-of-way acquisition, earthwork, new rail, etc. as indicated in the breakdown estimate below.

The route proposed is a total of 4 ½ miles in length from the existing KenTenn short line to the port site, with an additional ½ miles from the industrial park to the port site.

• Right-of-way acquisition	$ 160,000	70' R.O.W. 20,000± lineal feet = 32 Ac @ $5,000/Ac
• New Railroad	$2,320,000	23,200 lineal feet of new rail @ $100/LF construction.
• Earthwork	$ 5,004	834 CY @ $6.00/CY
• Road Crossings	$ 480,000	Four grade railroad crossings with signage.
• Turnouts	$ 160,000	Four turnouts
• Drainage Structures	$ 125,000	Five minor drainage structures are required for the proposed route.
• Concrete Slab at Wharf	$ 485,688	Plus track in concrete
• Signalized Road Crossings	$ 0	
Total Road Improvements	**$3,735,692**	

Utilities and Wastewater

Initially the only need for water and wastewater will be the port office. The office building will be located at the Port site. There is presently a 4-inch water line which runs along the existing intersection of State Highway Route 22 and the New Markham county road. This line will be extended 500 lineal feet to the port site. The wastewater will be treated with a 3,000 gallon capacity package septic system.

• Water Supply Line	$ 2,500	500 LF – 2 inch water line @ $5.00/LF
• Packaged Septic System	$ 3,500	Based on a 3,000 gallon capacity system
Total Water/ Wastewater Improvements	**$ 6,000**	

Note: Any additional water or wastewater treatment required for the industrial park prospects will be "bird-in hand" users. There is a 10-inch water line within 1 ¼ miles of the industrial site. There is presently a sewer connection approximately 1 ¾ miles from the port site.

Power will be supplied to the Industrial Park by a TVA furnished electric substation. This substation will be located on the south side of New Markham Road in the industrial park. Three phase power will be required to the port site for the facility operation.

• Three phase power	$45,000	3,000 LF of power line extension @ $15.00/LF.
Total Power Improvements	**$45,000**	
Total Utilities and Wastewater	**$51,000**	

October 07, 2004 **Site Development Costs and Features**
For Cost/Benefit Analysis Alternate #2 – Lake County Tennessee

Port Facility

The proposed public port will have loading and unloading capabilities for various raw and finished products onto and off barges with direct access to the barge berthing area. There will be a 300-foot turn-a-around for the tugboats will be provided at the end of the harbor.

The 44 acres adjacent to the General Purpose Terminal will be constructed to an elevation of around 308.0, which is the 100 year flood elevation. The General Purpose Terminal bulkhead will be constructed to a surface elevation of 308.0. The port bulkhead will be constructed of interlocking steel pilings. The backfill behind the pilings will be select fill open grade stone and sand to allow for proper drainage. The select compacted fill will be capped off with both fifteen inch and nine inch thick reinforced concrete slab. Rail will be embedded into the concrete for rail access while also allowing for truck access. The following costs have been estimated to construct the General Purpose Terminal:

NO.	ITEM	AMOUNT	UNIT	COST	TOTAL
1	Bulkhead @ 85'	430	LF	$2,550	$1,096,500
2	Bulkhead @ 70'	225	LF	2,100	472,500
3	Bulkhead @ 55'	225	LF	1,650	371,250
4	Bulkhead @ 40'	225	LF	1,200	270,000
5	Curb	1105	LF	60	66,300
6	Anchor Wall	760	LF	500	380,000
7	Tie Rods	26,700	LF	20	534,000
8	Open Grade Stone	16,310	CY	25	407,750
9	Sand Fill	139,142	CY	2	278,284
10	15" Concrete Slab	975	SY	50	48,750
11	Winch System & Breasting System	1	Lump Sum	180,000	180,000
12	Stone Toe Fill	3,300	CY	20	66,000
13	Drainage & Miscellaneous	1	Lump Sum	25,000	50,000
14	16' Cell	2	Each	225,000	450,000
15	Earthwork fill *	17,000	CY	6	102,000
				TOTAL	$4,773,334

* (500,000 CY dredge material included in harbor cost)

Subtotal Port Improvements $4,773,334

Phase II Improvements

- 16' Cells 2 ea @ $225,000 $450,000
- Dolphin 2 ea @ $75,000 150,000

$600,000

Total Phases I and II = **$5,373,334**

SECTION VI

POSSIBLE MISSISSIPPI RIVER HARBOR SITES

INFORMATION Slightly Revised due to comments from Jerome Schumate. See back page for comments. He requested that cost estimates be mailed to him. INFO mailed on 11/17/93

NORTHWEST TENNESSEE REGIONAL HARBOR STUDY

Potential Harbor Site:	CATES LANDING	WYNNBURG	RIDGELY	TENNEMO LANDING	HELOISE/MITCHELL POINT
Harbor Design	6,000 ft long x 225 ft bottomwidth x 12 ft depth	Port Facilities Only	12,000 ft long x 225 ft bottomwidth x 12 ft depth	Port Facilities Only	6,000 ft long x 225 ft bottomwidth x 12 ft depth
Type of Harbor:	Potential Slackwater Harbor	Potential Fastwater Harbor	Potential Slackwater Harbor	Fastwater Harbor	Potential Slackwater
Location and Description:	The harbor and port facilities would be located within the vicinity of Cates Landing (RM 900.0). Dredging requirements is currently estimated at 2.0 million cubic yards.	The harbor and port facilities would be located within the vicinity of Wynnburg, TN (RM 870.0). The harbor would be a fastwater harbor with construction of port facilities only, assuming 36 acres for facility, requiring approximately 535,000 cy of borrow material.	The harbor and port facilities would be located within the vicinity of Ridgely, TN (RM 857.50). Dredging requirements is currently estimated at 1.7 million cubic yards.	The harbor and port facilities would be located within the vicinity of Miston, TN (RM 840.5). The harbor would be a fastwater harbor with construction of port facilities only, assuming 36 acres for facility, requiring approximately 720,000 cy of borrow material.	The harbor and port facilities would be located within the vicinity of Heloise/Mitchell Point (RM 832.5). Dredging requirements is currently estimated at 850,000 cubic yards.
Preliminary Costs					
Harbor	7,300,000	3,000,000	4,800,000	No cost estimated.	No cost estimated.
Port Facility	5,200,000	2,000,000	3,700,000		
Total	12,500,000	5,000,000	8,500,000		

Accessibility of Harbor:	**Roads**. Potential site would be easily accessible due to the existing roadway system. Cates Landing is within 1.0 mile from Highway 22 and 3.0 miles from Highway 78, a major roadway. Several connecting roadways exist within the vicinity of proposed harbor site; however, it is the site farthest away from I-55. **Railway**. Cates Landing is approximately 3.5 miles from the nearest railway system, ~~KenTen Railroad.~~ TENNKEN	**Roads**. Potential site would be easily accessible due to the existing roadway system. It is within 2.5 miles from Highway 78 and 0.5 miles from Highway 21. Several connecting roadways exist within the vicinity of proposed harbor site. Approximately 0.25 miles between mainline levee and harbor site. **Railway**. Proposed site is approximately 1.0 mile from a railroad spur of the ~~KenTen~~ Railroad. TENNKEN	**Roads.** Potential site would be easily accessible due to the existing roadway system. It is within 2.0 mile from Highway 79 and 2.5 miles from Highway 78. Several connecting roadways exist within the vicinity of proposed harbor site. **Railway**. Proposed site is approximately 2.0 mile from the ~~Illinois Central Gulf Railroad~~. TENNKEN	**Roads.** Proposed harbor site is within 2.0 mile from Highway 21 and 6.0 miles from I-55. Connecting roadways are scarce within the vicinity of Tennemo Landing. **Railway**. Proposed site is approximately 5.0 mile from the ~~Illinois Central Gulf Railroad~~. TENNKEN ~~Railroad~~ construction would require crossing 4.5 miles of the Obion River floodplain.	**Roads.** Proposed harbor site is within 4.5 miles of I-55 and Highway 20 is approximately 3.0 miles from I-55 and runs adjacent to site. Great accessibility. **Railway**. Proposed site is approximately 10.0 miles from the ~~Illinois Central Gulf Railroad~~ TENNKEN. Railroad construction would require crossing 8.0 miles of the Obion River and 2.0 miles of the Mississippi River floodplains.
Depth of Fill required to raise to 100-yr floodplain elevation	No fill required. (100 yr. elevation - 307.8)	Approximately 8 ft of fill required. (100 yr. elevation - 290.4 ft) Restricted floodplain area.	Approximately 13 ft of fill required. (100 yr. elevation - 286.3)	Approximately 16 ft of fill required. (100 yr. elevation - 279.2) Restricted floodplain area. Known soil stability problems at Tennemo Landing.	Approximately 15 ft of fill required. (100 yr. elevation - 273.8) Very restricted floodplain area.
Note: No Federal interest in fastwater sites and only construction of harbor at slackwater sites.					

TENNKEN

CATES LANDING COST ESTIMATE

Item	Description	Unit	Unit Cost	Quantity	Amount Harbor & Facility	Amount Harbor Only
1	Land	Acre				
	a. Port	Acre	$ 1,380.00	36	$ 49,680.00	
	*b. Industrial Park	Acre	$ 2,760.00	100	$ 276,000.00	
	c. Agricultural Lands	Acre	$ 2,000.00	230	$ 460,000.00	$ 460,000.00
2	Clearing & Grubbing	Acre	$ 1,500.00	60	$ 90,000.00	$ 90,000.00
4	Dredging	CY			$ -	
	*a. Existing Channel	C.Y	$ 2.00	2,000,000	$ 4,000,000.00	$ 4,000,000.00
	b. Retaining Dike	C.Y.	$ 3.00	208,500	$ 625,500.00	$ 625,500.00
5	Underdrain System	L.F.	$ 13.80		$ -	
6	Overflow Structure	L.S.	$ 20,700.00	1	$ 20,700.00	$ 20,700.00
7	Slope Protection					
	a. Riprap	Ton	$ 15.00	7,002	$ 105,030.00	$ 105,030.00
8	Seeding	Acre	$ 1,000.00	230	$ 230,000.00	$ 230,000.00
9	Railroad	L.F.	$ 100.00	19,000	$ 1,900,000.00	
10	Service Road	L.F.	$ 36.80	3,200	$ 117,760.00	
11	Water System				$ -	
	a. 150,000 gal elevated tank	L.S	$ 322,000.00	1	$ 322,000.00	
	b. Distribution mains	L.F.	$ 20.70	20,500	$ 424,350.00	
	c. Pump Station	L.S	$ 46,000.00	1	$ 46,000.00	
12	Wastewater System				$ -	
	a. Pump station	Each	$ 57,500.00	1	$ 57,500.00	
	b. Sewers	L.F.	$ 23.00	59,664	$ 1,372,272.00	
	c. Force Main	L.F.	$ 11.50	8,000	$ 92,000.00	
13	Electric Powerline	Mile	$ 80,500.00	3	$ 241,500.00	
14	Gas Main	L.F.	$ 13.80	19,000	$ 262,200.00	
15	Mobilization & Demobilization	LS	$ 300,000.00	1	$ 300,000.00	$ 300,000.00
16	Contingencies	LS	$ 1,500,000.00	1	$ 1,500,000.00	$ 1,500,000.00
	Total Cost				**$ 12,492,492.00**	**$ 7,331,230.00**

1) 1000 Acres Industrial Developement.

WYNNBURG COST ESTIMATE

Item	Description	Unit	Unit Cost	Quantity	Amount Harbor & Facility	Amount Harbor Only
1	Land					
	a. Port	Acre	$ 1,380.00	36	$ 49,680.00	
	b. Industrial Park	Acre	$ 2,760.00	100	$ 276,000.00	
2	Clearing & Grubbing	Acre	$ 1,500.00	5	$ 7,500.00	7,500.00
3	Dredging					
	a. Borrow Excavation	CY	$ 2.00	535,000	$ 1,070,000.00	1,070,000.00
4	Underdrain System	L.F.	$ 13.80	3,800	$ 52,440.00	
7	Seeding	Acre	$ 1,000.00	136	$ 136,000.00	136,000.00
8	Railroad	L.F.	$ 100.00	11,000	$ 1,100,000.00	1,100,000.00
9	Service Road	L.F.	$ 36.80	3,200	$ 117,760.00	
10	Water System					
	a. 150,000 gal elevated tank	L.S.	$ 322,000.00	1	$ 322,000.00	
	b. Distribution mains	L.F	$ 20.70	20,500	$ 424,350.00	
	c. Pump Station	L.S.	$ 46,000.00	1	$ 46,000.00	
11	Wastewater System					
	a. Pump station	Each	$ 57,500.00	1	$ 57,500.00	
	b. Sewers	L.F.	$ 23.00	7,000	$ 161,000.00	
	c. Force Main	L.F.	$ 11.50	8,000	$ 92,000.00	
12	Electric Powerline	Mile	$ 80,500.00	3	$ 257,600.00	
13	Gas Main	L.F.	$ 13.80	19,000	$ 262,200.00	
14	Mobilization & Demoblization	LS	50,000	1	$ 50,000.00	$ 50,000.00
15	Contingency	LS	1,000,000	1	$ 448,203.00	$ 236,350.00
	Total Cost				**$ 4,930,233.00**	**$ 2,599,850.00**

RIDGELY COST ESTIMATE

Item	Description	Unit	Unit Cost	Quantity	Amount Harbor & Facility	Amount Harbor Only
1	Land					
	a. Port	Acre	$ 1,380.00	36	$ 49,680.00	
	b. Industrial Park	Acre	$ 2,760.00	100	$ 276,000.00	
2	Clearing & Grubbing	Acre	$ 1,500.00	5	$ 7,500.00	7,500.00
3	Dredging					
	a. Existing Channel	CY	$ 2.00	1,680,000	$ 3,360,000.00	3,360,000.00
	b. Retaining Dike	CY	$ 3.00	5,500	$ 16,500.00	16,500.00
4	Underdrain System	L.F.	$ 13.80	3,800	$ 52,440.00	
5	Overflow Structure	L.S.	$ 20,700.00	1	$ 20,700.00	20,700.00
6	Slope Protection					
	a. Riprap	Ton	$ 15.00	1,480	$ 22,200.00	22,200.00
7	Seeding	Acre	$ 1,000.00	136	$ 136,000.00	136,000.00
8	Railroad	L.F.	$ 100.00	15,300	$ 1,530,000.00	
9	Service Road	L.F.	$ 36.80	3,200	$ 117,760.00	
10	Water System					
	a. 150,000 gal elevated tank	L.S.	$ 322,000.00	1	$ 322,000.00	
	b. Distribution mains	L.F	$ 20.70	20,500	$ 424,350.00	
	c. Pump Station	L.S.	$ 46,000.00	1	$ 46,000.00	
11	Wastewater System					
	a. Pump station	Each	$ 57,500.00	1	$ 57,500.00	
	b. Sewers	L.F.	$ 23.00	7,000	$ 161,000.00	
	c. Force Main	L.F.	$ 11.50	8,000	$ 92,000.00	
12	Electric Powerline	Mile	$ 80,500.00	3	$ 257,600.00	
13	Gas Main	L.F.	$ 13.80	19,000	$ 262,200.00	
14	Mobilization & Demoblization	LS	250,000	1	$ 250,000.00	$ 250,000.00
15	Contingency	LS	1,000,000	1	$ 1,000,000.00	$ 1,000,000.00
	Total Cost				**$ 8,461,430.00**	**$ 4,812,900.00**

APPENDIX III

ECONOMIC ANALYSIS

ECONOMIC ANALYSIS

INTRODUCTION

The purpose of this part of the special investigation of the proposal for Northwest Tennessee Harbor is to provide the decision-makers with economic insight into the economic feasibility of constructing the project. There are three major parts to this economic analysis section. Part 1 is designed to discuss the project setting, project conditions, and project benefits. The project benefits developed in this section are used to establish federal interest in the project investment and are developed with respect to National Economic Development (NED). Part 2 focuses on regional economic impact analysis. The purpose of this section is to provide the local decision-makers with some insight when examining the impacts of the public investment with respects to the local economy and local fiscal impacts. Part 3 The Economic Base Study. The three parts are:

Part 1.
- Introduction;
- Project (NED) Costs and Benefits Analysis;

Part 2.
- Regional Economic Impact Analysis (of the Capital Investment Spending);
- Local Public Finance Impact Analysis (of the Capital Investment Spending);

Part 3.
- Economic Base Study.

The Project Conditions section establishes the benchmark condition from which the project benefits are measured. The four project conditions with respect to the project benefit categories are:

- Present without Project conditions:
- Present with Project conditions;
- Future without Project conditions;
- Future with Project conditions;

The first two project conditions define the with and without project conditions with respect to the present period when the project is implemented. The latter two project conditions describe the future conditions for the with and without project conditions. The without project conditions: both present (existing) and future are expected to remain, at best, the same and, at worst, somewhat diminished due to declining population and industry base. The Cates Landing area will be used for agricultural production and have a potential harbor location site that remains without development and the current modes of transportation (truck & rail) will also be the future mode. Lake County, which has the highest poverty rate and lowest per capita income in the state of Tennessee remains one of the most economically depressed counties in state. The 1990 through 2000 trend, have seen a declining population and industry base. The with project conditions both present (existing) and future are, expected to reflect some moderate growth in economic activity

with commensurate growth in commodity movement activity. The benefits referred to in this analysis are based on present with project conditions.

The National Economic Development (NED) section provides information on the benefits and costs for the selected plan evaluated in the study. The project benefits are based upon transportation saving benefits derived from lowering of transportation cost associated with an alternative mode of transportation (Waterborne – barge) vis-a- vis truck or rail modes of transportation.

The Regional Impact Analysis provides information on the sales, employment and income impacts on the study region of the total project as it relates to investment spending including the local share of the expenditure. These impacts on sales, employment, and income result from investment spending on the project. It is also important to note that the local investment expenditures required for this project would have alternative investment opportunities which would also have multiplier impacts upon sales, employment and income.

Economic Base Study is included to give a broad overview of industry employment in the region within which the proposed Northwest Tennessee Harbor would be located. The industry structure patterns provide a broader perspective to gauge the trends in local industry export capacity and growth in the area.

Project Setting and Existing Problems

The Lake County Area remains the poorest county in Tennessee. The county's main employment activity is agricultural. The non-agricultural commercial and industrial activities in Lake County as of 1991 are listed as follows: Keneric Corporation (apparel manufacturing), Rolane Industries Division of Apparel Tech Incorporated (apparel manufacturing), Banner Printing Company (Printing activity), Georgia Gulf Corporation (PVC Pellets Manufacturing), and Henry I. Siegel Company incorporated (apparel manufacturing). Since 1991, all of the apparel manufacturing industries have discontinued operations. The Lake County area is in dire need of a harbor to make their proposed industrial site inter-modal thus increasing the site's potential for local employment. In the past, several industrials have indicated a desire to locate to the area if the harbor was constructed.

The Mississippi River is a tremendous natural resource. Therefore, local interests want to use it to provide even greater industrial and economic growth. They believe that construction of a harbor would allow for and encourage the expansion of industries. Slack water type harbors reduce the hazards resulting from high stream velocities in fast water harbors. Industries prefer to invest in warehouses, docks and appurtenances on these types of harbors because the probability of incurring damage due to runaway barges and debris is significantly less. Slack water harbors also provide more safeguards in the containment of chemical and other hazardous material spills than do fast water harbors.

Location Description

The project area is located on the Westside of Lake County, Tennessee adjacent to Cates Landing at Mississippi River Mile 900. (See Plate 1) This landing is elevated and is not subject to flooding. An old chute of the Mississippi River connects Cates Landing to the Mississippi River. In the past, the U.S. Army Corps of Engineers used this site to cast and store concrete mat used in stabilizing the Mississippi River. On December 15, 1992, the U.S. Army Corps of Engineers gave this site to Lake County, for their use because of the reduced need for concrete mat on this region of the Mississippi River.

Cates Landing and the adjacent land is an area that Lake, Dyer and Obion Counties want to develop into an industrial park. These counties formed a Port Authority that has taken over sponsorship of the development of a harbor project from the Lake County Government.

Cates Landing is adjacent to Tiptonville, Tennessee and is near state Highways 78 and 22. State Highway 78 runs to Dyersburg, Tennessee connecting with U.S. Highway 51, while Highway 22 runs into Union City, Tennessee, connecting U.S. Highway 51. Additionally, the area has a regional airport at Reelfoot Lake with a 3,500-foot concrete airstrip that is all weather and lighted. The TennKen Railroad that operates from Dyersburg, Tennessee to Hickman, Kentucky serves the area. Finally, truck transportation service is provided by many carries throughout the area.

ALTERNATIVE SOLUTIONS

During the feasibility process, different alternatives were analyzed to achieve the optimum plan that has both a Federal interest and is acceptable by the local sponsor. Factors considered during the study were as stated below:

1. compatibility with existing or planned use of the surrounding area;
2. impacts to economic development in the community;
3. ease of acquiring land and disposal of dredged material;
4. access to the harbor; and
5. environmental impacts.

Alternatives Considered

Six alternatives were considered to provide river access to the proposed industrial park to be located at Cates Landing, Lake County, Tennessee, River Mile 900. All alternatives were located in an old chute of the Mississippi River and would be within the navigational servitude and fast lands would not be created. (Ordinary High Water Mark elevation at River Mile 900 is 285.0 National Geodetic Vertical Datum. These alternatives are described in Table 1. Alternative 6 is the future without Federal action.

Table 1
Alternative Plans Considered

Items	Alternative Plans Considered 1	2	3	4	5	6
Canal Length, ft	14,000	13,800	8,500	5,000	9,000	NA
Canal Bottom-Width, ft	225	130	225	130	130	NA
Canal Depth, ft	9	9	9	9	9	NA
Diameter Turning Basin, ft	None	300	None	300	300	NA
Canal Side Slopes	1V:5H	1V:5H	1V:5H	1V:5H	1V:5H	NA
Canal Excavation, cy	3.1M	2.48M	4.1M	195,000	1.02M	NA
Canal Riprap	Yes	Yes	Yes	Yes	Yes	NA
Dredge Material Disposal Area	On Land	On Land	On Land	On Land	On Land	NA

Selection of Alternatives for Detail Analysis

From these six alternatives, alternatives 1 and 3 were removed from detailed analysis because the quantity of canal excavation was much more than alternatives 4 and 5. The project team viewed canal excavation as an indicator for cost and environmental impact. Thus, the smaller the quantity for canal excavation the smaller the construction cost and environmental impact. Alternative 2 was evaluated to bracket the NED plan. Alternative 6 the no federal action alternative was used as the basis for developing transportation savings benefit contrasting transportation cost by existing modes of transportation (no action mode) vis-a-vis transportation costs by barge (with project mode) this alternative was considered not acceptable since the acceptance of this alternative would forego the transportation savings economic benefits of a navigation channel and would hinder the development of the proposed industrial park. Therefore, Alternatives 4, 5 and 2 parametric costs were evaluated before a NED and selected plan was chosen.

Table 2 and Figure 1 present the information developed for Alternatives 4, 5 and 2 by the project team that consisted of the U.S. Army Corps of Engineers, Northwest Tennessee Regional Port Authority with assistance from their engineers Forcum Lannom Contractor and Garver Engineers and appropriate resource agencies. Additionally, the Port Authority received assistance from the following organizes: Tennessee Valley Authority Economic Development Agency, State of Tennessee Department of Economic Development, U.S. Department of Commerce Economic Development Agency and various other State of Tennessee and Federal agencies.

Table 2
Detailed Analysis for Alternatives 4, 5 and 2

Items	4 with Berthing Area	5 with Berthing Area	2 w/o Berthing Area
Top Elevation, ft NGVD	285.0	285.0	285.0
Bottom Elevation, ft NGVD	250.0	250.0	250.0
Harbor Area, acres	33	64	95
Canal Length, ft	5,000	9,000	13,800
Canal Bottom-Width, ft	130	130	130
Canal Depth, ft	9	9	9
Diameter Turning Basin, ft	300	300	300
Canal Side Slopes	1V:5H	1V:5H	1V:5H
Canal Excavation, cy	195,000	1,020,000	2,480,000
Riprap, tons	5,600	30,600	67,500
Filter Gravel, tons	2,800	15,300	33,750
Dredge Material Disposal Area, acres	16	86	276
Environmental Protection, ft	1,950	11,800	13,800
Estimated Clearing, acres	14	51	79
Estimated Average Maintenance Dredging, cy	111,000	122,000	122,000
Impact, acres	20 wet, 2 FW	60 wet, 14 FW	127 wet, 6 FW
Impact Habitat, AHUV	9	27	57
Mitigation (acres)	47	134	289
Construction Parametric Costs	$1,360,751	$4,265,496	$9,279,036
Total Present Value O&M	$2,663,828	$2,941,636	$5,641,110
Associated Site Development Costs	$19,331,800	$14,056,000	$13,504,950
Total Costs	$23,356,379	$21,263,132	$28,425,096
Annual Average Equivalent Costs	$1,404,849	$1,278,944	$1,709,724
Benefits	$2,506,950	$2,506,950	$2,506,950
Benefit/Cost Ratio	1.78	1.96	1.46
Excess Benefits	$1,102,101	$1,228,006	$797,226

Notes:
FW – Farmed Wetland
AHUV – Annualized Habitat Unit Value
Mitigation would include purchasing prior converted farmland within the batture land of the Mississippi Main Line Levee.

Alternative Chosen as Selected Plan

In Table 2, and Figure 1 the costs associated with the three alternatives evaluated in the study are in Parametric Costs. Alternatives 2 and 4 bracket the NED plan alternative 5, which has the lowest total cost and the second lowest first cost. In Table 2, the Parametric Cost of the berthing area is included in the canal excavation quantities for alternatives 4 and 5 but is not included in alternative 2 because the 130-foot bottom-width canal excavation yardage was so large that it was obvious that this alternative would not be either the NED or selected plan. To calculate the final Local Service Facilities and Site Development Costs for Alternative 5, $421,900 for berthing area and land costs must be added to the $14,056,000 shown in Table 2. This yields a Local Service Facilities and Site Development Costs for Alternative 5 to be $14,477,900. (Appendix 2 contains the details for the Local Service Facilities and Site Development Costs for Alternative 2, 4 and 5.)

Based on the alternative with the greatest excess benefits, Alternative 5 was chosen as the selected plan. At this point, the team prepared a MCACES cost estimate that is $4,665,430 (see Table 4 and Appendix 2). Table 3 presents a benefit-to-cost ratio of 1.84 when the calculation of the ratio uses the MCACES plus estimated associated Local Service Facilities and Site Development Costs.

Table 3
Selected Plan Benefits and Costs

GNF MCACES Costs	$4,665,430
Total Present Value O&M	$3,434,704
Associated Site Development Costs	$14,447,900
Total Costs	$22,579,034
Average Annual Equivalent Costs [1]	$1,358,093
Benefits	$2,506,950
Benefit/Cost Ratio	1.84
Excess Benefits	$1,148,857

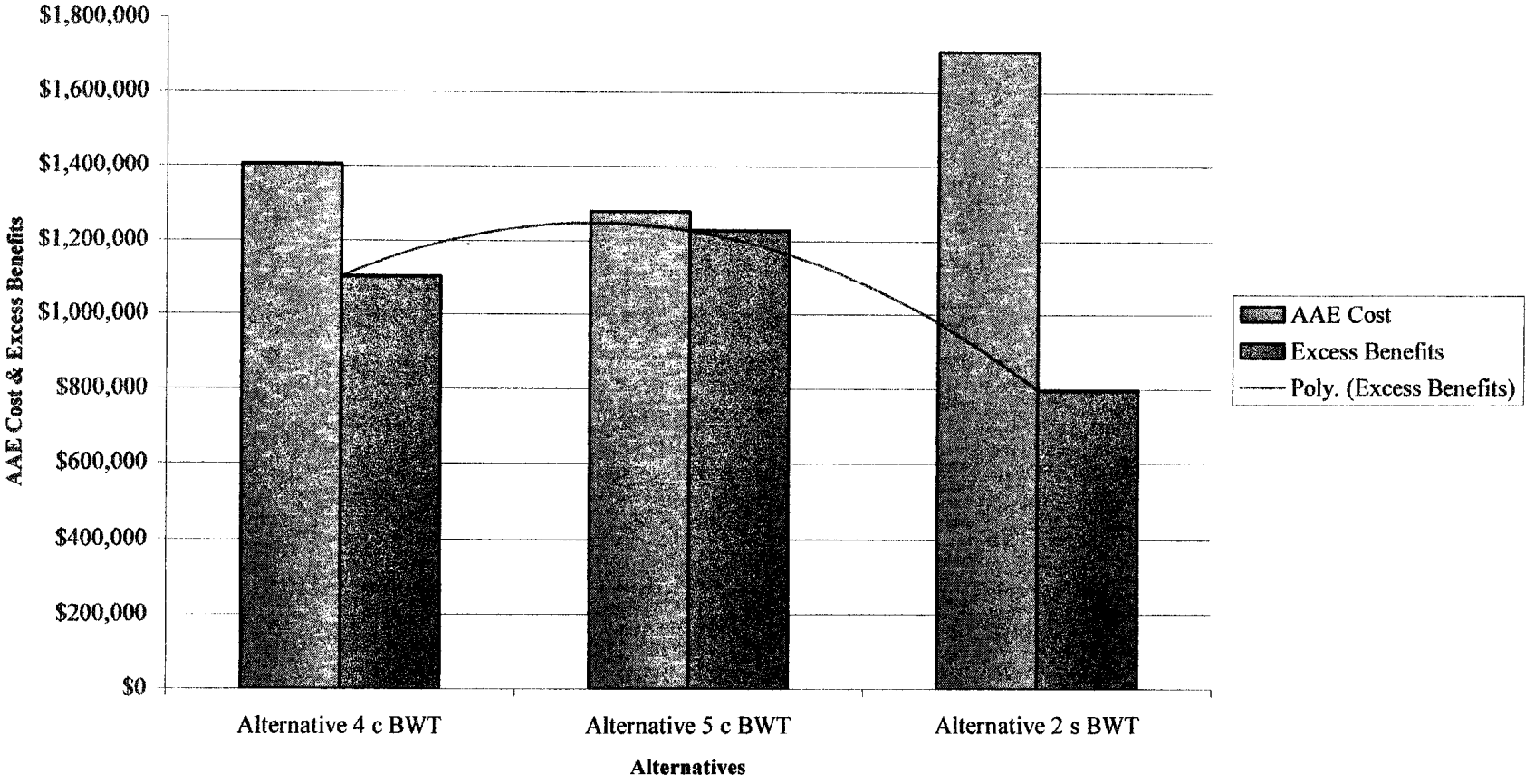
1[1] Annual Average Equivalent Costs include: average annual values for first costs, O&M costs, and associated site development costs.

Table 4
NORTHWEST TENNESSEE REGIONAL HARBOR
ALLOCATION OF PROJECT FIRST COSTS
(COST-SHARING REQUIREMENTS)
(2004 Price Level in Thousands of Dollars)

Item	Federal	Non-Federal	Total
LERR	**0**	**701.9**	**701.9**
General Navigation Features (GNF)			
Lands and Damages	24.0		24.0
Construction	2,858.4		2,858.4
E&D	359.6		359.6
S&A	299.6		299.6
Subtotal	3,541.6		3,541.6
Initial 10% Cash	-354.1	354.1	
Second 10% Cash minus LERR credit	0	0	
Total GNF Costs	3,187.5	354.1	3,541.6
Total Project	**3,187.5**	**1,056**	**4,243.5**
Feasibility costs (Federal share for	**324.5**		
determining costs over $4 million			
Federal project limit)			
Subtotal	**3,512.0**		
Additional non-Federal cash to avoid	**0**	**0**	
exceeding the Federal cost limit.			
Local Service Facilities			
Berthing Area			
Construction, E&D, and S&A 1/		336.8	336.8
LERR		85.1	85.1
Subtotal Berthing Area		421.9	421.9
Port Facilities (includes dolphins, winch system, warehouse, and storage tanks, storage areas, etc.)		5,803.1	5,803.1
Subtotal for Local Service Facilities		6,225.0	6,225.0
Site Development (includes roadway improvements, railroad construction, parking, admin building, utilities, land acquisition, E&D, etc.)		8,252.9	8,252.9
Final Project Cost for Construction of Harbor	3,187.5	1,477.9	4,665.4
Final Project Cost Allocation	**3,187.5**	**15,557.6**	**18,741.4**

1/ Construction, E&D and S&A of the non-Federal berthing area will be performed by the Corps with the sponsor paying 100 percent of the costs up-front.

Figure 1
North West Tennessee Harbor: AAE Cost & Excess Benefits



NED Economic Analysis

The National Economic Development (NED) section provides information on the benefits and costs for the selected plan evaluated in the study. The project benefits are based upon transportation saving benefits derived from lowering of transportation cost associated with an alternative mode of transportation (Waterborne – barge) vis-a- vis truck or rail modes of transportation.

This appendix presents an analysis of the economic viability of the plan of improvement that is recommended to construct a slack water harbor at Northwest Tennessee Harbor and stabilize its bank. The current (existing) conditions associated with this project are there are neither existing harbor facilities nor commodity traffic through this section of Lake County Tennessee. Future without project conditions is assumed to be similar to the existing without project conditions. Lake County, Tennessee is one of the poorest counties in Tennessee.

Economic viability of the plan is demonstrated through a comparison of its estimated average annual equivalent costs and estimated average annual equivalent benefits occurring during a common period of analysis at a given interest rate and price level. Construction is assumed to begin during 2007 and to be completed by the beginning of 2008.

The reference point in time for obtaining present values is the beginning of 2008, which is the first year in which navigation benefits for the proposed harbor expansion project will be realized by the beginning of 2008. All costs prior to this point in time are compounded forward at a 5.625 percent interest rate. The discounted benefits are equal to the annual benefits given the assumption that they remain constant over project life. Total present values are then amortized at the 5 5/8 percent interest rate over a 50-year period to obtain average annual equivalent streams of costs. Benefits and costs are expressed in constant price levels (2004). The period of analysis is 50 years.

The following assumptions were made:

(1) Costs take place at the end of the year during which they are expended.

(2) Benefits related to the physical construction from such costs occur one year after the occurrence of the costs upon which they derive.

(3) A conservative assumption that commodity shipments have no growth over the project life.

WATERBORNE COMMODITIES THROUGH THE HARBOR

Calcium carbonate, petroleum, paper, natural rubber, steel coils, and soybean meal will be the incoming cargo for Northwest Tennessee Harbor. Barge shipment of these commodities is expected to continue to be an important component of future traffic at the port. Among transportation modes, barge rates are the lowest and rail rates are the next most economical.

Location Quotient Analysis was used to determine the key export industries in Lake County, and the Dyer, Lake, and Obion Counties Region. Then using this data to survey, local interests identified firms that would use barge transportation if new harbor facilities existed. Such a shift in transportation mode could result in new cost savings generated by the additional traffic. The following assumptions were made:

(1) Location quotients can be used to determine which industries in Lake, Dyer, and Obion Counties, Tennessee are export oriented; and,

(2) Industries that have presumably found a location advantage in Lake, Dyer, and Obion Counties, Tennessee are potential future users of the proposed expanded harbor.

BENEFITS

According to Section 7a of the 1966 Transportation Act, Public Law 89-670, the primary direct navigation benefit of a water resource project is defined as the product of the transportation savings to shippers using the waterway and the estimated traffic that would use the waterway. The calculated navigation benefits by commodity group are described below. Due to confidentiality, we did not present a detailed computation of benefits here but aggregated estimates of cost savings that would accrue to future port users.

Benefits are based on inter-modal transportation shifts from rail or truck to barge as revealed from surveys with potential shippers and estimates provided by traffic management specialists. The computed the difference between barge and rail rates to estimate transportation cost savings for each commodity. Where applicable, handling charges are neither separately identified per mode nor part in this study due to the following reasons.

1. There are no separate handling charges for overland movements by rail or truck. Shippers are furnished empty equipment at origin that is loaded by consignors and unloaded at destination by consignees. Carriers do not perform loading/unloading services and neither publishes nor charge separate handling rates.

2. Barges loaded or unloaded at private terminals, such as Bunge or Conagra, within a port do not incur any separate handling charges.

The private terminal operators are responsible for trans-loading their product and typically do so with their own equipment and employees. This essentially applies to all the movements in this study.

3. Ocean port handling charges are assessed for all traffic trans-loaded at a public pier. These charges vary by commodity but typically not by mode. For example, there may be different charges within the same port for grain or fertilizer but not according to shipment by rail, truck, or barge.

4. There are handling charges for trans-loading commodities at public piers within river ports. These charges are primarily based on the prevailing wage rates in a region, which may fluctuate seasonally or with short-term workload variations within a port. These variations, however, should "average out" through time and have practically no influence on long-term modal choice by shippers. Any influence that handling charges might have is likely to be more significant in short-term port choices.

In this study, therefore, loading and unloading is the shipper's responsibility in nearly all cases. In those very few cases where charges might occur in a public port, there is no influence on modal choice and, therefore, no meaningful impact on the findings.

The projected commodity movements of inbound traffic are based on survey data from professional contacts made during previous benefit-cost studies. Table 1 shows the commodity type, quantity, transportation rates and savings for commodities such as Calcium carbonate, petroleum products (gasoline & diesel), steel coils, natural rubber, paper, and soybean meal. The point of origin for the shipments of these N commodities are: (a) Calcium carbonate from Ste Genevieve, Missouri, (b) Petroleum products from Memphis, Tennessee (c) Steel coil from East Chicago, Illinois, Granite City, Illinois, Ghent, Kentucky, Birmingham, Alabama, and New Orleans, Louisiana. In Table 5, annual transportation cost and benefit totals are shown by commodity type. Table 7, displays the extended (Commodity tonnage x Freight Rate) costs and savings for each of the respective commodities.

TRANSPORTATION COST SAVINGS COMPUTATIONS

Transportation savings are defined as the net difference between the full transportation costs, with and without the project. These savings were computed by comparing the full cost of moving each of the respective commodities from origin to destination by each alternative mode of transportation with the full cost of barge transportation. These transportation savings benefits were based upon calculations on savings that would accrue to firms that would likely relocate to the proposed Northwest Tennessee facility.

The formula used to estimate the present value (PV) of transportation cost savings is given by:

$$[1] \qquad PV = \Sigma \frac{S_i}{(1+r)^n}$$

where S_i represents transportation cost savings in year i, r is the discount rate, and n is the number of years in which benefits will be realized. Transportation cost savings result from differences between freight line-haul rates among alternative modes, net of additional handling charges. Thus,

$$[2] \qquad S_i = F_i - H_i$$

where F_i is freight line-haul savings in year i and H_i is defined as the additional handling charges associated with selecting barge transportation over the next best alternative in year i. Let R_i denote the difference (measured in dollars per ton mile) in freight rates between barge transportation and the next most economical alternative in year i. T_i is defined as total traffic to and from the various points in year i (measured in ton miles). Thus, freight savings can be computed as:

$$[3] \qquad F_i = R_i \, x \, T_i$$

Let X_i denote additional handling charges (measured in dollars per ton) incurred by using barge transportation rather than the next most economical alternative in year i. C_i is defined as total cargo handled at the harbor in year i (measured in tons). Thus,

$$[4] \qquad H_i = X_i \, x \, C_i$$

By substitution have:

$$[5] \qquad PV = \Sigma \frac{[(F_i \, x \, T_i)] - [(X_i \, x \, C_i)]}{(1+r)^n}$$

Barge rates were obtained for each port. Barge rates are stated in dollars and cents per net ton based on a minimum charge of 1,400 net tons per rake barge and 1,600 net tons per box barge. Source data for rail rates are published tariffs and circulars. Rail rates include origin and destination reciprocal switching charges and may vary depending on origin-destination, minimum tonnage and type of rail car used. To properly reflect these variations, rail rates from Tennessee Valley Authority were used to calculate transportation savings. Truck rates are based trucking company and potential port facility user and vendor data. Tonnage costs are based on a truckload of 22 net tons.

BENEFIT AND COST CALCULATIONS

These benefits were calculated using 2004 price levels and at 5 5/8 percent interest rate discounted over a fifty-year project life period.

Benefits & Costs Benefits and cost were converted to an average annual equivalent (AAE) basis using an appropriate discounting technique. Average annual interest and sinking fund charges were based on an interest rate of 5 5/8 percent and a 50-year economic life. Both Tables 5 and 7, display the average annual equivalent benefits/costs for each project feature.

Average Annual Equivalent Values. Benefits are calculated in average annual equivalent values. These were obtained by amortizing the computed present values as of the common period of analysis at a particular discount rate in order to take into account the time value of money as well as the respective difference in time that benefits and costs realize over the project life (during construction and operation of the project). The average annual equivalent (AAE) values, both benefits and costs, presented in this report are based upon a common set of reference characteristics as follows:

- Average annual equivalent (AAE) values were obtained by amortizing the computed present values as of the common reference date over the 50-year period of the analysis at 5 5/8 percent discount rate.

- Economic prices are based on current price levels (October 2004) and the economic life of the project, which is assumed to be a 50-year period.

- Construction is assumed to begin during 2007 and to be completed in 2008. The common reference date for purposes of discounting is the beginning of 2008. Costs and Benefits prior to this point in time are compounded forward and those after this point in time are discounted backward.

COSTS

Financial First Costs. Financial first cost estimates are summarized in the Economic Analysis Section of the Main Report and provide for harbor construction and bank stabilization. The General Navigation Feature (GNF) of construction is cost-shared by the Federal Government and the Non-Federal sponsor. The associated site development cost is a Non-Federal responsibility. Estimates of financial first costs are based on October 2004 prices. Total construction costs are divided into Federal and Non-federal costs. This is cost-shared by the Federal Government and the Non-Federal sponsor.

Economic Cost. The economic cost of a water resource project is the value foregone in alternative uses of the goods and services (and ultimately the factors of production) required for construction operation and maintenance of the project. From the national perspective, the economic costs of a water resource project are the values foregone in alternative uses of resources. In addition, this cost is the value of resources destroyed or otherwise adversely affected by the project. Specific economic costs detailed in this analysis include the initial investment, operation and maintenance and site development. These costs are also the National Economic Development (NED) cost, which include all costs directly related to the Federal project that are necessary to achieve the claimed benefits. Specific economic costs detailed in this analysis include the initial investment cost and operation and maintenance (O&M) costs to continue use of the channel.

Table 5
ANNUAL BENEFIT – COST SUMMARY
(2004 $, 5.625 interest rate)

I. BENEFITS		Transportation Rates ($)[1]			Transportation
Commodity	Tonnage	Rail / Truck	Barge	Differential[2]	Savings ($)
Inbound:					
Calcium Carbonate (Bulk)	150,000	$15.50	$ 9.76	$ 5.74	$ 861,000
Natural Rubber	23,750	$48.00	$31.44	$16.56	$ 393,300
Paper (Container)	50,000	$165.45	$153.63	$11.82	$ 591,000
Petroleum (Gasoline)	150,000	$11.97	$10.56	$ 1.41	$ 105,750
Petroleum (Diesel)	150,000	$15.15	$ 9.18	$ 5.97	$ 447,750
Soybean Meal	25,000	$24.40	$22.53	$ 1.87	$ 46,750
Steel Coils	20,000	$23.68	$20.61	$ 3.07	$ 61,400
Total Benefits:	418,750				$2,506,950
II. AAE COSTS:					
Initial Investment					$ 280,618
Operation & Maintenance					$ 206,652
Site Development Cost:					$870,823
Total Cost:					$ 1,358,093
III. AAE ANNUAL TOTALS[3]					
Benefits					$2,506,950
Costs					$ 1,358,093
Excess Benefits					$1,148,857
Benefit/Cost Ratio:					1.84

[1] Transportation Freight Rates include associated shipping and handling charges.

[2] Differential value reflects difference between current mode and barge transportation rates.

[3] AAE Total for Phase I and Phases I & II are displayed respectively for the following categories: Costs, Excess Benefits, and B/C Ratio.

TABLE 6
Northwest Tennessee Harbor
Annual Benefits Using Rail vs. Barge Transportation Costs

	Transportation Cost ($)[4]		Transportation
	By Rail	By Barge	Savings ($)
Inbound Shipments:			
Commodity			
Calcium Carbonate	$2,325,000	$1,464,000	$ 861,000
Natural Rubber	$1,140,000	$ 746,700	$ 393,300
Paper	$8,272,727	$7,681,818	$ 590,909
Petroleum (Gasoline)	$ 897,750	$ 792,000	$ 105,750
Petroleum (Diesel)	$1,136,250	$ 688,500	$ 447,750
Soybean Meal	$ 610,000	$ 563,250	$ 46,750
Steel Coils	$ 473,600	$ 412,200	$ 61,400
Transportation Savings:			$2,506,950

Initial Investment Cost. The initial investment cost at the time the project becomes operational or begins to produce benefits is the sum of construction cost and other initial costs plus interest during construction. Interest during construction (sinking fund) accounts for the cost of capital incurred during the construction period.

Operation & Maintenance (O&M) Cost. Future use of the harbor requires operations and maintenance, including dredging to be done on an annual basis. Continued use of the channel will require operations and maintenance (O&M) costs, which will not begin until the project is completed.

Associated Development Cost. Associated costs are for measures, over and above the Federal project measures, which are required for the benefits to be realized. Like the other NED costs discussed above, these are included in benefit-cost ratios. To achieve full use of the harbor, there is $14,477,900 in Associated Local Service Facilities and Site Development Cost (non-GNF) features needed. Associated Development Cost are all non-Federal and are requirements to make the harbor operational. Some of these development requirements are as follow: $1,549,000 in roadway improvements, $4,215,692 in railroad construction, $56,750 in utilities and wastewater construction, $5,373,334 in port facility with dolphins and winch system construction, $5,000 in Administration Building cost, $50,000 in parking areas construction, $55,000 in Warehouse, Storage Tanks, Storage Areas construction and $460,000 in land acquisition. Appendix II contains the complete list of Alternative 5 Associated Local Service Facilities and Site Development costs.

. [4] Include associated shipping and handling charges

Summary Of Benefits And Costs

Due to time and money constraints in this study, we made no growth projections in movement during the period of analysis. Neither did we investigate to any detail the potential benefits to be realized by shippers who did not respond to the questionnaire or responded with insufficient data. Consequently, uncertainties associated with the benefits quantified herein may be, in part, offset by the above constraints limiting benefits.

Benefit and Cost Summary

Table 7 below shows the projected total annual benefits and costs for the total project. The annual transportation savings benefits associated with Northwest Tennessee harbor project are $2,506,950. The MCASES first costs associated with the Northwest Tennessee project amounted to $1,358,093 with an average annual equivalent (AAE) cost of $280,618 and an operation and maintenance average annual equivalent cost of $206,652 and associated development costs of $14,477,900 and average annual equivalent cost of $870,823 resulting in a total AAE cost of $1,358,093. The excess benefits associated with this project are $1,148,857. These average annual cost values were discounted at 5 5/8 percent using 2004 price level values. The total average annual equivalent costs including charges for (1) project first costs, (2) operation and maintenance and associated site development costs are $1,358,093 and a benefit cost ratio of 1.84 shown below. The costs associated with the construction and operation of each feature is based on the cost estimates described heretofore in this report.

Table 7

Northwest Tennessee Harbor
Annual Benefit and Cost Summary
(2004 Price Level, 5.625% interest rate)

BENEFIT:	
Transportation Savings	$ 2,506,950
COSTS:	
Investment	$ 280,618
Operation and Maintenance	$ 206,652
Site Development	$ 870,823
Total	$ 1,358,093
B/C Ratio:	1.84
EXCESS BENEFITS	$ 1,148,857

SENSITIVITY ANALYSIS

IMPACT OF FUEL TAX PHASE-IN

Phasing in the future increase in user charges (fuel tax) and the corresponding impact on the cost of doing business for barge operators could have a negative impact on benefits. Prescribed by Public Law 99-662, the Inland Waterways Tax authorized a tax on fuel used in commercial transportation for inland waterways. The fuel tax became effective on 1 October 1980, with an initial tax rate of 4 cents per gallon. It was allowed to increase to barge operators from 10 cents per gallon in 1990 to a maximum of 20 cents per gallon in 1994. Consequently, average fuel prices rose from 70 to 80 cents per gallon (other things being equal).

The consequences of increased fuel taxes are outlined in a study conducted by the Bureau of Economic and Business Research at the former Memphis State University entitled, Impacts of a Waterway Users Charge on the Economy of Tennessee[5], dated May 1978. This study indicated that demand for barge transportation is highly price elastic (price sensitive). Therefore, an increase of over 12 percent in shipping rates would precipitate a movement of about 15 percent of barge shippers to other modes of transportation. A consequence of this highly elastic demand is that the barge operators will incur the better part of the new tax burden from the increase in their cost of doing business and lower profit margins. Additional increases in fuel taxes could lead to a reduced supply of barges, causing higher barge transportation charges and lower benefits. Barge operators have already factored the current user charge into their freight rates, with no appreciable bearing upon project feasibility.

BREAK-EVEN YEAR

In a break-even year, the annual benefits exceed the costs assuming no further growth in benefits. Using 5.625 percent interest rate, the break-even analysis indicates that annual benefits after the first year exceed costs in the second year to cover the GNF first cost, and the tenth year to cover both first cost and associated site development costs.

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[5] Impacts of a Waterways User Charge on The Economy of Tennessee. Prepared for the Bureau of Waterways and Rail, Tennessee Department of Transportation, by the Bureau of Economic Research at Memphis State University, May 1978, pages 74-88.

INTERNAL RATE OF RETURN & NET PRESENT VALUE

The internal rate of return is the rate of interest at which annual benefits equal costs during the period of analysis (i.e., benefit-cost ratio equals 1.0). For this project, the internal rate of return is 53.7 percent, and 13.1 percent when site development costs are considered (included). The net present value of the project over project life is $32.8 million dollars, and $19.2 million dollars when associated site development costs are taken into account.

Alternative Port Analysis

In addition, to obtaining the freight rate analysis from TVA we obtained an alternative port analysis looking at the respective transportation cost of bringing the commodities through Caruthersville, MO, Eddyville, MO, Heloise, TN, New Johnsonville, TN, Paducah, KY, and Murray, KY, harbors. To this extent we were able to determine that would be more cost effective to move 347,500 tons (100,000 and 50,000) of the 647,500 tons of the respective commodities coming from New Orleans Louisiana, and Birmingham Alabama through the alternative ports.

Consequently, only 300,000 of the 647,500 tons of steel were used to derive project benefits. However, it might be argued that these 150,000 tons could be shipped from Illinois and Kentucky locations and including them in the analysis adding an additional $855,000 to the project benefits.

The commodity, which is a substantial proportion of the project benefits and which are pivotal to the project's success, is calcium carbonate. The residual benefit cost ratio would be greater than unity: ($2,506,950 - $861,000) = $1,645,950 ($1,645,950 / $1,327,917) = 1.24 given the incidence if calcium carbonate were not part of the project benefits. Prevailing National and Regional Business Cycle conditions along with other regional and industrial economic conditions, may and could alter commodity movement activity over the life of the project.

Risk Analysis

In order to employ risk analysis with respect to project outcomes it is important to identify key risk factors. One of these risk factors associated with the project's outcome is potential volatility in commodity tonnages due to economic conditions (business cycle), navigation problems such as those associated with drought conditions, and delays associated lock and dam operations.

Risk Analysis. This section provides an estimate of the risk inherent with the economic and data used to evaluate the transportation savings benefits. It addresses the areas where risk and uncertainty are known to exist so that the economic performance of the project can be expressed in terms of probability distributions.

The analysis was performed using a spreadsheet in conjunction with a simulation model entitled @Risk. It incorporates the range (maximum and minimum) of possible values

for an input variable and specifies the statistical distribution of likely outcomes over the chosen range. In the case where a normal distribution is assumed, 68 percent of the occurrences of a particular outcome would fall within (plus or minus) one standard deviation, on either side of the mean, and 95 percent within two standard deviations on either side of the mean. The variables chosen and the amounts they were allowed to vary are: commodity tonnages and project benefits. The assumed boundaries for variation were commodity tonnage 15 percent, Land (freight rates) 10 percent, water freight rates 10 percent. All distribution functions are assumed to be normal.

The @Risk simulation was performed utilizing 10,000 iterations, or different combinations, of the chosen variables. The 68 and 95 percent confidence bands around the mean results are plus/minus one and two standard deviations, respectively. A sensitivity analysis was employed to identify which variable(s) contributed the most to uncertainty. The simulation was run again, varying each variable individually while holding the remaining variables constant. The most important variable was the calcium carbonate tonnage, variation in stage frequency followed by the 10 percent variation in freight rates. The results of the individual simulations and their ranking are presented in Table 8.

Table 8
Risk Analysis Sensitivity Analysis Tonnage & Benefits
(October 2004 Price Levels, 5.625%)

Item	Mean Value	Standard Deviation
Tonnage	418,750	28,882
Benefits	$2,505,662	$888,760

Sensitivity Analysis: **Commodities**	Tonnage Regression Coefficient	Tonnage Rank Correlation Coefficient	Rank
Calcium Carbonate	0.779	0.757	1
Petroleum Products	0.390	0.365	2
Petroleum Products	0.390	0.357	3
Paper	0.260	0.230	4
Soybean Meal	0.130	0.112	5
Natural Rubber	0.123	0.114	6
Steel Coils	0.104	0.112	7

REGIONAL ECONOMIC DEVELOPMENT

This part focuses on regional economic impact analysis. The purpose of this information is to provide the local decision-makers with some insight in examining the impacts of the public investment with respect to the local economy and local fiscal impacts. The regional economic impacts reflected in this study are the result of a one-time infusion of investment capital into the local economy rather than the result of a sustained annual change associated with the relocation of employment into the economy (e.g., the location of a Military Base).

Regional Economic Impacts and Local Public Fiscal Impacts

The Regional Impact Analysis provides information on the sales, employment and income impacts upon the study region of the total project related investment spending including the local share of that expenditure. The impacts on sales, employment and income are directly related to the investment spending on the project. These regional impact estimates are considered to be of some value and interest to the local interests.

The Economic Impact Forecasting System Impact Models

The basis of EIFS analytical capabilities is the calculation of multipliers that estimate impacts resulting from a change in local expenditures and/or employment. In calculating the multipliers, EIFS uses the economic base model and its ratios of basic activity and non-basic or service activity. Basic, in this context, is defined as production consumed outside the region of influence or by Federal activities locally. According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its basic sector, i.e., a dollar increase in local expenditures due to an expansion of a facility. EIFS estimates its multipliers using a "location quotient" approach based on the concentration of industries within the region relative to the industrial concentrations for the nation. EIFS has models for basic activity scenarios: i.e., a standard model. Once these are entered into the system, a projection of changes in the local economy is provided. These are projected changes in sales volume, employment, income and population. These four "Indicator" variables are used to measure and evaluate socioeconomic impacts.

Results

The economic impact associated with an $19,143,330 (first cost + associated site development cost) investment for Northwest Tennessee Harbor in Lake County, Tennessee are shown in Table 4 and are separated out into three major economic categories:

- Sales Volume: both direct and induced impacts;
- Employment: both direct and induced impacts;
- Income: both direct and induced impacts.

Tables 9, 10, 11, and 12 display the impacts associated with Northwest Tennessee Harbor region: Dyer, Lake, and Obion Counties in Tennessee. Tables 11 and 12 display the impact of both construction and site development expenditures. These impacts are for the same three major economic categories as above. These impacts are considered separately and not part of the feasibility study. Table 13 displays an example of the EIFS Local Public Fiscal Impact Model, Standard Model section output for Northwest Tennessee showing the regional economic impacts upon sales volume, income, and employment within the Dyer, Lake, and Obion Counties Tennessee region of influence.

Local Public Finance Impact Model: [6]

The Local Public Finance Impact Model output displayed in Table 13 reflects the impacts of public investments in a region predicated upon the region's capacity to raise the level of public services as new workers move into an area. Public investments in infrastructure projects generate many effects throughout their construction and operation. Initially, the project requires the employment of workers. In the case of larger investments the capacity to create employment opportunities may precipitate new workers who might migrate into the region bringing their families. Along with these effects, these projects are also expected to alter the need for public services. These broad revenue and expenditure effects are an important in the initial stages of planning, when program managers are making their initial budget allocations. The LPFI model estimates the local government revenue and expenditure consequences of a change in the economic and demographic character of a local economy.

[6] Local Public Finance Impact Model: User's Guide and Technical Documentation. Federal Infrastructure Strategy Program IWR, Dennis P. Robinson, and Harry H. Kelejian, Report 94-FIS-10 Institute for Water Resources, WRSC, USACE. June 1994.

Table 9[7]						
Northwest Tennessee Harbor Regional Economic Impacts						
Region:	**Lake, Dyer, Obion, Counties in Tennessee**					
Export Income Multipliers:	**Export Income Multiplier: 2.15**			**Initial Investment: $19,143,330**		
	Total Expenditures:					
Measures	**Sales Volume**	**Income**	**Employment**	**Sales Volume**	**Population**	
Economic Impacts	$22,014,830	$3,556,837	109			
Percentage Change	1.15 %	0.23 %	0.24 %			
RTV (+)	10.21 %	10.79 %	4.67 %	10.21 %	1.89 %	
RTV (-)	-7.08 %	-6.02 %	-5.34 %	-7.08 %	-0.85 %	
FSI						

Table 10				
Northwest Tennessee Harbor Fiscal Regional Impacts[8]				
Region:	Lake, Dyer, Obion, Counties in Tennessee			
Export Income Multipliers:	Impacts			
Measures	Revenues & Expenditures	Sales Volume	Income	Employment
Induced Changes:		$11,775,380	$1,902,494	59

[7] For Further details on the Model's Output see Economic Impact Forecast System (EIFS) II: User Manual Updated Edition, Technical Report N-69 (Revised) May 1984. US Army Corps of Engineers, Construction Engineering Laboratory, Champaign Ill.

[8] LOCAL PUBLIC FINANCE IMPACT MODEL: User's Guide and Technical Documentation. IWR Report 94-FIS-10 1994.

Economic Impact Forecast System

Army Environmental Policy Institute
Clark Atlanta University

EIFS REPORT
Appendix III Table 11

EIFS REPORT

PROJECT NAME

NWTN Harbor Dyer Lake Obion 12-3-2004

STUDY AREA

47045 Dyer, TN
47095 Lake, TN
47131 Obion, TN

FORECAST INPUT

Change In Local Expenditures	$19,143,330
Change In Civilian Employment	0
Average Income of Affected Civilian	$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	2.15	
Income Multiplier	2.15	
Sales Volume - Direct	$10,239,460	
Sales Volume - Induced	$11,775,380	
Sales Volume - Total	$22,014,830	1.15%
Income - Direct	$1,654,343	
Income - Induced)	$1,902,494	
Income - Total(place of work)	$3,556,837	0.23%
Employment - Direct	51	
Employment - Induced	59	
Employment - Total	109	0.24%
Local Population	0	
Local Off-base Population	0	0%

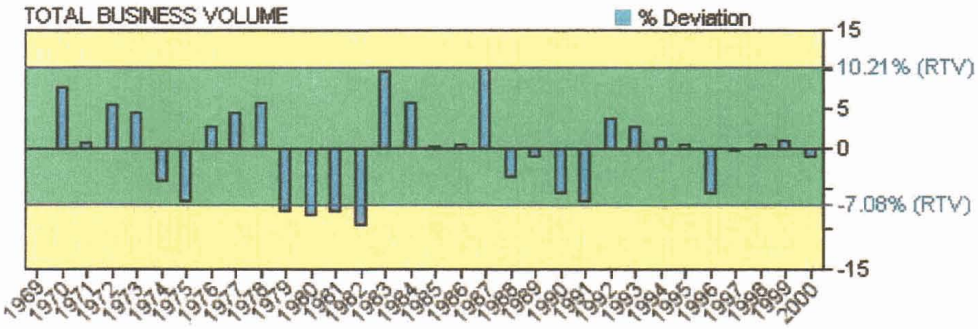
EIFS REPORT
Appendix III Table 12

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	10.21 %	10.79 %	4.67 %	1.89 %
Negative RTV	-7.08 %	-6.02 %	-5.34 %	-0.85 %

RTV DETAILED

SALES VOLUME



Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	135146	590588	0	0	0
1970	159921	660474	69886	51436	7.79
1971	172763	684141	23668	5218	0.76
1972	194248	743970	59828	41378	5.56
1973	221032	797925	53956	35506	4.45
1974	241624	785278	-12647	-31097	-3.96
1975	253359	755010	-30268	-48718	-6.45
1976	281727	794470	39460	21010	2.64
1977	322617	851709	57239	38789	4.55
1978	374818	922052	70343	51893	5.63
1979	394694	872274	-49779	-68229	-7.82
1980	424290	823123	-49151	-67601	-8.21
1981	444109	781632	-41491	-59941	-7.67
1982	440388	731044	-50588	-69038	-9.44
1983	516246	831156	100112	81662	9.83
1984	585543	901736	70580	52130	5.78
1985	619758	923439	21703	3253	0.35
1986	647668	945595	22156	3706	0.39
1987	692711	1073702	128107	109657	10.21
1988	776002	1055363	-18339	-36789	-3.49
1989	824879	1064094	8731	-9719	-0.91

1990	833590	1025316	-38778	-57228	-5.58
1991	830062	979473	-45843	-64293	-6.56
1992	909744	1037108	57635	39185	3.78
1993	978676	1086330	49222	30772	2.83
1994	1037066	1120031	33701	15251	1.36
1995	1090120	1144626	24595	6145	0.54
1996	1080891	1102509	-42117	-60567	-5.49
1997	1117840	1117840	15331	-3119	-0.28
1998	1166112	1142790	24950	6500	0.57
1999	1223144	1174218	31428	12978	1.11
2000	1269872	1180981	6763	-11687	-0.99

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	173859	759764	0	0	0
1970	201779	833347	73583	46814	5.62
1971	218359	864702	31354	4585	0.53
1972	246194	942923	78221	51452	5.46
1973	301100	1086971	144048	117279	10.79
1974	318585	1035401	-51570	-78339	-7.57
1975	333555	993994	-41407	-68176	-6.86
1976	364168	1026954	32960	6191	0.6
1977	403641	1065612	38659	11890	1.12
1978	459017	1129182	63570	36801	3.26
1979	497923	1100410	-28772	-55541	-5.05
1980	533074	1034164	-66246	-93015	-8.99
1981	600479	1056843	22679	-4090	-0.39
1982	611452	1015010	-41833	-68602	-6.76
1983	654686	1054044	39034	12265	1.16
1984	769820	1185523	131478	104709	8.83
1985	812542	1210688	25165	-1604	-0.13
1986	846696	1236176	25489	-1280	-0.1
1987	893746	1385306	149130	122361	8.83
1988	1003491	1364748	-20558	-47327	-3.47

1988	1003491	1364748	-20558	-47327	-3.47
1989	1067682	1377310	12562	-14207	-1.03
1990	1127018	1386232	8922	-17847	-1.29
1991	1138765	1343743	-42490	-69259	-5.15
1992	1258211	1434361	90618	63849	4.45
1993	1311375	1455626	21266	-5503	-0.38
1994	1402468	1514666	59039	32270	2.13
1995	1467040	1540392	25726	-1043	-0.07
1996	1518222	1548586	8194	-18575	-1.2
1997	1555778	1555778	7192	-19577	-1.26
1998	1599084	1567102	11324	-15445	-0.99
1999	1643529	1577788	10685	-16084	-1.02
2000	1738048	1616385	38597	11828	0.73

EMPLOYMENT

Year	Value	Change	Deviation	%Deviation
1969	34867	0	0	0
1970	36935	2068	1724	4.67
1971	36985	50	-294	-0.79
1972	37438	453	109	0.29
1973	38919	1481	1137	2.92
1974	38927	8	-336	-0.86
1975	36706	-2221	-2565	-6.99
1976	36266	-440	-784	-2.16
1977	37452	1186	842	2.25
1978	38582	1130	786	2.04
1979	37797	-785	-1129	-2.99
1980	37496	-301	-645	-1.72
1981	36063	-1433	-1777	-4.93
1982	33720	-2343	-2687	-7.97
1983	34925	1205	861	2.47
1984	36284	1359	1015	2.8

1984	36284	1359	1015	2.8
1985	36514	230	-114	-0.31
1986	36786	272	-72	-0.2
1987	37982	1196	852	2.24
1988	40014	2032	1688	4.22
1989	41857	1843	1499	3.58
1990	42081	224	-120	-0.29
1991	40334	-1747	-2091	-5.18
1992	42011	1677	1333	3.17
1993	43327	1316	972	2.24
1994	44851	1524	1180	2.63
1995	45479	628	284	0.62
1996	45371	-108	-452	-1
1997	44780	-591	-935	-2.09
1998	45312	532	188	0.41
1999	45580	268	-76	-0.17
2000	45870	290	-54	-0.12

POPULATION

Year	Value	Change	Deviation	%Deviation
1969	68216	0	0	0
1970	68832	616	318	0.46
1971	69585	753	455	0.65
1972	70442	857	559	0.79
1973	72100	1658	1360	1.89
1974	72443	343	45	0.06
1975	72375	-68	-366	-0.51
1976	73435	1060	762	1.04
1977	74765	1330	1032	1.38
1978	75023	258	-40	-0.05
1979	75011	-12	-310	-0.41

1979	75011	-12	-310	-0.41
1980	75050	39	-259	-0.35
1981	75503	453	155	0.21
1982	75440	-63	-361	-0.48
1983	75048	-392	-690	-0.92
1984	75497	449	151	0.2
1985	75100	-397	-695	-0.93
1986	74137	-963	-1261	-1.7
1987	74067	-70	-368	-0.5
1988	73973	-94	-392	-0.53
1989	73835	-138	-436	-0.59
1990	73817	-18	-316	-0.43
1991	73752	-65	-363	-0.49
1992	73836	84	-214	-0.29
1993	75244	1408	1110	1.48
1994	76208	964	666	0.87
1995	76601	393	95	0.12
1996	76666	65	-233	-0.3
1997	76935	269	-29	-0.04
1998	77206	271	-27	-0.03
1999	77407	201	-97	-0.13
2000	77753	346	48	0.06

****** End of Report ******

Appendix III Table 13

LOCAL PUBLIC FINANCE IMPACT MODEL

Project name: Northwest Tennessee Harbor (Dyer, Lake & Obion Counties TN) Total

Dollar volume of construction project: $19,143,330

LOCAL PUBLIC FINANCE IMPACT MODEL

STANDARD IMPACT FORECAST FOR NORTHWEST TENNESSEE HARBOR (TN)

Change in local		impact	% change
Export income multiplier.....:		2.15	
Employment multiplier		2.15	
Sales volume	.....direct:	$ 10,239,460	
	.....indirect:	$ 11,775,380	
	.....total:	$ 22,014,830	1.15%
Employment.....direct:		51	
	.....total:	109	0.24%
Income.....direct:		$ 1,654,343	
	.....total by place of work:	$ 3,556,837	0.23%
	..total by place of residence		
Population.....:		0	0.000

developed by Dennis P. Robinson and Harry H. Keiejian in
LOCAL PUBLIC FINANCE IMPACT MODEL: USER'S GUIDE AND TECHNICAL DOCUMENTATION. Alexandria, VA: U.S. Army Institute for Water

ECONOMIC BASE STUDY

The purpose of this section is to provide background information about the region where the project benefits are to take place to give the decision-maker some insight and provide a broader perspective of the regional setting where the public investment is to take place.

Introduction

An economic base study can provide an initial step that can aid in the understanding of the identification of a public problem and the prescribed remedy in terms of public investment in identifying the economic context in which the problem exists to gain some perspective on the relative size of the problem and shed light on the problem from public or private investment. Understanding the economic environment allows us to glean some insight into the consequences and possible impacts of public investment in terms of economic growth and in the quality of living standards of the affected communities.

Regional Economic Growth

Economic Base Analysis

Among the factors that need consideration when assessing a region current economic state and its potential for future growth are:

1. The sources of current income and employment
2. The prospects for economic growth or decline
3. Relationship of land use and community services to economic growth or decline.

An economic base study identifies the key economic activities of a community.[9] Economic Base Theory provides an analytical framework and a primary means of identifying a region's key industries with respect to potential growth. The first step is to identify the industrial structure of the region by examining the number of people (in both absolute and relative terms) employed by each industry (standard industrial code, SIC) in the region, then looking at the comparable statistics for the national economy with the idea being to develop a measure of resource allocation with respect to the national pattern.

This measure is called a Location Quotient (LQ) which compares local employment in an industry to national employment in the same industry, the underlying idea being that if the region employs more resources in a particular industry relative to the national employment in that industry the region is producing for both domestic and export purposes. The Location Quotient looks at the relative employment of local labor to the national employment using the national employment base as a national average

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[9] The Community Economic Base Study Charles M. Tiebout, Committee for Economic Development Supplemental Paper No. 16 December 1962.

Location Quotient (LQ):

$$LQ = \frac{\dfrac{Employment_{Industry_{a\ local}}}{Employment_{Total_{local}}}}{\dfrac{Employment_{Industry_{a\ national}}}{Employment_{Total_{national}}}}$$

The measure is designed to identify key export industries placing emphasis on industries with a LQ coefficient with a value greater than one (identified as basic or export industries) vis-a-vis those industries with a LQ value of one or less (identified as non-basic non exporting industries). Export industries are presumed to be prime movers of the local economy. If employment serving the export market rises or falls, employment serving the non-basic local market is presumed to move in the same direction. In the economic base analysis is the tacit recognition that firms within industries sell their products to both basic and non-basic markets. A simplifying assumption is that over the long run the proportion of basic to non-basic jobs will remain the same.

Export Industries and Regional Competitive Advantage

The identification of the key export industries (LQ>1) indicates the region's source of comparative or competitive advantage in that employment growth in the export (basic) industries will precipitate increased employment in the non-basic industries. For example, if a community's total employment were 100,000, and 40,000 were in basic and 60,000 in non-basic employment then given a new plant opens in the community and increases employment by 400 jobs, the long run consequences would be an increase of 600 jobs in the non-basic sector (6 non-basic jobs for each 4 basic jobs) new jobs created in the basic industry, then 1000 new jobs would be added to the economy. Table 14 displays the location quotients for the three Northwest Tennessee counties for two periods: 1998 and 2001.

Industry by Employment and Structure

The industrial structure of an area characterizes the relative employment shares (importance) of an industry in that area to total employment for the same area. There has been a significant shift in employment away from farming to the manufacturing sector. This shift in part has been caused by technical changes in farming since 1950. Other reasons include unpredictability in the weather, higher costs with no offsetting increase in prices received by farmers resulting in lower profits, and the emergence of corporate farming (economies of scale).

Table 14 displays LQ data. It should be noted that some of the individual industries have missing data or the figure was omitted entirely due to the sensitive nature of the industry, but the totals are correct. For manufacturing, the largest sector, some components for durable and non-durable employment are missing. Therefore, total employment in manufacturing is understated and care must be exercised when interpreting the data.

Table 14

Employment Location Quotient: Dyer, Lake, & Obion County Area

Industry	SIC	Employment (2001)	1998	2001	Trend
Agriculture		19	0.8012	0.3867	↓
Utilities		25	0.1687	0.1427	↓
Contract Construction		1471	1.0674	0.8462	↓
Manufacturing		13293	**2.7462**	**3.1124**	↑
Wholesale Trade		1265	0.8988	0.7692	↓
Retail Trade		4149	1.0229	1.0406	↓
Transportation		501	0.5911	0.4989	↓
Information		311	0.2819	0.3093	↑
Finance & Insurance		1010	0.4925	0.6037	↑
Real Estate		195	0.4078	0.3617	↓
Professional		329	0.1838	0.1717	↓
Management		0	0.0941	0	↓
Admin. Support		1805	0.8629	0.7439	↓
Educational Services		0	0.0465	0	↓
Health Care		2667	0.7110	0.6853	↓
Arts, entertainment		135	0.2356	0.2832	↑
Accommodation		2318	0.6939	0.8681	↑
Other Service		971	0.6969	0.6752	↓
Auxiliaries		0	0	0	
Unclassified	90	19	0	0.6743	↑

Comparative Advantage and Growth

Two analytical measures of a region's employment / economic base and its relative well being are: the **Location Quotient Analysis** and the **Shift-Share Analysis.** The Location Quotient is a measure of an area's comparative advantage (competitive advantage gained from region's industrial specialization).[10] Those industries which are more productive in the region than the surrounding regions will be the export industries. Table 15 and Figure 2 displays the Location Quotients or actual comparative advantages of and the Dyer, Lake and Obion Counties for selected years. If the Location Quotient for a particular industry is greater than one, the industry is considered an export based industry, and as such, parts of the region's comparative advantage. If the number is less than one, the region is weak in the industry. If the LQ is equal to one, the region is at unity with the national average. This measure is a benchmark for regional planning decision-making.

Table 16 and Figure 2. demonstrate a comparative advantage in agriculture, construction, manufacturing and retail trade. While its comparative advantage in wholesale has been declining it still holds some comparative advantage in wholesale. Data were not available for mining and finance for the selected years. The Dyer, Lake and Obion counties has comparative advantages in construction, manufacturing, retail, wholesale, health care, and accommodation and food service.

The second measure, Shift-Share Analysis, is used primarily to identify the growth components of employment in a region between three dynamic effects: industry mix effect (structure), regional competitive effect (regional competition) and national growth. Table 17 and Figure 3 displays 1998 to 2001 data shift-share analysis for the three-county Northwest Tennessee area: Dyer, Lake and Obion Counties. It should be noted that the sign in front of the numerical values for each of the three is important to the interpretation of the effects. Also, the magnitude of the measure is important to the interpretation of the relative contribution of each measure to the change in the region's employment.

Tables 17 and 18 and Figure 3. display the negative influence of the industry mix effect on manufacturing industry. While there is a negative effect of the regional competitive effect upon construction, wholesale, administration, and healthcare industries. While all components had a positive effect upon: finance, and accommodation and food service industries, who also displayed positive absolute growth. The Dyer, Lake and Obion counties region have comparative advantages in construction, transportation, wholesale, retail and service.

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[10] Richardson H. W. Elements of Regional Economics. Penguin Books Baltimore Maryland (1969) pages 27-44. Also see Webber, Michael, J. Impact of Uncertainty on Location. The M.I.T Press, Cambridge, Massachusetts and London, England. (1972): pages 73-80.

Table 15[11]
Employment & Location Quotients - Comparative Advantages

Industry\Year	1998	2001	1998	2001
Agriculture:				
United States			1.00	1.00
Dyer, Lake and Obion counties	43	19	0.8012	0.3867
Utilities				
United States			1.00	1.00
Dyer, Lake and Obion counties	33	25	0.1687	0.1427
Construction:				
United States			1.00	1.00
Dyer, Lake and Obion counties	1,775	1,471	1.0674	0.8462
Manufacturing:				
United States			1.00	1.00
Dyer, Lake and Obion counties	13,347	13,293	2.7462	3.1124
Wholesale:				
United States			1.00	1.00
Dyer, Lake and Obion counties	1,517	1,265	0.8988	0.7692
Retail:				
United States			1.00	1.00
Dyer, Lake and Obion counties	4,178	4,149	1.0229	1.0406
Transportation:				
United States			1.00	1.00
Dyer, Lake and Obion counties	587	501	0.5911	0.4989
Information:				
United States			1.00	1.00
Dyer, Lake and Obion counties	254	311	0.2819	0.3093
Finance, etc.:				
United States			1.00	1.00
Dyer, Lake and Obion counties	815	1010	0.4925	0.6037
Real Estate etc.:				
United States			1.00	1.00
Dyer, Lake and Obion counties	212	195	0.4078	0.3617
Professional etc.:				
United States			1.00	1.00
Dyer, Lake and Obion counties	319	329	0.1838	0.1717
Management etc.:				
United States			1.00	1.00
Dyer, Lake and Obion counties	73	0	0.0941	0
Administrative, etc.:				
United States			1.00	1.00
Dyer, Lake and Obion counties	1924	1805	0.8629	0.7439
Health Care, etc.:				
United States			1.00	1.00
Dyer, Lake and Obion counties	2,766	2,667	0.7010	0.6853
Arts, entertainment, etc.:				
United States			1.00	1.00
Dyer, Lake and Obion counties	107	135	0.2356	0.2832
Accommodation & Food Service:				
United States			1.00	1.00
Dyer, Lake and Obion counties	1,884	2,318	0.6939	0.8681
Other Services:				
United States			1.00	1.00
Dyer, Lake and Obion counties	1,007	971	0.6969	0.6752
Unclassified.:				
United States			1.00	1.00
Dyer, Lake and Obion counties	0	19	0	0.6743

[11] United States Army Corps of Engineers, Construction Engineering Research Laboratory (CERL) **Computer Data Base**, Environmental Technical Information System (ETIS).

Table 16
LOCATION QUOTIENT ANALYSIS

Industry Employment	Regions Lake, Dyer, Obion Co 1998	Lake, Dyer, Obion Co 2001	United States 1998	United States 2001	Regional Employ Factor	National Employ Factor	Location Quotient 1998	Regional Employ Factor	Location Quotient National Employ Factor	Locat Quoti 200
Total	31009	30809	108117731	115061184						
Forestry, Agriculture etc	43	19	187133	183476	0.14	0.2	0.8012	0.06	0.16	0.38
Utilities	33	25	682217	654484	0.11	0.6	0.1687	0.08	0.57	0.14
Construction	1775	1471	5798261	6491994	5.72	5.4	**1.0674**	4.77	5.64	0.84
Manufacturing	13347	13293	16945834	15950424	43.04	15.7	**2.7462**	43.15	13.86	**3.11**
Wholesale trade	1517	1265	5884946	6142089	4.89	5.4	0.8988	4.11	5.34	0.76
Retail trade	4178	4149	14240726	14890289	13.47	13.2	**1.0229**	13.47	12.94	**1.04**
Transportation & warehousing	587	501	3462472	3750663	1.89	3.2	0.5911	1.63	3.26	0.49
Information	254	311	3141957	3754698	0.82	2.9	0.2819	1.01	3.26	0.30
Finance & insurance	815	1010	5770209	6248400	2.63	5.3	0.4925	3.28	5.43	0.60
Real estate & rental & leasing	212	195	1812621	2013673	0.68	1.7	0.4078	0.63	1.75	0.36
Professional, scientific	319	329	6051636	7156579	1.03	5.6	0.1838	1.07	6.22	0.17
Management of companies	73	0	2703798	2879223	0.24	2.5	0.0941	0.00	2.50	0.00
Administrative, support,	1924	1805	7774610	9061987	6.20	7.2	0.8629	5.86	7.88	0.74
Educational services	31	0	2323744	2612430	0.10	2.1	0.0465	0.00	2.27	0.00
Health care and social assistance	2766	2667	13757996	14534726	8.92	12.7	0.7010	8.66	12.63	0.68
Arts, entertainment & recreation	107	135	1583783	1780362	0.35	1.5	0.2356	0.44	1.55	0.28
Accommodation & food services	1884	2318	9466088	9972301	6.08	8.8	0.6939	7.52	8.67	0.86
Other services (except public admin.)	1007	971	5037866	5370479	3.25	4.7	0.6969	3.15	4.67	0.67
Auxiliaries (exc corporate)	0	0	916349	1022114	0.00	0.8	0.0000	0.00	0.89	0.00
Unclassified establishments	0	19	77642	105228	0.00	0.1	0.0000	0.06	0.09	0.67

Table 17

SHIFT-SHARE ANALYSIS [12]

INDUSTRY	Employment Growth Components: Lake, Dyer, & Obion Counties 1998	Lake, Dyer, & Obion Counties 2001	United States 1998	United States 2001	Growth Decline: U.S. Growth Employment.	Regional Growth Employment.	Growth Components: National Growth Element	Industry Mix Effect	Regional Competitive Effect	Absolute Growth Regional
Total	31009	30809	108117731	115061184	0.06	-0.01	1991.4	0.0	-2191.4	-200.0
Forestry, Agriculture	43	19	187133	183476	-0.02	-0.56	2.8	-3.6	-23.2	-24.0
Mining	0	0	497843	485565	-0.02	0.00	0.0	0.0	0.0	0.0
Utilities	33	25	682217	654484	-0.04	-0.24	2.1	-3.5	-6.7	-8.0
Construction	1775	1471	5798261	6491994	0.12	-0.17	114.0	98.4	-516.4	-304.0
Manufacturing	13347	13293	16945834	15950424	-0.06	0.00	857.2	-1641.2	730.0	-54.0
Wholesale trade	1517	1265	5884946	6142089	0.04	-0.17	97.4	-31.1	-318.3	-252.0
Retail trade	4178	4149	14240726	14890289	0.05	-0.01	268.3	-77.7	-219.6	-29.0
Transportation	587	501	3462472	3750663	0.08	-0.15	37.7	11.2	-134.9	-86.0
Information	254	311	3141957	3754698	0.20	0.22	16.3	33.2	7.5	57.0
Finance & insurance	815	1010	5770209	6248400	0.08	0.24	52.3	15.2	127.5	195.0
Real estate	212	195	1812621	2013673	0.11	-0.08	13.6	9.9	-40.5	-17.0
Professional, scientific	319	329	6051636	7156579	0.18	0.03	20.5	37.8	-48.2	10.0
Management of companies	73	0	2703798	2879223	0.06	-1.00	4.7	0.0	-77.7	-73.0
Administration	1924	1805	7774610	9061987	0.17	-0.06	123.6	195.0	-437.6	-119.0
Educational services	31	0	2323744	2612430	0.12	-1.00	2.0	1.9	-34.9	-31.0
Health care	2766	2667	13757996	14534726	0.06	-0.04	177.6	-21.5	-255.2	-99.0
Arts, entertainment	107	135	1583783	1780362	0.12	0.26	6.9	6.4	14.7	28.0
Accommodation	1884	2318	9466088	9972301	0.05	0.23	121.0	-20.2	333.3	434.0
Other services	1007	971	5037866	5370479	0.07	-0.04	64.7	1.8	-102.5	-36.0
Auxiliaries (exc)	0	0	916349	1022114	0.12	0.00	0.0	0.0	0.0	0.0
Unclassified estab.	0	19	77642	105228	0.36	0.00	0.0	0.0	0.0	19.0

[12] http://www.fedstats.gov/

Figure 2
Location Quotients: Dyer, Lake & Obion Counties 1998 & 2001

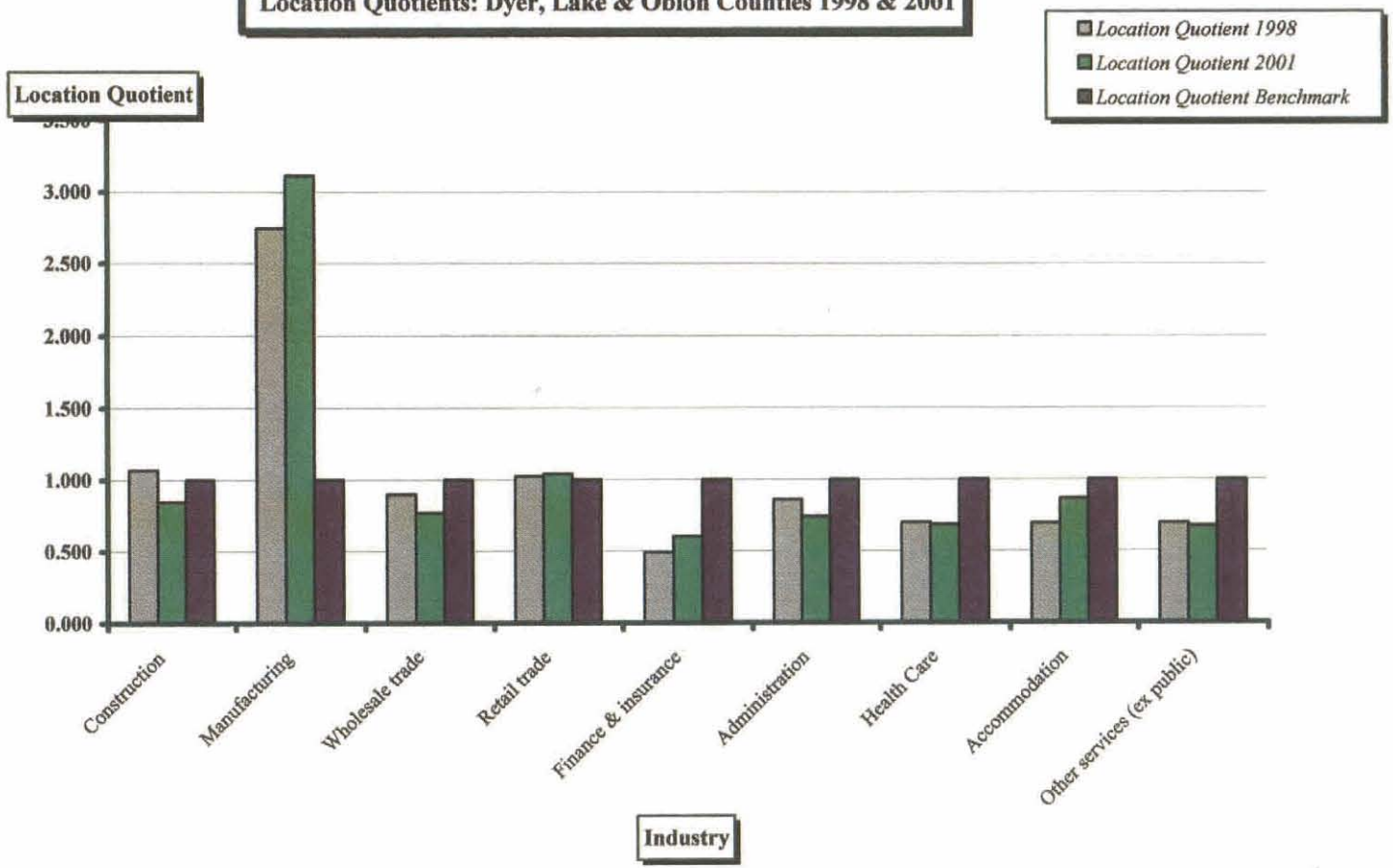
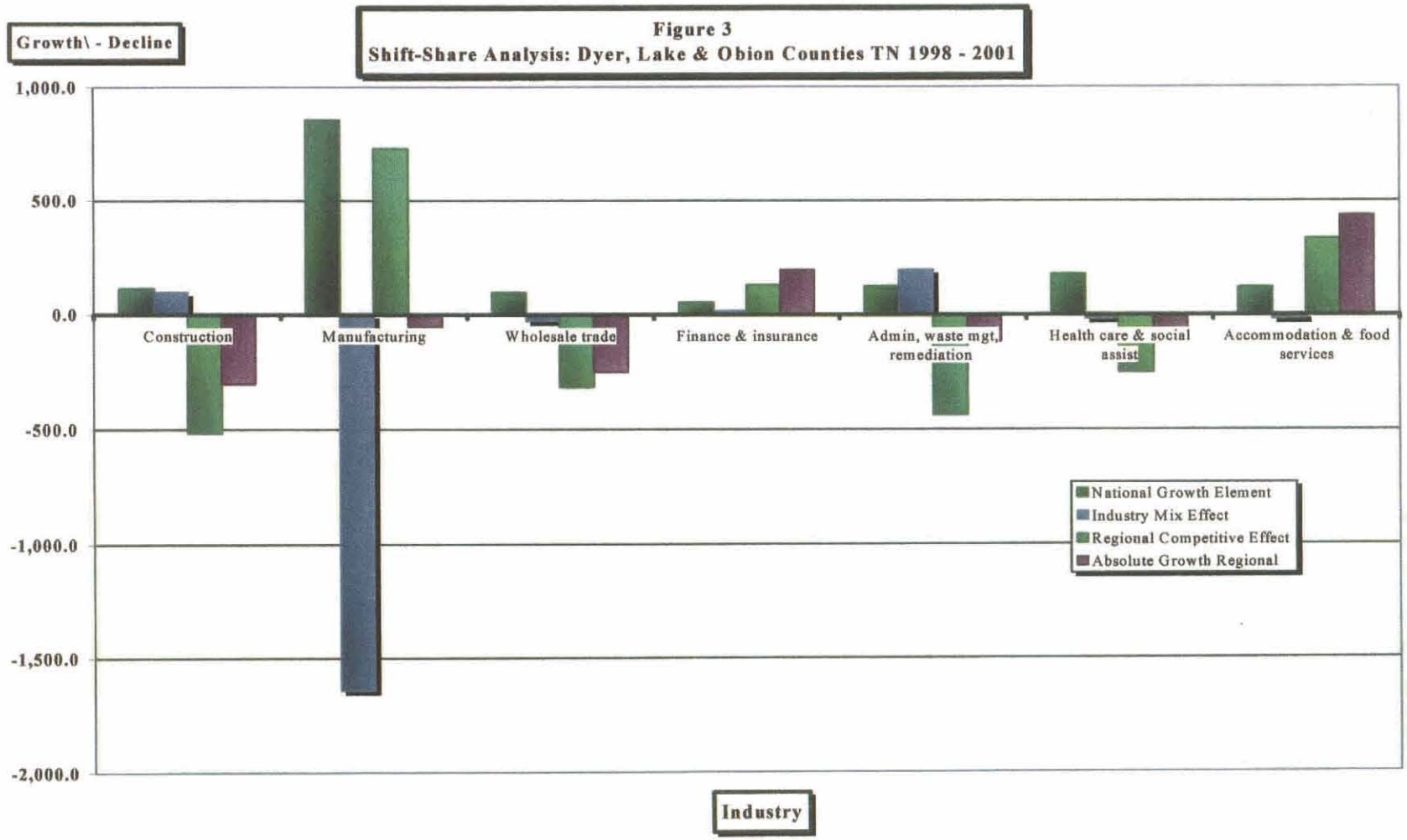


TABLE 18
SHIFT-SHARE
ANALYSIS

INDUSTRY	Lake, Dyer, & Obion Counties	Lake, Dyer, & Obion Counties	Employment United States	Growth	Components Growth U.S. Growth Employment.	Decline Regional Growth Employment.	Growth Components National Growth Element	Industry Mix Effect	Regional Competitive Effect	Absolute Growth Regional
	1,998	2,001	1,998	2,001						
	Col. 1	Col. 2 3/	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Total	31,009	30,809	108,117,731	115,061,184	0.06	-0.01	1991.4	0.0	-2191.4	-200.
Forestry, Agriculture	43	19	187,133	183,476	-0.02	-0.56	2.8	-3.6	-23.2	-24.
Mining	0	0	497,843	485,565	-0.02	0.00	0.0	0.0	0.0	0.
Utilities	33	25	682,217	654,484	-0.04	-0.24	2.1	-3.5	-6.7	-8.
Construction	1,775	1,471	5,798,261	6,491,994	0.12	-0.17	114.0	98.4	-516.4	-304.
Manufacturing	13,347	13,293	16,945,834	15,950,424	-0.06	0.00	857.2	-1681.2	730.0	-54.
Wholesale trade	1,517	1,265	5,884,946	6,142,089	0.04	-0.17	97.4	-31.1	-318.3	-252.
Retail trade	4,178	4,149	14,240,726	14,890,289	0.05	-0.01	268.3	-77.7	-219.6	-29.
Transportation	587	501	3,462,472	3,750,663	0.08	-0.15	37.7	11.2	-134.9	-86.
Information	254	311	3,141,957	3,754,698	0.20	0.22	16.3	33.2	7.5	57.
Finance & insurance	815	1,010	5,770,209	6,248,400	0.08	0.24	52.3	15.2	127.5	195.
Real estate	212	195	1,812,621	2,013,673	0.11	-0.08	13.6	9.9	-40.5	-17.
Professional, scientific	319	329	6,051,636	7,156,579	0.18	0.03	20.5	37.8	-48.2	10.
Management of companies	73	0	2,703,798	2,879,223	0.06	-1.00	4.7	0.0	-77.7	-73.
Administration	1,924	1,805	7,774,610	9,061,987	0.17	-0.06	123.6	195.0	-437.6	-119.
Educational services	31	0	2,323,744	2,612,430	0.12	-1.00	2.0	1.9	-34.9	-31.
Health care	2,766	2,667	13,757,996	14,534,726	0.06	-0.04	177.6	-21.5	-255.2	-99.
Arts, entertainment	107	135	1,583,783	1,780,362	0.12	0.26	6.9	6.4	14.7	28.
Accommodation	1,884	2,318	9,466,088	9,972,301	0.05	0.23	121.0	-20.2	333.3	434.
Other services	1,007	971	5,037,866	5,370,479	0.07	-0.04	64.7	1.8	-102.5	-36.
Auxiliaries (exc)	0	0	916,349	1,022,114	0.12	0.00	0.0	0.0	0.0	0.
Unclassified estab.	0	19	77,642	105,228	0.36	0.00	0.0	0.0	0.0	19.

1/ Source: BEA Time series Employment Full Time & Part Time 1969 1986: 1985 & 2035 (EIFS)
2/ Column 10 is a summation of columns 7, 8 and 9.
3/ OBERS Arkansas entire state


Growth\ - Decline
Figure 3
Shift-Share Analysis: Dyer, Lake & Obion Counties TN 1998 - 2001
1,000.0
500.0
0.0
-500.0
-1,000.0
-1,500.0
-2,000.0
Construction
Manufacturing
Wholesale trade
Finance & insurance
Admin, waste mgt, remediation
Health care & social assist
Accommodation & food services
National Growth Element
Industry Mix Effect
Regional Competitive Effect
Absolute Growth Regional
Industry

APPENDIX IV

ENVIRONMENTAL ANALYSIS
(Under Separate Cover)

APPENDIX V

REAL ESTATE PLAN

NORTHWEST TENNESSEE REGIONAL HARBOR REAL ESTATE PLAN

17 Dec 2004

1. Purpose of Real Estate Plan

This Real Estate Plan (REP) is prepared in support of the Detailed Project Report, a feasibility level study of the Northwest Tennessee Regional Harbor Project at Cates Landing. The U. S. Army Corps of Engineers, Memphis District, conducted the study under the authority of the Chief of Engineers to develop and construct small navigational projects that have not been specifically authorized by Congress. The project was authorized under Section 107 of the River and Harbor Act of 1960.

2. Description of Feature

The Northwest Tennessee Regional Harbor Project is a feasibility level study based on locating an inland harbor in Lake County about 4 miles north of Tiptonville, Tennessee. The Memphis District, U.S. Army Corps of Engineers, has proposed the following feature.

Recommended Plan - The recommended plan for locating a harbor at Cates Landing is Alternative 5 With Bottom Width Transition. The harbor's General Navigation Feature (GNF) will require about 420 acres. The sponsor will need to purchase about 356 acres of land in fee. The disposal area will initially need a total of about 222 acres with 66 acres located on the riverside of the Mississippi River's Main Line Levee and 156 acres located on the landside of the levee. Disposal material will be placed against the levee. An additional 134 acres of frequently flooded agricultural lands will be needed for the mitigation of the disposal and harbor sites. The specific location of these mitigation lands is currently unidentified. The project will also require about 64 acres of the existing harbor, which meets the criteria for navigational servitude.

Future Disposal Area - In addition to the land needed for project construction, the operation and maintenance (O&M) of the harbor may require additional land for future disposal of dredged material. In accordance with ER 1105-2-100, 22 Apr 2000, Paragraph 3-2b.(8) a Dredged Material Management Plan (DMMP) is included as Appendix X to this report. The DMMP will ensure that maintenance-dredging activities are performed in an environmentally acceptable manner, use sound engineering techniques, are economically warranted, and that sufficient confined disposal areas are available for at least the next 20 years. The Corps will update the DMMP periodically to identify any potentially changed conditions and will inform the sponsor of the need for any additional dredge disposal areas.

The amount of land needed for future disposal for this project has been estimated at about 39 acres every 5-years for as long as the project is authorized. The disposal area (156 acres) cost for the first 20-years of the project has been estimated for LERR and is shown on page 2 of the Real Estate Plan. The sponsor must purchase the land in fee and provide all lands needed for the disposal area to the Government before initial dredging can begin. In addition, the sponsor is responsible for acquiring land in fee for disposal areas for the subsequent periods of construction. The estimated disposal area costs for the subsequent periods of construction were annualized and included in the average annual cost estimate for the project. In accordance with Article IV of the PCA, lands provided during the period of construction are eligible for LERR crediting when the sponsor provides the Government with authorization for entry to the disposal area.

Northwest Tennessee Regional Harbor - Section 107

Estates and Acres

Lake County, TN	
Harbor Disposal Area Riverside of Levee (Fee)	
Agriculture Land	
Private Parties	66.0 Acres
Harbor Disposal Area Landside of Levee (Fee) 1/	
Agriculture Land	
Private Parties	156.0 Acres
Mitigation (Fee)	
Agriculture Lands (Flooded)	
Private Parties	134.0 Acres
Mississippi River - (Navigational Servitude)	
River Channel	
Federal Government	64.0 Acres
TOTAL ACRES	**420.0 Acres**

Ownership and Tracts: Twelve tracts will be involved. Twelve tracts are privately owned, and navigation servitude is used for the river channel.

Estimated costs for Lands & Damages	**$ 715,000**	
Estimated costs for Acquisition & Administrative	**96,000**	
Navigational Servitude	**0**	
P. L. 91-646 Benefits	**0**	
TOTAL PROJECT REAL ESTATE COST	**$ 811,000**	
Allocation of Costs		
Non-Federal Sponsor	**$ 787,000**	**2/**
Federal	**$ 24,000**	

1/ Future disposal area will require about 39 acres every 5th year for a total of 156 acres during the first 20-year period. (Note: The estimated disposal area costs for the subsequent periods of construction were annualized and included in the average annual cost estimate for the project.) These lands are eligible for LERR crediting to the Non-Federal Sponsor when the sponsor provides the Government with authorization for entry to the disposal area.

2/ LERR credit has exceeded the second 10% of total GNF costs. (See Table 5 - Allocation of Project First Costs in the beginning of the main report.) Unused past and future LERR credits will be credited against the second 10% for GNF construction of dredged disposal dikes/structures during the subsequent periods of construction.

3. Sponsor-Owned Real Estate Rights

The non-Federal sponsor is the Northwest Tennessee Port Authority. The sponsor has no real estate at the proposed site.

4. Proposed Estates

No non-standard estates are proposed for project acquisition. Right-of-way for this project will be acquired through the use of the following estate: Fee Simple. Under the requirements of ER 405-1-12, Change 31, 1 May 98, section 12-9 b. (7), the appropriate real estate interest for projects related to disposal areas and inland harbors are in fee title. Mitigation lands will also be in fee title. Description of this estate is referenced in ER 405-1-12, Change 7, 8 Feb 79, Figure 6, paragraph 1, page 5-235. The sponsor will need to get a permit or license from the Levee Board to place disposal material against the Mississippi River's Main Line Levee at Cates Landing.

5. Existing Federal Projects

There are no existing Federal projects at Cates Landing.

6. Existing Federal Lands

No project lands are presently owned by the Federal Government. It should be noted that the Federal Government turned over the Corps casting field lands that were located at the end of the existing harbor channel and east of the project right-of way, to the Lake County government on December 15, 1992.

7. Navigational Servitude

The Mississippi River is considered to be navigable waters of the United States. Real estate rights are needed for dredging about 64 acres of the existing harbor channel and some of the land next to the channel that is located below the ordinary high water mark. Since this is a navigation project, and because the project feature serves a purpose, which is in aid of commerce, the navigational servitude is available for the harbor project. As navigable waters that are presently used, or have been used in the past, the Federal Government has a perpetual easement right to the real estate below the ordinary high water mark. (33 CFR 329)

8. Maps

A map of the overall project with the disposal sites are shown in Plate 2 of the main report. The tracts to be acquired will be finalized in plans and specs. The tracts to be acquired will be the responsibility of the project sponsor.

9. Induced Flooding

No induced flooding outside the feature boundaries is expected to be caused by the construction, operation, or maintenance of the project.

10. Baseline Cost Estimate for Real Estate

A Baseline Cost Estimate for Real Estate is attached.

11. PL 91-646 Residence/Business Relocations

There are no known Public Law 91-646 relocations necessary for the project. No person, farms, or business will be displaced as a result of the project. The Cronanville Cemetery, which is located about 3/4 miles south of the project right-of-way, will not be impacted.

12. Timber and Minerals

Surface and subsurface mineral activity in the vicinity is not present. No commercial timber is present in the project area.

13. Non-Federal Sponsor's Acquisition Capability

The non-Federal sponsor is the Northwest Tennessee Port Authority. The newly formed Port Authority will receive help from Lake County, and they have the experience in acquiring lands for the construction, operation, and maintenance of the project. The sponsor has been notified of their responsibilities in regards to P.L. 91-646 actions. The booklets developed by the Federal Highway Administration have been provided to the sponsor. The non-Federal Sponsor has been told of the importance of keeping accurate records of their time and costs for the project and of reasonable items of administration.

The non-Federal sponsor will provide all lands, easements, and right-of-way necessary for the construction and maintenance of the project. The Acquisition Capability Checklist is included as an attachment.

14. Zoning Ordinances

Lands located within the project area are classified as agricultural lands. The land may be zoned commercial or industrial with the project.

15. Acquisition Schedule

Acquisitions will not be initiated until after the Project Cooperation Agreement is signed. No condemnation is anticipated, and the following schedule is based on the premise that no condemnation will be required. A deviation from any of these assumptions will affect the schedule. This schedule shows the duration of each event, as well as the cumulative duration from the beginning of real estate activities.

1) Request right-of-entry from non-Federal sponsor	Begin real estate activities
2) Non-Federal sponsor obtains title information	½ month (½ month total)
3) Non-Federal sponsor obtains mapping information	1 month (1½ months total)
4) Non-Federal sponsor obtains appraisals	1 month (2½ months total)
5) Non-Federal sponsor issues right-of-entry	2 months (4½ months total)
6) If condemnation is necessary, the non-Federal sponsor issues right-of-entry	1½ months (6 months total)

16. Facility/Utility Relocations

A review of the construction plans and field inspection of the project area revealed that no relocations of public facilities or utilities are needed for this project. Since there are no relocations, no attorney's report is needed regarding compensable interest.

17. Hazardous, Toxic, and Radioactive Wastes

No evidence of existing or potential HTRW sites was noted during an inspection of the project right-of-way. Based upon information gathered during the Corps of Engineers assessment, it is reasonable to assume that no HTRW will be encountered within or near the project. There should be no impact to real estate by HTRW.

18. Support or Opposition by Landowners

Landowners in the area support the concept of locating a harbor at Cates Landing.

19. Notice to Sponsor

The non-Federal sponsor has been notified about the risks associated with acquiring land before the execution of the PCA.

20. Other Issues

There are no other issues to be discussed.

BASELINE COST ESTIMATE FOR REAL ESTATE

Project Name: Northwest Tennessee Regional Harbor

Project Activity: Real Estate Lands

Work Category Codes				
	Estimated Number of Owners:	12		
	Contingency Percentage		25%	
01	**LANDS AND DAMAGES**	PROJECT COST	CONTINGENCY	TOTAL
01A	**PROJECT PLANNING**			
01A10	REAL ESTATE SUPPLEMENT/PLAN	$ -	$ -	$ -
01A20	PRELIMINARY RE ACQUISITION MAPS	$ 2,400	$ 600	$ 3,000
01A30	PHYSICAL TAKINGS ANALYSIS	$ -	$ -	$ -
01A40	PRELIMINARY ATTORNEY'S OPINION OF COMPENSABILITY	$ -	$ -	$ -
01A50	ALL OTHER REAL ESTATE ANALYSES/DOCUMENTS	$ -	$ -	$ -
01B	**ACQUISITIONS**			
01B10	BY GOVERNMENT	$ -	$ -	$ -
01B20	BY LOCAL SPONSOR (LS)	$ 12,000	$ 3,000	$ 15,000
01B30	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01B40	REVIEW OF LOCAL SPONSOR	$ 2,400	$ 600	$ 3,000
01C	**CONDEMNATIONS**			
01C10	BY GOVERNMENT	$ -	$ -	$ -
01C20	BY LOCAL SPONSOR (LS)	$ -	$ -	$ -
01C30	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01C40	REVIEW OF LOCAL SPONSOR	$ -	$ -	$ -
01D	**INLEASING**			
01D10	BY GOVERNMENT	$ -	$ -	$ -
01D20	BY LOCAL SPONSOR (LS)	$ -	$ -	$ -
01D30	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01D40	REVIEW OF LOCAL SPONSOR	$ -	$ -	$ -
01E	**APPRAISAL**			
01E10	BY GOVERNMENT (IN HOUSE)	$ -	$ -	$ -
01E20	BY GOVERNMENT (CONTRACT)	$ -	$ -	$ -
01E30	BY LOCAL SPONSOR (LS)	$ 7,200	$ 1,800	$ 9,000
01E40	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01E50	REVIEW OF LOCAL SPONSOR	$ 2,400	$ 600	$ 3,000
01F	**PL 91-646 ASSISTANCE**			
01F10	BY GOVERNMENT	$ -	$ -	$ -
01F20	BY LOCAL SPONSOR (LS)	$ -	$ -	$ -
01F30	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01F40	REVIEW OF LOCAL SPONSOR	$ -	$ -	$ -
01G	**TEMPORARY PERMITS/LICENSES/RIGHTS-OF-ENTRY**			
01G10	BY GOVERNMENT	$ -	$ -	$ -
01G20	BY LOCAL SPONSOR (LS)	$ 7,200	$ 1,800	$ 9,000
01G30	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01G40	REVIEW OF LOCAL SPONSOR	$ -	$ -	$ -
01G50	OTHER	$ -	$ -	$ -
01G60	DAMAGE CLAIMS	$ -	$ -	$ -
01H	**AUDITS**			
01H10	BY GOVERNMENT	$ -	$ -	$ -
01H20	BY LOCAL SPONSOR (LS)	$ 7,200	$ 1,800	$ 9,000
01H30	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01H40	REVIEW OF LOCAL SPONSOR	$ 2,400	$ 600	$ 3,000

BASELINE COST ESTIMATE FOR REAL ESTATE

	Project Activity: Real Estate Lands	PROJECT COST	CONTINGENCY	TOTAL
01J	**ENCROACHMENTS AND TRESPASS**			
01J10	BY GOVERNMENT	$ -	$ -	$ -
01J20	BY LOCAL SPONSOR (LS)	$ -	$ -	$ -
01J30	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01J40	REVIEW OF LOCAL SPONSOR	$ -	$ -	$ -
01K	**DISPOSALS**			
01K10	BY GOVERNMENT	$ -	$ -	$ -
01K20	BY LOCAL SPONSOR (LS)	$ -	$ -	$ -
01K30	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01K40	REVIEW OF LOCAL SPONSOR	$ -	$ -	$ -
01L00	**REAL PROPERTY ACCOUNTABILITY**	$ -	$ -	$ -
01M00	**PROJECT RELATED ADMINISTRATION**	$ 12,000	$ 3,000	$ 15,000
01N00	**FACILITY/UTILITY RELOCATIONS**	$ -	$ -	$ -
01P00	**WITHDRAWALS (PUBLIC DOMAIN LAND)**	$ -	$ -	$ -
01Q00	**RESERVED FOR FUTURE HQUSACE USE**	$ -	$ -	$ -
01R	**REAL ESTATE PAYMENTS**			
01R1	**LAND PAYMENTS**			
01R1A	BY GOVERNMENT	$ -	$ -	$ -
01R1B	BY LOCAL SPONSOR (LS)	$ 572,000	$ 143,000	$ 715,000
01R1C	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01R1D	REVIEW OF LOCAL SPONSOR	$ 2,400	$ 600	$ 3,000
01R2	**PL 91-646 ASSISTANCE PAYMENTS**			
01R2A	BY GOVERNMENT	$ -	$ -	$ -
01R2B	BY LOCAL SPONSOR (LS)	$ -	N/A	$ -
01R2C	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01R2D	REVIEW OF LOCAL SPONSOR	$ -	$ -	$ -
01R3	**DAMAGE PAYMENTS**			
01R3A	BY GOVERNMENT	$ -	$ -	$ -
01R3B	BY LOCAL SPONSOR (LS)	$ -	$ -	$ -
01R3C	BY GOVERNMENT ON BEHALF OF LOCAL SPONSOR	$ -	$ -	$ -
01R3D	REVIEW OF LOCAL SPONSOR	$ -	$ -	$ -
01R9	**OTHER**	$ -	$ -	$ -
01S	**DISPOSAL RECEIPTS**			
01S10	DISPOSAL RECEIPTS - REIMBURSEMENTS (CR) - LANDS	$ -	$ -	$ -
01S20	DISPOSAL RECEIPTS - GENERAL FUND (CR) - LANDS	$ -	$ -	$ -
01T	**LERR CREDITING**			
01T10	LAND PAYMENTS	$ -	$ -	$ -
01T20	ADMINISTRATIVE COSTS	$ 12,000	$ 3,000	$ 15,000
01T30	PL 91-646 ASSISTANCE	$ -	$ -	$ -
01T40	ALL OTHER	$ 7,200	$ 1,800	$ 9,000
	Total Project Cost:	**$ 648,800**	**$ 162,200**	**$ 811,000**
	Total Federal:	**$ 19,200**	**$ 4,800**	**$ 24,000**
	Total Non-Federal:	**$ 629,600**	**$ 157,400**	**$ 787,000**

PROJECT NAME: Northwest Tennessee Regional Harbor - Section 107 STUDY LEVEL: Feasibility

ACQUISITION CAPABILITY CHECKLIST			
I. Legal Authority:		Yes	No
a.	Does the sponsor have legal authority to acquire and hold title to real property for project purposes?	X	
b.	Does the sponsor have the power of eminent domain for this project?	X	
c.	Does the sponsor have "quick-take" authority for this project?	X	
d.	Are any of the lands/interests in the land required for the project located outside of the sponsor's political boundary?		X
e.	Are any of the lands/interests in land required for the project owned by an entity whose property the sponsor can not condemn?		X
II. Human Resource Requirements:		Yes	No
a.	Will the sponsor's in-house staff require training to become familiar with the real estate requirements of Federal projects including P. L. 91-646, as amended?		X
b.	If the answer to II.a. is "yes," has a reasonable plan been developed to provide such training?		
c.	Does the sponsor's in-house staff have sufficient real estate acquisition experience to meet its responsibilities for the project?	X	
d.	Is the sponsor's projected in-house staffing level sufficient considering its other workload, if any, and the project schedule?	X	
e.	Can the sponsor obtain contractor support, if required, in a timely fashion?	X	
f.	Will the sponsor likely request USACE assistance in acquiring real estate? If "yes", provide description		X
III. Other Project Variables:		Yes	No
a.	Will the sponsor's staff be located within reasonable proximity to the project site?	X	
b.	Has the sponsor approved the project/real estate schedule/milestones?	X	
IV. Overall Assessment:		Yes	No - N/A
a.	Has the sponsor performed satisfactorily on other USACE projects?		X
b.	With regard to this project, the sponsor is anticipated to be:		
	Highly capable		
	Fully capable	X	
	Moderately capable		
	Marginally capable		
	Insufficiently capable (provide explanation)		
V. Coordination:		Yes	No
a.	Has this assessment been coordinated with the sponsor?	X	
b.	Does the sponsor concur with this assessment? If "No", provide explanation	X	

Prepared by:

Douglas B. Young
Staff Appraiser
February 20, 2004

Reviewed and Approved by:

Harris T. Vandergriff
Chief, Real Estate Division
February 20, 2004

APPENDIX VI

PROJECT MANAGEMENT PLAN

NORTHWEST TENNESSEE REGIONAL HARBOR

PROJECT MANAGEMENT PLAN

SEPTEMBER 2003

NORTHWEST TENNESSEE REGIONAL HARBOR
PROJECT MANAGEMENT PLAN

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PROJECT MANAGEMENT PLAN COORDINATION

Northwest Tennessee Harbor
Section 107

This Plan has been prepared in accordance with ER 5-7-1 (FR), Project Management.

Presented for Approval by:	James W. Lloyd, P.E.	9-5-2003
Approved by District PRB:	Edward E. Belk, P.E. Acting DDE(PM), Chairman	5 Sep 03
Chairman Port Authority	Jimmy Williamson	9/18/03
Chief, Engineering Division	Dennis J. Kamper, P.E.	9-16-03
Chief, Construction-Operations	Robert D. Cash, P.E.	9-10-03
Chief, Resource Mgt. Division	Jim Hayes	9-8-03
Chief, Contracting Division	Jean Todd	9 Sep 03
Chief, Real Estate Division	For Harris T. Vandergriff	9-8-03
District Counsel	David E. Sirmans	9-17-03
Deputy District Engineer	Major William L. Burrus	19 Sep 03
District Engineer	Colonel Jack V. Scherer	22 Sep 03

U.S. ARMY CORPS OF ENGINEERS
PROJECT DELIVERY TEAM

The U.S. Army Corps of Engineers, Memphis District Project Delivery Team members for the Northwest Tennessee Regional Harbor study are as follows:

Geotechnical Design Section

Hydrology and Hydraulics Branch

Real Estate Acquisition Branch

Construction Branch

River Engineering Section

Economics Section

Environmental Section

Relocations & Cost Engineering Branch

Project Management Branch

Project Management Branch

NORTHWEST TENNESSEE HARBOR
PROJECT MANAGEMENT PLAN

SECTION 1

GENERAL

INTRODUCTION

1. The purpose of this document is to present a plan for construction of the Northwest Tennessee Harbor, in Lake County, Tennessee. The project area is located at approximately Mississippi River Mile 900. It consists of developing a slack water harbor with stone bank paving to protect against streambank erosion. Depending on the selected plan, the harbor will be between 5,000-foot to 14,000-foot long with a 130-foot bottom-width and 9 feet depth channel with 2 feet overdredge. These depths are compatible with authorized dredging practices on the Mississippi River. The channel would be constructed to a bottom elevation of 250 feet, National Geodetic Vertical Datum.

2. The channel would be constructed using 1 vertical on 5 horizontal side slopes. Construction would be accomplished with hydraulic dredge with dredged material being placed into new retention areas along top bank of the eastside of the harbor.

3. The plan details the scope of completion of design, including preparation of plans and specifications (P&S) and construction efforts. It also presents schedules and cost estimates and defines organizational responsibilities. The Memphis District will provide project and program management, prepare all design documents, construction contract procurement, administration and construction management, Real Estate review of land acquisition and negotiate the Project Cooperation Agreement (PCA). The Local Sponsor will provide and/or acquire all necessary lands, easements, rights-of-way, relocations, and disposal areas.

4. The plan was developed through coordinated efforts of the Local Sponsor and the U.S. Army Corps of Engineers, Memphis District. Throughout the life of the project, the plan will be updated as necessary to reflect changing conditions.

PROJECT TEAM CONCEPT

5. The Deputy District Engineer for Project Management (DDEPM) for the Memphis District is responsible for the establishment of teams for each Project in coordination and concurrence with other District elements. These teams will be led by the Project Manager (PM) and include technical managers and other designated representatives from the relevant functional areas. Each functional Division Chief is responsible for the completion of the products in his Division necessary for project accomplishment. Upon request from the PM, acting through the DDEPM, the Division Chief will appoint representatives, Technical Managers to the project team to represent his Division and coordinate project-related activities within his Division.

6. Technical Manager's will assume the following responsibilities which relate to the project team concept:

a. Represent the Chief of the Functional Division.

b. Resolve problems within his Division which affect program execution, obtaining approval for changes from the PM or obtaining action from the Functional Division Chief when necessary.

c. Coordinate activities related to the project within his Division, including cost and schedule execution, reporting, correspondence requiring Division input, budgetary information, and A-E contract activities required to meet his Division's commitments.

d. Coordinate his Division's technical products across functional lines in the development of overall technical products.

e. Communicate with technical representatives of the sponsor in concert with the PM.

f. Notify the PM of all pertinent correspondence, meetings, delays, or significant project changes.

The team end product will be the preparation of P&S as described in the introduction and all steps necessary to let and manage a construction contract, and turn the project over to the sponsor for operation and maintenance. An in-house Technical Review Team will conduct concurrent review of the development of P&S.

SECTION 2

PROJECT EXECUTION STRATEGY

SCOPE OF WORK

Construction-Operations Division-Construction Branch

7. Provide policy guidance and support to the Area Office on questions pertaining to progress payments, interpretation of contract requirements, processing of modifications and claims, and other contract administration activities.

8. Provide assistance to the Area Office in reviewing shop drawings and submittals. Coordinate with Engineering Division to ensure shop drawings and submittals meet the design intent. Assist the Area Office in assuring contract requirements are met by providing construction expertise in the areas of structural, mechanical, earthwork, civil work and materials.

9. Review contract payment requests, final quantity computations, and finalized contract modifications prepared by the Area Office. Obligate funds for progress payment requests and certify funds availability for pending contract modifications.

10. Coordinate the biddability, constructibility, operability and environmental review of all P&S within Construction Branch. Compute performance time, liquidated damages, and anticipated contract weather days. Review the technical qualifications of the apparent low bidder prior to award.

11. Provide policy guidance and support to the Area Office in administering the construction quality management program. Provide coordination assistance to ensure that requests for information are staffed through the appropriate District elements. Perform periodic site visits to review field implementation of quality management procedures. Formulate specifications and initiate procurement of contracts for surveying and inspection services in support of the quality management program.

12. Formulate Construction Division operating budget and maintain upward reporting systems for construction function. Provide estimates to other District elements pertaining to construction contract placements and labor expenditures.

Construction-Operations Division-Caruthersville Area Office

13. Perform contract administration such as prework conferences, quality assurance, check contractor payrolls, safety inspections, process Contractor payment requests, resolve field problems, negotiate and document contract modifications, review and approval of Contractor submittals and progress schedules, compute final contract payment quantities, perform evaluation of Contractors, and administer construction support services contracts.

14. Provide liaison assistance to local interests on matters pertaining to present and future construction work. Accompany District elements during visits to construction sites. Provide upward reporting information pertaining to status of construction contracts.

15. Perform biddability, constructibility, operability and environmental review of P&S prior to advertisement. Prepare record survey and as-built information.

Contracting Division

16. Prepare/issue synopses for publication in the Commerce Business Daily.

17. Prepare and distribute invitations for bid. Set date of bid opening and conduct ceremonies. Coordinate pre-award surveys with other district elements. Award contracts.

18. Acquisition Plan: The construction of this project will be with one sealed bid acquisition estimated at $2,727,000 and advertised on an unrestricted basis for the following: excavation and dredging of a harbor, construction of a dredge material containment areas and construction of project mitigation features.

Engineering Division-Cost Engineering Branch

19. Perform and evaluate estimated costs for all P&S.

20. Prepare all invitation for bid estimates and review any required modifications.

Engineering Division-Design Branch

21. Provide routine coordination in preparation and review of P&S. Request rights-of-entry for acquisition of field data including surveys, mapping, and soil borings required for completion of design. Request seepage and stability analyses required for completion of design. Perform site visits. Provide project coordination for Engineering Division.

22. Prepare Scopes of Work for any A-E design. Submit Requests for Proposal, review and/or negotiate all proposals, and coordinate all A-E Design Notices to Proceed. Provide design criteria including finalized hydrologic and geotechnical criteria and/or design parameters. Monitors progress of A-E.

23. Design all items associated with construction of the navigation channel. Prepare all plans, profiles, cross-sections, details, rights-of-way maps, and technical specifications.

24. Determine rights-of-way (ROW) requirements and request ROW for construction. Determine all site design work including the site layout, excavation plan, identification of construction access, calculation of all earthwork quantities and completion of general civil design.

25. Prepare quantity takeoffs, specifications, charts, plates and drawings. Request reproduction for distribution and review.

26. Prepare the storm water pollution plan and request application for permit from the State. Request environmental and cultural resource investigations.

27. Perform and coordinate quality review at all stages of design effort. Prepare project specifications including master specifications, creating, editing and making revisions to job specifications. Submit Request to Advertise and coordinate advertisement and award process.

28. Coordinate CEMVM and local sponsor review of all P&S including distribution, consolidation, resolution, and incorporation of all review comments. Prepare operation, maintenance, repair, rehabilitation, and replacement manual to include a copy of the PCA, the water control plan, any plan drawings and photographs of the project features, any special instructions for the sponsor to conduct operation, maintenance, repair, rehabilitation, and replacement activities.

Engineering Division-Geotechnical Branch

29. Conduct boring and sampling program for channel areas necessary to support design effort.

30. Conduct laboratory testing of soil samples to support design effort including shipping and handling, visual classification, water content determination, Atterburg limits, grain-size analyses, unconfined compression and consolidation tests.

31. Analyze design for sliding stability.

32. Provide routine coordination in the preparation and review of all P&S. Prepare all documentation relating to geotechnical concerns.

33. Review applicable contractor submittals.

Engineering Division-Hydraulics Branch

34. Support preparation of P&S, including the layout and design of the channel.

35. Attend project team meetings, public workshops, and public meetings. Perform site and construction inspections.

36. Review and comment on P&S.

37. Coordinate Section 404 permit requirements.

38. Conduct testing of deep core samples for potential contaminants in preparation for

requesting State Water Quality Certification.

Construction-Operations Division-Regulatory Branch

39. Perform Section 404 review for compliance with Section 404(b)(1) Guidelines.

Planning, Programs, And Project Management Division-Environmental and Economic Analysis Branch

40. Conduct technical, economic, and related activities for required support to establish project benefits and impacts. Evaluate construction costs, annual and other related costs and determine benefits from project implementation and make benefit-cost comparisons.

41. Update factual and budgetary documentation. Prepare documentation and conduct necessary project review and public coordination.

42. Maintain coordination with Tennessee Department of Environment and Conservation to request state Water Quality Certification.

43. Perform cultural resource investigations.

44. Review P&S and coordinate review with the U.S. Fish and Wildlife Service.

Planning, Programs, And Project Management Division-Project Management Branch

45. Coordinate overall project management, including general project planning, direction, control, and coordination.

46. Monitor overall project progress and status. Resolve delays in accomplishing schedule requirements. Ensure project plan adheres to management policy and guidance. Approve and recommend approval or disapproval of all schedule and cost changes. Control changes in project scope.

47. Prepare progress and control documents including monthly Project Executive Summary report. Prepare and maintain all data files for reporting.

48. Maintain budget database and prepare all programming and budgetary documents. Compare and track estimated labor costs to actual labor charges and resolve disputed charges.

49. Allocate funds to technical divisions. Manage and forecast available contingencies.

50. Coordinate assignment of team members to the project team. Establish and conduct project Team meetings.

51. Provide primary point of contact with sponsor, local interests, the general public, and other USACE personnel.

52. Review all project-related correspondence directed outside the District. Notify team members of significant policy changes, laws, or directives affecting schedule or other requirements.

53. Develop, coordinate, and negotiate the PCA.

54. Assemble a value engineering (VE) team and apply VE principles to the project. Prepare a report describing any proposals recommended by the VE team to achieve the required function of the project (or some feature of the project) at a lower total cost, consistent with requirements for performance, reliability, quality, maintainability, and safety.

Planning, Programs, And Project Management Division-Programs Management Branch

55. Review and approve work codes and transfer of funds, as required. Monitor obligation and expenditures of funds. Monitor execution of current year program and perform review of program performance.

56. Coordinate the monthly review and submission of Project Executive Summary reports. Prepare and distribute the monthly Project Review Board Executive Summary.

Real Estate Division-Acquisition Branch

57. Obtain right-of-entry permits for surveys, soil borings, and other data gathering requirements as requested by other elements.

58. Issue Attorney's report on compensability.

59. Request ROW from Local Sponsor, coordinate and assist Local Sponsor as required. Review Local Sponsor's acquisition of ROW, including title evidence and confirmation of ownership.

Real Estate Division-Appraisal Branch

60. Determine number of ownerships and related land values.

61. Prepare gross appraisal for acquisition of ROW.

62. Review appraisal prepared by Local Sponsor.

Real Estate Division-Planning and Control Branch

63. Prepare tract mapping and land descriptions, compute acreage, and identify ownerships.

64. Conduct meetings with the local sponsor to ensure all Federal standards are being met.

SCHEDULES

65. Table 1 shows the milestone dates for this project.

SECTION 3

PROJECT PLANS

RESOURCE ALLOCATION PLAN

66. Enclosure 5 is the Feasibility Cost Sharing Agreement (FCSA) for the Detailed Project Report.

67. An increase in the estimated Study Cost by $329,000 was needed to complete the Detailed Project Report. The Federal share was increased by $164,500 and the sponsor share was increased by $164,500 with in-kind services. (See Article II, Paragraph B. of the FCSA in Enclosure 5 and Enclosure 6) This brings the Total Feasibility Study Cost to $549,000 with the Federal share at $324,500 and the Non-Federal at $224,500 (cash of $152,300 and In-Kind-Service of 72,200).

68. Table 2 shows the Resource Plan for the project commencing with final report documentation.

TABLE 1
NORTHWEST TENNESSEE HARBOR
MILESTONE DATES

Activity			Date
1. Sponsor's Letter requesting Corps to investigate feasibility of constructing a harbor.			8 Apr 1998
2. Study Complete			Oct 2004
	Start	End	
Draft Report	May 98	Mar 04	
Financing Plan	Sep 03	Jun 04	
Water Quality	Apr 04	Jun 04	
Approval Process	Jul 04	Oct 04	
3. PCA Approval			Jan 2005
4. Design Completed			Aug 2005
5. Right of Way Obtained			Aug 2005
6. Contract Award			Nov 2005
7. Early Construction			Dec 2005
8. Project Closeout			Jan 2007

TABLE 2
NORTHWEST TENNESSEE HARBOR
RESOURCE PLAN

Activity			Cost
1. Final Report Documentation	Phase 1	Phase 2	Combined
Programs & Project Management	$39,682	$27,720	$67,402
Environmental & Economics	$69,579	$194,716	$264,295
Engineering	$104,050	$25,537	$129,587
Real Estate	$2,830	$4,827	$7,657
Con-Ops	$3,499	$0	$3,499
Contracting	$360	$4,000	$4,360
In-Kind-Services	$60,000	$12,200	$72,200
Subtotal	$280,000	$269,000	549,000
2. Plans & Specifications			
		Subtotal	$375,000
3. Construction			
Lands, Easements, Right-of-Way, & Disposal Areas			$381,000
Harbor Construction			$2,727,000
		Subtotal	$3,108,000
Plans & Specifications plus Construction Total			$3,483,000

SECTION 4

QUALITY CONTROL PLAN

GENERAL

67. The quality control plan (QCP) for the Northwest Tennessee Harbor Detailed Project Report provides a technical review mechanism insuring quality products are developed during the course of the study by the Memphis District (MVM). Technical review will consist of a single level study review and will be performed throughout the course of the study. The Mississippi Valley Division (MVD) will be responsible for verifying that MVM's products meet the needs and expectations of the customer, and that competent resources are utilized throughout the design and review process. One level of policy review for the Detailed Project Report will be performed at the Headquarters of the United States Army Corps of Engineers (HQUSACE), and will insure that all applicable statutes have been applied with respect to project purpose and budget criteria. All processes, quality assurance, and policy review should complement each other producing a seamless review process, which identifies and resolves technical and policy issues during the course of the study and not during the final study stages.

68. The QCP has been formulated to provide for a sound technical review process at the District level, which focuses on several objectives. Primarily, quality technical products will be produced through an effective and comprehensive single level technical review process throughout product development while verifying that function; legal, safety, health and environmental requirements are satisfied. This review process will insure that a cost effective solution, while maintaining product requirements, is developed. Technical review will also act as a mechanism to avoid starting over and redesign efforts, and will assure accountability for the technical quality of the product. Each technical review objective in the QCP will be satisfied through a review process performed by District (technical review), MVD (quality assurance of technical products), and HQUSACE (policy review). The scope of the Northwest Tennessee Harbor Detail Project Report QCP is based upon applicable guidance from higher authority including the Report of the Task on Technical Review, dated December 1994, and CELMV-ET memorandum of 23 September 1995, Subject: Lower Mississippi Valley Division, Directorate of Engineering and Technical Services, Quality Control and Quality Assurance Guidance.

TECHNICAL, POLICY AND LEGAL REVIEW

69. Based upon cost, technical expertise, and current and projected workload, the technical review for the Northwest Tennessee Harbor Detail Project Report will be conducted by in-house resources with technical expertise in a specific area. (See Enclosures 1 and 2.)

70. The Memphis District Office of Counsel will review the Northwest Tennessee Harbor Detail Project Report and certify that it is legally sufficient. (See Enclosure 3.) Additionally, the Chief of Project Development Branch will review the Northwest Tennessee Harbor Detail Project Report and certify that it is sufficient for plan formulation and policy. (See Enclosure 4.)

TECHNICAL REVIEW TEAM (TRT)

71. The TRT of Planning, Programs, and Project Management Division, Engineering Division, Construction-Operation Division, and Real Estate Division will be responsible for performing an independent technical review of the Northwest Tennessee Harbor Detail Project Report. The TRT will be established at the initial stages of the study and will be maintained to the maximum extent possible during the life of the study. At the initial study stages, the TRT will consist of one or more reviewers from each functional area within each division, and will consist of existing senior staff who perform other technical work but are not involved in the technical products under review. The TRT will be comprised of the same disciplines as the project team, and will have experience in the type of analyses in which they are responsible for reviewing. Each TRT member will be senior or equal in experience to the analyst or production person. The TRT will be responsible for verifying: 1) assumptions, 2) methods, procedures, and material used in the analyses based on the level of analyses, 3) alternatives evaluated are reasonable, 4) appropriateness of data used, and level of data obtained, 5) reasonableness of results, and 6) products meet customer needs and are consistent with law and existing policy. The makeup of the TRT may be modified as the Detailed Project Report progresses to match the review requirements. The changes to the TRT may result in the use of additional out-of-house resources.

Planning, Programs, and Project Management Division (PPPMD) Technical Review Members

72. Technical Review Members will be from all functional areas within PPPMD, which include Planning, Environmental and Economics. One or more reviewers on the TRT will represent each functional area from the various disciplines. Thus, a minimum of three members from PPPMD will reside on the TRT for the Northwest Tennessee Harbor Detailed Project Report.

Engineering Division Technical Review Members

73. The Technical Review Members will be selected from the various engineering and design offices. The members may change as the project progresses and specific project features are better defined. The TRT will consist of a Technical Reviewer Manager (TRM) and representatives from the various engineering design offices. The engineering design offices include Design Branch, Geotechnical Branch, and Hydraulics and Hydrologic Branch. One or more reviewers on the TRT will represent each branch from the various disciplines within that Branch.

Construction-Operation Division Technical Review Members

74. The Technical Review Member will be selected from Construction Branch for the Northwest Tennessee Harbor Detail Project Report.

Real Estate Division Technical Review Members

75. The Technical Review Members will be selected from Acquisition and Appraisal Branches for the Northwest Tennessee Harbor Detail Project Report.

Technical Review Team Members

76. The Northwest Tennessee Harbor Detail Project Report Technical Review Team is comprised of Planning, Programs, and Project Management, Engineering, Construction-Operations, and Real Estate Divisions will consist, as a minimum, of the following disciplines:

Name	Technical Area
Mr. Cory Williams	Geotechnical Design
Mr. Dave Berretta	Hydrology and Hydraulics
Ms. Martha Cole	Real Estate
Mr. Ken Williams	Construction, ITR Team Leader
Mr. Wayne Max	River Engineering
Mr. Effort Alexander	Economics
Mr. Richard Hite	Environmental
Mr. David McNutt	Cost Engineering
Ms. Clarice Sundeen	Plan Formulation & Policy
Mr. Jim Reeder	Policy

TECHNICAL REVIEW MEETINGS AND CRITICAL CHECKPOINTS

77. The quality process recognizes that the appropriate place to perform one-on-one verification for both PPPMD, Engineering Division, Construction-Operation Division, and Real Estate Division products will vary among the functional areas. However, the verifications will occur prior to the release of the data and/or final products to another office/division, but may include reviewers and project team members from other functional areas. The one-on-one verifications for the divisions will occur numerous times throughout the Detail Project Report. The one-on-one technical review verifications for the divisions are shown on the Open Plan diagram. Each one-on-one verification meeting will be documented and become part of the quality control records used in the quality assurance process by MVD.

78. In addition to the one-on-one verification process, there are also points within the Detail Project Report process where it is appropriate for the TRT and project team to perform the verification process as a team. This feature of quality control process allows the flexibility to optimize the one-on-one verification process within the functional area while maintaining the team concept during the Technical Review Meetings. Each will be documented and become part of the quality control records used in the quality assurance process by MVD. These points in the study process would typically occur consummate with six steps: 1) Identify Problems, Needs, and Opportunities, 2) Inventory and Forecast Resources, 3) Alternative Plan Formulation, 4) Alternative Plan Evaluation, 5) Compare Alternative Plans, and 6) Identify Selected Plan.

QUALITY CONTROL/MAINTENANCE OF RECORDS

79. Quality control records for the PPPMD, Engineering Division, Construction-Operation Division, and Real Estate products will be maintained in a technical review package prepared by the project manager and TRM. The package will consist of review comments, a certification checklist, and certification of legal review The review comments will summarize the major issues/comments from the independent technical review along with the response or resolution to each comment. The technical review checklist and the certification of legal review will be included within the report as a means of documenting the independent technical review and the legal review. The PPMD, Engineering Division, Construction-Operation Division, and Real Estate Division checklists will assure that the major elements of the quality control plan have been followed. Reviewers will sign the checklist, certifying that for their particular subject area, the document conforms to pertinent regulations, guidance, and sound professional practices. Prior to the submittal of the draft report to MVD the checklist will be completed by functional chiefs, reviewed by Deputy for PPMD, and signed by the District Commander as part of the required report documentation. Engineering Division's, Construction-Operation Division's, and Real Estate Division's quality control records, comments and resolutions, will accompany the design document. The design checklist will serve as a tool for the TRT and will become part of the district's files.

CHECKLISTS

80. A checklist for review of Detailed Project Reports follows. It is meant to be an available tool to assist the Review Team Member, not to replace his/her technical expertise or judgment.

CHECKLIST FOR REVIEW OF FEASIBILITY REPORTS

1. Has the Detail Project Report been conducted in accordance with and fully responsive to study authority?

2. Is the Detail Project Report area, as defined, reasonable and consistent with the study authority?

3. Have the aerial extent and severity of the water-resources problems and without-project conditions been clearly documented?

4. Are current findings consistent with prior phases of Detail Project Report? Have intervening external factors (such as regulation changes, significant storm events, etc.) jeopardized previous logic, analyses and conclusions?

5. Have the assumptions and rationale for the without-project condition been explicitly stated and are they reasonable?

6. Are planning objectives clearly identified?

7. Were the views of non-Federal interests solicited and considered in the plan formulation process?

8. Have all reasonable structural and non-structural plans, including a no-action plan, been considered? Do they fully address the identified problems and needs?

9. Was the plan formulation analysis conducted in accordance with accepted techniques and appropriate guidelines and regulations?

10. Was the environmental work conducted in accordance with appropriate techniques, guidelines and regulations?

11. Was the economic/benefit analysis conducted in accordance with accepted techniques, guidelines and regulations?

12. Has the NED plan been identified? Is it the selected/recommended plan?

13. For environmental restoration efforts, was a cost effectiveness and incremental analysis accomplished? Was resource significance defined?

14. Is there a rationale for a locally-preferred plan or non-NED recommended plan?

15. Does the recommended plan meet the customer's needs and has the position of the sponsor been explicitly conveyed?

16. Have upstream and downstream effects of the recommended plan been identified?

17. Have all known benefits been included in the benefit estimate? Have high-priority benefits been identified?

18. Have economic methodologies and assumptions been explained in sufficient detail?

19. Is the evaluation of each alternative based on the difference between the without-project and with-project conditions?

20. Have risk and uncertainty been addressed in accordance with ER 1105-2-101?

21. Has the necessary coordination been conducted and documented in accordance with the National Environmental Policy Act of 1969 (NEPA) and ER 200-2-2?

22. Have HTRW considerations been addressed?

23. Is the proposed project recommendation consistent with current administration policies?

24. Does the over-all Planning report adequately display Detail Project Report assumptions, and findings, as well as and clearly represent a firm basis for the recommendation?

ENCLOSURE 1
COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The U.S. Army Corps of Engineers, Memphis District, has completed the Section 107 Detailed Project Report for the Northwest Tennessee Harbor. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This include review of assumptions, methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. An independent district team accomplished the independent technical review.

Technical Review Team Leader	(Date)
Technical Review Team Member	(Date)
Technical Review Team Member	(Date)
Technical Review Team Member	(Date)
Technical Review Team Member	(Date)
Technical Review Team Member	(Date)
Technical Review Team Member	(Date)
Technical Review Team Member	(Date)
Technical Review Team Member	(Date)
Technical Review Team Member	(Date)

ENCLOSURE 2
CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns and explanation of the resolution are as follows:

The following pages contain the Northwest Tennessee Regional Harbor Detailed Report ITR team's comments and the PDT's responses.

Chief, Planning, Programs, and Project Management Division	(Date)
Chief, Engineering Division	(Date)
Chief, Construction-Operations Division	(Date)
Chief, Real Estate Division	(Date)
Project Manager	(Date)

ENCLOSURE 3
CERTIFICATION OF LEGAL REVIEW

The Detailed Project Report for the Northwest Tennessee Regional Harbor and its appendixes have been fully reviewed by the Office of Counsel, Memphis District and are legally sufficient.

_____ _____
District Counsel (Date)

ENCLOSURE 4
CERTIFICATION OF POLICY REVIEW

The Detailed Project Report for the Northwest Tennessee Regional Harbor and its appendixes have been fully reviewed by the Chief of Project Development Branch and is sufficient for policy.

_____ _____
Chief of Project Development Branch (Date)

ENCLOSURE 5

FEASIBILITY COST SHARING AGREEMENT BETWEEN THE DEPARTMENT OF THE ARMY AND LAKE COUNTY, TENNESSEE FOR THE NORTHWEST TENNESSEE REGIONAL HARBOR AT CATES LANDING TENNESSEE FEASIBILITY STUDY

AGREEMENT
BETWEEN THE DEPARTMENT OF THE ARMY
AND
LAKE COUNTY, TENNESSEE
FOR THE NORTHWEST TENNESSEE REGIONAL HARBOR
AT CATES LANDING TENNESSEE,
FEASIBILITY STUDY

THIS AGREEMENT is entered into this 19th day of January, 2000, by and between the Department of the Army (hereinafter the "Government"), represented by the District Engineer executing this Agreement, and Lake County, Tennessee (hereinafter the "Sponsor"),

WITNESSETH, that

WHEREAS, the Congress has authorized the Secretary of the Army to conduct studies of Small Navigation Projects pursuant to the authority provided by Section 107 of the River and Harbor Act of 1960 (Public Law 86-645), as amended; and

WHEREAS, the U.S. Army Corps of Engineers conducted a Reconnaissance study of the Northwest Tennessee Regional Harbor at Cates Landing, Tennessee, pursuant to this authority, and has determined that further study in the nature of a Feasibility Phase Study (hereinafter the "Study") is required to fulfill the intent of the study authority and to assess the extent of the Federal interest in participating in a solution to the identified problem; and

WHEREAS, Section 105 of the Water Resources Development Act of 1986 (Public Law 99-662, as amended) specifies the cost sharing requirements applicable to the Study;

WHEREAS, the Sponsor has the authority and capability to furnish the cooperation hereinafter set forth and is willing to participate in study cost sharing and financing in accordance with the terms of this Agreement; and

WHEREAS, the Sponsor and the Government understand that entering into this Agreement in no way obligates either party to implement a project and that whether the Government supports a project authorization and budgets it for implementation depends upon, among other things, the outcome of the Study and whether the proposed solution is consistent with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and with the budget priorities of the Administration;

NOW THEREFORE, the parties agree as follows:

ARTICLE I - DEFINITIONS

For the purposes of this Agreement:

A. The term "*Study Costs*" shall mean all disbursements by the Government pursuant to this Agreement, from Federal appropriations or from funds made available to the Government by the

Sponsor, and all negotiated costs of work performed by the Sponsor pursuant to this Agreement. Study Costs shall include, but not be limited to: labor charges; direct costs; overhead expenses; supervision and administration costs; the costs of participation in Study Management and Coordination in accordance with Article IV of this Agreement; the costs of contracts with third parties, including termination or suspension charges; and any termination or suspension costs (ordinarily defined as those costs necessary to terminate ongoing contracts or obligations and to properly safeguard the work already accomplished) associated with this Agreement.

B. The term "*estimated Study Costs*" shall mean the estimated cost of performing the Study as of the effective date of this Agreement, as specified in Article III.A. of this Agreement.

C. The term "*excess Study Costs*" shall mean Study Costs that exceed the estimated Study Costs and that do not result from mutual agreement of the parties, a change in Federal law that increases the cost of the Study, or a change in the scope of the Study requested by the Sponsor.

D. The term "*study period*" shall mean the time period for conducting the Study, commencing with the release to the U.S. Army Corps of Engineers Memphis District of initial Federal feasibility funds following the execution of this Agreement and ending with the Chief of Engineers' acceptance of the study.

E. The term "*PSP*" shall mean the Project Study Plan, which is attached to this Agreement and which shall not be considered binding on either party and is subject to change by the Government, in consultation with the Sponsor.

F. The term "*negotiated costs*" shall mean the costs of in-kind services to be provided by the Sponsor in accordance with the PSP.

B. The term "*fiscal year*" shall mean one fiscal year of the Government. The Government fiscal year begins on October 1 and ends on September 30.

ARTICLE II - OBLIGATIONS OF PARTIES

A. The Government, using funds and in kind services provided by the Sponsor and funds appropriated by the Congress of the United States, shall expeditiously prosecute and complete the Study, in accordance with the provisions of this Agreement and Federal laws, regulations, and policies.

B. In accordance with this Article and Article III.A., III.B. and III.C. of this Agreement, the Sponsor shall contribute cash and in-kind services equal to fifty (50) percent of Study Costs other than excess Study Costs. The Sponsor may, consistent with applicable law and regulations, contribute up to 25 percent of Study Costs through the provision of in-kind services. The in-kind services to be provided by the Sponsor, the estimated negotiated costs for those services, and the estimated schedule under which those services are to be provided are specified in the PSP. Negotiated costs shall be subject to an audit by the Government to determine reasonableness, allocability, and allowability.

C. The Sponsor shall pay a fifty (50) percent share of excess Study Costs in accordance with Article III.D. of this Agreement.

D. The Sponsor understands that the schedule of work may require the Sponsor to provide cash or in-kind services at a rate that may result in the Sponsor temporarily diverging from the obligations concerning cash and in-kind services specified in paragraph B. of this Article. Such temporary divergences shall be identified in the quarterly reports provided for in Article III.A. of this Agreement and shall not alter the obligations concerning costs and services specified in paragraph B. of this Article or the obligations concerning payment specified in Article III of this Agreement.

E. If, upon the award of any contract or the performance of any in-house work for the Study by the Government or the Sponsor, cumulative financial obligations of the Government and the Sponsor would result in excess Study Costs, the Government and the Sponsor agree to defer award of that and all subsequent contracts, and performance of that and all subsequent in-house work, for the Study until the Government and the Sponsor agree to proceed. Should the Government and the sponsor require time to arrive at a decision, the Agreement will be suspended in accordance with Article X., for a period of not to exceed six months. In the event the Government and the sponsor have not reached an agreement to proceed by the end of their 6 month period, the Agreement may be subject to termination in accordance with Article X.

F. No Federal funds may be used to meet the Sponsor's share of Study Costs unless the Federal granting agency verifies in writing that the expenditure of such funds is expressly authorized by statute.

G. The award and management of any contract with a third party in furtherance of this Agreement which obligates Federal appropriations shall be exclusively within the control of the Government. The award and management of any contract by the Sponsor with a third party in furtherance of this Agreement which obligates funds of the Sponsor and does not obligate Federal appropriations shall be exclusively within the control of the Sponsor, but shall be subject to applicable Federal laws and regulations.

ARTICLE III - METHOD OF PAYMENT

A. The Government shall maintain current records of contributions provided by the parties, current projections of Study Costs, current projections of each party's share of Study Costs, and current projections of the amount of Study Costs that will result in excess Study Costs. At least quarterly, the Government shall provide the Sponsor a report setting forth this information. As of the effective date of this Agreement, estimated Study Costs are $120,000.00 and the Sponsor's share of the estimated Study Costs is $60,000.00. In order to meet the Sponsor's cash payment requirements for its share of estimated Study Costs, the Sponsor must provide a cash contribution currently estimated to be $60,000.00. The dollar amounts set forth in this Article are based upon the Government's best estimates, which reflect the scope of the study described in the PSP, projected costs, price-level changes, and anticipated inflation. Such cost estimates are subject to adjustment by the Government and are not to be construed as the total financial responsibilities of the Government and the Sponsor.

B. The Sponsor shall provide its cash contribution required under Article II.B. of this Agreement in accordance with the following provisions:

1. No later than 30 calendar days prior to the scheduled date for the Government's issuance of the solicitation for the first contract for the Study or for the Government's anticipated first significant in-house expenditure for the Study, the Government shall notify the Sponsor in writing of the funds the Government determines to be required from the Sponsor to meet its share of Study Costs. No later than 15 calendar days thereafter, the Sponsor shall provide the Government the full amount of the required funds by delivering a check payable to "FAO, USAED, Memphis" to the District Engineer.

2. The Government shall draw from the funds provided by the Sponsor such sums as the Government deems necessary to cover the Sponsor's share of contractual and in-house financial obligations attributable to the Study as they are incurred.

3. In the event the Government determines that the Sponsor must provide additional funds to meet its share of Study Costs, the Government shall so notify the Sponsor in writing. No later than 60 calendar days after receipt of such notice, the Sponsor shall provide the Government with a check for the full amount of the additional required funds.

C. Within ninety (90) days after the conclusion of the Study Period or termination of this Agreement, the Government shall conduct a final accounting of Study Costs, including disbursements by the Government of Federal funds, cash contributions by the Sponsor, the amount of any excess Study Costs and credits for the negotiated costs of the Sponsor, and shall furnish the Sponsor with the results of this accounting. Within thirty (30) days thereafter, the Government, subject to the availability of funds, shall reimburse the Sponsor for the excess, if any, of cash contributions and credits given over its required share of Study Costs, other than excess Study Costs, or the Sponsor shall provide the Government any cash contributions required for the Sponsor to meet its required share of Study Costs other than excess Study Costs.

D. The Sponsor shall provide its cash contribution for excess Study Costs as required under Article II.C. of this Agreement by delivering a check payable to "FAO, USAED, Memphis" to the District Engineer as follows:

1. After the project that is the subject of this Study has been authorized for construction, no later than the date on which a Project Cooperation Agreement is entered into for the project; or

2. In the event the project that is the subject of this Study is not authorized for construction by a date that is no later than 5 years after the date of the final report of the Chief of Engineers concerning the project, or by a date that is no later than 2 years after the date of the termination of the study, the Sponsor shall pay its share of excess costs on that date (5 years after the date of the Chief of Engineers or 2 years after the date of the termination of the study).

ARTICLE IV - STUDY MANAGEMENT AND COORDINATION

A. To provide for consistent and effective communication, the Sponsor and the Government shall appoint named senior representatives to an Executive Committee. Thereafter, the Executive Committee shall meet regularly until the end of the Study Period.

B. Until the end of the Study Period, the Executive Committee shall generally oversee the Study

consistently with the PSP.

C. The Executive Committee may make recommendations that it deems warranted to the District Engineer on matters that it oversees, including suggestions to avoid potential sources of dispute. The Government in good faith shall consider such recommendations. The Government has the discretion to accept, reject, or modify the Executive Committee's recommendations.

D. The Executive Committee shall appoint representatives to serve on a Study Management Team. The Study Management Team shall keep the Executive Committee informed of the progress of the Study and of significant pending issues and actions, and shall prepare periodic reports on the progress of all work items identified in the PSP.

E. The costs of participation in the Executive Committee (including the cost to serve on the Study Management Team) shall be included in total project costs and cost shared in accordance with the provisions of this Agreement.

ARTICLE V - DISPUTES

As a condition precedent to a party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to both parties. The parties shall each pay 50 percent of any costs for the services provided by such a third party as such costs are incurred. Such costs shall not be included in Study Costs. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE VI - MAINTENANCE OF RECORDS

A. Within 60 days of the effective date of this Agreement, the Government and the Sponsor shall develop procedures for keeping books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement to the extent and in such detail as will properly reflect total Study Costs. These procedures shall incorporate, and apply as appropriate, the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to state and local governments at 32 C.F.R. Section 33.20. The Government and the Sponsor shall maintain such books, records, documents, and other evidence in accordance with these procedures for a minimum of three years after completion of the Study and resolution of all relevant claims arising therefrom. To the extent permitted under applicable Federal laws and regulations, the Government and the Sponsor shall each allow the other to inspect such books, documents, records, and other evidence.

B. In accordance with 31 U.S.C. Section 7503, the Government may conduct audits in addition to any audit that the Sponsor is required to conduct under the Single Audit Act of 1984, 31 U.S.C. Sections 7501-7507. Any such Government audits shall be conducted in accordance with Government Auditing Standards and the cost principles in OMB Circular No. A-87 and other applicable cost principles and regulations. The costs of Government audits shall be included in total Study Costs and shared in accordance with the provisions of this Agreement.

ARTICLE VII - RELATIONSHIP OF PARTIES

The Government and the Sponsor act in independent capacities in the performance of their respective rights and obligations under this Agreement, and neither is to be considered the officer, agent, or employee of the other.

ARTICLE VIII - OFFICIALS NOT TO BENEFIT

No member of or delegate to the Congress, nor any resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

ARTICLE IX - FEDERAL AND STATE LAWS

In the exercise of the Sponsor's rights and obligations under this Agreement, the Sponsor agrees to comply with all applicable Federal and State laws and regulations, including Section 601 of Title VI of the Civil Rights Act of 1964 (Public Law 88-352) and Department of Defense Directive 5500.11 issued pursuant thereto and published in 32 C.F.R. Part 195, as well as Army Regulations 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army".

ARTICLE X - TERMINATION OR SUSPENSION

A. This Agreement shall terminate at the conclusion of the Study Period, and neither the Government nor the Sponsor shall have any further obligations hereunder, except as provided in Article III.C.; provided, that prior to such time and upon thirty (30) days written notice, either party may terminate or suspend this Agreement. In addition, the Government shall terminate this Agreement immediately upon any failure of the parties to agree to extend the study under Article II.E. of this agreement, or upon the failure of the sponsor to fulfill its obligation under Article III. of this Agreement. In the event that either party elects to terminate this Agreement, both parties shall conclude their activities relating to the Study and proceed to a final accounting in accordance with Article III.C. and III.D. of this Agreement. Upon termination of this Agreement, all data and information generated as part of the Study shall be made available to both parties.

B. Any termination of this Agreement shall not relieve the parties of liability for any obligations previously incurred, including the costs of closing out or transferring any existing contracts.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which shall become effective upon the date it is signed by the District Engineer for the U.S. Army Corps of Engineers, Memphis District.

DEPARTMENT OF THE ARMY

BY _____
Daniel W. Krueger
Colonel, Corps of Engineers
District Engineer
Memphis District

LAKE COUNTY, TENNESSEE

BY _____
Macie Roberson, County Executive

ENCLOSURE 6

IN-KIND SERVICE FOR PORT AUTHORITY

CEMVM-PM-P 4 September 2003

MEMORANDUM FOR RECORD

SUBJECT: Negotiation of In-Kind-Services to the Northwest Tennessee Regional Port Authority

1. This memorandum documents the negotiated $72,200 of In-Kind-Services to the Northwest Tennessee Port Authority for the Northwest Tennessee Harbor Detailed Project Report in accordance with the Feasibility Cost Sharing Agreement (FCSA).

2. The Memphis District has on file Northwest Tennessee Port Authority records of In-Kind Services totaling $77,422.08 for engineering activities (site development for local service facilities and cost estimates: roadway improvements, railroad construction, utilities, wastewater, berthing area, and port facility with dolphins and winch system) for the Northwest Tennessee Harbor Detailed Project Report. Presently, the maximum amount of In-Kind-Services allowable by the FCSA (Article II, paragraph B.) is $60,000 as of this date. The following table shows the revised study costs with the granting of $60,000 of In-Kind-Services to the Northwest Tennessee Port Authority and the additional matching Federal funds.

Revised Study Costs

COST	RESPONSILIBITY	AMOUNT
Study	Federal	$100,000
	Federal	$ 60,000
	Non-Federal	$ 60,000
	Non-Federal In-Kind-Service	$ 60,000
	Federal matching funds	$ 60,000
	Total	$340,000

3. To complete the study, the Memphis District needs $269,000. Of this amount $60,000 will be from the Federal matching funds discussed above. Of the remaining $209,000, 50 percent will be Federal funds and 50 percent Non-Federal funds, $104,500, respectively. Of the Non-Federal funds, $12,200 has been identified as In-Kind-Services associated with developing the Environmental Assessment. (Fish Survey by TWRA estimated at $5,200; Chip Mill Information by Tennessee Forestry estimated at $5,000; Sponsor Coordination estimated at $2,000) Therefore, a balance of $92,300 in Non-Federal funds is needed to balance the cost sharing. The following table shows the revised study costs with the granting of $12,200 of In-Kind-Services to the Northwest Tennessee Port Authority and the additional matching Federal funds and Non-Federal funds.

Revised Study Costs

COST	RESPONSILIBITY	AMOUNT
Study	Federal	$100,000
	Federal	$ 60,000
	Non-Federal	$ 60,000
	Non-Federal In-Kind-Service	$ 60,000
	Federal matching funds	$ 60,000
	Subtotal	$340,000
	Non-Federal	$ 92,300
	Non-Federal In-Kind-Service	$ 12,200
	Federal matching funds	$104,500
	Subtotal	$209,000
	Total	$549,000

4. Total In-Kind-Services is calculated by adding $60,000 and $12,200 together to get $72,200.

James W. Lloyd

JAMES W. LLOYD
Project Manager

APPENDIX VII

NON-FEDERAL SPONSOR FINANCING PLAN

Commander's Assessment

of the

Non-Federal Sponsor's Financial Capability

for the

Northwest Tennessee Regional Harbor Project

Memphis District

January 7, 2005

Introduction

This assessment evaluates the Northwest Tennessee Regional Port Authority's (Port Authority) ability to provide its financial obligations for the Northwest Tennessee Regional Harbor Project as described in the Northwest Tennessee Regional Harbor, Section 107 Report, dated July 2004. The Financing Plan calls for the Port Authority to meet its project financial obligations with funds from the following:

(1) A commitment of $495,000 from the State of Tennessee for harbor construction:
(2) A contribution of $450,000 from the US Department of Agriculture Rural Development to be used for port construction;
(3) A commitment of $200,000 from the Tennessee Valley Authority for harbor construction; and
(4) The sale of revenue bonds up to $2,200,000 by Dyer, Lake, and Obion Counties.

Construction

Port Authority's Plan for Construction. The total project cost is currently estimated at $4,665,400. The non-Federal share of construction is $1,477,900 (Table 1). The non-Federal figure is composed of $701,900 for lands, easements, rights of way, and relocations of which are a non-Federal responsibility. The remaining $776,000 is for the required cash contribution and the non-Federal berthing area

The Port Authority will finance its part of the project's cost with a combination of sources. The State of Tennessee will provide $495,000 through its FastTrack Infrastructure Development Program funds. The USDA Rural Development will provide a Rural Economic Development Loan of $450,000 with $230,000 of the loan earmarked for project construction. The Tennessee Valley Authority will provide $200,000. The remaining $575,000 will come from bond sales through one or more of the following counties in Tennessee: Dyer, Lake, and Obion.

Assessment of the Port Authority's Plan for Construction.

1. Contribution by State of Tennessee. The State is committed to providing $495,000 toward construction of the project. The project has enjoyed strong support from the State Legislature and the Governor. Because of the State's financial strength and commitment provided to the project, this portion of the District's financing plan can only be viewed as a sound and viable strategy for funding this portion of the non-Federal construction responsibilities.

Table 1
Northwest Tennessee Regional Harbor
Allocation of Project First Costs

Item	Federal	Non-Federal	Total
LERR		701.9	701.9
General Navigation Features (GNF)			
Lands and Damages	24.0		24.0
GNF less berthing area	2,858.4		2,858.4
E&D	359.6		359.6
S&A	299.6		299.6
Subtotal	3,541.6		3,541.6
Initial 10% Cash	-354.1	354.1	0.0
Total GNF	3,187.5	354.1	3,541.6
Non-Federal Berthing Area		421.9	421.9
Project Subtotal	3,187.5	1,447.9	4,665.4
Feasibility Costs	324.5		324.5
Final Project Cost Allocation	3,512.0		4,989.9

2. Contribution by the USDA Rural Development. The USDA Rural Development has actually committed $450,000 in loans toward project construction. However, only $230,000 will be used toward construction of the harbor improvements. The remainder will be used for associated site development costs. The USDA is aware that these funds are to be used for cost sharing a Federal water resources development project. The USDA has also stated that these funds can be used expressly for this purpose. The USDA is financially sound and can be counted on to meet its obligations for project construction.

3. Contribution by the Tennessee Valley Authority. The TVA will provide $200,000 toward project construction as evidenced by an January 13, 2005 letter to the Port Authority. The only caveat to the contribution is that TVA makes its funding contingent on the remainder of the $1,477,900 in funds being provided by the USDA Rural Development, the State of Tennessee, and the three local counties. Since it is reasonable to expect all of the other partners to fulfill their commitments this should be not be a problem. Also, the TVA is financially sound and will otherwise meet its obligations for project construction.

4. Bond Sales. The Port Authority proposes to receive the remainder of its funds from bond sales by the Dyer, Lake, and Obion Counties. These bonds will be backed by the full taxing authority of the three counties. They have currently guaranteed up to $2,200,000 in bonds. However, only $575,000 will be required to complete construction. It is expected that the remainder of the bonds will be used for any contingencies that could arise along with associated site development or infrastructure costs. These counties have issued bonds in the past and have a strong record of repayment. The most significant risk associated with this portion of the plan is probably due to the interest rate of the bonds. Interest rates are currently at very low levels. If the counties decide to issue general obligation bonds backed by their direct taxing authority, they should receive very low or competitive rates. If they decide to issue revenue bonds based on revenues generated by the Port Authority from port users, the rates could be higher. However, since the counties have committed to do whatever it takes to make the project work and have committed to backing the bonds with their full taxing authority, this is also viewed as a sound means to provide funds for project construction.

Operation and Maintenance

The operation and maintenance of the harbor will be provided by the Federal Government through the Corps of Engineers. The total annual maintenance is expected to be slightly over $206,600 annually with the majority of this cost in dredging. Since the O&M responsibilities will be provided by the Corps of Engineers, there is minimal risk of the project not being maintained. The only foreseeable risk is the risk of future Federal budget cuts to the Corps of Engineers.

Conclusion

Because of the commitment of the project three counties and the coalition of the State of Tennessee, the USDA, and the TVA, I am confident that the Port Authority can meet its construction obligations through the funding sources presented previously. I find it reasonable to expect that adequate resources will be available to satisfy all of the non-Federal financial obligations for the project.

Charles O. Smithers, III
Colonel, Corps of Engineers
District Engineer

GATES LANDING

Northwest Tennessee Regional Port Authority

January 7, 2005

Mr. Jim Lloyd
U.S. Army Corps of Engineers
Clifford Davis Federal Building
167 North Main Street, Room B-202
Memphis, TN 38103-1894

Subject: Financing Plan for Harbor Construction

Dear Jim:

The Port Authority has secured the $1,500,000 needed as its portion to construct the harbor. The following documents are for your review:

1. Letter from the State of Tennessee committing $495,000 for harbor construction.
2. Letter from the Tennessee Valley Authority committing $200,000 for harbor construction.
3. Letter from USDA Rural Development committing $450,000. The letter also allows these funds to be used as a sponsor share for port construction.
4. Resolutions from Dyer, Lake and Obion Counties guaranteeing up to $2,200,000 of revenue bonds or notes of the Port Authority. The full taxing authority of the three counties will back the revenue bonds and notes.

Additionally, enclosed is a financial matrix showing where we expect to obtain funds for the other infrastructure needed to have a working port.

We believe these documents will meet the criteria required by the Corps of Engineers. Please contact me if we need to provide you with any additional information or documentation.

Sincerely,
The Northwest Regional Port Authority

J.E. Williamson, Jr.
Chairman

pc: file
enc.
JEW/llb

P.O. Box 664 211 E. Court St. Dyersburg, Tennessee 38025-0664 731-287-4600 Fax : 731-287-4612

NORTHWEST TENNESSEE REGIONAL HARBOR, PORT AND INDUSTRIAL PARK FINANCING PLAN
Total Project Costs -2005 -2008
Date: 01/18/05

Funding Source (Row)	EDA	TVA	USDA	TDOT	SA	ECD	Gibson Elec.	DELTA	Local Bonds	TENKEN RR	CNIC RR	Spon Donation	Total
Item Description (Column)													
Local Share of Harbor Cost	0	200,000	230,000	0	0	495,000	0	0	552,900	0	0	0	1,477,900
Pre Plan & Design	0	0	0	0	0	0	0	0	0	0	0	100,000	100,000
Land Purchase	0	0	460,000	0	0	0	0	9,700	0	0	0	0	469,700
Roads	1,050,000	0	0	825,000	0	0	0	0	0	0	0	0	1,875,000
Port Facilities	950,000	0	0	2,500,000	1,500,000	409,600	0	115,300	975,100	0	0	0	6,450,000
Railroad	0	0	0	2,213,000	1,500,000	0	0	0	597,000	500,000	250,000	0	5,060,000
Utilities	0	0	0	0	0	0	50,000	0	20,000	0	0	0	70,000
Admin, etc	0	0	0	0	0	0	0	0	55,000	0	0	0	55,000
Total	**$2,000,000**	**$200,000**	**$690,000**	**$5,538,000**	**$3,000,000**	**$904,600**	**$50,000**	**$125,000**	**$2,200,000**	**$500,000**	**$250,000**	**$100,000**	**$15,557,600**
										Total Project Costs			**$15,557,600**

Funding Source Description from Above

EDA - U.S. Department of Commerce, Economic Development Administration

TVA - Tennessee Valley Authority

USDA - U.S. Department of Agriculture, Rural Economic Development Administration

TDOT - Tennessee Department of Transportation

SA - State of Tennessee - Special Appropriations

ECD - Tennessee Department of Economic & Community Development

Gibson County Electric - Low Interest Loan

Delta - Delta Regional Development Authority

Local Bonds - Tri-County (Lake County 50%, Obion County 25% and Dyer County 25%) Approval for Bond Issuance

TenKen Railroad - Funding from Existing Short Line Railroad Owners

CNIC RR - Funding from Canadian National Rail Road

Sponsor Donation - Funding From Northwest Tennessee Regional Port Authority

State of Tennessee
Department of Economic and Community Development
Office of Program Management
William R. Snodgrass Tennessee Tower, 10th Floor
312 Eighth Avenue North
Nashville, Tennessee 37243-0405
615-741-6201 Voice/TDD / FAX: 615-253-1870

April 6, 2004

Mr. Jimmy Williamson, Jr.
Chairman
Northwest Tennessee Regional Port Authority
P.O. Box 664
Dyersburg, Tennessee 38025-0664

Re: FIDP Grant for Northwest Tennessee Regional Port Authority

Dear Mr. Williamson:

I have discussed your letter of March 25, 2004 with Commissioner Kisber. He has instructed me to inform you that $495,000 of FastTrack Infrastructure Development Program funds will be reserved for the Harbor Construction for the port at Cates Landing.

An application will need to be submitted to ECD and approved by the Loan and Grant Committee before a grant award will be made. All program guidelines must be followed by NTRPA in the administration of FIDP grants.

If you have any questions, please call me at (615) 741-6201.

Sincerely,

Philip Trauemicht
Director

PT:mwf

cc: Ken Thorne
Wilton Burnett
Jeff Bolton

USDA Rural Development

Committed to the future of rural communities.

1216 Stad Avenue, Suite 3
Union City, TN 38261
(731) 885-6480
FAX: (731) 885-5487
TDD: (615) 783-1397
Web site: www.rurdev.usda.gov/tn

Tennessee
Union City Area Office

November 18, 2004

Mr. Jimmy Williamson
NW TN Regional Port Authority
P. O. Box 664
Dyersburg, TN 38025-0664

Dear Mr. Williamson:

This is to confirm that the Gibson Electric Membership Corporation is applying to the USDA, Rural Development for a $450,000 Rural Economic Development loan. I understand that to aid economic development in the region that Gibson Electric will loan these funds to the Port Authority to be used in the construction of the harbor, associated site development and local facilities.

These funds are intended for economic development projects like the harbor and are allowable as a source of non-Federal dollars for the Port Authority's share in this U.S. Army Corps of Engineers Northwest Tennessee Regional Harbor construction project.

Sincerely,

JAMES A. SANDERS
Area Director

Rural Development is an Equal Opportunity Lender, Provider and Employer. Complaints of discrimination should be sent to: USDA, Director, Office of Civil Rights, Washington, DC 20250-9410.

Tennessee Valley Authority, Post Office Box 292409 Nashville, Tennessee 37229-2409

John J. Bradley
Senior Vice President, Economic Development

January 13, 2005

Mr. J. E. Williamson, Jr.
Chairman
Cates Landing
Northwest Tennessee Regional Port Authority
Post Office Box 664
Dyersburg, Tennessee 38025-0664

Dear Jimmy:

On behalf of TVA, I appreciate your request for financial support of the Northwest Tennessee Regional Port project. We are committed to working with you and the federal, state, and local partners on this important project.

TVA is pleased that you are finalizing a financial plan for submission to the Corps of Engineers. In response to your request, TVA is committed to investing $200,000 in support of this project. Our funding is contingent upon the remainder of the $1.5 million being invested by USDA Rural Development, the State of Tennessee, and local partners.

Thanks again for your support of TVA Economic Development, and I look forward to working with you on this and other projects for job growth and wealth creation for the people that we serve.

Sincerely,

John Bradley

John J. Bradley

Printed on recycled paper

Morgan Keegan

Cumberland Securities
Division of Morgan Keegan & Company, Inc.
530 South Gay Street, Suite 800
Knoxville, Tennessee 37902
865/637-1131
FAX 865/637-0169
Members New York Stock Exchange, Inc.

November 18, 2004

Mr. Jim Lloyd
U.S. Army Corps of Engineers
Clifford Davis Federal Building
167 North Main Street, Room B-202
Memphis, TN 38103-1894

Re: Northwest Tennessee Regional Port Authority

Dear Mr. Lloyd:

In connection with the Northwest Tennessee Regional Port Authority (the "Authority"), Morgan Keegan (the "Underwriter") and Bass, Berry & Sims, PLC ("Bond Counsel") have been working with the Authority to develop a well planned approach toward financing a Mississippi River port at Cates Landing in Lake County, Tennessee. In this regard the Authority has taken all necessary steps required in the State of Tennessee to issue Bonds in an amount not to exceed $2,200,000 to finance the construction of and improvements to the Authority's Port and related facilities and the acquisition of equipment for the Authority's operations (the "Project").

The Bonds are authorized to be issued pursuant to the provisions of Sections 7-87-101 et. seq., and Sections 9-21-101 et. seq., *Tennessee Code Annotated* and other applicable provisions of law and pursuant to resolutions duly adopted by the Board of Commissioners of the Authority on April 29, 2004 (the "Resolution").

Currently, the Authority does not have a bond rating in place; however, Morgan Keegan is willing to finance the Project with or without a bond rating as soon as all the final approvals and documents are in place and finalized.

If you have any questions or need any additional information, please feel free to call.

Very truly yours,

Scott P. Gibson

Scott P. Gibson
Vice President

cc: Mr. Jimmy Williamson
Chairman, Northwest Tennessee Regional Port Authority

MINUTES
NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY
April 29, 2004
The Lannom Center - Dyersburg, TN

Chairman, Jimmy Williamson, called the meeting of the Northwest Tennessee Regional Port Authority to order at approximately 9:00 a.m. Other port commissioners in attendance were: Mac Forrester, Marcia Perkins Mills, Jerome Shumate and Tony White. Those absent were: Ralph Henson, Dan Frankum and Jimmy Seals.

Motion was made by Mac Forrester and seconded by Tony White to approve the minutes from the January 6, 2004 and the February 13, 2004 meetings. The motion was approved unanimously.

Mr. Williamson reported that the Corps of Engineers released the Environmental Assessment on the project for comment on April 16, 2004. The public comment period will expire on May 19, 2004. Chairman Williamson stressed the need to send letters to the Corps and TDEC in support of the project.

Mr. Williamson presented a power point presentation, that was prepared to explain the project to the county mayors and their budget committee chairmen, to the group. One of the power point slides reported on a conference call on March 9, 2004 between the Corps of Engineers, TDEC, TWRA and USF&W, where all agreed that there is not a significant environmental problem that will prevent the project from moving forward. The water quality permit is scheduled to be approved in June 2004.

The Port Commission is required to have a financing plan in place by June 2004. Phase I and II of the project will cost approximately $20,000,000. Of that amount, the local investment is $2,200,000. The remainder will come from federal and state grants, and other sources. The Corps has obligated $3,100,000 for initial dredging, plus $5,400,000 to keep the harbor dredged for the first 25 years.

The counties will be asked to guarantee bonds for the $2,200,000 local investment, as the port authority will not have a cash flow for approximately two years after the port is constructed. Each county will be asked to pass resolutions stating their commitments. The Corps, as a guarantee of payment, will accept the resolutions as part of the financing plan needed by June 2004. Lake County will guarantee half of the $2,200,000, because they have a 50% representation on the board and the port will be located within their county. Dyer and Obion counties will split the remaining half.

Motion was made by Mac Forrester, with a second by Jerome Shumate, to engage the services of Scott Gibson, with Cumberland Securities, to act as the financial advisor for the bond and note issue. The motion passed unanimously.

Motion was made by Tony White and seconded by Mac Forrester, to approve the following resolution for the construction of and improvements to the port and related facilities, and the acquisition of equipment for operations:

The Board of Commissioners of the Northwest Tennessee Regional Port Authority, met in a specially called session at the Lannom Center, Dyersburg, Tennessee, at 9:00 o'clock, a.m., on April 29, 2004, with Jimmy Williamson, Chairman, presiding, and the following Commissioners:

Tony White
Marcia Perkins Mills
Jerome Shumate
Mac Forrester
Jimmy Williamson

There were absent:

Dan Frankum
Ralph Henson
Jimmy Seals

It was announced that public notice of the time, place and purpose of the meeting had been given, and accordingly, the meeting was called to order.

The following resolution was introduced by Tony White, seconded by Mac Forrester, and after due deliberation, were adopted by the following vote:

AYE: Tony White
Marcia Perkins Mills
Jerome Shumate
Mac Forrester
Jimmy Williamson

NAY: None

INITIAL RESOLUTION AUTHORIZING THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY, TO BORROW FUNDS IN AN AGGREGATE PRINCIPAL AMOUNT OF NOT TO EXCEED TWO MILLION TWO HUNDRED THOUSAND DOLLARS ($2,200,000) FOR THE PURPOSE OF FINANCING THE CONSTRUCTION OF AND IMPROVEMENTS TO THE AUTHORITY'S PORT AND THE ACQUISITION OF EQUIPMENT FOR THE AUTHORITY'S OPERATIONS.

WHEREAS, the Board of Commissioners of The Northwest Tennessee Regional Port Authority (the "Authority") has determined that it is necessary and advisable to borrow funds and incur indebtedness to finance the construction of and improvements to the Authority's Port and related facilities and the acquisition of equipment for the Authority's operations (the "Project"), as more fully set forth herein; and

WHEREAS, pursuant to Section 7-87-109 and Section 9-21-304, Tennessee Code Annotated, as amended, prior to the issuance of notes for said purposes, it is necessary to adopt an initial resolution authorizing said notes.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of The Northwest Tennessee Regional Port Authority, as follows:

1. For the purpose of providing funds for the following purposes:

(a) to finance construction of, improvements to and extensions to the Authority's Port and the acquisition of equipment for the Authority's operations; and

(b) payment of legal, fiscal, administrative and engineering costs incident thereto and incident to the issuance of the notes,

the Authority is hereby authorized to borrow money and incur indebtedness in an aggregate principal amount of not to exceed $2,200,000 through the issuance of revenue notes of the Authority. The indebtedness incurred pursuant to the issuance of said notes shall bear interest at a rate or rates not to exceed the maximum amount per annum as permitted by state law and shall be payable from a pledge of the Authority's revenues, grants and contributions (the "Revenues"), provided, however, that one or more of the counties that caused the creation of the Authority may by resolution guaranty all or a portion of the payment of principal of and interest on the notes.

2. The Secretary of the Authority is hereby authorized and directed to cause the foregoing resolution to be published in full in one or more newspapers having a general circulation in Dyer County, Lake County and Obion County (collectively, the "Counties") for one issue of said papers.

3. This Resolution shall be in immediate effect from and after its adoption, the public welfare requiring it.

Adopted and approved this 29th day of April, 2004.

_____
. Chairman

ATTEST:

_____
Secretary

STATE OF TENNESSEE)
)
COUNTY OF DYER)

I, Marcia P. Mills, certify that I am the duly qualified and acting Secretary of The Northwest Tennessee Regional Port Authority, and as such official I further certify that attached hereto is a copy of excerpts from the minutes of a regular meeting of the governing body of the Authority held on April 29, 2004; that these minutes were promptly and fully recorded and are open to public inspection; that I have compared said copy with the original minute record of said meeting in my official custody; and that said copy is a true, correct and complete transcript from said original minute record insofar as said original record relates to an initial resolution for not to exceed $2,200,000 Revenue Notes, Series 2004 of said Authority.

WITNESS my official signature and seal of said Authority this _____ day of _____, 2004.

_____
Secretary

Motion was made by Mac Forrester and seconded by Jerome Shumate to approve the following resolution authorizing the issuance of notes and bonds, not to exceed $2,200,000:

(Remainder of Page Intentionally Left Blank)

The Board of Commissioners of the Northwest Tennessee Regional Port Authority, met in a specially called session at the Lannom Center, Dyersburg, Tennessee, at 9:00 o'clock, a.m., on April 29, 2004, with Jimmy Williamson, Chairman, presiding, and the following Commissioners:

Tony White
Marcia Perkins Mills
Jerome Shumate
Mac Forrester
Jimmy Williamson

There were absent:

Dan Frankum
Ralph Henson
Jimmy Seals

It was announced that public notice of the time, place and purpose of the meeting had been given, and accordingly, the meeting was called to order.

The following resolution was introduced by Tony White, seconded by Mac Forrester, and after due deliberation, were adopted by the following vote:

AYE: Tony White
Marcia Perkins Mills
Jerome Shumate
Mac Forrester
Jimmy Williamson

NAY: None

A RESOLUTION AUTHORIZING THE ISSUANCE OF NOT TO EXCEED TWO MILLION TWO HUNDRED THOUSAND DOLLARS ($2,200,000) IN AGGREGATE PRINCIPAL AMOUNT OF REVENUE NOTES OF THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY; MAKING PROVISION FOR THE ISSUANCE, SALE AND PAYMENT OF SAID NOTES, ESTABLISHING THE TERMS THEREOF AND THE DISPOSITION OF PROCEEDS THEREFROM; AND PROVIDING FOR THE COLLECTION AND DISPOSITION OF REVENUES, GRANTS, AND CONTRIBUTIONS OF THE AUTHORITY FOR THE PAYMENT OF PRINCIPAL THEREOF AND INTEREST THEREON.

WHEREAS, The Northwest Tennessee Regional Port Authority (the "Authority") is duly incorporated pursuant to Sections 7-87-101 et seq., Tennessee Code Annotated, as amended (the "Act"); and

WHEREAS, under the provisions of the Act and Sections 9-21-101 et seq., Tennessee Code Annotated, port authorities in Tennessee are authorized to issue interest bearing revenue notes of said port authorities for any of its corporate purposes; and

WHEREAS, the Board of Commissioners of the Authority has determined that it is necessary and advisable to issue revenue notes for the purpose of providing funds to finance the construction of and improvements to the Authority's Port (as defined in the Act) and the acquisition of equipment for the Authority's operations; and

WHEREAS, it appears to the Board of Commissioners that it will be advantageous to the Authority to issue revenue notes at this time; and

WHEREAS, it is the intention of the Board of Commissioners of the Authority to adopt this resolution for the purpose of authorizing such notes, establishing the terms thereof, providing for the sale of the notes and the collection and disposition of revenues, grants and contributions for the payment of principal thereof and interest thereon.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of the Authority, as follows:

Section 1. Authority. The notes authorized by this resolution are issued pursuant to Sections 7-87-101 et seq. and Sections 9-21-101 et seq., Tennessee Code Annotated, and other applicable provisions of law.

Section 2. Definitions. The following terms shall have the following meanings in this resolution unless the text expressly or by necessary implication requires otherwise:

(a) "Act" shall mean Sections 7-87-101 et seq., Tennessee Code Annotated, as amended;

(b) "Authority" shall mean The Northwest Tennessee Regional Port Authority;

(c) "Code" shall mean the Internal Revenue Code of 1986, as amended;

(d) "Governing Body" shall mean the Board of Commissioners of the Authority;

(e) "Notes" shall mean the not to exceed $2,200,000 Revenue Notes, of the Authority, authorized to be issued by this resolution, to be dated the respective dates of delivery thereof or various dates certain, as shall be determined by the Chairman of the Authority;

(f) "Port" shall have the meaning ascribed to it in the Act;

(g) "Project" shall mean the construction of and improvements to the Authority's Port and the acquisition of equipment for the Authority's operations;

(h) "Registration Agent" shall mean the Chairman of the Authority; and

(i) "State" shall mean the State of Tennessee.

Section 3. Authorization and Terms of the Notes. For the purpose of providing funds to pay the costs of the Project and to pay legal, fiscal and administrative costs incident thereto and incident to the issuance of the Notes, there is hereby authorized to be issued interest bearing revenue notes of the Authority in an aggregate principal amount of not to exceed $2,200,000. The Notes shall be issued in fully registered form, without coupons, shall be known as "Revenue Notes" shall be payable to the registered owner thereof, and shall be numbered consecutively beginning with the number 1. The Notes shall be dated the respective dates of delivery thereof, or various dates certain as shall be determined by the Chairman of the Authority, shall mature at such times as are established by the Chairman of the Authority in connection with the sale of the Notes provided no Note shall mature later than five (5) years from the dated date thereof, and shall be issued in any dollar denomination, as shall be determined by the Chairman. The Notes shall bear interest at a rate or rates not to exceed the maximum amount per annum allowed by State law, which may be adjusted from time to time in accordance with an established prime rate, or the equivalent thereof, or any other established index, as determined by the Chairman, payable not more frequently than monthly, as determined by the Chairman of the Authority.

The Notes shall be subject to redemption prior to maturity at any time at a price of par plus accrued interest to the redemption date.

Notice of call for redemption shall be given by the Registration Agent on behalf of the Authority not less than ten (10) nor more than sixty (60) days prior to the date fixed for redemption by sending an appropriate notice to the registered owners of the Notes to be redeemed by first-class mail, postage prepaid, at the addresses shown on the Note registration records of the Registration Agent as of the date of the notice; but neither failure to mail such notice nor any defect in any such notice so mailed shall affect the sufficiency of the proceedings for the redemption of the Notes for which proper notice was given. The Registration Agent shall mail said notices as and when directed by the Authority pursuant to written instructions from an authorized representative of the Authority. From and after any redemption date, all Notes called for redemption shall cease to bear interest if funds are available at the office of the Registration Agent for the payment thereof and if notice has been duly provided as set forth herein.

The Authority hereby appoints the Registration Agent as registration agent and paying agent with respect to the Notes and authorizes the Registration Agent to maintain Note registration records with respect to the Notes, to authenticate and deliver the Notes as provided herein, either at original issuance or upon transfer, to effect transfers of the Notes, and to make all payments of principal and interest with respect to the Notes as provided herein.

The Notes shall be payable, both principal and interest, in lawful money of the United States of America at the office of the Registration Agent. The Registration Agent shall make all interest payments with respect to the Notes on each interest payment date directly to the registered owners as shown on the

Note registration records maintained by the Registration Agent as of the close of business on the day which is fifteen days preceding the interest payment date, or the fifteenth day of the preceding month if the interest payment date is on the first day of the month (the "Regular Record Date"), by check or draft mailed to such owners at such owners' addresses shown on said Note registration records, without, except for final payment, the presentation or surrender of such registered Notes, and all such payments shall discharge the obligations of the Authority in respect of such Notes to the extent of the payments so made. Payment of principal of the Notes shall be made upon presentation and surrender of such Notes to the Registration Agent as the same shall become due and payable.

Any interest on any Note which is payable but is not punctually paid or duly provided for on any interest payment date (hereinafter "Defaulted Interest") shall forthwith cease to be payable to the registered owner on the relevant Regular Record Date; and, in lieu thereof, such Defaulted Interest shall be paid by the Authority to the persons in whose names the Notes are registered at the close of business on a date (the "Special Record Date") for the payment of such Defaulted Interest, which shall be fixed in the following manner: the Authority shall notify the Registration Agent in writing of the amount of Defaulted Interest proposed to be paid on each Note and the date of the proposed payment, and at the same time the Authority shall deposit with the Registration Agent an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Registration Agent for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the persons entitled to such Defaulted Interest as in this Section provided. Thereupon, not less than ten (10) days after the receipt by the Registration Agent of the notice of the proposed payment, the Registration Agent shall fix a Special Record Date for the payment of such Defaulted Interest which Date shall be not more than fifteen (15) nor less than ten (10) days prior to the date of the proposed payment to the registered owners. The Registration Agent shall promptly notify the Authority of such Special Record Date and, in the name and at the expense of the Authority, not less than ten (10) days prior to such Special Record Date, shall cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor to be mailed, first class postage prepaid, to each registered owner at the address thereof as it appears in the Note registration records maintained by the Registration Agent as of the date of such notice. Nothing contained in this Section or in the Notes shall impair any statutory or other rights in law or in equity of any registered owner arising as a result of the failure of the Authority to punctually pay or duly provide for the payment of principal of, premium, if any, and interest on the Notes when due.

The Notes are transferable only by presentation to the Registration Agent by the registered owner, or his legal representative, duly authorized in writing, of the registered Note(s) to be transferred with the form of assignment on the reverse side thereof completed in full and signed with the name of the registered owner as it appears upon the face of the Note(s) accompanied by appropriate documentation necessary to prove the legal capacity of any legal representative of the registered owner. Upon receipt of the Note(s) in such form and with such documentation, if any, the Registration Agent shall issue a new Note or Notes to the assignee(s) in any permitted denomination, as requested by the registered owner requesting transfer. No charge shall be made to any registered owner for the privilege of transferring any Notes, provided that any transfer tax relating to such transaction shall be paid by the owner requesting transfer. The person in whose name any Note shall be registered shall be deemed and regarded as the absolute owner thereof for all purposes and neither the Authority nor the Registration Agent shall be affected by any notice to the contrary whether or not any payments due on the Notes shall be overdue.

The Notes shall be signed by the Chairman with his manual or facsimile signature and shall be attested by the Secretary by his manual or facsimile signature.

The Registration Agent is hereby authorized to authenticate and deliver the Notes to the original purchaser thereof or as he may designate upon receipt by the Authority of the proceeds of the sale thereof

and to authenticate and deliver Notes in exchange for Notes of the same principal amount delivered for transfer upon receipt of the Note(s) to be transferred in proper form with proper documentation as hereinabove described. The Notes shall not be valid for any purpose unless authenticated by the Registration Agent by the manual signature of an officer thereof on the certificate set forth herein on the Note form.

In case any Note shall become mutilated, or be lost, stolen, or destroyed, the Authority, in its discretion, shall issue, and the Registration Agent, upon written direction from the Authority, shall authenticate and deliver, a new Note of like tenor, amount, maturity and date, in exchange and substitution for, and upon the cancellation of, the mutilated Note, or in lieu of and substitution for such lost, stolen or destroyed Note, or if any such Note shall have matured or shall be about to mature, instead of issuing a substituted Note the Authority may pay or authorize payment of such Note without surrender thereof. In every case the applicant shall furnish evidence satisfactory to the Authority and the Registration Agent of the destruction, theft or loss of such Note, and indemnity satisfactory to the Authority and the Registration Agent; and the Authority may charge the applicant for the issue of such new Note an amount sufficient to reimburse the Authority for the expense incurred by it in the issue thereof.

Notwithstanding the terms of this Section 3, at the request of the purchaser of the Notes, the Notes may be issued payable to order without the necessity of a Registration Agent or authentication so long as the Notes shall state on their face that no transfer of the Notes is permitted without prior written notice to the Chairman.

Section 4. Source of Payment. The Notes shall be payable solely from and be secured by a pledge of the Authority's revenues, grants and contributions (the "Revenues") on a parity and equality of lien with any bonds, notes or obligations hereafter issued ("Parity Bonds"). The Notes do not constitute a debt of the State of Tennessee, or any political subdivision, agency or instrumentality thereof, other than the Authority, and no owner or holder of any of the Notes shall have recourse to the taxing power of any such entities, provided, however, that all or a portion of the principal of and interest on the Notes may be guaranteed to the extent permitted by the Act by one or more of the counties that caused the creation of the Authority. The punctual payment of principal of and interest on the Notes authorized herein shall be secured equally and ratably by the Revenues of the Authority without priority by series, number or time of sale or delivery.

Section 5. Form of Notes. The Notes shall be in substantially the following form, the omissions to be appropriately completed when the Notes are prepared and delivered, subject to such changes and modifications as shall be requested by the purchaser thereof and agreed to by the Chairman, including all changes necessary to make the Note payable to order:

(Form of Note)

REGISTERED REGISTERED
Number

UNITED STATES OF AMERICA
STATE OF TENNESSEE
COUNTIES OF DYER, LAKE AND OBION
THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY
REVENUE NOTE

Maturity Date: Date of Note:

Registered Owner:

Principal Amount:

KNOW ALL MEN BY THESE PRESENTS: That The Northwest Tennessee Regional Port Authority, a port authority organized under the Port Authority Act and existing in Dyer, Lake and Obion Counties, Tennessee (the "Authority"), for value received hereby promises to pay to the registered owner hereof, hereinabove named, or registered assigns, in the manner hereinafter provided, the principal amount hereinabove set forth, or so much as shall be advanced hereunder, with interest on said principal amount at a rate of interest of [__%] [that shall be _____ percent (__%) of the interest rate defined and published in _____ as the "_____," which rate shall be adjusted on each day that the "_____" changes], provided that at no time shall the rate of interest payable on the indebtedness evidenced hereby exceed the maximum amount per annum allowed by State law. Interest shall be calculated on the basis of a [360-day year of twelve 30-day months] [365-day year over the actual number of days elapsed] on said principal amount at the annual rate of interest hereinabove set forth from the date hereof until said maturity date, said interest being payable on each _____ and at maturity or until this Note is redeemed. Both principal hereof and interest hereon are payable in lawful money of the United States of America by check or draft at the main office of the Chairman of the Authority, as registration and paying agent (the "Registration Agent"). The Registration Agent shall make all interest payments with respect to this Note on each interest payment date directly to the registered owner hereof shown on the note registration records maintained by the Registration Agent as of the close of business on the day which is fifteen (15) days preceding the interest payment date (the "Regular Record Date") by check or draft mailed to such owner at such owner's address shown on said note registration records, without, except for final payment, the presentation or surrender of this Note, and all such payments shall discharge the obligations of the Authority to the extent of the payments so made. Payment of principal hereof shall be made when due upon presentation and surrender of this Note to the Registration Agent.

This Note shall be subject to redemption prior to maturity at any time at the option of the Authority at a price of par plus accrued interest upon notice to the registered owner thereof.

This Note is one of a total authorized issue aggregating $2,200,000 and issued by the Authority for the purpose of the construction of and improvements to the Authority's Port (as hereinafter defined) and the acquisition of equipment for the Authority's operations under and in full compliance with the constitution and statutes of the State of Tennessee, including Sections 7-87-101 et seq. and Sections 9-21-101 et seq., Tennessee Code Annotated, and pursuant to a resolution duly adopted by the Board of Commissioners of the Authority on the 29th day of April, 2004 (the "Resolution").

This Note is one of a series of Notes payable solely from and secured by a pledge of the revenues, grants and contributions (the "Revenues") to be derived from the operation of the Authority's Port (as defined in Section 7-87-101 et seq., Tennessee Code Annotated), on a parity and complete equality of lien with respect to the Revenues with any bonds, notes or obligations hereafter issued on a parity therewith ("Parity Bonds"), subject only to the payment of the reasonable and necessary costs of operating, maintaining, repairing and insuring the Authority's Port. As provided in the Resolution, the punctual payment of principal of, premium, if any, and interest on the series of Notes of which this Note is one, the Parity Bonds and any other bonds, notes or obligations issued on a parity therewith shall be secured equally and ratably by the Revenues without priority by reason of series, number or time of sale or delivery.

Under existing law, this Note and the income therefrom are exempt from all present state, county and municipal taxation in Tennessee except (a) inheritance, transfer and estate taxes, (b) Tennessee excise taxes on all or a portion of the interest on this Note during the period such Note is held or beneficially owned by any organization or entity, other than a sole proprietorship or general partnership, doing business in the State of Tennessee, and (c) Tennessee franchise taxes by reason of the inclusion of the book value of this Note in the Tennessee franchise tax base or any organization or entity, other than a sole proprietorship or general partnership, doing business in the State of Tennessee.

It is hereby certified, recited, and declared that all acts, conditions and things required to exist, happen and be performed precedent to and in the issuance of this Note exist, have happened and have been performed in due time, form and manner as required by law, and that the amount of this Note, together with all other indebtedness of the Authority, does not exceed any limitation prescribed by the constitution and statutes of the State of Tennessee.

IN WITNESS WHEREOF, the Authority has caused this Note to be signed by its Chairman with his facsimile or manual signature and attested by its Secretary with his facsimile or manual signature, all as of the day and date hereinabove set forth.

THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY

By:_____
Chairman

ATTESTED:

_____
Secretary

Transferable and payable at the principal office of: The Northwest Tennessee Regional Port Authority
_____, Tennessee

Date of Registration: _____

This Note is one of the issue of notes issued pursuant to the Resolution hereinabove described.

SECRETARY OF THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY, as Registration Agent

By:_____
Registration Agent

(FORM OF ASSIGNMENT)

FOR VALUE RECEIVED, the undersigned sells, assigns, and transfers unto _____, whose address is _____ (Insert Social Security or Federal Tax Identification Number _____), the within Note of The Northwest Tennessee Regional Port Authority and does hereby irrevocably constitute and appoint _____, attorney, to transfer the said Note on the records kept for registration thereof with full power of substitution in the premises.

Dated:_____

_____
NOTICE: The signature to this assignment must correspond with the name of the registered owner as it appears on the face of the within Note in every particular without enlargement or alteration, or any change whatever.

Signature guaranteed:

_____
NOTICE: Signature(s) must be guaranteed by a member firm of a Medallion Program acceptable to the Registration Agent.

Section 6. Pledge of Revenues. The punctual payment of principal of, premium, if any, and interest on the Notes shall be secured equally and ratably by the Revenues without priority by reason of number or time of sale or execution or delivery and, subject to the payment of the reasonable and necessary costs of operating, maintaining, repairing and insuring the Port, the Revenues are hereby irrevocably pledged to the punctual payment of such principal, premium and interest as the same become due.

Section 7. Sale of Notes. The Notes shall be sold by the Chairman, at competitive or negotiated sale, in whole or in part from time to time as shall be determined by the Chairman, at not less than par and accrued interest, maturing not later than five (5) years from the initial dated date. No Notes shall be sold at an interest rate exceeding the maximum amount per annum allowed by State law. The Chairman at his discretion may extend the maturity and reissue all or any of the Notes that have been issued at any time following the initial delivery of the Notes provided that the final maturity of any Notes shall not be later than five (5) years from the date such Notes are originally issued, pursuant to the terms hereof and upon such rates and terms as shall be acceptable to the Chairman, and provided that the aggregate principal balance of all the Notes at any time outstanding does not exceed $2,200,000. The action of the Chairman in selling the Notes or extending and renewing the Notes and fixing the interest rate or rates on the Notes or the method of adjustment of rate, but not exceeding the maximum rate per annum permitted by State law, and the terms thereof, shall be binding on the Authority, and no further action by the Governing Body with respect thereto shall be required. Upon the initial sale of any Notes or the renewal and extension of same, the Chairman and Secretary are authorized to cause the Notes to be executed and delivered to the purchaser thereof, and the Chairman, and Secretary, or either of them, are authorized to

execute, publish, and deliver all certificates and documents as they shall deem necessary in connection with the sale and delivery of the Notes.

Section 8. Disposition of Note Proceeds. The proceeds of the Notes may either be drawn as needed to pay the costs of the Project and the costs of issuance of the Notes, or drawn in their entirety and paid to the Authority to be deposited with a bank or trust company regulated by the Federal Deposit Insurance Corporation in a special fund known as the "Project Fund" to be kept separate and apart from all other funds of the Authority. The funds in the Project Fund shall be disbursed solely to pay the costs of the Project and issuance of the Notes, including necessary legal, accounting, engineering, architectural and fiscal expenses, printing, advertising and similar expenses, administrative and clerical costs and other necessary miscellaneous expenses incurred in connection with the Project and the issuance and sale of the Notes. Moneys in the Project Fund shall be invested as directed by an officer of the Authority in such investments as shall be permitted by applicable law.

Section 9. Federal Tax Matters. If any Notes are sold by the Authority on the basis that the interest on such Notes will be excluded from gross income for federal income tax purposes, the Authority recognizes that the purchasers and owners of the Notes will have accepted them on, and paid therefor a price that reflects, the understanding that interest thereon is exempt from federal income taxation under laws in force on the date of delivery of the Notes. In such a case, the Authority agrees that it shall take no action that may render the interest on any of said Notes subject to federal income taxation. In such a case, the Governing Body further covenants and represents that in the event it shall be required by Section 148(f) of the Code to pay any investment proceeds of the Notes to the United States government, it will make such payments as and when required by said Section 148(f) and will take such other actions as shall be necessary or permitted to prevent the interest on the Notes from becoming includable in the gross income of the holders thereof for federal income tax purposes. The Chairman and Secretary, or either of them, are authorized and directed to make such certifications in this regard in connection with the sale of the Notes as either or both shall deem appropriate, and such certifications shall constitute a representation and certification of the Authority.

Section 10. Qualified Tax-Exempt Obligations. To the extent the Authority is eligible in any year in which Notes are issued or reissued to issue "Qualified Tax-Exempt Obligations" within the meaning of Section 265 of the Code, the Chairman is authorized to designate such Notes as "Qualified Tax-Exempt Obligations."

Section 11. Resolution a Contract. The provisions of this resolution shall constitute a contract between the Authority and the registered owners of the Notes, and after the issuance of the Notes, no change, variation or alteration of any kind in the provisions of this resolution shall be made in any manner until such time as the Notes and interest due thereon shall have been paid in full.

Section 12. Separability. If any section, paragraph or provision of this resolution shall be held to be invalid or unenforceable for any reason, the invalidity or unenforceability of such section, paragraph or provision shall not affect any of the remaining provisions of this resolution.

Section 13. Repeal of Conflicting Resolutions and Effective Date. All other resolutions and orders, or parts thereof, in conflict with the provisions of this resolution, are, to the extent of such conflict, hereby repealed and this resolution shall be in immediate effect from and after its adoption.

Section 14. Economic Life. The term of the Notes shall not exceed the reasonably expected economic life of the assets financed thereby.

Adopted and approved this 29th day of April, 2004.

Chairman

ATTEST:

Secretary

* * * * *

Pursuant to motion duly made and carried, the meeting adjourned.

Chairman

ATTEST:

Secretary

Motion was made by Jerome Shumate with a second by Mac Forrester, to authorize Chairman Williamson to work, on behalf of the Port Authority, with Gibson Electric and USDA to receive a low interest loan. The motion was approved unanimously. It was further explained that the loan has 0% interest and no payment for three years; and the principle can be repaid over a term of ten years.

Chairman Williamson stated that as soon as it is economically feasible, the Port Authority will hire a harbor master to begin recruiting business for the port.

There being no further business, the meeting adjourned at approximately 9:30 a.m.

_____, Chairman
The Northwest Tennessee Regional Port Authority

The Board of County Commissioners of Dyer County, Tennessee, met in regular session on May 10, 2004 at 7:00 p.m., at the Dyer County Courthouse, Dyersburg, Tennessee, with the Honorable Milton Magee, Commission Chairman, presiding.

The following Commissioners were present:

David Agee, Debbie Bradshaw, Alan Burchfiel, John Flatt, Ralph Henson, John Holden, Billy Jones, Larry Maupin, Terry McCreight, Tom Reasons, Harold Sartin, Eddie Shults, Joe Swafford, John Uitendaal, Jimmy Wells.

The following Commissioners were absent:

William Cloar, Jimmy Hendren, Al Seward, Chris Young.

There was also present Diane Moore, County Clerk and Richard Hill, County Mayor.

After the meeting was duly called to order, the following resolution was introduced by John Holden, seconded by John Flatt and after due deliberation, was adopted by the following vote:

AYE:

David Agee, Debbie Bradshaw, Alan Burchfiel, John Flatt, Ralph Henson, John Holden, Billy Jones, Milton Magee, Larry Maupin, Terry McCreight, Tom Reasons, Harold Sartin, Eddie Shults, Joe Swafford, John Uitendaal, Jimmy Wells.

NAY:

None.

A RESOLUTION AUTHORIZING THE GUARANTY OF CERTAIN INDEBTEDNESS OF THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY.

WHEREAS, the Board of County Commissioners of Dyer County, Tennessee (the "County") has met pursuant to proper notice; and

WHEREAS, The Northwest Tennessee Regional Port Authority (the "Authority") has been organized pursuant to Sections 7-87-101 et seq., Tennessee Code Annotated (the "Act"), as an agency and instrumentality of the County, Obion County, Tennessee ("Obion County") and Lake County, Tennessee ("Lake County"); and

WHEREAS, the Board of Commissioners of the Authority has determined it to be in the best interest of the Authority to issue revenue notes, in the principal amount of not to exceed $2,200,000 (the "Notes") for the purpose of providing funds to finance the construction of and improvements to the Authority's Port (as defined in the Act) and the acquisition of equipment for the Authority's operations (collectively, the "Project"); and

WHEREAS, pursuant to Section 7-87-109(e)(1) of the Act, the Board of County Commissioners (the "Governing Body") of the County may, by resolution, pledge the full faith and credit and unlimited taxing power of the County as guarantor to the payment of the principal or premium, if any, and interest on the Notes; and

WHEREAS, the Governing Body has determined it to be in the best interest of the County, Obion County, Lake County and the Authority to guaranty twenty-five percent (25%) of the indebtedness of the Authority as evidenced by the Notes to ensure the completion of the Project; and

WHEREAS, a form of guaranty agreement (the "Guaranty") has been presented to the Governing Body in the form of the document attached hereto and incorporated herein by this reference as Exhibit A, subject to such changes therein as shall be permitted by Section 2 hereof.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Dyer County, Tennessee, as follows:

Section 1. Authority. The guaranty authorized by this resolution is authorized pursuant to Sections 7-87-101, et seq., Tennessee Code Annotated, as amended, and other applicable provisions of law.

Section 2. Guaranty Agreement. For the purpose of guarantying not more than twenty-five percent (25%) of the payment of the principal of, premium, if any, and interest on the Notes, the County Mayor is hereby authorized and directed to execute and the County Clerk to attest on behalf of the County the Guaranty; provided, however, that in no event shall the Guaranty guaranty more than twenty-five percent (25%) of the indebtedness evidenced by the Notes. The form of the Guaranty presented to this meeting and attached hereto as Exhibit A is hereby in all respects approved and the County Mayor and the County Clerk are hereby authorized and directed to execute and deliver same on behalf of the County in substantially the form thereof presented to this meeting, or with such changes as may be approved by the County Mayor and the County Clerk, their execution thereof to constitute conclusive evidence of their approval of all such changes, including modifications to the Guaranty. The County hereby pledges its full faith and credit and unlimited taxing power to the payment of that portion of the principal of and interest on the notes that is the subject of the Guaranty.

Section 3. Resolution a Contract. The provisions of this resolution shall constitute a contract between the County and the registered owners of the Notes, and after the issuance of the Notes, no change, variation or alteration of any kind in the provisions of this resolution shall be made, except with the written consent of the holders of all of the Notes, in any manner until such time as the Notes and interest due thereon shall have been paid in full.

Section 4. Separability. If any section, paragraph or provision of this resolution shall be held to be invalid or unenforceable for any reason, the invalidity or unenforceability of such section, paragraph or provision shall not affect any of the remaining provisions of this resolution.

Section 5. Repeal of Conflicting Resolutions and Effective Date. All other resolutions and orders, or parts thereof, in conflict with the provisions of this resolution, are, to the extent of such conflict, hereby repealed and this resolution shall be in immediate effect from and after its adoption.

Adopted and approved this 10th day of May, 2004.

Richard Hill

Richard Hill, County Mayor

Milton Magee

Milton Magee, Commission Chairman

ATTEST:

Diane Moore

Diane Moore, County Clerk

GUARANTY AGREEMENT

THIS GUARANTY AGREEMENT ("Guaranty"), dated _____ __, 2004, is made and entered into upon the terms hereinafter set forth, by DYER COUNTY, TENNESSEE, a political subdivision duly created under the laws of the State of Tennessee ("Guarantor"), in favor of _____, a _____ that has its principal place of business in _____, Tennessee ("Creditor").

RECITALS:

A. The Northwest Tennessee Regional Port Authority (the "Authority") has been organized pursuant to Sections 7-87-101 et seq., Tennessee Code Annotated (the "Act"), as an agency and instrumentality of Guarantor, Obion County, Tennessee and Lake County, Tennessee.

B. The Authority has issued its $2,200,000 The Northwest Tennessee Regional Port Authority Revenue Notes, Series 2004 (the "Notes") for the purpose of providing funds to finance the construction of and improvements to the Authority's Port (as defined in the Act) and the acquisition of equipment for the Authority's operations (collectively, the "Project").

C. Creditor has purchased the Notes.

D. Pursuant to Section 7-87-109(e)(1) of the Act, the Board of County Commissioners of Guarantor has, by resolution, pledged the full faith and credit and unlimited taxing power of Guarantor as guarantor to the payment of a portion of the principal of and interest on the Notes.

AGREEMENTS:

NOW, THEREFORE, in consideration of the foregoing and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged by Guarantor, and to induce Creditor to purchase the Notes, Guarantor hereby agrees as follows:

1. Subject to the limitation in Section 2 hereof, Guarantor hereby guarantees to Creditor the full and prompt payment of the principal of and interest on the Notes (such principal and interest are sometimes herein collectively referred to as the "Guaranteed Obligations").

2. Notwithstanding any provision herein to the contrary, the right of recovery, however, against the Guarantor shall be limited to twenty-five percent (25%) of all Guaranteed Obligations.

3. Unless otherwise required by law, any act of Creditor consisting of a waiver of any of the terms, covenants or conditions of the Guaranteed Obligations, or the giving of any consent to any matter or thing relating to the Guaranteed Obligations, or the granting of any indulgences or extensions of time to the Authority, may be done without notice to Guarantor and without releasing the obligations of Guarantor hereunder.

4. The obligations of Guarantor hereunder shall not be released by Creditor's receipt, application or release of any security given for the payment, performance and observance of any of the Guaranteed Obligations.

5. To the fullest extent permitted by law, the liability of Guarantor hereunder shall in no way be affected by (a) the release or discharge of the Authority in any creditors', receivership,

bankruptcy or other proceedings, (b) the impairment, limitation or modification of the liability of the Authority or the estate of the Authority in bankruptcy, or of any remedy for the enforcement of any of the Guaranteed Obligations resulting from the operation of any present or future provision of the Federal bankruptcy law or any other statute or the decision of any court, (c) the rejection or disaffirmance of any instrument, document or agreement evidencing any of the Guaranteed Obligations in any such proceedings, (d) the assignment or transfer of any of the Guaranteed Obligations by Creditor, or (e) the cessation from any cause whatsoever of the liability of the Authority with respect to the Guaranteed Obligations.

6. The Guarantor hereby pledges its full faith and credit and its unlimited taxing power to the payment of the principal of and interest on the Guaranteed Obligations subject to the limitation of Section 2 hereof.

7. This Guaranty shall be assignable by Creditor to any person to whom Creditor transfers the Notes. This Guaranty shall be binding upon Guarantor and shall inure to the benefit of Creditor, its successors and assigns.

8. This Guaranty shall be construed in accordance with and governed by the laws of the State of Tennessee applicable to contracts to be performed within said state.

9. No amendment or modification hereof shall be effective unless evidenced by a writing signed by Guarantor and Creditor. When used herein, the singular shall include the plural, and vice versa, and the use of any gender shall include all other genders, as appropriate.

IN WITNESS WHEREOF, the undersigned Guarantor has executed this Guaranty, or has caused this Guaranty to be executed by its duly authorized representative, as of the date first above written.

DYER COUNTY, TENNESSEE

_____
Richard Hill, County Mayor

ATTEST:

_____
Diane Moore, County Clerk

ACCEPTED this _____ day of
_____, 2004.

_____

By:_____
Its: _____

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The Board of County Commissioners of Obion County, Tennessee, met in regular session on May 17, 2004 at 9:00 a.m., at the Obion County Library, Union City, Tennessee, with Ralph Puckett, Chairman, presiding.

The following Commissioners were present:

Richard Arnold, Robert Barnes, Ned Bigelow, Donnie Braswell, Kenneth Cheatham, Tim Doyle, Polk Glover, Steve Goodrich, Jerry Grady, Mark Graham, William Griffin, Mike Hampton, Larry Henderson, Dwayne Hensley, Danny Jowers, Larry McGuire, Allen Nohsey, Jimmy Seals, and Trena Taylor.

The following Commissioners were absent:

Steve Rice.

There was also present the Honorable Gaylon R. Long, County Mayor and Vollie Boehms, County Clerk.

After the meeting was duly called to order, the following resolution was introduced by Tim Doyle, seconded by Danny Jowers and after due deliberation, was adopted by the following vote:

AYE: 20

Richard Arnold, Robert Barnes, Ned Bigelow, Donnie Braswell, Kenneth Cheatham, Tim Doyle, Polk Glover, Steve Goodrich, Jerry Grady, Mark Graham, William Griffin, Mike Hampton, Larry Henderson, Dwayne Hensley, Danny Jowers, Larry McGuire, Allen Nohsey, Ralph Puckett, Jimmy Seals, and Trena Taylor.

NAY:

None.

A RESOLUTION AUTHORIZING THE GUARANTY OF CERTAIN INDEBTEDNESS OF THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY.

WHEREAS, the Board of County Commissioners of Obion County, Tennessee (the "County") has met pursuant to proper notice; and

WHEREAS, The Northwest Tennessee Regional Port Authority (the "Authority") has been organized pursuant to Sections 7-87-101 et seq., Tennessee Code Annotated (the "Act"), as an agency and instrumentality of the County, Dyer County, Tennessee ("Dyer County") and Lake County, Tennessee ("Lake County"); and

WHEREAS, the Board of Commissioners of the Authority has determined it to be in the best interest of the Authority to issue revenue notes, in the principal amount of not to exceed $2,200,000 (the "Notes") for the purpose of providing funds to finance the construction of and improvements to the Authority's Port (as defined in the Act) and the acquisition of equipment for the Authority's operations (collectively, the "Project"); and

WHEREAS, pursuant to Section 7-87-109(e)(1) of the Act, the Board of County Commissioners (the "Governing Body") of the County may, by resolution, pledge the full faith and credit and unlimited taxing power of the County as guarantor to the payment of the principal or premium, if any, and interest on the Notes; and

WHEREAS, the Governing Body has determined it to be in the best interest of the County, Dyer County, Lake County and the Authority to guaranty twenty-five percent (25%) of the indebtedness of the Authority as evidenced by the Notes to ensure the completion of the Project; and

WHEREAS, a form of guaranty agreement (the "Guaranty") has been presented to the Governing Body in the form of the document attached hereto and incorporated herein by this reference as Exhibit A, subject to such changes therein as shall be permitted by Section 2 hereof.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Obion County, Tennessee, as follows:

Section 1. Authority. The guaranty authorized by this resolution is authorized pursuant to Sections 7-87-101, et seq., Tennessee Code Annotated, as amended, and other applicable provisions of law.

Section 2. Guaranty Agreement. For the purpose of guarantying not more than twenty five percent (25%) of the payment of the principal of, premium, if any, and interest on the Notes, the County Mayor is hereby authorized and directed to execute and the County Clerk to attest on behalf of the County the Guaranty; provided, however, that in no event shall the Guaranty guarantee more than twenty five percent (25%) of the indebtedness evidenced by the Notes. The form of the Guaranty presented to this meeting and attached hereto as Exhibit A is hereby in all respects approved and the County Mayor and the County Clerk are hereby authorized and directed to execute and deliver same on behalf of the County in substantially the form thereof presented to this meeting, or with such changes as may be approved by the County Mayor and the County Clerk, their execution thereof to constitute conclusive evidence of their approval of all such changes, including modifications to the Guaranty. The County hereby pledges its full faith and credit and unlimited taxing power to the payment of that portion of the principal of and interest on the notes that is the subject of the Guaranty.

Section 3. Resolution a Contract. The provisions of this resolution shall constitute a contract between the County and the registered owners of the Notes, and after the issuance of the Notes, no change, variation or alteration of any kind in the provisions of this resolution shall be made, except with the written consent of the holders of all of the Notes, in any manner until such time as the Notes and interest due thereon shall have been paid in full.

Section 4. Separability. If any section, paragraph or provision of this resolution shall be held to be invalid or unenforceable for any reason, the invalidity or unenforceability of such section, paragraph or provision shall not affect any of the remaining provisions of this resolution.

Section 5. Repeal of Conflicting Resolutions and Effective Date. All other resolutions and orders, or parts thereof, in conflict with the provisions of this resolution, are, to the extent of such conflict, hereby repealed and this resolution shall be in immediate effect from and after its adoption.

Adopted and approved this 10th day of May, 2004.

Gaylon R. Long, County Mayor

ATTEST:

Vollie Jean Boehms, County Clerk

STATE OF TENNESSEE)

COUNTY OF OBION)

I, Vollie Jean Boehms, hereby certify that I am the duly qualified and acting County Clerk of Obion County, Tennessee, and as such official I further certify that attached hereto is a copy of excerpts from a regular meeting of the governing body of the County held on May 17, 2004; that these minutes were promptly and fully recorded and are open to public inspection; that I have compared said copy with the original minute record of said meeting in my official custody; and that said copy is a true, correct and complete transcript from said original minute record insofar as said original record relates the guaranty by the County of certain indebtedness of The Northwest Tennessee Regional Port Authority in an amount not to exceed twenty-five percent (25%) of not to exceed $2,200,000 Revenue Notes, Series 2004 of said Authority.

WITNESS my official signature and seal of said County this 17 day of May, 2004.

Vollie Jean Boehms

Vollie Jean Boehms, County Clerk

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GUARANTY AGREEMENT

THIS GUARANTY AGREEMENT ("Guaranty"), dated _____ __, 2004, is made and entered into upon the terms hereinafter set forth, by OBION COUNTY, TENNESSEE, a political subdivision duly created under the laws of the State of Tennessee ("Guarantor"), in favor of _____, a _____ that has its principal place of business in _____, Tennessee ("Creditor").

RECITALS:

A. The Northwest Tennessee Regional Port Authority (the "Authority") has been organized pursuant to Sections 7-87-101 et seq., Tennessee Code Annotated (the "Act"), as an agency and instrumentality of Guarantor, Dyer County, Tennessee and Lake County, Tennessee.

B. The Authority has issued its $2,200,000 The Northwest Tennessee Regional Port Authority Revenue Notes, Series 2004 (the "Notes") for the purpose of providing funds to finance the construction of and improvements to the Authority's Port (as defined in the Act) and the acquisition of equipment for the Authority's operations (collectively, the "Project").

C. Creditor has purchased the Notes.

D. Pursuant to Section 7-87-109(e)(1) of the Act, the Board of County Commissioners of Guarantor has, by resolution, pledged the full faith and credit and unlimited taxing power of Guarantor as guarantor to the payment of a portion of the principal of or and interest on the Notes.

AGREEMENTS:

NOW, THEREFORE, in consideration of the foregoing and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged by Guarantor, and to induce Creditor to purchase the Notes, Guarantor hereby agrees as follows:

1. Subject to the limitation in Section 2 hereof, Guarantor hereby guarantees to Creditor the full and prompt payment of the principal of and interest on the Notes (such principal and interest are sometimes herein collectively referred to as the "Guaranteed Obligations").

2. Notwithstanding any provision herein to the contrary, the right of recovery, however, against the Guarantor shall be limited to twenty-five percent (25%) of all Guaranteed Obligations.

3. Unless otherwise required by law, any act of Creditor consisting of a waiver of any of the terms, covenants or conditions of the Guaranteed Obligations, or the giving of any consent to any matter or thing relating to the Guaranteed Obligations, or the granting of any indulgences or extensions of time to the Authority, may be done without notice to Guarantor and without releasing the obligations of Guarantor hereunder.

4. The obligations of Guarantor hereunder shall not be released by Creditor's receipt, application or release of any security given for the payment, performance and observance of any of the Guaranteed Obligations.

5. To the fullest extent permitted by law, the liability of Guarantor hereunder shall in no way be affected by (a) the release or discharge of the Authority in any creditors', receivership, bankruptcy or other proceedings, (b) the impairment, limitation or modification of the liability of the

Authority or the estate of the Authority in bankruptcy, or of any remedy for the enforcement of any of the Guaranteed Obligations resulting from the operation of any present or future provision of the Federal bankruptcy law or any other statute or the decision of any court, (c) the rejection or disaffirmance of any instrument, document or agreement evidencing any of the Guaranteed Obligations in any such proceedings, (d) the assignment or transfer of any of the Guaranteed Obligations by Creditor, or (e) the cessation from any cause whatsoever of the liability of the Authority with respect to the Guaranteed Obligations.

6. The Guarantor hereby pledges its full faith and credit and its unlimited taxing power to the payment of the principal of and interest on the Guaranteed Obligations subject to the limitation of Section 2 hereof.

7. This Guaranty shall be assignable by Creditor to any person to whom Creditor transfers the Notes. This Guaranty shall be binding upon Guarantor and shall inure to the benefit of Creditor, its successors, successors and assigns.

8. This Guaranty shall be construed in accordance with and governed by the laws of the State of Tennessee applicable to contracts to be performed within said state.

9. No amendment or modification hereof shall be effective unless evidenced by a writing signed by Guarantor and Creditor. When used herein, the singular shall include the plural, and vice versa, and the use of any gender shall include all other genders, as appropriate.

IN WITNESS WHEREOF, the undersigned Guarantor has executed this Guaranty, or has caused this Guaranty to be executed by its duly authorized representative, as of the date first above written.

OBION COUNTY, TENNESSEE

_____
Gaylon R. Long, County Mayor

ATTEST:

_____
Vollie Jean Boehms, County Clerk

ACCEPTED this _____ day of
_____, 2004.

_____

By:_____
Its: _____

The Board of County Commissioners of Lake County, Tennessee, met in regular session on May 17, 2004 at 7:00 p.m., at the Lake County Courthouse, Tiptonville, Tennessee, with the Honorable Macie Roberson, County Mayor, presiding.

The following Commissioners were present:

Mary R. Bargery, George A. Bargery, Lyman S. Barker, Wayne Hatley, Patrick Dennie Johnson, Michael Moore, Richard Perkins, Robert Riley, Henry D. Robertson, Jerry Rodriquez, Tony White and James Yates.

The following Commissioners were absent:

None.

There was also present Jo Ann Hicks Mills, County Clerk.

After the meeting was duly called to order, the following resolution was introduced by George A. Bargery, seconded by Patrick D. Johnsomnd after due deliberation, was adopted by the following vote:

AYE: 12

NAY: 0

A RESOLUTION AUTHORIZING THE GUARANTY OF CERTAIN INDEBTEDNESS OF THE NORTHWEST TENNESSEE REGIONAL PORT AUTHORITY.

WHEREAS, the Board of County Commissioners of Lake County, Tennessee (the "County") has met pursuant to proper notice; and

WHEREAS, The Northwest Tennessee Regional Port Authority (the "Authority") has been organized pursuant to Sections 7-87-101 et seq., Tennessee Code Annotated (the "Act"), as an agency and instrumentality of the County, Dyer County, Tennessee ("Dyer County") and Obion County, Tennessee ("Obion County"); and

WHEREAS, the Board of Commissioners of the Authority has determined it to be in the best interest of the Authority to issue revenue notes, in the principal amount of not to exceed $2,200,000 (the "Notes") for the purpose of providing funds to finance the construction of and improvements to the Authority's Port (as defined in the Act) and the acquisition of equipment for the Authority's operations (collectively, the "Project"); and

WHEREAS, pursuant to Section 7-87-109(e)(1) of the Act, the Board of County Commissioners (the "Governing Body") of the County may, by resolution, pledge the full faith and credit and unlimited taxing power of the County as guarantor to the payment of the principal or premium, if any, and interest on the Notes; and

WHEREAS, the Governing Body has determined it to be in the best interest of the County, Dyer County, Obion County and the Authority to guaranty fifty percent (50%) of the indebtedness of the Authority as evidenced by the Notes to ensure the completion of the Project.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Lake County, Tennessee, as follows:

Section 1. Authority. The guaranty authorized by this resolution is authorized pursuant to Sections 7-87-101, et seq., Tennessee Code Annotated, as amended, and other applicable provisions of law.

Section 2. Guaranty Agreement. For the purpose of guarantying not more than fifty percent (50%) of the payment of the principal of, premium, if any, and interest on the Notes, the County Mayor is hereby authorized and directed to execute and the County Clerk to attest on behalf of the County the Guaranty; provided, however, that in no event shall the Guaranty guarantee more than fifty percent (50%) of the indebtedness evidenced by the Notes. The form of the Guaranty presented to this meeting and attached hereto as Exhibit A is hereby in all respects approved and the County Mayor and the County Clerk are hereby authorized and directed to execute and deliver same on behalf of the County in substantially the form thereof presented to this meeting, or with such changes as may be approved by the County Mayor and the County Clerk, their execution thereof to constitute conclusive evidence of their approval of all such changes, including modifications to the Guaranty. The County hereby pledges its full faith and credit and unlimited taxing power to the payment of that portion of the principal of and interest on the notes that is the subject of the Guaranty.

Section 3. Resolution a Contract. The provisions of this resolution shall constitute a contract between the County and the registered owners of the Bonds, and after the issuance of the Bonds, no change, variation or alteration of any kind in the provisions of this resolution shall be made, except with

the written consent of the holders of all of the Bonds, in any manner until such time as the Bonds and interest due thereon shall have been paid in full.

Section 4. Separability. If any section, paragraph or provision of this resolution shall be held to be invalid or unenforceable for any reason, the invalidity or unenforceability of such section, paragraph or provision shall not affect any of the remaining provisions of this resolution.

Section 5. Repeal of Conflicting Resolutions and Effective Date. All other resolutions and orders, or parts thereof, in conflict with the provisions of this resolution, are, to the extent of such conflict, hereby repealed and this resolution shall be in immediate effect from and after its adoption.

Adopted and approved this 10th day of May, 2004.

Macie Roberson, County Mayor

ATTEST:

JoAnn Hicks Mills, County Clerk

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STATE OF TENNESSEE)

COUNTY OF LAKE)

I, Jo Ann Hicks Mills, hereby certify that I am the duly qualified and acting County Clerk of Lake County, Tennessee, and as such official I further certify that attached hereto is a copy of excerpts from a recessed regular meeting of the governing body of the County held on May 17, 2004; that these minutes were promptly and fully recorded and are open to public inspection; that I have compared said copy with the original minute record of said meeting in my official custody; and that said copy is a true, correct and complete transcript from said original minute record insofar as said original record relates to the guaranty by the County of certain indebtedness of The Northwest Tennessee Regional Port Authority in an amount not to exceed fifty percent (50%) of not to exceed $2,200,000 Revenue Notes, Series 2004 of said Authority.

WITNESS my official signature and seal of said County this ____ day of May, 2004.

Jo Ann Mills

Jo Ann Hicks Mills, County Clerk

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GUARANTY AGREEMENT

THIS GUARANTY AGREEMENT ("Guaranty"), dated _____ __, 2004, is made and entered into upon the terms hereinafter set forth, by LAKE COUNTY, TENNESSEE, a political subdivision duly created under the laws of the State of Tennessee ("Guarantor"), in favor of _____, a _____ that has its principal place of business in _____, Tennessee ("Creditor").

RECITALS:

A. The Northwest Tennessee Regional Port Authority (the "Authority") has been organized pursuant to Sections 7-87-101 et seq., Tennessee Code Annotated (the "Act"), as an agency and instrumentality of Guarantor, Dyer County, Tennessee and Obion County, Tennessee.

B. The Authority has issued its $2,200,000 The Northwest Tennessee Regional Port Authority Revenue Notes, Series 2004 (the "Notes") for the purpose of providing funds to finance the construction of and improvements to the Authority's Port (as defined in the Act) and the acquisition of equipment for the Authority's operations (collectively, the "Project").

C. Creditor has purchased the Notes.

D. Pursuant to Section 7-87-109(e)(1) of the Act, the Board of County Commissioners of Guarantor has, by resolution, pledged the full faith and credit and unlimited taxing power of Guarantor as guarantor to the payment of a portion of the principal of and interest on the Notes.

AGREEMENTS:

NOW, THEREFORE, in consideration of the foregoing and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged by Guarantor, and to induce Creditor to purchase the Notes, Guarantor hereby agrees as follows:

1. Subject to the limitation in Section 2 hereof, Guarantor hereby guarantees to Creditor the full and prompt payment of the principal of and interest on the Notes (such principal and interest are sometimes herein collectively referred to as the "Guaranteed Obligations").

2. Notwithstanding any provision herein to the contrary, the right of recovery, however, against the Guarantor shall be limited to fifty percent (50%) of all Guaranteed Obligations.

3. Unless otherwise required by law, any act of Creditor consisting of a waiver of any of the terms, covenants or conditions of the Guaranteed Obligations, or the giving of any consent to any matter or thing relating to the Guaranteed Obligations, or the granting of any indulgences or extensions of time to the Authority, may be done without notice to Guarantor and without releasing the obligations of Guarantor hereunder.

4. The obligations of Guarantor hereunder shall not be released by Creditor's receipt, application or release of any security given for the payment, performance and observance of any of the Guaranteed Obligations.

5. To the fullest extent permitted by law, the liability of Guarantor hereunder shall in no way be affected by (a) the release or discharge of the Authority in any creditors', receivership, bankruptcy or other proceedings, (b) the impairment, limitation or modification of the liability of the

Authority or the estate of the Authority in bankruptcy, or of any remedy for the enforcement of any of the Guaranteed Obligations resulting from the operation of any present or future provision of the Federal bankruptcy law or any other statute or the decision of any court, (c) the rejection or disaffirmance of any instrument, document or agreement evidencing any of the Guaranteed Obligations in any such proceedings, (d) the assignment or transfer of any of the Guaranteed Obligations by Creditor, or (e) the cessation from any cause whatsoever of the liability of the Authority with respect to the Guaranteed Obligations.

6. The Guarantor hereby pledges its full faith and credit and its unlimited taxing power to the payment of the principal of and interest on the Guaranteed Obligations subject to the limitation of Section 2 hereof.

7. This Guaranty shall be assignable by Creditor to any person to whom Creditor transfers the Notes. This Guaranty shall be binding upon Guarantor and shall inure to the benefit of Creditor, its successors, successors and assigns.

8. This Guaranty shall be construed in accordance with and governed by the laws of the State of Tennessee applicable to contracts to be performed within said state.

9. No amendment or modification hereof shall be effective unless evidenced by a writing signed by Guarantor and Creditor. When used herein, the singular shall include the plural, and vice versa, and the use of any gender shall include all other genders, as appropriate.

IN WITNESS WHEREOF, the undersigned Guarantor has executed this Guaranty, or has caused this Guaranty to be executed by its duly authorized representative, as of the date first above written.

LAKE COUNTY, TENNESSEE

_____
Macie Roberson, County Mayor

ATTEST:

_____
JoAnn Hicks Mills, County Clerk

ACCEPTED this _____ day of
_____, 2004.

_____

By:_____
Its: _____

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APPENDIX VIII

STATEMENT OF TECHNICAL, LEGAL AND POLICY REVIEW

Table of Contents

Enclosure	Title
1	Completion of Independent Technical Review
2	Certification of Independent Technical Review
3	Certification of Legal Review
4	Certification of Policy Review

ENCLOSURE 1
COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The U.S. Army Corps of Engineers, Memphis District, has completed the Section 107 Detailed Project Report for the Northwest Tennessee Harbor. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This include review of assumptions, methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. An independent district team accomplished the independent technical review.

Technical Review Team Leader	3 March 04 (Date)
Technical Review Team Member	16 Mar 04 (Date)
Technical Review Team Member	16 March 04 (Date)
Technical Review Team Member	17 MAR 04 (Date)
Technical Review Team Member	17 Mar 04 (Date)
Technical Review Team Member	17 Mar 04 (Date)
Technical Review Team Member	17 Mar 04 (Date)
Technical Review Team Member	18 Mar 04 (Date)
Technical Review Team Member	19 Mar 04 (Date)
Technical Review Team Member	31 Mar 04 (Date)

ENCLOSURE 2
CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns and explanation of the resolution are as follows:

The attached pages are the Northwest Tennessee Regional Harbor Technical Review comments and the Project delivery team's responses.

Chief, Planning, Programs, and Project Management Division — 4/8/04 (Date)

Chief, Engineering Division — 4/12/04 (Date)

Chief, Construction-Operations Division — 4/7/04 (Date)

Chief, Real Estate Division — 4/9/04 (Date)

Project Manager — 4/9/04 (Date)

From: Williams, Kenneth G. MVM
Sent: Wednesday, March 03, 2004 2:47PM
To: Lloyd, James W. MVM
Cc: Callaway, Michael T MVM
Subject: ITR On Northwest Tennessee Harbor Study

My comments on the subject study are as follows:

1. I do not believe a proper ITR can be done without seeing the Environmental Appendix. The ITR team as well as the study team should know the content of and agree with the content of each part of any report especially the environmental part.

Response: On 31 March 2004, the project biologist briefed both the PDT and ITR teams on the findings of the Environmental Assessment. Additional ITR comments were collected and responses were developed at his meeting and have been included at the end of this ITR section.

2. The first paragraph on page 15 needs clarification. It is stated that the second disposal site is a 66acre site; 52 acres of farmland and 14 acres of riparian vegetation. 14 acres of the farmed land are considered wetlands. It appears that wooded wetlands impacted would be 14 acres instead of the stated 60 acres.

Response: This paragraph has been revised to better explain what the values represent.

3.The need for 134 acres of farmlands planted in bottomland hardwoods should be thoroughly explained. The loss of 27 annualized habitat units is in question since the number of impacted wooded wetland acres is not clear. It should be considered that the unit value of revegetated farmlands would increase rapidly in value after only a few years while I would suspect that the impacted 14 acres of relatively low value woodlands would not increase appreciably with age.

Response: A detailed explanation of the mitigation requirements is presented in Section 5, of Appendix IV.

4. I suggest that before this report goes forward, all members of the study team and the ITR Team understand the Environmental analysis.

Response:
On 31 March 2004, the project biologist briefed both the PDT and ITR teams on the findings of the Environmental Assessment. Additional ITR comments were collected and responses were developed at his meeting and have been included at the end of this ITR section.

From: Reeder, James A. MVM
Sent: Tuesday, March 09, 2004
To: Lloyd, James W. MVM
Subject: ITR On Northwest Tennessee Harbor Study

My comments on the subject study are as follows:

1. The study does not contain any future O&M dredge disposal volume and area.

Response: Five years of future O&M dredge disposal area has been added to the project. This frequency was chosen because it is the time period of the water quality permit. The O&M cost of obtaining future land for dredge disposal is reflected in the project O&M costs. This sponsor will be advised that they should request for their next water quality permit, disposal conditions like other harbors in Tennessee on the Mississippi River. They allow for either river disposal (Wolf River Harbor) or island disposal (Memphis Harbor). By obtaining a water quality permit that has disposal conditions like either of these harbors, the sponsor can reduce his future O&M expenditures.

2. Need to discuss the other sites up and down the river and why they were not chosen.

Response: The first paragraph of the section entitled "Details for Plan Formulation" has been rewritten to discuss the reason why Cates Landing was chosen over Wynnburg, Ridgely, Tennemo Landing and Heloise/Mitchell Point.

3. See my written comments (in ink) on the draft plan that PM-D reviewed.

Response: Written comments in reviewed draft plan have been incorporated into the report.

March 8, 2004

POLICY REVIEW
NORTHWEST TENNESSEE HARBOR
SECTION 107, RIVERS AND HARBORS ACT of 1960, as amended

TO: Jim Lloyd, PM-M FROM: Clarice Sundeen, PM-D

Policy review comments regarding the draft Detailed Project Report for Northwest Tennessee Regional Harbor are submitted herewith. Please note that my review did not include technical aspects of the study (i.e., engineering, design, cost, environmental assessment or economic analysis).

General

1. The title of the investigation and report should be consistent. Throughout the document, it is cited as North West Tennessee Harbor, North West Tennessee Regional Harbor, and Northwest Tennessee Harbor project.

Response: Concur. Revisions have been made.

2. The non-Federal sponsor's letter from Lake County is nearly 6 years old. I believe a letter from the newly created Port Authority should be obtained and some notation about whether Lake County or the Port Authority will act as the non-Federal cost-share sponsor, assume O&M, etc. In addition, the sponsor should state its acceptance to the terms in the standard (model) PCA.

Response: Do not agree with this comment. Lake County has turned over to the Port Authority the sponsorship of the harbor project and the Cates Landing area that the General Services Administration gave to the county for their use. The Port Authority is a member of the Project Delivery Team and is aware of their commitments as laid out is the Non-Federal Responsibilities Section of feasibility report.

3. Please consider changing the typographical mistakes I noted on my marked up copy. For improved readability, I would also suggest two spaces follow the period at the end of each sentence.

Response: Concur. The typographical mistakes noted in the reviewed report have been corrected.

4. On one occasion, I noted that a questionnaire was provided to existing waterborne carriers and potential harbor users but no results are given. This information would

quantify interest in the harbor creation beyond what the Non-Federal sponsor requested the Corps to investigate (i.e., public involvement).

Response: Do not concur. Although the sponsor through a contractor conducted a questionnaire, the results were not included in the report because many of the companies identified did not qualify as moving commodities through the proposed harbor.

5. Planning objectives, constraints, opportunities and assumptions need to be clearly stated early in the main report. For example, the objective is to investigate the probable 10-15 year demand/need for an additional harbor in Northwest Tennessee and the opportunity exists for improving the depressed economy of Lake County via adding a new river transport facility for shippers and the job prospects it could provide to area residents.

Response: Concur. The revision has been made.

6. The project delivery team needs to tell the plan formulation story to the readers and decision makers. Future without project conditions is not discussed much. This should be the benchmark from which alternative plans are formulated and impacts assessed. The six alternatives considered includes a "do nothing" but little information is provided to describe it against other alternatives. The "do nothing" alternative is not always the same as future without condition. In Northwest Tennessee, the do nothing alternative could range from expanding other harbor facilities in the region to accommodate future growth to compel transport via other carrier systems.

Response: Concur. The revision has been made.

Specific Comments

7. Page 2, paragraph 1: Should the Pertinent Correspondence section of the report be considered an Appendix, considering there is only one document housed there?

Response: The Pertinent Correspondence section needs to remain an Appendix because their will be more correspondence added when the report if completed.

8. Page 5, paragraph 3: The industry cited should be quantified, i.e., with more than 50 workers, so that other companies will not expect to be identified.

Response: Concur. Numbers of employees have been added to this section.

9. Page 5, paragraph 4: Take out the word "dire" (value judgment). Several "industries have indicated a desire to locate to the area if the harbor was constructed." Do we have letters of interest from any probable users of the harbor?

Response: **Indicated revisions have been made. Letters of interest have been received by our Economic Section but are not included in the report because of confidential agreement between the potential industries and the Corps of Engineers.**

10. Page 6, paragraph 2, 3, and 4: How did the PDT address plan formulation? Site visits, team meetings, discussions with the sponsor, area industry?

Response: ***Concur. The revision has been made.***

11. Page 7, paragraph 1: Suggest you insert the "factors considered" from page 8 to follow "Planning for National Economic Development.

Response: **Do not concur with this comment. The criteria presented in the plan formulation section is a guide for the Project Delivery Team to use during the study and should remain at this location.**

12. Page 7, paragraph 2: Suggest revising the paragraph to: "The alternatives considered during the plan formulation process focused on demonstrating the Federal interest in constructing a new harbor in northwest Tennessee. These included doing nothing and five alternatives of differing harbor size/dimensions that would provide river access at Cates Landing in Lake County, Tennessee at River Mile 900."

Response: **Concur. Although this paragraph revision was not used a paragraph was added to the Alternative Solutions section that discussed plan selection and showing on Federal interest.**

13. Page 7, last paragraph: How did you arrive at the estimated commodities?

Response: **This information was obtained from a survey that the Tennessee Valley Authority contracted with Younger and Associates to develop a list of potential users for the harbor.**

14. Page 8, paragraph 1: Cite the date of the Engineering Manual so that in revisiting the project in years to come, we will know the design standard used.

Response: **The date (31 July 1997) of the Engineering Manual has been added to this paragraph.**

15. Page 8, last paragraph: You need to discuss the future without Federal action alternative. You give the reason for not considering it further on page 9 but you don't tell what the future would look like without a project, i.e., transport will have to be made via truck which would further tax an already overloaded land transportation route or the local sponsor would not support this alternative

Response: **The discussion of future without Federal action has been added to the section entitled Selection of Alternatives for Detail Analysis.**

16. Page 9, paragraph 1: Need to add more discussion about why alternatives 1, 2, and 3 were dropped, not just higher quantity of excavation material and less environmental harm. Would a canal length of 8,500 to 14,000 feet be more than necessary to accommodate what use the harbor could anticipate given our estimates?

Response: Do not concur. Canal excavation is an excellent indicator of project construction costs and the adverse environmental impacts caused by the harbor construction. The comparative difference in the cubic yards in the alternatives is 3.1 million, 2.48 million, 4.1 million to alternatives that have 0.1 million and 1.02 million cubic yards of excavation clearly allows this parameter to be used as a screening criteria.

17. Page 13, paragraph 1: On-land placement of dredged material is required as a condition of the State of Tennessee water quality permit being granted. Explain this in the second sentence. Also note that paragraph 3 on page 15 states that water quality certification will be made after the public review comment ends so we need to be consistent.

Response: Concur. Water quality permit explanation has been clarified. Based on requirements that the Tennessee Environment and Conservation Department, the water quality permit will be granted or denied after the office receives public comments on the project environmental assessment.

18. Page 14, paragraph 3: "Based on the requirements set forth in Section 107 of the River and Harbors Act of 1960 and resultant USACE planning guidance, the ....."

Response: Concur. The revision has been made.

19. Page 15, Habitat Impacts needs to be clarified further, i.e., acres of farmland, wetland, and both.

Response: Concur. The revision has been made.

20. Page 16, paragraph 1: The primary purpose of the economic analysis in a feasibility study is to demonstrate a Federal interest in constructing a project. The analysis will quantify in monetary or scientific terms the public interest and compare the benefits derived from such action to the cost of construction, operation and maintenance.

Response: Concur. The revision has been made.

21. Page 16, paragraph 2(2): Is one year sufficient for construction? To include mitigation?

Response: Although an aggressive schedule will be required, one year is how the economics for the project were calculated.

22. Pages 16-19, Environmental Assessment: I did not review this portion of the document.

<u>Response:</u> On 31 March 2004, the project biologist briefed both the PDT and ITR teams on the findings of the Environmental Assessment. Additional ITR comments were collected and responses were developed at his meeting and have been included at the end of this ITR section.

23. Page 19, last paragraph: Technical, Legal and ***Policy*** Review. Is this the proper location in the report to provide the information?

<u>Response:</u> Concur. Planning review has been changed to Policy Review. Yes this is the proper location to discuss ITR because it is at the end of the summary technical sections of the report.

24. Page 20, Non-Federal Responsibilities: Please cross-reference these interests against the PCA.

<u>Response:</u> This section was copied from the Pemiscot Harbor report that was successfully processed to ASA(CW).

25. Page 21, Cost-Sharing: Does it make sense to insert a cost-allocation table here?

<u>Response:</u> The Allocation Table is included at the end of this section so the table format does not confuse the reader about the findings in the report.

26. Page 21, Views of the Non-Federal Sponsor: This is where a firm commitment should be cited from the non-Federal interests. Have we met with the Port Authority? Have they passed a resolution? Do we have a recent letter indicating their continued support?

<u>Response:</u> The sponsor's actions of developing a financing plan shows its commitment to the project, therefore, no letter or resolution is needed.

27. Page 26, Table 9: Is the **minimum** total project limit $4.5 million or the **maximum** total project limit $4.5 million.

<u>Response:</u> The minimum total project limit is $4.5 million. This is from the P&G manual.

28. Plates 1 and 3: Add a flow line arrow.

<u>Response:</u> Concur. Flow line arrows will be added.

29. Appendix II: For the most part, I did not review this appendix. Section VI title page should be changed to IV. Section V should state Site Development Costs to be consistent with the Table of Contents.

Response: Concur. Revision has been made.

30. Appendix III, North West should be changed to Northwest throughout this addendum. It should also be proofread again. Please take out personal pronouns, i.e. "we."

Response: Concur. Revision has been made.

31. Appendix III, page 1, Introduction: I was confused trying to decipher the 4 parts outlined in paragraph 1 against the 3 parts (sections) described below. I couldn't find Part 3, the Economic Base Study or Part 4 at all. Also, you note that Part 3 includes the System of Accounts for the *Wolf River* Feasibility Project. Is this correct?

Response: Concur. Revision has been made.

32. Appendix III, page 3, paragraph 1: Why assume the future without project condition is similar to the existing without project condition? Poor now, poor later?

Response: Concur. Revision has been made.

33. Appendix III, page 3, paragraph 2 and 3: Construction begin in 2005, complete in 2006, and obtaining values beginning in 2007? See comment pages 16, paragraph 2(2). Also, somewhere I read that benefits would begin to accrue in 2008.

Response: Concur. Revision has been made.

34. Appendix III, page 3, last paragraph: LAQ used to determine the key export industries in Mississippi County? Do you mean Lake County? Or if it was Mississippi County, why?

Response: Concur. Revision has been made.

35. Appendix IV, Environmental: This section was missing during my review.

Response: On 31 March 2004, the project biologist briefed both the PDT and ITR teams on the findings of the Environmental Assessment. Additional ITR comments were collected and responses were developed at his meeting and have been included at the end of this ITR section.

36. Appendix V, Real Estate, page 4, paragraph 13: What about disposal areas?

<u>Response:</u> Concur. Disposal areas have been included in paragraph 2. "Description of Feature" of the Real Estate Plan.

37. Appendix VI, Project Management Plan: Since you listed, by name the ITR members, why not do the same for the PDT members?

<u>Response:</u> Concur. PDT members have been added to the PMP.

From: Berretta, David P. MVM
Sent: Tuesday, March 09, 2004 3:03 PM
To: Lloyd, James W. MVM
Subject: NW TN Harbor Report

Jim:

I have reviewed the H&H related data of the subject report and have no comments.

David P. Berretta, P.E.
Chief, Hydraulics and Hydrology Branch
Memphis District Corps of Engineers
901-544-0676

Response: **None.**

From: Mcnutt, David L. MVM
Sent: Wednesday, March 10, 2004 11:46 AM
To: Lloyd, James W. MVM
Subject: Northwest Tennessee Regional Harbor Draft Detailed Project Report-ITR

Jim, the following comments are offered:

1. There is inconsistency throughout the report on the name of the project. Some refer to it as the North West Tennessee Harbor, some the Northwest Tennessee Harbor, and some the Northwest Tennessee Regional Harbor.

Response: Concur. The project name has been revised to Northwest Tennessee Regional Harbor.

2. There is inconsistency as to whether this is a "Detailed" Project Report or a "Detail" Project Report.

Response: Concur. The report has been revised to be a Detailed Project Report.

3. Format is inconsistent throughout, switching back and forth from right justified to not right justified.

Response: Concur that format is inconsistent but the file has been cut and past with information so many times that when I try to change the justification that I lose the tab settings. Therefore, it is easier not the deal with the format and to complete the report.

4. There is apparent confusion as to what Alternative 5 represents. Most of the Report indicates Alt 5 has a bottom width of 130 feet but some refer to Alt 5 as transitioning from 130 feet to 225 feet. Which is correct?

Response: Alternative 5 has a channel bottom width of 130 feet. However, where the berthing area is located the width is increased to 225 feet.

5. Syllabus, para 1, line 3, add comma after 1st Tennessee; delete comma after River; capitalize "Mile"; place commas after County and Executive; in line 4, add comma after Roberson.

Response: Concur. The revision has been made.

6. Syllabus, para 3, line 5, change to read, " a 9 foot deep channel with an additional 2 feet of overdredging". Is there a transition of bottom width?

Response: Concur. The revision has been made. The transition of bottom width is for the berthing area.

7. Table of Contents, page 10 should be 11; "TECHNICAL REVIEW" is "TECHNICAL, LEGAL AND PLANNING REVIEW" in text; "DIVISION OF RESPONSIBILITY" is "DIVISION OF PLAN RESPONSIBILITY" in text.

Response: Concur. The revision has been made.

8. List of Tables, Table 1, capitalize "plans"; Table 3, capitalize "plan"; Table 7, delete "s" from "Costs".

Response: Concur. The revision has been made.

9. List of Appendices, to title of Appendix II, Section III, begin with "Alternative 5".

Response: Concur. The revision has been made.

10. Page 1, para 3, line 2, add comma after "Tennessee"; para 4, line 3, capitalize "mile", line 7, add "ly" to "engineering".

Response: Paragraph 3, line 2 revision has been made. Paragraph 4, line 3, this sentence has been rewritten and the word mile is not included. Paragraph 4, line 7, adding ly to engineering is not a standard word and was not revised.

11. Page 2, capitalize "mile" in para 2, line 1 and para 3, line 2.

Response: Concur. The revision has been made.

12. Page 3, para 1, lines 1 & 2, see cmt 1; para 3, line 1, change "Westside" to "west side" and add comma after "Tennessee"; line 2, since the Plates are not part of an appendix, why are they outside the body of the main report and following the Colonel's signature block? Line 7, change "region" to "portion".

Response: The plates are included at the end of the main report to make the responding to comments received during the review process easier. Other indicated revisions have been made.

13. Page 3, para 5, add comma after Tennessee in lines 1, 2, & 6; line 3, insert "with" before U.S.; line 6, add comma after "Kentucky"; last line, change "carries" to "carriers".

Response: Concur. The revisions have been made.

14. Page 4, para 1, line 4, delete first "the".

Response: Concur. The revision has been made.

15. Page 5, para 4, line 1, change "counties" to "county's"; para 5, line 2, change "inter-model" to "inter-modal"; line 3, change "was" to "were".

Response: **Concur. The revisions have been made except for the last comment. Since the noun (harbor) is singular the verb (was) needs to be singular.**

16. Page 6, add vertical space between first item a. and b; in e, change "navigation" to "navigational".

Response: **Concur. The revisions have been made.**

17. Page 7, add comma after Tennessee in line 2 of penultimate para; in last para, line 1, change "offloading" to "offloaded"; line 2, delete "and".

Response: **Concur. The revisions have been made.**

18. Page 8, "Alternatives Considered" should be ALL CAPS

Response: **Concur. The revision has been made.**

19. Page 9, Title of para 1 should be ALL CAPS; line 2, change "then" to "than", line 4, add comma before the second "the'; para 2, line 3, add comma after "engineers"; Is "Forcum Lannom Contractor and Garver Engineers" correct?; line 5, change "organizes" to "organizations", line 7, change "varies" to "various".

Response: **Concur. The revisions have been made.**

20. Page 10, Table 2, is the term "canal" here correct or should it read "channel"? Note the varying bottom width from 130-225 & see comment 4.

Response: **The term canal was used because that was the term that River Engineering used in its design table. The bottom width varies only where the berthing area is located.**

21. Page 11, para title should be ALL CAPS; line 2 of para 2 should not be indented.

Response: **Concur. The revisions have been made.**

22. Page 13, para 2, line 1, add "ly" to "engineering"; line 9, change "tow" to "towing"; lines 1 & 2 of para 3, change to read "for disposal of the dredge and excavated material".

Response: **Paragraph 2, line 1, adding ly to engineering is not a standard word and was not revised. Other revisions have been made.**

23. Page 14, para 2, line 1, delete "for various reasons"; para 3, last line, move close parenthesis to include "rounded"; para 5, line 1, change semicolon to comma; last para, line 2, delete "are done in order", line 3, change "was" to "were", line 7, change asterisk to "x".

Response: **Concur. The revisions have been made.**

24. Page 15, para 1, line 7, delete hyphen in "hack-berry"; para 2, last line, change "5" to "V"; para 3, line 4, change "2" to "II"; last para, line 5, change "requires" to "requirements".

Response: This paragraph has been rewritten.

25. Page 16, para 2, line 2, delete "s" from "comprises"; add vertical space between para (2) & (3); para 5, line 2, change "1" to "I".

Response: Concur. The revisions have been made.

26. Page 17, para 4, line 4 should not be indented.

Response: Concur. The revision has been made.

27. Page 18, para 7, penult line should not be indented.

Response: Concur. The revision has been made.

28. Page 19, para 2, line 2, change "to" to "at"; para 5, 2nd line from last, change "navigation" to "navigational".

Response: Concur. The revisions have been made.

29. Page 20, para 3, delete "Then"; begin sentence with "Local"; subpara 2, line 3, add "and" before "maintenance"; delete "and" at the beginning of paras 3 and 4.

Response: Concur. The revisions have been made.

30. Page 21, line 1, delete "and", line 3, do not indent and do not indent penult line of para "COST-SHARING".

Response: Concur. The revisions have been made.

31. Page 22, Signature Block is not correct for Military document; Corps misspelled.

Response: Do not concur. This document is not a military. Therefore, the signature block is for the District Engineer. Misspelling has been corrected.

32. Page 26, para (2) line 1, capitalize "limit".

Response: Concur. The revision has been made.

33. Shouldn't the Tables and Plates be incorporated into the document prior to the Colonel's signature?

Response: Do not concur. The tables 5, 6, 7, 8 and 9 are placed at the end of the report to keep the Cost Sharing, Views of the Non-Federal Sponsor and the

Conclusion and Recommendations together to aid the reader in understanding these elements and plates are included at the end of the main report to make the responding to comments received during the review process easier.

34. App II, Section I, page 1, pages not numbered; para 1, line 2, add comma after "Tennessee"; line 12, change "pile" to "area"; para 2, line 9, insert "feet" after "80".

Response: Pages were not numbered in appendices because it was easier in putting the section together from the different offices. Other revisions have been made.

35. App II, Section I, page 3, line 5, make "upper most" one word.

Response: Concur. The revision has been made.

36. App II, Section II, page 1, pages not numbered; para 2, lines 2 from last and last, delete hyphen from "over-bank"; para 4, line 2, change "accutial" to "actual"; line 3 from last, delete first "the".

Response: Pages were not numbered in appendices because it was easier in putting the section together from the different offices. Other revisions have been made.

37. App II, Section II, page 2, change "widen" to "widened" in two places in remarks in Table 1, and in line 3 under Table 1.

Response: Concur. The revisions have been made.

38. App II, Section II, page 3, para 2, line 3, change "then" to "than" and add period at end of para.

Response: Concur. The revisions have been made.

39. App II, Section III, page 2, para 1, line 2, change "125" to "130"; para 2, line 2, change "harbour" to "harbor"; line 4, add space after determined; line 7, change 'a" to "an"; para 3, line 3, delete 1 "of".

Response: Concur. The revisions have been made.

40. App II, Section IV, Section Title Page, change "VI" to "IV".

Response: Concur. The revision has been made.

41. App II, Section V Title Page, add "s" to "Cost" to match Table of Contents; Alt 4 & 5, both page 3's, line 6 and 7, respectively, change "radius'" to "radii" ; Alt 4 & 5, page 6, penult line, add "s" to "cost" or change "have " to "has".

Response: Concur. The revisions have been made.

42. App III, Page 1, para 1, penult line and 2 lines from last, Delete "Wolf River Feasibility Project" and insert correct project; last para, line 7, insert "most" before "economically"; line 8, insert "the" before "state".

Response: **Concur. The revisions have been made.**

43. App III, page 2, para 1, penult line, change "Waterbourne" to "Waterborne"; last line, delete space before second "vis".

Response: **Concur. The revision has been made.**

44. App III, page 2, para 5, line 2, change "inter-model" to " inter-modal"; line 3, change "industrials" to "industries" .

Response: **Concur. The revisions have been made.**

45. App III, page 3, para 1, line 5, add comma after "County"; last para, line 2, "Mississippi County" incorrect.

Response: **Concur. The revisions have been made.**

46. App III, page 5, para 3, line 9, insert "from" before "Memphis', insert "and" after "Tennessee", add commas after "West Memphis" and "Arkansas"; Line 2 from last, change "*" to "x"; penult line, Is "coalface" the name of a town or a word meaning where the coal comes from?

Response: **Concur. The revisions have been made.**

47. App III, page 6, last para, penult line. Insert "on" after "based".

Response: **Concur. The revisions have been made.**

48. App III, page 7, para 2, last line, change Tables "1,3," to "1 & 3".

Response: **Concur. The revisions have been made.**

49. App III, page 10, para 2, line 2, change "includes" to "including"; para 3, line 6, change "requires" to "requirements".

Response: **Concur. The revisions have been made.**

50. App III, page 12, para 2, delete extra space between lines 2 & 3; para 3, line 3, insert "year" after "first".

Response: **Concur. The revisions have been made.**

51. App III, page 13, para 1, line 3, add "s" to "cost"; para 2, some states are abbreviated, some are not, add commas after each city and state; para 3, line 2, insert "tons" after

"150,000", line 3, change "include" to "including"; para 4, line 1, insert "is" following "which" and change "are" to "is".

Response: **Concur. The revisions have been made.**

52. App III, page 14, para 1, line 3, delete "s" from "respects"; last line, change "i.e." to "e.g."; para 2, line 4, change second "and" to "are".

Response: **Concur. The revisions have been made.**

53. App III, page 15, para 1, line 1, insert "an" after "with"; line 2, change "Mississippi County, Arkansas" to "Lake County, Tennessee"; para 2, line 2 & 7, capitalize "counties"; line 5, delete "s" from "Tables"; para 3, line 6, change "worker will" to "workers", line 7, delete "s" from "needs", line 8, delete "an".

Response: **Concur. The revisions have been made.**

54. App III, pages 19-21, printing glitch.

Response: **Concur. The revisions have been made.**

55. App III, page 23, change Table "IIII" to "III".

Response: **Concur. The revisions have been made.**

56. App III, page 25, "Economic Base Study" title should be in ALL CAPS and centered; para 4, line 1, insert period after "community"; line 2, add apostrophe to "regions"; last para, line 1, capitalize "location quotient" and use acronym "LQ" once defined.

Response: **Concur. The revisions have been made.**

57. App III, page 26, para 1, line 3, add period before "Export"; para 2, last line, delete",2001," and add period at end of para.

Response: **Concur. The revisions have been made.**

58. App III, page 27, line 1, change "display" to "displays".

Response: **Concur. The revisions have been made.**

59. App III, page 28, para 1, use acronym LQ, line 5, delete "s" from "displays" and delete last "and", line 6, capitalize "counties"; para 2, line 1, change "display" to "indicate", line 3, delete "its", line 4, capitalize "counties" and change "has" to "have"; para 3, line 3, delete "s" from "displays", line 4, hyphenate "three county", line 5, capitalize "counties"; para 4, line 1, delete period after "2", line 2, delete second "there is"; line 3, delete "While" and capitalize "all", line 5, capitalize "counties".

Response: **Concur. The revisions have been made.**

60. App III, page 32, in leftmost block, change "Quotion" to "Quotient".

Response: Concur. The revisions have been made.

61. App III, page 33, in title block, change "Mississippi" to "Lake".

Response: Concur. The revisions have been made.

62. App V, Title, add "PLAN" to be consistent with T of C.

Response: Concur. The revision has been made.

63. App V, page 1, para 1, line 4, change "for" to "of"; para 3, line 2 from last, change "navigation" to "navigational".

Response: Concur. The revisions have been made.

64. App V, page 2, change "Navigation" to "Navigational" in 2 places.

Response: Concur. The revision has been made.

65. App V, page 3, para 5, change "are" to "is"; para 8, line 1 refers to "Plate 2" but does not specify which Plate 2.

Response: Concur. The revisions have been made.

66. App V, page 4, para 13, line 2 from last, change "right-of-ways" to "rights-of-way".

Response: Concur. The revision has been made.

67. App VI, Table of Contents, pages 2 & 3, add vertical space before 1st item; T of C, page 3, do not indent title of Encl 3; hyphenate "IN KIND" in title of encl 6.

Response: Concur. The revisions have been made.

68. App VI, Section 2, delete extra space before hyphens in all subtitles.

Response: Concur. The revisions have been made.

69. App VI, page 5, para 17, line 2, is "Bid Opening" considered a "ceremony"? para 18, delete second "a".

Response: Concur. The revision has been made.

70. App VI, page 7, in 2nd and 3rd subtitles, change periods to commas following "Planning" and "Programs"; para 50, line 2, capitalize "project".

Response: Concur. The revisions have been made.

71. App VI, page 8, 2nd subtitle, same as 1st cmt in 70 above.

Response: Concur. The revision has been made.

72. App VI, page 12, para 68, line 4, change "function;" to "functional,".

Response: Concur. The revision has been made.

73. App VI, page 14, para 76, line 3, insert "and" before "will"; para 77, line 2 from last, is "Open Plan diagram" supposed to be included in the report?

Response: Concur. The revisions have been made. The sentence referring to Open Plan has been deleted.

74. App VI, page 15, para 79, line 3, use PM acronym where possible, line 6, change " response or resolution to" to "response to or resolution of".

Response: Concur. The revisions have been made.

75. App VI, page 17, last line, delete 2nd "and".

Response: Concur. The revision has been made.

76. App VI, page 18, line 6, change "include" to "included"

Response: Concur. The revision has been made.

77. App VI, Encl 6, add "s" to "Service" in title.

Response: Concur. The revision has been made.

78. Throughout the report, the term LERR is used; I thought the correct term was LERRD?

Response: LERR is the correct term. The disposal area "D" is now included in the *General Navigation Feature.*

79. If this is supposed to be an ITR, why aren't all the parts complete and here to review, e.g. environmental?

Response: Meeting the schedule to complete the report would not allow ITR of the entire document. On 31 March 2004, the project biologist briefed both the PDT and ITR teams on the findings of the Environmental Assessment. Additional ITR comments were collected and responses were developed at his meeting and have been included at the end of this ITR section.

CEMVM-ED-G **March 10, 2004**

for CEMVM-PM-P Cory Williams, P.E. (0667)

MEMORANDUM FOR RECORD

SUBJECT: Independent Technical Review of Northwest, TN Regional Harbor, Detailed Project Report

A review of the report for subject project has been conducted and the following comments are provided.

1. Table 2 – Page 10. The analysis reflects the use of filter gravel. The Geotechnical report allows for the use of 18 inches of type C graded stone without the use of filter material.

Response: Geotechnical Appendix has been changed to reflect the use of filter gravel and 250 pound riprap stone. Type C graded stone is no longer recommended.

2. Disposal of Dredged material from Project Construction – Page 13 – Recommend checking the 100 yr elevation stated in 1st paragraph, 2nd to last sentence. Starting, "this site is presently at or above the 100 yr flood elevation of **298.5** NGVD. Please clarify.

Response: Concur. The locations of both disposal sites either riverside or landside have been included to clarify their relationship to the 100-year flood plain.

3. Page 13 – Last paragraph – 1st sentence. Add "material" at end of 1st sentence. Change to read "…have been identified for the dredge and excavated **material**."

Response: Concur. The revision has been made.

4. Page 14 – The containment dikes currently designed for a crown width of 20 ft. Only 10 feet is required. Change quantities to reflect change.

Response: Do not concur. The River Engineering Section design is a workable design but will be reviewed during plans and specifications development.

5. Environmental Assessment – Page 15 - Habitat Impacts- No data is provided in the report to support the 134 acres of Mitigation lands to be acquired.

Response: Meeting the schedule to complete the report would not allow ITR of the entire document. On 31 March 2004, the project biologist briefed both the PDT and ITR teams on the findings of the Environmental Assessment. Additional ITR

***comments were collected and responses were developed at his meeting and have* been included at the end of this ITR section.**

6. Environmental Assessment - Page 17 – Because the disposal area is a significant cost to the project, I recommend identifying the State agency opposing open river disposal of dredged material and why.

Response: Concur. The State of Tennessee Department of Environment and Conservation opposition to open river disposal of dredge material has been stated in the Environmental Assessment Appendix.

7. Appendix II – Section I – Additional analysis will be required during the development of Plans and Specifications. The scope/location of the project has changed since borings were performed in 1999. Additional Geotechnical Analysis will be required in the area of the containment dikes and dredged fill.

Response: Concur.

8. Appendix II – Section I – 1. General – Paragraph 2 – 2nd sentence. Revise sentence to read "Additional, **borings,** soil testing and slope stability analyses will be required in order to adequately **assess** the impacts of the proposed soil disposal areas on the stability of the harbor slopes and the existing levee, **additional slope stability for the harbor and disposal areas and** settlement analysis for the existing levee and the proposed disposal pile will also be required prior to finalizing the design."

Response: Concur. The revisions have been made.

9. Appendix II – Section I – 3. Subsurface investigation – 2nd sentence – Change "*shortened harbor footprint*" to "*footprint as proposed in alternative 5.*"

Response: Concur. The revisions have been made.

10. Appendix VI – Page 10 - More time may be required in schedule for developing Plans and Specs between signing the PCA approval and Contract Award. Additional borings and design is required.

Response: This schedule was agreed to by the Chief of Engineering Division on 16 September 2003 and will need to be met.

From: Chasteen, Darian S. MVM
Sent: Thursday, March 11, 2004 8:59 AM
To: Lloyd, James W. MVM
Subject: ITR On Northwest Tennessee Harbor Study

Jim,
I had Wayne Max perform the ITR for River Engineering. His comments are attached. Let Wayne or myself know if you have any questions.
Thanks,
Darian Chasteen

NORTHWEST TENNESSEE REGIONAL HARBOR STUDY

Independent Technical Review (ITR), Wayne Max, River Engineering

GENERAL COMMENTS

1. This report needs some good maps. Need map showing alt 4 vs. alt 5. Did not see plan for alt 4. The most comprehensive map is Plate 2 in Appendix II, Section I, Geotechnical.

Response: The maps at the end of the main section of the report will be a better quality copy for the final report. Alternative 5 is the only alternative shown because it is the selected plan. Do not concur about Plate 2 in Appendix II being the most comprehensive map. Plate 2 of the main section presents alternative 5 location, the dredge disposal areas, harbor terminal site and upper and lower elevations of the harbor.

2. No report from Hydraulics and Hydrology. Did they not have input into the study? Who designed the riprap protection?

Response: Hydraulics and Hydrology determined the ordinary high water mark used in the study. The riprap protection was designed by River Engineering Section and reviewed by Chief of Design Branch.

3. The NED plan was not identified.

Response: Concur. The NED plan has now been identified as the recommended plan.

4. Risk and uncertainty was not addressed.

Response: Concur. A Risk Analysis has been included in the Economic Appendix.

5. Other than economically the upstream and downstream effects were not addressed.

Response: No upstream or downstream effect of constructing the harbor were identified.

6. Very little on HTRW.

<u>Response:</u> Meeting the schedule to complete the report would not allow ITR of the entire document. On 31 March 2004, the project biologist briefed both the PDT and ITR teams on the findings of the Environmental Assessment. Additional ITR comments were collected and responses were developed at his meeting and have been included at the end of this ITR section.

7. No coordination with other agencies shown.

<u>Response:</u> Meeting the schedule to complete the report would not allow ITR of the entire document. On 31 March 2004, the project biologist briefed both the PDT and ITR teams on the findings of the Environmental Assessment. Additional ITR comments were collected and responses were developed at his meeting and have been included at the end of this ITR section.

8. Acronyms are used throughout the report that are not first defined.

<u>Response:</u> Concur. The revision has been made.

9. Disposal of dredged material for maintenance is not addressed.

<u>Response:</u> Concur. The revision has been made.

REPORT

10. SYLLABUS: 1st par., third line: Comma after Tennessee and remove comma after River.

Capitalize mile when it has an associated number with it.

2nd par., last line, typo period in front of cost.

3rd par., third line, Plate 1 does not address the ordinary high water elevation.

<u>Response:</u> Concur. The revisions have been made.

11. Page 3,
    1. First par., last sentence: "Both" should be "neither" and "not" should be deleted, or some other restructuring. "Both…have not" implies that one report may have been approved.
    2. Third par., first sentence: "Westside" should be "west side"

3. Third par., The Cates site was abandoned because of dredging costs to keep it open among other reasons.

<u>Response:</u> Concur. The revisions have been made.

12. Page 4,
    1. First par., first line: State should be set off by commas.
    2. First par., 4th line: 4th word: delete "the"
    3. First par., last line: Plate 4 is mentioned; however, Plates 2 & 3 have not yet been discussed. I could not find where these plates were addressed in the report.
    4. Last par., 5th line: insert depth after first word.
    5. Last par., last line: "...created the necessary depth, but maintaining it fell on the lock and dam system." There are no locks and dams in MVM and dredging is required to maintain the channel.

<u>Response:</u> Concur. The revisions have been made.

13. Page 5,
    1. First par., 1st line: "...dams were installed to prevent spring floodwaters from filling in the channel,..." Water doesn't fill the channel in the way this idea is conveyed, sediment fills the channel.
    2. Par 3, 2nd line, first word: remove "and" and replace with a comma.
    3. Fourth par., 1st line: "Area" should not be capitalized. Does this area include Dyer and Obion counties? If so then county in this sentence is improper.
    4. Fifth par., 1st line: ..area..." Just Lake county, or are other counties included?
    5. Fifth par., last sentence: If several industries have expressed a desire to locate here would it not be desirable to list those industries?

<u>Response:</u> Comment 1 and 2 were not incorporated because it changes the meaning of the paragraph. Comments 3 and 4 revisions were made. Comment 5 was not incorporated because the industries submitted letters of intent based on confidentiality.

14. Page 7,
    1. Second par., from bottom of page: "...the new harbor had to be..." Why did the harbor have to be here? Fritz landing is a good location.
    2. Last par., Insert "estimated" before commodities. Commodities are estimates. Also, are commodities offloaded or is "offloading" correct?

<u>Response:</u> Concur. Comment 1 was revised under the section entitled Alternatives Considered. Comment 2 revision has been made.

15. Page 8,
    1. 3rd par., It would be nice is there was a Plate where the alignment could be viewed.

2. Last par., 4th line: What are "fast" lands?

<u>Response:</u> Plate 2 shows the alignment for alternative 5 the recommended plan. Fast Lands are lands above the ordinary high water mark elevation.

16. Page 9,
    1. First par., Third line from bottom: "navigation channel" This should be harbor channel.
    2. Last par., Second line from bottom: typo, "varies" should be "various"

<u>Response:</u> Concur. The revisions have been made.

17. Page 10, Table 2
    1. Difference of riprap tonnage and filter gravel between alternatives 4 and 5 seems excessive. Is there something that is not readily apparent as to why there should be so much difference in the two plans? It would be expected that alt 5 would almost double alt 4, but it is over 5 times as much.
    2. Why is the cost of alt 4 more than alt 5? This is a little hard to swallow.
    3. This table raises a lot of questions which need to be addressed in the text.

<u>Response:</u> The need for the higher increase in alternative 5 versus alternative 4 is that alternative 4 has revetment at its downstream end and the alternative 5 does not have revetment. Therefore, alternative 5 needs additional riprap. The total cost of alternative 4 is higher then alternative 5 because of the additional 4,000 feet of site development costs. Do not concur about the table. The table lay out the design and costs for easy comparison.

18. Page 11,
    1. Par 1, 3rd line: Table 4 is reference prior to Table 3. Normally the first time tables are addressed, they come in numerical order.

<u>Response:</u> To better coordinate the use of space between full-page tables and half page tables, this presentation of the tables was chosen.

19. Page 13,
    1. Par 2., First line: Is Alternative 5 the NED plan and if so where is it addressed?
    2. Par 2., 4th line: "Mile 899.0" is given as Mile 900.0 in the rest of the text.
    3. Par 2., 6th line: This sentence mentions that the harbor channel reaches Cates Landing. Plate 2 in the Geotechnical section shows that it does not.
    4. Par 2., 2nd line from bottom: "riprap.....placed between elevations 256 to 271. This elevation is +10 feet LWRP which is indicated in the River Engineering section; however, Geotech indicates that protection is to top bank. See par 7 in Geotechnical section.

<u>Response:</u> Comment 1 and 2 revisions have been made. Do not concur with comment 3. For comment 4, the riprap design in the Geotechnical section has been revised to agree with the River Engineering design.

20. Page 14,
    1. Par 1., last sentence: "…Harbor Project will place dredged…." Need to reword. Projects do not place.
    2. Par 3., 2nd sentence: "Table 6 presents Operation and Maintenance…." I see maintenance in Table 6, but there is no operation. Also there is nothing in the table addressing disposal area, protection levee, or bank protection.
    3. Par 3., last sentence: I don't think the harbor maintenance contract for the Mississippi River includes bank grading and repair.
    4. Par 5., Indention spacing
    5. Last par., 5th line "…following categories." There are no following categories.

<u>Response:</u> Concur. The revisions have been made.

21. Plate 2,
    1. Label the transition from 130' B.W. to 225' B.W.
    2. Where is Cates Landing located and where are the access roads?

<u>Response:</u> The revisions to Plate 2 for the bottom width transition has been made. Cates Landing is cannot be shown on Plate 2. Cates Landing is shown on Plate 1.

22. Plate 3,
    1. What does this plate depict? It is not mentioned in the text. This plate also is of poor quality and doesn't show the Below Island 9 Trail Dikes.

<u>Response:</u> Plate 3 shows as entitled "Northwest Tennessee Proposed Harbor Site Development."

APPENDIX II

GEOLOGY AND SOILS

23. **<u>1. General</u>**,
    1. Par 1., 4th line: "northeast" should be "northwest"
    2. Par 2., 1st line: "southeast" should be "southwest" or "adjacent to"

<u>Response:</u> Concur. The revisions have been made.

24. **<u>7. Stone Protection</u>**,

1. Third sentence has bank protection to top bank. The River Engineering section, Harbor Design 2nd par., line 9, has max. of +10 LWRP for bank protection. Also page 13, second par from bottom of page indicates +10 for bank protection.
2. Also third sentence, graded stone C bank protection and the sieve size in Table 2 is max 400# stone. MCACES Baseline Cost Estimate, summary page 9 and 15 use 125/250 lb stone.
3. Table 2, The way this table is presented the spec can be met with no 400# stone in the contract. Is this the intent?

Response: **The Stone Protection has been revised to agree with the River Engineering design.**

From: Alexander, Effort MVM
Sent: Tuesday, March 16, 2004 4:20 PM
To: Lloyd, James W. MVM
Cc: Reeder, James A. MVM
Subject: ITR to March 2004 Northwest Tennessee Harbor Study – Section 107 Study

Jim,

I hope the attach serve to assist you and other team members in producing the proficient report we all desire.

Should you have questions about the comments cited in the attached, please let know. I could have use additional time to better analyze the study finding and make my comments. Thus, I am concern that I have not omitted need observations and/or overstated the concerns for adjustments.

Effort

NORTHWEST TENNESSEE HARBER, ARKANSAS DETAIL PROJECT REPORT (Section 107 CAP Study)

ECONOMICS TECHNICAL REVEIEW

COMMENTS -- GENERAL OVER VIEW

1. Notably, shortage of both time and moneys for this type study, though the section 107 study has the full scale of analytical complications germane to navigation studies with substantially greater study funding and study time, has demanded your abbreviated analysis of many study elements. Further, these same limitations have caused some constraint on presentation clarity. Thereto, it is accepted by this reviewer that the analyst, in many instants of the comments, may be only able to provide a subjective (professional) judgment as response to some comments that follow.

Response: **None.**

2. Nonetheless, soundness of findings often comes into question as a result of not making what may appear to be only editorial changes. And we need not have the justification of the harbor brought into question by any failure to make such needed revisions. Given the validity of the parameters now set forth for the harbor, it has herein been tested justified. Yet, to better assure credibility through the report review chain, the economic Appendix could benefit from some streamlining (elimination of repetition in

respect to discounting presentations) and correction of some inadvertent but contradictory statements.

Response: **None.**

3. See the attached check review check list for further ITR assessments to the subject report.

Response: **None.**

COMMENTS -- TECHNICAL REVIEW – ECONOMICS APPENDIX

1. *Introduction—pg 1 and Para 1*. This paragraph gives the reader an outline to sequential topic presentations, said to be the presentation flow of this appendix, but not so portrayed. Further, it's stated, "Part 3 includes the system of Accounts for the Wolf River Feasibility Project." Though obviously an error with respect to the named study, but the more concerning matter for this reviewer is that the "System of Accounts" referenced is omitted from this appendix. Suggest that the appendix be constructed to comply with the topic outline set forth in this introduction and styled to make the transition between each of the three major part of this appendix more evident to the reader or rewrite the introduction paragraph to correct for the concerns herein cited.

Response: **Concur this statement will be re-written.**

2. *Project Setting and Existing Problems—Pg 2 and Para 6*. Sentence 3 states, "Because the benefits are annual values there will be no discounting." This is not a correct statement. For, when costs are discounted to average annual uniform values through the process of computing present values of future streams and through then amortizing those present values over the period of analysis, the same process must be applied to benefit computations. Notably, when there is no projected future growth, the average annual uniform equivalent benefit of a constant stream is that same amount. But the conclusion is based on the process of discounting itself. Suggest the issue unto which this incorrect statement addressed not be omitted but only the incorrect statement deleted.

Response: **Concur this statement will be re-written.**

3. *Waterborne Commodities Through the Harbor, Pg 3 and Par 1*. This paragraph states, "Coal, hot rolled steel and petroleum will be the only incoming cargo for North West Tennessee Harbor. Barge shipment of these commodities is expected to continue to be an important component of future traffic at the port. . ." Notwithstanding, the discussion on benefits induced by the Northwest Tennessee Harbor project, PG 5 and paragraph 1 cites inbound traffic will be calcium carbonate, petroleum products (gasoline & diesel), steel coils, natural rubber, paper, and soybean meal. Suggest revision to correct these conflicting project conditions.

Response: **Concur this statement will be re-written.**

4. *Waterborne Commodities Through the Harbor, Pg 3 and Par 2*. Paragraph 2 presents discussion on Location Quotient Analysis made to determine key export industries in Mississippi County and cites that, through use of the data, local interests identified firms that would use barge transportation if new harbor facilities existed. Yet, this issue was not closed within the presentation in respect to inclusion and/or exclusion to plan justification for the benefits computed. Nor are benefits from plan-induced exports mentioned again in the body of the appendix. Suggest that topic be presented in greater relevance to plan justification accounting. For, if not relevant to plan justification accounting quantified in the appendix, suggest the discussion be deleted.

Response: **Do not concur, the Economic Base Model (Location Quotient Analysis) is well established in the Regional Economic literature (refereed journals) and has been traditionally used in navigation studies to identify the region's comparative advantage with respect key export industries. The analysis was crucial to the local interest efforts to identify firms within those Standard Industry Categories (SIC) that may be potential harbor users.**

5. *Benefits, PG 4-7*. Though the origin of inbound commodities estimated to ship to the proposed Northwest Tennessee Harbor were cited (PG 5, Para 1), no discussion of product destination for without and/or with project conditions appears in this technical appendix. Thereto, this reviewer hereby acknowledges an inability to review the technical sufficiency of the analytical procedures utilized for this account. Suggest expansion to this presentation so as to address the matter herein raised. Notably, the comment to follow is an extension of this comment.

Response: **Concur this statement will be re-written.**

6. *Clarifications and Presentation of Without Project Conditions*. Recommend a topic presentation, separable and specific, to discuss Without Project (Existing and Future) conditions germane to quantification of impacts (benefits and costs) utilized in project justification analysis. Further, the presentation should be written, minimally, to set forth parameters for clearly associating plan impacts on without project existing and projected future social, economic, and environmental activities of the analysis area/market. The persuasion for this recommendation is partially set forth in the preceding comments and is in respect to the following discussion points:

Response: **Concur this statement will be re-written.**

a. The first two sentences to Paragraph 1 of the topic *Waterborne Commodities through the Harbor states*, " Coal, hot rolled steel and petroleum will be the only incoming cargo for the proposed harbor. Barge shipment of these commodities is expected to continue to be an important component to future traffic at the port." This commodity import estimated to be handled by Northwest Tennessee Harbor is the most critical benefit computation for plan justification. Notwithstanding, there exist, currently, no report topic that discusses without project (existing and future) conditions. Only through having an understanding of the base (without project conditions) detailed in specificity for associating plan impacts to the same, can the evaluation of reasonability of plan justification NED benefits be completed. Neither in Economic Appendix nor any other report section is there presentation of without project conditions done with the specificity needed to technically review the reasonability of the plan justification benefits.

Response: Concur this statement will be re-written.

b. In the introduction topic to the Economic Appendix, it is stated that plan navigation benefits, from beginning 2007 through the project life are a constant benefit amount (through the 50-year plan life). This position necessitates the following: having an existing demand without the project and/or a project induced demand for the products acclaiming to plan benefits for designations served through having the Northwest Tennessee Harbor. Notably, the procedures described for benefit computations displayed in this report are implicitly the following: product shipment demands served through the harbor used in project justification will, without project conditions exist and be served by rail delivery. The commodity origin and destination for both with and without project conditions need be discussed, though the value computation implicitly set forth the same for both with and without project conditions. Notwithstanding the implicit implications, with and without project commodity origin(s) and designation(s) is a desired expansion to be expressed in a without and with plan conditions topic presentation.

Response: Concur this statement will be re-written.

7. *Project Alternatives*. Alternatives plans are described and plan justification results set forth within this Main Report topic discussion. Yet, the Economic Appendix does not provide any discussion of the analytical assessment made to determine plan benefits and costs herein cited, exclusive of the recommended plan. Suggest the Economic Appendix be expanded to discuss analytical process to these results in sufficient enough detail to accommodate ITR of this finding; and suggest that a full description of each alternative be provided under this topic and/or a cross-reference be given in this topic that cites the location of said description.

Response: Concur this statement will be re-written.

8. *Sensitivity Analysis*. Associated Site Development costs, a necessary component to achieving the benefits assessed to the proposed harbor project, are costs fully incurred by the local sponsor and are estimated as $14,056,000 in addition to their share in the project construction costs used for justification (see topic "Project Costs" of Main Report Pg 15). Thereto, from the prospective of this reviewer, local sponsor execution of the associated construction in the time and configuration supporting the harbor benefits herein claimed is critical; that project results are especially sensitive to this action. Suggest that the sensitivity analysis be expanded to address this matter. Additionally, the discussions points here presented under sub-topic headings (1) Impact of Fuel Tax Phase-In and (2) Alternative Port Analysis are somewhat confusing. The matters discussed do not appear to be consequential to plan justification as now estimated in the report. Recommend review for possible reconstruction of the presentation for clarity or simply deleting said topics.

Response: While we concur that site development is essential to the efficient operation of harbor. There is one notable exception that we do not concur with is the fuel tax analysis which will remains in the report is essential in that it is an academic empirical study commissioned by the State of Tennessee, and one of a few studies that deal with elasticity of substitution, and mode switching that have been undertaken

9. *Risk and Uncertainty*. The risk and uncertainty associated with project results appear to be substantial in respect to the justification accounts estimated and to project construction executions as set forth in determining plan justification. Notably, the time and cost allocations for this study possible precluded any sufficient effort in estimating the risk and uncertain beyond the data provided in the sensitivity analysis. This analysis does not appear to address risk and uncertainty in detail as prescribed by 1105-2-100. Suggest team investigate the question of the details needed to fulfill this regulation requirement to ensure compliance.

Response: Do not concur, While it would be nice to have a risk analysis framework for navigation projects (in the vein of the flood control HEC-FDA model) we do not, as yet, have an adequate risk analysis frame, short of a list of risk factors such as project cost, commodity tonnage, freight rate differentials, economic conditions, environmental factors. Furthermore, we have addressed the key issues in the sensitivity analysis.

10. *Regional Economic Development*. Notably, the local interest would be served well to be provided creditable data on the economic development the Northwest Tennessee Harbor will induce to the local area and/or regional. Yet, given (1) the one year schedule for project construction completion and (2) the implicit position unto which plan benefits were computed--without project rail transported commodity to plan induced barge transported commodities, the presentation under this topic would appear somewhat suspect and/or lacking relevance. Suggest omitting from Appendix as written and/or reconstruct to better associate the finding with the parameters used to determine plan justification benefits.

Response: Do not concur, Regional Economic Development analysis provides a valuable insight for the local interest. However, a more detailed description of the initial investment amount $18, 434,480, which represents ($4,378,480 First Cost + $14,056,000) Sight Development Cost), will be included in write-up.

COMMENTS -- TECHNICAL REVIEW -- OTHER REPORT SECTIONS

MAIN REPORT

1. *Details for Plan Formulation, Pg 7 and Para 1*. This paragraph states, "The plan formulation focused on providing a new harbor to support the land given to Lake County, Tennessee by the Federal Government. Thus, the new harbor had to be adjacent to Cates Landing where the Northwest Tennessee Regional Port Authority wants to develop an industrial park." Exclusive of this statement, this reviewer found no discussion of the optimization of site selection. Yet, with this statement, matters of site optimization need be address in respect to social, economic, and environmental optimization. Suggest the analysts revisit this matter to make the needed expansion for clarification and substantiation of the position herein taken.

Response: Do not concur.

2. *Alternative Solutions, Pages 8-12*. The discussion set forth under this topic advises the reader of six alternatives evaluated in respect to the site selected for the proposed harbor and that Table 1 presented the results; that of the six alternatives, alternatives 1, 2, and 3 were removed form detailed analysis because the quantity of canal excavation was much more than alternatives 4 and 5; that alternative 6 being the future without Federal action was removed from detailed analysis because acceptance of this alternative would forego the economic benefits of a navigation channel and would hinder the development of the proposed industrial park. Data presentation within the report's appendixes were not developed in sufficient enough detail to accommodate the ITR of the analytical procedure/techniques applied in deriving the positions herein cited. For the economic appendix make no mention of alternative analyzed, exclusive of the selected plan and, thereto, provides no data to substantiate the summation made under this topic. Suggest that this is a defect in the report that should be corrected by expanding the applicable appendixes' presentations so as to accommodate the ITR of the analysis.

Response: Do not concur.

3. *Project Costs, Pages 15-16*. Topic paragraph 1 and its last sentence states, "Table 6 shows the estimated annual operational and maintenance cost of approximately $175,395 ($175,400)." A review of the computations presented in Table 6 (page 24) revealed error in the present and average annual value computations. Suggest that these and all other costs computations be reviewed and corrected for possible error. For given the time

intervals and costs per interval cited in Table 6, it appears that the present and average annual equivalent values would compute, respectively, $6,170,900 and $371,200. This review, given time constraints for completion of this ITR, did not check the computation accuracy in the other accounts cited.

Response: Do not concur.

4. *Real Estate, Pg 19*. In describing the acreage required for this project, this write-up includes the following statement, "The project will also require about 64 acres of the existing harbor, which meets the criteria for navigation servitude." Notably, this appears a misstatement of facts that should be corrected. If not, this reviewer is introduced to a matter not addressed in the analysis of economic impacts for the harbor site.

Response: Do not concur this statement assumes that this harbor footprint is being used for some other productive purpose. The associated opportunity cost of a change in land use is implied in the above statement.

TECHNICAL REVIEW COMMENTS & CHECKLIST
PROJECT: NORTHWEST TENNESSEE HARBOR

This analysis checklist is provided in combination with the reviewer's comments were also provided in a document separate from this submission. Thereto, the responses provided on the list below are done under the assumption that the concerns raised through the comments of referenced document are successfully/satisfactorily resolved.

TECHNICAL REVIEW CHECKLIST
PROJECT: Northwest Tennessee Harbor

ECONOMIC AND SOCIAL ANALYSIS				
Item	Yes	No	N/A	Comments
1. GENERAL				
a. Have the National Economic Development (NED) benefits been evaluated in accordance with appropriate guidelines and procedures? If not, are acceptable reasons for deviation from standard procedures furnished?	✓			
b. Are the assumptions regarding future alternative conditions clearly stated and justified and are these assumptions reasonable?	✓			
c. Have all known NED/NER benefits been included in the benefit estimate?				
d. Are the economic projections reasonable?	✓			
e. Have methodologies and assumptions been explained in sufficient detail?	✓			
f. Is the information and data adequate to reasonably support the benefit estimate?	✓			
g. Is the without-project condition reasonable and does it actually reflect how non-Federal interests will act if the resource under study is not developed?	✓			
h. Have possibilities of windfall benefits and appropriate special cost sharing been thoroughly investigated?	✓			
i. Are average annual benefits on the same time basis as average annual costs?	✓			
j. Have possible negative economic impacts been adequately considered and evaluated?	✓			
k. If NED employment benefits are claimed, is the area still eligible?	✓			

ECONOMIC AND SOCIAL ANALYSIS

Item	Yes	No	N/A	Comments
l. If as a result of investigations between planning and regulatory staffs, it is apparent that an activity to be conducted by a project beneficiary is not in the public interest, have the projected economic benefit(s) associated with that activity been eliminated?			✓	
m. Have Section 122 significant resource items been addressed?	✓			
n. Has adequate consideration been given to tradeoffs between economic and environmental effects?	✓			
o. Do the combined beneficial NER, NED and Environmental Quality (EQ) effects outweigh the combined adverse NED and EQ effects?				✓
p. Are separable features, including mitigation measures, incrementally justified?				
q. Does the report state the benefit-cost ratio for the recommended plan assuming existing conditions prevail over the period of analysis?	✓			
r. Has recreational development or losses imposed by project implementation been adequately determined with economic evaluation and shown in the chart of accounts?				
s. Does the interest rate and amortization period conform to present practice?	✓			
t. Has a current price level been used?	✓			
u. Have induced impacts and associated costs been given proper treatment?	✓			
v. Have cost estimates and annual charges been determined for mitigation and environmental projects?				
w. Have all project costs incurred by the local sponsor been included?	✓			

ECONOMIC AND SOCIAL ANALYSIS				
Item	Yes	No	N/A	Comments
8. NAVIGATION STUDIES				
a. Has the historical traffic been identified for all waterway segments?	✓			
b. Have Waterborne Commerce Statistics Center (WCSC) and Lock Performance Monitoring System (LPMS) traffic data been reviewed and reconciled?			✓	
c. Does the selected base-line traffic reflect a representative volume and distribution of existing waterway activity? Is it a reasonable point from which to base traffic projections?	✓			
d. Has the without-project condition been clearly defined with all assumptions fully identified?	✓			
e. Does the without-project condition reflect actual industry practice?	✓			
f. Have traffic projection methodologies been fully described and have all secondary sources been documented?	✓			
g. Does the projected traffic seem reasonable?	✓			
h. Do transportation rates reflect ultimate origins and destinations? Have all handling and transfer charges been included?	✓			
i. Have all models and methodologies been fully documented? Is the logic defensible and based on sound economic principles?	✓			
j. Have all model inputs been fully described and documented?	✓			
k. Has sampling been employed to generate any inputs? If so, have sound statistical techniques been used?			✓	
l. Are model outputs adequately calibrated to base-line conditions?			✓	

ECONOMIC AND SOCIAL ANALYSIS				
Item	Yes	No	N/A	Comments
m. Have benefits been calculated for each reasonable increment of waterway/project?			✓	
n. Has a sensitivity analysis been prepared that describes benefits for significant specific scenarios?	✓			
o. Has the efficiency of nonstructural/small-scale measures been evaluated?	✓			
9. FINANCIAL ANALYSIS				
a. Has a statement of local sponsor financial capability been provided?				
b. Has a local sponsor-financing plan been provided?				
c. Has a Commander's Assessment of the local sponsor-financing plan been prepared?				
d. Does the report include the sponsor's project-related yearly cash flows (both expenditures and receipts where cost recovery is proposed), including provisions for major rehabilitation and operational contingencies and anticipated, but uncertain, repair costs resulting from damages from natural events?				
e. Does the report indicate the sponsor's ability to finance its share of the project cost and to carry out project implementation operation, maintenance, and repair/ rehabilitation responsibilities?				
f. Does the report state the most appropriate means for raising additional non-Federal financial resources, including those necessary to create special assessment districts (flood control) or to impose fees (commercial navigation) where available resources are not sufficient?				

GENERAL				
Item	Yes	No	N/A	Comments
1. AUTHORITY				
Does the study conform to the intent of the cited study authority?				
2. SCOPE OF INVESTIGATION				
a. Have the water resource-related problems and opportunities been fully and clearly evaluated?				
b. Have all significant or special interest resources been adequately considered?				
c. Have all foreseeable short- and long-term needs been adequately considered?				
d. Have implications outside the study area been properly addressed?				
3. OBJECTIVE OF INVESTIGATION				
Are planning objectives clearly stated?				
4. RISK AND UNCERTAINTY - SENSITIVITY ANALYSIS				
a. Was risk analysis adequately scoped in the initial stage of the study?				
b. Have the plans and their effects been sufficiently examined to determine the uncertainty inherent in the data or in the various assumptions of future economic, demographic, and social, attitudinal, environmental, hydrologic, and technological trends?	✓			
c. Have the areas of sensitivity been adequately identified and proper analysis performed so that decisions can be made with knowledge of the degree of reliability of available information?	✓			

GENERAL				
Item	Yes	No	N/A	Comments
d. Does the report address the risk and uncertainty of the without-project condition assumptions and does it test for sensitivity?	✓			
e. Have the advantages and costs of reducing risk and uncertainty been adequately considered in the planning process?	✓			
5. CHART OF ACCOUNTS				
a. Is the cost allocation in conformance with existing policies?	✓			
b. Has the necessity for sub-allocations been adequately considered?	✓			
c. Have all project purposes been included in the allocation?	✓			
6. PROJECT COST SHARING				
a. Is the apportionment of cost to local interests in conformance with present policy and evaluation procedure?				
b. Are there special circumstances associated with the project that warrant consideration of increased Federal or non-Federal cost sharing?				

From: Cole, Martha F. MVM
Sent: Friday, March 19, 2004 9:58 AM
To: Lloyd, James W. MVM; Young Douglas B. MVM
Subject: Real Estate ITR for NWTN Harbor Detailed Project Report

1. The MCASES for the acres of LERRD or estimated costs for LERRD do not match the REP acres or costs. Throughout the report, the estimated LERRD from the REP are not the costs used in other sections.

Response: Concur. The revision has been made.

2. Dredged Material Disposal Sites for ongoing maintenance. Since LERRD is defined as including the LERRD needed for operations and maintenance, the estimated LERRD would be more correct if it included estimated costs of acquiring the additional 390 acres for the ongoing disposal. (39 acres every 5 years for 50 years.)

Response: Five years of future O&M dredge disposal area has been added to the project. This frequency was chosen because it is the time period of the water quality permit. The O&M cost of obtaining future land for dredge disposal is reflected in the project O&M costs. This sponsor will be advised that they should request for their next water quality permit, disposal conditions like other harbors in Tennessee on the Mississippi River. They allow for either river disposal (Wolf River Harbor) or island disposal (Memphis Harbor). By obtaining a water quality permit that has disposal conditions like either of these harbors, the sponsor can reduce his future O&M expenditures.

Environmental Assessment Briefing for the PDT and ITR Teams on the Northwest Tennessee Regional Harbor Detailed Report, 31 March 2004.

Members in Attendance:

Danny Ward	Richard Hite
David Reece	Ken Williams
Cory Williams	Mike Callaway
Dave Porter	Ian McDevitt
Jim Lloyd	Effort Alexander

The following are the ITR comments and responses received and developed at this meeting:

Comment 1. See syntax, format, misspelling and rewording in reviewed EA from Richard Hite, Dave Reece, Jim Lloyd and Wayne Max.

Response: Concur. The revisions have been made.

Comment: 2. Page 28, Paragraph 3.2.7, need to change the title from Wilderness Lands to State and Federal Lands.

Response: Concur. The revision has been made.

Comment 3. Paragraph 3.2.8 and 3.2.7 plus 4.2.4 and 4.2.5, need to merge the two paragraphs together, respectively.

Response: Concur. The revisions have been made.

Comment 4. Page 38, need to expand the associated impacts in the return water.

Response: Concur. The revision has been made.

Comment 5. Table 4-4 needs to be revised to include non-forested wetlands contained in table 4-2.

Response: Concur. The revision has been made.

Comment 6. Page 45, need to add a sentence that discusses the potential expansion of the industrial park and the additional mitigation that will be required in the future.

Response: Concur. The revision has been made.

Comment 7. Page 54, need to add a sentence in paragraph 4.5 that discusses the positive impacts of the project.

Response: Concur. The revision has been made.

From: Williams, Leslie R. MVM
Sent: Wednesday, January 12, 2005 8:31 AM
To: Lloyd, James W. MVM
Cc: Young, Douglas B. MVM
Subject: Northwest Tennessee Harbor-Real Estate Plan ITR

Jim:

An Independent Technical Review (ITR) of the 17 December 2004 Real Estate Plan for the Northwest Tennessee Harbor Report has been conducted, and I have no additional comments.

Leslie Williams
Acting Lead Appraiser

ENCLOSURE 3
CERTIFICATION OF LEGAL REVIEW

The Detailed Project Report for the Northwest Tennessee Regional Harbor and its appendixes have been fully reviewed by the Office of Counsel, Memphis District and are legally sufficient.

District Counsel

8/13/07
(Date)

ENCLOSURE 4
CERTIFICATION OF POLICY REVIEW

The Detailed Project Report for the Northwest Tennessee Regional Harbor and its appendixes have been fully reviewed by the Chief of Project Development Branch and is sufficient for policy.

James A Rodney
Chief of Project Development Branch

04/08/04
(Date)

APPENDIX IX

PUBLIC VIEWS AND RESPONSES

TABLE OF CONTENTS

PUBLIC VIEWS AND RESPONSES

Date	Correspondence
18 Dec 1997	Letter from Johnny H. Hayes, Tennessee Valley Authority
2 May 2000	Letter from Hal Greer, Executive Director for the Hickman-Fulton County, Kentucky Riverport Authority
22 Nov 2000	Letter from Jimmy Thornton, Executive of Benton County, Tennessee
27 Nov 2000	Letter from Ronnie A. Riley, Executive of Gibson County, Tennessee
29 Nov 2000	Letter from Dwayne Dove, Executive of Crockett County, Tennessee
29 Nov 2000	Letter from Troy Kilzer, Executive of Chester County, Tennessee
30 Nov 2000	Letter from Dennis Ray McDaniel, Executive of Henderson County, Tennessee
30 Nov 2000	Letter from Mike Smith, Executive of McNairy County, Tennessee
1 Dec 2000	Letter from Kenny McBride, Executive of Carroll County, Tennessee
1 Dec 2000	Letter from J. Alex Leech, Mayor of Madison County, Tennessee
4 Dec 2000	Letter from Brent Greer, Executive of Henry County, Tennessee
6 Dec 2000	Letter from Mitch McConnell, U.S. Senator for Kentucky
7 Dec 2000	Letter from Jim Voss, Mayor of Fayette County, Tennessee
7 Dec 2000	Letter from Jim Rout, Mayor of Shelby County, Tennessee
22 Dec 2000	Letter from Joe W. Barker, Executive of Hardin County, Tennessee
28 Dec 2000	Letter from John F. Sharpe, Jr., Executive of Haywood County, Tennessee
12 Feb 2001	Letter from Rozelle Criner, Executive of Lauderdale County, Tennessee
14 Mar 2001	Letter from Wayne Odle, Executive of Decatur County, Tennessee
19 Mar 2001	Letter from Jeff Huffman, Executive of Tipton County, Tennessee
5 Apr 2002	Letter from Bob Jones, Excalibar Minerals, Inc.
9 Apr 2002	Letter from Guy Marleau, Lallemand, Inc.
1 Oct 2002	Letter from Don W. Clifft, Mayor of Hardeman County, Tennessee
1 Oct 2002	Letter form Ron Gifford, Executive of Weakley County, Tennessee
1 Jun 2004	Letter from William H. Frist, M.D. and Lamar Alexander, U.S. Senators for Tennessee

Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, Tennessee 37902-1499

Johnny H. Hayes
Director

December 18, 1997

Mr. J. E. Williamson, Jr.
General Manager
Dyersburg Electric System
Post Office Box 664
Dyersburg, Tennessee 38025-0664

Dear Jimmy:

I am pleased to respond to your request for TVA to provide service for the Nucor Steel project. I understand that representatives from Nucor have indicated a strong interest in the Lake County industrial site, and TVA has agreed to provide power service with site specific details to be determined later. Your support of this project, the support of the Industrial Development Board of Lake County, and the community leaders' solid involvement make this an exciting project for TVA and our economic development allies.

We stand ready to work with you, Dyer County, Lake County, and the State of Tennessee representatives to ensure that we are competitively positioned. I appreciate your role, leadership, and direct involvement in this project.

Please let me know if I can be of further assistance.

Sincerely,

Johnny

Johnny H. Hayes

Hickman - Fulton County Riverport Authority

Post Office Box 6 *Hickman, Kentucky 42050*

Phone: (270)236-2563 *Fax: (270)236-2222*

May 2, 2000

Colonel Daniel W. Krueger, P. E.
District Engineer, Memphis District
U. S. Army Corps of Engineers
Executive Office
167 N. Main, Suite 590
Memphis, TN 38103-1894

Dear Colonel Krueger:

It was a pleasure to meet you at the recent bluff dedication in Hickman. The bluff project is a magnificent victory for both the Corps and the community. As I indicated during our brief conversation at the ceremony, our community is concerned about the proposed port facility at Cates Landing in Lake County, TN. The proposed facility will endanger our community's economic base through direct competetion with our port.

It is with the deepest concern for the detrimental effect of the proposed Cates Landing venture that I write this letter. Our port facility is only 18 river miles from the site in Lake County, and the construction of a facility in such close proximity would serve to undermine our economic base. We already serve the majority of the region, which the proposed facility seeks to service, and we are working toward improvements that will enable us to service the entire region in an efficient manner.

The improvements we currently have planned will provide a full service facility for all types of bulk and neobulk products. These improvements can also be completed for a fraction of the cost of a new facility at Cates Landing. The harbor work alone will exceed the total cost of the planned water front infrastructure we already have designed.

It seems to me that if the federal government wishes to help the region in the most cost effective manner the money to be spent on a new facility at Cates Landing should be funneled into improvements to the existing port at Hickman. The improvements necessary here coupled with needed highway improvements in the region would be far less expensive and provide efficient intermodal transportation services for the region.

In closing, I respectfully request that you do not allow this destructive waste of our tax dollars to proceed. The only ones that stand to benefit from the Cates Landing project are the politicians pushing it for their own agenda. Two port facilities in such close proximity in this rural region will cause a hardship for both facilities and erode the overall regional economy over time. It is time to stop playing politics with our money and our lives! Thank you.

Sincerely,

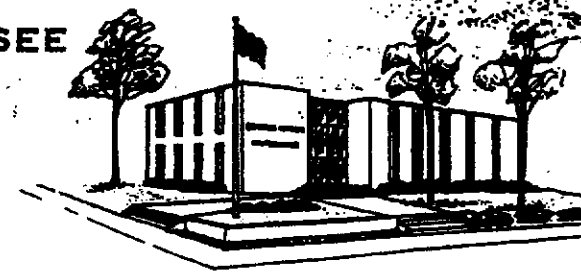
Hal Greer

Hal Greer
Executive Director

BENTON COUNTY

IN THE HEART OF THE MAGIC VALLEY

CAMDEN, TENNESSEE



JIMMY THORNTON
BENTON COUNTY EXECUTIVE
1 EAST COURT SQUARE, ROOM 102
1-901-584-6011
FAX: 901-584-4640
CAMDEN, TENNESSEE 38320

November 22, 2000

Mr. Macie Robertson
Lake County Executive
229 Church St. Box 1
Tiptonville, TN 38079

Dear Mr. Cranford:

I would lke to take this opportunity to inform you that Benton County is in full support of the Industrial park and River Port Authority. I feel this will greatly help the economic growth of West Tennessee.

If I can be of any assistance in helping to support this please let me know.

Sincerely,

Jimmy Thornton
Benton County Executive

RONNIE A. RILEY
COUNTY EXECUTIVE

GIBSON COUNTY COURTHOUSE

TELEPHONE 855-7611
TRENTON, TENNESSEE 38382

November 27, 2000

Honorable Macie M. Roberson
Lake County Executive
229 Church St., Box 1
Tiptonville, TN 38079

Dear Macie:

I am pleased to write in support of the efforts of Dyer, Lake and Obion counties to construct a port at Cates Landing in Lake County. I believe this effort will be beneficial to all of northwest Tennessee when completed.

I also feel it is a great idea to construct an industrial park in connection with the port there in Lake County. I know many industries are dependent upon water transportation, and therefore, your efforts will be a great asset in attracting this type of industry to our area.

I am in full support of the efforts of Dyer, Lake and Obion counties and stand ready to do anything necessary to assist with your efforts.

Sincerely,

Ronnie A. Riley
County Executive

RAR/lvd

cc Kerry Brannon

CROCKETT COUNTY

County Executive
DWAYNE DOVE
1 S. Bells Street
Suite 3
Alamo, TN 38001
901-696-5460

November 29, 2000

Norris Cranford
County Executive of Obion County
PO Box 236
Union City, TN 38261

Dr. James O. McCord
County Executive of Dyer County
PO Box 1360
Dyersburg, TN 38024

Macie Roberson
County Executive of Lake County
229 Church St. Box 1
Tiptonville, TN 38079

Dear Gentlemen,

I would like to take this opportunity to commend your three county initiative that you are currently undertaking. Such a big project as the River Port and Industrial Park for Lake, Dyer and Obion counties will be a great asset for you and for West Tennessee.

Crockett County is predominately agricultural and this should open new markets for our cotton, soybeans and wheat, along with manufactured goods.

There is now a Global Market and I believe this will put our area in the ballgame.

Again, I support your effort. If I can give you any assistance on this project as a fellow County Executive, please give me a call.

Sincerely,

Dwayne Dove
County Executive

Cc: Kerry Brannon

Troy D. Kilzer Sr.
Chester County Executive
P.O. Box 296 • Phone: (901) 989-5672
Henderson, Tennessee 38340

November 29, 2000

The Honorable Macie Roberson
Lake County Executive
229 Church Street, Box 1
Tiptonville, Tennessee 38079

Dear Mr. Roberson:

I certainly support the efforts of Dyer, Lake and Obion counties to construct a port at Cates Landing in Lake County on the Mississippi River. Being aware of the economic situtation there, this would be very beneficial to all of West Tennessee upon its completion.

This port will serve as a magnet for new investment not only in Lake County, but all of West Tennessee, and the multi-state region as well. Many industries are dependent upon water transportation, and therefore, your efforts will be a great asset in attracting this type of industry to our area.

Should you need any further assistance in this endeavor, please let me know.

Sincerely,

Troy Kilzer

Troy Kilzer,
County Executive

TK:cn

cc: Mr. Kerry Brannon

HENDERSON COUNTY EXECUTIVE
P.O. Box 528
LEXINGTON, TENNESSEE 38351

Dennis Ray McDaniel - County Executive
Beverly Cagle - Administrative Asst.
Ann Grant - Accountant/Bookkeeper

November 30,2000

The Honorable Macie Robertson
Lake County Executive
229 Church Street, Box 1
Tiptonville, Tennessee 38079

Dear Mr. Robertson,

I am pleased to support the efforts of Dyer, Lake, and Obion counties to construct a port at Cates Landing in Lake County on the Mississippi River. I am fully aware of the economic situation which exists there, and I believe this effort will be beneficial to all of West Tennessee when completed.

This port will serve as a magnet for new investment not only in Lake County, but all of West Tennessee, and the multi-state region as well. Many industries are dependent upon water transportation, and therefore, your efforts will be a great asset in attracting this type of industry to our area.

Please let me know if I can be of any further assistance to you in this endeavor.

Sincerely,

Dennis Ray McDaniel

Dennis Ray McDaniel
Henderson Co. Executive

Phone 901-968-0122 901-968-0123 FAX 901-968-9085

Mike Smith
McNAIRY COUNTY EXECUTIVE
SELMER, TENNESSEE 38375 / AREA CODE 901-645-3472

McNAIRY COUNTY, TENNESSEE

County Court Meets Second Monday of Each Month

November 30, 2000

The Honorable Macie Roberson
Lake County Executive
229 Church Street, Box 1
Tiptonville, Tennessee 38079

Dear Mr. Roberson,

I am pleased to support your efforts in constructing a port at Cates Landing on the Mississippi River. This effort will have positive economic impact on all of West Tennessee.

This port will enhance our efforts in recruiting better paying jobs to the region.

I fully support this regional port and offer my assistance at any time to make this a reality.

Please contact this office if we can help in any way.

With Kindest Regards, I am

Mike Smith
McNairy County Execuitve

Kenny McBride
COUNTY EXECUTIVE
CARROLL COUNTY
CARROLL COUNTY OFFICE COMPLEX
625 HIGH STREET, SUITE 101
HUNTINGDON, TENNESSEE 38344
PHONE (901) 986-1936 • FAX (901) 986-1935

December 1, 2000

Lake County Executive
Macie M. Roberson
229 Church Street, Box 1
Tiptonville, TN 38079

Dear Macie:

I am writing this letter in support of your proposed cooperative effort to develop a port and industrial park in Lake County.

If I can be of any assistance in this project, please do not hesitate to call.

Sincerely,

Kenny McBride
County Executive

KM/mje

cc: Carey Brannon

OFFICE OF
J. Alex Leech
Madison County Mayor

100 EAST MAIN, SUITE 302
JACKSON, TENNESSEE 38301
PHONE: 901-423-6020
FAX: 901-988-3820

December 1, 2000

The Honorable Dr. Jim McCord
Dyer County Executive
P. O. Box 1360
Dyersburg, TN 38024

The Honorable Macie Roberson
Lake County Executive
229 Church St., Box 1
Tiptonville, TN 38079

The Honorable Norris Cranford
Obion County Executive
P. O. Box 236
Union City, TN 38281-0236

Dear Messrs. McCord, Roberson, and Cranford:

I am pleased to support the efforts of Dyer, Lake, and Obion Counties to construct a port at Cates Landing in Lake County on the Mississippi River. As a native of Lake County, I am fully aware of the economic situation, which exists there, and I believe this effort will be beneficial to all of northwest Tennessee when completed.

I believe this port will serve as a magnet for new investment in Lake County, West Tennessee, and the multi-state region. I know many industries are dependent upon water transportation, and, therefore, your efforts will be a great asset in attracting this type of industry to our area.

If I can be of any further assistance to you in this endeavor, please feel free to contact me.

Yours truly,

J. Alex Leech
Mayor of Madison County, Tennessee

JAL/rkn

Office of the County Executive
BRENT GREER

County of Henry

COURTHOUSE
PARIS, TENNESSEE 38242
(901)642-5212

December 4, 2000

Honorable Macie M. Roberson
Lake County Executive
229 Church Street, Box 1
Tiptonville, Tennessee 38079

Dear Macie:

I wanted to send this letter of unconditional support for the Northwest Tennessee Port Authority project. It is without question that the proposed riverport and industrial park will benefit our entire region.

Although Henry County is some distance from the proposed project, I firmly believe that Northwest Tennessee industrial growth opportunities will be greatly enhanced. Please let my office know if there is anything we can do to assist in this worthwhile endeavor.

Sincerely,

Brent Greer
Henry County Executive

cw

copy: Kerry Brannon
TVA

MITCH McCONNELL
KENTUCKY

361-A RUSSELL SENATE OFFICE BUILDING
WASHINGTON, DC 20510-1702
(202) 224-2541

United States Senate

COMMITTEES:
RULES AND ADMINISTRATION, CHAIRMAN
AGRICULTURE
APPROPRIATIONS
CHAIRMAN, SUBCOMMITTEE ON FOREIGN OPERATIONS

December 6, 2000

Lieutenant General Joe N. Ballard
Chief
Army Corps of Engineers
Pulaski Building, Room 8228
20 Massachusetts Avenue
Washington, D.C. 20314

Dear Chief Ballard:

I am writing on behalf of a constituent who has contacted me regarding the Cates Port Facility project located in Tennessee. My constituent is concerned about the impact of that project on the Fulton County Riverport located in Hickman, Kentucky. I would appreciate your review and response to my constituent's concerns.

Please direct any inquiries and all relevant information to Brytt Deye, in my Washington, D.C. office.

Thank you for your time and assistance. I will look forward to receiving your response.

Sincerely,

Mitch McConnell

MITCH McCONNELL
UNITED STATES SENATOR

MM/bmd

FEDERAL BUILDING
241 E. MAIN STREET
ROOM 102
BOWLING GREEN, KY 42101
(270) 781-1673

1885 DIXIE HIGHWAY
SUITE 345
FORT WRIGHT, KY 41011
(859) 578-0188

771 CORPORATE DRIVE
SUITE 530
LEXINGTON, KY 40503
(859) 224-8286

301 SOUTH MAIN STREET
LONDON, KY 40741
(606) 864-2025

601 WEST BROADWAY
SUITE 630
LOUISVILLE, KY 40202
(502) 582-6304

PROFESSIONAL ARTS BUILDING
SUITE 100
2320 BROADWAY
PADUCAH, KY 42001
(270) 442-4554

Fayette County Government

Jim Voss / County Mayor

December 7, 2000

The Honorable Macie Roberson
Lake County Executive
229 Church Street, Box 1
Tiptonville, Tennessee 38079

Dear Mr. Roberson:

I am pleased to support the efforts of Dyer, Lake and Obion counties to construct a port in Lake County. Your area has suffered economically for many years. I feel this port will increase the business vitality of your community, as well as, those in Southwest Kentucky and Northwest Tennessee.

This new port will serve as a transportation center and will create many job opportunities for Lake County, West Kentucky and West Tennessee. Many industries depend on water transportation. This will be a great advantage for you in attracting this type industry to your county.

Please let me know if I can be of any further assistance to you in this endeavor.

Sincerely,

Jim Voss
Fayette County Mayor

P.O. Box 218, Fayette County Courthouse Somerville, Tennessee 38068
Phone (901) 465-5202
Fax (901) 465-5229

Shelby County
Tennessee

Jim Rout, Mayor

December 7, 2000

The Honorable Dr. Jim McCord
Dyer County Executive
P.O. Box 1360
Dyersburg, TN 38024

The Honorable Macie Roberson
Lake County Executive
229 Church Street, Box 1
Tiptonville, TN 38079

The Honorable Norris Cranford
Obion County Executive
P.O. Box 236
Union City, TN 38281-0236

Dear Messrs. McCord, Roberson and Cranford:

I am pleased to support the efforts of Dyer, Lake and Obion counties to construct a port at Cates Landing in Lake County on the Mississippi River. I am fully aware of the economic realities which exist there, and I believe this project would be beneficial to all of our region when completed.

About 18 months ago, I was proud to propose and implement a historic regionalism program that will develop goals and plans for the future. The centerpiece of this program is the investment in infrastructure that strengthens and increases our position as an international logistics center. As part of this analysis, our consultant has pointed out that while we must seek a strong position in air transportation, we must expand our traditional strength that comes from our region's position on the Mississippi River. For this reason, this proposed port seems to be the kind of strategic investment that is needed if we are to stimulate the growth of the West Tennessee and Mid-South trade area economy.

Suite 850, 160 North Main Street · Memphis, TN 38103 · 901-545-4500 · Fax 901-545-4759

In this way, this port should serve as a magnet for new investment not only in Lake County, but for all of West Tennessee as well as the multi-state region. Many industries considering our region are dependent upon water transportation, and therefore, your efforts will be a great asset in attracting this type of industry to our region.

As you proceed, I extend my best wishes and support. Please let me know if I can be of any further assistance to you in this important endeavor.

Sincerely,

Jim Rout
Mayor

JR/mb

HARDIN COUNTY, TENNESSEE

JOE W. BARKER
COUNTY EXECUTIVE

December 22, 2000

Executive Macie Robertson
229 Church Street, Box 1
Tiptonville, TN 38079

Executive Robertson,

I am writing this letter in support of the proposed port and industrial park on the Mississippi River to serve Dyer, Lake, and Obion Counties.

As County Executive of Hardin County, which is located on the Tennessee River, I can attest to the value of an industrial port. Hardin County has a port on Pickwick Lake which is available to the public and is leased to our largest employer—Packaging Corporation of America. This port receives numerous inquires from industrial prospects throughout the United States and abroad.

I commend your efforts in securing this port and if I can be of further assistance, please do not hesitate to call.

Sincerely,

JOE W. BARKER
Hardin County Executive

JWB:mh

cc: Mr. Kerry Brannon

BOARD OF COMMISSIONERS

DAVID CHILDERS • GARY COMBS • DAVID H. DAVIS • LARRY FRANKS • DANNIE GEAN • TOM HAGGARD • PERRY W. HAMILTON • WALLY HAMILTON
LARRY J. HINTON • CHARLES HOWARD • L.D. NIXON • RAY PHILLIPS • JAMES C. PLUNK • HARRIS REYNOLDS • KATHY SMITH • JACK SNELLING
EMERY WHITE • JAMES WHITEHORN, SR. • JIMMY W. WILLOUGHBY • DUANE WRIGHT

601 MAIN STREET • COURTHOUSE • SAVANNAH, TN 38372 • (901) 925-9078 • FAX: (901) 925-0338

HAYWOOD COUNTY

TELEPHONE (901) 772-1432

OFFICE OF
COUNTY EXECUTIVE

COURTHOUSE
1 NORTH WASHINGTON • BROWNSVILLE, TN 38012

December 28, 2000

Kerry Brannon
Tennessee Valley Authority
11 Murray Guard
Suite 100
Jackson, TN 38305-3610

Dear Mr. Brannon:

Haywood County supports the construction of a slackwater port and the development of a 1,000-acre industrial part at Cates Landing in Lake County. This will be a major economic impact to Lake County and the surrounding counties.

To potentially increase job availability for residents by approximately 5,000 openings and bring more revenue into a county and a region by generating $4 million annually is a tremendous benefit.

Haywood County urges you to continue with the good work you are doing for the entire West Tennessee Region.

Sincerely,

John F. Sharpe, Jr.

John F. Sharpe, Jr.
County Executive

I. ROZELLE CRINER, COUNTY EXECUTIVE

J. THOMAS CALDWELL, COUNTY ATTORNEY

2-13-01

Lauderdale County Government

COURTHOUSE
100 COURTSQUARE
RIPLEY, TENNESSEE 38063
Phone (901) 635-3500
Fax 635-9682

February 12,2001

Mr. Kerry Brannon
Suite 200
11 Murray Guard Drive
Jackson, TN 38305

Dear ~~Mr. Brannon:~~ Kerry

Please find enclosed an executed copy of Resolution passed on this date by our County Commission.

If we can be of further assistance, please let us know.

Sincerely,

Rozelle Criner
County Executive

Enclosure 1

RESOLUTION

WHEREAS, the duly elected Legislative Bodies of the Counties of Lake, Obion and Dyer in Northwest Tennessee are committed to the joint establishment of a Port Authority for the development and operation of a Port and Harbor facility on the Mississippi River at Cates Landing in Northern Lake County;

WHEREAS, the development and operation of said Port and Harbor is a worthy public project of substantial benefit to Lauderdale County and all of Northwest Tennessee as a result of the enhanced opportunities for industry, transportation, commerce and employment arising therefrom;

WHEREAS, the Legislative Body of Lauderdale deems the development of said Port and Harbor to be in the manifest best interests of the Citizens of Lauderdale County for all the reasons aforesaid and worthy of our support and attention;

NOW, THEREFORE, BE IT RESOLVED, ORDAINED AND PROCLAIMED by the Legislative Body of Lauderdale County, Tennessee, that the joint development and operation of the Port and Harbor facility on the Mississippi River at Cates Landing in Northern Lake County by the Counties of Lake, Obion and Dyer shall be and is hereby declared a worthy and beneficial public project of great significance and benefit to the citizens and residents of Lauderdale County and all of Northwest Tennessee;

AND BE IF FURTHER RESOLVED, that the Legislative Body of Lauderdale County shall acknowledge, encourage and support fully the further efforts of the Counties of Lake, Obion and Dyer for the development and permanent establishment of the Port and Harbor facility at Cates Landing.

SO RESOLVED this 12th day of February, 2001.

ATTEST:

Carolyn M. McBroom
County Clerk

County Executive

C:\WINDOWS\Desktop\pam\Chamber\portauth-resolution.lauderdale.countywpd.wpd

County of Decatur

OFFICE OF THE COUNTY EXECUTIVE
P.O. Box 488
Decaturville, TN 38329

Wayne Odle
County Executive

Phone: (901) 852-2131
Fax: (901) 852-2130

3-15-01

March 14, 2001

The Honorable Dr. Jim McCord
Dyer County Executive
P.O. Box 1360
Dyersburg, TN 38024

The Honorable Macie Roberson
Lake County Executive
229 Church Street Box 1
Tiptonville, TN 38079

The Honorable Norris Cranford
Obion County Executive
P.O. Box 236
Union City, TN 38281-0236

Dear Messrs. McCord, Robertson and Cranford:

The efforts of Dyer, Lake, and Obion Counties to construct a port at Cates Landing in Lake County on the Mississippi River are to be applauded and I am happy to support them in this endeavor. The completion of this project would be beneficial to the entire region.

I am well aware of the need to stimulate the economy of West Tennessee and I feel that this project would do that. You have my full support for this project. Please let me know if I can be of any further assistance.

Sincerely,

Wayne Odle

Wayne Odle
Decatur County Executive

TIPTON COUNTY

JEFF HUFFMAN
COUNTY EXECUTIVE
PHONE: (901) 476-0200
FAX: (901) 476-0227

Rec. 3-26-01 R

March 19, 2001

COPY

The Honorable Macie Roberson
Lake County Executive
229 Church Street, Box 1
Tiptonville, TN 38079

Dear Mr. Roberson,

I am please to support the efforts of Dyer, Lake and Obion counties in the construction of a port at Cates Landing in Lake County on the Mississippi River. The economic realities of a port at this locality on the Mississippi River would certainly be beneficial to this region when completed.

River transportation and availability would be an asset for many industries considering location in West Tennessee. This proposed port would be the kind of strategic investment that is needed if we are to stimulate the growth of the West Tennessee and Mid-South trade area economy.

Please let me know if I can be of any further assistance to you in this important endeavor.

Respectfully submitted,

Jeff Huffman (S.C.)

Jeff Huffman
Tipton County Executive

COPY

P.O. Box 686 • Court Square • Covington, Tennessee 38019

ExCaliBar
MINERALS INC.

April 5, 2002

Northwest Tennessee Regional Port Authority
P. O. Box 664
Dyersburg, Tennessee 38025-0664

Attn: Jimmy Williamson, Chairman

Dear Mr. Williamson:

Excalibar Minerals is a quality processor and supplier of industrial minerals. We process, package and distribute high quality minerals as fillers/extenders in paint, plastics, ceramics and oil service end products. We recently went through a site selection process for a new facility that was finally located in Dyersburg, Tennessee. In that process we reviewed a number of sites before making our final selection. Included in this process was your Cates Landing site located north of Tiptonville, Tennessee. This site could have been our choice of preference and would have been selected had the port been more of a reality. We chose not to locate our facility at the site because neither harbor access, rail access nor barge unloading capability was available.

We would urge you to proceed with this proposed port and industrial park as the need for such a facility in the northwest Tennessee area is very much needed and in our opinion will be utilized by a wide range of industries.

Yours truly,

Bob Jones
Manager-Business Development
Excalibar Minerals, Inc.

BJ/vn

2001 Industrial Road • Dyersburg, TN 38024 • Office: 731-287-7553 • Fax: 731-287-7469

LALLEMAND INC.

RWR
LDP

April 9, 2002

Mr. Larry W. Rogers
Executive Vice President
Centex Engineering to Construction
350 Jere Ford Memorial High Way
Dyersburg, TN 38024

Subject: Lake County Port

Dear Larry,

As I previously mentioned to you on several occasions, our company has been -over a period of almost two years- actively seeking a suitable site for the construction of a new plant in the Tennessee Valley area.

Although our final decision favoured Memphis -and you know how difficult it has been to locate the only potential site that meets all of our requirements- there is no doubt in my mind that "Cates Landing" would have been an excellent site if only the infrastructures, including the possibility to receive by barge (therefore a port) our main raw materials, would have been ready.

"Cates Landing" was one of the few selected sites presented to our Board of Directors in August 2000. The main advantage were amongst others:

- Available sites (60 acres) located less than 500 feet from the river at an affordable price per acre.
- 1, 000 acres of adjacent land available for wastewater application.
- Availability of surface and deep well water for process and cooling purposes in sufficient quantity and excellent quality.
- Possibility to return to the river the non-contact cooling water.
- Accessibility to additional cooling water from the river (90 feet deep).

The main drawback was however the lead-time required for the establishment of proper utilities and infrastructure to sustain the development of an "industrial base", e.g.

- Transportation by barge (river) and rail.
- Electrical power and supply.
- Wastewater treatment facilities (although land application is possible).

Hoping that you will be able to convince the Authorities to invest and implement the necessary infrastructure in the area, please feel free, Larry, to call upon me if further comments or explanations are required.

Sincerely,

Guy Marleau
Vice President of Operations

1620 PREFONTAINE STREET, MONTREAL, QUEBEC, CANADA H1W 2N8
TEL.: (514) 522 2122 • FAX: (514) 522-2884 • E-MAIL: info@lallemand.com

Hardeman County
Courthouse
100 N. Main Street
PO Box 250
Bolivar Tennessee 38008

Office of
Don Cliff, County Executive
(731) 658-3266 Fax: (731) 658-5721

October 1, 2002

Macie M. Roberson
County Executive, Lake County
Box 1 – Court House
229 Church Street
Tiptonville, Tennessee 38079

Dear Mr. Roberson:

I am writing on behalf of the proposed harbor to be constructed in Lake County in Northwest Tennessee. The proposed harbor is a much needed project for Northwest Tennessee. A recently completed survey indicates a tremendous need for access to the Mississippi River in Northwest Tennessee for business and industrial use.

The construction of a harbor facility on the Mississippi River will greatly benefit the economy of the Northwest Tennessee region. New jobs will be created and infrastructure improvements will be made.

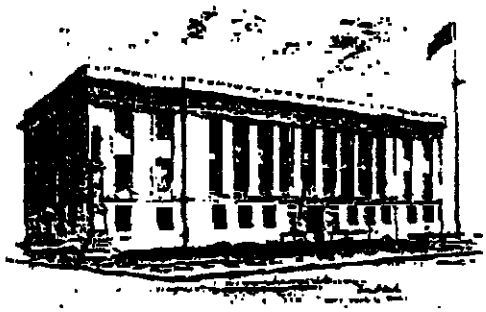
Please consider this letter my personal endorsement for the construction of the proposed Mississippi River Harbor in Lake County, Tennessee. I fully support the development of this project.

Respectfully,

Don W. Cliff

Don W. Cliff
Hardeman County Mayor

DWC:wmv



RON GIFFORD
WEAKLEY COUNTY EXECUTIVE

Dresden, Tennessee 38226
(901) 364-5613

October 1, 2002

To Whom It May Concern:

I am writing on behalf of the proposed harbor to be constructed in Lake County in Northwest Tennessee. The proposed harbor is a much needed project for Northwest Tennessee. A recently completed survey indicates a tremendous need for access to the Mississippi River in Northwest Tennessee for business and industrial use.

The construction of a harbor facility on the Mississippi River will greatly benefit the economy of the Northwest Tennessee region. New jobs will be created and infrastructure improvements will be made.

Please consider this letter my personal endorsement for the construction of the proposed Mississippi River Harbor in Lake County, Tennessee. I fully support the development of this project.

Sincerely,

Ron Gifford

Ron Gifford
Weakley County Executive

RG/dn

United States Senate

WASHINGTON, DC 20510

June 1, 2004

Colonel Jack V. Scherer
Commander and District Engineer
Memphis District, U.S. Army Corps of Engineers
167 North Main Street
Memphis, Tennessee 38103-1894

Dear Colonel Scherer:

We are writing to express our strong support for a proposal to construct a new regional harbor in the vicinity of Cates Landing, Mississippi River Mile 900, in Lake County, Tennessee.

Other than Memphis there are no other public port facilities located in Tennessee on the Mississippi River. Local officials in Lake, Dyer, and Obion counties formed the Northwest Tennessee Regional Port Authority (NTRPA) in 1999 for the purpose of creating a new river port to stimulate the economy and bring new jobs to an economically distressed area of the state.

The NTRPA has sought diligently to develop this project with minimal impact on the environment, water quality, cultural resources and area wildlife. It is our understanding that initial economic analysis shows that more than $2.5 million in annual benefits will be created through this project and approximately 105 new jobs will be created in the adjacent industrial park. In addition, studies have shown that the project will not significantly impact the surrounding environment.

We believe that this new regional harbor will promote economic growth and stimulate job creation, and we urge you to move forward with plans to construct the harbor as soon as possible. Thank you for your attention to this matter, and we look forward to working with you in the months ahead.

Sincerely,

William H. Frist

William H. Frist, M.D.
Majority Leader
United States Senate

Lamar Alexander

Lamar Alexander
United States Senate

APPENDIX X

DREDGED MATERIAL MANAGEMENT PLAN

1.0 Project Description

The proposed Northwest Tennessee Regional Harbor would be located in the vicinity of Tiptonville on the left descending bank of the Mississippi River (river mile 900) in the vicinity of Cates Landing, Lake County, Tennessee (Plate 1). Initial construction would involve dredging a channel within navigational servitude. The proposed channel would be nine feet in depth (with an additional two feet of over dredging), 9,000 feet in length, and have a bottom width of 130 feet transitioning to 225 feet for a berthing area. In addition, a 300-foot turning basin would be constructed at the terminus. Side slopes of the channel would be 1 vertical to 5 horizontal. Total construction would involve the excavation of 1,020,000 cubic yards of sediment. Dredged material would be placed adjacent to the harbor on 86 acres of land (66 acres riverside and 20 acres landside of the levee; the 20 acres are included in 39 acres required for subsequent periods of construction) (Plate 2). Table 1 provides economic data for the selected plan.

Table 1
Economic Data, Proposed Northwest Tennessee Regional Harbor, Lake County, Tennessee

Estimated Project First Costs:	
Federal	$3,187,500
Non-Federal	$1,477,900
Total	$4,665,430
Average Annual Equiv. Cost:	
Initial Investment	$280,618
Operation & Maintenance	$206,652
Site Development Cost	$870,823
Total Cost	$1,358,093
Annual Benefits	$2,506,950
Excess Benefits	$1,148,857
Benefit-Cost Ratio	1.84

Maintenance dredging has been estimated to be 122,000 cubic yards per year at a cost of $170,800. Dredged material from maintenance operations would be placed in upland areas landward of the Mississippi Mainline Levee. Approximately 125 acres of dredged disposal areas have been identified to contain dredged material from maintenance operations over 20 years.

2.0 Scope of Study

This dredged material management plan is being conducted to demonstrate that there is sufficient dredged material disposal capacity to accommodate for 20 years of maintenance dredging.

3.0 Authorization and Development History

The Northwest Tennessee Regional Harbor study was authorized under Section 107 of the River and Harbor Act of 1960. This Act, as amended, provides authority for the Chief of Engineers to develop and construct small navigation projects that have not been specifically authorized by Congress. The following excerpt from the Section of the amended Act states its background:

"Section 107 of the River and Harbor Act of 1960, as amended, provides authority for the Chief of Engineers to develop and construct small navigation projects that have not already been specifically authorized by Congress. A project is adopted for construction under Section 107 only after detailed investigation clearly demonstrates its engineering feasibility and economic justification. Each project selected must be complete within its own and is limited to a Federal

cost of not more than $4,000,000. This Federal cost limitation includes all project-related costs and specifications, supervision and administration, and construction operation."

4.0 Existing Conditions

The project is located in the vicinity of Cates Landing, at Mississippi River Mile 900, north of Tiptonville, Lake County, Tennessee. The area was historically open for navigation and was the site of an articulated concrete mat casting facility. Due to natural conditions of the river and navigational features, an island formed north of Cates Landing called Old Slough Landing. Slab Fill Chute (the area between Cates Landing and Old Slough Landing) has continued to silt in. The casting field was last used in 1983 because of the decline of the revetment program in this area of the river and the chute becoming unsuitable for navigation. An approximate 20,000 linear foot dike was constructed north of Old Slough Landing in the early 1980's to stabilize the navigation channel. Portions of Slab Fill Chute are dry during low water stages. The area is seasonally flooded by the Mississippi River when the New Madrid river gauge reaches 20.0 feet.

Landuse in the maintenance disposal area consists of agricultural fields. Major crops grown in the area include soybeans, cotton, and wheat. There is no commercial or residential development, major utilities, or other improvements in the area. The agricultural areas have been classified as prime and unique farmland by the Natural Resource Conservation Service. There are no wetlands, farmed wetlands, or ecologically significant fish and wildlife habitat within the proposed maintenance disposal areas.

5.0 Future Conditions

Future conditions consist of construction of the harbor, construction of the port facility, industrial development, and maintenance dredging operations.

Initial Harbor Construction

Proposed harbor construction would consist of dredging a channel within navigational servitude. The proposed channel would be nine feet in depth (with an additional two feet of over dredging), 9,000 feet in length, and have a bottom width of 130 feet transitioning to 225 feet for a berthing area. In addition, a 300-foot turning basin would be constructed at the terminus. Side slopes of the channel would be 1 vertical to 5 horizontal. Total construction would involve the excavation of 1,020,000 cubic yards of sediment. Dredged material would be placed adjacent to the harbor on 105 acres of land.

Port Facility

The port facility would include a berthing area with mooring cells and dolphins, port bulkhead constructed of interlocking steel pilings, 15-inch reinforced 975 square feet concrete slab with an embedded railroad; 100-ton mobile crane with winch system; administration building; parking area; and a 100,000 square feet lay-down gravel storage yard. The port facility would be

constructed above the Mississippi River 100-year floodplain to allow the harbor to be usable during high water.

Industrial Area

There are approximately 500 acres of farmland located south of Cates Landing that would be utilized for industrial development. Industrial development would include the modification of roads, construction of a railroad spur, and the construction/modification of utilities.

Improvements to State Route 22 would be required to service the industrial area. Improvements would begin on an existing county road located approximately one mile north of Tiptonville on State Route 78. Improvements would include modifications to the weight carrying capacity of the road. The route will follow the existing county road for a distance of approximately ½ mile until the intersection with State Route 22. The route would continue north on existing State Route 22. Minor improvements would be required.

A proposed rail spur totaling 4.5 miles would be constructed to connect the existing Tenn-Ken short line to the industrial site. In addition, two turnouts would be constructed at the main line intersection. Construction would include laying 28,000 linear feet of track, constructing four grade railroad crossings with signage, constructing four turnouts, and constructing five minor drainage structures. Approximately 834 cubic yards of fill would be required. Approximately 32 acres (70-foot right of way, 20,000 linear feet) of farmland would be required for rights-of-way.

Maintenance Dredging Operations

Maintenance dredging quantities have been estimated at 122,000 cubic yards of material per year. Dredged material would be placed landside of the levee in confined areas. Approximately 125 acres of dredged disposal areas have been identified to contain dredged material from maintenance operations over 20 years.

6.0 Problems and Opportunities

The Tennessee Department of Environment and Conservation would not grant state water quality certification for any proposal that implemented placing dredged material into the Mississippi River. Therefore, all construction alternatives and maintenance areas had to place dredged material on land adjacent to the harbor. No beneficial uses of the dredged material have been identified.

7.0 Alternative Plans

The feasibility study addresses six alternatives for placement of dredged material from initial harbor construction and maintenance dredging for a period of 20 years. The alternatives are as follows:

Mississippi River Disposal

Dredged material would be disposed in the Mississippi River. Mississippi River disposal would reduce project costs because there would be no associated real estate cost. The dredged material would be carried downstream until it settles out naturally. Comments were raised during the scoping process concerning potential impacts to water quality, potential for contaminated sediments, potential aquatic habitat impacts, and expected impacts to endangered and threatened species. The State of Tennessee (TDEC) indicated that they could not issue water quality certification for projects that employ open water disposal of dredged material. Therefore, Mississippi River disposal was not recommended.

Placement in Dike Field

Dredged material would be placed behind the Island No. 9 dike field located north of the project area on the Mississippi River. Placement behind the dike field would reduce project costs because there would be no associated real estate cost. The spoil pile would be contained behind the dike field with minimal loss to flow. This area was estimated to be able to contain approximately 1,400,000 cu/yd of material. TDEC raised concerns over the level of containment the dike field would offer during high water and the potential impacts to aquatic resources that occur in the area. Therefore, placement behind the dike field was not recommended.

Placement on Old Slough Landing

Vegetation would be cleared from the western and central portions of Old Slough Landing in two areas. A retaining dike would be placed around the fill to contain it. Approximately 124 acres would be cleared that could contain approximately 5,367,000 cu/yd of dredged material. The placement of dredged material on Old Slough Landing would lower project cost because there would be no associated real estate cost (area is within navigational servitude) and the length of the dredge pipe (dredge costs rise as length of dredge pipe increases). However, the 124 acres of land required for disposal were classified as wetlands. Due to the environmental impacts and the associated mitigation costs, placement of dredged material on Old Slough Landing was not recommended.

Placement Riverside of Levee (Batture Land)

Three potential areas totaling 125 acres were located in the batture land that could be used for disposal areas. A retention levee would be constructed to prevent the material from washing into the river. Construction costs would rise because of the associated real estate costs, length of dredge pipe, retention levee, and dewatering structure. These areas could contain approximately 1,506,000 cu/yd of dredged material. Water would return to the Mississippi River via a drop pipe. Land use is mostly agricultural fields with small tracts of farmed wetlands and forested wetlands. Batture land disposal was considered viable and was incorporated into the project.

Placement Landside of Levee

Three areas totaling 315 acres were located in an area behind (landward side) the levee that could be used for disposal. Spoil would be placed approximately seven feet high in each area. Construction costs would rise because of the associated real estate costs, length of dredge pipe, retention levee, and dewatering structure. Approximately 3,467,000 cu/yd of material could be contained in this area. Agricultural fields predominates the land use in the area. Placement landside of the levee was determined to have the highest construction costs of the disposal alternatives investigated but had minimal environmental impacts. Placement of dredged material landside of the levee was considered viable and was incorporated into the project.

8.0 Evaluation of Alternative Plans

Placement of dredged material within the batture land and landside of the levee would be utilized during initial construction. The TDEC would not issue water quality certification for all of the other proposals. The batture area site would be completely filled during initial construction. Therefore, placement of dredged material landside of the levee during maintenance operations was the only remaining viable option. All future dredging would place material into this area.

9.0 Trade-Off Analysis

Trade-off analysis is not applicable because placement of dredged material landside of the levee was the only viable option for maintenance operations. Table 2 displays a set of factors considered in determining the most viable alternative for the project Dredge Material Disposal Plan. While a number of resource use factors were considered these alternative plans were considered in the light of the likelihood of the Tennessee Department of Environment and Conservation (TDEC) not granting state water quality certification. This consideration proved to be a pivotal issue, due to the fact that TDEC refused water quality certification to only one of the alternative considered. Among the factors considered were: resource use i.e., land use, required structure construction and material required to provide adequate containment of dredge material. Other factors considered were environmental impacts and containment capacity of each alternative. However, the over-arching concern was Tennessee Department of Environment and Conservation reaction to each of the proposed alternatives

TABLE 2
Decision Matrix DMDP

Alternatives	Acres Cleared	Real Estate Cost	Comparative Impact on Project Cost	Containment Cubic Yards	Environmental Concerns	Endangered Species Impact	Aquatic Habitat Impact	TDEC Grant Water Quality Certification	Mitigation Cost
Mississippi River Disposal	0	0	**lowest**	0	++++	++++	++++	deny	0
Placement in Dike Field	0	0	+	1,400,000	+++	+++	+++	deny	0
Placement on Old Slough Landing	124	+++	+++	5,367,000	++	++	++	deny	++
Placement Riverside of Levee (Batture Land)	125	++	++	1,506,000	+	+	+	deny	+
Placement Landside of Levee	**315**	++++	**highest**	**3,467,000**	0	0	0	**grant**	0

Alternatives	Acres Cleared	Real Estate Cost	De-watering Structure	Dredge Pipe Length	Potential Contaminated Sediment	Wet Land Impact	Borrow Material Required	Beneficial Use Dredge Material	High Water Impact
Mississippi River Disposal	0	0	no		+++	0	0	0	0
Placement in Dike Field	0	0	no		+++	0	0	0	+++
Placement on Old Slough Landing	124	+++	no	increase	0	++	0	0	0
Placement Riverside of Levee (Batture Land)	125	++	yes	increase	0	+	0	0	0
Placement Landside of Levee	**315**	++++	yes	increase	0	0	+++	0	0

10.0 Selection of Final Plan

TDEC stated that they would not issue 401-water quality certification to any method that employs disposal into the Mississippi River including dike fields. Therefore, Mississippi River disposal and dike field disposal were not selected. Placement on Old Slough Landing would impact wetlands. Therefore compensatory mitigation would be required. Batture land disposal areas would be completely utilized during initial harbor construction. No remaining areas would be available in the vicinity of the harbor. Placement of dredged material landside of the levee is the only remaining viable alternative. Therefore, it has been identified as the base plan.

11.0 Description of Selected Management Plan

Disposal of maintenance-dredged material would take place landside of the Mississippi River Mainline Levee. Approximately 122,000 cubic yards of material would be dredged annually from the harbor. Disposal areas would consist of containment dikes and a drainage structure to allow water to return to the Mississippi River. Disposal areas would be constructed in five-year increments. Each five-year containment area would be approximately 39 acres in size. Containment dikes would be constructed seven feet high, have a crown width of 20 feet, and have side slopes of 1V:3.5H. Borrow material for construction would be obtained on-site within the containment area.

12.0 NEPA Documentation

An environmental assessment (EA) was conducted to determine the impacts of the proposed project including maintenance dredging. NEPA documentation included a 404(b)(1) Evaluation, biological assessment, U.S. Fish and Wildlife Coordination Act Report, HTRW investigations, and other applicable information. The TDEC issued state water quality certification on 16 July 2004 (Attachment 1). State water quality certification would have to be updated every fiver years. A Finding of No Significant Impact (FONSI) was signed on 13 August 2004. The FONSI is included as Attachment 2.

13.0 Coordination

Coordination was maintained throughout the feasibility study with government agencies, elected officials, Indian tribes, non-governmental organizations, businesses, and the general public. Pursuant to NEPA, the draft EA underwent a 30-day comment period. Letters of support of the project were received from 10 elected officials, six state government agencies, 31 private businesses, 11 non-governmental organizations, and 64 private citizens. Concerns were expressed from the U.S. Fish and Wildlife Service, the Environmental Protection Agency, and the National Resource Conservation Service. All issues have been resolved.

14.0 Recommendation

Maintenance dredging of the proposed Northwest Tennessee Regional Harbor is warranted on the basis of expected usage and indicators of economic productivity, sufficient disposal capacity for 20 years, and compliance with environmental laws and regulations. Therefore, no additional study is necessary beyond this plan. State water quality certification would have to be coordinated every five years.

20 JAN 05

Date

Charles O. Smithers III
Colonel, Corps of Engineers
District Engineer