

March 22, 2004 **Site Development Costs and Features**  
 For Cost/Benefit Analysis Alternate #5 – 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. Two new transitional radius' 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.

	<u>Phase I</u>	<u>Phase II</u>	<u>Phase I &amp; II</u>	
• 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
<b>Total Road Improvements</b>	<u>\$869,000</u>	<u>\$680,000</u>	<u>\$1,549,000</u>	
<b>x 1.20 =</b>	<u><u>\$1,050,000</u></u>	<u><u>\$825,000</u></u>	<u><u>\$1,875,000</u></u>	

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**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. 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	\$2,800,000	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	
<b>Total Road Improvements</b>	<u>\$4,215,692</u> x 1.20 = \$5,060,000	

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**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 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
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<b>Total Water/ Wastewater Improvements</b>	<b>\$16,250 x 1.20 = \$20,000</b>	

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	\$38,750	2,583 LF of power line extension @ \$15.00/LF.
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<b>Total Power Improvements</b>	<b>\$38,750 x 1.20 = \$50,000</b>	
<b>Total Utilities and Wastewater</b>	<b>\$55,000 x 1.20 = \$70,000</b>	

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**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:

<u>NO.</u>	<u>ITEM</u>	<u>AMOUNT</u>	<u>UNIT</u>	<u>COST</u>	<u>TOTAL</u>
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	<u>102,000</u>
				<b>TOTAL</b>	<b>\$4,773,334</b>

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

**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**