EI-2824

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Scott Hassett, Secretary

101 S. Webster St.
Box 7921
Madison, Wisconsin 53707-7921
Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711

January 17, 2007

Mr. Troy Brady
Surface Transportation Board
Section of Environmental Analysis
1925 K Street, N.W. Suite 500
Washington, D.C. 20423

RE: STB Docket Number AB-303 (Sub-No. 28X) Wisconsin Central LTD. --- Abandonment Exemption-- In Ashland County, WI- Participation in Section 106 Process

Dear Mr. Brady:

Thank you for your letter to our agency of December 14, 2006, requesting that we inform you if we would like to participate in the Section 106 process as a consulting party for this proceeding. The primary purpose of this letter is to inform you that our agency does want to participate in this process as a consulting party under 36 CFR 800.3(f)(3).

We concur in your assessment that historic properties may be affected by the abandonment of the Ashland Ore Dock and wish to participate in the assessment of potential adverse effects and resolution of those effects.

We have conferred with a number of other agencies of the State of Wisconsin, including the Board of Commissioners of Public Lands, the Wisconsin Department of Administration, the Wisconsin State Historical Society, and the Wisconsin Department of Transportation. These agencies are also interested in the resolution of these issues. We will continue to work cooperatively with those agencies, the City of Ashland, the Canadian National Railroad and your offices in discussing the issues relating to the abandonment of the Ashland Ore Dock and the associated rail facilities.

The State of Wisconsin has funded an engineering study of the Ashland Ore Dock structure to assess its present condition and the costs of several potential alternatives ranging from complete removal to restoration. This report outlined a number of "Potential Safety Concerns" relative to the condition of the existing structure. Canadian National has taken steps to address some of these concerns, but the overall condition of the structure warrants a timely review to assure the protection of the public and the resources surrounding this structure.

We provide for your information copies of the reports developed by Westbrook Associated Engineers relating to the structural condition and their estimated costs associated with this structure. This information will need to be considered in working to resolve the issues relating to this historic structure.

We look forward to working with you and other participants to identify and work toward resolution of the issues under Section 106 of the National Historic Preservation Act.

We are providing a copy of this letter to the persons on the service list in this docket. We are not providing a copy of the engineer's reports to those parties.

Please contact Duane Lahti at 715-395-6911 or John Hagman of my staff at 608-266-2130 if you have questions concerning these issues.

Sincerely,

Scott Hassett
Secretary

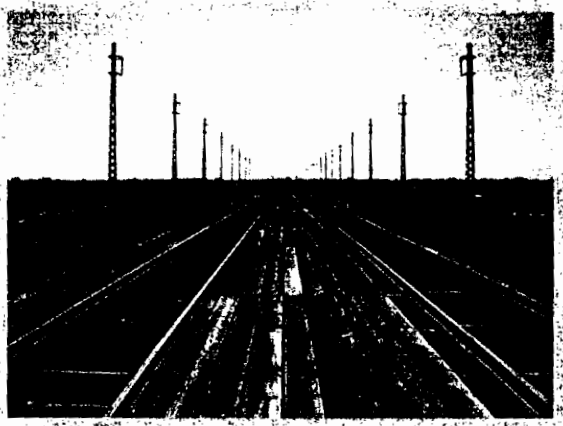
Enclosure

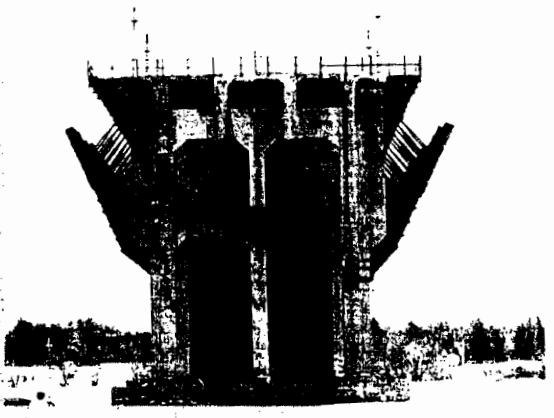
cc: Mary Schlaefer-AD/5
Congressman David Obey
Senator Robert Jauch
Representative Gary Sherman
John Gozdzialski-NOR
Duane Lahti-NOR
John Hagman-LF/6
Thomas German-BCPL
Michael Cain-LS/5
Tom Dosch-DOJ
Robert Hunter-DOJ
Sherman Banker-State Historical Society
Kate Angel-WI DOA

ASHLAND

SOO LINE ORE DOCK

COST ESTIMATE REPORT





WESTBROOK
Associated Engineers, Inc.

November 2006

ASHLAND SOO LINE ORE DOCK
REMOVAL, SAFETY ENHANCEMENT, AND ANNUAL MAINTENANCE
COST ESTIMATE REPORT

Division of State Facilities Project No. 06A2T

November 2006

FOR
THE CITY OF ASHLAND, WISCONSIN

Jeffrey J. Koch, P.E. *Date*

By

Westbrook Associated Engineers, Inc.
619 E. Hoxie Street
P.O. Box 429
Spring Green, WI 53588
(608) 588-7866

The State of Wisconsin
Department of Administration
Division of State Facilities
State of Wisconsin Administration Building – 7th Floor
101 E. Wilson Street – P.O. Box 7866
Madison, WI 53707

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The complete or partial removal of the ore dock is a major demolition project estimated to take approximately 3 years to accomplish. Many factors were considered when developing the cost estimates. The number of available working days in a year and the complexity of the removal process are the key factors in the overall cost of the project.

Westbrook based their removal cost estimates on an explosive demolition approach. There are numerous methods of demolition but we chose explosive demolition as the most viable approach. The overall cost to completely remove the ore dock to the lakebed is estimated at $35.5 million. This estimate assumes there is no salvage value in any of the removed materials.

The cost for the partial removal of the ore dock down to the concrete base consisting of the mattress / fender system is estimated at $26.4 million. Again this estimate assumes there is no salvage value in any of the removed materials.

If the ore dock were to remain in place there are a number of safety concerns that will need to be addressed. These concerns include concrete surface repair, removal of the steel handrails, walkways, and stairs, securing the steel ore chutes, removing the loose timbers, and removing lead based paint and repainting. Westbrook estimated the value of this work, depending on the extent of the concrete surface repair to be approximately $14.3 million.

Addressing the immediate safety concerns will be an ongoing process that would involve annual maintenance. It is estimated that $50,000 should be budgeted each year to provide maintenance to the ore dock. Tasks covered under this estimated maintenance budget include annual inspections, debris/vegetation removal, grading 1916 section floor, and spot concrete surface repair.

INTRODUCTION

Westbrook Associated Engineers, Inc. under contract with the Division of State Facilities has previously performed an underwater substructure condition assessment and an above water structural condition assessment of the Ashland Soo Line Ore Dock and approach timber trestle bridge. The results of these inspections have been reported and will now be used to assist in the development of a series of cost estimates. The purpose of this report is to provide four cost estimates as follows:

1. Complete removal of the ore dock to the lakebed (see Figure 2).
2. Partial removal of the ore dock to the concrete base (see Figure 3).
3. Stabilization or removal of potential safety concerns.
4. An annual maintenance budget.

Figure 1

Ashland Soo Line Ore Dock in its current condition.

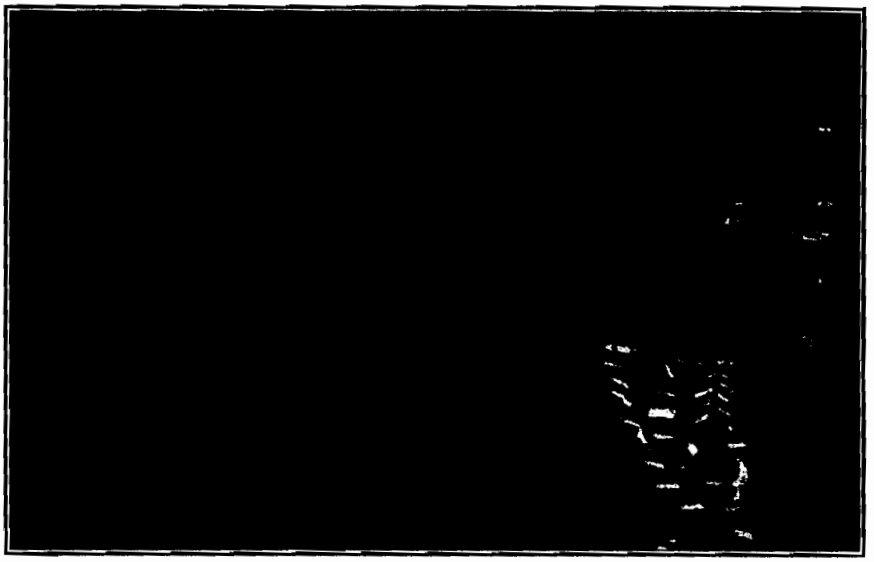


Figure 2

This picture represents the end result after complete removal of the Ashland Soo Line Ore Dock to include the approach timber trestle bridge.

Figure 3

This picture represents what the Ashland Soo Line Ore Dock would look like after partial removal. This concept leaves the bottom concrete base consisting of the mattress/fender system intact. The approach timber trestle bridge would also be removed.

APPROACH / ASSUMPTIONS

There are numerous approaches and methods that could be investigated for removal of the ore dock. Westbrook considered explosive demolition to be the best choice for and have thus based our estimate for the removals on this approach. Explosive demolition is the best choice because it is the quickest, most cost effective method of breaking up the concrete into manageable pieces.

In order to develop an estimate for either the complete or partial removal of the ore dock, assumptions needed to be made on the material handling and disposal methods. The first method of disposal assumed that all the demolition materials would be hauled off site and disposed. The cost for the trucking and disposal fees assumes all materials will be disposed within a two hour round trip of the ore dock site.

Both the complete and partial removal scenarios did not consider the salvage value for any of the removed material into either cost estimate. Both estimates assume that all material removed from the site shall be disposed of without a credit for the salvaged material. The spreadsheets that were developed for the purposes of determining removal costs can be easily manipulated if one wishes to see the impacts of assuming salvage material credits.

To validate the assumption that the existing timber piles offer little to no salvage value, our firm discussed this issue with representatives from Timeless Timber in Ashland, WI. According to Timeless Timber, standing timber piles are not considered a valuable commodity as compared to other salvaged old growth timbers such as those recovered from the bottom of the Great Lakes. The reasoning for this is the fact that the majority of the trees that were cut for timber piles are full of pine resin and sap. This was verified when the timber piles were cored during the underwater inspection phase of this contract. The cores extracted from the piles had a strong odor of pine to them indicating that they are full of sap. Timeless Timber indicated that sap rich timbers require considerably more effort in the drying of piles, which significantly limits their value. The only market for the piles in their opinion would be as traditional construction grade lumber, which hardly makes the effort of salvaging them economically worthwhile.

Cranes on floatation barges will accomplish the majority of the work required to remove the ore dock. We estimate there are approximately six to seven months of time each year the equipment can be on the lake prior to freeze-up and winter shutdown. This translates to approximately 140 working days each year. Based on this assumption, the complete removal of the ore dock will take three construction seasons.

COMPLETE REMOVAL

Westbrook's estimate for complete removal is based on using explosive demolition as the main method of demolishing the ore dock. The approach will be to rig one section, approximately five bents or 60 feet, of the ore dock at a time with explosives, blast it, remove the debris, and start the process over again. Before the explosive demolition can begin, all accessory hardware, timbers, and anything other than the concrete itself will be completely removed from that section.

The major equipment necessary for removal of the ore dock is two-100 Ton cranes, four-150 Ton cranes, twelve barges, two tugboats, loader, air compressors, generators, and various trucks to include dumps and lowboys. See Appendix D for other equipment and their monthly unit cost. A crew of 12 will be used at all times during the removal process and at times will be as high as 30 persons.

The first step necessary in the removal of the ore dock will be to mobilize to the site and setup fall protection devices for the crew to safely maneuver about the top of the ore dock during the removal of the ancillary equipment and accessories. The mobilization and setup of the safety system will take a crew of 12, two weeks to accomplish. After the fall protection and equipment is in place the crew will begin to remove the transition section T1-T4 at the shoreline. This will be the first section of the ore dock removed. The concrete rubble material from this section will be used to build ramps for trucks and loaders to access barges on each side of the ore dock, as well as clear out a sizable staging area.

The transition section will be explosively demolished by drilling the columns and other key structural components, and then packing them with explosives. The blast will cause the transition sections to fall to the ground and break up upon impact with the ground. The necessary material will be dumped at the shoreline to build access ramps to the barges. The remaining steel and concrete rubble will be trucked off site.

The next step will be to set up two cranes on separate barges on opposite sides of the ore dock. The process of removing the ancillary material will begin at the northernmost end of the ore dock. The plan to remove the steel chutes will be to lift them from the ore dock with the cranes as they are freed from their supports. This is a very tedious process and is estimated to take four hours to remove a single steel chute. Two cranes will be working simultaneously on the east and west sides of the ore dock. All machinery and scrap steel to include the light towers will be removed the same time the steel chutes are removed. The timber decking will be palletized and removed from the ore dock with the cranes. All material will be placed on barges. A 150 Ton crane will be able to pick up to a 100' radius from the crane center. The cranes will need to be repositioned twelve additional times in order to reach all of the steel chutes and machinery on their respective side of the ore dock above the lake.

Each setup of the crane and barge on any side of the ore dock will involve picking approximately 12 steel chutes, 12 motors, 3 each 4' x 4.5' x 10' pallets of timber planking, 600' of track rail, 3 steel light posts, 33 tons of steel floor beams (picked 1 ton at a time), and approximately 200 feet of steel rail and stairs. Therefore, although each crane can pick two steel chutes a day, it is

estimated it will take 15 working days at each crane setup location to remove all the material from the ore dock. The overall process of removing all the ancillary items (steel chutes, timbers, light towers, stairs, etc.) from the ore dock is estimated to take 200 working days for each crane. With the winter shutdown this process will take one year and 3 months to complete.

After the northernmost two hundred feet of the ore dock has had all of the steel and timbers removed, the explosive demolition will commence. The first area to be demolished will be the northernmost transition section T5. This entire section will be drilled, packed with explosives, covered with heavy rubber tire mats to control the debris, and then exploded. The explosion will be an engineered-controlled demolition, which will allow the columns and the decking to fall vertically down on to the bottom concrete mattress of the ore dock.

All of the concrete columns, concrete ore bins, and concrete deck material will be dropped onto the bottom concrete mattress or base of the ore dock. The demolition will be performed this way in order to prevent the least amount of material as possible from falling to the lakebed or being wedged between the timber piles. The 1925 section of the ore dock has the open diamonds and therefore we anticipate this open area being covered with a substantial timber/steel mattress to prevent the concrete rubble from entering the lake.

A third crane will then be mobilized in to start concrete debris removal. It will be equipped with a clam bucket (see Figure 4). Work crews armed with oxy-acetylene torches will also be required to cut reinforcing steel that may connect broken sections of concrete. All of the concrete rubble will be loaded onto a barge. When the barge is fully loaded it will be brought to the shore where it will be unloaded with a front-end wheel loader and the material will be placed in quad axle dump trucks and hauled off site. After the transition section has been demolished and the debris is in the process of being removed, the preparation of the next section to be explosively demolished will begin. It is anticipated five bents will be demolished during each engineered explosive demolition shot.

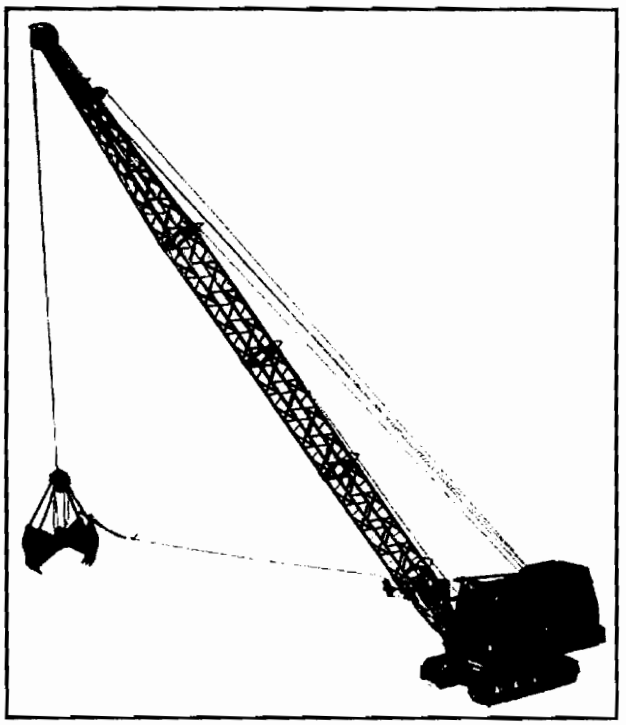


Figure 4

Crawler crane with clam bucket.

The process of drilling, rigging, blasting, and debris removal for each of the engineered blasts will be approximately eight working days. There are 150 concrete bents and five transition sections. All together there will be 32 detonated explosions for the demolition of the concrete bents and transition sections. The first shot was for the transition sections on the shoreline at the beginning of the project. The blast order will then be T5, followed by 30 blasts for the remaining 150 concrete bents. This process is estimated to take 250 working days.

After the first 100' of the ore dock has been cleared, an additional crew will mobilize in to the northernmost section and begin the process of removing the concrete base and underlying timber pile foundation.

The concrete base or mattress/fender will be removed by a combination of explosive demolition and concrete processors. Processors are hydraulic hammers attached to hydraulic crawler-type excavators. Additional excavator attachments such as concrete crushers and grapples will also be incorporated to facilitate the removal (see Figures 5A, B, C and 6). The theory of the explosive demolition is to break up the outer concrete fender into manageable sections but not allow these sections to disengage and fall into the lake. This could be accomplished by drilling midway into the outer concrete fender approximately every 10' around the perimeter. This

would then be charged with explosives and detonated to produce concrete sections that can be managed for removal. These concrete fender sections would then be loaded onto barges with excavators or by a crane clam bucket. The remaining concrete would then be broke with the processors and removed onto the barges in the same manner.

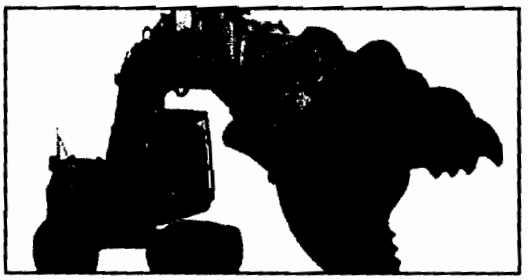


Figure 5A

Figure 5B

Figure 5C

These pictures show the various excavator attachments that can be used for demolition of the concrete mattress / fender system. Figure 5A shows a concrete crusher; Figure 5B is of a grapple which can grab and lift concrete rubble, and Figure 5C shows a hydraulic hammer used to rubblize the concrete.

Figure 6

This picture shows a concrete grapple in action demolishing a bridge.

As the timber piles become exposed, effort will be made to vibrate the piles out of the lakebed. This will be accomplished by fabricating a hydraulic puller attachment for the crane. If this does not deliver the efficiency the contractor desires, then divers armed with hydraulic chainsaws would be employed to saw the piles off at the mud line. All timber piles will be loaded onto barges and disposed of at an off site dumping facility.

The 1916 section timber piles are enclosed in a sand backfilled timber crib. The interior overburden material will be removed thru the use of wheeled front-end loaders and dump trucks. This will expose the underlying concrete fender substructure for removal. The clam bucket and/or the excavators will remove the exterior portion of the timber crib wall. Timber piles will then need to be removed thru the use of a hydraulic vibratory attachment suspended from the crane. Divers will be of little use as the sand backfill extends to the lakebed. It is estimated there is as much as 45,000 CY of backfill material within the timber crib section to be excavated. All of this material will be loaded out via clam bucket and crane and disposed of off site.

After all timber piles are removed, final clean-up operations will commence. This will involve clamming the entire ore dock footprint to remove any concrete rubble from the lakebed. Divers will be used to verify that the lakebed is free of any large concrete pieces or other debris from the ore dock demolition.

Simultaneous to the removals of the ore dock will be the removal of the timber trestle approach. The timber approach will be knocked to the ground with the excavators. The steel and timbers will be loaded and disposed of off site.

The complete removal of the ore dock to the lakebed to include the approach timber trestle bridge is estimated at $35,458,193. This estimate was prepared assuming the demolition would commence in the spring of 2008 and be completed in the fall of 2010.

PARTIAL REMOVAL

The partial removal cost estimate of the Ashland Soo Line Ore Dock will cover removal of the ore dock to the concrete base (see Figure 3). The intent of the partial removal of the ore dock is to remove all the structural components above water excluding the concrete base and underlying timber pile substructure. It also includes removal of the approach timber trestle bridge and the concrete transition sections T1 – T4.

The methods invoked for the partial removal demolition of the ore dock are quite different from the removal methods incorporated during the complete removal process. During the partial removal demolition, the contractor will need to modify their demolition approach in order to prevent damage to the underlying concrete mattress / fender system. For this reason, the partial removal method chosen will be by mechanical demolition. No explosive demolition will take place during this process as the risk of damage to the components that are to remain is too high.

The transition section on the shoreline will be the first section removed under this scenario as it was under the complete removal option. However, in this case the transition section will be removed by mechanical methods. Mechanical methods of demolition involve using concrete processors as discussed in the complete removal sequence and shown in Figures 5A, 5B, and 5C. In addition to the processors, wire saws and wrecking balls could be used. In either event the idea is to control the demolition of the ore dock to prevent damage to the underlying concrete base.

The process for removal of the ancillary equipment from the ore dock will be the same in the partial removal option as it was in the complete removal option. All of this material will be removed by use of cranes along the sides of the ore dock.

After the ancillary equipment is removed from a section and the cranes have made their first move to their next location, the removal of the superstructure will commence. This will be accomplished by the use of concrete processors attached to large excavators on barges. This process will allow the contractor to control the amount and size of material that falls from the ore dock onto the lower concrete mattress. We anticipate the lower concrete mattress will be covered with timber planks, rubber tire mattresses or a sand blanket to prevent damage to the base as concrete rubble strikes it.

All concrete material processed from the ore dock superstructure will be loaded onto barges. This process will be slower than explosive demolition due to the caution taken in performing the work. The overall progress in the explosive demolition process was approximately 8 lineal feet of the ore dock removed per day. We estimate the processors overall progress will be approximately 6 lineal feet removed per day. This translates into approximately 325 working days for the project to be completed.

The partial removal of the ore dock to the concrete base to include the approach timber trestle bridge is estimated at $26,365,508. This estimate was prepared assuming the demolition would commence in the spring of 2008 and be completed in the fall of 2010.

SAFETY ENHANCEMENTS COST ESTIMATE

The immediate safety concerns addressed in the structural condition assessment report included the following: numerous locations where concrete was delaminated and in jeopardy of falling; failed sections of steel safety/access railing; deteriorated steel stair stringers and timber plank tread boards; loose timber deck planks; severely deteriorated steel ore chute and their associated connections and the potential for lead based paint on all steel components. The cost estimate that follows will correct these deficiencies such that the ore dock could once again be made accessible in a limited capacity.

1. Concrete Encapsulation

In order to understand the magnitude of the of the concrete area in need of rehabilitation, an in-depth inspection of each concrete bent would need to be undertaken to locate and mark all areas of delamination. The contractor would then need to employ lift equipment and a crew that will hammer all loose and delaminated concrete down to a sound concrete surface. The contractor would then blast the exposed reinforcing steel with steel grit to remove surface corrosion. Depending on the size of the void created during the removal of the delaminated concrete or the lack of structurally sound reinforcing steel, the contractor may be required to add supplementary reinforcing steel. The purpose of this new supplementary reinforcing steel is to hold the surface repair material in place. A method of encapsulating the exposed reinforcing steel and concrete would then be chosen. There are numerous products on the market for these types of repairs. A concrete shotcrete method (see Figure 7) was incorporated in our estimate for encapsulating the surface repair areas as it was deemed the most efficient and cost effective approach.

Shotcrete is a term used for sprayed concrete. Shotcrete is mortar or concrete conveyed through a hose and pneumatically projected at high velocity onto a surface. Shotcrete undergoes placement and compaction at the same time due to the force with which it is projected from the nozzle. It can be impacted onto any type or shape of surface, including vertical or overhead areas

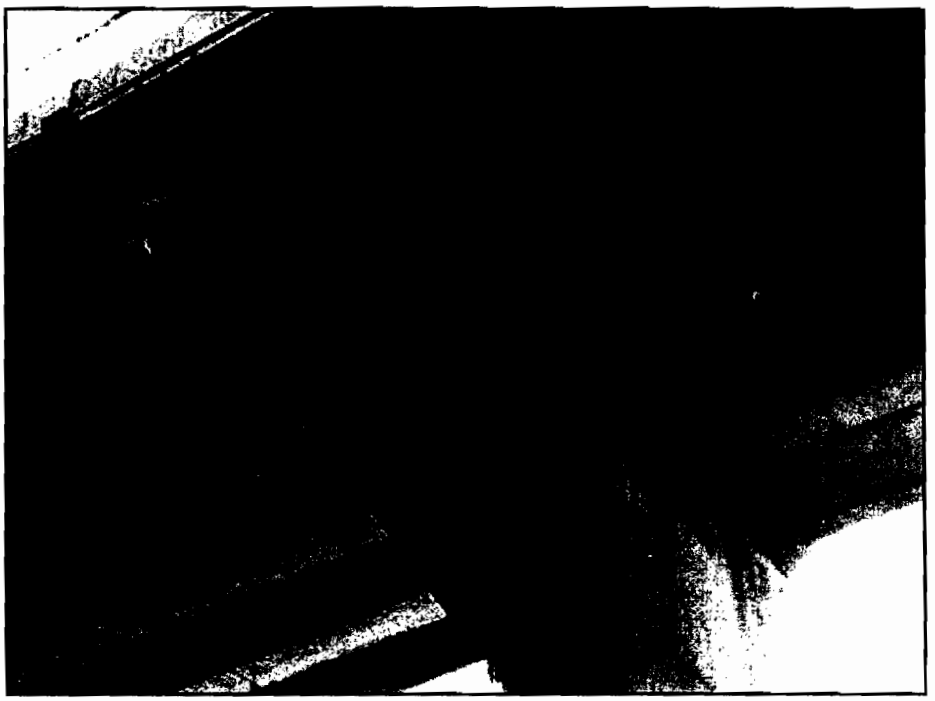


Figure 7

This picture shows an example of concrete surface repair to a structure using shotcrete to encapsulate the repaired area.

One very important point to mention is that surface repair to encapsulate the "bad" concrete is not necessarily a complete fix or the ultimate solution. For example, if the reason the existing concrete was spalling off was due to moisture penetrating the structure from above and causing the reinforcing steel to corrode; then encapsulating the affected area on the underside wouldn't really address the root cause of the deficiency. Before an exact solution to the problem could be found, an in-depth analysis would be required to fully understand the breadth of the deficiency and the root cause that had led to the deficiency. A long-term solution will ultimately involve an in-depth engineering study, a corrosion protection system, concrete surface repair and reinforcement preparation, and finally a waterproof sealer on the upper side of the dock and ore bins.

Corrosion of reinforcing steel in concrete is commonly caused by chloride contamination or carbonation. As the reinforcing steel corrodes, the corrosion by-products create stresses within the concrete causing cracking, delamination and spalling. If the on-going corrosion activity is not addressed, concrete damage will continue, section loss of the reinforcing will occur and significant structure repair or replacement will be necessary. A corrosion mitigation plan will be required if the newly placed concrete surface repairs are to be long lasting and effective.

One type of corrosion protection is to implement a cathodic protection system. There are various degrees of cathodic protection depending on the severity of the deficiency and the planned use of the ore dock. Our estimate assumes the necessary cathodic protection can be accomplished using sacrificial zinc anodes around the perimeter of the surface repair areas (see Figures 8 and 9). The theory behind the sacrificial zinc anodes is the newly placed concrete surface repair increases the potential for corrosion at the perimeter of the newly repaired area. The discrete sacrificial galvanic anodes are placed around the perimeter of the repair and provide a galvanic current to the steel that mitigates the formation of new corrosion sites on the reinforcing in the adjacent un-repaired areas. This is one of the most basic and least expensive methods of cathodic protection. Complete 100% cathodic protection provided by an active system can range in the $35 to $45 per square foot range. This square foot range would be for the entire surface area of the ore dock. If this method was used the cost estimate for this alone could approach $10 million.

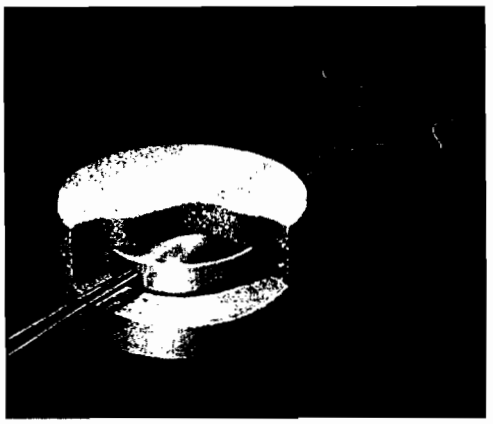


Figure 7

Figure 8

Figure 7 shows a cut away view of a sacrificial galvanic anode. The interior metallic section is the zinc anode. Figure 8 shows the galvanic anodes being installed around the perimeter of a concrete surface repair on a bridge deck.

Our above water structural inspection of the ore dock found numerous indications water was penetrating through the upper surface of the ore dock. The entire surface of the ore dock may need a waterproof membrane in order to prevent the water infiltration from causing more deterioration to the underlying reinforcement and concrete. First all of the vegetation and ore material should be removed from the bins and deck surface. The surface should then be pressure washed. After the surface is clean and prepared, a waterproof membrane could then be applied.

Our estimate for encapsulating the damaged areas is based on approximately 23,000 square feet of surface repair and assumes the entire top surface requires a waterproof membrane. These figures require further on-site inspections to fully comprehend the extent and size of the deficiencies. The cost of the surface repair is estimated at approximately $5,558,025.

2. Steel Handrail and Stairways

The steel handrails and stairways inspected during the on-site inspections were determined to be beyond repair. All of the steel handrails and stair systems should be removed from the ore dock to prevent the hazard of falling debris.

We anticipate the contractor will use a work platform attached to a crane (see Figure 9) to perform the rail removal. The contractor will torch the rail into manageable size pieces and stack them on the platform. As the platform gets full the crane will lift the platform down to a barge and the steel handrails will be off loaded.

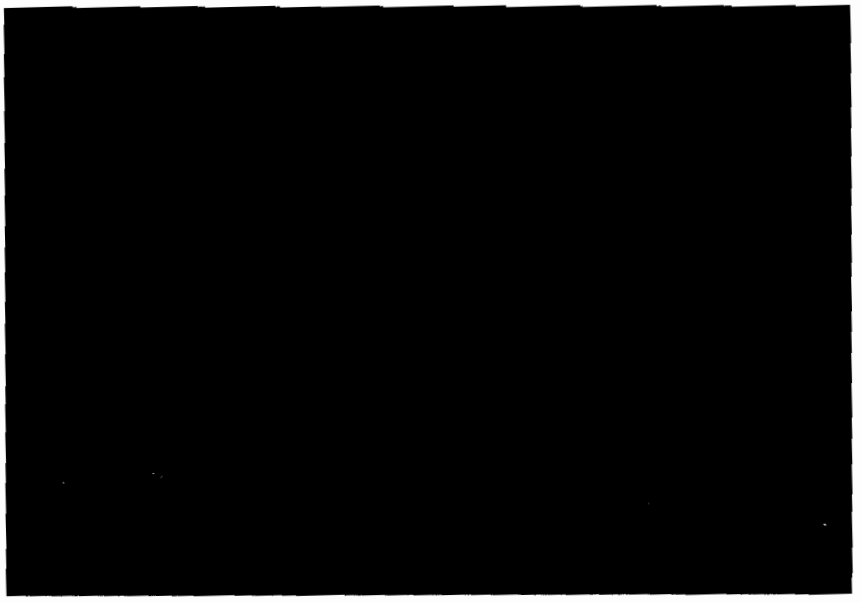


Figure 9

Crane-lifted work platforms can be used to access the steel handrails.

The mid-level catwalks will be accessed by an articulated man lift. The man lift can maneuver down the center of the ore dock by driving on the sand backfilled crib in the 1916 portion. The contractor will have to use portable ramps to bridge the "diamonds" in the 1925 section. The articulated man lift will be able to access between the bents and then maneuver up between the steel ore chutes allowing the contractor to torch the steel connections. The walkways will be attached to a crane before they are torched free. The sections will be placed onto a barge for transport to the shore.

The stairs will also be accessed by the articulated man lift walking down the center of the ore dock at the concrete base elevation. The stairs will be torched free and dropped to the base where they will be picked up and loaded onto a truck.

The estimate for complete removal of approximately 8000 lineal feet of rail and 400 lineal feet of stairs including mobilization is estimated at $546,425.

3. Steel Ore Chutes

Two of the steel ore chutes inspected during the Level II inspection of the concrete bents are in an imminent failure condition. It is our opinion that all steel chutes should be secured to prevent against any localized failures. In addition, further inspection work should be performed to fully understand the magnitude of the corrosion at the lower and upper connection points.

An engineered system for securing the steel ore chutes was not designed as it was beyond the requirements of the contract. Further investigations and analyses would have to be made to fully comprehend the mechanics and necessary retrofits required to secure the ore chutes for long term performance. For estimating purposes, we are assuming that the lower and upper ore chute connection points are structurally unsound and cannot be utilized. This will require that each steel ore chute be removed in its entirety with a crane and placed on a barge for connection retrofitting. During this operation, a crew will be installing the necessary connection components on the vertical concrete face of the ore dock. Once both connections are prepared, the ore chute will be reconnected to the ore dock structure thru the use of a crane and man lifts.

We assume the method of securing the chutes will take approximately 48 man-hours each (6-man crew for an 8-hour day). We have allowed for $500 for materials and fabrication costs for each chute. The entire process is estimated to last for 300 crew working days. We assumed two crews would be working at the same time to complete the retrofit in 150 working days. The cost for securing the steel ore chutes is estimated at $2,662,660.

4. Removing Loose Timbers

There are numerous loose timbers on the deck of the ore dock and top of the approach timber trestle that pose an immediate threat of falling. All of these timbers should be removed. The timbers will be removed after the outside handrails have been removed since the contractor will only be able to safely access the outer edges of the ore dock with the crane lifted work platform.

The removal process will be accomplished by accessing the timbers at the outer edge of the ore dock by using the work platform. The timbers will be removed and stacked on the work platform. As the platform is fully loaded it will be lowered to a barge where the timbers will be off loaded.

There are also deteriorated timbers inside of the row of machinery on the ore dock. These timbers will also be reached by use of the work platform and crane. In this case the work platform will be set on the top of the outer set of train rails. From here the contractor will be able to reach out and remove the loose timbers. This same method will be used on the approach timber trestle bridge.

We estimate there are approximately 190 tons of assorted timber products that need to be removed from the ore dock and approach timber trestle. The process of removing the timbers will take approximately 9 weeks and is estimated to cost $356,565.

5. Lead Paint

The paint system on the steel components of the ore dock is in various levels of failure. The paint has loss its adherence to the steel and is flaking off. These paint flakes are falling to the ground or into the water below. Most paint used during this era was lead based. Although a lead test was not performed on-site, the existing plans indicated its usage throughout the ore dock structure. The entire paint system should be tested to determine its exact make-up.

If the paint system is determined to be lead based, it is our recommendation that the entire paint system be removed and replaced on all ore dock accessories that are to remain in place. Items to be repainted in our estimate include the steel ore chutes and the deck steel support system. It is quite difficult to estimate the cost of this work. There are very few structures of this magnitude with such difficult access issues to relate our estimate to.

The old paint system will have to be 100% contained as it is removed from the structure. This will require the contractor to build a containment system around the work area. For the steel ore chutes they will be cleaned and painted as they are removed during the chute-securing phase. This would provide the safest and easiest method of painting the steel chutes. We have included an additional cost estimate for securing the steel chutes if the chutes were to also be repainted (see *Secure Steel Chutes – Includes Cleaning and Repainting the Chutes* under the cost estimate for the Safety Enhancements in Appendix D). The additional time and effort involved with repainting the steel chutes while they were disengaged for the safety modifications would result in an increase to that phase of nearly $3 million. Since the cost for painting the chutes is included under the cost estimate titled *Secure Steel Chutes – Includes Cleaning and Repainting the Chutes,* the estimate for *Repainting* found in Appendix D only considers the cost for repainting the steel floor beams.

The only way to access 100% of the steel deck supports is to remove all timber decking. The decking will have to be moved to the side as the contractor cleans and then recoats the bare steel. The decking will then be put back in place and connected with new hardware. We anticipate the contractor will work on approximately 50 lineal feet of the ore dock at a time. It will take approximately 40 set-ups to complete the painting.

In creating the estimate for repainting, we assumed a 100% negative pressure containment system would be built around the painted areas. The overall cost for blasting, collecting the waste, cleaning, and repainting the steel deck supports is estimated at $1,529,000.

Summary of Safety Enhancements

All of the previously listed estimates for the safety enhancements have been individually estimated as though they were the only enhancement completed at any one time. Combining the individual safety enhancements could result in slightly less overall cost as the mobilizations could be shared for some of the different tasks and the contractor would be able to utilize the equipment more efficiently. We estimate the net saving for having all the safety enhancements let as one project to be about 1.5%.

If the lead based paint removal was not included in the safety enhancements, the total of the individually let projects is estimated at $9,123,675.

If the removal and subsequent repainting of lead based paint was included in the safety enhancements, the total of the individually let projects is estimated at $13,594,955.

If all of the individual safety enhancements were let as one complete project, the total of the project not including the lead based paint option is estimated at $8,986,820.

If all of the individual safety enhancements were let as one complete project and the lead based paint was addressed, the total of the project is estimated at $13,391,031.

These estimates are for the actual safety enhancements. We have not included in these separate estimates the cost of engineering leading up to the safety enhancement work. We have included a separate line item on the Safety Enhancements spread sheet for Anticipated Engineering Fees. Included in the engineering fees are in-depth inspections of the concrete to locate and compute the exact areas requiring concrete surface repair, testing the concrete and steel reinforcing to determine the necessary cathodic protection method, coordinating with the WisDNR, Corps of Engineers, US Coast Guard, and other agencies, designing retrofits for the steel chutes, developing necessary plan sheets and specifications, and bidding the project. We estimate the total for the engineering fees at $750,000.

If the ore dock was kept in place and the safety enhancements discussed in this report were to be performed the total worse case scenario including the lead based option if all projects were let individually is estimated at $14,344,955.

ANNUAL MAINTENANCE BUDGET COST ESTIMATE

The ore dock will require annual maintenance in order to ensure the public's safety and to prevent accelerated degradation of the ore dock components. $50,000 should be budgeted each year to provide maintenance to the ore dock. Tasks covered under this estimated maintenance budget include annual inspections of the concrete structure and steel ore chutes, debris/vegetation removal, and spot concrete surface repair.

A qualified structural engineer should inspect the ore dock every year. The inspection will be a visual inspection of the entire ore dock to include hammer soundings of a representative sample of the concrete surface. The inspection will take a staff of two engineers approximately three days to accomplish. We estimate the annual inspection to be approximately $11,600.

Annual maintenance also includes removing any vegetation or debris and grading the 1916 section floor. Twice a year a crew of two laborers should access the ore dock and remove any vegetation. This process may also include spraying an herbicide to discourage any additional vegetation from growing. Any fallen debris should be removed from the ore dock during these visits. This estimate also includes grading the sand backfilled floor in the 1916 section. There are existing washouts in the 1916 section. We anticipate it will require annual grading and the addition of backfill material to maintain the integrity of the 1916 section dirt floor. We estimate the annual vegetation and debris removal costs to be approximately $9,180.

It is anticipated the annual inspections will find areas of concrete that are in need of repair. It is nearly impossible to predict the extent of concrete surface areas that will need to be repaired each year. For our annual maintenance budget we assumed 100 SF of the concrete surface will require repair every year. Our cost for the repair assumes the deficient areas will have all bad concrete hammered away, the steel will be blasted clean, and shotcrete will be applied to fill the void. Due to the small quantity we estimate the unit price for the surface repair will be approximately $50 more per square foot than we estimated during the safety enhancement budget. Our estimated price for the surface repair is $170 / SF. The total estimated annual cost for concrete surface repair is approximately $17,000.

There are many unknown situations that may arise from year to year. The areas requiring surface repair may be much larger than anticipated or there could be other deficiencies that need to be addressed. It is nearly impossible to predict every situation. For this reason we have included a line item in our annual maintenance budget for "incidentals / unknowns". The purpose of this item is to build a "rainy day" fund to address any big-ticket item that could pop up in the future. We have set this amount at $11,720 to make the annual maintenance budget an even $50,000 that should be set aside every year for the ore dock.

ACKNOWLEDGEMENTS

Westbrook Associated Engineers, Inc. and the Department of Administration - State Bureau of Architecture and Engineering would like to thank the following individuals and organizations for their contributions to this study.

Ed Monroe, Mayor City of Ashland	.....Original Construction Photos
CN Rail	.....Original and As-Built Plans Right of Entry
City of Ashland	.....Historical Photos and Documents Coordination of Meetings
Stephen Schraufnagel C&S Design & Engineering	.....Original Plans and Specifications

APPENDIX A

LEGEND FOR COST ESTIMATES

Ashland Soo Line Ore Dock
Legend for Cost Estimate Spreadsheets

Legend for Abbreviations

Cubic Yard	**CY**
Each	**EA**
1000 Board Feet	**MBM**
Loads	**LDS**
Lineal Feet	**LF**
Square Feet	**SF**
Ton	**TN**
Day	**DY**
Week	**WK**
Month	**MO**
Lump Sum	**LS**

Explanation of Man Hour Rate - Includes Equipment Usage Costs

Wage	$ 35.00	100%	
Burden	$ 35.00	100%	Payroll taxes, insurance and fringes
Equipment	$ 45.50	130%	
Project Management	$ 14.00	40%	
Overhead & Profit	$ 26.25	75%	
	$ 155.75	**445%**	**Say $160 / MH**

Explanation of Man Hour Rate - Without Equipment

Wage	$ 35.00	100%	
Burden	$ 35.00	100%	Payroll taxes, insurance and fringes
Project Management	$ 14.00	40%	
Overhead & Profit	$ 26.25	75%	
	$ 110.25	**315%**	**Say $115 / MH**

APPENDIX B

COMPLETE REMOVAL DETAILED ESTIMATE

Ashland Soo Line Ore Dock
Complete Removal Cost Estimate

Total cost $ 35,458,193

Item	Qty	Unit	Unit Price	Extension	Notes
Cathedral ceiling & bent removal	**40,779**	**CY**			
Drill & blast	40,779	CY	$ 40.00	$ 1,631,160.00	Subcontractor provided cost to drill and blast
Assist blast	40,779	CY	$ 30.00	$ 1,223,370.00	Handle blasting mats. Place, anchor, remove, etc. Provide access for blasters.
Buy blasting mats	28,800	SF	$ 11.00	$ 316,800.00	Buy enough rubber mats for 6 areas that are 80' tall x 60' wide
Handle & load waste	40,779	CY	$ 120.00	$ 4,893,480.00	Cut rebar, break into chunks as necessary, load onto barge, transport to shore, unload from barge and load onto trucks.
Haul waste	40,779	CY	$ 15.00	$ 611,685.00	Hired trucking to site for processing, 2 hour trip @ $75 per hour for 10 yards=$15/cy
Dump fee	40,779	CY	$ 10.00	$ 407,790.00	Cost for either dumping and covering, or fee for a contractor to process the material to cover his start up, land rental and crushing costs.
Excavate fill below water (1916 crib sections)	**45,000**	**CY**	$ 80.00	$ 3,600,000.00	Fill in the orignal section below water. Includes timbers and ties. 1000' x 20' x 60'
Haul waste	45,000	CY	$ 15.00	$ 675,000.00	Truck to site, 2 hour trip @ $75 per hour for 10 yards
Dump fee for sand & gravel	45,000	CY	$ 5.00	$ 225,000.00	Less cost than concrete and rebar.
End transition removal (T5)	**232**	**CY**			
Drill & blast	232	CY	$ 30.00	$ 6,960.00	
Assist blast	232	CY	$ 40.00	$ 9,280.00	
Handle & load waste	232	CY	$ 120.00	$ 27,840.00	
Haul waste	232	CY	$ 15.00	$ 3,480.00	
Dump fee	232	CY	$ 10.00	$ 2,320.00	
Mattress & fender removal	**14,063**	**CY**			
Break concrete	14,063	CY	$ 300.00	$ 4,218,900.00	Combination of drill / blast and mechanical demolition.
Handle & load waste	14,063	CY	$ 110.00	$ 1,546,930.00	
Haul waste	14,063	CY	$ 15.00	$ 210,945.00	
Dump fee	14,063	CY	$ 10.00	$ 140,630.00	
				$ -	
Transition section (T1-T4) removal	**2,081**	**CY**			
Drill & blast	2,081	CY	$ 30.00	$ 62,430.00	
Assist blast	2,081	CY	$ 40.00	$ 83,240.00	
Handle & load waste	2,081	CY	$ 120.00	$ 249,720.00	
Haul waste	2,081	CY	$ 15.00	$ 31,215.00	
Dump fee	2,081	CY	$ 10.00	$ 20,810.00	
Remove piles	**10,293**	**EA**	$ 800.00	$ 8,234,400.00	About 20' exposed and 20' embedded. Pull and load onto barges. From crane on a barge, 1 hours each @ $800/hour (5 men @ $160/hr). Tug operator and deck hand are carried in mobilization item.
Enter salvage value of piles	7,410	MBM	$ -	$ -	Assume 20' useable (conservative?) with a 2' square end section. 24" x 24" x 20'/12/1000x10,293 ea = 9,881 mbm (1 mbm=1,000 board feet). Assume an additional 25% loss = 7,410 mbm.

Ashland Soo Line Ore Dock
Complete Removal Cost Estimate

Total cost $ 35,458,193

Item	Qty	Unit	Unit Price	Extension	Notes
Fabricate hydraulic puller	4	EA	$ 75,000.00	$ 300,000.00	Build 4 devices for grabbing the piles. Need 4 to keep production moving.
Remove timber on concrete trestle					
Remove ties	492	EA	$ 160.00	$ 78,720.00	
Remove 2x12's	167	MBM	$ 480.00	$ 80,016.00	
Haul & dispose of creosoted timber	22	LDS	$ 1,500.00	$ 33,000.00	Figure 3,750 lb per mbm at 45#/cf. 695,000# total = 18 truckloads. Figure 22 loads as full 40,000# loads will be hard to attain.
				$ -	
Remove steel on concrete trestle				$ -	
Lamp posts	62	EA	$ 320.00	$ 19,840.00	
Handrail	8,000	LF	$ 12.00	$ 96,000.00	
Stairs	400	LF	$ 25.00	$ 10,000.00	
Track rail	16,016	LF	$ 15.00	$ 240,240.00	individual rail footage
Deck framing	857	TN	$ 900.00	$ 771,300.00	6 mh/tn x $150
Ore chutes	300	EA	$ 2,560.00	$ 768,000.00	300 each @ 16 mh ea x $160 (2 per day). Access bin, rig to crane, attach winch to the lower portion of the chute, cut chute loose from permanent connections, winch away from structure until load is carried directly below crane tip, release winch. Lower onto barge and transport to shore for disposal.
Bin gates & attaching hardware	300	EA	$ 1,280.00	$ 384,000.00	8 mh ea x $160
Winches, misc.	300	EA	$ 1,280.00	$ 384,000.00	8 mh ea x $160
Enter salvage value of scrap steel.	3,100	TN	$ -	$ -	
Remove timber approach spans					
Remove timber	212	MBM	$ 480.00	$ 101,952.00	3 mh per mbm
Haul & dispose of creosoted timber	24	LDS	$ 1,500.00	$ 36,000.00	Figure 3,750 lb per mbm at 45#/cf. 795,000# total = 20 truckloads. Figure 24 loads as full loads will be hard to attain.
Track rail	556	LF	$ 15.00	$ 8,340.00	
Cut piling	109	EA	$ 50.00	$ 5,450.00	
Remove and dispose concrete	15	CY	$ 530.00	$ 7,950.00	15 cy of footing concrete
Enter salvage value of scrap steel.	33	TN	$ -	$ -	
				$ -	
Engineering & bidding documents	1	LS	$ 450,000.00	$ 450,000.00	Approximately 1.5% of total cost
Permits	1	LS	$ 50,000.00	$ 50,000.00	Assumption
				$ -	
Mobilization				$ 3,200,000.00	Includes mobilization costs and 4 time spanned support crew members for two years that are not included in the crew costs noted above.

APPENDIX C

PARTIAL REMOVAL COST ESTIMATE

Ashland Soo Line Ore Dock
Partial Removal Cost Estimate

Total cost $ 26,365,508

Item	Qty	Unit	Unit Price	Extension	Notes
Cathedral ceiling & bents	**40,779**	**CY**		$ -	
Mechanical demolition	40,779	CY	$ 320.00	$ 13,049,280.00	Use backhoes, breakers, possible wire sawing, etc. in order to demo the concrete while maintaining the integrity of the mattress and fender. 2 mh/cy production assumed.
Handle & load waste	40,779	CY	$ 120.00	$ 4,893,480.00	Cut rebar, break into chunks as necessary, load onto barge, transport to shore, unload from barge and load onto trucks.
Haul waste	40,779	CY	$ 15.00	$ 611,685.00	Hired trucking to site for processing, 2 hour trip @ $75 per hour for 10 yards=$15/cy
Dump fee	40,779	CY	$ 10.00	$ 407,790.00	Cost for either dumping and covering, or fee for a contractor to process the material to cover his start up, land rental and crushing costs.
End trestle	**232**	**CY**			
Mechanical demolition	232	CY	$ 320.00	$ 74,240.00	
Handle & load waste	232	CY	$ 120.00	$ 27,840.00	
Haul waste	232	CY	$ 15.00	$ 3,480.00	
Dump fee	232	CY	$ 10.00	$ 2,320.00	
Transition section	**2,081**	**CY**			
Mechanical demolition	2,081	CY	$ 320.00	$ 665,920.00	
Handle & load waste	2,081	CY	$ 120.00	$ 249,720.00	
Haul waste	2,081	CY	$ 15.00	$ 31,215.00	
Dump fee	2,081	CY	$ 10.00	$ 20,810.00	
Timber on concrete trestle					
Remove ties	492	EA	$ 160.00	$ 78,720.00	
Remove 2x12's	167	MBM	$ 480.00	$ 80,016.00	
Haul & dispose of creosoted timber	22	LDS	$ 1,500.00	$ 33,000.00	Figure 3,750 lb per mbm at 45#/cf. 695,000# total = 18 truckloads. Figure 22 loads as full 40,000# loads will be hard to attain.
				$ -	
Remove steel on concrete trestle				$ -	
Lamp posts	62	EA	$ 320.00	$ 19,840.00	
Handrail	8,000	LF	$ 12.00	$ 96,000.00	
Stairs	400	LF	$ 25.00	$ 10,000.00	
Track rail	16,016	LF	$ 15.00	$ 240,240.00	individual rail footage
Deck framing	857	TN	$ 960.00	$ 822,720.00	6 mh/tn x $150
Ore chutes	300	EA	$ 2,560.00	$ 768,000.00	300 each @ 16 mh ea x $160 (2 per day). Access bin, rig to crane, attach winch to the lower portion of the chute, cut chute loose from permanent connections, winch away from structure until load is carried directly below crane tip, release winch. Lower onto barge and transport to shore for disposal.
Bin gates & attaching hardware	300	EA	$ 1,280.00	$ 384,000.00	8 mh ea x $160
Winches, misc.	300	EA	$ 1,280.00	$ 384,000.00	8 mh ea x $160
Enter salvage value of scrap steel.	3,100	TN	$ -	$ -	
Remove timber approach spans					
Remove timber	212	MBM	$ 480.00	$ 101,952.00	3 mh per mbm
Haul & dispose of creosoted timber	25	LDS	$ 1,500.00	$ 37,500.00	Figure 3,750 lb per mbm at 45#/cf. 795,000# total = 20 truckloads. Figure 24 loads as full loads will be hard to attain.
Track rail	556	LF	$ 15.00	$ 8,340.00	
Cut piles	109	EA	$ 50.00	$ 5,450.00	
Remove/dispose concrete	15	CY	$ 530.00	$ 7,950.00	15 cy of footing concrete
Enter salvage value of scrap steel.	33	TN	$ -	$ -	
				$ -	
Engineering & bidding documents	1	LS	$ 450,000.00	$ 450,000.00	1.5% of total cost
Permits	1	LS	$ 50,000.00	$ 50,000.00	Assumption
				$ -	
Mobilization	1	LS		$ 2,750,000.00	Includes mobilization costs and 4 time spanned support crew members for two years that are not included in the crew costs noted above.

APPENDIX D

REMOVAL EQUIPMENT LIST

Ashland Soo Line Ore Dock
Anticipated Equipment Costs

(excludes operating expense)

Item	Cost Each per Month
Manlifts 100' size	$ 4,400
3/4 ton pickups	$ 900
150 ton crawler cranes	$ 12,000
100 ton crawler cranes	$ 11,000
Backhoe - 100,000#	$ 14,000
Backhoe attachments:	
Universal processor w/ shear	$ 4,500
Hammers (breakers)	$ 4,200
980 loader	$ 4,300
V-30 vibratory hammer	$ 10,000
50x80 crane barges	$ 9,000
40x60 material barges	$ 5,000
Tugboat	$ 6,000
Decontamintion trailer	$ 1,000
Conex storage boxes	$ 300
Field office	$ 800
750-1050 cfm compressors	$ 1,200
125-600 cfm compressors	$ 400
Light plants	$ 500
Misc. rentals	$ 10,000

APPENDIX E

SAFETY ENHANCEMENT COST ESTIMATE

Ashland Soo Line Ore Dock
Safety Enhancement Cost Estimate

Total cost for each safety issue addressed individually (no lead paint). **$9,123,675**
Total cost for each safety issue addressed individually (w/ lead paint). **$13,594,955**

Total cost if all safety issues were let as one project (no lead paint). **$8,966,820**
Total cost if all safety issues were let as one project (w/ lead paint). **$13,391,031**

Additional engineering fees not included above listed estimates: **$750,000**

Item	Qty	UM	U.P.	Extension	Notes
Concrete Surface Repair					
Remove vegetation and ore from dock	225	CY	$40	$9,000	There are two ore bins loadad with ore and the transition sections are covered with vegetation. Approximately 225 CY of material to be removed.
Seal deck and concrete ore bins	132,000	SF	$15	$1,980,000	Assume entire surface of ore dock needs to be sealed with a waterproof membrane. Say 2000' by 66' = 132,000 sf.
Concrete Surface Repair w/ shotcrete	23,000	SF	$120	$2,760,000	Say 100 bents have 2 each 10x8 problem areas, this equals 160 sf x 100 bents = 16,000 sf. Then say 50 bents have 50 sf problem areas, this equals 2500 sf. Say 200 each 3'x2' areas on columns = 1200 sf. Say 2500 sf for overhangs and misc. Say 23,000 SF total.
Cathodic Protection	12,500	LF	$15	$187,500	Using galvanic sacrificial pucks say 24" O.C. around perimeter of repair area with above area there would be 72' of perimeter for 100 bents, around 28' of perimeter for 50 bents, 10' at 200 columns, then say 1000' for overhangs and misc. Total = say 12,500 lf.
Haul waste	550	CY	$65	$35,750	Hired trucking to site for processing, 2 hour trip @ $75 per hour for 10 yards=$15/cy, Say $50/cy to hand load material. (7600 cf / 27 = say 300 yds)
Dump fee	550	CY	$10	$5,500	Fee for dumping and covering material.
Eng. & Bidding Documents	1	LS	$65,000	$65,000	Assumed
Permits	1	LS	$10,000	$10,000	Assumed
Mobilization	1	LS	$505,275	$505,275	Includes manlift rentals, barge, and tugboat.
Concrete Surface Repair phase is estimated at					**$8,888,028.00**

Handrails, Walkways, Stair Removals					Assume 65 working days for 6-man crew = 3 months
Crane	3	MO	$12,000	$36,000	
Crane Barge	3	MO	$9,000	$27,000	
Material Barge	3	MO	$5,000	$15,000	
Tugboat	3	MO	$6,000	$18,000	
Articulated Man Lift	3	MO	$4,400	$13,200	
Haul waste	15	LDS	$200	$3,000	
Tugboat	2	MO	$6,000	$12,000	
Labor	3,120	MH	$115	$358,800	6-man crew at 65 working days
Haul waste	15	LDS	$200	$3,000	
Dump fee	15	LDS	$50	$750	
Eng. & Bidding Documents	1	LS	$7,500	$7,500	Assumed
Permits	1	LS	$2,500	$2,500	Assumed
Mobilization	1	LS	$49,675	$49,675	Includes building a barge access ramp at the shore.
Handrails/Walkways/Stairs phase is estimated at					**$848,428.00**

Ashland Soo Line Ore Dock
Safety Enhancement Cost Estimate

Total cost for each safety issue eddressed individually (no lead paint). **$9,123,675**
Total cost for each safety issue eddressed individually (w/ lead paint). **$13,594,955**

Total cost if all safety issues were let as one project (no lead paint). **$8,986,820**
Total cost if all safety issues were let as one project (w/ lead paint). **$13,391,031**

Additional engineering fees not included above listed estimates: **$750,000**

Item	Qty	UM	U.P.	Extension	Notes
Secure Steel Chutes					Assume 2 each 6-man crews for 150 working days each.
Materials	300	EA	$500	$150,000	Includes materials and off-site fabrication.
Labor	14,400	MH	$115	$1,656,000	48 man-hours each for 300 chutes
Manlift	14	MO	$4,400	$61,600	1 per crew = 2 total for 7 months each
Crane	14	MO	$12,000	$168,000	1 per crew = 2 total for 7 months each
Crane Barge	14	MO	$9,000	$126,000	1 per crew = 2 total for 7 months each
Material Barge	28	MO	$5,000	$140,000	2 per crew = 4 total for 7 months each
Tugboat	14	MO	$6,000	$84,000	1 per crew = 2 total for 7 months each
Eng. & Bidding Documents	1	LS	$30,000	$30,000	Assumed
Permits	1	LS	$5,000	$5,000	Assumed
Mobilization	1	LS	$242,060	$242,060	Includes building a barge access ramp at the shore.
The total for the Steel Chutes phase is estimated at				**$2,662,660.00**	

Secure Steel Chutes - Includes Cleaning and Repainting the Chutes					Assume 2 each 9-man crews for 250 working days each. 250 working days = 18 months for project.
Materials	300	EA	$600	$180,000	Includes materials, off-site fabrication, and grit and paint.
Labor	18,000	MH	$115	$2,070,000	72 man-hours for 250 working days
Clean, Contain, and Repaint Chutes	300	EA	$4,400	$1,320,000	1 per crew = 2 total for 7 months each
Manlift	36	MO	$4,400	$158,400	1 per crew = 2 total for 18 months each
Crane	36	MO	$12,000	$432,000	1 per crew = 2 total for 18 months each
Crane Barge	36	MO	$9,000	$324,000	1 per crew = 2 total for 18 months each
Material Barge	72	MO	$5,000	$360,000	2 per crew = 4 total for 18 months each
Tugboat	26	MO	$6,000	$156,000	1 per crew = 2 total for 13 months each
Eng. & Bidding Documents	1	LS	$80,000	$80,000	Assumed
Permits	1	LS	$15,000	$15,000	Assumed
Mobilization	1	LS	$509,540	$509,540	Includes building a barge eccess ramp at the shore, decontamination facility, containment system for painting, and steel cleaning and painting equipment.
Secure/ Repaint Steel Chutes phase is estimated at				**$5,604,940.00**	

Remove Loose Timbers					Assume 1 each 6-man crew for 34 working days.
Crane	2	MO	$12,000	$24,000	
Crane Barge	2	MO	$9,000	$18,000	
Material Barge	2	MO	$5,000	$10,000	
Tugboat	2	MO	$6,000	$12,000	
Labor	2,160	MH	$115	$248,400	6-man crew at 45 working days
Haul waste	15	LDS	$200	$3,000	
Dump fee	15	LDS	$50	$750	
Eng. & Bidding Documents	1	LS	$6,000	$6,000	Assumed
Permits	1	LS	$2,000	$2,000	Assumed
Mobilization	1	LS	$32,415	$32,415	Includes building a barge access ramp at the shore.
The total for the Loose Timbers phase is estimated at				**$356,565.00**	

Ashland Soo Line Ore Dock
Safety Enhancement Cost Estimate

Total cost for each safety issue addressed individually (no lead paint). **$9,123,675**
Total cost for each safety issue addressed individually (w/ lead paint). **$13,594,955**

Total cost if all safety issues were let as one project (no lead paint). **$8,986,820**
Total cost if all safety issues were let as one project (w/ lead paint). **$13,391,031**

Additional engineering fees not included above listed estimates: **$750,000**

Item	Qty	UM	U.P.	Extension	Notes
Repainting					
Portable Decontamination Facility	1	LS	$5,000	$5,000	
Containment & Collection of Waste Material	1	LS	$650,000	$650,000	Negative Pressure Containment & Collection of Hazardous Waste, also includes moving and reinstalling timber decking.
Recycled Abrasive Cleaning	105,000	SF	$4	$420,000	
Structure Repainting	105,000	SF	$3	$315,000	3 coat zinc epoxy system
Eng. & Bidding Documents	1	LS	$0	$0	Included under Secure and Repaint Steel Chutes phase.
Permits	1	LS	$0	$0	Included under Secure and Repaint Steel Chutes phase.
Mobilization	1	LS	$139,000	$139,000	
The total for the Repainting phase is estimated at					**$1,529,000.00**

Anticipated Engineering Fees					
Engineering Fees	1	LS	$750,000	$750,000	Hammer sound all concrete, mark and compute all surface areas that need repair. Test concrete for suitable cathodic protection approach. Test paint system for lead and adherence qualities. Coordinate with WisDNR, Corps of Engineers, US Coast Guard, etc... Develop plan sheets, design retrofits for steel chutes. Write specifications. Bid project.
Engineering Fees					**$750,000.00**

APPENDIX F

ANNUAL MAINTENANCE BUDGET

Ashland Soo Line Ore Dock
Annual Maintenance Budget

Total Cost for an Annual Maintenance Budget is: **$50,000**

Item	Qty	UM	U.P.	Extension	Notes
Annual Inspection					
Labor	60	MH	$ 125.00	$ 7,500.00	Say 2 engineers at $125/hr for three days at 10 hrs/day.
Expenses	3	DY	$ 200.00	$ 600.00	Meals, Lodging, Misc Expenses say $200/day.
Man Lift	1	WK	$ 3,500.00	$ 3,500.00	Assume rental of a 100' articulated man lift with delivery and pick-up approximately $3500 for a one week minimum rental fee.
The total for the Concrete Surface Repair phase is estimated at					**$11,600.00**

Vegetation / Debris Removal / Grading					
Labor	32	MH	$ 115.00	$ 3,680.00	Say 16 MH per event, 2 events each year.
Equipment	1	LS	$ 5,000.00	$ 5,000.00	Dozer, dump truck, say $2500 each event.
Materials	1	LS	$ 500.00	$ 500.00	Herbicide & incidentals say $100, and $400 in gravel each year.
The total for the Handrails, Walkways, and Stairs phase is estimated at					**$9,180.00**

Concrete Surface Repair					
Surface Repair	100	SF	$ 170.00	$ 17,000.00	Chipping, Blasting, and Shotcrete (no cathodic protection)
The total for the Steel Chutes phase is estimated at					**$17,000.00**

Incidentals / Unknowns					
Unknowns	1	LS	$ 12,220.00	$ 12,220.00	Establish "rainy day" fund for big-ticket items.
The total for the Steel Chutes phase is estimated at					**$12,220.00**