

**CONTRACT  
OFFICE COPY**

C104583

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH



**CONTRACT AND  
CONTRACT BONDS**

FOR PROJECT NO 6.503340 (P-3100)

COUNTY OF

CARTERET

THIS IS THE

RAILROAD TRESTLE

CONTRACT

ROUTE NUMBER:---

LENGTH      MILES

LOCATION: BEAUFORT AND MOREHEAD RAILROAD TRESTLE OVER

NEWPORT RIVER BETWEEN MOREHEAD CITY AND RADIO ISLAND.

CONTRACTOR : MCLEAN CONTRACTING COMPANY

ADDRESS: 6700 MCLEAN WAY

GLEN BURNIE, MD 21060

BIDS OPENED : FEBRUARY 27, 1997

CONTRACT EXECUTION \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH, N.C.

01

G104583

PROPOSAL

KOLEAN CONTRACTING CO  
6700 KOLEAN WAY  
OLEN BURNIE MD 21082

0113  
05

DATE OF TECHNICAL PROPOSAL SUBMISSION: FEBRUARY 27, 1997

DATE AND TIME OF COST PROPOSAL SUBMITTAL: FEBRUARY 26, 1997 AT 2:00PM

PROJECT NO.: 6.503340

MILES: —

COUNTY: CARTERET

T.I.P. NO. P-3100

ROUTE NO. —

LOCATION: BEAUFORT AND MOREHEAD RAILROAD TRESTLE OVER NEWPORT RIVER  
BETWEEN MOREHEAD CITY AND RADIO ISLAND.

TYPE OF WORK: RAILROAD TRESTLE

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA.

5% BID BOND OR BID DEPOSIT REQUIRED

PROPOSAL FORM FOR THE CONSTRUCTION OF PROJECT NO. 6.503340

IN CARTERET COUNTY, NORTH CAROLINA

Date \_\_\_\_\_ 19 \_\_\_\_\_

DEPARTMENT OF TRANSPORTATION,

RALEIGH, NORTH CAROLINA

The Proposer has carefully examined the location of the proposed work to be known as Project No. 6.503340; has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned proposer agrees to bound upon his execution of the bid and subsequent award to him by the Board of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned proposer further agrees to provide all necessary planning, design, machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with the 1995 Standard Specifications for Roads and Structures by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Proposer shall perform all planning and design work necessary and shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Project No. 6.503340

in Carteret County, for the unit or lump sum prices, as the case may be, bid by the Proposer in his bid and according to the proposal, plans, and specifications prepared by said Department or Proposer, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

The published volume entitled "North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, July 1995 with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the Construction and work included in this contract is to be done in accordance with the specifications contained in said volume, and amendments and supplements thereto, under the direction of the Engineer.

If the proposal is accepted and the award is made, the contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except over the signature of the said Contract Officer.

The Engineer shall be fully and totally responsible for the accuracy and completeness of all work performed by them and their subconsultants under this contract and shall save the State harmless and shall be fully liable for any additional costs and all claims against the State which may rise due to errors, omissions, or negligence of the Engineering in performing the work.

The Engineer shall indemnify and save harmless the State for claims and liabilities resulting from negligence, errors or omissions of the Engineer or any of the Engineers' Subcontractors.

Accompanying this proposal is a bid bond secured by a corporate surety, or certified check payable to the order of the Department of Transportation, for five percent of the total bid price, which deposit is to be forfeited as liquidated damages in case this bid is accepted and the Proposer shall fail to provide the required payment and performance bonds with the Department of Transportation, under the condition of this proposal, within 14 days after the written notice of award is received by him, as provided in the Standard Specifications; otherwise said deposit will be returned to the Proposer.

revised 7/11/97

P-3100

### **CONTRACT TIME AND LIQUIDATED DAMAGES**

The date of availability for this construction activities to begin at the job site for this contract is the date the contractor begins work but not before September 15, 1997 or later than March 14, 1998.

The completion date for this contract is the date which is three hundred sixty five (365) consecutive calendar days after the date of availability.

The liquidated damages for this contract time are Seven Hundred Fifty Dollars (\$750.00) per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

### **MAINTENANCE OF TRAIN TRAFFIC:**

The Contractor shall allow for the passage of trains for the duration of this project. Uninterrupted construction time will be available between the hours of Thursday at 5:00 p.m. until Tuesday at 7:00 a.m. of each week during the duration of the project.

### **PERMITS**

The Contractor is responsible for obtaining all permits necessary for the construction of this project. The Department has allowed six months time for the Contractor to obtain the necessary permits. The Contractor shall take all necessary measures to obtain the permits necessary within this time frame. Should it take longer than six months to obtain the necessary permits, through no fault of the Contractor, the Department will consider a time extension in accordance with Article 108-10 of the Standard Specifications.

### **DETERMINATION OF LOW COST**

The determination of lowest cost for this project will be made by adding the cost of the items "Planning and Design of Railroad Trestle" and "Construction of Railroad Trestle and Removal of Existing Structure".

revised 11/23/97

VOID 7-11-97

P-3100

**CONTRACT TIME AND LIQUIDATED DAMAGES**

The date of availability for this construction activities to begin at the job site for this contract is the date the contractor begins work but not before March 31, 1997 or later than October 1, 1997.

The completion date for this contract is the date which is three hundred sixty five (365) consecutive calendar days after the date of availability.

The liquidated damages for this contract time are Seven Hundred Fifty Dollars (\$750.00) per calendar day. At the preconstruction conference the Contractor shall declare his expected date for beginning work. Should the Contractor desire to revise this date after the preconstruction conference, he shall notify the Engineer in writing at least thirty (30) days prior to the revised date.

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VOID 7-11-97

Replacement of the Beaufort and Morehead Railroad Trestle over the Intra-Coastal Waterway between Morehead City and Radio Island.

**BRIDGE DESIGN CRITERIA**

1. The current edition of the AREA Specifications published by the American Railroad Engineering Association will be used to form the basic specification for factors governing the design of the railroad bridge. Design live load is to be Cooper E80 loading without alternate loading.
2. The current edition of the N.C.D.O.T. Structure Design Manual for Corrosion Protection of Reinforced Concrete and any other items not addressed in the AREA Specifications.
3. The 1995 edition of N.C.D.O.T. Standard Specifications for Roads and Structures
4. The grade of the new bridge is to be as follows:

The existing top of rail elevation at existing Bent No. 5 (Station 15+34.00) and the existing top of rail elevation at existing Bent No. 89 (Station 20+31.00) should be used to establish the grade on the portion of the trestle west of the existing Bascule Span.

The existing top of rail elevation at existing Bent No. 90 (Station 21+64.00) and the existing top of rail elevation at existing Bent No. 386 (Station 39+17.00) should be used to establish the grade on the portion of the trestle east of the existing Bascule Span.

5. Submittals - (to Structure Design)  
Copies of Plans - 1 set reproducible; 2 sets blueines

## WARRANTY

The proposer warrants that it will perform the services in accordance with the standards of care and diligence normally practiced by recognized engineering and construction firms in performing services and obligation of a similar nature. The proposer shall warrant the materials and workmanship against defect due to faulty materials or faulty workmanship or negligence for a period of twelve (12) months following the final acceptance of the work. Where items of equipment or material carry a manufacturer's warranty for a period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The proposer shall replace such defective materials, equipment or workmanship without cost to the Department within the stipulated warranty period.





February 27, 1997

Mr. D.R. Morton, P.E.  
State Highway Engineer - Design  
North Carolina Department of Transportation  
P.O. Box 25201  
Raleigh, NC 27611

Re: Technical Proposal for Design, Permitting and Construction  
Railroad Trestle over the Newport River  
Morehead City to Radio Island  
Carteret County  
NCDOT TIP No. P-3100

Dear Mr. Morton:

On behalf of McLean Contracting Company and HNTB Corporation, we are pleased to submit this technical proposal for the design, permitting and construction of the railroad trestle replacement over the Newport River. This proposal describes our team's technical approach to the subject project, in response to your revised design criteria. We have a thorough understanding of the project's requirements in all areas, and are presenting to you a technical approach with the following advantages:

- Constructability and construction sequencing issues have been thoroughly addressed. Our construction process includes measures to prevent settlement of the existing bridge during installation of the foundations.
- Our design raises the bridge profile to keep the superstructure above the 100-year water surface elevation - a substantial benefit for railroad operations and serviceability as well as maintenance.
- All elements of our bridge are designed with long-term maintenance, corrosion protection and durability in mind, saving the NCDOT substantial time and money over the life cycle of the bridge.
- The structure satisfies all requirements for the E-80 train loading, wave impact forces, and other design parameters defined by NCDOT.
- Our design facilitates the future replacement of the bascule span. This will save the NCDOT time and money when this work is undertaken.



As you know, the McLean/HNTB team has extensive experience in the design and construction of railroad bridges replaced on-line under traffic, as well as the construction of movable bridges. Our team also has considerable experience with design-build projects and importantly, in preparing environmental assessments and obtaining permits in coastal North Carolina, which we view to be on the critical path for the project schedule.

In summary, our team provides the NCDOT:

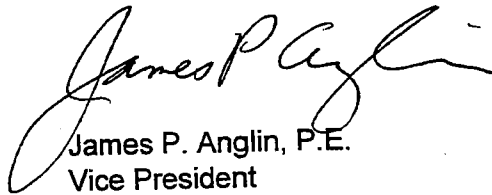
- **Sound Technical Approach** - A bridge that can be built on the existing alignment without interrupting scheduled rail traffic, while providing excellent long-term maintenance characteristics.
- **Relevant Experience** - Our team has experience in all facets of the project -- planning, design, permitting, construction, and CEI -- gained through work on similar railroad bridge projects.
- **Special Expertise** - McLean has constructed a number of movable railroad bridges and replaced railroad trestle bridges on-line, under traffic. HNTB is a national leader in all areas of railroad engineering, especially in the design of fixed and movable railroad bridges.
- **Local Familiarity** - All firms on the team have performed their assigned functions on numerous North Carolina projects for NCDOT and other clients. Close coordination throughout all project phases will be accomplished through HNTB's Raleigh office, located minutes away from the NCDOT.
- **Design-Build Leaders** - Our team is no stranger to the design-build process. HNTB has been the prime consulting engineer on a number of major design-build projects since 1988.
- **Proven Performance** - Both McLean Contracting and HNTB have been in continuous business for over 80 years with a long track record of quality, durable projects designed and built on schedule and within budget.

We appreciate the opportunity to present to you this technical proposal and look forward to providing you with a durable, low-maintenance structure on schedule.

Sincerely,



Tyrus M. Fisher, Jr.  
Vice President  
McLean Contracting Company



James P. Anglin, P.E.  
Vice President  
HNTB Corporation

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*Understanding of Project Issues  
and Constraints*

**HNTB**

## I. UNDERSTANDING OF PROJECT ISSUES AND CONSTRAINTS

Following is a brief description of the most critical issues and constraints pertaining to the replacement of the Beaufort & Morehead Railway Trestle over the Newport River in Carteret County, N.C. Our understanding of these issues is based upon information obtained at NCDOT's pre-proposal scoping meetings as well as our own data collection efforts. Based on our thorough knowledge of the critical aspects of this project, we have developed a cost-effective solution which vastly improves the current conditions and minimizes the various construction-related obstacles described by NCDOT in the scoping meetings. The key issues as we understand them are as follows:

### A. Key Design Issues/Constraints

NCDOT has expressed its desire to obtain the most economical, on-line replacement structure which will carry the AREA E-80 live load, improve flow characteristics in the channel, and provide full corrosion resistance. Vessel impact and scour potential are not to be considered in this design. In addition, the new structure must be constructed without interruption to scheduled daily rail traffic. Our design fulfills all of these criteria with a structure which is both aesthetically pleasing and easy to maintain. The details of our design are included in Section II of this proposal.

Our team recognizes that the most economical way to replace this structure on the existing alignment is to retain the existing profile on the new structure. From an engineering standpoint, however, this is an inappropriate solution for several reasons. First, building on the existing profile could result in long term maintenance problems for NCDOT since a significant portion of the substructure would be partially submerged during high tide. Second, during periods of abnormally high water significant portions of the existing trestle become completely submerged, resulting in severe operational difficulties for the railroad. Replacing this structure without correcting this situation would be a poor long term investment for NCDOT. Third, building on the existing profile will create a virtual dam during the 100-yr. storm event which would impact the flow characteristics of the channel.

In conclusion, the HNTB/McLean team strongly believes that the existing profile must be raised to the extent that a majority of the new structure will be completely out of the water during the 100-yr. storm event. Any solution which does not provide this basic hydraulic and serviceability improvement would be a waste of money and create unnecessary liability for NCDOT and the HNTB/McLean team.

### B. Key Construction Issues/Constraints

NCDOT desires the new structure to be built on the existing alignment without interrupting scheduled railway operations or damaging the existing bridge. The new structure must also allow for future replacement of the bascule span. The criteria furnished by NCDOT mandates that this work must be performed in a series of four day bridge closures (Friday through Monday each week). Closing the bridge to traffic for six months or more would substantially reduce construction time and costs, but this is not allowed by NCDOT so we have avoided this approach in our proposal. Our proposed solution satisfies all of NCDOT's criteria with a structure which is simple to construct and construction methods which allow completion within nine months after receiving permits. An extensive description of our proposed construction process is included in Section II of this proposal.

### **C. Key Planning/Permitting Issues/Constraints**

Environmental analysis and documentation in obtaining the various environmental permits is a critical part of this project. Due to the number of permitting agencies involved, obtaining all of the necessary permits could extend the overall project schedule. NCDOT recognizes that obtaining the CAMA permit alone could take 6 months. The extensive experience of HNTB and CZR in performing environmental documentation and obtaining required environmental approvals and permits from the various state and federal agencies involved ensures that our team will perform these tasks on schedule. However, the length of the application review process by the various review and permitting agencies is beyond the team's control. The team will submit applications early and remain in contact with the agencies to assist in moving the process along. Section II; Appendix C of this document contains a complete list of all State and Federal regulations which must be satisfied in the permitting process of this project.

It is our objective, by means of this technical proposal and presentation, to demonstrate to NCDOT that the structure we are proposing is in fact the best possible solution for the problem at hand. It satisfies NCDOT's expressed desires by fulfilling all of the relevant technical criteria in a cost-effective manner. We trust that upon the conclusion of our presentation the selection committee will share our enthusiasm for this solution.

*Technical Approach*

**HNTB**

## II. TECHNICAL APPROACH

### A. Introduction

The McLean/HNTB team has designed a cost-effective replacement structure for this project which addresses constructability, durability, and long-term maintenance issues while meeting applicable design criteria. As per NCDOT's request, this structure will be built on the existing alignment with no interruption to rail or marine traffic and without compromising the integrity of the existing structure.

Our proposed structure consists of ballasted, precast, prestressed "T" girders spanning between transverse, precast, reinforced concrete caps supported on composite piles (24" diameter steel pipe piles protected by 36" diameter concrete cylinder pile sleeves). The piles will be installed to sufficient depths to achieve the required vertical and lateral capacities. The paragraphs immediately following describe in detail how we arrived at our proposed solution and how the proposed structure will be constructed within the constraints provided by NCDOT.

### B. Data Collection

Site visits have been made to visually inspect and measure the existing structure. Our construction superintendent performed an underwater inspection of the existing foundations and a condition assessment of the portions of the structure above the water. Actual measurements of the existing bascule formed the basis of our bascule pier and rest pier transition details as well as our future bascule change out scheme. This physical data, coupled with the data and criteria provided to us by NCDOT at the pre-proposal scoping meetings, formed the basis of our overall technical approach to the project.

### C. Hydraulic / Scour Analysis

Preliminary hydraulic analysis was performed in accordance with NCDOT's "Guidelines for Drainage Studies and Hydraulic Design" as part of our original proposal. Additional soundings will be taken along the trestle in the final design phase to supplement the channel profile information provided by NCDOT and to verify the scour conditions at the existing piles. Historical highwater information will be gathered at the time of the survey in order to confirm elevations provided by NCDOT. The hydraulic data provided by NCDOT was used in the design of the replacement trestle. Our design will not have any adverse impact on the 100-year storm elevation and will actually improve the existing stream flow characteristics in the channel.

As dictated by NCDOT's revised design criteria, no scour beyond existing conditions will be incorporated into the final structure design.

### D. Geotechnical Analysis / Foundation Recommendation

Based on the subsurface profile and channel borings provided by NCDOT, a firm to dense sand layer extends from the mudline down to elevation -80 to -90 feet. This



sand layer is underlain by silty, clayey fine sand with shell fragments (Yorktown Formation).

In selecting an appropriate pile type, we analyzed composite pipe piles of various diameters as well as 36" diameter prestressed concrete cylinder piles. The cylinder piles possess high bearing and lateral capacities, but they are costly and must be installed by jetting. If vessel impact were an issue here, these piles would be highly desirable for their strength, but they would be difficult to install without compromising the existing structure during jetting operations. Since vessel impact resistance is not required, however, the composite pipe piles become more feasible because they can be driven through the existing timber piles without compromising the existing foundations. Therefore, we chose a composite pipe pile system consisting of 24" diameter steel pipe piles driven to the required minimum tip elevations and encased in 36" diameter cylinder piles above the mudline. The steel pipe piles are adequate for bearing and lateral loads and the cylinder pile casings provide excellent corrosion protection from the mudline to the pier cap.

Cast-in-place drilled piers were considered for the foundations but ultimately ruled out due to constructability and cost considerations. Extensive cavitation would occur during drilling operations which would undermine the stability of the existing trestle. Composite piles may be installed with equipment located exclusively on the south side of the trestle, thereby avoiding the need to position equipment on the north side where it might potentially come into contact with existing high voltage power lines. In addition, composite piles can be installed more quickly and easily than drilled piers, thus allowing a shorter construction schedule and lower construction costs.

#### E. Structural Analysis / Design

As stated in the introduction, our proposed replacement structure satisfies the criteria set forth by NCDOT for this project. (Structure Design Criteria may be found in Appendix A.) Following are brief descriptions of some of the more critical aspects of our design:

- Our proposed top of rail profile results in the majority of the new superstructure being at or above the 100-yr. storm elevation of +4.66 ft. This will minimize the impact of the new structure on the channel flow characteristics, improve the reliability and operating efficiency of the Beaufort & Morehead Railway Company, and reduce the future maintenance costs of the structure.
- Prestressed "T" girders are patterned after a proven Burlington Northern Railway standard.
- The ballasted roadbed absorbs potentially large longitudinal braking forces without transferring them into the piers. This allows the majority of the piles to be installed without batter.
- Our design was developed with construction in mind. The most economical solution will be the one which presents the least amount of difficulties to the contractor. Our system is tailored to McLean's construction procedures in order to maximize their efficiency, thereby minimizing NCDOT's costs.
- Effects of wave action and buoyancy were considered in our design.
- Our design will facilitate the future replacement of the existing bascule span with a 135 ft. bascule span. Details are shown in Appendix B.

- The standard design details permit the superstructure to be raised by shimming under the concrete beams. This will facilitate the installation of a new bascule span in the future.

#### F. Construction Methodology & CEI

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7/25/97  
JVB*  
Fabrication of precast elements will begin as soon as all construction permits have been obtained.

Foundation construction will begin with a test pile program to evaluate the design tip elevations and installation methods. Five to seven piles spaced along the trestle alignment and representing different design tip elevations will be installed. A pile driving analyzer will be used to monitor and record data associated with the driving of each test pile. Restrike data will be obtained on two to three representative piles at least 48 hours after initial driving to observe the effect of reconsolidation of sand and "soil freeze". The data will then be analyzed using the CAPWAP and WEAP computer programs. The analysis and subsequent review is expected to aid in

1. confirming the design axial capacity,
2. modeling the expected driving behavior and final driving resistance,
3. assessing "soil freeze", and
4. establishing tip elevation criteria.

The test pile program will also allow an evaluation of the pile hammer operation and establish baseline data for comparison with remaining piles to be driven.

We recognize and share NCDOT's concerns that pile installation procedures will potentially undermine the foundations of the existing trestle. Our proposed foundation system and construction procedure solves this stability problem while ensuring accurate placement of the new composite piles. Our procedure is as follows:

1. Shim west trestle to final top of rail elevation from abutment to bascule pier.
2. Remove 60 to 90 linear feet of existing trestle including timber superstructure and existing timber piles to the mudline. Salvage existing rail and ties for reuse. Salvage usable existing timber stringers and caps for reuse in shimming east trestle.
3. Set falsework and pile driving template.
4. Set and drive six 24" diameter pipe piles to tip elevations determined by pile test program. Initial group of production piles will be dynamically monitored to verify capacity. Subsequent groups will be randomly monitored.
5. Cut pipe piles to required grade.
6. Adjust template blockouts to accommodate 36" diameter cylinder piles. The template will remain in place until cylinder piles are set to ensure adequate concentricity with the pipe piles and to serve as a work platform.
7. Set 36" diameter cylinder piles over pipe piles and embed approximately 3 feet below the mudline. Cut cylinder piles to required grade.
8. Pump non-shrink grout into annular space between cylinder piles and pipe piles. Space will be filled completely with grout.
9. Set precast concrete caps.
10. Grout cap and piles.
11. Set precast concrete "T" girders.

12. Place ballast, ties and rail.
13. Connect new structure to existing trestle and open to rail traffic.
14. Repeat steps 2 through 13 as necessary.

New abutments will be constructed behind the existing ones and tied into the new structure. The existing hydraulic fill is capable of supporting this construction. The new structure will be appropriately attached to the bascule piers as well. Construction of the new abutments and bascule pier attachments will take place during the scheduled 4 day closure periods. The details of these systems are included in Appendix B.

If requested by NCDOT, a fender system extension will be constructed to match the existing fender system in the navigation channel on the north side of the existing bascule span. This will be done in accordance with NCDOT policies and procedures while maintaining marine traffic in the channel.

The details of our construction methods are illustrated in Appendix B of this document. In addition, consider the following advantages of our proposed system:

- Steel pipe piles may be installed at any time during the construction schedule. All span change-outs occur within the 4 day window mandated by NCDOT. This allows flexibility in construction scheduling and ensures that scheduled rail traffic will not be interrupted.
- No jetting is required during pile installation, thereby minimizing potential damage to the existing structure.
- As mandated by NCDOT, there will be no exposed steel in the structure above the mudline.
- All exposed concrete is protected in accordance with NCDOT requirements for structures located in highly corrosive environments.
- The majority of the new concrete trestle superstructure will be above the 100-yr. storm elevation of +4.66 ft. This will save construction costs and improve the reliability of railway operations and long term serviceability conditions.
- The superstructure can be raised if future conditions require a grade raise.
- Scheduled daily rail traffic is maintained for the entirety of our construction schedule.

HNTB and Law Engineering will perform Construction Engineering and Inspection services in accordance with normal NCDOT policies and procedures. HNTB will provide a full-time Resident Engineer with bridge construction experience. HNTB will test fluid concrete, make and store concrete test cylinders and beams, and assist with general inspection duties.

A senior technician from Law will be present during all pile installation to observe and document driving and grouting operations. Reports to the design team will allow any necessary tip elevation adjustments to be made in a timely manner so as not to delay the pile installation schedule.

## G. Long Term Durability / Maintenance

A primary characteristic of our proposed structure which will improve long term durability is the fact that all of the major structural elements are made of concrete or are concrete encased. There will be no exposed steel on the structure. We have followed NCDOT's corrosion protection criteria in the design of these concrete members. Also, our solution separates the track and hardware (maintained by the B&M Rwy. Co.) from the bridge structure (maintained by NCDOT) for maintenance purposes.

## H. Planning and Permitting

The McLean/HNTB team recognizes the importance of the environmental planning and permitting component of this project and the potential schedule risks involved. Key environmental regulations and criteria which must be met are shown in Appendix C. In addition, an Erosion and Sediment Control Plan will be required.

A State EA/FONSI as per the North Carolina State Environmental Policy Act (SEPA) will be developed as the environmental planning documents for this project. The SEPA documents will be reviewed by NCDOT (3 days max.) prior to being submitted to the NC Department of Administration (State Clearinghouse) for publication in the North Carolina Environmental Bulletin. Timing of this submittal will be critical to minimizing delay. The Clearinghouse will distribute the submitted documents for reviews and comments by various state agencies. This process takes 30 working days (6 weeks) from date of publication.

While the SEA/FONSI are under review, permit applications will be prepared for early submittal to the NC Division of Coastal Management (DCM) (for the CAMA permit), and to the US Coast Guard (for the Bridge Permit; Section 9). The DCM will be the lead agency for the environmental/wetlands permits, and will coordinate with NCDEHNR for the Section 401 Water Quality Certification and with the US Army COE for the Section 404 and Section 10 permits. Issuance of these permits is needed to obtain the CAMA permit from DCM. These permits will be issued concurrently once all the permitting agencies are satisfied.

Both the DCM CAMA and the US Coast Guard permit applications must include the SEA/FONSI documents, and will not be considered complete by these agencies until these documents are approved. Once the SEA/FONSI are approved and the permit applications are considered complete, agency review and public notice/comment requirements will then be completed in a minimum of 75 to 90 days, but may take up to 150 days or more. In issuing the permits, the permitting agencies could attach conditions and restrictions on the permits which could affect project design, cost and schedule.

An Erosion and Sediment Control Plan (E&SCP) will also be developed and implemented. The E&SCP will include the construction staging/storage area.

The proposed schedule for obtaining approval of the appropriate environmental documents and permits is discussed and illustrated in Section III of this technical proposal. Once permits are issued, on-site construction will commence.

## I. Construction Plan Preparation and Submittals

The McLean/HNTB team will prepare preliminary and final construction plans in accordance with all applicable NCDOT standards and procedures. Our team is thoroughly familiar with NCDOT requirements for the design and detailing of railroad bridges. We are also very familiar with AREA design and detailing requirements due to our extensive experience with major Class 1 freight railroads and our representation on various AREA committees.

The plan development process will proceed as follows:

- Any refinement to the preliminary plans that are presented at the technical presentation on February 27th due to negotiation during the environmental analysis and permitting process will be resubmitted to confirm NCDOT's approval.
- Project specifications and blue-line prints of the final construction plans will be submitted for NCDOT review at the 90% completion stage. Depending upon how quickly permitting activities can be completed it is possible that some construction activities may begin by this time.
- Submittal of the 100% complete plans and specifications will be made shortly after NCDOT review comments are received on the 90% plans and specifications. Due to schedule constraints a two week review period for NCDOT is anticipated.
- The plans and specifications will contain the normal level of detail for railroad bridge projects normally performed for NCDOT.

**APPENDIX A:  
STRUCTURE DESIGN CRITERIA**

**I. Specifications**

- A. AREA Manual For Railway Engineering, Vol. 's I & II (1996).
- B. AASHTO Standard Specifications for Highway Bridges (16<sup>th</sup> ed.).
- C. NCDOT Standard Specifications for Roads and Structures (English, 1995).
- D. NCDOT Structure Design Manual (English).
- E. NCDOT Bridge Foundation Guidelines and boring logs.
- F. NCDOT "Guidelines for Drainage Studies and Hydraulics Design".
- G. NCDOT hydraulics design data.

**II. Design Methodology**

Structure modeled in three dimensions and analyzed as elastic space frame for all load combinations.

**III. Loading Data**

A. Dead Loads:

- 1. Use 150 pcf for cast-in-place and precast reinforced concrete.
- 2. Use 155 pcf for precast/prestressed concrete.

B. Live Loads:

Cooper E 80 loading with diesel impact as specified by AREA.

C. Wind Loads:

- 1. Use AREA criteria.
- 2. Use 120 mph service wind per NCDOT.

D. Hydraulic Data:

- 1. Mean Low Tide (MLT) elevation = -1.2 ft.
- 2. Mean High Tide (MHT) elevation = +1.3 ft.
- 3. Peak stage for 100-yr. storm = +4.66 ft.
- 4. Maximum velocity for 100-yr. storm = 4.0 ft/sec.
- 5. Investigate uplift due to tidal surge.
- 6. Investigate wave action with the following parameters
  - a) particle velocity of 15 ft/sec (assumed).
  - b) drag coefficient of 3.0 (assumed).
  - c) wave height of 5 ft. (average).
  - d) wave return and frequency range of 6 to 15 seconds.

E. Seismic:

Design for AASHTO Seismic Performance Category "A"

**IV. Load Combinations**

A. Service Load Groups per AREA 8.2.2.4(b):

- 1. Group I: D + L + J + E + B + SF

- 2. Group II:  $D + E + B + SF + W$
- 3. Group III:  $\text{Group I} + 0.5W + WL + LF + F$
- 4. Group IV:  $\text{Group I} + OF$
- 5. Group V:  $\text{Group II} + OF$
- 6. Group VI:  $\text{Group III} + OF$

B. Factored Load Groups per AREA 8.2.2.4(c):

- 1. Group I:  $1.4(D + 5/3(L + I) + E + B + SF)$
- 2. Group IA:  $1.8(D + L + I + E + B + SF)$
- 3. Group II:  $1.4(D + E + B + SF + W)$
- 4. Group III:  $1.4(D + L + I + E + B + SF + 0.5W + WL + LF + F)$
- 5. Group IV:  $1.4(D + L + I + E + B + SF + OF)$
- 6. Group V:  $\text{Group II} + 1.4(OF)$
- 7. Group VI:  $\text{Group III} + 1.4(OF)$
- 8. Group X:  $\text{Group II} + 1.4(WA)$

C. Definitions:

- 1. D = dead load
- 2. L = live load
- 3. I = impact
- 4. E = earth pressure
- 5. B = buoyancy
- 6. SF = stream flow
- 7. OF = other forces (rib shortening, shrinkage, temperature, support settlement)
- 8. WA = wave action

V. Prestressing Strands

Use uncoated,  $\frac{1}{2}$ " diameter, 7-wire, Grade 270 low-relaxation strands meeting requirements of ASTM A416 and Supplement 1.

VI. Precast Concrete Void T-Girders

A. Prestressed Concrete:

- 1.  $f_c = 5000$  psi
- 2.  $f_{ci} = 4000$  psi
- 3. Air entrained per specifications.

B. Allowable Stresses (per AREA):

1. in Prestressed Concrete:

- a) @ transfer (before losses):
  - (1) in extreme compression fiber: 2400 psi
  - (2) in extreme tension fiber: 190 psi
- b) @ service loads (after losses):
  - (1) in extreme compression fiber: 2000 psi
  - (2) in extreme tension fiber: 0 psi

- 2. initial prestressing shall be 31 kips per strand.

## VII. Composite Piles

### A. Steel Pipe Piles

1. O.D. = 24"
2. wall thickness =  $\frac{1}{2}$ "
3. ASTM A36

### B. Cylinder Piles

1. O.D. = 36"
2. wall thickness = 5"
3.  $f_c = 7000$  psi
4.  $f_{ci} = 4000$  psi
5. 8 prestressing tendons of 2 strands each (16 strands total)
6.  $f_{se} = 202$  ksi.

C. Allowable Bearing Capacity = 135 tons.

## VIII. Cast-in-place Concrete

Class AA per NCDOT Standard Specifications.

## IX. Reinforcing Steel

- A. ASTM A615, Grade 60
- B.  $f_y = 60$  ksi
- C.  $f_s = 24$  ksi

## X. Corrosion Protection

- A. All reinforcing steel used in cast-in-place concrete or precast, non-prestressed concrete shall be epoxy-coated.
- B. Cover requirements:
  1. 2" clear to principle reinforcement in prestressed concrete members.
  2. Precast pier caps:
    - a) 4" clear to principle reinforcement in bottom of beam.
    - b) 3" clear to stirrups at sides and top of beam.
    - c) 3" clear to principle reinforcement at ends of beam.
- C. Calcium nitrite corrosion inhibitor (DCI) shall be added to all prestressed concrete members.
- D. All prestressed concrete piles shall have a water/cement ratio of 0.40.



**APPENDIX B:**

**PRELIMINARY CONSTRUCTION DOCUMENTS**

**APPENDIX C:**  
**APPLICABLE PERMITTING REGULATIONS**

The engineer shall perform studies, prepare environmental documents, and secure all necessary permits in accordance with the following State and Federal Regulations:

- U.S.C.: Title: 23: Highways
- 42 U.S.C. 4332(2)(c), popularly known as Section 102(2)(c) of the National Environmental Policy Act of 1969, P.L. 91-190 Preparation of Environmental Document, 40 C.F.R. 1500-1508.
- The North Carolina State Environmental Policy Act (N.C.G.S. 113A-1 through N.C.G.S. 113A-12). State Environmental Assessment/State Finding of No Significant Impact (SEA/SFONSI).
- Coastal Area Management Act (CAMA) (N.C.G.S. 113A-118, and N.C.G.S. 146-6, 146-12) Permit (The NC Division of Coastal Management will be the contact and lead agency for environmental permitting. CAMA will coordinate with the NCDEHNR for the Section 401 Certification (Clean Water Act) (N.C.G.S. 143-215), and with the USA COE for the Section 404 (Clean Water Act) (N.C.G.S. 113-229) and Section 10 (Rivers and Harbors Act of 1899) permits.
- 49 U.S.C. 1653(f), popularly known as Section 4(f) of the Department of Transportation Act of 1966, P.L. 89-670, amended as 49 U.S.C. 303 in January, 1983, if required.
- The National Historic Preservation Act (16 U.S.C. 470(f) as amended), P.L. 89-665, Executive Order No. 11593 ("Protection and Enhancement of the Cultural Environment"), "Protection of Historic and Cultural Properties", Advisory Council on Historic Preservation, 36 C.F.R.; Part 800, Archaeological and Historic Preservation Act (16 U.S.C. 469(a)), Archaeological Resource Protection Act (16 U.S.C. 470(aa)), and FHWA Position Paper on Archaeological Resources Considerations in Environmental Documents, May 14, 1980.
- The Endangered Species Act of 1973 (amended 1978)", 16 U.S.C. 1536, P.L. 93-205.
- 33 C.F.R. 328.3(b) for wetlands definition and FHWA Notice 23 C.F.R. 777 and FHPM 7-7-7, Mitigation of Environmental Impacts to Privately Owned Wetlands (45 FR 50728). Further background EO 11990 and DOT Order 5660.1A.
- Executive Order No. 11998, "Floodplain Management", (41 FR 26951) 5-4-77. USDOT Order 5650.2 Floodplain Management and Protection (44 FR 24678), 4-23-79, and FHPM 6-7-3-2, "Location and Hydraulic Design of Encroachment on Floodplains."
- 23 C.F.R. 771 - "Environmental Impact and Related Procedures."
- T6640.8A (October 30, 1987) - Guidance Material for Preparation of Environmental Documents.

- The Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) Section 404 of the Clean Water Act, USDOT Department of the Army Memorandum of Agreement on Permit processing, 3-24-80, Section 1424(e) of the Safe Drinking Water Act (42 U.S.C. 300(j)(6)), and Chapters II and IV of Water Related Activities of Highway Projects Manual, May, 1980.
- A permit application as per Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946 (33 C.F.R. 113, 115) will be submitted to the U.S. Coast Guard (DOT Order 1100.1 dd. 31 March 1967; 49 C.F.R. 1.4(a)(3)).
- 23 C.F.R. 770 and FHPM 7-7-9 - Air Quality. (Air Quality Conformity Analysis pursuant to 40 C.F.R. Part 51 and 93, Subpart T (51.390, 93.100).)
- FPHM 7-7-3 - Noise. All authorized bridge construction work must comply with the provisions of the Noise Control Act of 1972 (P.L. 92-574), as amended.
- 7 C.F.R. 658 - Farmland Protection Act.

*Project Schedule*

**HNTB**

### III. PROJECT SCHEDULE

*deleted  
7/25/97  
JVB*

~~The McLean/HNTB team proposes a schedule that will complete the design and permitting activities by September 30, 1997 and construction of the railroad bridge within 10 months following final receipt of all environmental permits. The resulting completion date for all construction is July 31, 1998.~~

Our team is very aware of the potential impact on the schedule of the design and environmental documentation review process and have focused our efforts on developing an aggressive coordination plan with the environmental resource agencies that should expedite reviews and approvals. We have successfully used this approach in other states on accelerated projects.

We anticipate being in a position in mid-1997 to initiate pre-cast element construction to ensure their availability on the day the environmental permits are received. Consideration will be given to early ordering and storage of other materials as well.

It is important to note that our design allows flexibility in the schedule as shown. In final design we will evaluate all of our available options in an attempt to shorten the schedule as much as possible. At any rate, the schedule we have shown here represents the maximum amount of time that we would need to complete this project.

Our team's proposed payment schedule will be very similar to normal NCDOT planning, design, and construction projects. The proposed schedule is as follows:

- Payment application/invoices will be submitted monthly for planning, design, and permitting services. Per normal NCDOT procedures, these will be based on percentage complete to date. The following values are attached to the items comprising Line Item No. 1.

|            |  |
|------------|--|
| 10%        | EA/FONSI Document                      |
| 9%         | Permit Applications Made               |
| 4%         | Permit Applications Approved           |
| 9%         | Geotechnical Investigations and Report |
| <u>68%</u> | Construction Plans and Specifications  |

100% of Line Item No. 1 Lump Sum

Payment application/invoices will be submitted monthly for construction of the bridge and fender system. Payment for precast materials may be made in accordance with NCDOT's Standard Specification Provisions for Payment for Stored Materials. The following values are attached to the items comprising Line Items No. 2 and 3.

*Line Item No. 2 - Bridge Construction*

| ITEM                           | QUANTITY   | UNIT PRICE                            | TOTAL PRICE               |
|--------------------------------|--|---------------------------------------|---------------------------|
| Mobilization                   | Lump Sum (Payable<br>50% First Month,<br>50% Second Month) |                                       | 10% of Total<br>Line Item |
| Pile Installation              | 158 Each   | 25% of Line Item<br>2 divided by 158  | 25% of Total<br>Line Item |
| Demolition                     | 2300 Lf  | 20% of Line Item<br>2 divided by 2300 | 20% of Total<br>Line Item |
| Cap Installation               | 79 Each  | 20% of Line Item<br>2 divided by 79   | 20% of Total<br>Line Item |
| Beam & Ballast<br>Installation | 158 Each   | 25% of Line Item<br>2 divided by 158  | 25% of Total<br>Line Item |
| <b>TOTAL LINE ITEM 2</b>       |  |                                       | <b>100%</b>               |

*Line Item No. 3 - Fender System Construction*

1. Fender System Mobilization - 10 % of total (all first month)
2. First Month - 50% of Balance
3. Completion - 50% of Balance

**STANDARD SPECIAL PROVISION**

**AVAILABILITY OF FUNDS - TERMINATION OF CONTRACTS**

In accordance with G.S. 143-28.1 (6), Subsection (5) of G.S. 143-28.1 is hereby incorporated verbatim in this contract. G.S. 143-28.1(5) is as follows:

“(5). Amounts Obligated - Payments subject to the Availability of Funds - Termination of Contracts. Highway maintenance and construction appropriations may be obligated in the amount of allotments made to the Department of Transportation by the Office of State Budget and Management for the estimated payments for maintenance and construction contract work to be performed in the appropriation fiscal year. The allotments shall be multi-year allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in subdivision (2) above. Payment for highway maintenance and construction work performed pursuant to contract in any fiscal year other than the current fiscal year will be subject to appropriations by the General Assembly. Highway maintenance and construction contracts shall contain a schedule of estimated completion progress and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any highway maintenance or construction contract and any highway maintenance or construction contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of schedule work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications”.

Payment will be made on any contract terminated pursuant to the special provision in accordance with Article 108-13, Item 5, of the North Carolina Department of Transportation Standard Specifications for Roads and Structures, dated July 1, 1995.

**STANDARD SPECIAL PROVISIONS**  
**(ENGLISH)**  
**ERRATA**

The 1995 Standard Specifications shall be corrected as follows:

Page 23, Subarticle 103-4(B)

In the second line of the last paragraph, change the phrase "on one of more projects" to read "on one or more projects".

Page 221, Article 452-4

Change the word "for" to read "from".

Page 247, Subarticle 520-6(B)

In the third line of the last paragraph, change the number "5" to "6".

Page 248, Subarticle 520-6(C)(2)

In the fourth line of the fourth paragraph, change "5 inches" to read "6 inches".

Page 272, Article 542-3

In the fifth line of the first paragraph, change the number "6" to "7".

Page 267, Article 540-11

In the third line of the first paragraph, change the word "not" to "no".

Page 300, Subarticle 609-9(C)

In the ninth line of the second paragraph, change "or Subarticle 610-11(C)" to "or Subarticle 610-11(D)".

Page 332, Article 622-2

In the second line, change "Article 1020-9" to "Article 1020-8".

Page 334, Section 630, Table 630

In the tenth line of the table in the No. 200 sieve size, change the percent from "1.0-6.0" to "1.0-7.0".

In the line "Voids in Total Mix, VTM, (%)", change "3-5" to read "4-6".



Page 339, Table 640

In the last line of this table, insert "75" under Type H and "75" under Type HDB".

Page 362, Article 700-10

In the fifth line of the paragraph, change "completed" to "composed".

Page 367, Subarticle 700-15(E)(2)

In the ninth line of this paragraph, change the wording "Subarticle 710-12(C)" to "Subarticle 710-11(C)".

Page 377, Subarticle 720-11(C)

In the fifth line of the first paragraph, change the word "or" to "for".

Page 417, Subarticle 846-3(A)

In the first line of the third paragraph, change the word "Bituminous" to read "Asphalt".

Page 524, Subarticle 1020-9(A)

Change "AASHTO M116" to read "ASTM D-41".

Page 524, Subarticle 1020-9(D)

Change "AASHTO D490" to read "ASTM D490".

Page 643, Article 1080-13

In Subarticle 3.2 pigments, change both the percentages in (a) from "5%" to "0%"; In (b), change "59%" to "5%" and "85%" to "5%", in (c), change "70%" to "70% min." and add "85% min." in the second column.

Page 733, Article 1205-6

Change the heading of this article from "Description" to "Basis of Payment".

Page 788, Article 1510-7

In the Pay Item List, change the eighth item by inserting the word "water" between "iron" and "pipe".

**STANDARD SPECIAL PROVISION**  
**BORROW EXCAVATION**  
**(ENGLISH AND METRIC)**

The 1995 Standard Specifications shall be revised as follows:

Page 110, Subarticle 230-4(A)

In the second paragraph, delete the last sentence and insert the following:

Once all borrow has been removed from the source or portion thereof, the stockpiled topsoil shall be spread uniformly over the area and permanently seeded and mulched.

Page 111, Subarticle 230-4(C)

In the second paragraph, delete No. 3a., b., c., and d., and insert the following:

**a. Drainage:**

The source shall be graded to drain such that no water will collect or stand and a functioning drainage system shall be provided. If drainage is not practical, and the source is to serve as a pond, the minimum depth of excavation below the water table, other than the slopes, shall be 4 feet (1.2 meters) below the water table, as the water table is measured at the time the reclamation plan is approved.

**b. Slopes:**

The source shall be excavated according to the plan and the slopes shall be dressed and shaped in a continuous manner to contours which are comparable to and blend in with the adjacent topography, but in no case will slopes steeper than 2:1 be permitted. Slopes below the water line will be no flatter than 5:1. The material that is to be the top soil should be tested to insure that it will support long term permanent growth of the proposed ground cover and shall be amended as necessary to support permanent growth.

**c. Erosion Control:**

The plan shall address the temporary and permanent measures that the Contractor intends to employ during use of the source and as a part of the reclamation. The Contractor's plan shall provide for the use of staged permanent seeding and mulching on a continual basis while the source is in use and the immediate total reclamation of the source when no longer needed. Temporary seeding is required if final permanent seeding cannot be accomplished within a 30 day period. All temporary devices will be left until they are no longer needed and then they will be removed by the contractor. This may be before or after the final inspection.

**d. Buffer Zones:**

Sufficient area will be left between the nearest property line and the tie-in of the slope to natural ground to allow for the operation of excavation, hauling, and seeding equipment, and for the installation of any and all erosion control devices required. Additional area will be left between the source and any water course or body to prevent siltation of the water course or body and the movement of the shore line either into the water course or body or into the borrow source. The Contractor is also required to determine if any additional buffer zones are required by the adjoining property owner or other governmental agency and to comply to those requirements. (such as 10' {3 m} from property lines and 25' {7.6m} from water bodies or water courses). Where it is necessary to drain the borrow source, the Contractor shall perform this work in accordance with Section 240.

6.503340

JUNE 18, 1996

STANDARD SPECIAL PROVISION

(ENGLISH AND METRIC)

BEARING PILES

The 1995 Standard Specifications shall be revised as follows:

Page 215, Article 450-6

In the last line of the second paragraph, change "4 weeks" to read "40 working days".

**STANDARD SPECIAL PROVISION**  
**DISPOSAL OF WASTE AND DEBRIS**  
**(ENGLISH AND METRIC)**

The 1995 Standard Specifications shall be revised as follows:

Page 387, Article 802-2

In the first paragraph, delete No. 1a., b., c., and d. and insert the following:

**a. Material Description:**

The type of material that is to be wasted in the area is to be listed in the reclamation plan. This material is to be in compliance with the Solid Waste Disposal Act requirements.

**b. Drainage:**

The waste or disposal area shall be shaped to drain such that no water will collect or stand and a functioning drainage system shall be provided.

**c. Slopes:**

Rock and earth waste shall be shaped to contours which are compatible to and blend with the adjacent topography. All rock shall be covered with a minimum 6 inch (150 mm) layer of earth material either from project waste or from borrow. As an exception, side slopes constructed of all rock material will not require earth covering. All slopes shall be on a 2:1 or flatter except that rock slopes shall be on a stable angle of repose.

**d. Construction Debris:**

Construction debris and all broken pavement and masonry shall be covered with a minimum 6 inch (150 mm) thick layer of earth waste material from the project or borrow. The completed waste area shall be shaped as required above for disposal of earth or rock waste.

**e. Erosion Control:**

The plan shall address temporary and permanent measures that the contractor intends to employ during use of the site and as a part of the reclamation. Unless considered impractical due to special circumstances, the Contractor's plan shall provide for the use of staged permanent seeding and mulching and appropriate fertilizer topdressing on a continual basis during site use and the immediate total reclamation of the site when the site is no longer needed.

**f. Buffer Zones:**

Sufficient area will be left between the nearest property line and the tie-in of the slope to natural ground to allow for the operation of excavation, hauling and seeding equipment, and for the installation of any and all erosion control devices required. Additional area will be left between the source and any water course or body to prevent siltation of the water course or body and the movement of the shore line either into the water course or body or into the waste areas. The Contractor is also required to determine if any additional buffer zones are required by the adjoining property owner or other governmental agency and to comply to those requirements. (Suggested minimum distances are 10' (3 m) from property lines and 25' (7.6 m) from water bodies or water courses.

**Page 387, Article 802-2**

In No. 2, first paragraph, third line, insert the words "and drainage" after the word "appearance" and before the word "of".

Add the following paragraph at the end of No. 2:

Disposal of waste and debris will not be allowed in any area under the Corps of Engineers' regulatory jurisdiction until the Contractor has obtained a permit for such disposal from the Corps' District Engineer having jurisdiction and has furnished a copy of this permit to the Resident Engineer.

**Page 388, Article 802-3**

Add the following sentence after the first sentence in the first paragraph:

When waste is permitted to be placed within the right-of-way at the request of the contractor and it requires that it be covered before it is seeded, the contractor will provide the covering material at no cost to the Department.