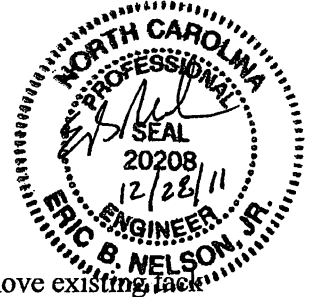


PROJECT SPECIAL PROVISIONS

Project No.: BP-5300Z

Gaston County



SCOPE OF WORK

This work shall consist of furnishing all labor, materials and equipment to remove existing pack welds, make structural steel repairs to the steel truss, gusset and connector plates, and truss bearings; and clean and paint the structural steel of the steel truss, deck stringers, floor beams, and all other structural steel as shown in the contract documents and plans. Cleaning and painting for this project includes the removal of pack rust from and sealing of crevices between plates, double angles and other adjacent plates. Contractor shall provide all necessary access; underdeck platforms, scaffolding, ladders, etc.; provide all traffic control (both vehicular and navigational); provide all staging area, material storage; provide environmental controls to limit loss of materials into water and air; jacking equipment, sawing equipment, and chipping equipment; and all else necessary to complete the work.

LOCATION AND DESCRIPTION

Bridge No. 22 in Gaston County was built in 1956 as is located on NC 273 over the Duke Power Feeder in the town of Belmont, NC. The bridge has an overall length of 447 feet and consists of 5 total spans with 2 ends spans of approximately 24 feet long consisting of 4 lines of rolled steel stringers, and a 3 span structural steel deck truss of 400 feet long consisting of two steel trusses supporting 4 lines of rolled steel stringer and their supporting rolled steel floor beams.

SUBMITTAL OF WORKING DRAWINGS

SPECIAL

General

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, "submittals" refers to only those listed in this provision. The list of submittals contained herein does not represent a complete list of required submittals for the project. Submittals are only necessary for those items as required by the contract. **Make submittals that are not specifically noted in this provision directly to the Resident Engineer.**

To minimize review time, make sure all submittals are complete when initially submitted. The first submittal may be made via email. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Resident Engineer or Structures Management Unit.

Addresses and Contacts

<p>Mr. Rick Nelson, PE Asst. State Bridge Management Engineer NC Dept. of Transportation Structures Management Unit 1000 Birch Ridge Road Raleigh, NC 27610 Fax: 919.733.2348 Ph: 919.733.4362 Email: enelson@ncdot.gov</p>	<p>Mr. Aaron Dacey Coatings & Corrosion Engineer NC Dept. of Transportation Materials & Tests Unit 1563 Mail Service Center Raleigh, NC 27699-1563 Fax: 919.733.8742 Ph: 919.329.4090 Email: adacey@ncdot.gov</p>
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Furnish one complete copy of each submittal, including all attachments, to the Resident Engineer. At the same time, submit the number of copies shown below of the same complete submittal directly to the Structures Management Unit and the Materials & Tests Unit.

The table below covers “Submittals”. The Resident Engineer will receive review comments and drawing markups for these submittals from the Structures Management Unit.

Unless otherwise required, submit one set of supporting calculations to the Structures Management Unit. Provide additional copies of any submittal as directed by the Engineer.

SUBMITTALS

Submittal	Copies Required by SBMU	Copies Required by Materials&Tests	Contract Reference Requiring Submittal
Bridge Painting Submittals (Under Structure Platforms, Containment, Product Data including Penetrating Sealer, Epoxy Mastic and Caulking, Health & Safety, QC Plan, etc.)	1 via email, Then 5 hard copies	1 via email	Special Provision
Bridge Jacking and Support Plan	1 via email, Then 5 hard copies	1 via email	Special Provision

CRANE SAFETY

(8-15-05)

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration regulations (OSHA).

Submit all items listed below to the Engineer prior to beginning crane operations involving critical lifts. A critical lift is defined as any lift that exceeds 75 percent of the manufacturer’s crane chart capacity for the radius at which the load will be lifted or requires the use of more than one crane. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

CRANE SAFETY SUBMITTAL LIST

Competent Person: Provide the name and qualifications of the “Competent Person” responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.

Riggers: Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.

Crane Inspections: Inspection records for all cranes shall be current and readily accessible for review upon request.

Certifications: By July 1, 2006, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

MANAGING BRIDGE WASH WATER

1.0 Description

Collect and properly dispose of Bridge Wash Water from bridge.

2.0 Construction Methods

(A) Prepare a written Bridge Wash Water management plan in accordance with the Guidelines for Managing Bridge Wash Water available at <http://www.ncdot.org/doh/preconstruct/ps/contracts/letting.html>. Submit plan and obtain approval from the Engineer prior to beginning of the bridge cleaning operation.

(B) Prior to final payment, submit a paper copy of all completed records pertaining to disposal of Bridge Wash Water.

3.0 Measurement and Payment

Payment for collecting, sampling, testing, pH adjustment, monitoring, handling, discharging, hauling, disposing of the bridge wash water, documentation, record keeping, and obtaining permits if applicable, shall be included in the payment for other items.

UNDER STRUCTURE WORK PLATFORM

SPECIAL

Description

Prior to any painting operations on the structure, the Contractor shall design and install an understructure work platform which will be used to provide access to the work to be done as well as serve as the platform for the cleaning and painting of the bridge. The Contractor shall determine the capacity of the platform which will be required, but the capacity shall not be less than that required by State or Federal regulations. Platform shall be constructed of materials capable of withstanding damage from any of the work required on this project. The platform shall be fireproof. Drawings of the platform and loads supported by the platform shall be sealed by a North Carolina Registered Professional Engineer. Submit drawings to the Engineer for approval prior to beginning work on the platform. Platform shall be cleaned after each work day to prevent materials from falling or washing into the river.

Payment

Under Structure Work Platform will be paid for at the lump sum contract price and will be full compensation for the design, installation, maintenance, and removal of the platform

Payment will be made under:

Pay Item	Pay Unit
Under Structure Work Platform	Lump Sum

REMOVAL OF TACK WELDS

SPECIAL

Description

This work shall consist of the safe removal of all existing tack welds between gusset plates and filler plates on the existing structural steel truss in a manner that does not damage surrounding material.

Construction Methods

The Contractor is specifically forewarned that removal of tack welds shall be required as ordered by the Engineer. It is the intent of this project to remove all tack welds between the gusset plates and between filler plates and gusset plates. If the Contractor is unsure whether any given weld constitutes a “tack weld”, the Engineer shall be consulted as the proper course of action.

Tack welds between gusset and filler plates and at other locations where welds of less than two inches in length are adjacent to riveted connection shall be removed. Care shall be taken to ensure than structural steel is not damaged during the removal of tack welds.

Measurement and Payment

Removal of Tack Welds will be measured and paid for at the unit price per tack weld removed bid for and shall be full compensation for all equipment, tools, labor, and incidentals incorporated in the completed and accepted work.

Payment will be made under:

Pay Item	Pay Unit
Removal of Tack Welds	Each

LOCALIZED CLEANING AND SEALING OF EXISTING STEEL

SPECIAL

Description

The work shall consist of cleaning, removing pack rust from and applying penetrating sealer to crevices between gusset plates, filler plates, joints and back- to-back angles of the existing structural steel at location indicated on the contract plans and as directed by the Engineer. The work shall also include the sealing of crevices larger than one eighth of an inch with epoxy mastic and the application of caulking material to seal the crevices of the existing steel.

Removal of pack rust shall, in part, be accomplished by high pressure power washing equipment capable of a maximum water pressure of 5000 psi. The Contractor shall provide all necessary equipment to capture, convey, collect, contain and filter surface preparation water and water used to decontaminate personnel and/or equipment. The Contractor shall reuse filtered wastewater to

the extent practicable that minimizes volume, toxicity and cost for disposal and also reduces the volume of fresh water required without significantly impacting upon equipment function.

Materials

- A. **Equipment:** The Contractor shall provide all brushes, discs, wheel, scrapers, descalers, power wash equipment, and other cleaning and surface preparation equipment including vacuum-shrouded tools, as needed to conduct the steel cleaning work as indicated. The contractor may supply any recyclable abrasive which contains less than one percent free silica, and is compatible with the requirements of the equipment. Provide paint brushes, roller, spray equipment and caulking gun to apply the penetrating sealer and caulking material. All equipment shall be acceptable to the Engineer both prior to, and during, cleaning operations.

Power wash equipment shall be capable of applying a focused column at a water pressure of 5,000 psi.

- B. **Water for power washing** shall be from a clean, potable water supply. Water taken directly from non-potable sources will not be accepted. If recommended by the paint manufacturer, and approved by the Engineer, a rust inhibitor may be added to the wash water to minimize oxidation (rusting) of the cleaned surface.
- C. **Penetrating Sealer:** The penetrating sealer used for this work shall be compatible with the paint system used for the localized painting of existing steel and shall be approved by the NCDOT Materials and Test Unit.
- D. **Epoxy Mastic.** The epoxy mastic used for this work shall be compatible with the paint system used for the localized painting of existing steel and shall be approved by the NCDOT Materials and Test Unit.
- E. **Caulking.** The caulking material for sealing the crevices of the existing steel shall be an epoxy mastic material approved by the NCDOT Materials and Tests Unit and be compatible with the paint system used for the localized painting of existing steel.

The penetrating sealer, epoxy mastic and caulking material will be accepted on the basis of the manufacturer's written certification that the batch produced meets their product specification. Only sealer arriving at the work site in new, unopened containers and labeled with the manufacturer's name, product name, component part, batch number and shelf life date shall be used. Sealer in containers having expired shelf life dates shall be immediately removed from the work site and not used.

Construction Methods

The proceeding methods shall not be begun until the work platform and the containment structure has been completed in accordance with the plans submitted by the Contractor and approved by the Engineer.

A. Cleaning and Removal of Pack Rust

The contractor is specifically forewarned that cleaning of corrosion, pack rusting, rust staining

shall be required by this item at locations indicated by the contact documents, or where ordered by the Engineer.

Remove all rust scale and loose pack rust by power washing the areas with a washing pressure of 5,000 psi. Power washing shall be done from a distance between four and six inches from the surface to be cleaned. Remove tight pack rust until highest point is a minimum of one eighth of an inch below the surface of the surrounding sound steel. Pack rust that cannot be removed by a direct column of 5,000 psi or by prying and probing with a dull putty knife is considered to be adherent. Pay particular attention to the crevice areas when removing pack rust and rust scale. Exercise care to avoid nicking or gouging the steel during removal.

B. Penetrating Sealer

Penetrating sealer may be applied by brush, roller or airless spray method unless otherwise recommended by the manufacturer. Complete protection from sealer spatter, spillage, overspray, wind blown sealer, or similar releases of sealer shall be provided. Covers, tarps, mesh and similar materials shall be placed around the work area to protect the public and private property, pedestrian, vehicular, other traffic, all portions of the bridge, highway appurtenances and similar surrounding areas and property, upon, beneath, or adjacent to the structure.

The penetrating sealer is a two components product. The mixing amount and method of mixing for these components must be in accordance with the manufacturer's instruction. Using all material before pot life expiration, and cleaning lines and equipment immediately after use. Wet coat sufficiently to completely cover and penetrate to the steel surface but do not apply heavy coat. Use coat thickness as recommended by the manufacturer

The penetrating sealer shall be applied within 24-hours after completion of the cleaning operations and before the condition known as flash-rusting occurs. No bare steel surface prepared for penetrating sealer application shall be left uncoated long enough to allow the formation of rust. Cleaned areas upon which rust has formed shall be recleaned in accordance with the cleaning requirement at no additional cost. The presence of rust shall be determined by the Engineer.

The receiving steel surface shall be clean and absolutely dry. The permissible steel surface temperature and the ambient temperature shall be as recommended by the sealer manufacturer. However, in no case, shall the penetrating sealer be applied when the steel surface or the ambient temperatures is below 41°F or above 100°F, or the relative humidity exceeds 85%.

Drying time is temperature, humidity and film thickness dependent. Use manufacturer's recommended drying schedule to estimate the drying time of the sealer for application of the other coatings. If the manufacturer's recommendations allow, the use of forced air pressure to dry the surface will be permitted.

C. Epoxy Mastic

At areas cleaned of pack rust, crevices of a width greater than or equal to one eighth of an inch shall be filled with epoxy mastic. Mastic shall be applied after penetrating sealer and prior to priming of steel.

D. Caulking

Apply caulking to seal the crevices and areas of pack rust. The contractor shall apply caulking between the applications of the intermediate coat and finish coat of paint system. Care shall be taken to only caulk the top surfaces of the joints between plates in prevent a watertight seal around an entire plate and restricting moisture from being properly drained.

The contractor shall mix and install the caulking in strict accordance with the approved Cleaning, Surface Preparation, and Painting Plan and the caulking manufacturer's instructions. Allow the caulking to cure in accordance with the manufacturer's instructions prior to the application of additional coatings.

E. Inspection

Each layer of application shall be verified by both QC (Quality Control) and QA (Quality Assurance).

QUALITY CONTROL INSPECTOR – The Contractor provides a quality control inspector in accordance with the SSPC QP guidelines to ensure that all processes, pack rust removal and each coating application are in accordance with the requirements of the contract. The inspector shall have written authority to perform QC duties to include continuous improvement of all QC internal procedures. The presence of the engineer or inspector at the work site shall in no way lessen the contractor's responsibility for conformity with the contract

QUALITY ASSURANCE INSPECTOR- The quality assurance inspector which may be a Department employee or a designated representative of the Department shall observe, document, assess and report that the Contractor is complying with all of the requirements of the contract. Inspectors employed by the Department are authorized to inspect all work performed and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The inspector is not authorized to alter or waive the requirements of the contract. Each stage in preparing the structure to be coated which includes but not limited to washing, pack rust removal, sealing, application of epoxy mastic and caulking shall be inspected and approved by the Engineer or his authorized representative .

The Contractor furnishes all necessary OSHA approved apparatus such as ladders, scaffolds and platforms as required for the inspector to have reasonable and safe access to all parts of the work. The contractor illuminates the surfaces to be inspected to a minimum of 50-foot candles of light. All access points shall be illuminated to a minimum of 20-foot candles of light.

BASIS OF PAYMENT

The cost of inspection, surface preparation, applying penetrating sealer, epoxy mastic and caulking is included in the unit price bid per linear foot for *Localized Cleaning and Sealing*. This price is full compensation for furnishing all inspection equipment, all sealers, mastics, caulk and all other materials; and furnishing power washing equipment, brushes, rollers and any other hand or power tools and any other equipment; containment, handling and disposal of debris and wash water, all personal protective equipment, and all personal hygiene requirements.

Payment will be made under:

Pay Item

Localized Cleaning and Sealing

Pay Unit

Linear Foot

JACKING AND ADJUSTMENT OF BEARINGS

SPECIAL

Scope of Work

Work to adjust bearings includes jacking of the superstructure to release the bearings from all load, cleaning and lubricating the existing bearing steel, resetting the bearings, and supporting the superstructure while repair work is being completed. This work shall consist of furnishing all labor, equipment, and materials to clean bearings and temporarily support the superstructure while work is being completed.

Construction Methods

The Contractor shall submit a jacking and support plan for approval prior to beginning work. The Contractor is responsible for determining the appropriate jacking loads required to release the bearings and the appropriate vertical and horizontal loads required to stabilize the structure while the bearings are being cleaned and adjusted.

Once the bearing is free of load and the superstructure is secure, the nuts on the pins shall be loosened but not removed. The bearing plates, rocker, and pins shall be thoroughly cleaned to remove any surface and pack rust. The Contractor shall lubricate the pins and rotate the bearings to demonstrate movement and a working bearing. After cleaning and lubricating the assembly to the satisfaction of the Engineer, if the bearing plates are still unable to be rotated about the pins the Engineer shall be consulted as to the proper course of action.

The bearings shall then be reset, and the nuts on the pins shall be re-tightened snug.

Measurement and Payment

Jacking and Adjustment of Bearings will be measured and paid for at the unit price bid per bearing for the above work and shall be full compensation for all materials, fabrication, equipment, tools, labor, and incidentals incorporated in the completed and accepted work.

Payment will be made under:

Pay Item	Pay Unit
Jacking and Adjustment of Bearings	EA

STRUCTURAL STEEL REPAIR

SPECIAL

Scope of Work

Work to repair structural steel includes strengthening of two vertical truss members, replacement of minor angles and bent plates, anchor bolt replacement, and bolting of additional or replacement structural steel. Locations shall be as indicated on the contract plans

Materials

All structural steel shall satisfy the requirements of Article 1072 of the *Standard Specifications*.

Adhesively anchored anchor bolt and dowels shall meet the requirement of Articles 420-13 and 1081 of the *Standard Specifications*, except that pull testing is not required.

Construction Methods

1.0 Surface Preparation

Prior to beginning repair work, the Contractor shall perform a commercial blast (SSPC SP-6) to the areas to be repaired.

2.0 Replacement of Plates and Angles

Dimensions shown on the plans are from the best information available. Replacement plates shall match the existing plates in thickness, length, width, bolt hole diameter and bolt hole spacing. The contractor shall field verify the information shown on the plans prior to fabrication of replacement members in order assure proper fit up.

It is the responsibility of the Contractor to ensure the stability of the structure during plate and angle replacement. Support details shall be submitted for review and acceptance prior to the repairs being made.

Material for replacement bent plates and angles shall satisfy the requirements of article 1072 of the *Standard Specifications*.

3.0 Strengthening of Vertical Truss Members

Vertical Truss Members shall be strengthened at locations designated in the contract plans using details also shown in the plans.

Bolts holes shall be field drilled. Torching of bolt holes will not be permitted.

Prior to field drilling holes for the second channel, the first channel shall be secured in place and bolts tightened in accordance with the plans and the special provisions.

4.0 Anchor Bolt Replacement

Anchor Bolt replacement shall occur at the locations designated in the contract plans using the details also shown in the plans.

Material for replacement bent plates and angles shall satisfy the requirements of article 1072 of the *Standard Specifications*.

For adhesively anchored bolts, see Articles 420-13 and 1081 of the *Standard Specifications*, except that pull testing is not required.

Measurement and Payment

Structural Steel Repair, Approx. Lbs. will be measured and paid for at the unit price per pound bid for structural steel repairs and shall be full compensation for all materials, fabrication, bolting, welding, equipment, tools, labor, and incidentals incorporated in the completed and accepted work.

Payment will be made under:

Pay Item

Structural Steel Repair, Approx. Lbs.

Pay Unit

Pound

BOLT REMOVAL AND REPLACEMENT**(SPECIAL)****Scope of Work**

This work shall consist of the safe removal of miscellaneous bolts and rivets in a manner that does not damage surrounding material and replacement with high strength bolts at locations shown on the plans or as directed by the Engineer. In addition, this work includes the installation of high strength bolts as indicated on the plans. The contractor shall provide safe access to the area, so the Engineer can assess the bolt condition after the surface preparation has occurred. Any necessary removal and repair of the paint system shall be considered incidental to the contract items.

Materials

All high strength bolts, nuts, washers and direct tension indicators shall be in accordance with Section 440 of the Standard Specifications. All bolts shall be mechanically galvanized in accordance with Article 440-8(4) of the *Standard Specifications*.

Repair Method and Operations

The contractor shall submit to the Engineer for approval the proposed method for bolt and rivet removal. Removal will not be permitted until the removal method has been approved and demonstrated successfully in the judgment of the Engineer. In the event that the Engineer determines that either bolt or rivet removal work is resulting in damage to the existing steel, the contractor shall cease removal operations until a new proposed method has been demonstrated and approved by the Engineer. Any damage to the existing structure due to contractor's bolt or rivet removal and replacement operations or field drilling operations shall be repaired or replaced at the contractor's expense and to the satisfaction of the Engineer.

Unless otherwise noted, all bolts shall be the same diameter as the bolts being replaced. Contractor shall determine the length of replacement bolts. High strength bolt installation shall be in accordance with Section 440 of the *Standard Specifications*. All high strength bolts that replace bolts shall have a washer under the head and nut. Special care shall be taken to replace one, and only one, bolt or rivet at a time. Before any bolt or rivet is loosened all other bolts shall be tightened in accordance with the contract plans, the project special provisions, and the *Standard Specifications*. If field drilling and reaming of the existing holes is required, the method shall be submitted to the Engineer for approval. No flame cutting will be permitted when enlarging existing holes or creating new holes. After installation, the contractor shall thoroughly clean the area in order to ensure all debris and oils are removed prior to application of primer.

Measurement and Payment

Bolt Removal and Replacement will be measured and paid for at the unit price per bolt bid for both new bolt installation and replacement of existing bolts and rivets and shall be full compensation for all materials, fabrication, equipment, tools, labor, and incidentals incorporated in the completed and accepted work.

Payment will be made under:

Pay Item

Bolt Removal and Replacement

Pay Unit

Each

PAINING EXISTING STRUCTURES

REV 9/2011

Specialty Items:

Description of Work - This work shall consist of furnishing all labor, equipment, and materials to clean and paint the structural steel of the existing bridges. Work includes: removing, containment and disposal of the existing paint system; preparation of the surface to be painted and applying the new paint system; traffic control, marking & delineation; portable lighting; erosion and sediment control; seeding and mulching all grassed areas disturbed; and all incidental items necessary to complete the project as specified and shown on the plans.

The contractor shall be responsible for fulfilling all requirements of the NCDOT Standard Specifications for Roads and Structures dated January 2012, except as otherwise specified herein.

Work Schedule – Prior to the pre-construction meeting, the Contractor shall submit his work schedule to the Engineer. Schedule shall be kept up to date, with a copy of the revised schedule being provided to the Engineer in a timely manner (as determined by the Engineer).

SSPC QP-2 Certification - The existing paint systems include toxic substances such as red lead oxide, which are considered hazardous if improperly removed. Only contractors who are currently SSPC QP-2, Category A certified, and have successfully¹ completed lead paint removal on all similar structures within 18 months prior to this bid, may bid on and perform this work. **The apparent low bidder shall submit a list of projects for which QP2 work was performed within the last 18 months including owner contact information and submit to the Assistant State Bridge Management Engineer a “Lead Abatement Affidavit” by 12:00 noon of the third day following the opening of bids. This form may be downloaded from:**

<http://www.ncdot.gov/projects/ncbridges/#stats>

Twelve-month Observation Period - The Contractor maintains responsibility for the coating system for a twelve (12) month observation period beginning upon the satisfactory completion of all the work required in the plans or as directed by the Engineer. The Contractor must guarantee the coating system under the payment and performance bond (refer to Article 109-10). To successfully complete the observation period, the coating system must meet the following requirements after twelve (12) months service:

- No visible rust, contamination or application defect is observed in any coated area.
- Painted surfaces have a uniform color and gloss.
- Painted surfaces have an adhesion that meets an ASTM D-3359, 3A rating.

¹ Successfully: All lead abatement work completed in accordance with contract specifications, free of citation from safety or environmental agencies. Lead abatement work shall include but not be limited to: abrasive blasting; waste handling, storage and disposal; worker safety during lead abatement activities (fall protection, PPE, etc.); and containment. This requirement is in addition to the contractor pre-qualification requirements covered by NCDOT Std. Specification, Section 102-2.

Final acceptance is made only after the paint system meets the above requirements.

Submittals - All submittals must be submitted to the Engineer for review and approval prior to the pre-construction meeting:

- Containment Drawings sealed by NC Professional Engineer
- Bridge Wash Water Sampling & Disposal Plan
- Sub- Contractor identification
- Lighting Plan for night work in accordance with NCDOT *Standard Specifications* Section 1413.
- Traffic Control Plan
 - a) NCDOT certified supervisors, flaggers and traffic control devices
- Health & safety Plan²
 - a) ²Plan must address the minimum required topics as specified by the SSPC QP-1 and QP-2 program to also include hazard communication, respiratory health, emergency procedures, and local hospital and treatment facilities to include directions and phone numbers, disciplinary criteria for workers who violate the plan and accident investigation.
 - b) Contractor shall provide the Engineer a letter of certification that all employees performing work on the project have blood lead levels that are below the OSHA action level.
 - c) Competent Person qualifications and summary of work experience.
- Environmental Compliance Plan
- Quality Control Plan (Project Specific)
 - a) Quality control qualifications and summary of work experience
- Bridge and Public Protection Plan (Overspray, Utilities, etc. - Project/Task Specific)
- Abrasive Blast Media
 - a) Product Data Sheet
 - b) Blast Media Test Reports in accordance with NCDOT *Standard Specification* Section 1080-15.

² SSPC QP-1 required minimum: Hazardous Materials, Personal Protective Equipment, General Health and Safety, Occupational Health and Environmental Controls, Personal Protective Equipment, Fire Protection and Prevention, Signs Signals, and Barricades, Materials Handling, Storage, Use, and Disposal, Hand and Power Tools, Welding and Cutting, Electrical, Scaffolds, Fall Protection, Cranes, Derricks, Hoists, Elevators, and Conveyors, Ladders, Toxic and Hazardous Substances, Airless Injection and HPWJ.

- Coating Material
 - a) NCDOT HICAMS Test Reports (testing performed by NCDOT Materials & tests Unit).
 - b) Product Data Sheets
 - c) Material Safety Data Sheets
 - d) Product Specific Repair Procedures
 - e) Acceptance letters from paint manufacturer's for work practices that conflict with Project Special Provisions and or paint manufactures product data sheets.

Pre-Construction Meeting – Submittals shall be reviewed and be approved by the engineer prior to scheduling the Pre-Construction Meeting. The Contractor shall allow for a review process of no less than two (2) weeks.

When requesting a pre-construction meeting the Contractor must contact the Engineer at least 7 working days in advance of the desired pre-construction date. The contractor's project supervisor, competent person, quality control personnel and certified traffic control supervisor shall be in attendance for the Pre-Construction meeting in order for the Contractor and DOT team to establish roles responsibilities for various personnel during project duration and to establish realistic timeframes for problem escalation.

Containment Plan - No work begins until the Contractor furnishes the Engineer with a containment plan for surface preparation and coating operations and the Engineer reviews and responds in writing about the acceptability of said plan. Allow a minimum of two weeks for review of the plan. Such plan must meet or exceed the requirements of Class 2A containment in accordance with SSPC Guide 6. Enclosure drawings and loads supported by the structure must be prepared, signed and sealed by a Registered North Carolina Professional Engineer.

In the containment plan describe how debris is contained and collected. Describe the type of tarpaulin and bracing materials and the maximum designed wind load. Describe the dust collection system and how a negative pressure of 0.03 inches of water column is maintained inside the enclosure while blasting operations are being conducted. Describe how the airflow inside the containment structure is designed to meet all applicable OSHA Standards. Describe how water run-off from rain will be routed by or through the enclosure. Describe how wash water will be contained and paint chips separated. Describe what physical containment will be provided during painting application to protect the public and areas not to be painted.

Wash water Sampling and Disposal Plan - No work begins until the Contractor furnishes the Engineer with a containment plan for surface preparation and coating operations and the Engineer reviews and approves in writing said plan. All wash water shall be collected and sampled prior to disposal. Representative sampling and testing methodology shall conform to 15A NCAC 02B.0103, "Analytical Procedures". Wash water shall be tested for pollutants listed in 15A NCAC 02B.0211 (3), 15A NCAC 02T.0505 (b) (1) and 15A NCAC 2T.0905 (h) (See link below for NCDOT Guidelines for Managing Bridge Wash Water). Depending on the test

results, wash water disposal methods shall be described in the disposal plan. Wash water shall be disposed of in accordance with all current state and federal regulations.

<http://www.ncdot.gov/projects/ncbridges/#stats>

Waste Handling of Paint and Abrasives – The Contractor will comply with the Resource Conservation and Recovery Act (RCRA – 40 CFR 261 - 265) and the Occupational Safety and Health Act (OSHA - 29 CFR 1910 - 1926) regulations for employee training, and for the handling, storage, labeling, recordkeeping, reporting, inspections and disposal of all hazardous waste generated during paint removal.

A summary of Generator Requirements is available at the above NCDOT web link which cites the specific regulations for each Generator category. Quantities of waste by weight and dates of waste generation must be recorded. Waste stored at the project site must be properly labeled.

The North Carolina Department of Environment and Natural Resources (NCDENR) have adopted RCRA as the North Carolina Hazardous Waste Management Rules and are responsible for enforcement. The “Hazardous Waste Compliance Manual for Generators of Hazardous Waste” is published by the Compliance Branch of the Division of Waste Management of NCDENR, and can be found at

<http://portal.ncdenr.org/web/wm/hw/rules>

The Contractor is required to maintain compliance with all federal, state and local regulations. Failure to comply with the regulations could result in fines and loss of qualified status with NCDOT.

Use a company from the below list of approved waste management companies. Immediately after award of the contract, the Contractor arranges for waste containers, sampling and testing, transportation and disposal of all waste. No work begins until the Contractor furnishes the Engineer with a written waste disposal plan. Any alternative method for handling waste must be pre-approved by the Engineer.

Southern Logistics, Inc. – 312 Orvil Wright Blvd, Greensboro, NC 27409 (Ph. 336-662-0292)

A&D Environmental – PO Box 484, High Point, NC 27261 (Ph. 336-434-7750)

Poseidon Environmental Services, Inc. – 837 Boardman-Canfield Rd #209, Youngstown, OH (Ph. 330-726-1560)

Clean Harbors Reidsville, LLC – 208 Watlington Industrial Drive, Reidsville, NC 27320 (Ph. 336-342-6106)

Waste and Wash Water Sampling

All removed paint and spent abrasive media shall be tested for lead following the SW-846 TCLP Method 1311 Extraction, as required in 40 CFR 261, Appendix 11, to determine whether it must be disposed of as hazardous waste. The Contractor shall furnish the Engineer certified test reports showing TCLP results and Iron analysis of the paint chips stored on site, with disposal being in accordance with “Flowchart on Lead Waste Identification and Disposal”.

http://portal.ncdenr.org/c/document_library/get_file?p_l_id=38491&folderId=328599&name=DLFE-9855.pdf

The Competent Person shall obtain composite samples from each barrel of the wash water and waste generated by collecting two or more portions taken at regularly spaced intervals during accumulation. Composite the portions into one sample for testing purposes. Do not obtain portions of the composite sample from the very first or last part of the accumulation process. The sample(s) should be acquired after 10 percent or before 90 percent of the barrel has accumulated. Due to the difficulty of acquiring samples the intent is to provide samples that are representative of widely separated portions, but not the beginning and end of wash water or waste accumulation.

Perform sampling by passing a receptacle completely through the discharge stream, or by completely diverting the discharge into a sample container. If discharge of the wash water or waste is too rapid to divert the complete discharge stream, discharge into a container or transportation unit sufficiently large to accommodate and then accomplish the sampling in the same manner as given above.

Until test results are received, all waste shall be stored and labeled as "NCDOT Bridge Paint Removal Waste-Pending Analysis" and include the date generated and contact information for the Division HazMat Manager or Project Engineer. Waste containers shall be stored in an enclosed, sealed and secured storage container. Once test results are received and characterized, waste shall be labeled as either "Hazardous Waste-Pending Disposal" or "Paint Waste-Pending Disposal".

Once the waste has been collected, and the quantity determined, the Contractor prepares the appropriate shipping documents and manifests and presents them to the Engineer. The Engineer will verify the type and quantity of waste and obtain a Provisional EPA ID number from the

NC Hazardous Waste Section
North Carolina Department of Environment & Natural Resources
1646 Mail Service Center
Raleigh, NC 27699
Phone (919) 508-8400 Fax (919) 715-4061

At the time of shipping the Engineer will sign, date and add the ID number in the appropriate section on the manifest. The maximum on-site storage time for collected waste shall be 90 days. All waste whether hazardous or non-hazardous will require numbered shipping manifests. The cost for waste disposal (including lab and Provisional EPA ID number) is included in the bid price for this contract. Note NC Hazardous Waste Management Rules (15A NCAC 13A) for more information. Provisional EPA ID numbers may be obtained at this link:

<http://portal.ncdenr.org/web/wm/provisional-hw-notification-page>

Testing labs shall be certified in accordance with North Carolina State Laboratory Public Health Environmental Sciences. List of certified laboratories may be obtained at this link:

(<http://slphreporting.ncpublichealth.com/EnvironmentalSciences/Certification/CertifiedLaboratory.asp>)

All test results shall be documented on the lab analysis as follows:

1. For leachable lead

a. Soils/Solid/Liquid- EPA 1311/200.7/6010

All sampling shall be done in presence of the Engineer's representative.

Equipment Mobilization - The equipment used in any travel lanes and paved shoulder must be mobile equipment on wheels that has the ability to move on/off the roadway in less than 30 minutes. All work conducted in travel lanes must be from truck or trailer supported platforms and all equipment must be self propelled or attached to a tow vehicle at all times.

QUALITY CONTROL INSPECTOR – The Contractor provides a quality control inspector in accordance with the SSPC QP guidelines to ensure that all processes, preparation, blasting and coating application are in accordance with the requirements of the contract. The inspector shall have written authority to perform QC duties to include continuous improvement of all QC internal procedures. The presence of the engineer or inspector at the work site shall in no way lessen the contractor's responsibility for conformity with the contract

QUALITY ASSURANCE INSPECTOR- The quality assurance inspector which may be a Department employee or a designated representative of the Department shall observe, document, assess and report that the Contractor is complying with all of the requirements of the contract. Inspectors employed by the Department are authorized to inspect all work performed and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The inspector is not authorized to alter or waive the requirements of the contract. Each stage in preparing the structure to be coated which includes but not limited to washing, blasting, coating testing and inspection shall be inspected and approved by the Engineer or his authorized representative .

SUBLETTING OF CONTRACT:

Only contractors certified to meet SSPC QP-2, Category A, and have successfully completed lead paint removal on all similar structures within 18 months prior to this bid are qualified for this work. Work is only sublet by approval of the Engineer.

SPECIFICATIONS:

The North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures dated January 2012; together with these Special Provisions apply to this project. Surface preparation and painting are performed in accordance with Section 442 except where otherwise noted in these Special Provisions. The Paint materials must meet the applicable materials specifications under Section 1080. Materials approvals are in accordance with 3.0 Materials of this Special Provision.

1.0 PREPARATION OF SURFACES:

- 1.1 Power washing – Before any other surface preparation are conducted, all surfaces shall be power washed to remove dust, salts, dirt and other contaminants. All wash water shall be contained, collected and tested in accordance with the requirements of NCDOT Managing Bridge Wash Water specification. Under no circumstances will surface preparation or painting activities be started over cleaned surfaces until all surfaces are free of standing water and dry to the touch, and then only after approval by the Engineer.

- 1.2 Blasting is done with recyclable steel grit meeting the requirements of Section 1080-15. The profile must be between 1.0 and 3.0 mils when measured on a smooth steel surface. A minimum of four tests per blasted area shall be conducted on truss/stringer assemblies documented.
- 1.3 Tarpaulins are spread over all pavements and surfaces underneath equipment utilized for abrasive recycling and other lead handling equipment or containers. This requirement shall be enforced during activity and inactivity of equipment.
- 1.4 Before the contractor departs from the work site at the end of the work day, all debris generated during surface preparation and all dust collector hoses, tarps, or other appurtenances containing blasting residue are collected in approved containers.
- 1.5 The Contractor cleans a three inch by three inch area at each structure to demonstrate the specified finish and the inspector preserves this area by covering it with tape, plastic or some other suitable means so that it can be retained as the DFT gage adjustment standard. An acceptable alternative is for the Contractor to provide a steel plate with similar properties and geometry as the substrate to be measured.
- 1.6 The contractor and or quality assurance representative shall notify the Engineer of any area of corroded steel which has lost more than 25% of its original thickness.
- 1.7 All parts of the bridges not to be painted, and the travelling public, shall be protected from overspray. The Contractor shall submit a plan to protect all parts of bridge that are not required to be painted, in addition to a plan to protect the traveling public and surrounding environment while applying all coats of paint to a structure.
- 1.8 Contractor must insure that chloride levels on the surfaces are 7 ug/cm^2 or lower using an acceptable sample method in accordance with SSPC Guide 15. The frequency of testing shall be 2 tests per blasted area after all surface preparation has been completed and immediately prior to painting. Test areas selected shall represent the greatest amount of corrosion in the span as determined by the Engineers' representative.
- 1.9 All weld splatter, slag or other surface defects resulting in a raised surface above the final paint layer shall be removed prior to application of primer coat.

2.0 PAINTING OF STEEL:

Paint System 1, as specified in these special provisions and Section 442 of NCDOT's Standard Specifications, is to be used for this work. System 1 is an inorganic zinc primer, two coats acrylic paint and one stripe coat of acrylic paint over blast cleaned surfaces in accordance with SSPC-SP-10 (Near White Blast). Perform all mixing operations over an impervious surface with provisions to prevent runoff to grade of any spilled material. The contractor is responsible for reporting quantities of thinner purchased as well the amounts used. No container with thinner shall be left uncovered, when not in use.

Apply two inch (2") stripe coat by **BRUSH OR ROLLER ONLY** to all exposed edges of steel including fasteners before applying the finish coat. Locate the edge or corner in the approximate center of the paint stripe.

Any area where newly applied paint fails to meet the specifications must be repaired or replaced by the Contractor. The Engineer approves all repair processes before the repair is made. Repaired areas must meet the specifications. The Contractor applies an additional finish coat of paint to areas where the tape adhesion test is conducted.

3.0 MATERIALS:

Only paint suppliers that have a NCDOT qualified inorganic zinc primer may furnish paints for this project. All paints applied to a structure must be from the same supplier. Before any paints are applied the Contractor provides the Engineer a manufacturer’s certification that each batch of paint meets the requirements of the applicable Section 1080 of the *Standard Specifications*.

The inspector randomly collects a one pint sample of each paint product used on the project. Additional samples may be collected as needed to verify compliance to the specifications.

Do not expose paint materials to rain, excessive condensation, long periods of direct sunlight, or temperatures above 110F or below 40F. In addition, the Contractor shall place a device which records the high, low and current temperatures inside the storage location. Follow the manufacturer’s storage requirements if more restrictive than the above requirements.

4.0 INSPECTION:

Surface Preparation for System 1 shall be in accordance with SSPC SP-10. Any area(s) not meeting the requirements of SSPC SP 10 shall be remediated prior to application of coating. Surface inspection is considered ready for inspection when all blast abrasive, residue and dust is removed from surfaces to be coated.

Quality Assurance Inspection - The Contractor furnishes all necessary OSHA approved apparatus such as ladders, scaffolds and platforms as required for the inspector to have reasonable and safe access to all parts of the work. The contractor illuminates the surfaces to be inspected to a minimum of 50-foot candles of light. All access points shall be illuminated to a minimum of 20-foot candles of light.

NCDOT reserves the right for ongoing QA (Quality Assurance) inspection to include but not limited to surface contamination testing, adhesion pull testing and DFT readings as necessary to assure quality.

The Contractor informs the Engineer and the Division Safety Engineer of all scheduled and unannounced inspections from SSPC, OSHA, EPA and/or others that come on site and furnishes the Engineer a copy of all inspection reports except for reports performed by a third party and or consultant on behalf of the contractor.

Inspection Instruments - The Contractor furnishes at least the following calibrated instruments at site and conducts the quality control testing:

- Sling Psychrometer - ASTM E-337 – bulb type
- Surface Temperature Thermometer
- Wind Speed Indicator
- Tape Profile Tester – ASTM D-4417 Method C

Surface Condition Standards – SSPC VIS-1 and VIS-3
Wet Film Thickness Gage – ASTM D-4414
Dry Film Thickness Gage – SSPC-PA2 Modified
Solvent Rub Test Kit – ASTM D-4752
Adhesion Test Kit – ASTM D-3359 Method A (Tape Test)
Adhesion Pull test – ASTM D-4541
Surface Contamination Analysis Kit or (Chloride Level Test Kit)

The contractor maintains a daily quality control record in accordance with Section 442-12 and such records must be available at the job site for review by the inspector and be submitted to the Engineer as directed. In addition to the information required on M&T-610, the Contractor shall submit all DFT readings as required by these Special Provisions on a form equivalent to M&T-611.

The dry film thickness is measured at each spot as indicated on the attached diagram at no less than specified for each paint system as listed below:

Dry film thickness measurements shall be documented and recorded for each main member, truss and or stringer beam(s) as shown in the contract drawings. Dry film thickness is measured at each spot on the attached diagram and at the required number of locations as specified below:

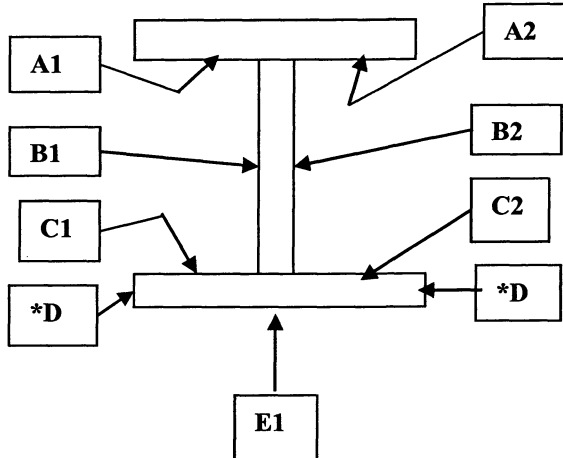
1. For truss members less than 25 feet; select one location within its span length.
2. For truss members 25-45 feet; three random locations within its span length.
3. For truss members greater than 45 feet; add 1 additional location for each additional 10 feet in span length.

DFT measurements for the prime coat shall not be taken for record until the zinc primer has cured in accordance with ASTM D-4752 (MEK Rub Test) with no less than a four resistance rating.

Stiffeners and other attachments to beams and or plate girders shall be measured at no less than five random spots per span. Also dry film thickness is measured at no less than six random spots per span on diaphragms/“K” frames.

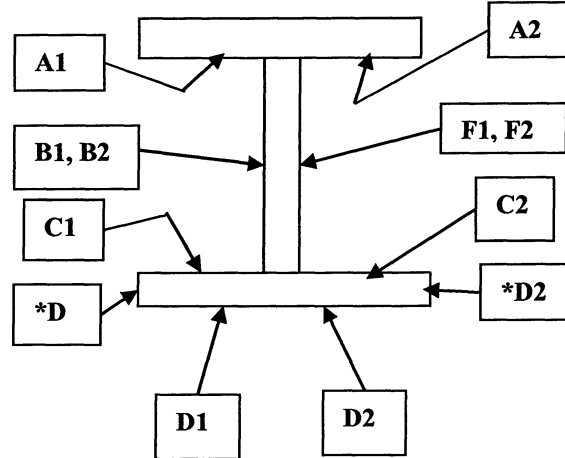
Each spot is an average of three to five individual gage readings as defined in SSPC PA-2. No spot average shall be less than 80% of minimum DFT for each layer applied; this does not apply to stripe coat application. Spot readings that are non-conforming shall be re-accessed by performing additional spot measurements not to exceed one foot intervals on both sides of the low areas until acceptable spot averages are obtained. These non-conforming areas shall be corrected by the contractor prior to applying successive coats.

Less than 36" in height and/or bottom flanges less than 16" in width.
7 Spot Areas
21 Individual DFT Readings



***D areas are only included when flange thickness is one inch (1") or greater.**

36" in height or greater and/or bottom flanges greater than 16" in width.
10 Spot Areas
30 Individual DFT Readings



***D areas are only included when flange thickness is one inch (1") or greater.**

- A. Two random adhesion tests (1 test=3 dollies) per span are conducted on interior surfaces in accordance with ASTM D-4541 (Adhesion Pull Test) after the prime coat has been properly cured in accordance with ASTM D-4752 (MEK Rub Test) with no less than a 4 resistance rating, and will be touched up by the Contractor. The required minimum average adhesion is 400 psi.
- B. Cure of the intermediate and stripe coats shall be accessed by utilizing the thumb test in accordance with ASTM D-1640 (Curing Formation Test) prior to the application of any successive layers of paint.
- C. One random Cut Tape adhesion test per span is conducted in accordance with ASTM D-3359 (X-Cut Tape Test) on interior surface after the finish coat is cured. Repair areas shall be properly tapered and touched up by the Contractor.

5.0 SAFETY AND ENVIRONMENTAL COMPLIANCE PLANS:

Personnel access boundaries are delineated for each work site using signs, tape, cones or other approved means. Submit copies of safety and environmental compliance plans that comply with SSPC QP-2 Certification requirements.

6.0 ENVIRONMENTAL MONITORING:

Comply with Section 442-13(B) of NCDOT's Standard Specifications.

A “Competent Person³” is on site during all surface preparation activities and monitors the effectiveness of containment, dust collection systems and waste sampling. Before any work begins the Contractor provides a written summary of the responsible person’s safety training.

Area sampling will be performed for the first two (2) days at each bridge location. The area sample will be located within five feet of the containment and where the highest probability of leakage will occur (access door, etc.). Results from the area sampling will be given to the Engineer within seventy-two (72) hours of sampling (excluding weekends) If the results of the samples exceed 20 ug/m³ corrective measures must be taken and monitoring will be continued until two consecutive samples come back less than 20 ug/m³.

Any visible emissions outside the containment enclosure or pump monitoring results exceeding the level of 30 µg/m³ TWA is justification to suspend the work.

Where schools, housing and/or buildings are within five hundred (500) feet of the containment, the Contractor shall perform initial TSP-Lead monitoring for the first ten (10) days of the project; during abrasive blasting, vacuuming and containment removal. Additional monitoring will be required during abrasive blasting two days per month thereafter. Results of the TSP monitoring at any location shall not exceed 1.5 ug/m³.

This project may involve lead and other toxic metals such as arsenic, cadmium and hexavalent chromium. It is the contractor’s responsibility to test for toxic metals and if found, comply with the OSHA regulations, which may include medical testing.

7.0 HEALTH AND SAFETY RESPONSIBILITY:

Comply with Section 442-13(C) of NCDOT’s Standard Specifications. Insure employee blood sampling test results are less than 50 micrograms per deciliter. Remove employees with a blood sampling test of 50 or more micrograms per deciliter from work activities involving any lead exposure.

An employee who has been removed with a blood level of 50 micrograms per deciliter or more shall have two consecutive blood sampling tests spaced one week apart indicating that the employee’s blood lead level is at or below 40 micrograms per deciliter before returning to work activities involving any lead exposure.

Prior to blasting operations the Contractor shall have an operational OSHA approved hand wash station at each bridge location and a decontamination trailer at each bridge or between bridges unless the work is on the roadway, or the contractor can show reason why it is not feasible to do so in which the Contractor will provide an alternative site as approved by the Engineer. The contractor shall assure that all employees whose airborne exposure to lead is above the PEL shall shower at the end of their work shift.

All OSHA recordable accidents that occur during the project duration are to be reported to the Engineer within twenty four (24) hours of occurrence. In addition, for accidents that involve

³ **Competent Person** as defined in OSHA 29 CFR 1926.62 is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who have authorization to take prompt corrective measures to eliminate them.

civilians and or property damage that occur within the work zone the Division Safety Engineer shall be notified immediately.

8.0 STORAGE OF PAINT AND EQUIPMENT:

The Prime Contractor provides a location for materials, equipment and waste storage. Tarpaulins are spread over all pavements and surfaces underneath equipment utilized for abrasive recycling and other lead handling equipment or containers. All land and or lease agreements that involve private property shall disclose to the property owner that lead and other heavy metals may be present on the Contractor’s equipment. Prior to storing the Contractor’s equipment on private property the Engineer shall receive a notarized written consent signed by the land owner submitted at least forty-eight (48) prior to using property. All storage of paint, solvents and other materials applied to structures shall be stored in accordance with Section 442 of the Specifications or manufacturers’ requirements. The more restrictive requirements will apply.

9.0 UTILITIES:

The Contractor protects all utility lines or mains which may be supported on, under, or adjacent to bridge work sites from damage and paint over-spray.

10.0 PAYMENT:

The cost of inspection, surface preparation and repainting the existing structure is included in the lump sum price bid for *Cleaning and Repainting of Bridge #___*. This price is full compensation for furnishing all inspection equipment, all paint, cleaning abrasives, cleaning solvents and all other materials; preparing and cleaning surfaces to be painted; applying paint in the field; protecting work, traffic and property; and furnishing blast cleaning equipment, paint spraying equipment, brushes, rollers and any other hand or power tools and any other equipment; containment, handling and disposal of debris and wash water, all personal protective equipment, and all personal hygiene requirements.

Pollution Control will be paid for at the contract lump sum price which price will be full compensation for all collection, handling, storage, air monitoring, and disposal of debris and wash water, all personal protective equipment, and all personal hygiene requirements, and all equipment, material and labor necessary to fully contain the blast debris; daily collection of the blast debris into specified containers; and any measures necessary to ensure conformance to all safety and environments regulations as directed by the Engineer.

Payment will be made under:

Pay Item	Pay Unit
Cleaning and Repainting of Bridge #___	Lump Sum
Pollution Control	Lump Sum

DESCRIPTION OF BRIDGE

Bridge #22: The bridge was built in 1956 as is located on NC 273 over the Duke Power Feeder in the town of Belmont in Gaston County, NC. The bridge has an overall length of 447 feet and consists of 5 total spans with 2 ends spans of approximately 24 feet long consisting of 4 lines of

rolled steel stringers, and a 3 span structural steel deck truss of 400 feet long consisting of two steel trusses supporting 4 lines of rolled steel stringer and their supporting rolled steel floor beams. The existing paint system is foliage green (ALKYD) over zinc, and the estimated area to be cleaned and painted is **43,100** sq. ft.

Paints on all bridges (regardless of color), contain red lead and other hazardous constituents. All cleaning and surface preparation activities must prevent dispersion of debris into the environment.

Surface area shown is approximate and may vary from the actual quantity to be painted. The Contractor is responsible for determining the actual area to be painted.