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ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: BRIDGE CLEANING & PAINTING
ENVIRONMENTAL PROTECTION

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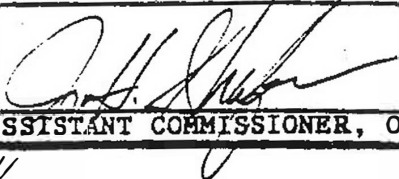
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J. H. SHAFER, ASSISTANT COMMISSIONER, OFFICE OF ENGINEERING

The Department of Environmental Conservation has expressed concern for the possible adverse environmental effects of our bridge cleaning and painting projects. Their primary concern is for the lead paint chips in the sandblasting debris which could present a health hazard if ingested by humans. This subject is discussed in more detail in the National Cooperative Highway Research Program Report 265 "Removal of Lead-Based Bridge Paints."

In response to these concerns and in accordance with the NCHRP report, we have developed the attached specifications and serialized pay items which are to be used on projects in accordance with the following established policy.

- o Environmental Waterway Protection items are to be provided for all structures over water.
- o Environmental Ground Protection items are to be provided for those structures over areas where people live, work, walk or play. This includes land use areas as residential, recreational, schools, offices and other work areas. Areas that could generally be considered for exclusion could be railroad land areas, freeways where human exposure to paint chips is minimal and rural areas infrequently occupied by people or livestock.

No doubt there will be contracts where the mix of several structures will require either environmental waterway or ground protection, or both, and some structures with none.

This Instruction takes effect immediately. For those contracts too far progressed to include the protection items in the proposal, they may be added by order-on-contract.

SECTION 570 - CLEANING AND PAINTING

570-1 DESCRIPTION. This work shall consist of cleaning, priming and painting new and existing (in-service) structural steel; cleaning and painting timber and lumber; cleaning and painting galvanized or aluminum surfaces; and providing environmental protection as specified by the contract documents.

570-1.01 DEFINITIONS.

A. Maintenance Cleaning and Priming, and Maintenance Painting shall mean the cleaning and priming, and painting of existing installations or structures in service.

B. Environmental Protection shall mean the containment, collection and removal of old paint chips, corrosion residues, spent abrasives and newly applied paint (herein after referred to as waste materials) that result from blasting and other cleaning and painting operations performed in the field.

570-2 MATERIALS. All materials and equipment used for cleaning and priming and for painting shall meet the requirements of Section 740, Painting Procedures.

All material and equipment used for environmental protection shall be approved by the Engineer. Any material or equipment that is determined to be deficient or that becomes damaged to the extent that it no longer fulfills the requirements of this specification shall be replaced or repaired as directed by the Engineer, at the Contractor's expense.

570-3 CONSTRUCTION DETAILS

570-3.01 Cleaning and Priming, and Painting New Structural Steel and New Structural Steel Downspout Systems. New structural steel shall be cleaned, primed and painted in accordance with Section 740-01, Painting Metal Structures. New structural steel downspout systems shall be cleaned, painted and paid for in accordance with Section 566, Bridge Drainage System.

570-3.02 Maintenance Cleaning and Priming of Structural Steel. All structural steel members, railings, fascia, downspouts, and other miscellaneous steel items which have been previously painted shall be cleaned and primed unless specifically excluded by the plans, or specifications, or by the Engineer.

The requirements of Section 740-01, D. Maintenance Painting shall apply together with the following:

- A. Surfaces to be cleaned shall be identified in the following manner:

Category I: A surface on which the existing paint has deteriorated to the point that it is necessary to clean the surface to bare steel.

Category II: A surface on which the existing paint is in good condition, so that it is only necessary to remove contaminants and to dull the existing paint. Many surfaces will exhibit conditions as defined by Categories I and II, side by side.

- B. Surfaces meeting the definition of Category I shall be cleaned in accordance with Section 740-01, Surface Preparation, F. Commercial Blast Cleaning.

Surfaces meeting the definition of Category II shall be cleaned in accordance with Section 740-01, Surface Preparation, E. Brush-Off Blast Cleaning.

To remain in place, paint shall be tightly adhered to Category II (brush-blasted) surfaces after cleaning operations are completed. Tightly adhered paint is defined as paint which cannot be lifted as a layer when a dull putty knife is inserted beneath it. If the Engineer determines that paint remaining on the steel surface after cleaning is not tightly adhered, then that paint shall be removed in accordance with the cleaning requirements for Category I surfaces, until tight paint is reached.

- C. Category I surfaces cleaned to bare metal shall have all blasting products removed and shall be painted with one coat of primer daily and before the condition known as flash rusting occurs. All stripe painting shall be performed before the general primer coat is applied.

Primer shall be applied in accordance with the requirements of Section 740-01, Paint Application Methods, except that stripe painting operations shall be performed using brushes only.

All steel surfaces receiving primer shall be absolutely dry prior to primer application.

Cleaning and painting operations shall be performed in such a manner that detrimental amounts of spent abrasive, dust or other contaminants do not fall on wet, newly-primed surfaces.

- D. Category II surfaces on which the existing paint is tight, and in good condition need not be primed.

570-3.03 Maintenance Painting of Structural Steel. All structural steel members, all railings, fascia, downspouts, and all miscellaneous steel items which have been previously cleaned and primed in accordance with Section 570-3.02 shall be painted, unless specifically excluded by the plans, specifications, or by the Engineer.

All cleaned and primed surfaces shall be painted two (2) full coats of paint, the intermediate coat and the finish coat, in accordance with the requirements of Section 740-01, D. Maintenance Painting, and the following:

- A. The application of the intermediate coat of paint shall not begin until all receiving surfaces have been cleaned and primed in accordance with Section 570-3.02.

All receiving surfaces shall be clean and dry. If, after the original cleaning and priming, or application of a subsequent coat of paint, receiving surfaces become dirty in any manner, they shall be cleaned again by a method allowed under the requirements of Section 740. The actual method to be used shall be determined by the Engineer.

- B. Termination of Spraying or Rolling Operations. The Engineer or Inspector is empowered to terminate spraying or rolling operations temporarily or permanently, in accordance with the requirements of Section 740-01, Termination of Spraying or Rolling Operations.

570-3.04 Cleaning and Painting of Timber and Lumber, Galvanized Surfaces and Aluminum Surfaces. The requirements of subsection 740-02, Painting Timber and Lumber; §740-03, Painting Galvanized Surfaces; and §704-04, Painting Aluminum Surfaces shall apply as applicable.

570-3.05 Environmental Ground Protection. Coverage shall be provided on or over the ground under all structures that are to be cleaned and painted in the field under Sections 570-3.01, 570-3.02 and 570-3.03.

NOTE: Whenever a structure spans over a railroad, covers shall be placed and maintained in accordance with Section 105-09, Work Affecting Railroads.

Depositing or dropping waste materials into water and onto the ground or roadways below the structure outside the specified containment areas will not be permitted.

Blasting or other cleaning or painting operations shall not be performed when the direction or velocity of prevailing winds causes waste materials to fall outside the containment area. If wind or other factors prevent containment acceptable to the Engineer the Contractor may, with the Engineers permission, use drapes or other means to prevent drift beyond all specified containment areas.

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Ground Protection shall consist of the following:

- A. Covers or other material, capable of catching and holding waste materials shall be provided on or over the ground under the structure in the work area. A bridge deck or a highway pavement and paved shoulder under a structure from which wastes may be collected and removed by sweeping may be used in place of a cover providing that within that area such usage is confined to lanes and shoulders closed to traffic.
- B. The cover provided shall include all areas beneath the structure. The length of the cover shall be determined by the length of the work location, and the width shall be at least 10 feet greater than each side of the area directly being worked on. The cover shall be positioned in such a manner as to contain and prevent the loss of waste materials.
- C. Covers on or over roadways or railroads or sidewalks or other similar areas shall not present a hazard of any kind, as determined by the Engineer, and no cover shall remain in place overnight unless otherwise authorized by the Engineer.
- D. All waste materials that collect on a bridge deck, or on a highway pavement and paved shoulder under a structure or on covers shall be removed at least once a day or more frequently if directed by the Engineer. No waste material shall remain on the bridge deck, pavement or containment covers overnight.
- E. All waste materials shall be removed from the project site and disposed of in accordance with all applicable Local, State, or Federal law, regulation or codes.
- F. If approved by the Engineer the Contractor may use other methods or modifications for ground protection that will accomplish the results required by this specification.

570-3.06 Environmental Waterway Protection. Collectors shall be provided under all structures that span bodies of water, waterways, and streambeds, and that are to be cleaned and painted in the field under Sections 570-3.01, 570-3.02 and 570-3.03.

NOTE: Structures that span a navigable waterway may be subject to regulation by the U.S. Coast Guard, the U.S. Army-Corps of Engineers, the N.Y.S. Dept. of Transportation-Waterways Maintenance Division, and the N.Y.S. Dept. of Environmental Conservation. If there is conflict between the regulations of the cited agencies and this specification the regulations of the agencies shall govern. However, the Contractor

shall be required to conform with the requirements of this specification and shall submit his proposal for conformance, for approval by the Engineer, at least fourteen (14) days prior to commencing work. No work shall begin until written approval by the Engineer is granted.

The applicable requirements of Section 570-3.05, Environmental Ground Protection, shall apply together with the following:

- A. A collector shall be suspended from the structure and shall, as measured over the water, be at least 10 feet greater in length and at least 10 feet wider than each side of the area on which work is underway. The collector shall be positioned in a manner acceptable to the Engineer so as to contain and prevent the loss of waste materials. The collector shall not remain in place overnight, if in the opinion of the Engineer it presents a hazard of any kind.
- B. All waste materials that remain on the collector shall be removed at least once a day or more frequently if directed by the Engineer
- C. If it is determined by the Engineer that floating waste materials may form on the water surface they shall be contained from moving upstream or downstream by the use of floating water booms (straw or screens). Floating waste material shall be collected daily, or more frequently, as directed by and to the satisfaction of the Engineer. Straw or screening used in the fabrication of water booms shall be replaced with clean material weekly or as otherwise directed by the Engineer.
- D. All waste materials and used straw and screening from dam devices shall be removed from the project site and disposed of in accordance with all applicable Local, State or Federal law, regulation or codes.
- E. If the bridge location and characteristics or the surrounding topography do not lend themselves to the specified control measures for waterway protection, the Engineer may approve modifications to meet the intent of this specification.

570-4 METHOD OF MEASUREMENT. Payment will be made at the lump sum price bid.

570-5 BASIS OF PAYMENT. The lump sum price bid shall include the cost of all labor, materials and equipment necessary to complete the work. All work shall be done in a manner satisfactory to the Engineer.

570-5.01 Cleaning and Priming New Structural Steel. Progress payments will be made. Structural steel accepted at the project site in accordance with section 564, Structural Steel, shall be considered cleaned and primed. Payment shall be based upon the percent of structural steel cleaned and primed in accordance with the requirements of §740-01. The percentage shall be computed as the ratio of the number of pounds of structural steel accepted to the number of pounds of structural steel required.

570-5.02 Painting of New Structural Steel. Progress payments will be made. Payment shall be based upon the percent of erected structural steel painted with two coats of paint (exclusive of the prime coat) in accordance with the requirements of subsection 740-01. The percentage shall be computed as the ratio of length of structure painted to the total length of structure.

570-5.03 Maintenance Cleaning and Priming of Structural Steel. Progress payments will be made. Payment shall be based upon the percent of structure cleaned primed in accordance with the requirements of subsection 740-01. The percentage shall be computed as the ratio of length of structure cleaned and primed to the total length of structure.

570-5.04 Maintenance Painting of Structural Steel. Progress payments will be made. Payment shall be based upon the percent of structure painted with two coats of paint (exclusive of the prime coat) in accordance with the requirements of subsection 740-01. The percentage shall be computed as the ratio of length of structure painted to the total length of structure.

570-5.05 Cleaning and Painting of Timber and Lumber, Galvanized Surfaces and Aluminum Surfaces. Progress payments will be made. They will be based upon the quantity of finish coat material actually incorporated in the work.

Prior to the beginning of any work, the Contractor shall supply the Engineer with the estimated quantity of finish coat deemed necessary to complete the work. The quantity shall be given in gallons. The estimate supplied the Engineer will not be considered final. The Engineer may request a revised estimate at any time during the progress of the work. Failure on the part of the Contractor to supply a revised estimate when requested, will be cause for the progress payment procedure to be immediately terminated.

Progress payments will be based upon the percentage of work completed. The percentage will be computed as the ratio of the number of gallons of finish coat actually incorporated in the work, to the total number of estimated gallons of finish coat required.

570-5.06 Environmental Ground and Waterway Protection. Progress payments will be made. They will be based upon the number of work days required to complete all of the work of cleaning and painting.

Prior to the beginning of any work, the Contractor shall supply the Engineer with an initial estimate of work days required to complete all of the work. This initial estimate shall not be considered final. The Engineer may request a revised estimate at anytime during the progress of the work. The Engineer will determine a daily rate of payment using the estimate of work days and the lump sum bid price. The daily rate will be used to authorize payment in accordance with subsection 102-17, Article 7.

Should the Engineer request a revised estimate and use that estimate to establish a new daily rate, the lump sum bid price shall be reduced by the total of the amounts previously authorized for payment, prior to the establishment of the new daily rate. Failure on the part of the Contractor to supply a revised estimate when requested, will be cause for the progress payment procedure to be immediately terminated.

Progress payments for this work will be made only for days during which cleaning, priming and painting work is actually performed.

Payment will be made under:

Item No.	Item	Pay Unit
570.01	Cleaning and Priming New Structural Steel	Lump Sum (for each Structure)
570.02	Painting New Structural Steel	Lump Sum (for each Structure)
570.03	Maintenance Cleaning and Priming of Structural Steel	Lump Sum (for each Structure)
570.04	Maintenance Painting of Structural Steel	Lump Sum (for each Structure)
570.07	Environmental Ground Protection	Lump Sum (for each Structure)
570.08	Environmental Waterway Protection	Lump Sum (for each Structure)
570.11	Cleaning and Painting Timber and Lumber	Lump Sum
570.12	Cleaning and Painting Galvanized Surfaces	Lump Sum
570.13	Cleaning and Painting Aluminum Surfaces	Lump Sum

NOTE: ALL ABOVE ITEMS ARE SERIALIZED ON THE LAST FOUR DECIMAL PLACES.

PAINTING PROCEDURES

Page 7-193

Under "Surface Preparation, A. General," delete the last sentence in the first paragraph that reads:

"A dry surface upon which light rusting may have formed, after cleaning, shall be considered acceptable."

Page 7-194

Modify the last sentence under the subsection "Paint Application Methods, A. General" to read:

"Paint may be applied by brushes, or rollers, or air-less spray, or a combination of these methods provided the method does not cause damage to public or private property."

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Under the subsection "Termination of Spraying or Rolling Operations" delete lines c. and d. and substitute the following:

- c. Areas not specifically designated to be painted are likely to be or are being affected by the application method.
- d. The application method is causing damage to public or private property."

Insert the following between the second and third sentences of the second paragraph to this subsection.

Spraying or rolling operations which are terminated due to damage to public or private property shall not be resumed until the Contractor takes appropriate measures to protect such property and demonstrates to the Engineer's satisfaction that such property damage will not recur.

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Under "A. General" revise the third paragraph to read as follows:

" - The protection, from paint spatter or spillage, of pedestrian, vehicular, marine or other traffic upon, beneath or adjacent to the painted surfaces. Payment for this service will be made under the item Environmental Ground Protection, Environmental Waterway Protection or Basic Maintenance and Protection of Traffic as applicable.