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ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: SECTION 619. STANDARD SHEETS AND SPECIFICATIONS

Superseded by revision to the specifications 1978
Subject Code: 7.27-2-619

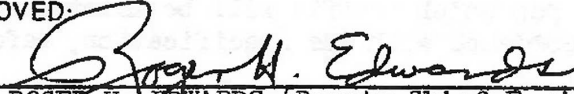
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APPROVED:


ROGER H. EDWARDS (Deputy Chief Engineer)

Supersedes: EI 75-7 DATE 1/16/75
AND EI 74-040 DATE 6/13/74

Transmitted herewith is a copy of revised specifications for Section 619, Maintenance and Protection of Traffic.

All P.S. & E. submissions for all lettings scheduled after February 2, 1976 shall contain the revised Section 619 specifications and corresponding pay items. You are requested to make all changes, necessitated by this revision, in P.S. & E's due into this office November 13, 1975 and thereafter.

The following are the major differences between the existing specifications and the attached specifications:

- 1) Payment for Delineation and Guiding Devices is included in the lump sum bid price for Basic Maintenance and Protection of Traffic.
- 2) Timber curbs (12" x 12" or larger) are now paid for separately. They were formerly paid for under Construction Barricades.
- 3) Basis of payment for Construction Barricades is now per linear foot instead of per station.
- 4) Basis of payment for Lighting for Construction Barricades is now linear foot instead of Calendar Day - Hundred Feet.
- 5) The Regional Director may, in writing, order or permit the Contractor to change the extent of, delay the start of, or eliminate watchmen service. Previously the Contractor had to request a change before action could be taken.
- 6) Revisions to Temporary Traffic Signals:
 - a) Some equipment in the Signal system need not be new.
 - b) Material and painting requirements of Section 724.04 are deleted except that signal head housings shall be aluminum alloy and painted with exterior dark green enamel paint.
 - c) Manufacturer's certification is no longer required for some equipment.
 - d) Controllers can be either solid state or electro-mechanical.
 - e) Progress payments can be made for each signal installed and in operation.

Subject: SECTION 619. STANDARD SHEETS AND SPECIFICATIONS

- 7) All references to Pavement Markings have been deleted and a new payment item for Pavement Delineation has been added. This is the result of a need for a simple method of keeping the nighttime driver properly oriented on the black expanse of underlying courses of asphalt concrete as they are placed, without calling for conventional pavement markings which require stakeout plus expensive application equipment. The item Pavement Delineation is intended for short term applications, as we require that any course of Asphalt Concrete, including base and binder courses, upon which traffic will be maintained, shall be properly delineated, in accordance with the Specification, before the end of the working day.

Conventional pavement markings should be utilized on the top surface of completed pavements and for any relatively long term temporary application such as paved detours or over the winter use of partially completed pavements. Said conventional pavement markings will usually be applied by State Forces. If, however, the Region wants the Contractor to apply conventional pavement markings, the appropriate Specification items should be utilized and incorporated into the contract. In addition, details of the usage should be clearly spelled out by special note.

We are also submitting under separate cover transparencies and prints of Standard Sheets 619-1R1 and 619-2R1. These Standard Sheets supersede 619-1 and 619-2. The new Standard Sheets have been revised and updated to meet current standards and the latest Standard Specifications for Section 619, Maintenance and Protection of Traffic.

The following guide lines are to be used in the project design:

The Design Engineer shall anticipate the sequence of operations for each project. The special cases or situations arising, that involve Construction Signs not included in Appendix 7 of NYS MUTCD or Standard Sheets shall be designed into the project. The plans should show the location and MUTCD number for all signs required in those special cases or situations. Unless special texts are used, it will not be necessary to indicate the texts for those construction signs. The special cases or situations arising, that involve Temporary Traffic Signals not included in the NYS MUTCD or Standard Sheets shall be designed into the project. "Maintenance and Protection of Traffic Detail" sheets delineating the suggested procedures shall be included in the Contract Drawings. Particular stress should be given for providing two way traffic wherever possible. The following notes referring to Watchmen Service Requirements and Restricted Highway Classification are to be placed on the Title Sheet of the Contract Drawings.

- (1) NOTE: The Contractor will be required to furnish Watchmen Service under Item _____ in accordance with Requirement _____ of the Standard Specifications.
- (2) NOTE: The Contractors attention is directed to the fact that this highway or highways will be designated as a (Restricted Highway or Non-Restricted Highway) under this contract."

The status of the project as a restricted or non-restricted highway shall be determined in accordance with EI 73-83 dated November 19, 1973 and EI 73-59 dated August 16, 1973.

SECTION 619 - MAINTENANCE AND
PROTECTION OF TRAFFIC

619-1 DESCRIPTION

619-1.01 General. This work shall consist of maintaining traffic and protecting the public from damage to person and property within the limits of and for the duration of the contract.

619-1.02 Basic Maintenance and Protection of Traffic. Traffic shall be maintained over a reasonably smooth traveled way which shall be so marked by signs, delineators, guiding devices and other methods that a person who has no knowledge of conditions may safely and with a minimum of discomfort and inconvenience ride, drive or walk, day or night, over all or any portion of the highway and/or structure under construction where traffic is to be maintained. All work shall conform to the requirements of the New York State Manual of Uniform Traffic Control Devices. The basic maintenance and protection requirements shall be as follows:

- A. Surface. Maintain the surface condition of the traveled way so it is consistent with the appropriate speed limit.
- B. Drainage. Maintain the drainage facilities and other highway elements, old or new, including detours.
- C. Bus Stops. Maintain existing bus stops, if any, so bus passengers are reasonably accommodated.
- D. Pedestrian Traffic. Provide adequate protection for pedestrian traffic during all phases of construction.
- E. Intersecting Highways. Provide ingress and egress to and from intersecting highways, homes, businesses and commercial establishments.
- F. Dust Control and Spillage. Control dust and keep the traveled way free from materials spilled from hauling equipment. This shall also apply to dust control and spilled material resulting from the contractor's operations in areas outside the contract limits.
- G. Flagmen. Provide the necessary traffic control equipment and flagmen for adequate traffic control on the traveled way.

H. Repairs. Make the necessary repairs to existing pavement and structure wearing surfaces as required to provide a reasonably smooth traveled way where vehicle operation is maintained.

I. Responsibility to the Public. Protect the public from damage to person and property which may result directly or indirectly from any construction operation. The specification requirements of § 107. "Legal Relations and Responsibility to Public," shall apply.

J. Schedule. Schedule work to keep to a minimum, and consistent with the physical requirements of the contract, the amount of existing pavement and/or facilities that are destroyed or substantially torn-up at any one time. Unless otherwise indicated on the plans or in the proposal the length of existing facility destroyed shall not exceed one mile, except when the Contractor has submitted and the Engineer has approved a detailed schedule of operations reflecting a proposal to the contrary.

K. Snow and Ice Control. Maintain the traveled way in such a condition and conduct operations in such a manner that snow and ice may be readily controlled by others as and when necessary, and in such a manner that proper drainage is provided for the melting of snow in the banks resulting from normal plowing. This shall include, but not be limited to, the cutting of weeps through banked or accumulated snow to provide proper drainage of surface runoff into the highway ditches and/or culverts. The contractor shall not, however, be responsible for snow and ice control on the pavement or traveled way.

L. Delineation and Guiding Devices. Provide and maintain delineation and guiding devices which shall include, delineators, drums, cones, flashers, railing, temporary curb of any kind (except 12" by 12" or larger timber curbs) and other similar materials or methods acceptable to the Engineer.

The installation, moving, and removing of any such delineators or guiding devices together with removal of existing pavement markings shall be included in the work.

The Contractor is placed on notice that maintenance and protection of traffic over a highway during construction is considered as important as the construction itself. The Contractor shall, therefore, at all times conduct his operations in a manner to insure the convenience of all travelers and the abutting property owners and their safety as well as the safety of his own employees.

619-1.03 Construction Signs, Timber Curbs (12" x 12" or larger), Construction Barricades and Lighting for Construction Barricades.

The Contractor shall furnish, install, move, remove and maintain construction signs, timber curbs (12" x 12" or larger), construction barricades and lighting for construction barricades as shown on the plans or as ordered by the Engineer in accordance with the New York State Manual of Uniform Traffic Control Devices.

619-1.04 Temporary Structures and Approaches. The Contractor shall construct, move or remove, as directed, temporary structures, approaches, detours, pavements and necessary appurtenances.

619-1.05 Watchmen Service. Watchmen shall be provided by the Contractor in accordance with Requirement A, B or C, as indicated on the plans or in the proposal.

The purpose of this item is to insure the adequate condition of the project site for the safety and convenience of the public. This item does not include watchmen for the purpose of protecting Contractor's equipment and materials from vandalism or theft, which should be reflected in the contract unit bid prices.

619-1.06 Pavement Delineation. The Contractor shall furnish, apply and when so ordered, remove pavement delineation as shown on the plans or as ordered by the Engineer in accordance with the New York State Manual of Uniform Traffic Control Devices.

619-1.07 Temporary Traffic Signals. The Contractor shall furnish, install, move, remove and maintain temporary traffic signals and necessary components where indicated on the plans or as directed by the Engineer. The temporary traffic signals and necessary components that are furnished by the Contractor shall remain the property of the Contractor.

619-1.08 Mailboxes. During construction, the Contractor shall maintain in a usable condition and location specified by U.S. Postal requirements, postal route mailboxes serviced from motor vehicles.

619-1.09 Opening Highway to Traffic Prior to Contract Acceptance. This work includes the maintenance and protection of traffic on any portion of pavement, structure or ramp, directed in writing by the Regional Director to be opened

to traffic prior to contract acceptance and on which traffic was not specified to be maintained and protected during construction. Pavement sections on new locations which are indicated to be used in the maintenance of traffic plan or which are requested by the Contractor to be used to maintain traffic, shall not fall in this category.

619-1.10 Railroad Protection. Where the contract work affects railroad companies, the maintenance and protection of traffic requirements specified in § 105-09, "Work Affecting Railroads" and special provisions of the contract proposal shall apply.

619-1.11 Duration of Contract. The duration of the contract, for the purpose of this work, shall be from the date any work is started on the contract, including moving in equipment, signs, offices, shops and the like, until the date the contract is officially accepted.

619-2 MATERIALS. All materials used shall comply with the requirements of the appropriate subsections of § 700, "Materials," or as established by this Section, the applicable Standard Sheets or the plans.

619-2.01 Existing Pavement Repair. Existing pavements shall be kept in repair using materials compatible with the pavement. In general, plant-mixed bituminous concrete is suitable for all pavement surfaces. Material other than plant-mixed bituminous concrete may be used if approved by the Engineer.

619-2.02 Construction Signs and Other Signs. Sign panels may be made of aluminum or plywood. When reflectorization is required by the New York State Manual of Uniform Traffic Control Devices, reflective sheet material shall be used and it shall conform to the photometric and color requirements of material specifications as follows:

730-05.02 Reflective Sheeting (Class B)

- A. For route marker signs that are mounted on destination guide signs.
- B. For all reflective surfaces of signs, except all signs that have a white background, exclusive of route marker signs that are mounted on destination guide signs. (Signs are considered to have a white background if more than 50 percent of the surface is white.)

730-05.01 Reflective Sheeting (Class A)

For all signs that have a white background, except route marker signs that are mounted on destination guide signs.

When reflectorization is not required, the sign face background shall be an exterior type paint conforming to the appropriate Highway Color Tolerance Chart PR Colors #1 through #6.

Black characters shall be non-reflective, Type V, and shall conform to the requirements of Section 730-13, REFLECTORIZED SHEETING SIGN CHARACTERS (TYPE V) of the Standard Specifications, except that reflective background material shall meet the requirements stated above.

White characters shall meet the requirements of either Section 730-12, REFLECTORIZED SHEETING SIGN CHARACTERS (TYPE IV) or Section 730-13, REFLECTORIZED SHEETING SIGN CHARACTERS (TYPE V), except that Type IV characters shall consist of cutout reflective sheeting material meeting the requirements of Section 730-05.02, REFLECTIVE SHEETING (CLASS B) and reflective background materials shall meet the requirements stated above.

These requirements must be maintained throughout the period of the Contract with repair or replacement made by the Contractor as necessary at no expense to the State.

619-2.03 Delineators, Timber Curbs (12" x 12" or larger), Construction Barricades, Lighting for Construction Barricades, and Pavement Delineation.

Delineators, timber curbs (12" x 12" or larger), barricades, lighting for construction barricades, pavement delineation and similar materials shall meet the requirements of these specifications and shall be in accordance with the plans, applicable Standard Sheets and the New York State Manual of Uniform Traffic Control Devices. No materials or methods which will cause damage to any pavement or paving course that will be retained shall be employed in the removal of pavement markings.

When reflectorization is required by the New York State Manual of Uniform Traffic Control Devices, reflective sheet material shall be used and it shall conform to the photometric and color requirements of material specification 730-05.02 Reflective Sheeting (Class B). It shall be used for all reflective stripes (both white and orange) on barricades, for all reflective white stripes on drums and for all reflective surfaces of delineators and auxiliary devices, except where glass or plastic buttons are used as delineators.

When reflectorization is not required, any paints utilized shall be of an exterior type conforming to the appropriate Highway Color Tolerance Chart PR Colors #1 through #6.

These requirements must be maintained throughout the period of the Contract with repair or replacement made by the Contractor as necessary at no expense to the State.

Pavement delineation shall consist of reflectorized paint or reflectorized pressure sensitive tape that is specifically designed for use on pavements. If paint is used, the materials, including glass beads, shall conform to the material requirements of Section 640 - REFLECTORIZED PAVEMENT MARKING PAINTS of the Specifications. If tape is used, it shall be of a type that will adhere to the surface to which it is applied. It shall be thin, flexible and capable of conforming to the texture of the surface of the pavement to which it is applied, including base, binder and top courses of asphalt concrete. The line segment shall be not less than four nor more than six inches in width and the color shall be as specified in the New York State Manual of Uniform Traffic Control Devices.

619-2.04 Temporary Structures and Approaches. When specific details are shown on the plans for temporary structures, the materials specified shall be used, except that substitutions or alterations may be permitted if approved by D.C.E.S. When specific details are not shown on the plans, the Contractor shall assume all liability and responsibility for the materials required to provide adequate and safe structures and approaches.

619-2.05 Temporary Traffic Signals. All span wire, inductance loop wire, shielded lead-in cable, traffic signal cable, and other wire used for temporary traffic signals shall be new material meeting the applicable requirements of Subsection 680-2 of the Standard Specifications.

All other equipment for temporary traffic signals shall meet the requirements of Subsection 680-2 of the Standard Specifications except for the following modifications:

- A. Used equipment in good operating condition may be furnished to provide the required operation of the signals.
- B. Manufacturers' certification of compliance will not be required.
- C. The signal controller may be either solid-state or electro-mechanical.
- D. The material and painting requirement of Section 724-04, Traffic Signal Heads, of the Standard Specifications, shall not apply except that the Signal head housing shall be made of aluminum alloy and shall be painted with an exterior dark green enamel paint.

619-3 CONSTRUCTION DETAILS

619-3.01 Basic Maintenance and Protection of Traffic.

A. General. The Contractor shall generally provide a traveled way suitable for two lanes of moving traffic, or more lanes if shown on the plans or in the proposal. The traveled way shall be kept reasonably smooth and hard at all times, and shall be well drained and free of potholes, bumps, irregularities and depressions that hold or retain water. Construction operations shall be conducted to insure a minimum of delay to traffic. Stopping traffic for more than five minutes shall not be permitted unless specifically authorized in writing by the Engineer. The necessary equipment and personnel to attain and maintain a satisfactory riding surface shall be available and used as needed at all times when work is under way and when work is temporarily suspended for any period of time. Special attention to maintenance of a satisfactory traveled way shall be given during weekends, holidays and the winter season.

B. Cleaning of Highways. The Contractor shall keep the traveled way free of foreign objects such as spilled earth, rock, timber and other items that may fall from transporting vehicles. Materials spilled by or dropped from the undercarriage of any carrying vehicle used in the Contractor's hauling operations along or across any public traveled way both within and outside the contract limits shall be removed immediately.

C. Dust Control. Dusty conditions resulting from the Contractor's operations shall be corrected by the use of calcium chloride and/or water. Water used as a dust palliative, shall be distributed uniformly over a minimum width of eight feet by the use of suitable spray heads or spray bar.

D. Traffic Control. Whenever it becomes necessary to maintain traffic on one lane, the Contractor shall provide adequate traffic controls on the section of highway on which vehicle operation is maintained. He shall employ a sufficient number of competent flagmen and/or temporary traffic signals to control one lane traffic continuously. In the event the length of the one lane operation is extremely short and conditions are favorable for safe operation, the Engineer may, in writing, authorize the Contractor to dispense with flagmen or traffic control signals.

The Contractor shall also provide a sufficient number of competent flagmen in areas where construction equipment is operating in potential conflict with public traffic, regardless of the volume of traffic or the sight distance. Flagmen shall wear approved orange caps or hats and vests in conformance with the New York State Manual of Uniform Traffic Control Devices, and shall direct traffic in conformance with said Manual.

E. Drainage. The Contractor shall devote particular attention to all drainage facilities, keeping them fully operative at all times. Ditches shall be provided at all times, even during grading operations and periods of accumulated plowed snow, to adequately drain the traveled way and the remainder of the right of way areas.

F. Ingress and Egress. The Contractor shall provide and maintain, at all times, safe and adequate ingress and egress to and from intersecting highways, homes, businesses and commercial establishments at existing or at new access points, consistent with the work, unless otherwise authorized by the Engineer. The Contractor will not be responsible for snow removal from driveways or entrances. On highways on which motor bus service is maintained, he shall provide suitable areas or locations for the loading and unloading of passengers. The existing pavement, at improved intersecting streets, shall not be disturbed without prior consent of the Engineer.

G. Delineation and Guiding Devices for Construction. The Contractor shall furnish, erect, move and remove delineation and guiding devices as required and directed by the Engineer. In areas where grading is being done, a safe and reasonable roadway shall be properly delineated at all times, either by the use of guiding devices or flagmen. The Contractor shall delineate areas where there is a drop-off near the edge of the traveled way and areas on which it is unsafe to travel.

Where the drop-off is less than six inches, and where soft or unsafe areas occur, an approved delineator shall be placed along the edge of the traveled way at intervals of not more than 200 feet. Where the drop-off is between 6 inches and 18 inches, the spacing between delineators shall be reduced to 100 feet maximum. Where the drop-off is greater than 18 inches, a continuous delineation consisting of properly painted or reflectorized board shall be used in addition to individual delineators.

Thirty to fifty-five gallon drums or containers set on end, may be used as delineators, provided they are properly painted and reflectorized in accordance with the New York State Manual of Uniform Traffic Control Devices. They shall be kept clean at all times. Other markers or delineators may be circular or rectangular in shape and shall be constructed of reflective sheeting having a minimum area of 20 square inches or of reflective buttons having a minimum diameter of 3 inches. All reflective delineators or markers shall conform to the requirements of the New York State Manual of Uniform Traffic Control Devices.

Where timber curb is used it shall be painted in accordance with the requirements of the New York State Manual of Uniform Traffic Control Devices.

At commercial establishments the entire entrance area between adjacent markers, shall be kept safe and smooth for convenient ingress and egress. Delineators shall be substantially mounted so that the bottom of the reflective unit is 4 feet above the elevation of the traveled way. Any area determined by the Engineer to be particularly hazardous, shall be marked by the use of signal flashers with large reflectorized yellow lenses in addition to the reflective markings.

H. Signs

1. Control and Authority. All existing highway signs, markers, delineators and their supports (authorized by the Department of Transportation) within the contract limits shall remain under the control and jurisdiction of the Engineer and shall be maintained for the duration of the contract by the Contractor as directed by the Engineer. Any signs not authorized by the Department of Transportation, shall be removed from the right of way as ordered by the Engineer.

2. Maintenance of Route Marker Signs. Route marker signs shall be maintained by the Contractor during construction. Should relocations be necessary at various stages of construction, they shall be placed in conformance with the New York State Manual of Uniform Traffic Control Devices and as directed by the Engineer in locations visible to traffic. Appropriate directional signing shall also be used in conjunction with Route Marker Signs.

3. Storage of Existing Signs, Markers and Delineators. The Contractor, when ordered, shall remove existing signs, markers and delineators and their supports which interfere with his construction operations; store, protect, clean and replace them on the contract as directed in a location approved by the Engineer. Signs, markers and delineators not to be replaced, shall be cleaned and delivered to the Engineer as directed. Signs, markers and delineators lost or damaged because of negligence on the part of the Contractor, shall be replaced at the Contractor's expense.

I. Existing Pavement Markings

The contractor shall remove existing pavement markings where indicated on the plans, in the proposal or where ordered by the Engineer. This shall include any pavement markings that are added during the course of the work.

619-3.02 Construction Signs.

Reflectorized Signs. The Contractor shall furnish and erect, move and remove, as required and as directed by the Engineer, reflectorized signs to adequately and safely inform and direct the motorist and to satisfy legal requirements.

All signs shall be kept clean, mounted at the required height on adequate supports and placed in proper position and alignment so as to give maximum visibility both night and day. All wood supports and backs of plywood sign panels shall be painted with two coats of white paint. All signs and markers shall indicate actual existing conditions and shall be moved, removed, relocated or changed immediately as directed by the Engineer. Sign sizes and details shall conform to the Standard Sheets, the New York State Manual of Uniform Traffic Control Devices or to details shown in the plans. The number of signs indicated in the New York State Manual of Uniform Traffic Control Devices, the Standard Sheets or plans are a minimum and the Contractor shall have an adequate quantity of each of these signs immediately available for use as required. The Engineer may require additional signs. In that event, they shall be consistent with the arrangement, material and details of those shown on the Standard Sheets, the New York State Manual of Uniform Traffic Control Devices and the plans.

All signs shall be mounted in accordance with the New York State Manual of Uniform Traffic Control Devices. All signs shall be mounted at a height of at least five feet. Under special conditions, signs may be mounted at a greater height, as ordered by the Engineer, to fit the situation.

All signs shall be the property of the Contractor and shall be maintained in good condition for the duration of the contract and removed from the work site when the contract is accepted.

619-3.03 Timber Curbs (12" x 12" or larger), Construction Barricades, and Lighting for Construction Barricades.

The Contractor shall furnish, erect, move and remove 12" x 12" or larger timber curbs, construction barricades and lighting for construction barricades where and as indicated on the plans, on the Standard Sheets, in the New York State Manual of Uniform Traffic Control Devices, or as directed by the Engineer. Posts and painted boards or bands used to delineate drop-offs, shall not be considered to be barricades.

Timber curbs shall be painted in accordance with the requirements of the New York State Manual of Uniform Traffic Control Devices. Where indicated on the plans or in the proposal, construction barricades shall be supplemented either by approved flashing or steady burning lights.

Steady burning or flashing barricade lights shall have a minimum nominal diameter of 7 inches and shall emit yellow light. Steady burning lights may be used to supplement other channelizing devices to delineate the traveled way. Flashing lights shall not be used for delineation or channelizing purposes.

Flashing barricade lights shall be either Type A, Low Intensity, or Type B, High Intensity conforming to the requirements of Section 310.3(c) of the NYS MUTCD. High intensity lights shall be used where barricade lights are required to operate 24 hours per day. Low intensity lights shall be used where barricade lights are required only at night. In that event, the hours for operation of the low intensity lights shall be dusk to dawn.

Steady burning barricade lights shall have a minimum beam candle power of 2 candles maintained within a solid angle of 90° on each side of the vertical axis, and 5° above and 5° below the horizontal axis. The hours for operation of steady burning barricade lights shall be dusk to dawn.

619-3.04 Temporary Structures and Approaches. Temporary structures and their approaches or existing structures that are moved to provide temporary structures along with their temporary approaches shall be constructed in such a manner and sequence that interference with and inconvenience to the traveling public and the abutting owners is kept to a minimum. The Contractor shall be responsible for the materials, workmanship, upkeep and safety of all temporary structures and approaches.

When specific details are not shown on the plans, the Contractor will be required to construct approaches and structures capable of supporting loads at least equivalent to the H15-14 live loading in accordance with the design requirements given by the current edition of the Standard Specifications for Highway Bridges of the American Association of State Highway and Transportation Officials. Where such temporary structure and its approaches are designed by the Contractor or his agents the Contractor shall also be responsible for its adequacy and design and such plans shall bear the signature and stamp of an Engineer licensed to practice Professional Engineering in the State of New York.

Prior to beginning construction of any structure designed by the Contractor or his agents, the Regional Director may request that detailed plans be submitted for his review and approval and the Contractor shall submit such plans. Such review, however, shall not relieve the Contractor of his responsibility for the adequacy and design of such temporary structure and approaches.

619-3.05 Watchmen Service. The Contractor shall furnish watchmen who shall patrol the contract area whenever his operations are closed down, and when his operations are curtailed to the point where he is substantially closed down.

The watchmen requirements are as follows:

Requirement "A." The Contractor shall provide a watchman or watchmen who shall patrol the entire job once every hour while the Contractor's operations are closed down or substantially closed down.

Requirement "B." The Contractor shall provide a watchman or watchmen who shall patrol the entire job once every three hours while the Contractor's operations are closed down or substantially closed down.

Requirement "C." The Contractor shall provide a watchman or watchmen who shall patrol the entire job once before dark and once between 11 P.M. and midnight on days that the Contractor is working. On week-ends or days when the Contractor is not working, the watchman shall patrol the entire job once between 7 A.M. and 8 A.M., once before dark, and once between 11 P.M. and midnight.

The watchmen will be responsible for making sure all signs, barricades, delineators and markers are erected in position and in good condition and that the traveled way is in a safe and reasonable condition.

In the event that the watchmen cannot physically take care of a hazardous condition, the Contractor shall make arrangements for immediate emergency assistance to the watchmen on notice from them.

Each watchman shall be furnished with a recording time clock of a type satisfactory to the Engineer and shall "punch in" at designated points approved by the Engineer. Distinctive keys for "punching in" shall be securely fastened to a substantial object and all keys that open the recording element of the clock or clocks, shall be kept by the Engineer. The clock or clocks shall be delivered to the Engineer for the removal of the record at times designated by him.

Any watchmen's action which circumvents the physical patrol of the project shall be considered as unsatisfactory work for the maintenance and protection of traffic.

The extent of watchmen service required, shall be indicated on the plans or in the proposal under Requirement A, B or C.

The Regional Director may, in writing, order or permit the contractor to change the extent of, delay the start of, or eliminate watchmen service when in the opinion of the Regional Director the entire job is in such condition as to justify the change.

The Contractor's attention is directed to the fact that watchmen service, required under this work, does not relieve the Contractor of any of his responsibilities under the item of Uniformed Watchmen Service when the item for Uniformed Watchmen Service is indicated in the contract documents.

619-3.06 Pavement Delineation. The Contractor shall furnish, apply and, when so ordered, remove pavement delineation where shown on the plans or as ordered by the Engineer in accordance with the New York State Manual of Uniform Traffic Control Devices. Unless otherwise shown on the contract plans or proposal or ordered by the Engineer, any course of Asphalt Concrete, including base and binder courses, upon which traffic will be maintained shall be properly delineated in accordance with this subsection before the end of the working day.

If paint is used, it shall be applied in accordance with the Construction Details portion of Section 640 - REFLECTORIZED PAVEMENT MARKING PAINTS of the Specifications. If tape is used, it shall be applied in accordance with the manufacturer's recommendations, including the use of a primer where

needed. The pavement surface shall be clean and dry and of a surface temperature recommended by the tape manufacturer at the time of tape installation. Tape shall conform to the shape of, and adhere to the surface upon which it is applied. Any tape that fails to adhere to the pavement surface during the period of use shall be replaced by the Contractor at no expense to the State.

Inclement weather or other factors may prevent the installation of permanent markings, either by the Contractor or others, in time for the opening to traffic of such pavement or structure. The Contractor, in such cases, shall install temporary pavement delineation as approved and at the locations directed by the Engineer.

619-3.07 Temporary Traffic Signals. The traffic signal system shall be constructed in such a manner that interference with and inconvenience to the traveling public is kept to a minimum. The contractor shall maintain in proper operation, all temporary signals used for Maintenance and Protection of Traffic until approved removal. He shall be responsible for their continuous 24-hour operation except for reasonable shutdown during relocation and transfer operations.

If for any reason, a signal is not functioning as required, the Contractor shall commence repair work on this signal within two hours after he has been notified of a malfunction.

The Contractor shall provide a flagman at each malfunctioning traffic signal during repair work. The flagman control shall be provided until the temporary traffic signal is restored to proper operation.

On each approach, one signal face shall be at the right side of the roadway or over the right half of the roadway. One signal face shall also be installed at the left side of the roadway or over the left half of the roadway. The lateral distance between signal faces for each approach shall be a minimum of 8 feet and a maximum of 27 feet.

In the event flashing operation occurs, all signal faces shall show flashing red indications. Flashing operation of signal is considered a malfunction.

In the event the Contractor elects to use temporary traffic signals to control traffic in lieu of flagmen, he shall submit complete plans of the proposed work to the Engineer for approval at least 30 days before signals are required for the maintenance of traffic. Plans shall show type of proposed equipment, details of construction, and table of operation of the temporary signal system.

619-3.08 Mailboxes. The Contractor shall not move any mailbox which contains mail. He will advise the owner to remove such mail before he moves the box. Before acceptance of the work, any mailbox which has been disturbed or removed, shall be replaced by the Contractor in a location approved by the Engineer.

In the event the original mounting post has been lost, damaged, or is unusable, the Contractor shall furnish a similar device or mounting acceptable to the Engineer, or when directed shall furnish a galvanized pipe mounting post of 1 inch (minimum) diameter with flanged top fitting and will firmly install the new mounting and mailbox at the designated location and at the proper height in accordance with the requirements of the U.S. Postal Service and to the satisfaction of the Engineer.

619-3.09 Opening Highway to Traffic Prior to Contract Acceptance. The construction details specified in §§ 619.301 through 619-3.08 shall apply when required.

METHOD OF MEASUREMENT

619-4.01 Basic Maintenance and Protection of Traffic. Payment for Basic Maintenance and Protection of Traffic will be made on a lump sum basis.

619-4.02 Construction Signs. Payment for signs will be made on a lump sum basis.

619-4.03 Timber Curbs (12" x 12" or Larger). Timber curbs will be computed for payment by the number of linear feet placed in accordance with contract requirements.

619-4.04 Construction Barricades. Barricades will be computed for payment by the number of linear feet measured, to the nearest foot, along the face of each barricade unit installed. No payment will be made for spaces between individual barricade units.

619-4.05 Lighting for Construction Barricades. Lighting for construction barricades (powered from electrical power line or self powered flashers) will be computed for payment by the number of linear feet of barricade actually lighted. Measurement shall be made along the face of each barricade unit. No payment will be made for spaces between individual barricade units.

619-4.06 Temporary Structures and Approaches. Temporary structures and their respective approaches will be computed for payment on a unit price basis for each structure including its approaches.

619-4.07 Watchmen Service. Watchmen service will be computed for payment by the patrol for the number of patrols actually performed in accordance with the contract requirements, regardless of the number of watchmen necessary to complete a patrol. A patrol shall be defined as a complete coverage of the contract from limit to limit in such a manner that the watchmen can observe any vehicle, person, or condition of construction on the contract site. A patrol shall include "punching in" at all points designated by the Engineer.

An occasional missed "punch" at a designated point will not be considered unsatisfactory work performance under this item unless

the Engineer determines that a pattern of irresponsibility has developed or is developing. The Engineer's determination shall govern in ascertaining reasonable and satisfactory work performance under this provision.

In the event the contract completion date is extended with assessments for engineering charges and/or liquidated damages, no payment will be made for watchmen service required during such period.

619-4.08 Pavement Delineation. The payment quantity for pavement delineation placed shall be the product of the number of line segment lengths, computed from the prescribed spacing, and the nominal prescribed length, in feet, of the line segment. No separate payment will be made for the removal of pavement delineation, but the cost of such removal, when so ordered, shall be included in the price bid for this item. The cost of surface preparation shall be included in the price bid for Pavement Delineation.

619-4.09 Temporary Traffic Signals. Payment for Temporary Traffic Signals will be made on a lump sum basis.

619-4.10 Mailboxes. Mailboxes will be computed for payment on the basis of each mailbox moved or replaced. Where multiple mailboxes are installed on a single post, payment shall be based upon the number of mailboxes so installed.

619-4.11 Opening Highway to Traffic Prior to Contract Acceptance. The additional basic maintenance and protection of traffic required for the highway opened to traffic in accordance with § 619-1.09 will be computed by the lane-mile (nearest tenth of a mile) calendar day. The lane-mile calendar days to be paid for shall not include mileage of temporary connections, mileage of ramps, or any pavement opened for the convenience of or at the request of the Contractor.

619-5 BASIS OF PAYMENT

GENERAL.

No payment will be made under Basic Maintenance and Protection of Traffic for each calendar day during which there are substantial deficiencies in compliance with the specification requirements of any subsection of this section, as determined by the Engineer, including but not limited to Basic Maintenance

and Protection of Traffic, Construction Signs, Timber Curb (12" x 12" or larger), Construction Barricades, Lighting for Construction Barricades, Temporary Structures and Approaches, Watchmen Service, Pavement Delineation, Temporary Traffic Signals, Mailboxes, and Opening Highway to Traffic Prior to Contract Acceptance.

The amount of such calendar day non-payment will be determined by dividing the lump sum amount bid for Basic Maintenance and Protection of Traffic by the number of calendar days between the date the Contractor commences work and the date of completion as designated in the proposal, without regard to any extension of time.

In addition, for each calendar day or part thereof, of unsatisfactory work violating the required provisions under Subsection Basic Maintenance and Protection of Traffic, liquidated damages will be assessed as follows:

For Contracts with watchmen requirement A, \$300
For Contracts with watchmen requirement B, \$200
For Contracts with watchmen requirement C, \$100

If the Contractor fails to adequately conform to the provisions required under Construction Signs, Timber Curbs (12" x 12" or larger), Construction Barricades, Lighting for Construction Barricades, Temporary Structures and Approaches, Watchmen Service, Pavement Delineation, Temporary Traffic Signals, Mailboxes, and Opening Highway to Traffic Prior to Contract Acceptance, to the degree that such failure is deemed by the Engineer to adversely affect the maintenance and protection of traffic, the above liquidated damages will be assessed in addition to any payment deductions from Basic Maintenance and Protection of Traffic for inadequate work as specified herein. The assessment of liquidated damages will not exceed the above amount per calendar day regardless of the number of violations.

If the Contractor fails to maintain and protect traffic adequately and safely for a period of 24 hours, the Engineer shall correct the adverse conditions by any means he deems appropriate, and shall deduct the cost of the corrective work from any monies due the Contractor. The cost of this work shall be in addition to the liquidated damages and non-payment for Basic Maintenance and Protection of Traffic listed above.

However, where major nonconformance with the requirements of this specification is noted by the Engineer, and prompt Contractor compliance is deemed not to be obtainable, all contract work may be stopped by direct order of the Engineer, regardless of whether corrections are made by the Engineer as stated in the paragraph above.

When the Contractor is ordered or permitted by the Regional Director to provide a lesser requirement of watchmen service and he fails to provide adequate maintenance and protection of traffic, the amount of liquidated damages shall be that specified for the original requirement stated in the proposal or as shown on the plans.

619-5.01 Basic Maintenance and Protection of Traffic. The lump sum price bid for Basic Maintenance and Protection of Traffic shall include all equipment, materials and labor necessary to adequately and safely maintain and protect traffic, except as provided for in separate payment items in the proposal. However, if the Contractor elects to utilize temporary traffic signals to control traffic in lieu of flagmen, the cost of such signals together with all costs of installation, operation and removal shall be included in the price bid for Basic Maintenance and Protection of Traffic.

In the event the proposal does not include a separate item of payment for Opening Highway to Traffic Prior to Contract Acceptance and the Regional Director directs, in writing, any portion of pavement, structure or ramp to be opened to traffic prior to contract acceptance and on which traffic was not specified to be maintained and protected during construction, the price bid for Basic Maintenance and Protection of Traffic shall include any and all costs for opening said portion or portions to traffic prior to contract acceptance.

In the event the contract completion date is extended, no additional payment will be made for Basic Maintenance and Protection of Traffic.

Progress payments will be made for this item in proportion to the total amount of contract work completed less any deductions for unsatisfactory maintenance and protection of traffic.

619-5.02 Construction Signs. The lump sum bid shall include all material, equipment and labor necessary to erect, remove, relocate, protect, maintain or store any construction sign required to properly sign the contract. This item is to cover payment for all signs which are determined by the Engineer to be necessary for the proper performance of the work, regardless of whether or not they are actually shown in the contract plans.

Payment will be made at the lump sum price bid as follows:

Fifty (50) percent of the lump sum price bid shall be paid when ten (10) percent of the contract work has been completed. The remaining fifty (50) percent shall be paid proportionally in accordance with the total contract work completed, beginning with the estimate following the initial payment on this item.

619-5.03 Timber Curbs (12" x 12" or Larger). The unit price bid per linear foot of timber curb (12" x 12" or larger) shall include all material, equipment and labor necessary to erect, maintain and remove the required timber curb, including any required connection device, delineation or guiding device attached to the timber curb. Whenever timber curbs (12" x 12" or larger) are moved to a new location as directed by the Engineer, payment will be made in the same manner as if it were new timber curb. Minor movement of the timber curb from one side of the roadway to the other side, or rearrangement within a work area will not be considered as movement to a new location and will not entitle the Contractor to additional payment.

After placement, payment will be made for ninety (90) percent of the quantity of timber curbs (12" x 12" or larger) furnished and erected in accordance with contract requirements. The remaining ten (10) percent will be paid upon removal.

619-5.04 Construction Barricades. The unit price bid per linear foot of barricade shall include all material, equipment and labor necessary to erect, maintain and remove the required barricades. Whenever barricades are moved to a new location as directed by the Engineer, payment will be made in the same manner as if it were a new barricade. Minor movement of the barricades from one side of the roadway to the other side, or rearrangement within a work area will not be considered as movement to a new location and will not entitle the Contractor to additional payment.

After placement, payment will be made for ninety (90) percent of the quantity of barricade furnished and erected in accordance with contract requirements. The remaining ten (10) percent will be paid upon removal.

619-5.05 Lighting for Construction Barricades. The unit price bid shall include the cost of furnishing all materials, power, labor and equipment necessary to light construction barricades. Should a barricade that is lighted be moved to a new location, no additional payment will be made for lighting for Construction Barricades and the cost of moving the lighting for Construction Barricades shall be included in the cost of moving the barricade.

After installation and demonstration of satisfactory operation, payment will be made for seventy-five (75) percent of the quantity of barricade lighting furnished and installed in accordance with contract requirements. The remaining twenty-five (25) percent will be paid upon removal.

619-5.06 Temporary Structures and Approaches. The unit price bid shall include all labor, material and equipment necessary to build, move, remove, dismantle and/or store the structure specified together with all work related to construction, removing and restoring approaches.

Payment will be made at the unit price bid for each temporary structure and its approaches as follows:

Seventy-five (75) percent when the temporary structure and approaches are complete and operable.

Twenty-five (25) percent when the temporary structures and approaches or appurtenances are permanently removed.

619-5.07 Watchmen Service. The unit price bid per patrol shall include all watchmen, labor, supervision, transportation, communication, and any equipment and materials necessary to carry out the work in accordance with either Requirement A, B, or C, or as specified.

619-5.08 Pavement Delineation. The unit price bid shall include the cost of furnishing all labor, material and equipment necessary to apply pavement delineation and remove pavement delineation when so ordered. A separate payment will be made each time pavement delineation is applied in accordance with the contract requirements, if such application is ordered by the Engineer.

619-5.09 Temporary Traffic Signals. The lump sum price bid for this item shall include the cost of all labor, materials, and equipment necessary to furnish, install, operate, maintain, move, and remove the signals for the required duration of the work. The bid price shall include the cost of electric power necessary to operate the signals until their removal is approved or ordered by the Engineer. Permanent signal control equipment will be paid for under separate contract items.

For the purposes of progress payment, the lump sum bid for the item shall be apportioned equally between the number of signals called for in the plans and proposal. If it becomes evident that a different number of temporary signals will be used, the lump sum bid should be apportioned equally between the revised number of signals and progress payments adjusted accordingly.

Payments will be made on each individual signal as follows:

Sixty (60) percent when the signal is installed and is in proper operation.

Forty (40) percent when all necessary work for this item is completed.

619-5.10 Mailboxes. The unit price for each mailbox shall include all equipment, material and labor necessary to move, maintain or replace rural route mailboxes in their final position or location. Only one payment for each mailbox will be made regardless of the number of times it is moved or replaced and shall be made when the mailbox has been placed in its final location.

619-5.11 Opening Highway to Traffic Prior to Contract Acceptance. Payment will be made for additional basic maintenance and protection of traffic as indicated in § 619-1.09. The unit price bid shall include the cost of all materials, equipment and labor to provide the basic maintenance and protection of traffic.

In the event that additional signs, barricades, or other items are required to supplement the work under this item, payment shall be made upon erection as follows:

- A. Where contract unit bid items, exclusive of lump sum items, cover the supplementary work ordered, payment will be made at the contract unit bid prices.
- B. Where lump sum items, exclusive of the Basic Maintenance and Protection of Traffic item, or no contract unit bid items cover the supplementary work ordered, payment will be made at agreed prices or by force account.

No payment will be made under this item during any period for which the Contractor has been granted an extension of time with engineering charges and/or for which the Contractor has been assessed liquidated damages.

619-5.12 Other Work. The work required for Furnishing Water Equipment, Applying Water, Furnishing and Applying Calcium Chloride for dust control and for placing Plant-Mixed Bituminous Concrete for patching existing pavement or where specifically ordered by the Engineer or as shown on the plans shall be paid for under their respective payment items.

When these items do not appear in the contract, payment for work required will be included in the price bid for Basic Maintenance and Protection of Traffic.

619-5.13 Damage. Payment for damage to any phase of the work included in this section shall comply with the requirements of § 107-09, "Damage."

Payment will be made under:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
619.01	Basic Maintenance and Protection of Traffic	Lump Sum
619.02	Construction Signs	Lump Sum
619.0401	Construction Barricades	Linear Foot
619.0501	Lighting for Construction Barricades	Linear Foot
619.06	Temporary Structures and Approaches	Each
619.10	Mailboxes	Each
619.1101	Opening Highway to Traffic Prior to Contract Acceptance	Lane Mile
619.12	Watchmen Service	Calendar Day
619.13	Temporary Traffic Signals	Patrol
619.14	Timber Curbs (12" x 12" or Larger)	Lump Sum
619.15	Pavement Delineation	Linear Foot