NORTH STREET RETAINING WALL RECONSTRUCTION
WATERTOWN, CONNECTICUT

March 10, 2020

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WORKMANSHIP, MATERIALS AND EMPLOYEES

01.01 Wherever in this contract the word “Engineer” is used, it shall be understood as referring to the Town Engineer of the Town of Watertown acting personally or through any assistants duly authorized.

01.02 The entire work described herein shall be completed in accordance with the plans and specifications to the full intent and meaning of the same. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and material shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

01.03 The wording “furnish”, “install”, “construct”, “furnish and install”, or any similar terms, unless specifically noted to the contrary, shall include all labor, materials, water, tools, equipment, light, power, transportation, and any other services required for the completion of the work.

01.04 The Contractor shall at all times enforce strict discipline and good order among his employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned to him. Town may request employees be removed from the job at the sole discretion of the Town.

01.05 Prior to beginning work, contractor shall furnish OSHA -10 certifications for all employees, including proposed subcontractors, working on-site.

SUPERINTENDENT

02.01 The Contractor shall keep on the work during its progress, in the absence of the Contractor, a competent Superintendent. The Superintendent shall be acceptable to the Engineer and shall fully represent the Contractor. All directions given to the Superintendent shall be binding as if given to the Contractor. Superintendent or other person designated in writing shall be the designated “Competent Person.”

PRECONSTRUCTION MEETING

03.01 A Preconstruction Meeting and Utility Coordination Meeting will be held with the Engineer, Contractor, Design Consultant, and any affected private utility company prior to commencing any work. The Engineer shall arrange the meeting at a mutually convenient time.

PERMITS

04.01 Other than federal, state, and local permits for this project that have been secured prior to bidding and have been furnished to the Contractor at contract signing, all permits, licenses, and fees required for the performance of the Contract work shall be secured and paid for by the Contractor.

PROPERTY ACCESS
05.01 The Contractor shall take all proper precautions to protect from damage, injury or unnecessary interference, and provide proper means of access to abutting properties where the existing access is fully or partially obstructed by the Contractor.

05.02 The Contractor shall take all proper precautions to protect persons from injury or unnecessary inconvenience and leave an unobstructed way along the public and private places for travelers, vehicles, and access to hydrants.

05.03 The Contractor shall make arrangements with the adjacent property owners for such trespass as he may reasonably anticipate in the performance of the work. All such arrangements shall be reported, in writing, to the Engineer.

06.00 PROTECTION OF THE PUBLIC AND OF WORK AND PROPERTY

06.01 The Contractor shall continuously maintain adequate protection of all work from damage, and shall take all reasonable precautions to protect the Town from injury or loss arising in connection with the Contract.

06.02 The Contractor shall adequately protect adjacent private and public property as provided by law and the Contract Documents.

06.03 The Contractor shall make good any damage, injury, or loss of his work and to the property of the Town resulting from lack of reasonable protective precautions.

07.00 EXISTING IMPROVEMENTS

07.01 The Contractor shall conduct his work so as to minimize damage to existing improvements. Except where specifically stated otherwise in the contract documents or as directed by the Engineer, it will be the responsibility of the Contractor to restore to their original condition, as near as practical all improvements on public or private property. This shall include:

a. Property within and adjacent to the site of installation such as shrubs, walks, driveways, fences, etc.

b. Utility mains, ducts, poles, and services. The Contractor is hereby notified that utilities, if/where shown on the plans, are at approximate locations. These locations are subject to possible errors in the source of information and errors in transcription. The Contractor shall make certain of the exact location of all mains, ducts, poles, and services through contacting Call Before You Dig prior to starting excavation.

08.00 SEPARATE CONTRACTS

08.01 The Engineer reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs. Wherever work being done by the Town of Watertown forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer to secure the completion of the various portions of the work.
09.00 INSPECTION OF WORK
09.01 The Town shall provide sufficient personnel for the inspection of the work.
09.02 The Engineer shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and for inspection.
09.03 If the specifications or the Engineer's instructions require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection and, if the inspection is by another authority other than the Engineer, of the date fixed for such inspection. Inspections by the Engineer shall be made promptly. If any work should be covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination and properly restored at the Contractor's expense.
09.04 Re-inspection of any work may be ordered by the Engineer. If such work is found to be in accordance with the Contract Documents, the Town shall pay the cost of re-inspection and replacement. If such work is not in accordance with the Contract Documents, the Contractor shall pay such cost.

10.00 RIGHT TO INCREASE OR DECREASE WORK
10.01 The Town shall have the right to increase or decrease the amount of work herein specified as may be required.

11.00 RIGHT OF ENGINEER TO STOP WORK FOR WEATHER CONDITIONS
11.01 Should the work, in the opinion of the Engineer, be in danger by reason of inclemency of weather or flood, or could not be finished in time to prevent such danger, the Contractor shall cease operations upon order of the Engineer, and shall not resume them until ordered to do so by the Engineer when the weather and/or flood conditions are favorable. The Contractor shall, upon such orders, discontinue work, remove all materials or appliances for or in use upon the work, and place the streets in proper condition for use by the public during the time the work is suspended as herein provided, without cost to the Town.

12.00 CONTRACTOR TO BE RESPONSIBLE FOR IMPERFECT WORK OR MATERIALS
12.01 Any faithful work or imperfect material that may be discovered before the acceptance and payment of the work shall be corrected upon the order of the Engineer. The acceptance and payment of the work does not in any manner relieve the Contractor of his obligation to construct work in the proper manner and the use of materials herein specified.

13.00 TOWN MAY NOTIFY CONTRACTOR IF WORK IS NOT CARRIED ON SATISFACTORILY
13.01 If, in the opinion of the Engineer, the Contractor is not proceeding with the work at a sufficient rate of progress so as to finish in the time specified, or has abandoned said work, or is not complying with the terms and stipulations or the Contract and specifications, the
Engineer may serve notice on the Contractor to adopt such methods as will ensure the completion of the work in the time specified.

13.02 If, within five days after the Engineer has notified the Contractor that his work is not being carried on satisfactorily as before mentioned, the Engineer shall have the right to annul the Contract and manage the work under the direction of the Engineer, or re-let, for the very best interest of the Town as a new contract, the work under said new Contract shall be considered the responsibility of the defaulting Contractor.

13.03 Additional costs incurred over and above the original Contract shall be borne by the Performance Bond.

14.00 DEDUCTIONS FOR UNCORRECTED WORK

14.01 If the Engineer deems it inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made therefor.

14.02 The Contractor shall promptly remove from the premises all materials condemned by the Engineer as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Town, and shall bear the expense of making good all work by other contractors destroyed or damaged by such removal or replacement.

14.03 If the Contractor does not remove such condemned work and materials as promptly as possible after written notice, the Engineer may remove them and store the materials at the expense of the Contractor.

15.00 CLEANING UP

15.01 The Contractor must remove all debris of every description as the work progresses and leave the surroundings in a neat and orderly condition to the satisfaction of the Engineer.

15.02 Upon completion, and before acceptance and final payment, the Contractor shall remove from the site all equipment, forms, surplus material, rubbish and miscellaneous debris and leave the site in a neat and presentable condition.

16.00 ROYALTIES AND PATENTS

16.01 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Town of Watertown harmless from loss on account thereof, except that the Town of Watertown shall be responsible for all such loss when a particular manufacturer, product, or process is specified by the Town of Watertown.
01.00 NOTICE TO CONTRACTOR

01.01 Intent of Contract: The intent of the Contract is to prescribe a complete work or improvement that the Contractor undertakes to do, in full compliance with the specifications, plans, special provisions, proposal, and Contract. The Contractor shall perform all work in close conformity with the lines, grades, typical cross-sections, dimensions, and other data shown on the plans or as modified by written orders, including the furnishing of all materials, implements, machinery, equipment, tools, supplies, transportation, labor, and all other things necessary to the satisfactory prosecution and completion of the project.

01.02 The Contractor is hereby alerted to the fact that the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817, 2016 (Form 817) with the latest Supplemental Specifications thereto, and as supplemented herein are to be considered part of the Contract Documents. Form 817 shall not be provided by the Town and any cost associated therewith shall be the responsibility of the Contractor. In case of any discrepancy between the Contract Drawings or Specifications and the Form 817, the matter shall immediately be submitted to the Engineer. The Engineer shall have sole authority in resolving any discrepancies.

01.03 Much time and effort has gone into this project in an effort to minimize impact on trees and adjacent properties. Extreme care shall be taken by the Contractor to honor commitments made by the Town. Prior to doing any work, the Contractor shall meet with the Engineer to become familiar with the conditions encountered and commitments made.

01.04 Traffic Cones and Drums: Traffic Drums and 42-inch Traffic Cones shall have four six-inch wide stripes (two - white and two - orange) of flexible bright fluorescent sheeting. The material for the stripes shall be one of the following, or approved equal:

- 3M Scotchlite Diamond Grade Flexible Work Zone Sheeting, Model 3910 for the white stripes and Model 3914 for the orange stripes,
- Avery Dennison WR-7100 Series Reboundable Prismatic Sheeting, Model WR-7100 for the white stripes and Model WR-7114 for the orange stripes.

01.05 NCHRP 350 Requirements For Work Zone Traffic Control Devices:

CATEGORY 1 DEVICES (traffic cones, traffic drums, tubular markers, flexible delineator posts): Prior to using the Category 1 Devices on the project, the Contractor shall submit to the Engineer a copy of the manufacturer's self-certification that the devices conform to NCHRP Report 350.

CATEGORY 2 DEVICES (precast concrete barrier curbs, construction barricades, construction signs and portable sign supports): Prior to using Category 2 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

NOTE: The portable wooden sign supports that have been traditionally used by most contractors in the State of Connecticut do NOT meet NCHRP Report 350 criteria and shall not be utilized on any project advertised after October 01, 2000.
Information regarding NCHRP Report 350 devices may be found at the following web sites:


02.00 COMMUNICATIONS

02.01 All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.

02.02 Any notice to, or demand upon, the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may, from time to time, designate) in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.

02.03 All papers required to be delivered to the Town shall, unless otherwise specified in writing to the Contractor, be delivered to the Town Engineer, Town of Watertown, Public Works Department, 61 Echo Lake Road, Watertown CT 06795, and any notice to, or demand upon, the Town shall be delivered at the above address in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office or to such other representatives of the Town, or to such other address as the Town may subsequently specify in writing to the Contractor for such purpose.

02.04 Any such notice shall be deemed to have been given as of the time of actual delivery or, in case of mailing, when the same should have been received in due course of post or, in the case of telegrams, at the time of actual receipt, as the case may be.

03.00 PARTIAL USE OF IMPROVEMENTS

03.01 The Town may, at its election, give notice to the Contractor and place in use those sections of the work that have been completed, inspected and can be accepted as complying with the Contractor Documents and if, in its opinion, each such section is reasonably safe and fit for the use and accommodation for which it was intended, provided:

   a. The use of such sections of the work shall not materially impede the completion of the remainder of the work by the Contractor.

   b. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

   c. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or to poor workmanship.

   d. The period of guarantee shall not begin until the date of the final acceptance of all work required under this Contract.

04.00 INSURANCE
04.01 The Contractor shall, at its own expense and cost, obtain and keep in force during the entire duration of the Project or Work the following insurance coverage covering the Contractor and all of its agents, employees and sub-contractors and other providers of services and shall name the Town of Watertown, its employees and agents as an Additional Insured on a primary and non-contributory basis to the Bidders Commercial General Liability and Automobile Liability policies. **These requirements shall be clearly stated in the remarks section on the Contractors Certificate of Insurance.** Insurance shall be written with Insurance Carriers approved in the State of Connecticut and with a minimum Best’s Rating of A-. In addition, all carriers are subject to approval by the Town. Minimum limits and requirements are stated below:

a. **Worker’s Compensation Insurance:**
   - Statutory Coverage
   - Employer’s Liability
   - $100,000 each accident/$500,000 disease-policy limit/$100,000 disease each employee

b. **Commercial General Liability:**
   - Including Premises and Operations, Products and Completed Operations, Personal and Advertising Injury, Contractual Liability and Independent Contractors
   - Limits of Liability for Bodily Injury and Property Damage
     - Each Occurrence: $1,000,000
     - Aggregate: $2,000,000
     - (The Aggregate Limit shall apply separately to each job.)
   - A Waiver of Subrogation shall be provided.

c. **Automobile Insurance:**
   - Including all owned, hired, borrowed, and non-owned vehicles
   - Limit of Liability for Bodily Injury and Property Damage
     - Per Accident: $1,000,000

04.02 The Bidder shall direct its Insurer to provide a Certificate of Insurance to the Town before any work is performed. The Contractor shall be responsible to notify the Town 30 days in advance with written notice of cancellation or non-renewal. The Certificate shall evidence all required coverage on the General Liability and Auto Liability policies including the Additional Insured and Waiver of Subrogation on the General Liability policy. The Bidder shall provide the Town copies of any such insurance policies upon request.

04.03 **INDEMNIFICATION:** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Town of Watertown and its consultants, agents, and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, attorneys and other professionals and court and arbitration costs) to the extent arising out of or resulting from the performance of the Contractor’s work, provided that such claim, damage, loss or
expense is caused in whole or in part by any negligent act or omission by the Contractor, or breach of its obligations herein or by any person or organization directly or indirectly employed or engaged by the Contractor to perform or furnish either of the services, or anyone for whose acts the Contractor may be liable.

05.00 WORK BY OTHERS

05.01 Utility companies may be working within the Contract area during this Contract. It shall be the responsibility of the Contractor to coordinate his work with the work being done by others in order that the construction shall proceed in an efficient and logical manner. The Contractor shall have no claim or claims whatever against the Town, the Engineer, or other parties due to delays or other reasons caused by the work by others or his failure to coordinate such work.

06.00 CONTRACTOR'S WORK AND STORAGE AREA

06.01 The Contractor shall contact the Town to determine if any specific locations will be designated, or gain its approval prior to using any area for storage of equipment, materials and trailers during the period of this Contract. The Contractor shall confine his work/storage area to the limits as designated or approved and shall be responsible for the security of the work/storage area. Upon completion of the Contract, the Contractor shall remove all equipment and materials, except as otherwise specified, and restore the site to its original condition as approved by the Engineer and at no cost to the Town.

07.00 DISPOSAL AREA

07.01 The Contractor shall obtain a disposal area for all unsuitable or surplus materials at no cost to the Town.

07.02 The Contractor and the Engineer shall clarify if the Town wants to salvage any materials demolished at the site. Any such material shall be delivered by the Contractor to a place of storage designated by the Town.

08.00 DUST CONTROL

08.01 During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities so as to minimize the creation and dispersion of dust. If the Engineer decides that it is necessary to use water or calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed, without additional compensation.

09.00 MAINTENANCE / GUARANTEE PERIOD

09.01 The Contractor shall be held responsible to the Town for maintenance for a minimum of one-year following completion of all work under this Contract with respect to defects, settlements, etc.

10.00 PROTECTION OF EXISTING UTILITIES
10.01 Prior to opening an excavation, effort shall be made to determine whether underground installations, (i.e., sewer, water, fuel, electric lines, etc.) will be encountered and, if so, where such underground installations are located. Before starting any excavation, the Contractor shall submit to the Engineer plans or details showing the proposed method the Contractor will use to support and protect all existing utilities during construction. The furnishing of such plans and details shall not serve to relieve the Contractor of any responsibility for the proper conduct of the work.

10.02 When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation.

11.00 TIME FOR COMPLETION/NOTICE TO PROCEED

11.01 Within ten (10) calendar days after the date of the Notice of Award, the Contractor must provide the appropriate bond and insurance certificates as well as OSHA-10 certificates for any workers, including subcontractors to the Town and must be issued a Purchase Order and a Notice to Proceed for the Project prior to initiating any work.

11.02 The work under this Contract shall commence within twenty-one (21) calendar days of the Notice to Proceed / Purchase Order. After the work has begun, it shall continue in an orderly fashion such that all contract work is substantially complete within sixty (60) calendar days from the date of commencement.

12.00 LIQUIDATED DAMAGES

12.01 As actual damages for any delay in completion of the work that the Contractor is required to perform under this Contract are impossible to determine, the Contractor and the Sureties shall be liable for and shall pay to the Town the sum of $500.00 as fixed, agreed and liquidated damages for each calendar day of delay from the above-stipulated completion, or completion as modified in writing by both parties, until such work is satisfactorily completed and accepted.

13.00 SCHEDULE OF DRAWINGS

13.01 The Contractor is advised that the plan set titled “Rehabilitation of the North Street Retaining Wall” consisting of seven (7) plan sheets prepared by Lenard Engineering, Inc., dated September 15, 2017 is to be considered part of these specifications.

14.00 CHANGES IN THE WORK

14.01 The Town reserves the right to perform portions of the work in connection with these plans and specifications. The reduction in the work to be performed by the Contractor shall be made without invalidating the Contract. Whenever work is done by the Town contiguous to other work covered by this Contract, the Contractor shall provide reasonable opportunity for the execution of the work and shall properly coordinate his work with that of the Town.
15.00 LAYOUT OF WORK

15.01 The Contractor shall provide stake-out of the work in accordance with the plans or as directed by the Engineer. The Contractor shall protect all stakes from damage or destruction and shall be responsible to assure that the grade stakes have not been altered prior to actual construction.

16.00 REMOVAL AND STORAGE OF MATERIALS AND STRUCTURES FOUND ON THE WORK

16.01 All salvable materials and structures, including pieces of stone, catch basins and manhole frames and covers, guide railing, etc. that are not to remain in place or that are not designated for use in the work, shall be carefully removed by the Contractor and stored at such places as directed by the Engineer. All salvable materials removed and stored shall remain the property of the Town. The Engineer shall determine if the materials and/or structures encountered are to be salvaged.

17.00 PROSECUTION AND PROGRESS

17.01 ADVANCE NOTICE: The Contractor shall give the Engineer a seven-day advance written notice of construction activities that will alter traffic patterns that result in lane shifts, detours, temporary closures of lane(s), permanent closure of lane(s), or lane reductions. This advance notification will allow the Town to publish news releases and/or provide public radio announcements to inform the public of revised traffic patterns or possible traffic delays. Failure of the Contractor to provide such timely notice shall be considered a breach of Contract and will subject the Contractor to stop work orders until such time as the seven-day notice has been satisfied.

17.02 ALLOWABLE HOURS OF OPERATION (WORK PERIOD):

All contract work that maintains bi-directional traffic on 11 foot wide travel lanes shall be performed Monday through Friday during the regular business hours of 7:30 AM and 4:30 PM.

Any work that requires alternating one-way traffic on Main Street (CT Route 73) shall be performed Monday through Friday during the hours of 9:30 AM and 3:30 PM.

Work on weekends or during time periods other than those described above will not be permitted unless permission is granted by the Town. No work will be allowed on designated Town Holidays unless permission is granted by the Town.

17.03 OTHER LIMITATIONS: The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed except during the allowable periods.

The Contractor shall ensure that suitable temporary access is provided to all residential and commercial driveways at all times as described in the Special Provision for Maintenance and Protection of Traffic.

18.00 EXTRA WORK AND RETAINAGE
18.01 Extra and cost plus work shall be governed by Article 1.04.05 and Article 1.09.04 of the Form 817.

18.02 Retainage shall be governed by Article 1.09.06 of the Form 817, except that the retainage amount shall be equal to five (5) percent.

19.00 COMPLIANCE WITH ENVIRONMENTAL PERMITS

19.01 A Town of Watertown Inland Wetland Permit was required for this project. This permit approval is included in the appendix of this Bid Document for reference by the Contractor. By submitting a bid, the Contractor confirms that they have read and are familiar with all of the required conditions of this permit and will conduct the work in a manner consistent with these requirements.

20.00 SUBMITTALS AND MATERIALS TESTING

20.01 The Contractor shall provide source and supply information, and material samples for all soil, stone and gravel materials to the Town for review and approval. The Town shall retain a lab for testing of these materials as required and shall perform in-place compaction testing at no expense to the Contractor.

20.02 Catalog cuts shall be provided by the Contractor for the erosion control products, seed mixes, and other items to be supplied for review and approval by the Engineer as described in the specifications and the Form 817.

20.03 Mix designs for all bituminous and Portland cement concrete materials shall be provided by the Contractor to the Engineer for review and approval prior to usage.

20.04 Certified Materials Test Reports and Materials Certificates shall be provided for all products and materials to be provided under this contract as described in these specifications and the Form 817.

21.00 SITE SAFETY

21.01 The Contractor shall be solely responsible for on-site safety and compliance with all applicable OSHA regulations.
# NORTH STREET RETAINING WALL
## DETAILED CONSTRUCTION SPECIFICATIONS
### WATERTOWN, CONNECTICUT

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0201001.0  CLEARING AND GRUBBING

0201001.1  General:  The Contractor shall furnish all labor, materials, tools, and equipment necessary and shall do all work to prepare the site as indicated on the drawings and as herein specified. The work shall generally comply with the provisions of Section 2.01 – Clearing and Grubbing in Form 817, except as modified below.

0201001.5  Clearing:  From areas to be cleared, the Contractor shall cut or otherwise remove all trees, saplings, brush, vines, and other vegetable matter such as snags, sawdust, bark, etc., and refuse. The area to be cleared shall be confined to the width shown on the plans or as stipulated in the Proposal. Vines, brush, and similar undergrowth shall be cut as close to the ground as practicable. Trees may be cut leaving a longer stump to facilitate their removal by power-operated equipment. No trees shall be cut or trimmed unless they are so indicated on the drawings.

Clearing shall also include removal and disposal of all items shown on the plans to be removed, or directed by the Engineer to be removed as part of the project, including, but not limited to, removal and disposal of existing concrete sidewalk, concrete steps, drainage structures, fences, and any and all other structures or materials not specifically listed in the Bid Proposal but required to be removed to accomplish the work.

0201001.6  Grubbing:  Grubbing shall consist of the complete removal of all tree stumps and roots larger than two inches in diameter to a minimum depth of 12-inches below the subgrade surface. All excavations made below the finished surface by the removal of trees, stumps, etc. shall be filled with suitable material and thoroughly compacted in such a manner that its surface will conform to the surrounding surface.

Stump grinding shall be used for stump removal where the potential for damage to adjacent improvements or underground utilities exists due to the excavation of stumps, or as directed by the Engineer. The requirements for grubbing noted above shall also apply to stump grinding operations.

0201001.7  Disposal:  All materials removed during trimming, tree removal, and clearing and grubbing operations shall be disposed of by the Contractor in a manner satisfactory to the Engineer.

0201001.8  Payment:  Except as provided otherwise in the Bid Proposal or Special Conditions, this work shall be paid for at the Contract Lump Sum Price for “Clearing and Grubbing”, which price shall include protection of existing trees and vegetation, tree removal and tree trimming under the supervision of a Connecticut Licensed Arborist, clearing and grubbing within the limits of the work, stump grinding, removal and disposal of trees, roots, stumps, brush, concrete steps, and other objects, leveling of areas to accommodate the work, and all labor, materials, tools, and equipment necessary thereto.

0202522.0  REMOVAL OF BITUMINOUS TYPE PAVEMENT

0203000.1  General:  This item shall conform to the applicable provisions of Section 2.02 – Roadway Excavation, Formation of Embankment and Disposal of Surplus Material of Form 817.

NOTE:  All surplus earth materials shall be hauled off-site by the contractor and shall become property of the contractor. There shall be no separate payment for transportation or disposal of any surplus materials.
0203000.2 **Measurement & Payment:** The unit price per square yard for Removal of Bituminous Pavement shall include all labor equipment, materials, transportation, fuel, disposal, etc., for excavation of pavement material on site, and transportation and/or disposal of surplus earth materials.

202529.0 **CUT BITUMINOUS TYPE PAVEMENT**

0202529.1 **General:** This item shall conform to the applicable provisions of Section 2.02 – Roadway Excavation, Formation of Embankment and Disposal of Surplus Material of Form 817.

NOTE: All surplus earth materials shall be hauled off-site by the contractor and shall become property of the contractor. There shall be no separate payment for transportation or disposal of any surplus materials.

0202529.2 **Measurement & Payment:** The unit price per lineal feet for Cut Bituminous Type Pavement shall include all labor equipment, materials, and fuel, disposal, etc., for saw-cutting existing road and driveway bituminous pavement in a straight line.

0202533.0 **REMOVAL OF EXISTING CURBING**

0202533.1 **General:** This item shall conform to the applicable provisions of Section 2.02 – Roadway Excavation, Formation of Embankment and Disposal of Surplus Material of Form 817.

NOTE: All surplus earth materials shall be hauled off-site by the contractor and shall become property of the contractor. There shall be no separate payment for transportation or disposal of any surplus materials.

0202533.2 **Measurement & Payment:** The unit price per lineal feet for Removal of Existing Curbing shall include all labor equipment, materials, transportation, fuel, disposal, etc., for the removal and disposal of the existing AC curbing at the site, and transportation and/or disposal of surplus bituminous materials.

0203000.0 **STRUCTURE EXCAVATION – EARTH (COMPLETE)**

0203000.1 **General:** This item shall conform to the applicable provisions of Section 2.03 – Structure Excavation of Form 817. Suitable material excavated, as approved by the Town, shall be placed in the depths, lines and locations as shown on the plans for “Common Fill.”

0203000.2 **Basis of Payment (Section 2.03.05):** Payment for this work will be made at the Contract unit price per cubic yard for: “Structure Excavation—Earth (complete)” or for placing “Common Fill” in whole or in part, which price shall include all materials, tools, and equipment; all work related to earth support, including their design, construction, dewatering, repair, removal of obstructions, and any required reconstruction; all labor necessary to complete the excavation in conformity with the requirements of the plans or as ordered by the Engineer; the preparation of foundations as described under Article 2.03.03 of the Form 817; all necessary filling, except as otherwise provided in the Contract; and the removal of all surplus or unsuitable material resulting from the excavations. Placing common fill shall be in accordance with Section 2.02 of the Form 817.

0203100.0 **STRUCTURE EXCAVATION – ROCK (COMPLETE)**
0203100.1 General: This item shall conform to the applicable provisions of Section 2.03 – Structure Excavation of Form 817. The Contractor shall excavate rock (as defined below), if encountered, to the lines and grades indicated on the drawings or as directed, shall dispose of the excavated material, and shall furnish acceptable material for backfill in place of the excavated rock.

Definition of Rock: The work “rock”, whenever used as the name of an excavated material or material to be excavated, shall mean only boulders and pieces of concrete or masonry exceeding one-half (½) cubic yard in volume, or solid ledge which, in the opinion of the Engineer, requires for its removal drilling, and blasting, wedging, sledgerg, barring, or breaking up with a power-operated tool. No soft or disintegrated rock that can be removed with a hand pick or power-operated excavator or shovel, no loose, shaken, or previously blasted rock or broken stone in rock filings or elsewhere, and no rock exterior to the maximum limits of measurement allowed that may fall into the excavation will be measured or allowed as “rock”.

0203100.2 Excess Rock Excavation: If rock is excavated beyond the limits of payment indicated on the drawings, specified, or authorized in writing by the Engineer, the excess excavation, whether resulting from overbreakage or other causes, shall be backfilled by and at the expense of the Contractor as specified before in this Section.

In excavations for structures, excess excavation in the rock beneath foundations shall be filled with concrete which shall be Class A or Class B, at the option of the Contractor. Other excess excavation shall be filled with earth as specified in Section 2.16 – Pervious Structure Backfill in Form 817.

103.3 Blasting: Not permitted.

0203100.6 Removal of Boulders: Piles of boulders or loose rock encountered within the limits of earth embankments shall be removed to a suitable place of disposal.

0203100.7 Disposal of Excavated Rock: Surplus excavated rock shall be disposed of as specified for surplus excavated earth.

0203100.8 Backfilling Rock Excavations: Where the rock has been excavated and the excavation is to be backfilled, the backfilling above normal depth shall be done as specified under Item 106.0 EARTH EXCAVATION. If material suitable for backfilling is not available in sufficient quantity from other excavations, the Contractor shall, at his own expense, furnish suitable material from outside sources.

0203100.9 Compaction of Backfill Material: Consolidation of backfill material in a trench where rock has been blasted shall be obtained through the use of a water-jetting method, or as approved by the Engineer.

0203100.10 Measurement and Payment: Where rock (as defined in this Section) is encountered, it shall be stripped of the overlying material and the Engineer will measure the same. All rock excavated before the Engineer shall have examined it shall be estimated by the Engineer based on obvious evidence of rock.

The quantity of rock excavation to be paid for shall be the number of cubic yards of rock in place, as if measured before excavation, that would have been removed if the excavation had been made everywhere exactly to the lines of payment.
0208801.0  CRUSHER RUN STONE

0208801.1  General: This item shall conform to the applicable provisions of Section 2.08 – Free Draining Material of Form 817.

NOTE: All surplus earth materials shall be hauled off-site by the contractor and shall become property of the contractor. There shall be no separate payment for transportation or disposal of any surplus materials.

0209001.0  FORMATION OF SUBGRADE

0209001.1  General: This item shall conform to the applicable provisions of Section 2.09 – Subgrade of Form 817.

NOTE: All surplus earth materials shall be hauled off-site by the contractor and shall become property of the contractor. There shall be no separate payment for transportation or disposal of any surplus materials.

0212000.0  SUBBASE

0212000.1  General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 2.12 – Subbase of Form 817.

0216000.0  PERVIOUS STRUCTURE BACKFILL

0212000.1  General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 2.16 – Pervious Structure Backfill of Form 817, and as specified herein.

0212000.2  Material: Pervious structure backfill shall conform to the requirements of Article M.02.05 of the Form 817.

0212000.3  Construction Methods: Pervious structure backfill shall be placed adjacent to the footings and abutments as called for or as shown on the plans.

Each layer of pervious structure backfill shall be spread to a thickness not exceeding 6 inches in depth after compaction and shall be thoroughly compacted as directed by the Engineer by the use of power rollers or other motorized vehicular equipment, by tamping with mechanical rammers or vibrators, or by pneumatic tampers. Any equipment not principally manufactured for compaction purposes and equipment, which is not in proper working order in all respects, shall not be used within the area described above.

Special attention shall be given to compaction in places close to walls where motorized vehicular equipment cannot reach. Within 3 feet of the back face of walls and within a greater distance at angle points of walls, each layer of pervious structure backfill shall be compacted by mechanical rammers, vibrators, or pneumatic tampers.

The dry density of each layer of pervious structure backfill formed from broken or crushed stone, broken or crushed gravel or reclaimed miscellaneous aggregate free of bituminous concrete shall have a dry density after compaction that is no less than 100 percent of the dry
density for that material when tested in accordance with AASHTO T180, Method D. If a layer formed from reclaimed miscellaneous aggregate containing bituminous concrete is placed as pervious structure backfill, the wet density of this layer after compaction shall not be less than 100 percent of the wet density of that material when tested in accordance with AASHTO T180, Method D.

In this test, material retained on the ¾ inch sieve shall be replaced with material retained on the number 4 sieve, as noted as an option in the specifications for this test.

Each layer of the pervious structure backfill shall be compacted at optimum moisture content. No Subsequent layer shall be placed until the specified compaction is obtained for the pervious layer.

0212000.4 Method of Measurement: Payment lines for pervious structure backfill shall coincide with the limits of the compacted Pervious Structure Backfill as actually placed and ordered by the Engineer.

0212000.5 Basis of Payment: Pervious Structure Backfill will be paid for the contract unit price per cubic yard for “Pervious Structure Backfill”, complete in place.

0219001.0 SEDIMENTATION CONTROL SYSTEM

0219001.1 General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 2.18 – Sedimentation Control System of Form 817.

0406171.0 HMA S0.5

0406171.1 General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item (Hot Mix Asphalt S0.5) shall conform to the applicable provisions of Section 4.06 – Bituminous Concrete of Form 817, and as specified herein.

105.3 Permanent Paving: All depth measurements shall be considered to be compacted depths. Bituminous material shall be compacted to 90% density.

The bituminous base course may be installed in two equal lifts of 2” unless the method of compaction of the bituminous base course can achieve compaction to the desired density of one lift. The determination shall be made by the Engineer. Should more than two (2) days elapse between the placements of base and top courses of bituminous concrete, material for tack coat shall be applied over the base course at the minimum rate of 0.1 gallons per square yard.

All joints shall be sealed with a hot bituminous asphalt sealer approved by the Engineer.

The Contractor shall remove and acceptably dispose of all excavated material before proceeding with the remainder of the work.

Permanent pavement, in all cases, shall be applied so that the whole roadway or paved area shall have a true and uniform surface, and the pavement shall conform to the proper grade and cross-section with a smooth transition to existing pavement.
105.4 Surface Maintenance: Until the expiration of the guarantee period, the Contractor shall maintain surfacing placed under this Contract and shall promptly correct any defect such as cracks, depressions, and holes that may occur. At all times, the surfacing shall be kept in a safe and satisfactory condition for traffic. If defects occur in surfacing constructed by the Contractor, the Contractor shall remove all bituminous concrete and base course as necessary to properly correct the defect. The Contractor shall replace the base course and bituminous concrete as specified herein.

0406172.0 HMA S0.375

0406172.1 General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item (Hot Mix Asphalt S0.375) shall conform to the applicable provisions of Section 4.06 – Bituminous Concrete of Form 817, and as specified herein.

105.3 Permanent Paving: All depth measurements shall be considered to be compacted depths. Bituminous material shall be compacted to 90% density.

Should more than two (2) days elapse between the placements of base and top courses of bituminous concrete, material for tack coat shall be applied over the base course at the minimum rate of 0.1 gallons per square yard.

All joints shall be sealed with a hot bituminous asphalt sealer approved by the Engineer.

The Contractor shall remove and acceptably dispose of all excavated material before proceeding with the remainder of the work.

Permanent pavement, in all cases, shall be applied so that the whole roadway or paved area shall have a true and uniform surface, and the pavement shall conform to the proper grade and cross-section with a smooth transition to existing pavement.

105.4 Surface Maintenance: Until the expiration of the guarantee period, the Contractor shall maintain surfacing placed under this Contract and shall promptly correct any defect such as cracks, depressions, and holes that may occur. At all times, the surfacing shall be kept in a safe and satisfactory condition for traffic. If defects occur in surfacing constructed by the Contractor, the Contractor shall remove all bituminous concrete and base course as necessary to properly correct the defect. The Contractor shall replace the base course and bituminous concrete as specified herein.

0507301.0 TYPE “C” AND “C-L” CATCH BASINS

0507301.1 General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 5.07 – Catch Basins, Manholes and Drop Inlets of Form 817.

0511203.0 POLYVINYL CHLORIDE PLASTIC PIPE WEEPHOLES

0511203.1 Materials for this item shall conform to Article M.08.01.27 of Form 817.

0601000.0 CLASS “A” CONCRETE
General: This item applies to the construction of the reinforced concrete footings and stems of the proposed retaining wall as indicated on the contract as prepared by Lenard Engineering, Inc. This item shall conform to Section 6.01 CONCRETE FOR STRUCTURES, of the Form 817, with the following sections amended or replaced:

Surface Finish:

Other than the form-lined surfaces, exposed surfaces shall receive be rubbed finish within 24 hours after removal of forms per Section 6.01.03–10(b) of Form 817.

Basis of Payment (Section 6.03.05): Payment for this work will be made as follows:

This material will be paid for at the contract unit price per cubic yard for "Class "A" Concrete", complete in place, which price shall include all materials, equipment, tools, labor and work incidental thereto, including heating, all admixtures, preformed joint filler and joint sealer.

All concrete testing will be done by the Town at no cost to the Contractor.

There shall be no direct payment for the cost of constructing expansion joints, but the cost thereof shall be considered as included in the cost of the concrete items.

Where steel dowels are used, this material will be paid for under the reinforcement item.

CONCRETE FORM LINERS

Form liners shall be applied over exposed vertical wall surfaces at a minimum distance of 8 inches from edges of the wall and vertical expansion joints. The form liner shall extend minimum of 8 inches below the proposed grade line. The maximum allowed depth of form liners is 1.5 inches. Pattern to be No. 16984 by Fitzgerald Formliners or as approved by the Engineer. Application and the removal of the form liner is as specified in Section 6.01.03.1.i – Ornament or Reverse Molds of Form 817.

DEFORMED STEEL BARS

This item applies to the construction of the reinforced concrete footings and stems of the proposed retaining wall as indicated on the contract as prepared by Lenard Engineering, Inc. This item shall conform to Section 6.02 REINFORCING STEEL, of the Form 817, with the following section(s) replaced:

Basis of Payment (Section 6.02.05): Payment for this work will be made as follows:

This work will be paid for at the contract unit price per pound for "Deformed Steel Bars", complete in place and accepted, including shop drawings, furnishing, fabricating and placing reinforcing steel, welding splices and all materials, equipment, tools, labor and work incidental thereto.

DRILLING HOLES AND GROUTING DOWELS

Work under this item shall consist of drilling holes in existing dry stone masonry and grouting dowels at the locations shown on the plans, and/or as directed by the Engineer.
Construction Methods: The Contractor shall drill holes into the existing dry stone masonry and epoxy grout dowels into the holes to the depth and at the locations shown on the plans.

Method of Measurement: This work will be measured for payment by the actual length of the holes drilled and grouted, completed and accepted.

Basis of Payment: This work will be paid for at the contract unit price per linear foot for “Drilling Holes and Grouting Dowels”, which price shall include drilling and preparing holes, and applying non-shrink grout in the holes. It shall also include all materials, except dowels, and all equipment, tools, shipping, and labor incidental thereto. Dowel bars will be paid for under item 0602000.0 - Deformed Steel Bars.

**REPOINTED MASONRY**

General: This item applies to the pargeting of the exposed exterior and/or interior of the stone arch culvert as directed by the Town. The existing structure of dry-stone masonry is to be pargeted at the time the roadway is excavated for the construction of the proposed concrete footings. The construction methods follow the requirements in paragraph 6.09.03 – Construction Methods of Form 817.

Materials: Mortar for the pargeting shall comply with the requirements in Article M.11.04 of Form 817.

Basis of Payment: This work will be paid for at the contract unit price per square yard for “Repointed Masonry” complete in place, including all material, equipment, tools, labor and incidentals thereto.

**15” AND 18” R.C. PIPE**

General: This item applies to the construction of the reinforced concrete storm drainage pipe between the proposed catch basins along the east side of the road and from the proposed catch basin to the outlet through the proposed reinforced concrete retaining wall, respectively.

Materials and Testing for the reinforced concrete drainage pipe shall comply with the requirements in Article M.08.01.6. of Form 817.

Basis of Payment: This work will be paid for at the contract unit price per linear feet for “Reinforced Concrete Pipe” complete in place, including all material, equipment, tools, labor and incidentals thereto.

**INTERMEDIATE RIPRAP**

Materials, Construction Methods, Methods of Measurement, and Basis of Payment shall be as specified in Section 7.03 of Form 817

**MODIFIED RIPRAP**

Materials, Construction Methods, Methods of Measurement, and Basis of Payment shall be as specified in Section 7.03 of Form 817
0708001.0 DAMPPROOFING

0708001.1 General: This item applies to the construction of the reinforced concrete footings and stems of the proposed retaining wall as indicated on the contract as prepared by Lenard Engineering, Inc. This item shall conform to Section 7.08 DAMPPROOFING of the Form 817. Dampproofing shall be applied to all formed reinforced concrete surfaces in contact with earth.

0708001.2 Basis of Payment (Section 7.08.05): This work will be paid for at the contract unit price per square yard for "Dampproofing," complete in place, including all material, equipment, tools, labor and incidental expense.

0751453.0 4" PERFORATED POLYVINYL CLORIDE PLASTIC PIPE

0751453.1 Materials for this item shall conform to Article M.08.01.27 of Form 817.

0755009.0 GEOTEXTILE

0755009.1 General: This item refers to the geotextile wrap around the crushed stone in the retaining wall back drain and the filter fabric laid on top of the exposed portion of the existing stone arch culvert. Materials, construction methods, method of measurement, and basis of payment shall be as specified in Section 7.55 of Form 817.

0813021.0 6" GRANITE STONE CURBING

0813021.1 Materials, Construction Methods, Methods of Measurements, Basis of Payment for this item shall conform to Section 8.16 of Form 817.

0815001.0 BITUMINOUS CONCRETE LIP CURBING

0815001.1 General: The Contractor shall furnish all labor, materials, tools, and equipment necessary to install Bituminous Concrete Curbing on top of the new pavement along the westerly edge of North Street, in the length of the new concrete retaining wall. Description, materials, and construction methods shall be as per Section 8.15 – Bituminous Concrete Curbing in Form 817.

0815001.2 Measurement and Payment: Bituminous Concrete Curbing will be measured and paid by the linear feet complete in place as indicated in the contract drawings and in these specifications or as directed by the Engineer. This item shall include material for tack coat, and all other labor, equipment, and materials incidental thereto.

0822001.0 TEMPORARY PREPAST CONCRETE BARRIER CURB

0822001.1 General: This item refers to the placement and maintenance of the Precast Concrete Barrier Curb around the work area, as shown on the contract plans. Materials, construction methods, method of measurement, and basis of payment shall be as specified in Section 8.22 of Form 817.
0822001.2 Construction Methods: The Contractor shall furnish, install, maintain, relocate as needed, and remove from the site at the end of the construction Precast Concrete Barrier Curb segments to conform to the requirements stated in 0971001 “Maintenance and Protection of Traffic,” and/or as shown on the plans and/or as directed by the Engineer. Materials, Construction Methods shall comply with Section 8.22 of Form 817.

0822001.3 Method of Measurement: The items Temporary Precast Concrete Barrier Curb and “Relocated Precast Concrete Barrier Curb” will be measured for payment per the provisions of Section 8.22.04 of Form 817.

0822001.4 Basis of Payment: “The items Temporary Precast Concrete Barrier Curb and “Relocated Precast Concrete Barrier Curb” will be paid for per the linear feet installed and/or relocated per the provisions of Section 8.22.05 of Form 817.

0822002.0 RELOCATED TEMPORARY PRECAST CONCRETE BARRIER CURB

0822002.1 General: This item refers to the placement and maintenance of the relocation of Precast Concrete Barrier Curb around the work area, as shown on the contract plans. Materials, construction methods, method of measurement, and basis of payment shall be as specified in Section 8.22 of Form 817.

0822002.2 Construction Methods: The Contractor shall furnish, install, maintain, relocate as needed, and remove from the site at the end of the construction Precast Concrete Barrier Curb segments to conform to the requirements stated in 0971001 “Maintenance and Protection of Traffic,” and/or as shown on the plans and/or as directed by the Engineer. Materials, Construction Methods shall comply with Section 8.22 of Form 817. Barriers removed and replaced for daily access of equipment and personnel into work site shall not be measured or paid for.

0822002.3 Method of Measurement: The items Temporary Precast Concrete Barrier Curb and “Relocated Precast Concrete Barrier Curb” will be measured for payment per the provisions of Section 8.22.04 of Form 817.

0822002.4 Basis of Payment: “The items Temporary Precast Concrete Barrier Curb and “Relocated Precast Concrete Barrier Curb” will be paid for per the linear feet installed and/or relocated per the provisions of Section 8.22.05 of Form 817.

0910170.0 METAL BRIDGE RAIL (TRAFFIC)

0910170.1 General: This item refers to the installation of Metal Bridge Rail (Traffic) along the top of the proposed reinforced concrete retaining wall, where shown on the contract drawings. The rail shall be Type T2 steel bridge rail per the contract drawings. Materials, construction methods, method of measurement, and basis of payment shall be as specified in Section 9.04 of Form 817. Surface treatment of the steel railing shall be dip shop painting with field touch-up as specified in Sections 6.03.03.37 & 38 of Form 817. Color to be selected by the Town from selection provided by Contractor.

0912503.0 REMOVE METAL BEAM RAIL
0912503.1 **General:** This item refers to the removal of the existing Metal Beam Rail along the existing stone retaining wall, where shown on the contract drawings. Construction methods, method of measurement, and basis of payment shall be as specified in Section 9.12 of Form 817.

0913000.0 **REMOVE CHAIN LINK FENCE**

0913000.1 **General:** This item refers to the removal of the existing Link Fence along the existing stone retaining wall, where shown on the contract drawings. Method of removal shall be as discussed with the Engineer. Basis of payment shall be the actual linear footage of fence removed and the contract unit price per linear foot of fence removed.

0921001.0 **CONCRETE SIDEWALK AND RAMP**

0921001.1 **General:** This item refers to the construction of the proposed concrete sidewalk and sidewalk ramps, where shown on the contract drawings. Construction methods, materials method of measurement, and basis of payment shall be as specified in Section 9.21 of Form 817.

0921003.0 **DETECTABLE WARNING STRIP**

0921001.1 **General:** This item refers to the construction of the proposed detectable warning strips, where shown on the contract drawings. Construction methods, materials method of measurement, and basis of payment shall be as specified in Section 9.21 of Form 817.

0925001.A **PAVED SHOULDER**

0921001.1 **General:** This item refers to the construction of the bituminous concrete paved shoulder, where shown on the contract drawings. Construction methods, materials method of measurement, and basis of payment shall be as specified in Section 9.25 of Form 817.

0944000.0 **FURNISHING AND PLACING TOP SOIL**

0944000.1 **Description:** This work shall consist of furnishing, placing, and shaping topsoil in areas shown on the plans where directed by the Engineer. The topsoil shall be placed to the depth stated in the Contract or specifications. In general this work has to comply with the provisions of Section 9.44 in Form 817.

0944000.2 **Material:** The material shall conform to the requirements of Article M.13.01.1 of the Form 817.

0944000.3 **Construction Methods:** The areas on which topsoil is to be placed shall be graded to a reasonably true surface and cleaned of all stones, brickbats, and other unsuitable materials. After areas have been brought to proper subgrade and approved by the Engineer or his agent, loam shall be spread to a depth as indicated in the Contract, or to a depth of no less than four inches, with due allowance made for settlement. All stones, roots, debris, sod, weeds, and other undesirable material shall be removed from the topsoil. After shaping and grading, all trucks and other equipment shall be excluded from the topsoiled area to prevent excessive compaction. The Contractor shall perform such work as required to provide a friable surface for seed germination and plant growth prior to seeding. Topsoil is to be placed to top of adjacent curbing after compaction.
During hauling and spreading operations, the Contractor shall immediately remove any material dumped or spilled on the shoulders or pavement.

It shall be the Contractor's responsibility to restore to line, grade, and surface all eroded areas with approved material and to keep topsoiled areas in acceptable condition until the completion of the construction work.

0944000.4  Payment: This work will be measured for payment by the number of square yards of area on which the placing of the topsoil has been completed and the work accepted.

The limits of payment shall be to the slope limits as shown on the plans. In the absence of slope limits, the maximum area of measurement shall be the area extending two feet behind the sidewalk and the area between the sidewalk and edge of pavement. No payment shall be made outside of these limits unless the disturbance was directed or approved by the Engineer. No payment shall be made for areas disturbed for staging, storage of materials, or other area disturbed for the convenience of the Contractor.

This work will be paid for at the Contract unit price per square yard for "Grading and Topsoil", which price shall include all materials, equipment, tools, labor, and work incidental thereto.

0950005.0  TURF ESTABLISHMENT

0950005.1  General: The work included in this item shall consist of providing an accepted uniform stand of established perennial turf grasses by furnishing and placing fertilizer, seed, and mulch on all areas to be treated as shown on the plans or where designated by the Engineer.

0950005.2  Materials: The materials for this work shall conform to the requirements of Section M.13 of the Form 817, except as noted below.

Seed mix for residential lawn areas shall consist of 30% Crest Kentucky Bluegrass, 30% Baron Kentucky Bluegrass, 20% Victory II Chewings Fescue, and 20% Perennial Rye Grass.

Seed mix for other roadside areas designated for turf establishment shall consist of 70% Red Fescue, 20% Kentucky Blue Grass, and 10% Perennial Rye Grass.

Hydroseeding, when required by the Engineer, shall be performed using a homogenous slurry consisting of wood fiber mulch, fertilizer, live seed, and organic tackifiers conforming to Section M.13 of the Form 817.

Material certificates shall be provided for all materials supplied under this item.

0950005.3  Construction Methods: Construction Methods shall be those established as agronomically acceptable and feasible and which are approved by the Engineer.

1. Preparation of the Seedbed:
   (a) Level areas, medians, interchanges and lawns: These areas shall be made friable and receptive for seeding by diskng or by other approved methods to the satisfaction of the Engineer. In all cases the final prepared and seeded soil surface shall meet the lines and grades for such surface as shown in the plans, or as directed by the Engineer.

   (b) During "out-of-season" periods unseeded areas shall be treated in accordance with Section 2.10, Water Pollution Control.
2. Seeding Methods: The seed mixture shall be applied by any agronomically acceptable procedure. The rate of application shall be no less than 175 pounds per acre or according to manufacturer instructions. Fertilizer conforming to M.13.03 shall be initially applied at a rate of 320 pounds per acre during or preceding seeding. When wood fiber mulch is used, it shall be applied in water slurry at a rate of 2,000 pounds per acre with or immediately after the application of seed, fertilizer and limestone.

When hydroseeding is required by the Engineer, it shall be performed by a qualified Contractor who has a minimum of three year experience in the successful performance of this work and has been approved by the Engineer. Hydroseed mix shall be applied in a slurry consisting of wood fiber mulch, fertilizer, live seed, and organic tackifiers with each component applied at the rate described above. The slurry shall be hydraulically sprayed on the soil surface as required to form a blotter-like ground cover with a uniform coating. Contractor shall exercise special care as required to prevent slurry from being sprayed onto adjacent paved areas, sidewalks, buildings, or signs. All slurry sprayed onto adjacent surfaces shall be cleaned at the Contractor’s expense.

When the grass seeding growth has attained a height of 6 inches, the specified areas designated herein shall be mowed to a height of 3 inches. Following mowing, all seeding grass areas (mowed and un-mowed) shall receive a uniform application of fertilizer hydraulically placed at the rate of 320 pounds per acre.

3. Compaction: The Contractor shall keep all equipment and vehicular and pedestrian traffic off areas that have been seeded to prevent excessive compaction and damage to young plants. Where such compaction has occurred, the Contractor shall rework the soil to make a suitable seedbed; then re-seed and mulch such areas with the full amounts of the specified materials, at no extra expense to the Town.

4. Stand of Perennial Turf Grasses: The Contractor shall provide and maintain a uniform stand of established turf grass or wetland vegetation having attained a height of 6 inches consisting of no less than 100 plants per square foot throughout the seeded areas until the entire project has been accepted.

5. Establishment: The Contractor shall keep all seeded areas free from weeds and debris, such as stones, cables, baling wire, and he shall mow at his own expense, on a one-time-only basis, all slopes 4:1 or less (flatter) and level turf established (seeded) areas to a height of 3 inches when the grass growth attains a height of 6 inches. Clean-up shall include, but not be limited to, the removal of all debris from the turf establishment operations on the shoulders, pavement, and/or elsewhere on adjacent properties publicly and privately owned.

6. Erosion Control Matting: Erosion control matting shall be installed following seeding where called for on the plans or as directed by the Engineer. Staples shall be installed as per Manufacturer’s recommendations. Where two lengths of matting are joined, the end of the upgrade strip shall overlap the down-grade strip. The Contractor shall maintain and protect the areas with erosion control matting until such time as the turf grass is established. The Contractor shall replace or repair at his own expense any and all erosion control matting areas damaged by fire, water or other causes including the operation of construction equipment. No mowing will be required in the locations where erosion control matting is installed.

Method of Measurement: This work will be measured for payment by the number of square yards of surface area of accepted established perennial turf grass or wetland vegetation as specified or by the number of square yards surface area of seeding actually covered and as specified.
Restoration of areas disturbed for staging, storage of materials, or other area disturbed for the convenience of the Contractor will not be measured for payment.

Erosion control matting will be measured by the number of square of surface yards area of erosion control matting installed and accepted.

Basis of Payment: This work will be paid for at the contract unit price per square yard for “Turf Establishment”, which price shall include all materials, mowing, maintenance, equipment, tools, labor, and work incidental thereto.

TRAFFIC PERSON (UNIFORMED FLAGGER)

General: This item shall conform to Section 9.70 TRAFFICPERSON, of the Form 817.

Description: Add the following to the first paragraph of Section 9.70.01

“Traffic persons shall consist of certified, uniformed flaggers meeting acceptable criteria or extra duty officers of the Watertown Police Department. The Contractor shall provide Uniformed Flaggers meeting the requirements of this specification as required for safe traffic operations in the project area. Extra-duty police officers will be used only when specifically required by the Watertown Police Chief, as the Legal Traffic Authority, who will make this determination based on the Contractor’s proposed operations, traffic volumes, and traffic conditions.” Should uniformed Watertown Police Officers be required, they will be arranged for by the Contractor at 860-945-5200 and paid for directly by the Town. The Contractor shall be solely responsible for any charges incurred as a result of failure to cancel Uniformed Police Officers as per the town of Watertown Police Department requirements.

All work under this item shall be paid only for the duration of the Contract as contained in the Special Conditions under ‘Time for Completion/Notice to Proceed’ and for any time extensions granted in writing by the Town. Payment for police officers required after the duration of the Contract and approved time extensions shall be made directly by the Town and such costs deducted from future payments due the Contractor.”

Basis of Payment: Replace Section 9.70.05 with the following:

“There will be no direct payment for safety garments or STOP/SLOW paddles. All costs associated with furnishing safety garments and STOP/SLOW paddles shall be considered included in the general cost of the item.

1. Uniformed Flagger: Uniformed flaggers or Off-Duty Town of Watertown Police Officers will be paid for at the contract unit price per hour for “Traffic person (Uniformed Flagger)” as listed in the bid proposal, which price shall include all compensation, insurance benefits, and any other cost or liability incidental to the furnishing of the traffic persons ordered.”

MAINTENANCE AND PROTECTION OF TRAFFIC

Description: Unless other provisions are made by the Engineer, the Contractor shall keep the roadway open to traffic for the full duration of the project and shall provide a sufficient number of travel lanes and pedestrian pathways to move the traffic ordinarily using the roadway. The travel lanes and pedestrian pathways shall be drained and kept reasonably smooth and in suitable condition at all times in order to provide minimum interference with traffic and consistent with proper execution of the work. The Contractor shall maintain and protect one lane of through traffic for alternating traffic during the entire duration of the project. Each travel
lane shall be not less than 11 feet in width. Suitable ingress and egress shall be provided at all times where required for all intersecting roads and for all abutting properties that have legal access.

The Contractor shall maintain and protect traffic as follows:

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the project limits.

0971001.2  Alternate Traffic Management Schemes: When a scheme for maintenance of traffic is shown on the plans or approved by the Legal Traffic Authority, this shall govern unless an alternate scheme acceptable to the Engineer is offered by the Contractor at no additional cost. If no scheme is shown on the plans or described in the Special Conditions of the Contract and the Contractor wishes to deviate from the provisions of maintaining traffic as described in this Section, the Contractor must submit, and the Engineer may approve, a schedule showing a proposed sequence of operations and a compatible method of maintaining traffic.

0971001.3  Signs and Sign Patterns: The Contractor shall maintain all existing signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate signs as many times as deemed necessary as directed by the Engineer. When the necessary construction is completed, the Contractor shall re-install the existing signs in their original locations or as directed by the Engineer.

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory. All temporary traffic control devices as called for by the contract or ordered by the Engineer must be on-hand and available in sufficient quantity for immediate installation prior to any stage change.

The Contractor will furnish additional approved signs, barricades, traffic cones, and traffic delineators to forewarn traffic of the construction. The Contractor will also provide such safety measures, pavement markings, warning devices, and signs as deemed necessary to safeguard and guide the traveling public through detours ordered by the Engineer or included in the approved scheme for maintenance of traffic. Signs and barricades will be delivered adjacent to the project and traffic cones and delineators will be provided when required, at no cost to the Town. The Contractor shall erect, maintain, move, adjust, relocate and store these signs, barricades, traffic cones, and delineators when, where, and in accordance with the "Manual on Uniform Traffic Control Devices", or as directed by the Engineer.

The use of unauthorized or unapproved signs, barricades, traffic cones, or traffic delineators will not be permitted.

The Contractor shall keep all signs in proper position and clean and legible at all times. Care shall be taken so that weeds, shrubbery, construction materials or equipment, and soil are not allowed to obscure any sign, light, or barricade. Signs that do not apply to existing conditions shall be removed or adjusted so that the legend is not visible to approaching traffic.

0971001.4  Traffic Control During Construction Operations: The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

TRAFFIC CONTROL PATTERNS: Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or
Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and the equipment can be contained within the shoulder. Flashing lights and appropriate traffic person shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

PLACEMENT OF SIGNS: Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs may be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

Allowable Adjustment of Signs and Devices Shown on the Traffic Control Plans
The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations. Adjustments to the traffic control plans shall be based on safety of work forces and motorists, abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.
Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

**TABLE I – MINIMUM TAPER LENGTHS**

<table>
<thead>
<tr>
<th>POSTED SPEED LIMIT MILES PER HOUR</th>
<th>MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 OR LESS</td>
<td>180</td>
</tr>
<tr>
<td>35</td>
<td>250</td>
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<tr>
<td>40</td>
<td>320</td>
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<td>45</td>
<td>540</td>
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<td>600</td>
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<tr>
<td>55</td>
<td>660</td>
</tr>
<tr>
<td>65</td>
<td>780</td>
</tr>
</tbody>
</table>

**INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS**

a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.

b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.

c) Stopping traffic may be allowed as per the contract for such activities as blasting, steel erection, etc.; or during paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation; or to move slow moving equipment across live traffic lanes into the work area.

d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or State Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic.

e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.

g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.

h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

**USE OF TRAFFIC DRUMS AND TRAFFIC CONES**

a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 72-hour duration.

DCS- 18
c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacing and may be reduced to meet actual field conditions as required.

0971001.5 Traffic Signals: The Contractor shall keep each traffic signal in the project limits operational at all times during construction. Loop detectors disturbed by the Contractor’s operations shall be made operational, in accordance with the Specification Section X.XX Loop Detector Saw Cut, or temporary detection must be provided within 24 hours of the termination of the existing loop detectors.

0971001.6 Snow Removal: The Contractor, when order by the Engineer, shall remove snow and take care of icy conditions on temporary, new, and existing sidewalks on any part of the right-of-way within the limits of the project.

Snow removal and correction of icy conditions other than those resulting from the Contractor’s operations, and snow removal on uncompleted contracts under traffic, will remain the obligation of the Town.

0971001.7 Failure to Provide: Should the Contractor fail to perform any of the work required under this Section, the Town may perform, or arrange for others to perform, such work. In such cases, the Town will deduct from monies due or to become due the Contractor, all expenses connected therewith.

0971001.8 Basis of Payment: Maintenance and Protection of Traffic will be paid for at the Contract Lump Sum price for “Maintenance and Protection of Traffic”. This price shall include all costs for labor, equipment, and services involved in the erection, maintenance, moving, adjusting, relocating and storing of signs, barricades, traffic cones, and traffic delineators furnished by the Contractor, as well as all cost of labor and equipment involved in the maintenance of traffic lanes and detours ordered or included in the approved scheme for maintenance of traffic.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include furnishing, installing, and removing the material for the temporary traversable slope in those areas where a longitudinal dropdown exists.

If there is no method for payment for the temporary transition in those areas where a transverse dropdown exists, then the contract lump sum price for the “Maintenance and Protection of Traffic” shall also include furnishing, installing, and removing the material for the temporary transition.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing, and removing temporary sign supports and foundations if necessary during construction of the project.

NOTE: The Town of Watertown CHIEF OF POLICE, acting in the capacity of the LEGAL TRAFFIC AUTHORITY, shall be the sole and final authority for the Maintenance and Protection of Traffic. Contractor is to arrange for police officers as required by Police Department. Uniformed Officers for traffic control may be arranged by calling the Special Duty Officer at (860) 945-5200 at least 24 hours prior to arrange for them. Contractor shall be solely responsible for
payment of any officers that were not cancelled in time in accordance with Watertown Police Department policies and procedures. Uniformed Traffic officers will be paid directly by the town.
SERIES 16 SIGNS

CONSTRUCTION AHEAD
ROAD USE RESTRICTED
STATE LIABILITY LIMITED
GENERAL STATUTES SEC 13a-115, 13a-145
COMMISSIONER OF TRANSPORTATION

CONSTRUCTION AHEAD
SIDEWALK USE RESTRICTED
STATE LIABILITY LIMITED
GENERAL STATUTES SEC 13a-115, 13a-145
COMMISSIONER OF TRANSPORTATION

16-E 80-1605 84" x 60"
16-H 80-1808 60" x 42"
16-M 80-1613 30" x 24"

16-S 80-1619 48" x 30"

THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE, ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.
SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.

CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

PRINCIPAL ENGINEER

DCS- 21
NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.

2. SIGNS (A), (B), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.

3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.

4. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.

5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.

6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVEL PATHS SHALL BE INSTALLED.

7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100’ ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).

8. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

10. SIGN (D) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

<table>
<thead>
<tr>
<th>POSTED SPEED LIMIT (MILES PER HOUR)</th>
<th>MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 OR LESS</td>
<td>100’ (55m)</td>
</tr>
<tr>
<td>35</td>
<td>250’ (75m)</td>
</tr>
<tr>
<td>40</td>
<td>320’ (100m)</td>
</tr>
<tr>
<td>45</td>
<td>540’ (165m)</td>
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<tr>
<td>50</td>
<td>600’ (180m)</td>
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<tr>
<td>55</td>
<td>660’ (200m)</td>
</tr>
<tr>
<td>60</td>
<td>780’ (240m)</td>
</tr>
</tbody>
</table>

METRIC CONVERSION CHART (1” = 25mm)

<table>
<thead>
<tr>
<th>ENGLISH METRIC</th>
<th>ENGLISH METRIC</th>
<th>ENGLISH METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>12”</td>
<td>300mm</td>
<td>72”</td>
</tr>
<tr>
<td>18”</td>
<td>450mm</td>
<td>78”</td>
</tr>
<tr>
<td>24”</td>
<td>600mm</td>
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<tr>
<td>30”</td>
<td>750mm</td>
<td>90”</td>
</tr>
<tr>
<td>36”</td>
<td>900mm</td>
<td>96”</td>
</tr>
</tbody>
</table>

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

PRINCIPAL ENGINEER

DCS-22
NORTH STREET RETAINING WALL
DETAILED CONSTRUCTION SPECIFICATIONS
WATERTOWN, CONNECTICUT

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)

DENOTES APPROXIMATE LOCATION OF
UNIFORMED FLAGGER, TRAFFIC PERSON
OTHER THAN POLICE OFFICERS SHALL
USE SIGN 80-9950 MOUNTED ON A 6'
MIN. STAFF.

FROM THE MUTCD
(2009 EDITION)
Table 6E-1. Showning Sight Distance
as a Function of Speed.

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Distance (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>115</td>
</tr>
<tr>
<td>25</td>
<td>155</td>
</tr>
<tr>
<td>30</td>
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<td>45</td>
<td>360</td>
</tr>
<tr>
<td>50</td>
<td>425</td>
</tr>
<tr>
<td>55</td>
<td>495</td>
</tr>
</tbody>
</table>

TRAFFIC CONE OR TRAFFIC DRUM
★ OPTIONAL ★ TRAFFIC DRUM ★ PORTABLE SIGN SUPPORT
□ HIGH MOUNTED INTERMITTENT ILLUMINATED FLASHER ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 1 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

SCHOOL DISTRICT
108 SQ. FT (MIN.)
WORK IN TRAVEL LANE AND SHOULDERS OF TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND ARM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.

B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.

C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.
NORTH STREET RETAINING WALL
DETAILED CONSTRUCTION SPECIFICATIONS
WATERTOWN, CONNECTICUT

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN.)

D 80-6512
END ROAD WORK

A 80-6503
ROAD WORK AHEAD

ROAD WORK AHEAD
FINES DOUBLED

TRAFFIC CONE OR TRAFFIC DRUM
* OPTIONAL TRAFFIC DRUM ← PORTABLE SIGN SUPPORT
□ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 15
SEE NOTES 1, 2, 4, 6, 7, 8

SCALE NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED
Charles D. Weller
PRINCIPAL ENGINEER

DCS- 26
REMOVAL OF EXISTING MASONRY

General: Work under this item shall consist of the partial removal and preparation of the remaining part of the existing stone retaining wall, as required, to accommodate the cast-in-place concrete footing of the proposed reinforced concrete retaining wall.

Materials: Stones shall consist of existing stones removed and prepared for reuse as necessary to complete the work. Cracked, deteriorated, and missing stones shall be replaced as directed by the Engineer with stones conforming to Article M.11.02 of Form 817 for rubble masonry stone.

Construction Methods: Existing stone masonry shall be removed to the limits indicated in the contract drawings, as necessary to complete the work, and/or as ordered by the Engineer. Due precaution shall be taken to avoid damage to existing construction to remain, new construction already in place, public utility installations or abutting property. Any damage shall be repaired by the Contractor, as directed by the Engineer, and at no cost to the Town.

The Contractor shall take all necessary precaution to prevent damage to the portions of the structure to remain. Any damage shall be repaired by the Contractor, as directed by the Engineer, and at no cost to the Town.

Masonry stones removed from the existing retaining wall shall be delivered by the Contractor to the Town transfer station on Old Baird Road. All material deemed not salvageable due to damage or deterioration shall be considered debris and shall be legally disposed of, off the site, by the Contractor.

Resetting stone masonry with Dry Rubble Masonry construction shall conform to Article 6.07.03 of Form 817.

Method of Measurement: Since this is a lump-sum item, it will not be measured separately for payment.

Basis of Payment: This work will be paid for at the contract lump sum price for “Removal of Existing Masonry” complete and accepted in place, including all materials, equipment, tools, labor, and miscellaneous materials and items incidental thereto.

MOBILIZATION AND PROJECT CLOSEOUT

General: Description, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 9.75 – Mobilization and Project Closeout of Form 817.

BARRICADE WARNING LIGHTS – HIGH INTENSITY

General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 9.76 – Barricade Warning Light – High Intensity of Form 817.

TRAFFIC CONE
0977001.1  General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 9.77 – Traffic Cone of Form 817, except as noted below.

1220027.4  Method of Measurement: “Barricade Warning Lights – High Intensity” will not be measured for payment but shall be included in the “Maintenance and Protection of Traffic” bid item.

0978002.0  TRAFFIC DRUM

0978002.1  General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 9.78 – Traffic Drum of Form 817, except as noted below.

0978002.2  Method of Measurement: Traffic Drums will not be measured for payment but shall be included in the “Maintenance and Protection of Traffic” bid item.

0980001.0  CONSTRUCTION STAKING

0980001.1  General: Description, Materials, Construction Methods, Method of Measurement, and Basis of Payment of this item shall conform to the applicable provisions of Section 9.80 – Construction Staking of Form 817.

1220027.0  CONSTRUCTION SIGNS

1220027.1  General: The Contractor shall furnish construction signs with Type III reflective sheeting and their required portable supports or metal sign posts that conform to the requirements of NCHRP Report 350 (TL-3) and to the signing requirements stated in Article 9.71 “Maintenance and Protection of Traffic,” as shown on the plans and/or as directed by the Engineer.

1220027.2  Materials: Prior to using the construction signs and their portable supports, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

Portable sign supports shall be designed and fabricated so that the signs do not blow over or become displaced by the wind from passing vehicles. Portable sign supports shall be approved by the Engineer before they are used.

Mounting height of signs on portable sign supports shall be a minimum of 1 foot and a maximum of 2 feet, measured from the pavement to the bottom of the sign.

All sign faces shall be rigid and reflectorized. Reflective sheeting shall conform to the requirements of Article M.18.09.01 (Type III). Sheet aluminum sign blanks shall conform to the requirements of Article M.18.13. Metal sign posts shall conform to the requirements of Article M.18.14. Application of reflective sheeting, legends, symbols, and borders shall conform to the requirements specified by the reflective sheeting manufacturer. Attachments shall be provided so that the signs can be firmly attached to the portable sign supports or metal posts without causing damage to the signs.

The following types of construction signs shall not be used: mesh, non-rigid, roll-up.
The following portable sign support systems or equivalent systems that meet the above requirements may be used:

- Korman Model #SS548 flexible sign stand with composite aluminum sign substrate (APOLIC)
- Traffix “Little Buster” dual spring folding sign stand with corrugated polyethylene (0.4 in. thick) sign substrate (InteCel)

1220027.3 Construction Methods: Ineffective signs, as determined by the Engineer and in accordance with the ATSSA guidelines contained in “Quality Standards for Work Zone Traffic Control Devices”, shall be replaced by the Contractor at no cost to the State.

Signs and their portable supports or metal posts that are no longer required shall be removed from the project and shall remain the property of the Contractor.

1220027.4 Method of Measurement: Construction Signs and supports will not be measured for payment but shall be included in the “Maintenance and Protection of Traffic” bid item.