TOWN OF GLASTONBURY
ENGINEERING DIVISION

CONTRACT DOCUMENTS

FOR

MAIN STREET RAISED TRAFFIC ISLAND

BID # GL-2020-07

PW-1907

ADVERTISED ON: SEPTEMBER 6, 2019

BID DUE DATE: SEPTEMBER 19, 2019

TOWN OF GLASTONBURY

INVITATION TO BID

BID #	ITEM	DATE & TIME REQUIRED
GL-2020-07	Main Street Raised Traffic Island	September 19, 2019 at 11:00 A.M.

The Town of Glastonbury will receive Sealed Bids, in duplicate, for construction of a raised traffic island on Main Street at the intersection with Hebron Avenue, including concrete sidewalk, granite curb, brick pavers, and associated improvements. Bids must be submitted to the Office of the Purchasing Agent, Town Hall (second level), 2155 Main Street, Glastonbury, CT 06033, Attention: Mary F. Visone, Purchasing Agent, no later than the time and date indicated. All bids will be publicly opened and read aloud. No late bids will be accepted.

The Town reserves the right to waive informalities or reject any or all bids when said action is deemed to be in the best interests of the Town.

Bid Forms, Plans, and Specifications may be obtained at no cost from the Town's website at www.glastonbury-ct.gov.

The Town of Glastonbury is an Affirmative Action/Equal Opportunity Employer. Minority / Women / Disadvantaged Business Enterprises are encouraged to bid.

Mary F. Visone
Purchasing Agent

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1. Sealed bids (**one original and one copy**) on the attached Bid Forms will be received at the Office of the Purchasing Agent, Town Hall, 2155 Main Street, Glastonbury, Connecticut 06033 (second level). At the designated time of opening, they will be publicly opened, read, recorded and placed on file.

2. Whenever it is deemed to be in the best interest of the Town, the Town Manager, Purchasing Agent or designated representative shall waive informalities in any and all bids. The right is reserved to reject any bid when such action is deemed to be in the best interest of the Town of Glastonbury.

3. The award will be on the basis of bid total cost of the lowest qualified, responsible, and responsive bidder unless otherwise specified. The bid total cost shall be arrived at by the mathematical calculation of the unit price multiplied times the number of units specified for each line item, and the total sum of all line items in the bid. In the event that the Town finds computational errors in a respondent's bid proposal, the bid total cost shall be recalculated by the Town based on the unit prices contained in the bid proposal.

4. Bids will be carefully evaluated as to conformance with stated specifications.

5. The envelope enclosing your bid should be clearly marked with your company name and address, bid number, bid title, time of bid opening, and date.

6. Specifications must be submitted complete in every detail and, when requested, samples shall be provided. If a bid involves any exception from stated specifications, they must be clearly noted as exceptions, underlined, and attached to the bid.

7. The Bid Documents contain the provisions required for the requested item. Information obtained from an officer, agent, or employee of the Town or any other person shall not affect the risks or obligations assumed by the Bidder or relieve him/her from fulfilling any of the conditions of the bid.

8. Each Bidder is held responsible for the examination and/or to have acquainted themselves with any conditions at the job site which would affect their work before submitting a bid. Failure to meet this criteria shall not relieve the Bidder of the responsibility of completing the bid without extra cost to the Town of Glastonbury.

9. Any bid may be withdrawn prior to the above-scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No Bidder may withdraw a bid within sixty (60) days after the actual date of the opening thereof. Should there be reasons why a bid cannot be awarded within the specified period, the time may be extended by mutual agreement between the Town and the Bidder.

10. Each bid must be accompanied by a bid bond payable to the Town for ten percent (10%) of the total amount of the bid. The bid bond of the successful Bidder will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned. A certified check may be used in lieu of a bid bond. The Town of Glastonbury will not be liable for the accrual of any interest on any certified check submitted. Cashier's checks will not be accepted.

11. A 100% Performance and a 100% Payment bond are required of the successful bidder. This bond shall cover all aspects of the specification and shall be delivered to the Purchasing Agent prior to the issuance of a purchase order. The Performance and Payment Bond will be returned upon the delivery and acceptance of the bid items.

12. The Bidder agrees and warrants that in the submission of this sealed Bid, they will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religion, national origin, sex, or physical disability including, but not limited to blindness, unless it is shown by such Bidder that such disability prevents performance of that which must be done to

successfully fulfill the terms of this sealed Bid or in any manner which is prohibited by the laws of the United States or the State of Connecticut: and further agrees to provide the Human Relations Commission with such information requested by the Commission concerning the employment practices and procedures of the Bidder. An Affirmative Action Statement will be required by the successful Bidder.

13. Bidder agrees to comply with all of the latest Federal and State Safety Standards and Regulations and certifies that all work required in this bid will conform to and comply with said standards and regulations. Bidder further agrees to indemnify and hold harmless the Town for all damages assessed against the Town as a result of Bidder's failure to comply with said standards and/or regulations.

14. All correspondence regarding any purchase made by the Town of Glastonbury shall reference the Town's purchase order number. Each shipping container shall clearly indicate both Town purchase order number and item number.

15. Bidder is required to review the Town of Glastonbury Code of Ethics adopted July 8, 2003 and effective August 1, 2003 and revised October 29, 2013 and effective November 28, 2013. Bidder shall acknowledge that they have reviewed the document in the area provided on the bid/proposal response page (BP). The selected Bidder will also be required to complete and sign an Acknowledgement Form prior to award. The Code of Ethics and the Consultant Acknowledgement Form can be accessed at the Town of Glastonbury website at **www.glastonbury-ct.gov**. Upon entering the website scroll down to click on **Bids & Proposals Icon** which will bring you to the links for the **Code of Ethics** and the **Acknowledgement Form**. If the Bidder does not have access to the internet, a copy of these documents can be obtained through the Purchasing Department at the address listed within this bid/proposal.

16. **Non-Resident Contractors:** (if applicable)
Upon award the Town is required to report names of nonresident (out of state) Contractors to the State of Connecticut, Department of Revenue Services (DRS) to ensure that Employment Taxes and other applicable taxes are being paid by Contractors. **A single surety bond for 5% of the entire contract price is required to be filed with DRS by any unverified nonresident prime or general contractor (if awarded) where the contract price for the project is $250,000 or more.** The contractor will be required to promptly furnish to the Town a copy of the **Form AU-968 - Certificate of Compliance** issued by the State of Connecticut, DRS. See State of Connecticut **Notice SN 2012 (2).**

17. Bidder shall include on a sheet(s) attached to its proposal a complete disclosure of all past and pending mediation, arbitration and litigation cases that the bidder or its principals (regardless of their place of employment) have been involved in for the most recent five years. Please include a statement of the issues in dispute and their resolution. Acceptability of Bidder based upon this disclosure shall lie solely with the Town.

18. Bidder or its principals, regardless of their place of employment, shall not have been convicted of, nor entered any plea of guilty, or nolo contendere, or otherwise have been found civilly liable or criminally responsible for any criminal offense or civil action. Bidder shall not be in violation of any State or local ethics standards or other offenses arising out of the submission of bids or proposals, or performance of work on public works projects or contracts.

19. It is the responsibility of the bidder to check the Town's website before submitting bid for addendums posted prior to bid opening.

20. Each bid shall also include a description of three similar (3) projects completed by the bidder with references to demonstrate successful experience with similar projects. Please provide project name, contact information and contract value.

21. **Compliance with Town Ordinance Prohibiting Natural Gas Waste & Oil Waste From Natural Gas Extraction Activities or Oil Extraction Activities:** If this bid is for the construction, repair or maintenance of Town owned and/or maintained roads or real property within the Town related to either (a) the purchase or acquisition of materials by the Town to be used to construct, repair or maintain any Town owned and/or maintained road or real property within the Town or (b) the performance of services for the Town to construct, repair or maintain any Town owned and/or maintained road or real property within the Town, the Bidder shall provide the following signed statement to the Town in its bid response, which shall be a certification under penalty of perjury by the Bidder: **(Bidder is asked to include this statement on a separate piece of paper with their bid response.)**

"The undersigned Bidder, _____, hereby submits a bid for materials, equipment and/or services for the Town of Glastonbury. The bid is for bid documents titled _____. The undersigned Bidder hereby certifies under penalty of perjury that in connection with the bid and, if it is awarded the purchase order or contract by the Town, in connection with any purchase order or contract: (1) no materials containing natural gas waste or oil waste from natural gas extraction activities or oil extraction activities shall be provided to the Town or shall be used in providing any services to the Town by the undersigned Bidder or any contractor, sub-contractor or agent of the undersigned Bidder; (b) nor will the undersigned Bidder or any contractor, subcontractor or agent of the undersigned Bidder apply any natural gas waste or oil waste from natural gas extraction activities or oil extraction activities to any publicly owned and/or maintained road or real property within the Town of Glastonbury in performing its obligations under the purchase order or contract. The undersigned Bidder hereby agrees and acknowledges that this requirement shall be a term of the purchase order or contract, if it awarded the purchase order or contract by the Town, and any breach of this provision shall be a breach of the purchase order or contract."

IMPORTANT:

- Failure to comply with general rules may result in disqualification of the Bidder.
- Municipal projects are exempt from Federal Excise Taxes, as well as, State of Connecticut Sales, Use and Service Taxes and should not be include in the Bidder's proposal.

NOTE: Any technical questions regarding this bid shall be made in writing (email acceptable) and directed to Stephen M. Braun, P.E., Assistant Town Engineer, 2155 Main Street, PO Box 6523, Glastonbury, CT 06033; Stephen.braun@glastonbury-ct.gov . Telephone (860) 652-7743 between the hours of 8:00 a.m. – 4:30 p.m. For administrative questions concerning this bid/proposal, please contact Mary F. Visone, Purchasing Agent, at (860) 652-7588 or email the Purchasing Department at purchasing@glastonbury-ct.gov. All questions, answers, and/or addenda, as applicable, will be posted on the Town's website at www.glastonbury-ct.gov (Upon entering the website scroll down to click on Bids & Proposals Icon, then scroll down page to see the active bid table. You must click the Bid Title to view all bid details and document links). The request must be received at least three (3) business days prior to the advertised response deadline**. It is the respondent's responsibility to check the website for addenda prior to submission of any bid/proposal.**

01.00 WORKMANSHIP, MATERIALS AND EMPLOYEES

01.01 Wherever in this contract the word “Engineer” is used, it shall be understood as referring to the Assistant Town Engineer acting 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.

02.00 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.

03.00 PRECONSTRUCTION MEETING

03.01 A Preconstruction Meeting will be held with the Engineer, Contractor, and any private utility company prior to commencing any work. The Engineer shall arrange the meeting based on a mutually convenient time.

04.00 PERMITS

04.01 Other than local permits, all permits, licenses, and fees required for the performance of the Contract work shall be secured and paid for by the Contractor.

05.00 PROPERTY ACCESS

05.01 The Contractor shall take all proper precautions to protect from injury or unnecessary interference, and provide proper means of access to abutting property where the existing access is cut off 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 specifications, drawings, 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 side 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 prior to 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 Glastonbury 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 Reinspection 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 reinspection 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 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 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 the 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 LAYOUT OF WORK

15.01 The Town 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. The Town shall replace grade stakes that have been removed, at no cost to the Contractor, if their removal was caused by reasons beyond reasonable care and protection by the Contractor. If it is determined by the Engineer that the Contractor did not provide reasonable protection, the cost of restaking will be deducted from any amounts due the Contractor in the performance of the work.

16.00 CLEANING UP

16.01 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.

16.02 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.

17.00 ROYALTIES AND PATENTS

17.01 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 Glastonbury harmless from loss on account thereof, except that the Town of Glastonbury shall be responsible for all such loss when a particular manufacturer, product, or process is specified by the Town of Glastonbury.

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 (Form 817) are the governing specifications and are to be considered part of the Contract Documents. The 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 should meet with the Engineer to become familiar with the conditions encountered and commitments made.

01.04 The adjacent driveway to Daybreak Coffee Roasters shall be kept open at all times during normal business hours, maintaining a minimum of alternating one-way traffic as described in the Maintenance and Protection of Traffic Special Provision. Some portions of the work in this driveway may need to be completed when this business is closed, and such night work shall be included in the Contractors price for the items associated therewith. No additional payment shall be due to the Contractor for any night work associated with this project.

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 Assistant Town Engineer, 2155 Main Street, Glastonbury, CT 06033, 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 INSURANCE

03.01 The Bidder 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 Bidder and all of its agents, employees and sub-contractors and other providers of services and shall name the **Town of Glastonbury and 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 Bidders 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-VIII. 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
- $1,000,000 each accident/$1,000,000 disease-policy limit/$1,000,000 disease each employee
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

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 in favor of the Town of Glastonbury and its employees and agents.

c. Automobile Insurance:

- Including all owned, hired, borrowed, and non-owned vehicle
- Limit of Liability for Bodily Injury and Property Damage
  Per Accident: $1,000,000
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

d. Umbrella of Excess Liability:

- State in the Remarks Section that coverage is follow form.
- Limit of Liability Each Occurrence $1,000,000
  Aggregate $1,000,000

e. Owner's and Contractor's Protective Liability Insurance:

With respect to the Contractor's Project operations and also those of its subcontractors, the Contractor shall carry, for and on behalf of the Town of Glastonbury, insurance which shall provide coverage of at least $1,000,000 for each accident or occurrence resulting in damages from (1) bodily injury to or death of persons and/or (2) injury to or destruction of property. Subject to that limit per accident or occurrence, the policy shall provide an aggregate coverage of at least $2,000,000 for all pertinent damages arising during the policy period

03.02 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 **60 days** in advance with written notice of cancellation or non-renewal. The Certificate shall evidence all required coverage. The Bidder shall provide the Town copies of any such insurance policies upon request.

03.03 INDEMNIFICATION: To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Town 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.

04.00 WORK BY OTHERS

05.01 Private utilities, contractors, developers or other parties may be expected to 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.

05.00 CONTRACTOR'S WORK AND STORAGE AREA

05.01 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.

06.00 DISPOSAL AREA

06.01 The Tryon Street Bulky Waste Facility will be available to the Contractor, at no charge, for disposal of materials that are accepted at that facility. Waste disposal guidelines for the Bulky Waste facility are published on the Town web site at the address shown below. Each bidder shall have reviewed and understand these guidelines prior to submitting a bid for the project.

http://www.glastonbury-ct.gov/Modules/ShowDocument.aspx?documentid=699

Acceptable materials generally include such materials as brush, stumps, demolition materials, and excess excavated earth materials. Unacceptable materials generally include such items as carpet, appliances, upholstered furniture; hazardous wastes such as pesticides, oil based paints and thinners; or other wastes as designated by the State Department of Environmental Protection. Demolition material cannot contain asbestos or other hazardous materials.
The Contractor shall obtain a disposal area for all other unsuitable or surplus materials at no cost to the Town.

07.00 DUST CONTROL

07.01 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.

08.00 MAINTENANCE / GUARANTEE PERIOD

08.01 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., unless specified otherwise in the Technical Specifications.

09.00 PROTECTION OF EXISTING UTILITIES

09.01 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.

09.02 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.

09.03 There will be no extra payment for submitting plans or details for supporting and protecting all existing utilities during construction.

10.00 TIME FOR COMPLETION/NOTICE TO PROCEED

10.01 **It the Town's intent that substantial completion of the work included in this contract be achieved on or before November 30, 2019.**

The Town will schedule a pre-construction meeting immediately upon award of this contract and will issue a Notice to Proceed at this meeting. Contractors who submit a bid for this project shall be prepared to respond to this schedule, and include all costs related to this schedule in their bid.

Within ten (10) business days after the date of the Notice of Award, the Contractor must provide the appropriate bond and insurance certificates to the Town Purchasing Agent and must be issued a Notice to Proceed / Purchase Order for the Project prior to initiating any work.

11.00 SCHEDULE OF DRAWINGS

11.01 The Contractor is hereby alerted that the plan set entitled "Plan Depicting Proposed Traffic Island Improvements located at Main Street and Hebron Avenue, Glastonbury, Connecticut", including 2 sheets, dated August 28, 2019 is to be considered part of these specifications.

12.00 CHANGES IN THE WORK

12.01 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.

TOWN OF GLASTONBURY * 2155 MAIN STREET * GLASTONURY * CT

BID / PROPOSAL NO: **GL-2020-07** **DATE DUE:** **September 19, 2019**

DATE ADVERTISED: **September 6, 2019** **TIME DUE:** **11:00 AM**

NAME OF PROJECT: **Main Street Raised Traffic Island**

In compliance with this Invitation to Bid, the Bidder hereby proposes to provide goods and/or services as per this solicitation in strict accordance with the Bid Documents, within the time set forth therein, and at the prices submitted with their bid response.

It is the responsibility of the Bidder to clearly mark the outside of the bid envelope with the Bid Number, Bid Title, Date and Time of Bid Opening, and it also **THE RESPONSIBILITY OF THE BIDDER TO CHECK THE TOWN'S WEBSITE BEFORE SUBMITTING BID FOR ADDENDA POSTED PRIOR TO BID OPENING.**

THE BIDDER ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDA AS REQUIRED:

Addendum #1 _____(Initial/Date) Addendum #2 _____ (Initial/Date) Addendum #3 _____(Initial/Date)

OTHER ITEMS REQUIRED WITH SUBMISSION OF BID PROPOSAL:

The following bid checklist describes items required for inclusion with the above-referenced bid proposal package. It is provided for the convenience of the bidders and, therefore, should not be assumed to be a complete list.

_____ 1. Included Bid Bond as per Section 10 of the Information for Bidders.

_____ 2. Included Disclosure of Past and Pending Mediation, Arbitration, and Litigation cases against the Bidder or its Principals as per Section 17 of the Information for Bidders.

_____ 3. Included Qualifications Statement as per Section 20 of the Information for Bidders.

_____ 4. Checked Town web site for Addenda and acknowledged Addenda on page BP-1.

_____ 5. Acknowledged Non-Collusion Affidavit on page BP-3.

_____ 6. Acknowledged Code of Ethics on page BP-3.

_____ 7. Clearly marked envelope with Bid Number, Bid Title, Date, Time of opening, Bidder's Company Name and address.

BIDDER NAME:_____

LINE NO.	ITEM NO.		ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXT
1	0202000A		EARTH EXCAVATION	L.S.	1		
2	0202451A		TEST PIT EXCAVATION	C.Y.	4		
3	0219011A		SEDIMENT CONTROL SYSTEM AT CATCH BASIN	EA.	1		
4	0303051A		BRICK PAVERS ON 4" CONCRETE BASE SLAB	S.F.	453		
5	0303061A		4" CONCRETE BASE SLAB FOR PAVERS	S.F.	453		
6	0404100A		BITUMINOUS CONCRETE PATCHING-FULL DEPTH	S.Y.	65		
7	0507001A		TYPE 'C' CATCH BASIN	EA.	1		
8	0651746A		12" PVC PIPE (SCHED. 40)	L.F.	48		
9	0813042A		6" X 20" GRANITE STONE CURBING	L.F.	29		
10	0813052A		6" X 20" GRANITE CURVED STONE CURBING	L.F.	26		
11	0814002A		RESET GRANITE STONE CURBING	L.F.	12		
12	0921001A		CONCRETE SIDEWALK	S.F.	560		
13	0921005A		CONCRETE SIDEWALK RAMP	S.F.	65		
14	0970006A		TRAFFIC PERSON (MUNICIPAL OFFICER)	EST.	1	$5,000.00	$5,000.00
15	0971001A		MAINTENANCE AND PROTECTION OF TRAFFIC	L.S.	1		
16	0981100		42" TRAFFIC CONE	EA.	15		
17	12220013		CONSTRUCTION SIGNS BRIGHT FLOURESCENT SHEETING	S.F.	110		
18	1403501A		RESET MANHOLE (SANITARY SEWER)	EA.	1		

BIDDER NAME:_____

TOTAL BID AMOUNT: $_____
(Numeric)

WRITTEN TOTAL BID AMOUNT:_____

NON-COLLUSION AFFIDAVIT:
By submission of this bid, the Bidder certifies, and in the case of a joint bid each party thereto certifies as to their own organization that this bid has been arrived at independently without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor.

CODE OF ETHICS:
I/We have reviewed a copy of the Town of Glastonbury's Code of Ethics and agree to submit a Consultant Acknowledgement Form if I/We are selected. Yes_____ No_____*

***Bidder is advised that effective August 1, 2003, the Town of Glastonbury cannot consider any bid or proposal where the Bidder has not agreed to the above statement.**

Respectfully submitted:

Type or Print Name of Individual	**Doing Business as (Trade Name)**
Signature of Individual	**Street Address**
Title	**City, State, Zip Code**
Date	**Telephone Number/Fax Number**
E-Mail Address	**SS# or TIN#**

(Seal – If bid is by a Corporation)

Attest

SPECIAL PROVISIONS

INDEX OF SPECIAL PROVISIONS

SECTION 1.05 CONTROL OF THE WORK

Article 1.05.02 - Plans, Working Drawings and Shop Drawings is supplemented as follows:

Subarticle 1.05.02 - (2) is supplemented by the following:

The Contractor shall prepare and submit one set of catalog cuts and/or shop drawings in PDF form for all items listed in Section 1.06 to the Town of Glastonbury Engineering Division for approval before ordering or fabricating any materials required for this project.

Please forward to:

Stephen Braun, P.E.
Assistant Town Engineer
2155 Main Street, P.O. Box 6523
Glastonbury, CT 06033-6523
Stephen.braun@glastonbury-ct.gov

Following approval of the shop drawings, the Engineer will provide one PDF document to the contractor.

SECTION 1.06 CONTROL OF MATERIALS

Article 1.06.01 - Source of Supply and Quality:

Add the following:

For the following items the contractor shall submit a complete description of the item, working drawings, catalog cuts and other descriptive literature which completely illustrates such items presented for formal approval. Such approval shall not change the requirements for a certified test report and materials certificate as may be called for. All shop drawings shall be submitted at one time, unless otherwise approved by the engineer.

Concrete

Wire Mesh Reinforcing

Processed Stone

Expansion Joint Material

Joint Sealant

Galvanized Steel Dowel

Speed Dowel Sleeves

Bituminous Concrete for setting bed

Neoprene Adhesive for setting bed

Asphalt Cement for Dowels

Clay Brick Pavers

Granite Stone Curbing

Caulk / Joint Sealant for Granite Curbing

Detectable Warning Tile

6” PVC for sign post sleeves

12” Schedule 40 PVC

Precast Concrete Catch Basin

HMA 1.0” and 0.5”

ITEM # 0202000A EARTH EXCAVATION

Description:

This item shall conform to Section 2.02 ROADWAY EXCAVATION, FORMATION OF EMBANKMENT AND DISPOSAL OF SURPLUS MATERIAL, of the Form 817 amended as follows:

Add the following to Section 2.02.03 **Construction Methods:**

12. Existing bituminous concrete and concrete materials shall be saw cut at the limits shown and removed from the work area. Existing brick and granite curb shall be removed from the work area and stockpiled adjacent to the work area for salvage by the Town. As described in Section 6.00 of the Special Conditions, other suitable demolition/excavation materials can be disposed of at the Town Bulky Waste Facility located at 1145 Tryon Street, South Glastonbury.

Replace Section 2.02.04 Method of Measurement of the Form 817 with the following:

Method of Measurement:

As it is being paid for on a lump sum basis this item will not be measured for payment.

Replace Section 2.02.05 Basis of Payment with the following:

Basis of Payment:

Earth Excavation shall be paid for at the contract lump sum price for "Earth Excavation" as listed in the Bid Proposal.

The contract lump sum price for earth excavation shall include all labor equipment, materials, transportation, fuel, disposal, etc., for excavation of earth, sawcutting removal and disposal of existing concrete and bituminous concrete, removal and stockpiling of existing brick and granite curb for salvage by the Town, and transportation and/or disposal of all other surplus excavation or demolition materials. All surplus earth materials, other than existing brick and granite curb, 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.

Item No.	Description	Unit
0202000A	EARTH EXCAVATION	L.S.

ITEM # 0202451A TEST PIT EXCAVATION

Description:

Excavate and backfill a designated area to determine the exact location of utility facilities which are near a proposed construction feature.

Materials:

The material for this item shall conform to the requirements of Article M.02.02 and Article M.04 of the Form 817, except that coarse aggregate shall be broken stone, and fine aggregate shall be stone sand, screenings, or a combination thereof. Gravel or reclaimed miscellaneous aggregate shall not be used.

Construction Methods:

Keep affected utility owner apprised of proposed test pit excavation.

Excavate only as authorized and as directed by the Engineer. The size, depth and location will be as authorized by the Engineer.

If rock greater than 0.5 c.y. (cu.m) is encountered, the Engineer will determine if it must be removed and the method. Do not use explosives. See the pertinent construction methods of Section 2.02.03. When concrete must be removed, reinforced or not, it shall be considered, measured, and paid for as rock in foundation excavation.

If unsuitable backfill material is excavated, dispose as directed by the Engineer. Replace with suitable backfill and compact in accordance with Section 2.14.

Repair all damaged bituminous pavement in accordance with Section 4.06.03. Sawcut the edges to neat lines if there will be no subsequent excavation at the test pit for a foundation.

Method of Measurement:

Test pit excavation will be measured at the contract unit price per cubic yard (cubic meter) for the material actually removed from within the limits specified as directed by the engineer.

If rock is encountered during test pit excavation, the quantity of Rock Excavation will be measured at the contract unit price per cubic yard of rock actually removed in accordance with Item #0202100 Rock Excavation.

Basis of Payment:

This work will be paid for at the contract unit price per cubic yard for “Test Pit Excavation”, which price shall include excavation, unsuitable material disposal, compacted backfill, bituminous pavement, sawcut, pavement repair, all utility costs, all equipment, tools, labor and work incidental thereto. The volume excludes the volume of material that is measured as Rock Excavation.

Item No.	Description	Unit
0202451A	TEST PIT EXCAVATION	C.Y.

ITEM # 0205001A EARTH TRENCH EXCAVATION

Description:

The Contractor shall make excavations of normal depth in earth for trenches and structures; shall backfill such excavations to the extent necessary; shall furnish the necessary material and construct embankments and fills; and shall make miscellaneous earth excavations and do miscellaneous grading. All such work shall be done as indicated on the drawings and as herein specified.

The program of excavation, dewatering, sheeting and bracing shall be carried out in such manner as to eliminate all possibility of undermining or disturbing the foundations of existing structures or of work previously completed under this contract.

Excavation in general shall be in open trenches. Tunneling shall be done only to pass under obstructions such as pipes or duct or only as indicated on contract drawings, or in Special Provisions, or on written permission of the Engineer, and then only in accordance with those sections hereof which describe tunnel excavation, and subject to such further conditions as may have been described by drawings, Special Provisions, or as the Engineer may specify.

The Contractor shall make excavations in such manner and to such widths as will give suitable room for building the structures or laying and jointing the piping; shall furnish and place all sheeting, bracing, and supports; shall do all coffer damming, pumping and draining; and shall render the bottom of the excavations firm and dry and acceptable in all respects.

Construction Methods:

Trench Excavation: Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to or to just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly disturbed.

Where pipe is to be laid directly on the trench bottom, the lower part of trenches in earth shall not be excavated to subgrade by machinery, but, just before the pipe is to be placed, the last of the material to be excavated shall be removed by means of hand tools to form a flat or shaped bottom, true to grade, so that the pipe will have a uniform and continuous bearing and support on firm and undisturbed material between joints except for limited areas where the use of pipe slings may have disturbed the bottom.

Depth of Trench: Trenches shall be excavated to such depths as will permit the pipe to be laid at the elevations, slopes or depths of cover indicated on the drawings, and at uniform slopes between indicated elevations.

Width of Trench: The methods and equipment used for excavation must be adapted to the conditions at the site and the dimensions of the required trench. The width of ground or street surfaces cut or disturbed shall, in general, be kept as small as practicable to accommodate the work and shall not be widened by scraping or loosening materials from the sides. Every effort shall be made to keep the sides of the trenches firm and undisturbed until backfilling has been completed and consolidated.

Width of pipe trenches shall be wide enough to provide sufficient space for shoring, for foundations, for drainage, for laying, jointing, inspecting, and backfilling of sides of pipe, or for building the required structures, and as near as feasible to the above described minimums, in order to reduce the load of backfill upon the top of the sewer; to provide lateral support for the fill and haunching on the sides of the pipe, and to insure that the pipe will not be pushed out of line while placing backfill.

For surface restoration work related to trench excavation, the limits of payment by the Town varies with the diameter of the pipe (see table 403-1). Where the Contractor chooses not to use trench supports, the

Contractor will still be paid for related surface restoration work as per the maximum trench widths or actual trench width, whichever is the least.

Excavation for Special Foundations: Where concrete, stone or underdrain is required or ordered, excavation shall be carried down to the depth and lines required for such foundation or underdrain. If required by contract drawings or Special Provisions as part of the structure and included in the price, no additional payment for this additional excavation, as excavation, will be made. If the foundation is paid by the cubic yard or other specific item of proposal, such price for foundation shall include excavation therefore. Excavation for underdrain is included in price for underdrain.

Where the plans, Proposal or Special Provisions indicate certain foundations, they will be constructed and paid for as indicated.

Where the soil in subgrade is found to be soft, loose or freshly-filled earth, or unstable or unsuitable as a base for the proposed sewer or structure, the Engineer may, in his discretion, order it excavated to such depth and width as he may deem proper and replaced with gravel, crushed stone, concrete, plank or similar materials as he may direct.

If the excavation for foundation is made wider or deeper than required or ordered, or if excavation for concrete on sides of pipe is made wider than required or ordered, then no additional payment for the additional quantities of excavation or for additional foundation or side filling materials will be made, if being assumed that the added space was excavated for the convenience of, or by error of, the contractor.

Length of Trench and Space Occupied: Trenches must be constructed with a minimum of inconvenience and danger to the public and all other parties. To that end, the length of trench opened at any time, from point where ground is being broken to completed backfill and temporary surfacing, and also the amount of space in streets or public and private lands occupied by trench soil banks, equipment and supplies, shall not exceed the space or spaces considered reasonably necessary and expedient by the Engineer. In determining the length of open trench, the space for equipment, materials, supplies, etc. needed, the Engineer will consider the nature of the street or land where work is being done, depth and width of trench, types and methods of construction and equipment being used, inconvenience to the public or to private parties, possible dangers, limits or rights-of-way and other proper matters.

The Contractor must keep streets and premises near the work free from unnecessary obstructions, debris, etc. The Engineer may, at any time order all equipment, materials, surplus from excavations, debris, etc., lying outside reasonable limits of space, promptly removed; and should the Contractor fail to remove such materials within three days after notice to remove same, the Engineer may cause any part or all of such materials to be removed by such persons as he may employ, at the Contractor's expense, and may deduct the costs thereof from payment which may be or may become due to the contractor under this Contract. In any cases when public safety urgently demands it, the Engineer may cause such materials to be removed without prior notice.

Trenches shall be excavated with approximately vertical sides between the elevation of the center of the pipe and an elevation one foot above the top of the pipe.

Dimensions of Trenches: Trenches shall be excavated to the lines indicated on contract drawings or as described for any particular structure by any contract document. In general, room shall be allowed for installing the pipe or other structure, for making and inspecting joints in pipe, for placing and compacting fill around and on both sides of pipe, for draining and pumping as needed, for removal of unsuitable materials, and for any other purpose incidental to the fulfillment of the Contract and these specifications.

Care must be taken to excavate to correct line, grade and width at all points.

In general, sides of trenches must be not less than four inches from outside of barrel of all pipe eight inches or less in size, six inches from outside of barrel of pipe ten inches or larger in size, or as shown by contract drawings. Except as otherwise provided, excavation shall conform closely to the form and grade of the bottom of the pipe or foundation required. To accomplish this, the Engineer may require that no earth shall be excavated by machinery nearer than six inches to the finished subgrade, and the last six inches of excavation in earth shall be carefully removed by hand labor to the exact lines and grade required, immediately prior to laying pipe or underdrain or building bottom of structure.

Maximum trench width for various pipe sizes are described below. Where the Contractor chooses not to use trench supports the Contractor will still be paid for any restoration work specified elsewhere in the contract as per maximum trench widths described below.

TABLE 403-1
MAXIMUM TRENCH WIDTHS FOR VARIOUS PIPE SIZES

Size Pipe Nominal Inside Diameter	Maximum Width of Trench
6”	2.5 Feet
8”	4.0 Feet
10”	4.0 Feet
12”	4.0 Feet
15”	4.0 Feet
18”	4.0 Feet
21”	4.3 Feet
24”	4.5 Feet
27”	4.8 Feet
30”	5.1 Feet
33”	5.4 Feet
36”	5.7 Feet
39”	5.9 Feet
42”	6.3 Feet

Extent of Open Excavation: The extent of excavation open at any one time will be controlled by the conditions, but shall always be confined to the limits prescribed by the Engineer. At no time shall the extent of the open excavation go beyond two structures.

Trench Excavation in Fill: If pipe is to be laid in embankments or other recently filled material, the material shall first be placed to the top of the fill or to a height of at least one foot above the top of the pipe, whichever is the lesser. Particular care shall be taken to ensure maximum consolidation of material under the pipe location. The pipe trench shall be excavated as though in undisturbed material.

Unauthorized Excavation: If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled at the Contractor’s expense with ¾” crushed stone if the excavation was for a pipeline not having a concrete cradle or encasement, or with Class C concrete if the excavation was for a masonry structure.

Cutting of Pavement: When the trench lies within a paved area, the trench shall be cut with an approved tool. All cuts shall be made to straight lines and shall be parallel and/or perpendicular to the center line of the trench.

Bridging Trenches: The Contractor shall, at no cost, provide suitable and safe bridges and other crossings where required for the accommodation of travel, and to provide access to private property during construction, and shall remove said structures thereafter.

Obstacles: Some obstructions, obstacles, or difficulties in the path of the work anticipated, or in the performance of the work, may have been indicated by drawings, Special Provisions, or in other contract documents. The omission of any indication or mention of any obstruction, obstacle or difficulty which a reasonable and careful contractor, bidder, or estimator might have anticipated, or any question as to adequacy of such indication as given, shall not entitle the Contractor to any extra or additional compensation for any loss or expense occasioned directly or indirectly by such obstruction, etc., not to any extension of time or waiver of any requirement of the Contract and Specifications. The Contractor shall be understood to have entered into the Contract with full knowledge that in any work involving excavation, operation in public highways or adjacent to other developments, some unforeseen obstacle, difficulties, unforeseen soil or ground water conditions, etc., may be encountered, and that the Contractor has included in the bid and contract obligations the assumptions of the risks and cost to which such obstacles, etc. may subject the bid.

The Town will make arrangements for clearance or avoidance of permanent obstruction by pipes and structures of public utilities and of public bodies, except as otherwise indicated on drawings or contract documents, where such obstruction is found in the space to be occupied by the pipe or structure to be built under the Contract. The Town will not assume the cost of temporary removal, support, protection, etc. of pipes, poles, and other structures which do not occupy the space to be occupied by the pipe or structure to be built for the Town, where removal, support, protection, etc. of such pipes, poles or structures is desired for the convenience of, or to save expense to, or to accommodate the equipment of the Contractor.

Ends of Certain Pipes to be Sealed: If any pipe, drain, culvert, connection or similar conduit is encountered and cut off or cut through incidental to the construction of the work, and if the said drain, etc. is not to continue to function or be used, the open end or ends of such pipes shall be securely and tightly closed by an adequate cover or bulkhead as directed by the Engineer. Except as a specific price for such closings was fixed in the Proposal, the cost of such covers, bulkheads, and the setting of them shall have been included in the price of prices bid for various other portions of the work in the Proposal and no additional payment will be made therefore.
In removing existing pipes or other structures, the Contractor shall use care to avoid damage to materials, and the Engineer shall include for payment only those new materials which are necessary to replace those unavoidably damaged.

The structures to which the provisions of the preceding three paragraphs shall apply include pipes, wires, and other structures which (a) are not indicated on the drawings or otherwise provided for, (b) encroach upon or are encountered near the substantially parallel to the edge of the excavation, and (c) in the opinion of the Engineer will impede progress to such an extent that satisfactory construction cannot proceed until they have been changed in location, removed (to be later restored), or replaced.

When fences interfere with the Contractor's operations, the Contractor shall remove and (unless otherwise specified) later restore them to at least as good condition as that in which they were found immediately before the work was begun, all without additional compensation. The restoration of fences shall be done as promptly as possible and not left until the end of the construction period.

Excavation Near Existing Structures: Attention is directed to the fact that there are pipes, drains, and other utilities in certain locations. Some of these have been indicated on the drawings, but no attempt has been made to show all of the services, and the completeness or accuracy of the information given is not guaranteed.

As the excavation approaches pipes, conduits, or other underground structures, digging by machinery shall be discontinued and the excavation shall be done by means of hand tools, as directed. Such manual excavation, when incidental to normal excavation, shall be included in the work to be done under items involving normal excavation.

Where determination of the exact location of a pipe or other underground structure is necessary for doing the work properly, the Contractor may be required to excavate test pits to determine such locations. When such test pits may be properly considered as incidental to other excavation, the Contractor shall receive no additional compensation, the work being understood to be included as a part of the excavation. When the Engineer orders test pits beyond the limits of excavation considered as part of the work, such test pits shall be paid for as specified under Item #0202451A Special Provision.

Protection of Existing Structures: All existing pipes, poles, wires, fences, curbing, property-line markers, and other structures which the Engineer decides must be preserved in place without being temporarily or permanently relocated shall be carefully supported and protected from injury by the Contractor. Should such items be injured, they shall be restored by the Contractor, without compensation therefore, to at least as good condition as that in which they were found immediately before the work was begun.

Relocation and Replacement of Existing Structures: Whenever the Contractor encounters certain existing structures as described below and is so ordered in writing, the Contractor shall do the whole or such portions of the work as he may be directed, to change the location of, remove and later restore, replace such structures, or to assist the owner thereof in so doing. For all such work, the Contractor shall be paid under such items of work as may be applicable, otherwise as Extra Work.

Backfilling and Consolidation: In general, and unless other material is indicated on the drawings or specified, material used for backfilling trenches and excavations around structures shall be suitable material which was removed in the course of making the construction excavations.

Frozen materials shall not be placed in the backfill nor shall backfill be placed upon frozen material. Previously frozen material shall be removed, or shall be otherwise treated a required before new backfill is placed.

Backfilling around Structures: The Contractor shall not place backfill against or on structures until they have attained sufficient strength to support the loads (including construction loads) to which they will be subjected without distortion, cracking, or other damage. As soon as practical after the structures are structurally adequate and other necessary work has been done, special leakage tests, if required, shall be made. Promptly after the completion of such tests, the backfilling shall be started and then shall proceed until its completion. The best of the excavated materials shall be used in backfilling within two feet of the structure. Unequal soil pressures shall be avoided by depositing the material evenly around the structure.

Backfilling Pipe Trenches: As soon as practicable after the pipes have been laid and the joints have acquired a suitable degree of hardness, if applicable, or the structures have been built and are structurally adequate to support the loads, including construction loads to which they will be subjected, the backfilling shall be started, and thereafter it shall proceed until its completion in accordance with pipe manufacturer recommendations.

With the exception mentioned below in this paragraph, trenches shall not be backfilled at pipe joints until after that section of the pipeline has successfully passed any specified tests required. Should the contractor wish to minimize the maintenance of lights and barricades and the obstruction of traffic, the contractor may, at his own risk, backfill the entire trench, omitting or including backfill at joints as soon as practicable after the joints have acquired a suitable degree of hardness, if applicable, and the related structures have acquired a suitable degree of strength. The contractor shall, however, be responsible for removing and later replacing such backfill at no cost should the contractor be ordered to do so in order to locate and repair or replace leaking or defective joints or pipe.

Materials: The nature of the materials will govern both their acceptability for backfill and the methods best suited for their placement and compaction in the backfill. The materials and methods shall both be subject to the approval and direction of the Engineer. No stone or rock fragment larger than 12 inches in greatest dimension shall be placed in the backfill nor shall large masses of backfill material be dropped into the trench in such a manner as to endanger the pipeline. If necessary, a timber grillage shall be used to break the fall

of material dropped from a height of more than five feet. Pieces of bituminous pavement shall be excluded from the backfill unless their use is expressly permitted, in which case they shall be broken up as directed.

Ho Pac Trench Consolidation: Where the trench backfill is consolidated by the "Ho Pac" method and the depth of the trench from the road or ground surface to the top of the pipe exceeds ten feet, the trench backfill shall be placed and consolidated in two lifts of equal depth.

The approved backfill material shall be placed and compacted at a moisture content between four and eight percent (based on dry density, by weight), or with two percent of the optimum moisture content as determined by the moisture density relationship test specified in ASTM D 1557, at the option of the Engineer. Compaction shall be by a "Ho Pac" vibratory compactor or approved equal, operating at a frequency between ten and 40 Hertz, placed directly on the backfill surface, and applied with the maximum practical force applicable by the backhoe to which it is attached. Compaction effort shall be continued until no further visible settlement occurs.

Miscellaneous Requirements: Whatever method of compacting backfill is used, care shall be taken that stones and lumps shall not become nested and that all voids between stones shall be completely filled with fine material. Only approved quantities of stone and rock fragments shall be used in the backfill. The Contractor shall, as part of the work done under the items involving earth excavation and rock excavation as appropriate, furnish and place all other necessary backfill material.

All voids left by the removal of sheeting shall be completely backfilled with suitable materials, thoroughly compacted.

Where required, excavated material which is acceptable to the Engineer for surfacing or pavement sub base shall be placed at the top of the backfill to such depths as may be specified elsewhere or as directed. The surface shall be brought to the required grade and stones raked out and removed.
Embankments Over Pipe: Where the top of the pipe is less than three feet below the surface of the ground, additional fill shall be placed to form an embankment to cover and protect the pipe. The top of such embankment shall not be less than three feet above the top of the pipe and not less than one foot wider than the outside diameter of the pipe, with side slopes no steeper than one and one half horizontal to vertical, or of such section as may have been indicated by drawings. Such embankments shall be made of suitable dry earth, well compacted. Embankments must be maintained to the full required dimensions during the maintenance period of the Contract, and any settlement, washout, or deficiency occurring or found during that time shall be rectified and embankments brought up to the required height, width and slopes.

In general, such embankments may be made with materials excavated on the job and not used for backfill elsewhere. Should there not be sufficient surplus material for embankments, or should it be unsuitable or inconveniently located, the Contractor shall secure and provide sufficient suitable material. In any case, where the Town has provided borrow pits from which the Contractor may obtain filling material, the Contractor must conform to the conditions for excavating and moving such material as established by acts of the Town in obtaining such rights, and by indications on drawings or in other contract documents.

Openings through embankments for the passage of water and other purposes will be provided as indicated on drawings or elsewhere, or as ordered.

Grass shall be seeded or turf placed on embankments if, where, and as provided in contract documents. In general, if grassing is not required, the Contractor may, at his option, grass embankments to facilitate his maintenance. The Engineer may order grassing where not otherwise required under the general provisions for additional work if he deems proper.

Care shall be taken that sewer and appurtenances are not damaged by equipment or methods used for making and maintaining embankments.

Except as specific provisions may have been made in the Proposal for a particular contract, no payment other than prices bid for pipe will be paid for building and maintaining embankments or securing material therefore.

If, however, a price per cubic yard was established by the Proposal for filling material placed in embankments and/or in fills at side of embankment to avoid the formation of depressions there, the quantity of such filling material will be estimated and paid as the actual quantity placed, up to, but not exceeding the lines or sections required, measured after the embankment or fill has been made.

Material for Filling and Embankments: Approved selected materials available from the excavations and not required for backfill around pipes or against structures may be used for filling and building embankments, except as otherwise specified. Material needed in addition to that available from construction operations shall be obtained from approved gravel banks or other approved deposits. The Contractor shall furnish, at no cost, all borrowed material needed on the work.

All material, whether from the excavations of from borrow, shall be of such nature that after it has been placed and properly compacted it will make a dense, stable fill. It shall not contain vegetation, masses of roots, individual roots more than 18 inches long or more than one half inch in diameter, stones over six inches in diameter, or porous matter. Organic matter shall not exceed minor quantities and shall be well distributed.

Preparation of Subgrade: The Contractor shall remove loam and topsoil, loose vegetable matter, stumps, large roots, etc. from areas upon which embankments will be built or material will be placed for grading. The subgrade shall be shaped as indicated on the drawings and shall be so prepared by forking, furrowing, or plowing so that the first layer of the new material placed thereon will be well bonded to it.

Placing and Compacting Material: After the subgrade has been prepared as hereinbefore specified, the material shall be placed thereon and built up in successive layers until it has reached the required elevation.

Layers shall not exceed 12 inches in thickness before compaction. In embankments at structures, the layers shall have a slight downward slope away from the structure. In other embankments, the layers shall be slightly dished toward the center. In general, the finer and less pervious materials shall be placed against the structures or in the center, and the coarser and more pervious materials, upon the outer parts of embankments.

Each layer of material shall be compacted by the use of approved rollers or other approved means so as to secure a dense, stable and thoroughly compacted mass. At such points as cannot be reached by mobile mechanical equipment, the materials shall be thoroughly compacted by the use of suitable power driven tampers.

Previously placed or new materials shall be moistened by sprinkling, if required, to ensure proper bond and compaction. No compacting shall be done when the material is too wet, from either rain or too great an application of water, to compact it properly. At such times, the work shall be suspended until the previously placed and new materials have dried out sufficiently to permit proper compaction.

Trench Dewatering: To ensure proper conditions at all time during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdown) with which to intercept and/or remove promptly and dispose properly of all water entering trenches and other excavations. Such excavations shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.

All water pumped or drained from the work shall be disposed in a manner consistent with Section 1.10 Environmental Compliance of the Form 817, without undue interference with other work, damage to

pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the work.

Temporary Underdrains: Temporary Underdrains, if used, shall be laid in trenches beneath the grade of the structure. Trenches shall be of suitable dimensions to provide room for the chosen size of underdrain and its surrounding gravel. Underdrain pipe shall be acceptable PVC or ADS pipe of standard thickness. Sewer pipe of the quality known as "seconds" will be acceptable.

Underdrains, if used, shall be laid at an approved distance below the bottom of the normal excavation wrapped in geotextile fabric (separation, medium survivability as per Qualified Products List for Connecticut Department of Transportation Projects, latest edition) and entirely surrounded by graded gravel or crushed stone to prevent the admission of sand or other soil into the underdrains. The distance between the top of the bell of the underdrain pipe shall be at least three (3) inches unless otherwise permitted. The space between the underdrain and the pipe or structure shall be filled and crushed stone which shall be rammed, if necessary, and left with a surface suitable for laying the pipe or building the structure.

Drainage Wellpoint System: If required, the Contractor shall dewater the excavations by means of an efficient drainage system which will drain the soil and prevent saturated soil from flowing into the excavation. The wellpoints shall be designed especially for this type of service. The pumping unit shall be designed for use with the wellpoints and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.

If required, the installation of the wellpoints and pump shall be done under the supervision of a competent representative of the manufacturer. The Contractor shall do all special work such as surrounding the wellpoints with sand or gravel or other work which is necessary for the wellpoint system to operate for the successful dewatering of the excavations.

Basis of Payment:

This item will not be paid for separately. Rather, payment for earth trench excavation, trench support (including sheeting, shoring or bracing as required by soil conditions), dewatering, backfilling, compacting, and disposal of surplus excavated material shall be included in the unit price or lump sum price of the item associated therewith.

ITEM # 0219011A SEDIMENT CONTROL SYSTEM AT CATCH BASIN

Description:

This work shall consist of furnishing, installing, maintaining, cleaning, and removing a sediment control system at catch basin for control of sediment entering catch basins within the project area as directed by the Engineer or as shown on the contract drawings.

Materials:

Sediment control system at catch basin shall be the "Siltsack" product as manufactured by ACF Environmental or approved equal. Curb inlet (Type 'C') catch basins shall use a "Type B – High Flow" siltsack (with gutter deflector) without the optional overflow. Flat top (Type C-L) catch basin shall use a "Type A – High Flow" siltsack without the optional overflow.

Sediment control system at catch basin shall be manufactured from a specially designed woven polypropylene geotextile and sewn using high strength nylon thread. The sediment control system at catch basin shall be manufactured to fit the opening of the catch basin or drop inlet to be protected. Sediment control sack shall have the following features: two dump straps attached at the bottom to facilitate emptying; lifting loops shall be included as an integral part of the system to be used to lift the sedimentation control sack from the basin; sediment control sack shall have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this yellow cord is also a visual means of indicating when the sack should be emptied. Once the strap is covered with sediment, sediment control sack should be emptied, cleaned and placed back into the basin.

Construction Methods:

To install the sediment control system in the catch basin, remove the grate and place the sack in the opening. Hold out approximately six inches of the sack outside the frame. This is the area of the lifting straps. Replace the grate to hold the sack in place.

When the restraint cord is no longer visible, the sediment control system at catch basin is full and should be emptied.

To remove the sediment control sack, take two pieces of 1" diameter rebar and place through the lifting loops on each side of the sack.

The sediment control sack shall be cleaned of all accumulated sediment **on a regular basis** as required to maintain proper function and avoid overloading the sack such that it fails at the time of final removal. Such material shall be properly disposed of by the Contractor.

To empty the sediment control sack, place it where the contents will be collected. Place the rebar through the lift straps (connected to the bottom of the sack) and lift. This will turn the sedimentation control sack inside out and empty the contents. Clean out and rinse. Return the sedimentation control sack to its original shape and place back in the basin.

Method of Measurement:

The work will be measured for payment by the accepted number of each "Sediment Control System at Catch Basin", provided and installed in the locations depicted on the drawings.

Basis of Payment:

Sediment Control System at Catch Basin shall be paid for at the contract unit price for "Sediment Control System at Catch Basin" as listed in the Bid Proposal for each unit provided and installed. Regular maintenance of the sediment control system at catch basin including cleaning of all accumulated sediment as required to maintain function, and removal after completion of construction as described herein shall also to be included in this bid price.

Item No.	Description	Unit
0219011A	SEDIMENT CONTROL SYSTEM AT CATCH BASIN	EA.

ITEM # 0303051A BRICK PAVERS ON 4" CONCRETE BASE SLAB

Description:

The work of this item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to furnish and install brick pavers on a 4" Concrete Base Slab as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including furnishing and installing the bituminous setting bed, neoprene-modified asphalt setting adhesive, colored sand/cement joint filler mixture, and expansion joints.

Required Submittals:

A. Samples: Furnish not less than ten individual clay brick pavers of each size, type and color as samples, showing extreme variations in color and texture. Do not order brick for project until Engineer's approval of field sample panel.

B. Manufacturer's Product Data: Manufacturer's product data shall be submitted for the following items:
   1) Brick Pavers
   2) Sand joint filler
   3) Neoprene-modified asphalt setting adhesive
   4) Bituminous setting bed
   5) Expansion joints and joint sealant

C. Test Report:

1. Test report of brick pavers shall be submitted. Testing shall be done by an independent testing laboratory. Test procedures shall conform to ASTM C-67-03 methods, as applicable. Test report shall indicate, as a minimum, the following:
   - Compressive strength, psi
   - Absorption, 5 hr. submersion in cold water.
   - Absorption, 24 hr. submersion in cold water.
   - Maximum saturation coefficient.
   - Initial rate of absorption (suction).
   - Abrasion index.
   - Freeze-thaw.
   - Tolerance to saline conditions.
   - Efflorescence.

2. Job Mix Formula (JMF) for bituminous setting bed shall be submitted.

D. Statements of Qualifications: Submit to identify and exhibit qualifications as specified in Article 3.03.02, herein.

Quality Assurance:

A. Installer Qualifications: Installations of paving system shall be by firm that can exhibit proof of a minimum five (5) years of prior successful experience with paving installations of equivalent type and similar scope of this Project.

   1. Paving Installation Foreman: Installation firm for paving and surfacing of this Project shall have on staff a supervising Foreman assigned full time to this Project, beginning with the provision of mock-up installations, who shall be a competent, English-speaking supervisor, and who shall have at least 10 years' stone installation experience.

2. Use numbers of skilled workmen equal to work requirement or occasion. The skilled workmen shall be thoroughly trained and experienced in the necessary crafts**,** and shall be

3. completely familiar with **the** specific requirements and methods needed for performance of the work in this Section.

Materials:

Brick Paving Units:

The paving units shall be as manufactured by The Belden Brick Company P.O. Box 20910 Canton, Ohio 44701-0910 Phone (330) 456-0031, or approved equal. The bricks shall be 4" x 8" x 2 ¼" thick and have chamfered edges with lugs. The compressive strength shall average greater than 8,000 psi minimum. The average cold water absorption shall not be greater than 8% with no individual unit testing greater than 11%. Absorption test results may not be achieved through the use of sealers or other products applied to the clay paver. Resistance of 50 freeze-thaw cycles, when tested in accordance with ASTM C67. In addition, the clay paver must pass CSA-A231.2 freeze thaw test in saline solution without the use of sealers or other products applied to the paver. A test report must be submitted by the manufacturer. Dimensional tolerances should meet the PX standard. The dimensional tolerances around the mean values for length, width, and depth shall be 1/16". The pavers should be solid units without core holes or other perforations. The pavers shall meet or exceed ASTM C902 Light Traffic Paving Brick

Brick Paver Descriptions:

The Belden Brick Company
P.O. Box 20910
Canton, Ohio 44701-0910
Phone: 330-451-2031
Website: www.beldenbrick.com

NOTE: Paver colors and names are based on Belden Brick product descriptions.

Brick Pavers: Series: City Line
Color: Regimental Full Range Paver
Pattern: Herringbone

Soldier Course: Color: Regimental Red
Pattern: Double Stretcher

Bituminous Setting Bed:

Asphalt cement to be used in the bituminous setting bed shall conform to AASHTO D3381. Viscosity grade shall be AC 10 or AC 20.

Fine aggregate to be used in the bituminous setting bed shall be clean, hard sand with durable particles and free from adherent coatings, lumps of clay, alkali salts, and organic matter. Aggregate shall be uniformly graded from "Coarse" to "fine" with 85 to 100% by weight passing the No. 4 sieve, 2-10% by weight passing the No. 200 Sieve, and shall meet the gradation requirements when tested in accordance with ASTM C-136-01.

Fine aggregate shall be dried and shall be combined with hot asphalt cement, and the mix shall be heated to approximately 300 degrees F at the asphalt plant. The approximate proportion of materials shall be 7% asphalt cement and 93% fine aggregate. Each ton of material shall be apportioned by weight in the approximate ratio of 150 lbs asphalt cement to 1850 lb sand. The Contractor shall determine the exact proportions to produce

the best possible mixture for construction of the bituminous setting bed to meet specified requirements and the Engineer's approval.

Neoprene-Modified Asphalt Setting Adhesive:

Neoprene modified asphalt setting adhesive shall meet the following requirements:

Mastic (asphalt adhesive):
a) Solids (base) content by volume = 75 + 5%.
b) Weight = 8 to 8.5 lb./gal
c) Solvent vehicle - Varsol (over 75 degrees F flash).

Base (2% neoprene, 10% fibers, 82% asphalt):
a) Melting point (ASTM D-36-95) = 200 degrees F, minimum,

b) Penetration at 77 degrees F 3.5 oz. load 5 second = 23 to 27.
c) Ductility (ASTM D-113-99 at 77 degrees F 3/16"/minute) = 50 in. minimum.

Sand Joint Filler: Sand shall be a clean, washed, uniformly well graded masonry sand conforming to ASTM C
144-03, except that the fineness modulus shall be 2.25 +/- 0.10 Sand shall be from a single approved source. Source of supply shall not be changed during course of the work without written permission of the Engineer. Color to be approved by Engineer

Water: Water shall be potable, free of injurious contaminants.

Expansion Joints: Provide pre-molded rubber expansion joints as recommended by the paver manufacturer and approved by the Engineer.

Expansion Joint Sealant: Provide elastomeric caulk sealant as recommended by paver manufacturer and approved by Engineer.

Construction Methods:

Sample Panels: Display Panel: Construct a display panel, 3' x 3' (minimum size), for each paver type, size, color, and finish specimen in this Item for use by the Engineer in selecting pavers for project. Display panel shall exhibit color range, texture, bond, jointing, patterns, and workmanship. A maximum of six display panels will be required. Display panels shall be portable with suitable lifting handles.

Delivery, Storage, and Handling: Pavers shall be carefully packed by the supplier for shipment. Pavers shall be stored off the ground and protected against staining and other damage. Pavers damaged in any manner shall be receded and replaced with new materials at no additional cost.

Protection of Finished Surfaces: Finished surfaces adjacent to the paving work shall be adequately protected from soiling, staining, and other damage during construction.

Acceptability of Concrete Base: Contractor shall examine the concrete base slab to determine its adequacy to receive the asphalt setting bed and brick paving. Concrete shall have fully cured. Evidence of inadequate concrete base shall be immediately brought to the attention of the Engineer. Concrete base shall be paid for under Item No. 0303061A – 4" Concrete Base for Pavers.

Bituminous Setting Bed: Bituminous setting bed shall be installed over the fully cured concrete base. Control bars ¾" deep shall be placed directly over the concrete base. If grades must be adjusted, place wood chocks under depth control bars already set to bring the bars to proper grades. Set two bars parallel to each other to serve as guides for the striking board. The depth control bars must be set carefully so that the pavers, when laid on the setting be will be at the proper line and grade.

While still hot (not less than 270 degrees F) some of the bituminous bed material shall be placed between the parallel depth control bars. This bed shall be pulled with the striking board over the control bars several times. After each pass, low porous spots shall be showered with fresh bituminous material to produce a smooth, firm, and even setting bed. As soon as this initial panel is completed, advance the first bar to the next position in readiness for striking the next panel. After the depth control bars and wood chocks have been removed, carefully fill all depressions that remain.

The setting bed shall be rolled with a power roller to a nominal depth of ¾" while still hot. The thickness of the setting bed shall be adjusted so that when the pavers are placed and rolled, the top surface of the pavers will be at the required finished grade.

A coating of neoprene-modified asphalt setting adhesive shall be applied by mopping, squeegeeing, or troweling over the top surface of the bituminous setting bed so as to provide a bond under the pavers. If adhesive is trowel-applied, trowel shall be serrated type with serration not to exceed 1/16".

After the neoprene-modified asphalt setting adhesive is applied, carefully place the pavers by hand in straight courses with hand tight joints and with a uniform, smooth top surface. All setting shall be done by skilled masons under adequate supervision.

Pavers shall be set true to the required lines and grades in the pattern detailed on the Drawings. Brick pavers shall be neatly cut and fitted at all perimeters and closures with joints uniform in width to that of adjacent paving. Pavers shall be cut with a water-cooled, cut-off wheel masonry saw using a diamond blade. Pavers with chips, cracks, stains or other defects which might be visible in the finished work, or which might cause such defects in the future, shall not be used.

Joint Treatments: Joints between pavers shall be hand tight and shall be uniform in width. Joint filler mixture shall be swept dry into the joints between pavers until the joints are completely filled. Surface shall be swept clean.

Expansion Joints: Install expansion joints at interruptions in brickwork, in long spans, at curbs, at dissimilar materials, and as additionally directed by the Engineer.

Cleaning and Protection of Brick Surfaces: After completion of paver paving, surfaces shall be carefully cleaned, removing all dirt, excess joint filler mixture, and all stains.

Method of Measurement:

Brick Pavers on 4" Concrete Base Slab: This work will be measured by the actual number of square feet of completed and accepted Brick Pavers on 4" Concrete Base Slab.

Bituminous Setting Bed will not be measured for payment, but the cost shall be included in the bid price for Brick Pavers on 4" Concrete Base Slab.

Neoprene modified asphalt setting adhesive will not be measured for payment, but the cost shall be included in the bid price for Brick Pavers on 4" Concrete Base Slab.

Sand Joint Filler will not be measured for payment, but the cost shall be included in the bid price for Brick Pavers on 4" Concrete Base Slab.

Expansion Joint Material will not be measured for payment, but the cost shall be included in the bid price for Brick Pavers on 4" Concrete Base Slab.

Expansion Joint Sealant will not be measured for payment, but the cost shall be included in the bid price for Brick Pavers on 4" Concrete Base Slab.

Basis of Payment:

Brick Pavers on 4" Concrete Base Slab will be paid for at the contract unit price per square foot for "Brick Pavers on 4" Concrete Base Slab" which will be full compensation for furnishing and installing brick pavers, complete, in- place, including furnishing and installing the bituminous setting bed, neoprene-modified asphalt setting adhesive, sand joint filler, expansion joint material, expansion joint sealant, equipment, tools, materials and labor incidental thereto.

Item No.	Description	Unit
0303051A	BRICK PAVERS ON 4" CONCRETE BASE SLAB	S.F.

ITEM # 0303061A 4" CONCRETE BASE SLAB FOR PAVERS

Description:

This item shall include the construction of an 4" Concrete Base Slab for Pavers on a compacted processed stone base in the locations and to the dimensions and details shown on the plans or as ordered by the Engineer all in accordance with these specifications.

This item shall also include the installation of PVC sign sleeves as necessary for installation of signs within the area of the concrete base slab.

Materials:

Processed Stone Base: The material for this item shall be crushed trap rock conforming to the requirements of Article M.05.01 Processed Aggregate Base and Pavement of the Form 817, except that coarse aggregate shall be broken stone, and fine aggregate shall be stone sand, screenings, or a combination thereof. Gravel or reclaimed miscellaneous aggregate shall not be used.

PVC Sign Sleeves: PVC sleeves for signs shall be 6" diameter schedule 40 or 80 polyvinyl chloride pipe.

Concrete: All materials for this work shall conform to the requirements of Section M.03 of the State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817, for Class "F" concrete.

Test for air content of fresh concrete shall be made during construction. Because of effects of mixing and vibration, samples for air content preferably should be taken from concentrate after it has been placed by qualified technicians per ASTM C-231- 03 or C-238-51.

The concrete producer will be required to show that his plant and equipment meet all requirements as established by ASTM designation C-94-04, and shall also be currently approved by the State of Connecticut, Department of Transportation.

All concrete mix used must be accompanied by a certification issued by the concrete producer showing the time of day on the batch slip and the composition of the concrete mix; that is the amount and type of cement; water; kind of air-entering admixture and the retarder admixture if any; and also a certification that the mix will attain the minimum compressive strength of 4,000 psi in 28 days.

Any concrete mix without the time of day stamped on the accompanying batch slip will be rejected immediately. Also the concrete mix shall must be placed within 1 1/2 hours of the time of day stamped on the batch slip, otherwise it will be rejected.

Galvanized Steel Dowels: Shall be 5/8-inch x 24-inch galvanized steel smooth dowel Grade 60 conforming to article M.06-Metals. Deformed bars shall not be used. Plastic sleeves of the size required for accepting the 5/8-inch by 24-inch smooth metal dowels shall be "Speed Dowel" sleeves as manufactured by Greenstreak, 3400 Tree Court Industrial Blvd, St. Louis, MO 63122, telephone number (800) 551-5145 or approved equal. Plastic sleeves shall be installed according to manufacturer instructions and as directed by the Engineer.

Expansion Joint Material: Expansion Joint Material shall be ½" thick and installed recessed ½" from the top of the concrete slab as well as comply with article M.03.08-Joint Materials for Preformed Bituminous Cellular Type or approved equal.

Joint Sealant: Joint Sealant shall be installed with a continuous ½" bead along entire expansion joint cavity and comply with article M.03.08-5 (b)-Joint Sealants.

Reinforcing: Wire mesh reinforcing to be famished in the concrete base under this item shall be plain finish, 6 inches X 6 inches, No. 10 gage welded steel wire mesh meeting ASTM specifications A-185-02.

Construction Methods:

Processed Stone Base: The processed stone base shall be placed in two (2) equal courses the full width of the excavated area. Each course shall be compacted satisfactorily to a uniform surface with at least two passes of a motor driven vibratory compactor. Additional fine material shall be added to the top course to fill any voids that may have developed during compaction and to bring the completed foundation to true line and cross section to completed thickness of 8 inches. The top of the completed stone foundation shall be below and parallel to the finished grade of the 4" Concrete Slab for Pavers as shown on the drawings.

Should the sub-base material become churned up or mixed with the bottom course material at any time, the contractor shall, without additional compensation, remove the mixture, reshape and recompact the sub-base, and replace the material removed with clean coarse material which shall be compacted to a firm uniform surface.

PVC Sign Sleeve Installation: The PVC Sign Sleeve shall be installed in the sign locations shown on the plans or as directed by the Engineer prior to pouring the concrete slab. The top of the PVC Sign Sleeve shall be set flush with the top of the proposed sidewalk.

Placing Concrete: The concrete shall be discharged and placed in a manner which will prevent separation of coarse aggregate and mortar. Concrete shall always be placed starting at the low end of the section and working upgrade.

Before placement of the concrete, the foundation shall be thoroughly moistened. This shall be done far enough in advance of placement to allow absorption of water to a depth of at least 1 inch, leaving a moist but not muddy surface.

The finished thickness of the concrete base shall be at least 4 inches. The concrete shall be placed in two uniform cross sections consistent with the proposed cross slope and parallel to finished grade.

The time elapsing from the time water is added to the mix until the concrete is placed shall not exceed 90 minutes. In hot weather, the maximum allowable time may be reduced by the Engineer.

Finishing Concrete: The surface of the concrete shall be struck off to an elevation consistent with site details and be bull-floated to a smooth surface and broom finished.

Galvanized Steel Dowels: Steel dowels shall be installed 24" on center along the entire expansion joint. Dowels shall be asphalt cement coated on one side. Dowels shall be installed between the first and second pour.

Expansion Joints: Expansion material (½ inch thickness) as specified above shall be placed 12' on center maximum set ½" below the top to receive joint sealant.

Joint Sealant: Joint Sealant shall be installed with a continuous ½" bead along entire expansion joint cavity

Grade: The concrete at the expansion joints shall not be raised above the general surface of the concrete slab.

Trim: All expansion joint material shall be set ½" below the surface of the concrete slab to enable installation of joint sealant.

Curing: All concrete base slab shall be cured as follows:

Immediately following the final finishing and as soon as possible without marring, the concrete shall be covered with cotton matting or waterproof paper for 72 hours.

Cotton matting, if used, shall be in good condition, shall be saturated with water prior placement, shall be suitably fastened down to prevent movement and shall be moist for the entire period it is in place.

Waterproof paper if used, shall be lapped at least 12 inches, shall cover the entire surface shall overlap all edges of the concrete slab. The laps edges of the paper shall be securely weighted down with continuous planking, or piles of earth or other material to hold and keep all edges down tight.

Before use, all waterproof paper shall be checked for tears and holes, and all tears holes shall be repaired. Covers, which become unserviceable, will be replaced as ordered by the Engineer.

Wherever waterproof paper, if used, is found to have blown off or otherwise uncovered concrete before the end of the 72 hour period, the Contractor will be required to remove the paper and immediately cover the concrete with cotton and kept moist for an additional 24 hours.

When the concrete is poured during cold weather (night temperature below 42 degrees F) the concrete shall be protected by a layer of hay at least 6 inches thick and covered with waterproof paper or by other means acceptable to the Engineer. This protection shall be provided in addition to the curing procedure specified above and shall be maintained for at least four days after the day the concrete was poured.

Curing compounds shall not be used under any circumstances.

Method of Measurement:

4" Concrete Base Slab for Pavers will be measured by the actual number of square feet of completed and accepted 4" Concrete Base Slab for Pavers.

Basis of Payment:

This work will be paid for at the contract unit price per square foot for 4" Concrete Base Slab For Pavers" complete in place, which price shall include all required excavation and disposal of surplus material, processed stone base, compaction, PVC sign sleeves, expansion joint material, galvanized steel dowels, joint sealant, asphalt cement, reinforcing, cotton matting, waterproof paper, backfill, equipment, tools, materials and labor incidental thereto.

Item No.	Description	Unit
0303061A	4" CONCRETE BASE SLAB FOR PAVERS	S.F.

ITEM # 0404100A BITUMINOUS CONCRETE PATCHING-FULL DEPTH

Description:

Work under this item consists of the Contractor constructing pavement repairs of unclassified excavation followed by the installation of new compacted subbase and the installation of hot mix asphalt (HMA) in accordance with these specifications, plans, and as directed by the Engineer.

The work shall be comprised of the following:

Patch Excavation-Unclassified:	Total Depth as required to excavate to the bottom of the process stone base material required for installation of Granite Stone Curbing.	
Existing Hot Mix Asphalt (HMA):	3" (Two Lifts)	HMA Class1
	6"	HMA Class 4
Existing Subbase:	10"	

Materials:

HMA Courses: The requirements of Section 4.06 of the Standard Specifications Form 817 apply.

Subbase: The requirements of Section M.02 Grading C Gravel apply.

Construction Methods:

Patch Excavation: Full Depth Patch repair excavation shall consist of the removal and disposal of all materials, the removal of which is necessary for the proper completion of the work, to a depth below the processed stone base as required for installation of the 6" X 20" Granite Stone Curbing, Catch Basin, and associated piping.

1. Make the excavation square or rectangular with faces straight and vertical.
2. The Contractor shall use pavement saw cutting or equipment approved by the Engineer which will not damage adjacent pavement. A jack hammer and compressor will not be allowed for cutting the pavement surface.
3. Cut back and excavate the existing pavement an additional 12" in width from the limits of the proposed soil excavation as indicated on the plans and as directed by the Engineer.

Earth Excavation and Subbase: Where the soil in the bottom of the patch is found to be unsuitable, the Engineer shall order it removed and replaced with Grading "C" Gravel Subbase. The subbase shall be placed in lifts not to exceed 6" and shall be constructed to allow proper placement and thickness of the HMA materials. The subbase materials shall be compacted to a minimum of 95% of laboratory modified proctor, AASHTO T-180. This additional excavation and construction of the granular subbase shall be considered included if required.

HMA: Swab or paint the existing vertical faces of the pavement with approved emulsified asphalt such that a uniform film or asphalt will remain when cured.

Place the intermediate binder course(s) using approved methods and compact to a minimum of 92% of the maximum theoretical specific gravity using power rollers or other mechanical methods to achieve satisfactory results.

The perimeter of the patch shall be painted with tack coat or approved equal such that a 4" wide strip will be equally spaced on the new and existing pavement. The tack coat material shall be dusted with stone screenings or stone dust such that no tracking or pick-up of the seal will occur.

Traffic Control: The Contractor shall control and protect public traffic adjacent to and within the project site. The Contractor shall provide a traffic control plan conforming to the Manual on Uniform Traffic Control Devices (MUTCD), latest edition and Connecticut Department of Transportation (ConnDOT) Construction Traffic Control Plans as specified within the Standard Specifications Form 817.

The Contractor is required to provide and supply certified flaggers, traffic cones and signs per the approved plans. If municipal police officers are required, the Town of Glastonbury will hire and pay for the services required.

No open excavations or partially completed patches shall be left open or uncompleted overnight.

One-Year Warranty: The Full-Depth Patch repairs shall be warranted for one (1) year after final acceptance.

The Contractor will perform all warranty work, including but not limited to, replacement, traffic Control and incidentals, at NO cost to the Town as long as written notification is provided within the warranty period, even if the repair work extends beyond the warranty period. Failure to perform the warrantee work, when notified, will limit the Contractor from future work in the Town.

The Contractor shall perform all required repairs, including replacement, to meet the requirements of this specification. Temporary repairs will be replaced with permanent repairs as weather allows.

Method of Measurement:

The work will be measured for payment by the accepted number of square yards of "Bituminous Concrete Patching-Full Depth", of the type specified, complete in place. Measured limits of the Bituminous Concrete Patching-Full Depth shall be made to the outside limits of the 12" cut back of the existing bound surface, as shown in the details in the construction plans.

There will be no direct measurement for payment of saw cutting, excavation, disposal of surplus materials, subbase, compaction, preparation of the patch, tack coating, and construction of the required depth of HMA Intermediate Course(s) and traffic control. This work and material will be included in the unit price for "Bituminous Concrete Patching-Full Depth".

Basis of Payment:

The furnishing and installing of "Bituminous Concrete Patching-Full Depth" shall be paid for at the contract price per square yard. The unit price shall include saw cutting, excavation, disposal of surplus materials, subbase, compaction, preparation of the patch, tack coating, and construction of the required depth of HMA Intermediate Course(s), traffic control and warrantee in accordance with the specifications and as directed by the Engineer.

Payment shall include all labor, materials, equipment, cleaning of pavement surface, material disposal and incidentals necessary to complete the work described.

Item No.	Description	Unit
0404100A	BITUMINOUS CONCRETE PATCHING-FULL DEPTH	S.Y.

ITEM # 0507001A TYPE "C" CATCH BASIN

Work under this item shall conform to the applicable provisions of Section 5.07 of the Standard Specifications Form 817 amended as follows:

Construction Methods:

Trench excavation, dewatering, and backfill for these items shall be according to the special provisions for EARTH TRENCH EXCAVATION included under Item #0205001A.

Method of Measurement:

There will be no measurement for trench excavation in the installation or removal of the various drainage appurtenances.

Basis of Payment:

The work under these items shall be paid for at the unit contract price each for type of catch basins and drop inlets complete in place and shall include all materials, tools, equipment, and labor necessary to complete the excavation and installation of units in conformity with the plans, or as specified.

Item No.	Description	Unit
0507001A	TYPE "C" CATCH BASIN	EA.

ITEM # 0651746A 12" PVC PIPE (SCHEDULE 40)

Work under this item shall conform to the applicable provisions of Section 6.51 CULVERTS of the Standard Specifications Form 817 amended as follows:

Materials:
PVC Pipe, elbows, and fittings shall be schedule 40 polyvinyl chloride, suitable for drainage purposes.

Construction Methods:

Trench excavation, dewatering, and backfill for these items shall be according to the special provisions for EARTH TRENCH EXCAVATION included under Item #0201500A Special Provision.

Method of Measurement:

There will be no direct measurement for trench excavation and there will be no measurement for payment for backfill, gravel fill, bedding material, PVC elbows or other fittings, or for the cost of modifications required to existing manholes or catch basins as required for connecting proposed drainage pipes with existing drainage structures, but the cost thereof shall be included in the contract unit price per linear foot for the size and type of pipe being installed or removed.

Basis for Payment:

The work under these items will be paid for at the contract unit price per linear foot of pipe and size specified, complete in place including trench excavation, gravel fill, bedding material, elbows at fittings, and all other materials, equipment, tools, and labor incidental thereto.

Item No.	Description	Unit
0651746A	12" PVC PIPE (SCHEDULE 40)	L.F.

ITEM # 0813042A 6" x 20" GRANITE STONE CURBING
ITEM # 0813052A 6" x 20" GRANITE CURVED STONE CURBING

Description:

6" x 20" Granite Stone Curbing or 6" x 20" Granite Curved Stone Curbing shall include saw cutting and excavating for installation of the 6" x 20" granite stone curbing of the type indicated on a 6" thick compacted base of processed stone, furnishing and setting to line and grade new granite stone curb, new curved granite stone curb, installation of the concrete setting bed for curved or straight curb sections; furnishing and placing backfill and mortaring or caulking of curb joints as required or directed by the Engineer.

This item also includes transition lengths (curved or straight) when matching existing top of curb elevations at the beginning and ends of curbing limits or at sidewalk ramps. The transition length of curb shall be one continuous 3 foot or 6 foot length as directed by the Engineer.

This item shall include trimming damaged ends of existing curb stones and cutting existing curb stones to a shorter length, both trimming and cutting to produce a new end which is square with the planes of the top and face of the curb. This item shall also include cutting curb stones horizontally in locations where the depth of curb stones must be reduced to clear obstacles or utilities.

Materials:

All new granite curb supplied for use shall be 6" x 20" and shall conform to the following:

Curbstones shall be hard and durable granite of light color and uniform texture neither stratified nor laminated. Curbstones shall be free from seams, cracks and evidence of weakening or disintegration and shall be of a good smooth splitting appearance. Granite shall come from a quarry previously approved by the Engineer.

Should the Contractor request use of granite from a quarry not previously approved, he shall submit samples sufficiently in advance of need to allow the Engineer opportunity to judge the stone both as to quality and appearance. All curbstones for a given project shall come from one quarry and be all of one type. Granite when tested shall have a French coefficient of wear of not more than 32. Test sample shall conform to the requirements of ASTM C-615-03.

Dimensions: Straight curb shall be 6 inches by 20 inches depth and shall be nominal depth plus or minus 1 inch, minimum curb length to be 6 feet (except for closures to be not less than 4 feet) minimum width at bottom to be nominal width minus 1 inch for two thirds the length with an absolute minimum of minus 2 inches for the remaining one third.

All curbs to be set on radius 75 feet or less shall be 6 inches by 20 inches cut to arc with radian joints, depth shall be 20 inches plus or minus 1 inch, minimum length to be 4 feet, minimum width at bottom to be 5 or 4 inches for two thirds the length with an absolute minimum of 4 inches for the remaining one third.

Straight curb to be set on radius over 75 feet to 500 feet shall be 6 inches with ends trimmed so that face and top joint fit properly, depth to be 20 inches plus or minus 1 inch, minimum length to be 4 feet, maximum length to be 6 feet, minimum length at bottom to be 6 or 5 inches for two thirds the length with absolute minimum of 5inches for the remaining one third.

Finish: The curbstone shall have a top surface free from wind and drill holes, it shall be sawed to an approximately true 1/8 inch. The front and back arris lines shall be straight and true with no variation from a straight line greater than 1/8 inch. On the back surface there shall be no projection for 3 inches down which would fall outside a batter of 4 inches in 12 inches from the back arris line. The front face shall be at right angles to the plane of the top or battered not more than one inch in twelve inches, and shall be quarry split or sawn, free from drill holes in the exposed face. The front face shall have no projections greater than 3/4 of

an inch or depression greater than 1/2 inch measured from the vertical plane of the face through the top arris line for a distance of 8 inches down from the top.

For the remaining distance there shall be no projections or depressions greater than 1 inch measured in the same manner. The arris lines at the ends shall be pitched with no variation from the plane of the face greater than 1/8 inch. The ends of all stones shall be square with the planes of the top and face, and so finished that when the stones are placed end to end as closely as possible, no space more than 1/4 inch shall show in the joint for the full width of the top and down on the face for 8 inches. On curb stones having a length of 6 feet or more, the remainder of the end may break back not over 6 inches, on shorter curb stones, they shall not break back more than 4 inches. The bottom surface shall be sawn or quarry split to an approximately true plane. Half drill holes will not be permitted in the arris line of the back. Front arris line may be rounded to a radius not over 1/2 inch. If sawn, the curbstone shall be thoroughly cleaned of any iron rust or iron particles.

Granite curb returns shall be 20 inches deep and shall conform to the detail shown in the contract drawings and all material requirements in this specification.

Processed Stone Base: The material for this item shall be crushed trap rock conforming to the requirements of Article M.05.01 Processed Aggregate Base and Pavement of the Form 817, except that coarse aggregate shall be broken stone, and fine aggregate shall be stone sand, screenings, or a combination thereof. Gravel or reclaimed miscellaneous aggregate shall not be used.

Concrete: All materials for this work shall conform to the requirements of Section M.03 of the State of Connecticut Standard, Department of Transportation, Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817 for Class “C” concrete.

Caulk: Caulking compound shall be a material which complies with ASTM C-920, Type S, Grade NS, Class 25 sealing compound, polyurethane based elastomeric, single component, moisture cured sealant, capable of 25% joint movement. The color of the compound shall be cement mortar gray.

Construction Methods:

All curbing installations shall be laid out in the field and prior to placement of concrete footings, be approved by the Engineer. The contractor shall notify the Engineer at least two business days in advance of final curbing layout for approval prior to concrete placement.

The curbing shall be marked in the field by a licensed land surveyor in accordance with the detailed coordinates for the curb lines, radii’s and recessed curbing points.

Excavation: The Contractor shall excavate to a depth of 26” below the top of finished curb grade. The street pavement shall be removed to a width of at least 6” in front of the curb to facilitate proper setting and backfilling. Bituminous concrete and macadam pavement in front and back of the curb shall be cut to neat straight lines before excavation to minimize pavement damage.

Where there is good sod behind the curb, the sod shall be removed before excavation and saved for re-use.

Where there is a dummy joint 18” to 24” behind the curb, the Engineer may require the Contractor to saw the joint prior to excavating behind the curb. Saw cutting will be included in this item.

Where concrete base pavement is encountered excavation shall include removal of all existing concrete or other foundations. Saw cutting the concrete base shall also be included in this item.

Where the distance between the back of the curb and sidewalk is 12" or less, or where trees are encountered immediately behind the curb, the Engineer may order the Contractor to excavate by hand to avoid damage to the walk or trees.

Processed Stone Base: A 6" thick by 18" wide base of processed stone shall be installed as a foundation for the curb. This material may be installed in one lift and shall be thoroughly compacted with an approved vibratory compaction device to achieve 95% compaction.

Setting Curb: The curb shall be set to line and grade established by the Engineer. Maximum variation from established line and grade shall be 1/4". The finished curb shall present a neat appearance free from irregularities of line and grade.

For curved stone curb, masonry blocking used to hold the curb in place shall be allowed to remain when backfilling is completed.

Backfill: All foundation and backfill shall be placed in layers not over six inches thick and each layer shall be thoroughly compacted using motor driven powered vibratory compactor.

For granite stone curbing, all curb joints shall be set in concrete 6" from either edge as shown on the details.

For curved granite stone curb, the curb shall be set in concrete along its entire length. The Contractor shall use a very stiff mix and shall spade and tamp to eliminate all voids, especially under the curb.

Concrete setting bed for all granite stone curb shall not extend higher than 6" above the bottom of the curb.

Caulking: All curb joints shall be filled with caulking compound with either pneumatic or ratcheted hand gun or with other equipment as approved by the Engineer. At approximately 50-foot intervals, a 1/2-inch joint shall not be filled with caulking compound but left free for expansion.

Cutting or Trimming: The contractor shall employ appropriate cutting tools to produce a clean, square, and plumb cut for a neat appearance when reset. For vertical cuts, the ends shall be finished so that when stones are placed end to end as closely as possible, no space more than one half inch wide shall show in the joint for the full width of the top or down on the face for 9". The remainder of the joint may break back not more than 4" from the plane of the joint. The Engineer may require the cut to be made with the stone in place in the ground. Horizontal cuts shall be made in a manner that allows for a 2" vertical clearance of the object or utility interference with the bottom of the curb stone. Horizontal cuts which exceed 1/3 the depth of the stone to be cut require the engineers approval prior to cutting.

In the trimming and cutting of damaged curbstones, the portion cut off shall be kept to a minimum.

If in making a cut, the Contractor damages the curb so as to make it unusable, the Contractor shall furnish, at no cost to the Town a piece of suitable curb cut to proper length to replace the damaged curb.

Method of Measurement:

6" x 20" Granite Stone Curbing or 6" x 20" Granite Curved Stone Curbing will be measured by the actual number of linear feet of completed and accepted 6" x 20" Granite Stone Curbing or 6" x 20" Granite Curved Stone Curbing

Cutting or trimming existing or proposed curb will not be measured for payment, but the cost shall be considered included in the bid price for 6" x 20" Granite Stone Curbing, 6" x 20" Granite Curved Stone Curbing.

Basis of Payment:

This work will be paid for at the contract unit price per linear foot for “6” x 20” Granite Stone Curbing”, “6” x 20” Granite Curved Stone Curbing”, of the type and size specified, complete in place and accepted, which price shall include all excavation and disposal of unsuitable materials, processed stone base, concrete setting bed, backfilling, equipment, tools and labor incidental thereto.

There will be no direct payment for furnishing, placing and compacting processed stone base, cutting or trimming existing or proposed curb, beveling or rounding the ends of the ends of the curbing, pointing the joints with mortar or caulk, concrete setting bed, repair of disturbed areas in front and back of curb and the 12” maximum grassed area in back of curb, but the cost of this work shall be considered as included in the general cost of the work.

Item No.	Description	Unit
0813042A	6” x 20” GRANITE STONE CURBING	L.F.
0813052A	6” x 20” GRANITE CURVED STONE CURBING	L.F.

ITEM # 0814002A RESET GRANITE STONE CURBING

Description:

This work shall consist of the removing and resetting or adjusting of existing stone curbing of the type specified to the lines and grades given, in accordance with the dimensions and details of the plans or as directed by the Engineer.

Materials:

All existing curbing which is acceptable shall be used. The reset stone curbing shall be in lengths of at least 4 ft. long, except where necessary for closures, where pieces shall be at least 3 ft. long.

Mortar: Mortar shall be as specified in Article M.11.04.

Processed Stone Base: The material for this item shall be crushed trap rock conforming to the requirements of Article M.05.01 Processed Aggregate Base and Pavement of the Form 817, except that coarse aggregate shall be broken stone, and fine aggregate shall be stone sand, screenings, or a combination thereof. Gravel or reclaimed miscellaneous aggregate shall not be used.

Concrete: All materials for this work shall conform to the requirements of Section M.03 of the State of Connecticut Standard, Department of Transportation, Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817 for Class "C" concrete.

Caulk: Caulking compound shall be a material which complies with ASTM C-920, Type S, Grade NS, Class 25 sealing compound, polyurethane based elastomeric, single component, moisture cured sealant, capable of 25% joint movement. The color of the compound shall be cement mortar gray.

Construction Methods:

All curbing installations shall be laid out in the field and prior to placement of concrete footings, be approved by the Engineer. The contractor shall notify the Engineer at least two business days in advance of final curbing layout for approval prior to concrete placement.

The curbing shall be marked in the field by a licensed land surveyor in accordance with the detailed coordinates for the curb lines, radii's and recessed curbing points.

The curbing to be reset shall be removed with care to avoid damage and, if ordered, shall be transported to a point or points on the project which will allow all the reset curbing to be installed in continuous lines. Curbing removed and not reset shall remain the property of the Town of Glastonbury unless otherwise ordered by the Engineer and shall be transported to such points, adjacent to the work, as the Engineer may designate. Where adjustments only have to be made to curbing, such adjustments shall be carried out as specified by the Engineer.

Excavation: The Contractor shall excavate to a depth of 24" below the top of finished curb grade. The street pavement shall be removed to a width of at least 6" in front of the curb to facilitate proper setting and backfilling. Bituminous concrete and macadam pavement in front and back of the curb shall be cut to neat straight lines before excavation to minimize pavement damage.

Where there is good sod behind the curb, the sod shall be removed before excavation and saved for re-use. Where there is a dummy joint 18" to 24" behind the curb, the Engineer may require the Contractor to saw the joint prior to excavating behind the curb. Saw cutting will be included in this item.

Where concrete base pavement is encountered excavation shall include removal of all existing concrete or other foundations. Saw cutting the concrete base shall also be included in this item.

Where the distance between the back of the curb and sidewalk is 12" or less, or where trees are encountered immediately behind the curb, the Engineer may order the Contractor to excavate by hand to avoid damage to the walk or trees.

Processed Stone Base: A 6" thick by 18" wide base of processed stone shall be installed as a foundation for the curb. This material may be installed in one lift and shall be thoroughly compacted with an approved vibratory compaction device to achieve 95% compaction.

Setting Curb: The curb shall be set to line and grade established by the Engineer. Maximum variation from established line and grade shall be 1/4". The finished curb shall present a neat appearance free from irregularities of line and grade.

For curved stone curb, masonry blocking used to hold the curb in place shall be allowed to remain when backfilling is completed.

Backfill: All foundation and backfill shall be placed in layers not over six inches thick and each layer shall be thoroughly compacted using motor driven powered vibratory compactor.

For granite stone curbing, all curb joints shall be set in concrete 6" from either edge as shown on the details.

For curved granite stone curb, the curb shall be set in concrete along its entire length. The Contractor shall use a very stiff mix and shall spade and tamp to eliminate all voids, especially under the curb.

Concrete setting bed for all granite stone curb shall not extend higher than 6" above the bottom of the curb.

Caulking: All curb joints shall be filled with caulking compound with either pneumatic or ratcheted hand gun or with other equipment as approved by the Engineer. At approximately 50-foot intervals, a 1/2-inch joint shall not be filled with caulking compound but left free for expansion.

Cutting or Trimming: The contractor shall employ appropriate cutting tools to produce a clean, square, and plumb cut for a neat appearance when reset. For vertical cuts, the ends shall be finished so that when stones are placed end to end as closely as possible, no space more than one half inch wide shall show in the joint for the full width of the top or down on the face for 9". The remainder of the joint may break back not more than 4" from the plane of the joint. The Engineer may require the cut to be made with the stone in place in the ground. Horizontal cuts shall be made in a manner that allows for a 2" vertical clearance of the object or utility interference with the bottom of the curb stone. Horizontal cuts which exceed 1/3 the depth of the stone to be cut require the engineers approval prior to cutting.

In the trimming and cutting of damaged curbstones, the portion cut off shall be kept to a minimum.

If in making a cut, the Contractor damages the curb so as to make it unusable, the Contractor shall furnish, at no cost to the Town a piece of suitable curb cut to proper length to replace the damaged curb.

Method of Measurement:

This work will be measured for payment by the actual number of linear feet of the type of curbing, reset and accepted. Measurement shall be made along the top arris line of face of curb.

Basis of Payment:

This work will be paid for at the contract unit price per linear foot for " Reset Granite Stone Curbing" or "Reset Granite Curved Stone Curbing", complete in place and accepted, which price shall include all excavation, backfilling, disposal of surplus material.

There will be no direct payment for furnishing, placing and compacting granular base, beveling or rounding the ends of the curbing, concrete setting bed, sealing the joints with mortar, removing the curbing and hauling it to any location on or adjacent to the project as directed by the Engineer, but the cost of this work shall be considered as included in the general cost of the work.

Item No.	Description	Unit
0814002A	RESET GRANITE STONE CURBING	L.F.

ITEM # 0921001A CONCRETE SIDEWALK
ITEM # 0921005A CONCRETE SIDEWALK RAMP

Description:

The Contractor is to construct sidewalks to lines and grades as shown on the drawings or at locations as directed by the Engineer. Concrete sidewalks shall be five inches thick, except at industrial and commercial driveways where it shall be eight inches thick and reinforced with 6" x 6" 10/10 steel mesh. Concrete sidewalks with integral curb shall have a monolithic integral curb section 5" thick and reinforced with 6" x 6" 10/10 steel mesh. Sidewalk construction shall include the removal of existing and construction of new house lateral walks where new sidewalk grades make it necessary. The sidewalk shall pitch to the street at a slope of 2 percent or as directed by the Engineer. Contractor shall install 4" PVC sleeves, prior to pouring the concrete, for future installation of sign posts by others in the locations and dimensions shown on the plans or as directed by the Engineer.

Concrete sidewalk ramps are to be constructed to the lines and grades shown on the plans at locations directed by the Engineer, and shall be a minimum of five inches thick. This work shall also include furnishing and installing Detectable Warning Strips in the locations and to the dimensions and details shown on the plans or as ordered by the Engineer.

Materials:

Processed Stone Base: The material for this item shall be **crushed trap rock** conforming to the requirements of Article M.05.01 Processed Aggregate Base and Pavement of the Form 817, except that coarse aggregate shall be broken stone, and fine aggregate shall be stone sand, screenings, or a combination thereof. Gravel or reclaimed miscellaneous aggregate shall not be used.

Forms: The forms used shall be five-inch steel or 2" x 6" wood firmly supported and staked to the line and grade given by the Engineer. **2"x4" wood forms shall not be used and shall be cause for immediate rejection of sidewalk.** The forms shall be free from warp and shall be of sufficient strength to resist springing out of shape. All forms shall be cleaned and oiled before use.

Concrete: The concrete furnished shall conform with respect to composition, transportation, mixing and placing, to Class F Cement Concrete 4,400 PSI, as specified by the State of Connecticut Department of Transportation in its latest specification and revisions. An approved air-entraining admixture shall be used to entrain 5% to 7% air in the concrete.

Concrete Curing Compound / Sealer: All concrete sidewalks shall be treated using Repel 100 by Kingdom Products curing compound / sealer or approved equal meeting ASTM C309, Type 1, Class A and B.

Detectable Warning Strips: The Detectable Warning Strip shall be a replaceable tactile warning surface tile as manufactured by ADA Solutions, Inc of P.O. Box 3, North Billerica MA 01862 Tel: 800.372.0519 Fax: 978.262.9125 www.adatile.com or approved equal. Tile shall be brick red in color (Federal Color # 20109) and all attachment hardware shall be stainless steel. The tile shall conform to the dimensions shown on the plans or as directed by the Engineer.

Dowels: Smooth metal dowels, 5/8-inch in diameter, measuring 18 inches in length shall be installed using plastic sleeves within all expansion and contraction joints, concrete driveway aprons, at concrete sidewalk ramps, and at the last end section of each sidewalk slab poured at the end of each working day.

Plastic sleeves of the size required for accepting the 5/8-inch by 18-inch smooth metal dowels shall be "Speed Dowel" sleeves as manufactured by Greenstreak, 3400 Tree Court Industrial Blvd, St. Louis, MO 63122,

telephone number (800) 551-5145 or approved equal. Plastic sleeves shall be installed according to manufacturer instructions and as directed by the Engineer.

Smooth metal dowels shall be 5/8-inch in diameter and 18 inches in length. All metal dowels shall conform to the requirements of ASTM A615 Grade 60.

Expansion Joints: At maximum intervals of 15 feet, an expansion joint shall be placed to the full depth of the concrete slab. The material for expansion joints shall be either ¼-inch thick cork asphalt or $^3/_8$-inch thick asphalt impregnated bonded cellular fiber, or approved equal. Expansion joints of the same material shall also be placed at points abutting existing structures.

PVC Sign Sleeve: PVC Sign Sleeve shall be 6" diameter schedule 40 or 80 PVC. PVC sleeve shall be the full depth of the concrete and set flush with the top of the proposed sidewalk prior to pouring concrete sidewalk.

Construction Methods:

Limits of Disturbance: The Contractor is to exercise caution to prevent unnecessary damage to lawns, trees, bushes, or any other existing improvements. If, in the opinion of the Engineer, existing improvements are damaged due to the carelessness of the Contractor, the same shall be repaired or replaced at the Contractor's expense.

Earthwork: The Contractor shall remove and dispose of grass, rubbish, and other objectionable materials within the limits of the sidewalk construction. The Contractor shall perform all excavation necessary to construct sidewalks to the grades as shown on the construction plans. Existing house lateral walks and driveways adjacent to the sidewalk shall be removed and base graded and prepared for a smooth connection. The Contractor shall remove and dispose of all excess material.

Suitable excavated material shall be re-used within the project limits as directed by the Engineer to form embankment for sidewalks where required. Embankment formation shall be completed as described in Article 2.02.03 of the Form 817, and shall meet the proposed subgrade elevations described on the plans or directed by the Engineer. Excess earth materials shall become the property of the Contractor and shall be disposed of at no additional cost to the Town.

Process Stone Base Installation: The processed stone base course shall be spread upon the prepared subgrade to such depth as to give a compacted thickness of eight (8) inches. The material shall be uniformly spread in two layers of equal depth in the entire base course excavation and each layer shall be wetted and compacted to a firm even surface with a roller weighing not less than 500 pounds or by use of pneumatic tampers or vibratory compactors.

PVC Sign Sleeve Installation: The PVC Sign Sleeve shall be installed in the sign locations shown on the plans or as directed by the Engineer prior to pouring the concrete sidewalk. The top of the PVC Sign Sleeve shall be set flush with the proposed sidewalk.

Installation of Dowel: Dowels are also to be installed between new and existing concrete slabs. Where new or repaired walks abut up against existing concrete sidewalks, the Contractor shall drill two holes measuring ¾-inches in diameter and 12 inches in depth into the existing concrete slab. The dowels, with plastic sleeve, shall be set into the existing sidewalk slab prior to the placement of concrete. The dowels are to be level with the latitude pitch of the sidewalk and shall conform to details of these specifications.

Concrete Work: The surface finish shall be struck off, forcing coarse aggregate below mortar surface. After strike-off, the surface shall be worked and floated with a wooded, aluminum, or magnesium float followed by steel troweling. The slab shall then be broomed cross-wise with a fine hair broom. The outside edges of the slab shall be edged with a ¼-inch radius tool. All edging lines shall be removed.

The Detectable Warning Strip shall be set directly in poured concrete according to the plans and the manufacturer's specifications or as directed by the Engineer. The Contractor shall place two 11.34 Kg concrete blocks or sandbags on each tile to prevent the tile from floating after installation in wet concrete.

Curing Compound / Sealer Application: The Contractor shall apply the approved curing compound / sealer using a 3/8" nap roller or low pressure sprayer at a rate of 200 to 300 square feet per gallon and according to
manufacturer installation instructions or as directed by the Engineer. Concrete surface shall be clean and free of any surface contaminants when applying sealer. When applying sealer to fresh concrete the bleed water must be off the surface as this water can inhibit proper function of the sealer. Any areas where the sealer puddles shall be immediately spread to other areas where absorption can occur to avoid undesirable appearance of finished surface. Sealer shall not be applied if rain is forecast within 24 hours, or if ambient temperature at the time of application is below 50 degrees or above 80 degrees Fahrenheit, or as directed by the Engineer.

Newly constructed sidewalk surfaces shall be protected from all foot or vehicular traffic for a period of seven days. The Contractor shall have on the job, at all times, sufficient polyethylene film or waterproof paper to provide complete coverage in the event of rain.

Temperature: No concrete is to be placed when air temperature is below 40°F, or at 45°F and falling, unless prior approval is given by the Engineer. In the event weather conditions may be such that concrete that is not completely cured is subject to freezing, the Contractor shall provide a minimum of a six-inch layer of hay, straw, or thermal blankets for protection. Any concrete laid during cold weather that is damaged by freezing shall be the responsibility of the Contractor and shall be replaced at his expense.

Final Grading: Upon completion of sidewalk construction, the Contractor is to re-grade the areas between sidewalks and curbs, if the typical section indicates a grass plot, and disturbed areas back of the sidewalk. The Contractor shall backfill and compact these areas so as to conform to the typical cross-section. The upper four inches of the backfill shall be loam or topsoil, loose and friable and free of sticks, rocks, roots, weeds, or other unsuitable material.

Method of Measurement:

Concrete Sidewalk will be measured by the actual number of square feet of completed and accepted Concrete Sidewalks.

Concrete Sidewalk Ramp will be measured by the actual number of square feet of completed and accepted Concrete Sidewalk Ramps.

Saw cutting, Removal, excavation to subgrade and disposal of existing concrete sidewalk sections shall not be measured for payment. Rather this work shall be included in the contract unit price for the item associated therewith.

ITEM # 0970006A TRAFFICPERSON (MUNICIPAL POLICE OFFICER)

Work under this item shall conform to the applicable provisions of Section 9.70 of the Standard Specifications Form 817 supplemented as follows:

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

"Trafficpersons shall consist of uniformed flaggers meeting acceptable criteria or extra duty officers of the Glastonbury 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 Police Chief, as the Local Traffic Authority, who will make this determination based on the Contractor's proposed operations, traffic volumes, and traffic conditions."

"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. Trafficperson – Municipal Officer: The sum of money shown on the bid proposal as "Estimated Cost" for this work will be considered the bid price even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount for the contract.

Police Officers will be paid for at the actual hourly rate charged for extra-duty police officers services by the Town (monthly statement or receipted bills). Use of a Town police vehicle requested by the Engineer will be paid at the actual rate charged by the Town. The rate charged by the Town for use of a Uniformed Town Police Officer and/or an official Town Police vehicle shall not be greater than the rate it normally charges others for similar services.

Item No.	Description	Unit
0970006A	TRAFFICPERSON (MUNICIPAL POLICE OFFICER)	EST.

ITEM # 0971001A MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description is supplemented by the following:

The Contractor shall maintain and protect traffic as described by the following and as limited in the Special Provision "Prosecution and Progress":

The Town of Glastonbury CHIEF OF POLICE, acting in the capacity of the LOCAL TRAFFIC AUTHORITY, shall be the sole and final authority for the Maintenance and Protection of Traffic.

The Contractor shall maintain and protect traffic as described by the following and as limited in the Special Provision "Prosecution and Progress":

All Public Roadways

The Contractor shall maintain and protect a minimum of one lane of traffic in each direction, each lane on a travel path not less than 11 feet in width.

Commercial and Residential Driveways

Access to the abutting commercial driveway for Daybreak Coffee Roasters shall be maintained at all times during construction. During installation of the proposed drainage pipe, catch basin modifications, and bituminous concrete repair within this driveway, the Contractor shall maintain a minimum of alternating one-way traffic on a paved travel-way not less 11 feet wide. If this is not feasible, the Contractor shall make arrangements to perform this work outside of normal business hours for this business, including such night work as may be required to complete all of the necessary improvements.

Article 9.71.03 - Construction Method is supplemented as follows:

General

The Contractor shall schedule operations such that all open excavations are backfilled or steel plated by the end of each active work period. The installation of steel plates shall be approved by the Town of Glastonbury Public Works Department prior to installation. Trenches and other excavations within the travelway that are backfilled shall be brought up to finished grade and paved with bituminous concrete pavement prior to reopening the roadway to vehicular traffic.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3-foot shoulder between the work area and travel lanes, with traffic drums spaced every 20 feet. At the end of the workday, if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor, during the course of active construction work on overhead signs and structures, shall close the lanes directly below the work area for the entire length of time overhead work is being undertaken. At no time shall an overhead sign be left partially removed or installed.

If applicable, when an existing sign is removed, it shall be either relocated or replaced by a new sign during the same working day.

The Contractor shall not store any material on-site which would present a safety hazard to motorists or pedestrians (e.g. fixed object or obstruct sight lines).

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

Existing Signing

The Contractor shall maintain all existing overhead and side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and install temporary sign supports if necessary and as directed by the Engineer.

Signing Patterns

The Contractor shall provide such safety measures, pavement markings, traffic control devices, incidental flagmen, and signs deemed necessary to safeguard and guide the traveling public through the work zones as ordered by the Engineer, included in the approved maintenance scheme, or as shown on the plan. The Contractor shall erect, maintain, move, adjust, clean, relocate, store all signs, barricades, drums, traffic cones, and delineators when, where, and as directed by the Engineer. The use of unauthorized or unapproved signs, barricades, drums, traffic cones, or delineators will not be permitted.

All signs in any one signing pattern shall be mounted at the same height above the pavement. The Contractor shall keep all signs in proper position, clean and legible at all times. The Contractor shall maintain the site so that no weeds, shrubbery, construction materials, equipment or soil will obscure any sign, light, or barricade. Signs that no longer pertain to the project conditions shall be removed or adjusted from the view of traffic. 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. Traffic drums shall be used to delineate raised catch basins and other hazards.

Requirements for Winter

The Contractor shall schedule a meeting with representatives from the Town of Glastonbury to determine what interim traffic control measures the Contractor shall accomplish for the winter to provide safety to the motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

Pavement Markings

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

NOTE: Painted pavement markings will not be allowed as a substitution for either the permanent pavement markings or the Temporary Plastic Pavement Marking Tape on the final course of bituminous concrete pavement.

Dust Control

The Contractor shall be responsible for taking all steps necessary to minimize dust emanating from the project and for keeping the street free of accumulations of sand or similar materials. When ordered by the Engineer, the Contractor shall remove snow and take care of ice on temporary, new and existing sidewalks within the limits of the project. No additional payment will be made for this work.

Pavement Markings -Non-Limited Access Multilane Roadways Secondary and Local Roadways

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Interim Pavement Markings

The Contractor shall install painted pavement markings, which shall include centerlines, shoulder edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. If the next course of bituminous concrete pavement will be placed within seven days, shoulder edge lines are not required. The painted pavement markings will be paid under the appropriate items.

If the Contractor will install another course of bituminous concrete pavement within 24 hours, the Contractor may install Temporary Plastic Pavement Marking Tape in place of the painted pavement markings by the end of the work day/night. These temporary pavement markings shall include centerlines, lane lines (broken lines) and stop bars; shoulder edge lines are not required. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 to 6 inches apart, at 40-foot intervals. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the winter, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

Final Pavement Markings

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled "Epoxy Resin Pavement Markings, Symbols, and Legends" after such time as determined by the Engineer.

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 shoulder. For each situation, the installation of traffic control devices shall be based on the following:

Speed and volume of traffic
Duration of operation
Exposure to hazards

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.

Typical traffic control plans 19 through 25 may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

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 trafficperson 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 shall 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

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda should include:

- Review Project scope of work and time
- Review Section 1.08, Prosecution and Progress
- Review Section 9.70, Trafficpersons
- Review Section 9.71, Maintenance and Protection of Traffic
- Review Contractor's schedule and method of operations.
- Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
- Open discussion of work zone questions and issues
- Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

SECTION 2. GENERAL

2.a) If the required minimum number of signs and equipment (i.e. one High Mounted Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available; the traffic control pattern shall not be installed.

2.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.

2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.

2.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

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

3.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.

3.c) Stopping traffic may be allowed:

- As per the contract for such activities as blasting, steel erection, etc.
- 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.
- To move slow moving equipment across live traffic lanes into the work area.

3.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. If required, traffic slowing techniques may be used and shall include the use of Truck Mounted Impact Attenuators (TMAs) as appropriate, for a minimum of one mile in advance of the pattern starting point. Once the advanced warning signs and the first ten traffic cones/drums are installed/removed, the TMAs and sign crew shall continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.

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

3.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travelpath 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.

3.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.

3.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.

SECTION 6. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

6.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.

6.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.

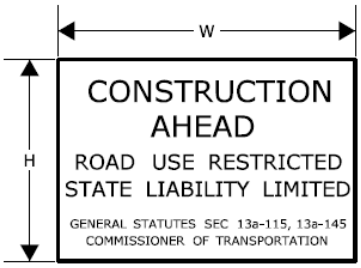
6.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

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

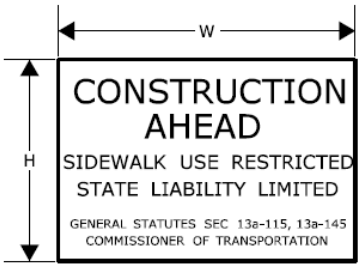
In addition to the use of traffic cones and drums, flexible delineator posts shall be used for the central island protection of traffic from Stage 1B through Stage 3 to allow for large semitrailer trucks to utilize the area for turning.

Portable Variable Message Signs shall be deployed on Hebron Avenue and New London Turnpike in advance

SERIES 16 SIGNS



		W H
16-E	80-1605	84" x 60"
16-H	80-1608	60" x 42"
16-M	80-1613	30" x 24"



		W H
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.

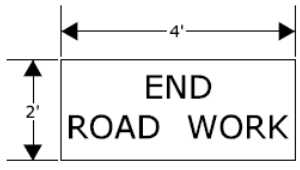
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

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.

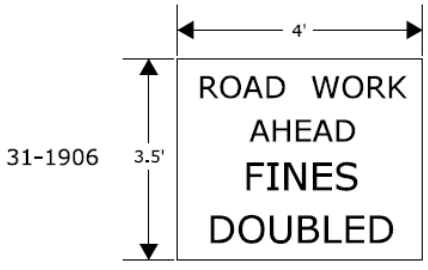
THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

"END ROAD WORK" SIGN

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



80-9612



31-1906

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 11:35:43-04'00'
PRINCIPAL ENGINEER

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 (AA), (A), 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 TRAVELPATHS 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 (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180' (55m)
35	250' (75m)
40	320' (100m)
45	540' (165m)
50	600' (180m)
55	660' (200m)
65	780' (240m)

METRIC CONVERSION CHART (1" = 25mm)

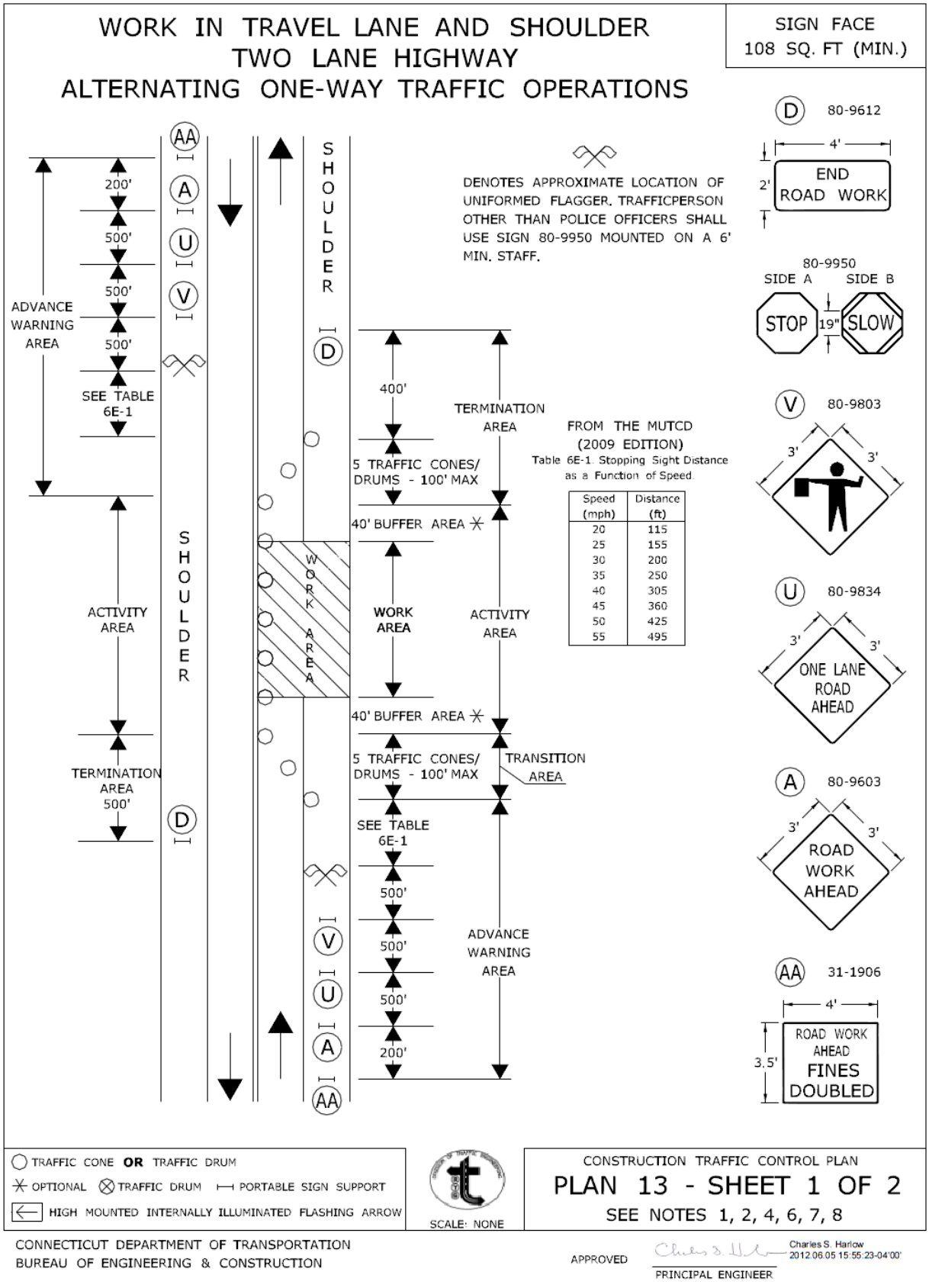
ENGLISH	METRIC	ENGLISH	METRIC	ENGLISH	METRIC
12"	300mm	42"	1050mm	72"	1800mm
18"	450mm	48"	1200mm	78"	1950mm
24"	600mm	54"	1350mm	84"	2100mm
30"	750mm	60"	1500mm	90"	2250mm
36"	900mm	66"	1650mm	96"	2400mm

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
NOTES

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:50:35-04'00'
PRINCIPAL ENGINEER


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. TRAFFICPERSON OTHER THAN POLICE OFFICERS SHALL USE SIGN 80-9950 MOUNTED ON A 6' MIN. STAFF.
ADVANCE WARNING AREA
200'
500'
500'
500'
SEE TABLE 6E-1
ACTIVITY AREA
TERMINATION AREA 500'
SHOULDER
SHOULDER
400'
5 TRAFFIC CONES/ DRUMS - 100' MAX
40' BUFFER AREA
WORK AREA
40' BUFFER AREA
5 TRAFFIC CONES/ DRUMS - 100' MAX
SEE TABLE 6E-1
500'
500'
500'
200'
TERMINATION AREA
ACTIVITY AREA
TRANSITION AREA
ADVANCE WARNING AREA
FROM THE MUTCD (2009 EDITION)
Table 6E-1. Stopping Sight Distance as a Function of Speed
Speed (mph) | Distance (ft)
20 | 115
25 | 155
30 | 200
35 | 250
40 | 305
45 | 360
50 | 425
55 | 495
D 80-9612
4'
2'
END ROAD WORK
80-9950
SIDE A SIDE B
STOP 19" SLOW
V 80-9803
3' 3'
U 80-9834
3' 3'
ONE LANE ROAD AHEAD
A 80-9603
3' 3'
ROAD WORK AHEAD
AA 31-1906
4'
3.5'
ROAD WORK AHEAD
FINES DOUBLED
TRAFFIC CONE OR TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW
SCALE: NONE
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
APPROVED
PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:55:23-04'00'

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

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM 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.

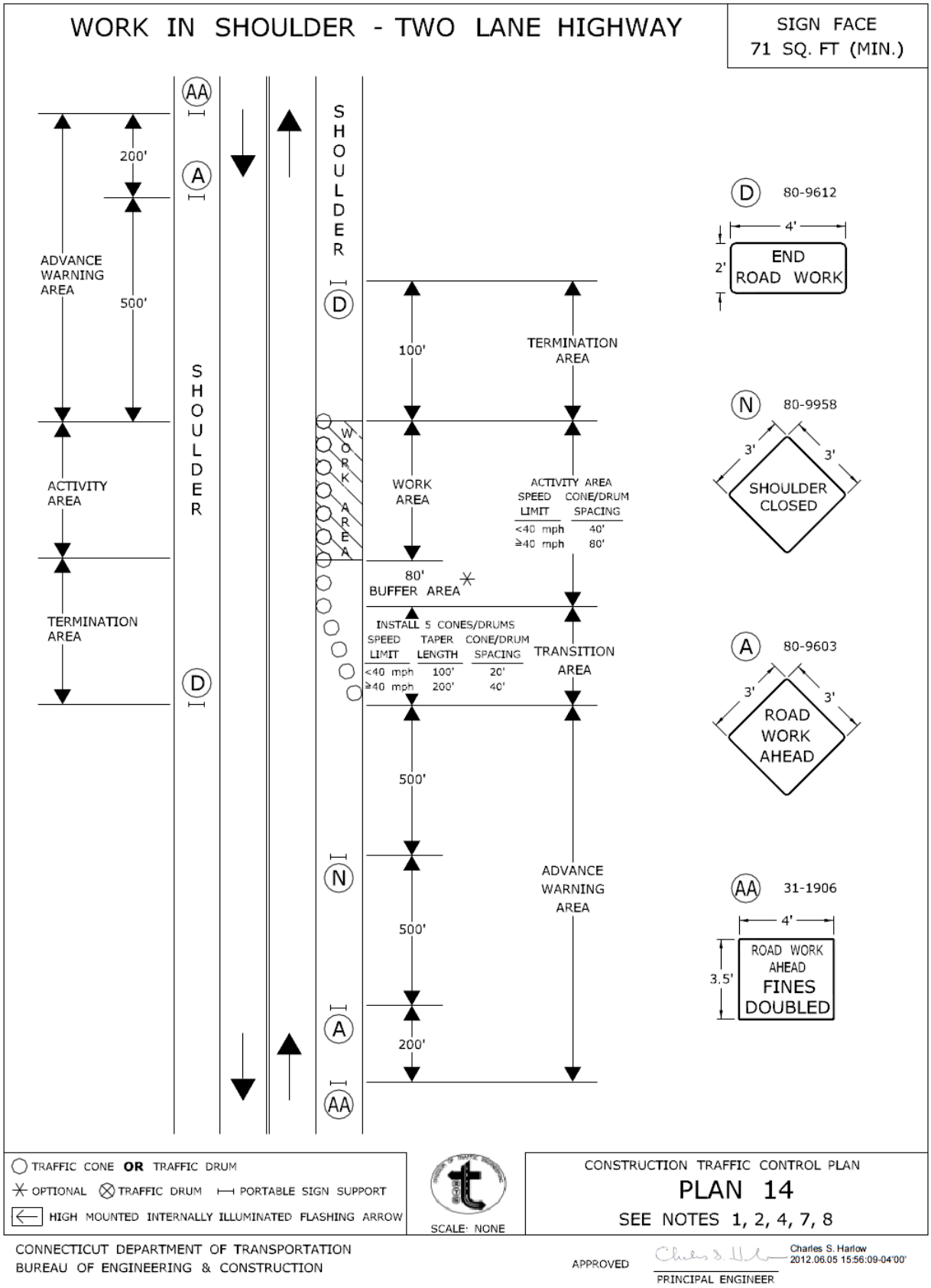
◯ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢⊣ PORTABLE SIGN SUPPORT
⟵ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

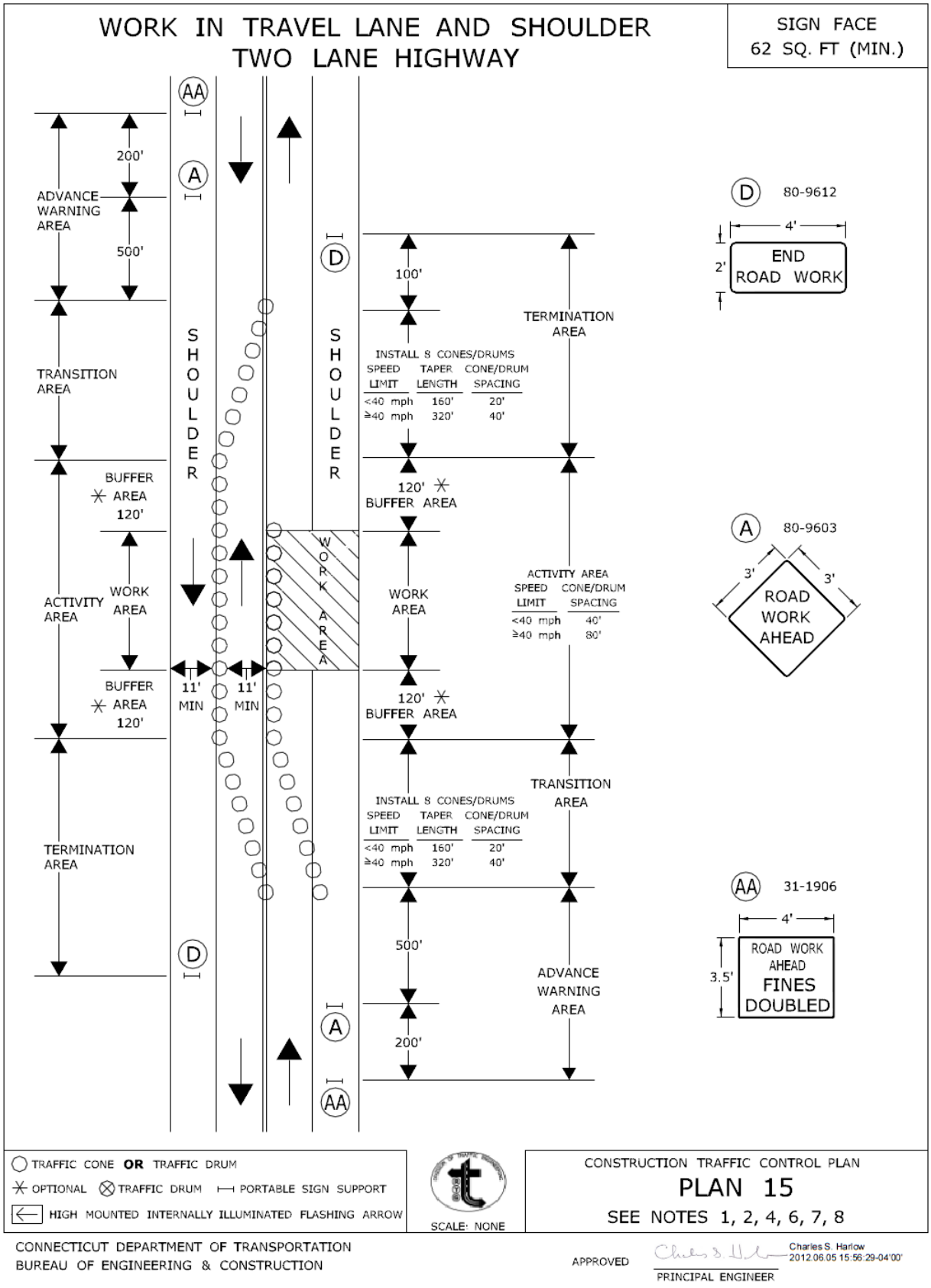
SCALE: NONE

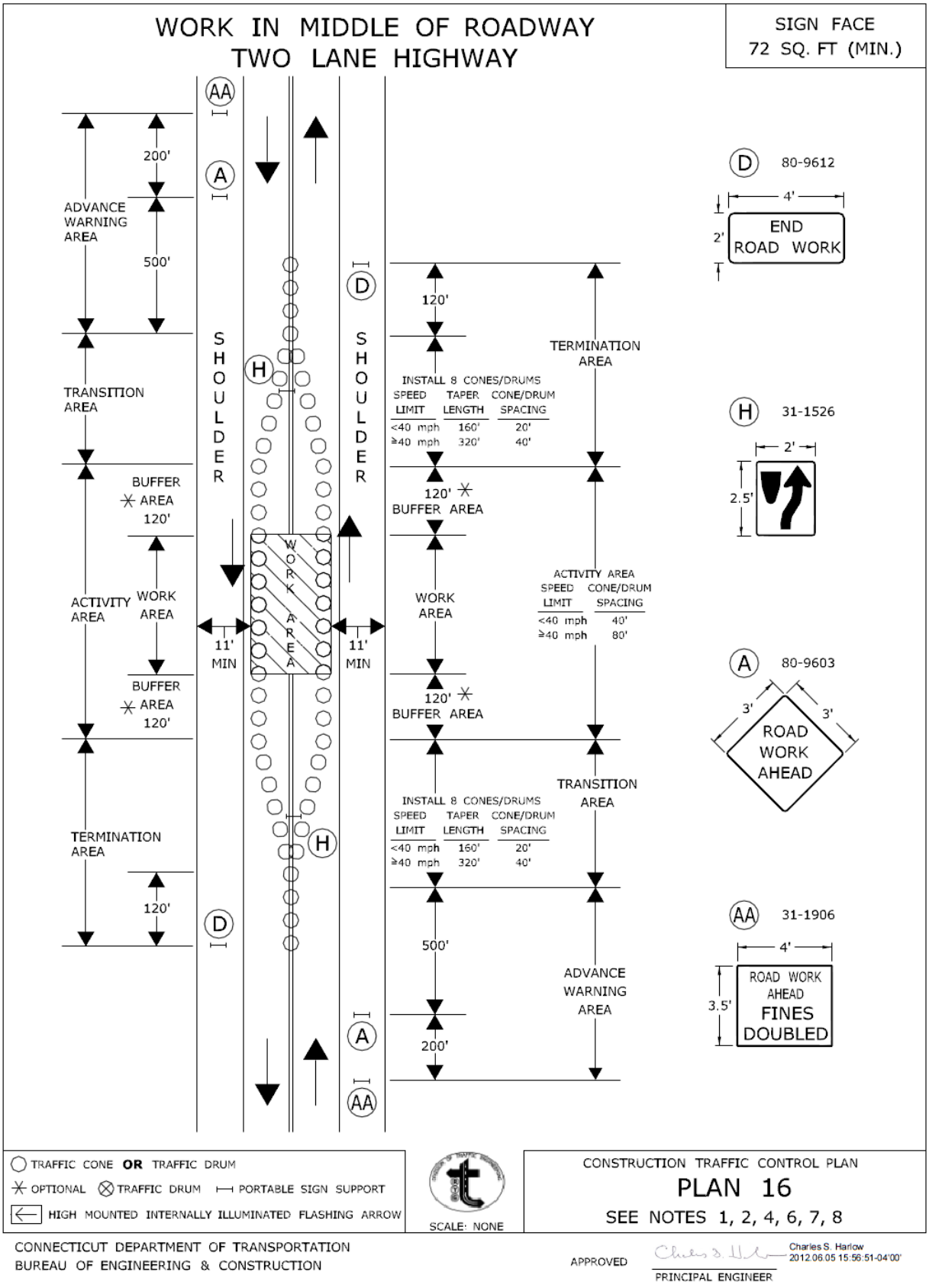
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

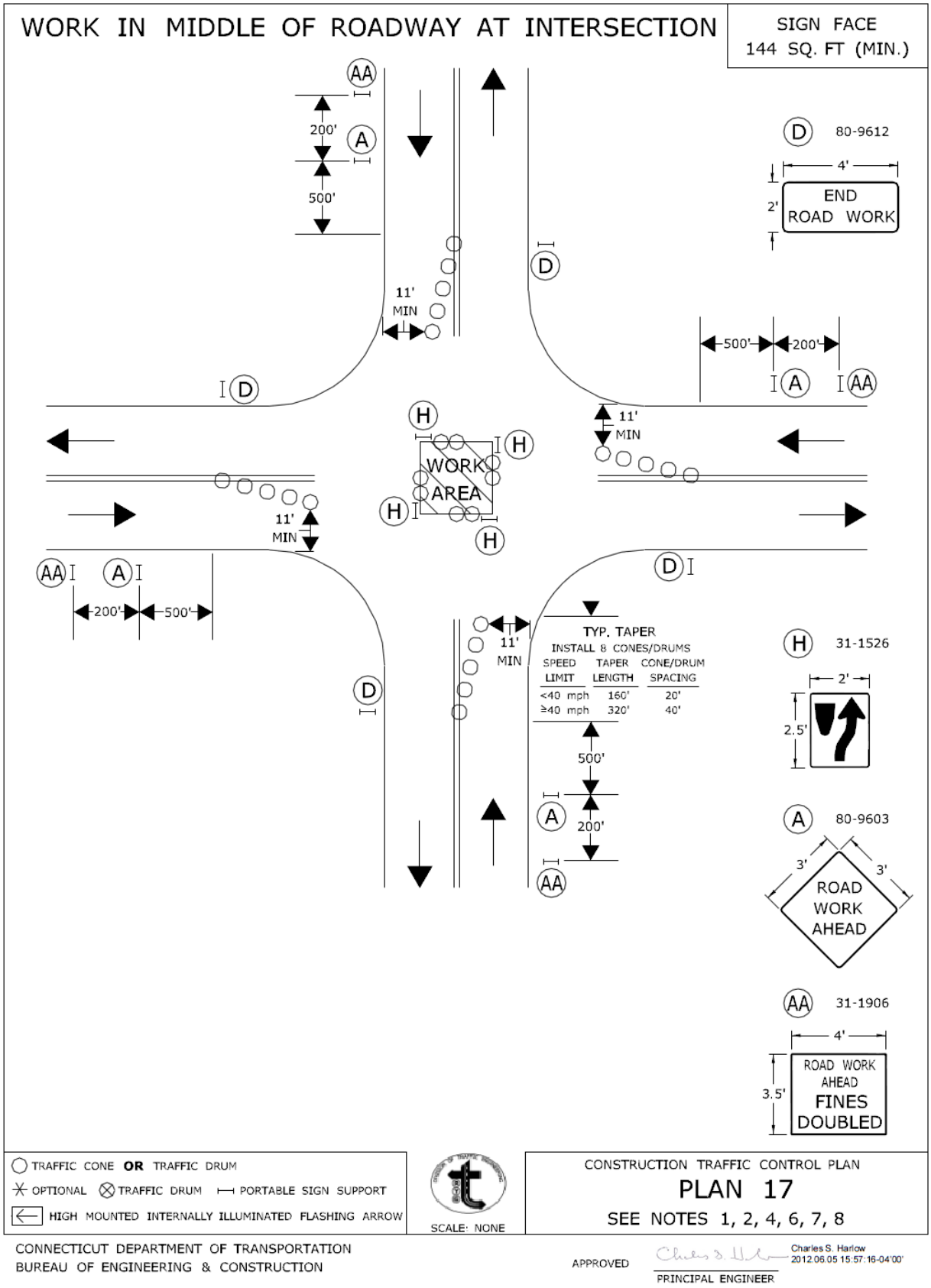
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

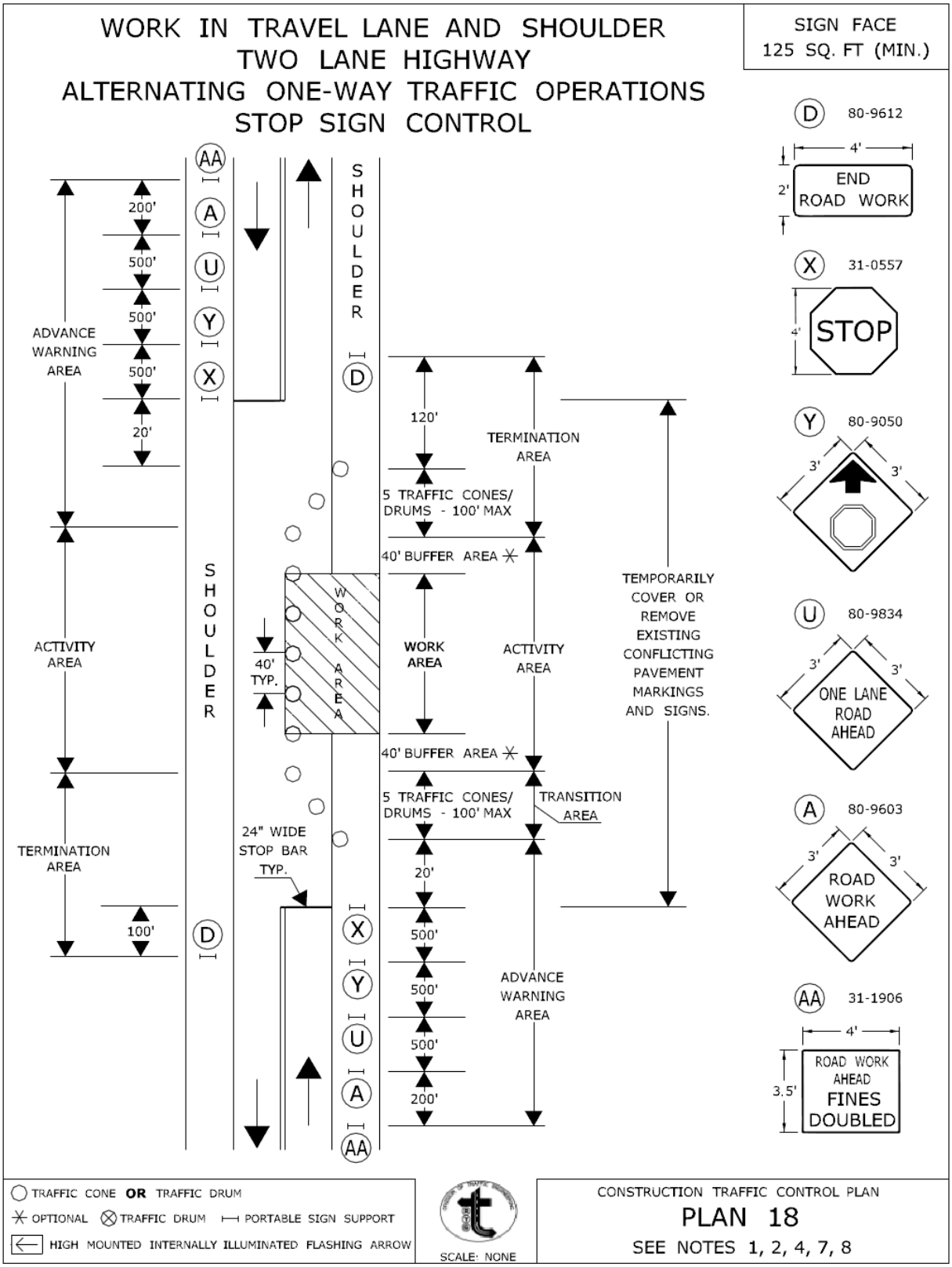
APPROVED Charles S. Harlow 2012.06.05 15:55:45-04'00'
PRINCIPAL ENGINEER


WORK IN SHOULDER - TWO LANE HIGHWAY
SIGN FACE
71 SQ. FT (MIN.)
AA
A
D
N
200'
500'
ADVANCE WARNING AREA
ACTIVITY AREA
TERMINATION AREA
SHOULDER
SHOULDER
WORK AREA
100'
WORK AREA
TERMINATION AREA
ACTIVITY AREA
SPEED LIMIT
CONE/DRUM SPACING
<40 mph 40'
≥40 mph 80'
80' BUFFER AREA
INSTALL 5 CONES/DRUMS
SPEED LIMIT
TAPER LENGTH
CONE/DRUM SPACING
<40 mph 100' 20'
≥40 mph 200' 40'
TRANSITION AREA
500'
500'
200'
ADVANCE WARNING AREA
D 80-9612
4'
2'
END ROAD WORK
N 80-9958
3'
3'
SHOULDER CLOSED
A 80-9603
3'
3'
ROAD WORK AHEAD
AA 31-1906
4'
3.5'
ROAD WORK AHEAD
FINES DOUBLED
TRAFFIC CONE OR TRAFFIC DRUM
OPTIONAL
TRAFFIC DRUM
PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW
SCALE: NONE
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 14
SEE NOTES 1, 2, 4, 7, 8
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION
APPROVED
Charles S. Harlow
2012.06.05 15:56:09-04'00'
PRINCIPAL ENGINEER


WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
SIGN FACE
62 SQ. FT (MIN.)
AA
A
D
200'
ADVANCE WARNING AREA
500'
TRANSITION AREA
BUFFER AREA 120'
ACTIVITY AREA
WORK AREA
BUFFER AREA 120'
TERMINATION AREA
SHOULDER
SHOULDER
WORK AREA
11' MIN
11' MIN
100'
INSTALL 8 CONES/DRUMS
SPEED LIMIT | TAPER LENGTH | CONE/DRUM SPACING
<40 mph | 160' | 20'
≥40 mph | 320' | 40'
120' BUFFER AREA
WORK AREA
120' BUFFER AREA
INSTALL 8 CONES/DRUMS
SPEED LIMIT | TAPER LENGTH | CONE/DRUM SPACING
<40 mph | 160' | 20'
≥40 mph | 320' | 40'
500'
200'
TERMINATION AREA
ACTIVITY AREA
SPEED LIMIT | CONE/DRUM SPACING
<40 mph | 40'
≥40 mph | 80'
TRANSITION AREA
ADVANCE WARNING AREA
D 80-9612
4'
2'
END ROAD WORK
A 80-9603
3'
3'
ROAD WORK AHEAD
AA 31-1906
4'
3.5'
ROAD WORK AHEAD
FINES DOUBLED
TRAFFIC CONE OR TRAFFIC DRUM
OPTIONAL
TRAFFIC DRUM
PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW
SCALE: NONE
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 15
SEE NOTES 1, 2, 4, 6, 7, 8
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION
APPROVED
PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:56:29-04'00'


WORK IN MIDDLE OF ROADWAY
TWO LANE HIGHWAY
SIGN FACE
72 SQ. FT (MIN.)
ADVANCE WARNING AREA
200'
500'
TRANSITION AREA
BUFFER AREA 120'
ACTIVITY AREA
WORK AREA
BUFFER AREA 120'
TERMINATION AREA
120'
SHOULDER
SHOULDER
WORK AREA
11' MIN
11' MIN
120'
TERMINATION AREA
INSTALL 8 CONES/DRUMS
SPEED LIMIT | TAPER LENGTH | CONE/DRUM SPACING
<40 mph | 160' | 20'
≥40 mph | 320' | 40'
120' BUFFER AREA
WORK AREA
ACTIVITY AREA
SPEED LIMIT | CONE/DRUM SPACING
<40 mph | 40'
≥40 mph | 80'
120' BUFFER AREA
TRANSITION AREA
INSTALL 8 CONES/DRUMS
SPEED LIMIT | TAPER LENGTH | CONE/DRUM SPACING
<40 mph | 160' | 20'
≥40 mph | 320' | 40'
500'
ADVANCE WARNING AREA
200'
D 80-9612
4'
2'
END ROAD WORK
H 31-1526
2'
2.5'
A 80-9603
3'
3'
ROAD WORK AHEAD
AA 31-1906
4'
3.5'
ROAD WORK AHEAD
FINES DOUBLED
TRAFFIC CONE OR TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW
SCALE: NONE
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 16
SEE NOTES 1, 2, 4, 6, 7, 8
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION
APPROVED
PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:56:51-04'00'


WORK IN MIDDLE OF ROADWAY AT INTERSECTION
SIGN FACE
144 SQ. FT (MIN.)
AA
200'
A
500'
11'
MIN
D
H
WORK
AREA
TYP. TAPER
INSTALL 8 CONES/DRUMS
SPEED LIMIT
TAPER LENGTH
CONE/DRUM SPACING
<40 mph 160' 20'
≥40 mph 320' 40'
D 80-9612
4'
2'
END
ROAD WORK
H 31-1526
2'
2.5'
A 80-9603
3'
3'
ROAD
WORK
AHEAD
AA 31-1906
4'
3.5'
ROAD WORK
AHEAD
FINES
DOUBLED
TRAFFIC CONE OR TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW
SCALE: NONE
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 17
SEE NOTES 1, 2, 4, 6, 7, 8
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION
APPROVED
PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:57:16-04'00'



CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:57:37-04'00'
PRINCIPAL ENGINEER

Article 9.71.05 – Basis of Payment

When the item of "Maintenance and Protection of Traffic" appears in the contract, this work will be paid for at the contract lump sum price for "Maintenance and Protection of Traffic." This price shall include all material, equipment, tools, labor, transportation, operations and all work incidental thereto. The amount of the lump sum paid in any given period shall be proportional to the percentage of the total of all other work completed. All materials including construction signs, barricades, traffic cones, traffic drums, and miscellaneous materials associated with the Work in this Item, and the costs for labor, equipment and services involved in the erection, maintenance, moving, adjusting, cleaning, relocating and storing of signs, barricades, drums, traffic cones and delineators furnished by the Contractor as well as all costs of labor and equipment involved in the maintenance of traffic lanes and detours, except for pavement markings, ordered or included in the approved scheme for maintenance of traffic.

Should the Contractor fail to perform any of the work required under this item, the Town may perform or arrange for others to perform such work. In those instances, the Town will deduct money due or money to become due to the contractor all expenses connected with the execution of this work. This money shall be deducted even if the Town expense exceeds the price bid for this work by the Contractor.

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.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include the cost of temporary bituminous curb and temporary walking paths including all materials, tools, equipment and labor incidental thereto. No separate payments will be made for materials, excavation and disposal of materials, furnishing, placing, compacting the subbase, preparing the subgrade, or removal and disposal of the temporary bituminous curb and temporary walking paths and restoration of the disturbed areas.

ITEM # 1403501A RESET MANHOLE (SANITARY SEWER)

Work under this item shall conform to the applicable provisions of Section 5.07 of the Standard Specifications Form 817 amended as follows

Description:

Under this item shall be included the construction, installation, alteration, reconstruction or removal of existing or proposed manholes in conformity with the lines, grades, dimensions, and details shown on the plans, or as ordered, and in accordance with the provisions of these specifications for the various materials and work which constitute the completed structure.

Construction Methods:

Trench excavation, dewatering, and backfill for these items shall be according to the special provisions for EARTH TRENCH EXCAVATION included under Item #0205001A Special Provision

Frames, covers and tops which are to be reset shall be removed from their present beds, the walls or sides shall be rebuilt to conform to the requirements of the new construction and the tops, frames and covers reset, or the grates or covers may be raised by extensions of suitable height approved by the Engineer.

Method of Measurement:

Resetting tops, frames and covers will be measured as units. When resetting tops, frames and covers, there will be no measurement for excavation; cutting, removal and replacement of pavement; pervious material and backfill.

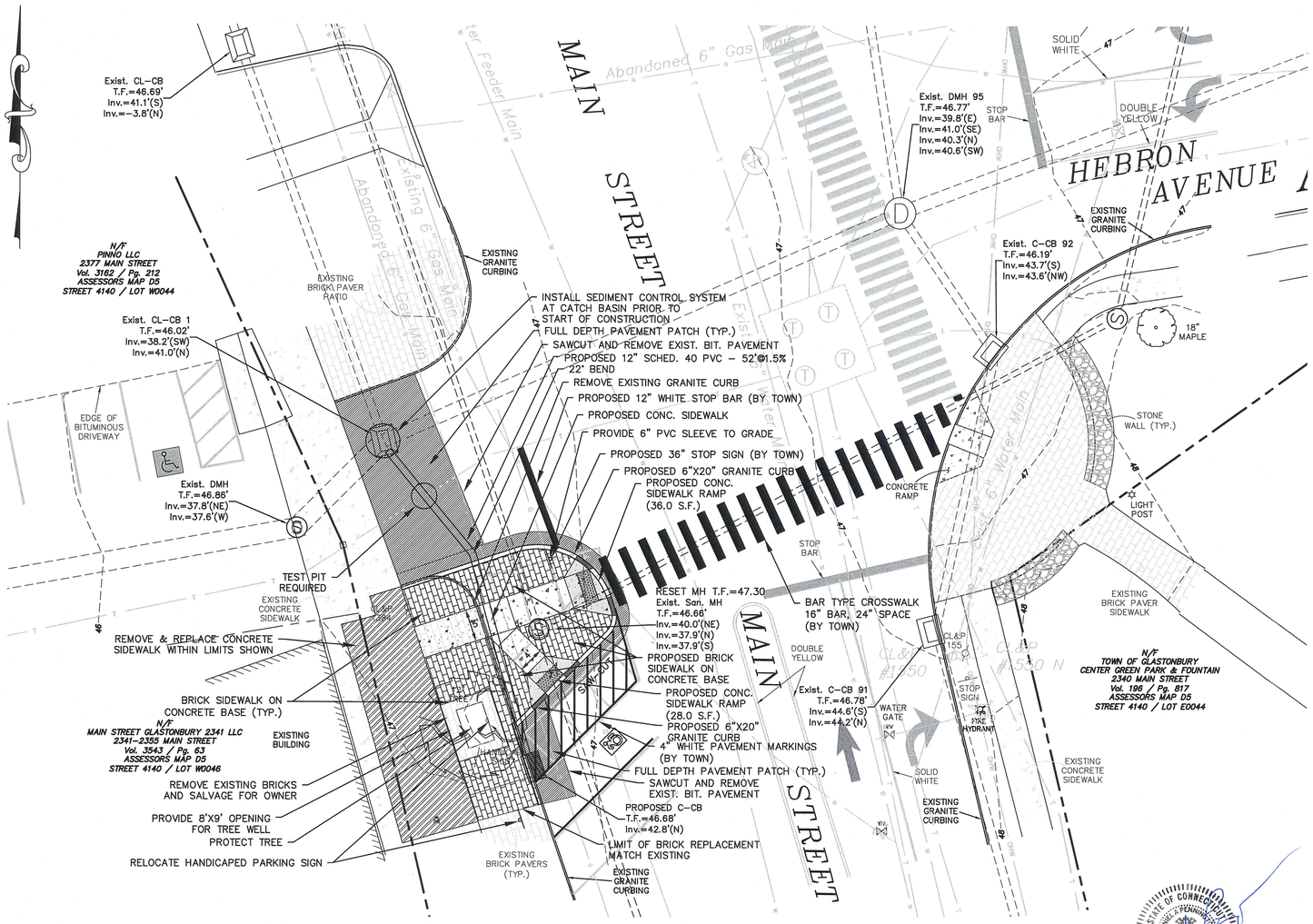
There will be no measurement for trench excavation in the installation or removal of the various drainage appurtenances.

Item No.	Description	Unit
1403501A	RESET MANHOLE (SANITARY SEWER)	EA.

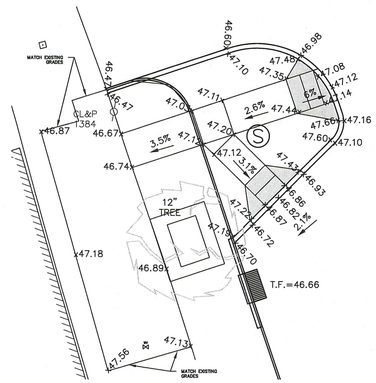
ATTACHMENT A:
CONSTRUCTION PLANS

GENERAL NOTES:

1. PROJECT OWNER IS THE TOWN OF GLASTONBURY.
2. GOVERNING SPECIFICATIONS ARE THE CONNECTICUT DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES, AND INCIDENTAL CONSTRUCTION FORM 817 WITH SUPPLEMENTS THERETO DATED JULY, 2018.
3. PROJECT AREA IS ZONED TOWN CENTER.
4. THE LOCATION OF UNDERGROUND UTILITIES DEPICTED HEREIN ARE BASED ON INFORMATION PROVIDED BY OTHERS AND SHOULD BE CONSIDERED APPROXIMATE. THE ACTUAL LOCATIONS MAY VARY FROM THAT INDICATED ON THE PLANS AND ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN. CONTRACTOR SHALL CONTACT CALL BEFORE YOU DIG TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND RESOLVE CONFLICTS PRIOR TO STARTING CONSTRUCTION.
5. TOPOGRAPHY DEPICTED ON THE PLANS IS BASED ON ACTUAL FIELD SURVEY CONDUCTED BY THE TOWN OF GLASTONBURY IN JUNE, 2019. HORIZONTAL COORDINATES ARE BASED ON NAD83, VERTICAL DATUM IS NGVD88.

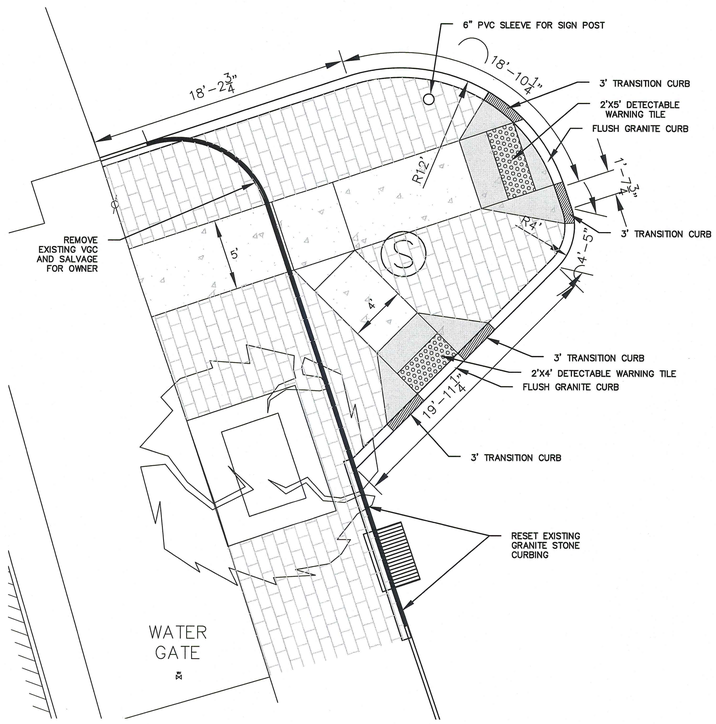


PLAN
SCALE: 1"=10'



GRADING DETAIL
SCALE: 1"=10'

LOCATION PLAN
SCALE: 1"=1000'



CURB LAYOUT PLAN
SCALE: 1"=5'

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.
IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

ALL UTILITY INFORMATION AND DATA SHOWN OR INDICATED IN THE CONTRACT DOCUMENTS ARE COMPILED FROM MAPS AND DATA FURNISHED BY OTHERS. ANY SUCH INFORMATION SHOULD NOT BE CONSTRUED AS ACCURATE OR COMPLETE AND THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO CONSTRUCTION.

THE LOCATION OF UNDERGROUND UTILITIES DEPICTED HEREON ARE BASED ON FIELD LOCATIONS AND BY INFORMATION PROVIDED BY OTHERS. THEIR TRUE LOCATIONS MAY VARY FROM THOSE INDICATED, AND ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN. IF APPLICABLE, UTILIZE THE "CALL BEFORE YOU DIG" NUMBER (1-800-922-4455). TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES, AND RESOLVE CONFLICTS PRIOR TO STARTING CONSTRUCTION, REPAIR OR DESIGN.

PW-1907

NO.	DESCRIPTION	DATE
1.	-----	----

DRAWING ISSUE STATUS

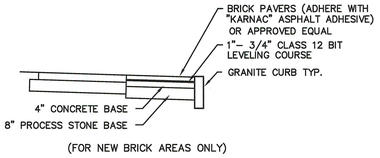
SCALE: AS SHOWN	DATE:
DRAWN BY: C.F.S.	8/28/2019
CHECKED BY: S.M.B.	8/28/2019
APPROVED BY: D.A.P.	8/28/2019
ST. FILE:	

DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

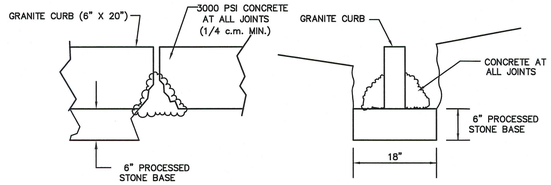
PLAN
DEPICTING PROPOSED
TRAFFIC ISLAND IMPROVEMENTS
located at
MAIN STREET & HEBRON AVENUE
GLASTONBURY, CONNECTICUT

SHEET NO. 1 OF 2



BRICK SIDEWALK ON CONCRETE BASE DETAIL

NOT TO SCALE

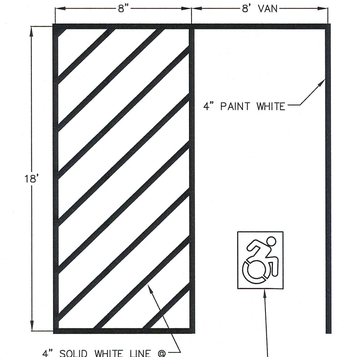


GRANITE CURB DETAIL

NOT TO SCALE

SIDEWALK RAMP NOTES:

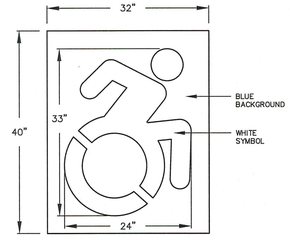
1. ALL CONCRETE SIDEWALKS AND CONCRETE SIDEWALK RAMPS SHALL BE 4' OR 5' WIDE AS SHOWN ON THE PLANS AND CONSTRUCTED ACCORDING TO THE TOWN STANDARD DETAILS SHOWN ON SHEET 5.
2. SIDEWALK RAMPS SHALL HAVE A COARSE BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
3. REMOVAL OF EXISTING SIDEWALK FOR NEW RAMP INSTALLATION SHALL BE TO THE NEAREST EXPANSION OR CONTRACTION JOINT BEYOND THE LIMITS OF SIDEWALK REPLACEMENT SHOWN ON THE PLANS.
4. THE RUNNING SLOPE OF SIDEWALK RAMPS SHALL NOT EXCEED 8%.
5. SIDEWALK RAMPS SHALL BE FLUSH WITH THE ROADWAY OR SHALL HAVE A LIP NOT GREATER THAN ¼ INCH.
6. TRANSITION SIDEWALK RAMP CROSS SLOPE TO MATCH THE ROADWAY PROFILE AS GRADUALLY AS POSSIBLE. DO NOT EXCEED 3% PER FOOT CROSS SLOPE RATE OF CHANGE WHEN TRANSITIONING TO THE ROADWAY PROFILE.
7. TRANSITION OF RAMP CROSS SLOPE TO ROADWAY PROFILE SHALL BE COMPLETED BEHIND THE DETECTABLE WARNING SURFACE.



ACCESSIBLE STALL

NOTE:
UNIFORM FEDERAL ACCESSIBILITY STANDARDS, SECTION 4.30, & 2010 ADA.

TYPICAL HANDICAP PARKING STALL LAYOUT

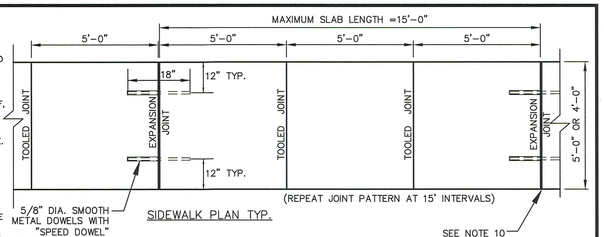


NOTE: HANDICAP SYMBOL TO ADHERE TO STATE BUILDING CODE, LATEST EDITION

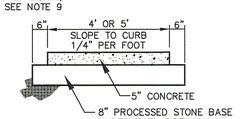
CONNECTICUT SYMBOL OF ACCESSIBILITY

NOTES:

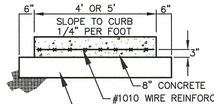
1. PROCESSED STONE BASE SHALL BE CRUSHED TRAP ROCK CONFORMING TO ARTICLE M.05.01 OF THE FORM 817 AND TOWN SPECIFICATIONS. GRAVEL OR RECLAIMED MISCELLANEOUS AGGREGATE SHALL NOT BE USED.
2. CONCRETE SHALL BE CONNDOT CLASS F, (4400 PSI, 28 DAY STRENGTH).
3. FORMS ARE TO BE SET TRUE TO LINE AND GRADE ON WELL COMPACTED BASE. FORMS SHALL BE 5" STEEL OR 2"X6" LUMBER. 2"X4" LUMBER SHALL NOT BE USED AND SHALL BE CAUSE FOR IMMEDIATE REJECTION OF SIDEWALK.
4. CONCRETE SHALL BE STRUCK OFF (SCREEDED) PRIOR TO BULL FLOATING. PROPER FINISHING PROCEDURES WILL BE FOLLOWED INCLUDING JOINTING, EDGING, AND BROOMING. A FINE BRISTLE BROOM SHOULD BE USED. ALL EDGING TOOL IMPRINTS SHOULD BE STEEL TROWELED PRIOR TO BROOMING.
5. "REPEL 100" CURING COMPOUND / SEALER SHALL BE APPLIED TO ALL CONCRETE SIDEWALK PER TOWN SPECIFICATIONS.
6. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT SURFACE FROM DAMAGE.
7. WALKS SHALL BE BACKFILLED AS SOON AS FORMS ARE REMOVED.
8. SIDEWALK SLABS SHOULD NOT EXCEED 5' IN WIDTH. IF SIDEWALK SLABS GREATER THAN 5' IN WIDTH ARE TO BE CONSTRUCTED, A LONGITUDINAL EXPANSION JOINT SHALL BE CONSTRUCTED TO FORM ACCEPTABLE SLABS.
9. INSERT 18" LONG SMOOTH METAL DOWELS AT ALL EXPANSION JOINTS, AT SIDEWALK RAMPS, AND AT THE LAST SLAB POURED AT THE END OF THE WORKING DAY. DOWELS SHALL ALSO BE INSTALLED BETWEEN NEW AND EXISTING CONCRETE SLABS.
10. EXPANSION JOINT SHALL BE 1/2" ASPHALT IMPREGNATED CELLULAR FIBER AND OF A DIMENSION EQUAL TO THE FULL SLAB DEPTH.



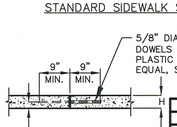
SIDEWALK PLAN TYP.



STANDARD SIDEWALK SECTION



FOR INDUSTRIAL & COMMERCIAL AREAS ONLY DRIVEWAY SECTION



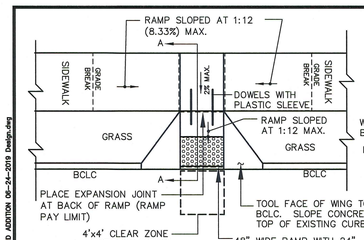
DOWEL DETAIL

SCALE : NONE	
DRAWN BY: SR	
CHECKED BY: SMB	
APPROVED BY: DAP	
LAST REVISED: 9/1/2016	

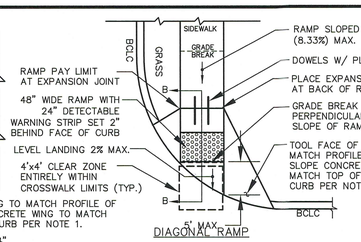
TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

CONCRETE SIDEWALKS

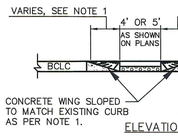
PLATE NO. 6



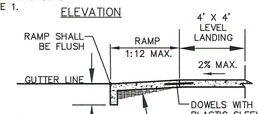
PERPENDICULAR RAMP



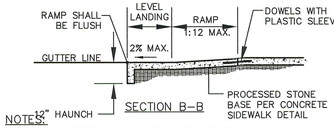
DIAGONAL RAMP



ELEVATION



SECTION A–A



SECTION B–B

NOTES:

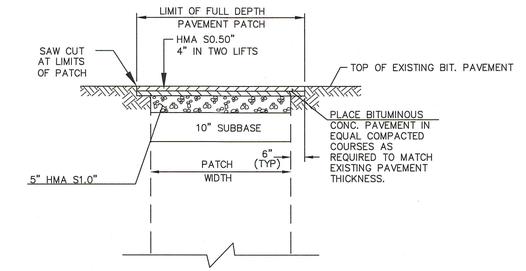
1. WING SHALL HAVE A MAXIMUM SLOPE OF 2 INCHES PER FOOT WHERE GRASS STRIP SEPARATES SIDEWALK FROM CURB AND 1 INCH PER FOOT WHERE SIDEWALK DIRECTLY ABUTS CURB. SEE PROJECT SPECIFIC DETAILS FOR RAMP LAYOUT AND ELEVATIONS.
2. WHERE SIDEWALK RAMPS ABUT GRANITE CURB, CURB SHALL BE CONTINUOUS ACROSS THE FRONT OF THE RAMP AND HAUNCH INSTALLED DIRECTLY BEHIND THE CURB. WING MAY BE OMITTED AT GRANITE CURB IF INDICATED ON PROJECT SPECIFIC DETAILS.
3. GRADE BREAKS AT ENDS OF 1:12 RAMP SHALL ALWAYS BE PERPENDICULAR TO SLOPE OF RAMP AND PARALLEL TO EACH OTHER.
4. DETECTABLE WARNING STRIP SHALL BE A REPLACEABLE TACTILE WARNING SURFACE TILE AS MANUFACTURED BY ADA SOLUTIONS INC. (ADATILE.COM) OR APPROVED EQUAL. TILE SHALL BE BRICK RED IN COLOR AND ALL ATTACHMENT HARDWARE SHALL BE STAINLESS STEEL.

SCALE : NONE	
DRAWN BY: SR	
CHECKED BY: SMB	
APPROVED BY: DAP	
LAST REVISED: 3/28/2017	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

CONCRETE SIDEWALK RAMPS

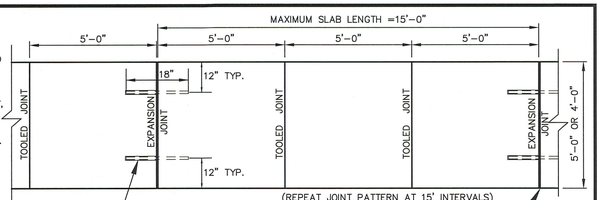
PLATE NO. 7



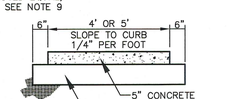
FULL DEPTH PATCH DETAIL

NOTES:

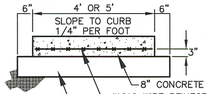
1. PROCESSED STONE BASE SHALL BE CRUSHED TRAP ROCK CONFORMING TO ARTICLE M.05.01 OF THE FORM 817 AND TOWN SPECIFICATIONS. GRAVEL OR RECLAIMED MISCELLANEOUS AGGREGATE SHALL NOT BE USED.
2. CONCRETE SHALL BE CONNDOT CLASS F, (4400 PSI, 28 DAY STRENGTH).
3. FORMS ARE TO BE SET TRUE TO LINE AND GRADE ON WELL COMPACTED BASE. FORMS SHALL BE 5" STEEL OR 2"X6" LUMBER. 2"X4" LUMBER SHALL NOT BE USED AND SHALL BE CAUSE FOR IMMEDIATE REJECTION OF SIDEWALK.
4. CONCRETE SHALL BE STRUCK OFF (SCREEDED) PRIOR TO BULL FLOATING. PROPER FINISHING PROCEDURES WILL BE FOLLOWED INCLUDING JOINTING, EDGING, AND BROOMING. A FINE BRISTLE BROOM SHOULD BE USED. ALL EDGING TOOL IMPRINTS SHOULD BE STEEL TROWELED PRIOR TO BROOMING.
5. "REPEL 100" CURING COMPOUND / SEALER SHALL BE APPLIED TO ALL CONCRETE SIDEWALK PER TOWN SPECIFICATIONS.
6. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT SURFACE FROM DAMAGE.
7. WALKS SHALL BE BACKFILLED AS SOON AS FORMS ARE REMOVED.
8. SIDEWALK SLABS SHOULD NOT EXCEED 5' IN WIDTH. IF SIDEWALK SLABS GREATER THAN 5' IN WIDTH ARE TO BE CONSTRUCTED, A LONGITUDINAL EXPANSION JOINT SHALL BE CONSTRUCTED TO FORM ACCEPTABLE SLABS.
9. INSERT 18" LONG SMOOTH METAL DOWELS AT ALL EXPANSION JOINTS, AT SIDEWALK RAMPS, AND AT THE LAST SLAB POURED AT THE END OF THE WORKING DAY. DOWELS SHALL ALSO BE INSTALLED BETWEEN NEW AND EXISTING CONCRETE SLABS.
10. EXPANSION JOINT SHALL BE 1/2" ASPHALT IMPREGNATED CELLULAR FIBER AND OF A DIMENSION EQUAL TO THE FULL SLAB DEPTH.



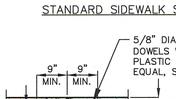
SIDEWALK PLAN TYP.



STANDARD SIDEWALK SECTION



FOR INDUSTRIAL & COMMERCIAL AREAS ONLY DRIVEWAY SECTION



DOWEL DETAIL

SCALE : NONE	
DRAWN BY: SR	
CHECKED BY: SMB	
APPROVED BY: DAP	
LAST REVISED: 9/1/2016	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

CONCRETE SIDEWALKS

PLATE NO. 6

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

STATE OF CONNECTICUT — CHARLES K. PENNINGTON — No. 20101 — LICENSED PROFESSIONAL ENGINEER

PW-1907

NO.	DESCRIPTION	DATE
	DRAWING ISSUE STATUS	
1.	-----	----

SCALE: AS SHOWN	DATE:
DRAWN BY: C.F.S.	8/28/2019
CHECKED BY: S.M.B.	8/28/2019
APPROVED BY: D.A.P.	8/28/2019
ST. FILE:	

DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

CONSTRUCTION DETAILS
FOR PROPOSED
TRAFFIC ISLAND IMPROVEMENTS
located at
MAIN STREET & HEBRON AVENUE
GLASTONBURY, CONNECTICUT

SHEET NO. 2 OF 2