TOWN OF GLASTONBURY

INVITATION TO BID

BID #	ITEM	DATE & TIME REQUIRED
GL-2014-07	Main Street Sidewalks – Whapley to Mallard	July 18, 2013 at 11:00 A.M.

The Town of Glastonbury is currently seeking bids for the construction of approximately 2,500 linear feet of concrete sidewalk along Main Street from Whapley Road to Mallard Drive.

Bid Forms, Plans, and Specifications may be obtained from the Town's website at www.glastonbury-ct.gov at no cost or at the Office of the Purchasing Agent, Town Hall, 2155 Main Street, Glastonbury, Connecticut 06033, (second level) for a non-refundable fee of $50.

Prevailing Wages: The contractor must comply with Section 31-53 of the Connecticut General Statutes as amended, including annual adjustments in prevailing wages.

The Town reserves the right to waive informalities or reject any part of, or the entire bid, when said action is deemed to be in the best interests of the Town. All Sealed Bids must be submitted to the Office of the Purchasing Agent no later than the time and date indicated. All bids will be publicly opened and read.

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, or any part of 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 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 by bid number, time of bid opening, and date.

6. 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 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 Untied 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. 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 click on **Bids & RFPs** which will bring you to the links for the **Code of Ethics** and the **Consultant 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:**

The Town is required to report names of non-resident (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. **Upon award, all non-resident contractors must furnish a five percent (5%) sales tax guarantee bond (State Form AU-766) or a cash bond for five percent (5%) of the total contract price (State Form AU-72) to DRS even though this project is exempt from most sales and use taxes.**

See State Notice to Non-Resident Contractors SN 2005 (12). If the above bond is not provided, the Town is required to withhold five percent (5%) from the contractor's payments and forward it to the State DRS.

The contractor must promptly furnish to the Town a copy of the **Certificate of Compliance** issued by the State DRS.

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 **Prevailing Wage Rates:**

Respondents shall comply with State Statutes concerning Employment and Labor Practices, if applicable, and Section 31-53 of the Connecticut General Statutes, as amended (Prevailing Wages). Wage Rate Determination for this project from the State of Connecticut is included in the Bid Documents. Certified payrolls for site labor shall be submitted weekly to the Town's Representative or his designee on the correct State of Connecticut form (see RFP). The Town reserves the right to, without prior notice, audit payroll checks given to workers on site in order to ascertain that wages and fringe benefits are being paid as required by the State of Connecticut. Please make special note of the State requirement to adjust wage and fringe benefit rates on each July 1st following the original published rates.

NOTE that respondent is to include in its proposal all costs required by such annual increases in the PREVAILING RATES. NO escalation clauses are to be included in the respondent's proposal and NO escalation clauses will be in the Contract Agreement. Respondent is to anticipate any future increases and include these costs in the proposal response.

Contractor's invoices will not be paid if certified payrolls are incomplete, incorrect or not received in a timely manner.

All Apprentices must be registered with the State of Connecticut and their number shall not exceed the number allowed by law. Otherwise, all workers must be paid at least the Journeyman rate listed including benefits.

OSHA SAFETY AND HEALTH CERTIFICATION

Effective July 1, 2009: Any Mechanic, Laborer, or Worker, who performs work in a classification listed on the prevailing wage rate schedule on any public works project covered under C.G.S. Section 31-53, both on site and on or in the public building, must have completed a federal OSHA Safety and Health course within the last 5 years.

21. Each bid shall also include a description of three (3) projects completed by the bidder with references to demonstrate successful experience with similar projects.

IMPORTANT: Failure to comply with general rules may result in disqualification of the Bidder.

NOTE: Any technical questions regarding this bid shall be made in writing (email acceptable) and directed to Stephen Braun, 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 click on Bids & RFP's). The request must be received at least five (5) 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 Town Engineer/Manager of Physical Services of the Town of Glastonbury acting personally or through any assistants duly authorized.

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

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

01.04 The Contractor shall at all times enforce strict discipline and good order among his employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned to him.

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 CLEANING UP

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

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

16.00 ROYALTIES AND PATENTS

16.01 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Town of 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 and Incidental Construction, Form 816 (Form 816) and supplements thereto are to be considered part of the Contract Documents. The Form 816 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 816, 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.

02.00 COMMUNICATIONS

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

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

02.03 All papers required to be delivered to the Town shall, unless otherwise specified in writing to the Contractor, be delivered to the Town Engineer/Manager of Physical Services, 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 PARTIAL USE OF IMPROVEMENTS

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

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

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

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

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

04.00 INSURANCE

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

a. Worker's Compensation Insurance:

- Statutory Coverage
- Employer's Liability
- $100,000 each accident/$500,000 disease-policy limit/$100,000 disease each employee

b. Commercial General Liability:

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

c. Automobile Insurance:

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

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

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

05.00 WORK BY OTHERS

05.01 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.

06.00 CONTRACTOR'S WORK AND STORAGE AREA

06.01 The Contractor shall contact the Town to determine if any specific locations will be designated, or gain its approval prior to using any area for storage of equipment, materials and trailers during the period of this Contract. The Contractor shall confine his work/storage area to the limits as designated or approved and shall be responsible for the security of the work/storage area. Upon completion of the Contract, the Contractor shall remove all equipment and materials, except as otherwise specified, and restore the site to its original condition as approved by the Engineer and at not cost to the Town.

07.00 DISPOSAL AREA

07.01 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.

08.00 DUST CONTROL

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

09.00 MAINTENANCE / GUARANTEE PERIOD

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

10.00 PROTECTION OF EXISTING UTILITIES

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

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

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

11.00 TIME FOR COMPLETION/NOTICE TO PROCEED

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

11.02 It is the Town's intent to issue a Notice to Proceed immediately upon award of this contract. All contract work shall be substantially complete within ninety (90) calendar days from the start date indicated in the Notice to Proceed. An additional thirty (30) calendar days will be allowed beginning April 1, 2014 for final restoration of any disturbed areas that could not be seeded within the allowable germination period.

11.03 The work area along the shoulder of Main Street between stations 21+00 and 24+50 requires special attention by the Contractor due to the need to remove existing guiderail to allow access to the work area. All contract work in this area, including the installation of new metal beam guiderail, shall be completed within 28 calendar days of the date upon which the guiderail was removed. Liquidated damages as described in Section 12.00 will apply for each day beyond the allowable number of days until the work in this area is completed and the new metal beam guiderail is installed.

12.00 LIQUIDATED DAMAGES

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

13.00 SCHEDULE OF DRAWINGS

13.01 The Contractor is hereby alerted that the plan set entitled "Proposed Sidewalk Improvements Phase 2 located on Main Street", including number (10) plan sheets prepared by the Town of Glastonbury Engineering Division is to be considered part of these specifications.

14.00 CHANGES IN THE WORK

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

15.00 LAYOUT OF WORK

15.01 The 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 REMOVAL AND STORAGE OF MATERIALS AND STRUCTURES FOUND ON THE WORK

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

17.00 PROSECUTION AND PROGRESS

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

18.00 EXTRA WORK AND RETAINAGE

18.01 Extra and cost plus work shall be governed by Article 1.04.05 and Article 1.09.04 of the Form 816.

18.02 Retainage shall be governed by Article 1.09.06 of the Form 816, except that the retainage amount shall be equal to five (5) percent.

19.00 COMPLIANCE WITH ENVIRONMENTAL PERMITS

19.01 A Town of Glastonbury Inland Wetland Permit and Flood Zone Permit were required for this project. These permit approvals are included on the plan sheets for reference by the Contractor. By submitting a bid, the Contractor confirms that they have read and are familiar with all of the required conditions of these permits and will conduct the work in a manner consistent with these requirements.

20.00 SUBMITTALS AND MATERIALS TESTING

20.01 The Contractor shall provide source and supply information, sieve analysis, and material samples for gravel subbase, process stone base, modified riprap, and other granular materials to the Town for review and approval. The Town shall retain a lab for testing of these materials as required and shall perform in place compaction testing at no expense to the Contractor.

20.02 Shop drawings / catalog cuts shall be provided by the Contractor for all pre-cast concrete structures, pipes and fittings, erosion control products, seed mixes, and other items to be supplied for review and approval by the Engineer as described in the specifications and the Form 816.

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

20.04 Certified Materials Test Reports and Materials Certificates shall be provided for all products and materials to be provided under this contract as described in these specifications and the Form 816.

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002.0 PREPARATION OF SITE

002.1 General: The Contractor shall furnish all labor, materials, tools, and equipment necessary and shall do all work to prepare the site as indicated on the drawings and as herein specified.

002.2 Tree Removal: Removal of trees as indicated on the plans shall be performed by workman skilled in the area of tree removal under the supervision of a Connecticut Licensed Arborist. The Contractor shall mark all trees, shrubs, and plants to be removed in accordance with the plans and these specifications. The Engineer shall have 7 days to field review the markings and make any adjustments prior to the start of the clearing operation.

Trees and shrubs within the right-of-way or within any property owned by the Town of Glastonbury that are designated for removal must be posted as such by the Glastonbury Tree Warden (Mr. Greg Foran of the Parks and Recreation Department, 652-7686) for a period of 10 days prior to removal. **No trees or shrubs within the Town of Glastonbury right-of-way shall be cut or removed until such posting has been completed and subsequent approval given by the Tree Warden.**

In general, no trees, etc. in public streets and highways are to be cut or damaged in any way except as noted on the plans. Trees, bushes, and growing crops on other lands may be cut, removed, or trimmed only to the extent provided in the terms of the rights-of-way or access rights possessed by the Town, and also only within the limits and in the manner, if any, indicated by the Engineer or by the drawings or Special Conditions.

002.3 Tree Trimming: Trimming of trees by a Connecticut Licensed Arborist is included under this item as required for clearance of construction equipment and pedestrians below the tree canopy. When the canopy of a tree must be elevated for clearance above the proposed improvements, trimming shall be done around the entire circumference of the tree.

002.4 Tree Protection and Care of Property: The Contractor shall install high visibility construction fence at the drip line of the tree canopy as shown on the plans and as directed by the Engineer to protect existing trees that are not to be cut from damage during construction. The Engineer, at his sole discretion, may also direct the Contractor to enclose the trunks of trees adjacent to his work that are not to be cut with substantial wooden boxes of such height as may be necessary to protect them from injury from piled material, from equipment, from his operations, or otherwise due to his work. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees not to be cut, and particularly to overhanging branches and limbs.

Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. In case of cutting or unavoidable injury to branches, limbs, and trunks of trees, the cut or injured portions shall be neatly trimmed and covered with an application of grafting wax or tree-healing paint, as directed.

Cultivated hedges, shrubs, and plant that might be injured by the Contractor's operations shall be protected by suitable means or shall be dug up and temporarily replanted and maintained. After the construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of kind and quality at least equal to the kind and quality existing at the start of the work.

On paved surfaces, the Contractor shall not use or operate tractors, bulldozers, or other power-operated equipment, the treads of wheels that are so shaped as to cut or otherwise injure such surfaces.

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

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

All road signs, mail boxes, etc., shall be removed and reset as directed.

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

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

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

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

003.0 REMOVAL AND RE-ESTABLISHMENT OF EXISTING PLANTINGS

003.1 General: The Contractor shall furnish all labor, materials, tools, and equipment necessary and shall do all work necessary to remove, care for, and re-establish existing plantings located on the property of #1642 Main Street as indicated on the drawings and as herein specified.

Removal and re-establishment of plants shall be performed by persons skilled in the care and installation of such plantings. Prior to beginning this work, the contractor shall submit a statement of qualifications for the persons or subcontractor responsible for this work for review and approval by the Engineer.

003.2 Construction Methods: Protection, care and re-establishment of plantings shall be performed according to Article 3, SECTION 9.49 FURNISHING, PLANTING and MULCHING TREES, SHRUBS, VINES and GROUND COVER PLANTS of the Form 816, and as follows below.

Plants shall be re-established at a location adjacent to the work area as directed by the Engineer as soon as possible to minimize possible damage to the plant. Bark mulch shall be installed as required to restore the disturbed portions of the landscaped areas to match the original condition.

Cultivated hedges, shrubs, and other plants that are to be disturbed by the Contractor's operations shall be thoroughly watered on a daily basis for a minimum of 7 days prior to the proposed relocation work. Such plants shall then be carefully dug up for relocation in such a manner as to ensure that the root ball is of a sufficient size to contain the entire root mass of the plant.

If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of kind and quality at least equal to the kind and quality existing at the start of the work.

003.3 Payment: Except as provided otherwise in the Bid Proposal, this work shall be paid for at the Contract Lump Sum Price for "REMOVAL AND RE-ESTABLISHMENT OF EXISTING PLANTINGS", which price shall include and all labor, materials, tools, and equipment necessary thereto.

004.0 TEST PITS

004.01 General: The work covered under this item includes furnishing of all plant, labor, equipment, appliances, materials and incidentals and performing all operations in connection with excavating and backfilling by machine and/or by hand, exploratory test pits at locations indicated or directed. The purpose of the test pits is for locating and examining soils, ground water, drains, pipes, rocks, utilities, structure foundations or any other obstacles.

004.02 Execution:

A. Test pit excavations shall have neat, clean-cut and vertical sides. Upon completion of the test pit excavation, the Engineer shall be notified so that he can make the necessary location measurements. Excavation and backfilling shall conform to the applicable requirements of the Section entitled, "Trench Excavation - earth and backfill". Hand digging shall be employed when required by the Engineer.

B. It shall be agreed that the Contractor entered into this contract with full knowledge that in any work involving excavation, operation in public highways or adjacent to other developments, some unforeseen utility relocations, obstacles, difficulties, unforeseen soil or groundwater conditions, etc., may be encountered, and that the Contractor has included in his bid and contract obligations the assumptions of the risks and costs to which such obstacles, etc., may subject him.

004.03 Method of Measurement: Excavation for test pits will be measured for payment per each complete, within the limits ordered by the Engineer.

004.04 Basis of Payment: Payment for Test Pits shall be made at the contract bid price "each" as listed in the bid, which price shall include the excavation and backfill of all materials, all labor, equipment and incidentals and the restoration of property including temporary pavement replacement. If permanent pavement is necessary it shall be paid under the appropriate bid item.

103.0 ROCK EXCAVATION AND DISPOSAL

103.1 General: The Contractor shall excavate rock (as defined below), if encountered, to the lines and grades indicated on the drawings or as directed, shall dispose of the excavated material, and shall furnish acceptable material for backfill in place of the excavated rock.

In general, rock in pipe trenches shall be excavated so as to be not less than 6 inches from the pipe after it has been laid. Before the pipe is laid, the trench shall be backfilled to the correct subgrade with thoroughly compacted, suitable material or, when so specified or indicated on the drawings, with the same material as that required for bedding the pipe, furnished and placed at the expense of the Contractor.

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

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

In pipe trenches, excess excavation below the elevation of the top of the bedding cradle or envelope shall be filled with material of the same type, placed and compacted in the same manner as specified for the bedding, cradle, or envelope.

In excavations for structures, excess excavation in the rock beneath foundations shall be filled with concrete which shall be Class A or Class B, at the option of the Contractor. Other excess excavation shall be filled with earth as specified in the Section entitled "Backfilling Around Structures" under BACKFILLING AND CONSOLIDATION.

103.3 Blasting: If explosives are used, all requirements for transportation, use and storage of Local, State, and Federal laws and regulations must be complied with and all necessary permits and licenses obtained by the Contractor at his expense. Permits and licenses must be shown to the Engineer upon request. Permits are issued through the Town of Glastonbury Fire Marshalls Office, and may require a pre / post blast survey.

Explosives must be carefully transported, stored, handled, and used. The Contractor will keep on the job only such quantities of explosives as may be needed for the work underway and only during such time as they are being used. Explosives shall be stored in a secure manner in locked containers and separate from all tools. Caps and detonators shall be stored separately from other explosives. When the need for explosives is ended, all such material remaining on the job shall be promptly removed from the premises. Care must be taken that no explosives, caps, or detonators are stolen or get into the hands of unauthorized persons, or left unguarded where they may cause accidents.

Explosives shall be of such power and placed and used in such quantities as will not make the excavation unduly large or shatter unnecessarily the rock upon or against

which the main or structure is to be built, or injure adjacent persons or property, those portions of the new work or structure as may already be in place, or other adjacent pipes, ducts, or other structures. The quantity of explosives fired at one blast must be small enough and the tie for blasting selected to avoid undue annoyance to persons owning or occupying the premises near the work.

The rock must be completely matted when blasts are fired to prevent damage or injury to persons or property or the scattering of broken fragments on the adjacent ground. Adequate warning shall be given to all persons in the vicinity before any blast is discharged.

When blasting is required, the operation shall be conducted with such care as not to cause damage to any of the existing underground utilities. Should such occur, the cost of repairs shall be the sole responsibility of the Contractor.

The Contractor shall notify each public utility or others having structures in proximity to the site, and others who may be affected, of his intention to use explosives. Said notice shall be given in accordance with the applicable regulations therefore, and sufficiently in advance to enable the involved agencies/companies/persons and the Contractor to take such steps as may be necessary to protect life and property. Such notice shall not, in any way, relieve the Contractor of responsibility for any damage resulting from his blasting operations.

When in sufficiently close proximity to existing gas, water, sanitary, storm, or other utilities and structures, and all services connected thereto, the Contractor shall remove the rock by methods other than blasting, if necessary, in order to protect said utilities and their services from damage. Approved methods other than blasting are barring and wedging, jackhammer, drilling, rock jacks, or other such hand or machinery methods that will not damage the adjacent utility.

No explosives shall be brought into, stored, or used on the site of any job by the Contractor unless and until he shall have furnished the Engineer with a satisfactory Certificate of Insurance showing that the risks arising from the presence of and use of explosives, and from blasting, are included within the insurance provided by the Contractor to secure his obligations to the Town. Insurance should also cover damage to underground utilities or other underground facilities.

When blasting for trench excavation, each shot sequence shall begin sufficiently ahead of completed work to prevent damage to the completed work, which must be properly protected prior to each shot.

The provisions herein shall apply where soil formation resembles rock, whether in trench, structure, or general excavation, even if it is of such nature that it is not classified and paid for as rock excavation and, if so ordered by the Engineer, will apply to openings cut through masonry, nested boulders, or other materials not herein classified as rock.

103.4 Blasting Records: An accurate blasting log must be maintained continuously for the duration of the Contract. The log shall record, for each shot, the location, amount of holes, depth, spacing, exact date and time of the blast, amount of explosives per hole, and the number of caps used. In addition, a sketch showing displacement of direct and delay caps for each shot shall be recorded.

103.5 Test Blasting and Monitoring Program: The Contractor shall employ an acceptable, independent vibration/blasting consultant to conduct test blasting prior to production blasting to devise suitable blasting procedures for production blasting, and to monitor

production blasting. The vibration/blasting consultant shall be a Registered Professional Engineer in the State of Connecticut and shall have a minimum of ten years experience as a vibration/blasting consultant. The Contractor shall submit the name of the vibration/blasting consultant to the Engineer prior to starting the work.

The purpose of the test blasting is to develop control procedures for production blasting so that no disturbance or damage shall be done to utilities, equipment, buildings, structures, groundwater wells, or the aquifer.

Based on the results of the test blasting, the vibration/blasting consultant shall develop a suitable blasting program and distance-quantity of explosive tables of the production blasting. The blasting program and the distance-quantity tables shall be submitted to the Engineer 21 days prior to the commencement of production blasting. All production blasting operations shall be in accordance with the blasting program.

The vibration/blasting consultant shall also perform continuous monitoring of all initial blasting operations and intermittent monitoring of subsequent blasting, as deemed necessary by the vibration/blasting consultant. Blasts shall be monitored with a minimum of two 3-component seismometers that record the entire particle velocity wave train and not just peak velocities. Accurate, legible seismometer records of all monitored blasts shall be obtained, and one copy of all blast records shall be submitted to the Engineer within seven days after blasting.

103.6 Wells: The Contractor's attention is directed to the existence of active groundwater supply wells near the area of construction. The Contractor shall locate all wells within or near the project area that could be affected by his operations.

The Contractor shall conduct his operations so that no disturbance or damage shall be done to the groundwater supply wells or to the aquifer from which they draw water. The aquifer is herein defined as underlying soil and rock formations within a distance of 1,500 feet from the wells and the groundwater within those formations.

The Contractor shall be fully responsible for determining the methods and controls necessary so that his construction operations do not disturb groundwater wells or the aquifer, and do not change the quality or quantity of water reaching the well.

If evidence of a change in well water quality or well yield, or disturbance or damage to any utility, equipment, building, or structure is observed or reported to the Contractor, he shall immediately notify the Engineer and all blasting operations shall be discontinued and the Contractor's vibration/blasting consultant shall recommend revised blasting procedures. The Contractor shall initiate the revised procedures, once approved by the Engineer, before blasting is continued.

The Contractor shall furnish potable water to any home where the well is disrupted or the water is declared unfit for human consumption. The water shall be supplied in such quantity as necessary to allow the homeowner to function on a normal day-to-day basis without any significant inconvenience or expense. The water shall be delivered as frequently as necessary to assure its freshness. The Contractor shall continue to furnish water until the problem is resolved.

The Contractor shall be fully responsible for the restoration or replacement of all water supply wells, utilities, equipment, buildings, or structures damaged by his operations at no cost to the Town.

103.7 Shattered Rock: If the rock below normal depth is shattered due to drilling or blasting operations of the Contractor and the Engineer considers such shattered rock to be unfit for foundations, the shattered rock shall be removed and the excavation shall be backfilled with concrete as required, except that in pipe trenches, screened gravel may be used for backfill, if approved. All such removal and backfilling shall be done by and at the expense of the Contractor.

103.8 Preparation of Rock Surfaces: Whenever so directed during the progress of the work, the Contractor shall remove all dirt and loose rock from designated areas and shall clean the surface of the rock thoroughly using steam to melt snow and ice, if necessary. Water in depressions shall then be removed, as required, so that the whole surface of the designated area can be inspected to determine whether seams or other defects exist.

The surfaces of rock foundations shall be left sufficiently rough to bond well with the masonry and embankments to be built thereon and, if required, shall be cut to rough benches or steps.

Before any masonry or embankment is built on or against the rock, the rock shall be scrupulously freed from all vegetation, fragments, ice, snow, and other objectionable substances. Picking, barring, wedging, streams of water under sufficient pressure, stiff brushes, hammers, steam jets, and other effective means shall be used to accomplish this cleaning. All free water left on the surface of the rock shall be removed.

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

103.10 Disposal of Excavated Rock: Excavated rock may be used in backfilling trenches subject to the following limitations:

a. Pieces of rock larger than permitted under the section entitled “Backfilling Pipe Trenches” shall not be used for this purpose.

b. The quantity of rock used as backfill in any location shall not be so great as to result in the formation of voids.

c. Rock backfill shall not be placed within 18 inches of the surface of the finished grade.

d. Surplus excavated rock shall be disposed of as specified for surplus excavated earth.

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

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

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

The quantity of rock excavation to be paid for shall be the number of cubic yards of rock in place, as if measured before excavation, that would have been removed if the excavation had been made everywhere exactly to the lines of payment shown in the Section entitled “Earth Trench Excavation”, Table 3-1.

At manholes, catch basins, or other structures, rock excavation will be paid for on lines 12 inches beyond the outermost dimension of the structure.

105.0 PERMANENT PAVEMENT REPAIR

105.1 General: The Contractor shall furnish all labor, materials, tools, and equipment necessary and shall construct all permanent pavement to replace pavement removed or damaged by his operations, as herein specified and as directed.

Prior to excavation in paved areas, the Contractor shall cut the surface of the existing pavement with a pneumatic cutter or its equal. The pavement shall be cut in as straight a line as possible on both sides of the proposed trench for the entire length of the job.

Any existing reinforced concrete base shall be cut neatly with a masonry saw. The existing reinforcement shall be left projecting out twelve (12) inches from the concrete and the new reinforcement shall be tied to it. Existing reinforcement shall be cut by a mechanical method, and shall not be burned off. It shall be saved by bending it out of the way during construction.

Temporary pavement shall be placed over all trenches in paved areas where directed by the Engineer. The Contractor shall maintain all temporary pavement until the permanent pavement is placed.

In the replacement of pavement, the Contractor shall not feather the edges between the new and existing pavement. Materials and methods of construction shall conform, insofar as applicable, to the Form 816.

105.2 Gravel and Process Stone Base Course: The Contractor shall furnish and place the pavement base course on compacted backfill material. The base shall be laid in two courses. The first course shall be not less than ten (10) inches compacted thickness of an acceptable gravel and shall be in accordance with the Form 816, Section 3.02 ROLLED GRAVEL BASE. The uppermost course shall be not less than four (4) inches compacted thickness of an acceptable processed stone. Care should be taken to prevent the separation of the fines from the aggregate during dumping and grading operations. The Contractor shall apply water to the gravel base, as needed, to obtain the desired compaction.

The Contractor shall maintain this gravel in such condition as to provide a good roadway surface until the permanent surfacing is applied.

105.3 Preparation for Permanent Resurfacing: If temporary pavement has been placed, it shall be removed by the Contractor at no cost, and the gravel and process stone base course restored as hereinafter specified.

Prior to placing pavement, all backfill shall have been properly compacted as required to eliminate settling or backfill. No pavement shall be placed over poorly compacted backfill. Backfill and rolled gravel base course shall have been compacted, brought to the proper elevation, and dressed so that new pavement construction shall be at the required grade. The Contractor shall maintain the surfaces of all excavated and disturbed areas until the pavement is placed. If there is a time lapse of more than 24 hours between completion of preparation of subgrade, or placing of rolled gravel base course, and placing of pavement, or if subgrade or rolled gravel base course has been eroded or disturbed by traffic, the subgrade or rolled gravel base course shall be restored before placing pavement.

105.4 Concrete Base Course: Trench repair for the concrete base course shall consist of an eight (8) inch slab of reinforced concrete placed over the previously prepared gravel base

so that the top of new concrete base shall be level with the existing concrete base. The reinforcing bars shall be 3/8" bars as specified under CONCRETE REINFORCEMENT. Reinforcing steel shall be tied onto the existing steel reinforcement and placed to equal the reinforcement of the original concrete slab. The concrete base with reinforcing shall conform to the Form 816, Section 3.03 CONCRETE BASE, and Articles M.03.01 for Concrete Pavement and M.06.01 for Reinforcing Steel.

After the concrete has set for 24 hours, and before application of the permanent bituminous pavement, the edges of the adjoining pavement and the new concrete surface shall be cleaned of all dust and dirt and painted sufficiently with a cut-back asphalt so as to form a tight bond between the old and new paving.

105.5 Permanent Paving: Permanent pavement for streets without a concrete base shall be a bituminous concrete surface and shall consist of a one and one-half (1 ½) inch top course and one and one-half (1 ½) inch binder course over the previously prepared gravel and process stone base so that the total compacted thickness of the bituminous concrete is not less than three (3) inches. Where the entire road surface is to be overlaid as directed by the Engineer, the top course shall be applied in widths of at least ten (10) feet by suitable spreaders.

The following procedure shall be followed when making a permanent patch:

a. The temporary patch shall be removed.

b. The trench shall be fully compacted by a method acceptable to the Engineer.

c. The compacted subsurface shall be brought to a grade of eleven (11) inches below the grade of the existing road surface.

d. Two (2) inches of processed stone or processed gravel shall be placed in the trench and rolled to full compaction with a seven (7) to ten (10) ton roller or vibratory roller of equal compaction to within three (3) inches of the existing road surface.

e. The existing pavement shall then be cut back a minimum of twelve (12) inches from the edges of the original trench in straight lines.

f. The area immediately adjacent to the edges of the trench must be swept clean so that no loose sand, temporary patch, or other debris remains, and the exposed edges of the pavement cuts coated with a tack coat approved by the Engineer.

g. An approved bituminous concrete binder shall be placed and compacted with the specified roller to within one and one-half (1 ½) inches of the existing road surface.

h. An approved bituminous surface course shall be placed and compacted with the specified roller so that the completed surface shall be flush with the adjoining surfaces and finished to match them.

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

j. When there is two (2) feet or less between a curb or edge of pavement and the edge of the trench excavation, restoration of the pavement shall be extended to include the curb or edge of pavement.

In streets with a concrete base, the temporary pavement and base courses shall be removed to a depth level with the bottom of the existing concrete base. The edges of the existing concrete base shall be cut back eighteen (18) inches or more, if required, from the trench excavation wall so that the reinforced concrete slab to be placed will rest on undisturbed material at least eighteen (18) inches wide on each side of the trench. All loose or damaged material in the existing concrete slab shall be removed to assure continuous bonding to the new slab. All loose or damaged bituminous in the existing pavement shall be removed and the existing top course trimmed square and straight so that new surfacing can be placed on an undisturbed concrete base course at least six (6) inches wide on each side of the trench.

Permanent pavement overlaying concrete base shall be a bituminous concrete surface and shall consist of a one and one-half (1 ½) inch binder course, and a one and one-half (1 ½) wearing course placed to meet flush with the existing pavement. At the sides of the roadway where there is no existing concrete base, the gravel course shall be brought level to the concrete pavement. The binder course shall then be placed over the concrete base and the gravel base.

All binder courses shall conform to the Form 816, Section 4.06, and all top courses shall conform to the Form 816, Section 4.06.

Where it is determined by the Engineer that a trench patch being made in a street with a concrete base need not be made with concrete, then the following alternate replacement procedure shall be followed, unless further amended by the Engineer:

a. ten (10) inches of gravel subbase will be installed and compacted to meet the grade of the bottom of the adjacent concrete pavement.

b. Premixed bituminous concrete base course shall be installed six (6) inches in depth or to a level two (2) inches below the grade of the surrounding pavement.

c. The remaining two (2) inches shall be installed in one lift and shall be composed of Class 1 bituminous concrete.

d. In those areas where the trench opening is located within five (5) feet of a transverse joint or a pavement crack that would serve to leave a loose slab of concrete between the bituminous patch and the stable concrete pavement, the loose slab section shall be removed and repaired according to the above information.

All depth measurements shall be considered to be compacted depths. Bituminous material shall be compacted to 90% density.

The bituminous base course may be installed in two equal lifts of three-inches (3”) thick and the top course in one lift of two-inches (2”) thick unless the method of compaction of the bituminous base course can achieve compaction to the desired density of one lift. The determination shall be made by the Engineer.

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

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

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

105.8 Measurement and Payment: This item will be measured and paid as follows:

a. Permanent Pavement Repair: Permanent pavement repairs in roadways without concrete base will be measured and paid by the square yard complete in place to the depth as indicated within these specifications or as directed by the Engineer. This item shall include removal of temporary pavement, excavation, rolled gravel and process stone base courses, bituminous concrete, saw cutting, compaction, and all other labor, equipment, and materials incidental thereto.

b. Bituminous Lip Curbing will be measured and paid by the linear foot complete in place as indicated on the plans or as directed by the Engineer.

106.0 EARTH EXCAVATION

106.1 General: This item shall conform to Section 2.02 ROADWAY EXCAVATION, FORMATION OF EMBANKMENT AND DISPOSAL OF SURPLUS MATERIAL, of the Form 816 amended as follows:

Section 2.02.05 of the Form 816 shall be amended to read as follows:

"The work of cutting bituminous concrete pavement, concrete pavement, or concrete sidewalks shall not be measured for payment. The work of removal of all bituminous concrete pavement, concrete sidewalks, and bituminous covered concrete, shall be paid for at the contract unit price per square yard for "Removal of Pavement" as contained in the bid proposal. Earth excavation for sidewalk construction will not be paid for separately, as described elsewhere in these specifications. Earth excavation work related to the Flood Compensation Area on Hillcrest Road shall be measured for payment as described below."

106.2 Measurement & Payment: Earth Excavation for the flood compensation area on Hillcrest Road as shown on Sheet 4 of the plans shall be paid for at the Contract Lump Sum price listed in the Bid proposal for "Flood Compensation Area Excavation". The lump sum price shall include all labor equipment, materials, transportation, fuel, disposal, etc., for excavation of earth, on site relocation of earth products and transportation and/or disposal of surplus earth materials.

No other earth excavation work shall be measured for payment. Rather, this work shall be included in cost of the item associated therewith.

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

113.0 BITUMINOUS CONCRETE LIP CURBING

113.1 General: This item shall conform to Section 8.15 BITUMINOUS CONCRETE LIP CURBING, of the Form 816.

201.0 CONCRETE SIDEWALKS

201.1 General: The Contractor is to construct sidewalks to lines and grades as shown on the drawings or at locations as directed by the Engineer. The sidewalks shall be of monolithic construction and 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. Sidewalk construction shall include the removal of existing and construction of new house lateral walks where new sidewalk grades make it necessary. At street corners where the intersection is rounded with a radius of less than 25 feet to the curb, the sidewalk slabs will be a minimum of five feet in length and constructed of five-inch thick concrete. The sidewalk shall pitch to the street at a slope of ¼-inch per foot or as directed by the Engineer.

Pedestrian 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.

201.2 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. 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.

201.3 Concrete: The concrete furnished shall conform with respect to composition, transportation, mixing and placing, to Class F Cement Concrete 4,000 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.

201.4 Detectable Warning Strips: The Detectable Warning Strip shall be a prefabricated detectable warning surface tile as manufactured from Engineered Plastics Inc. 300 International Drive, Suite 100 Williamsville, NY 14221, telephone number (800) 682-2525 or the approved equal from ADA Fabricators, INC. P.O Box 179 North Billerica, MA 01862 telephone number (978) 262-9900. The tile shall conform to the dimensions shown on the plans and have a brick red homogeneous color throughout in compliance with Federal Standard 595A Color #22144 or approved equal.

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.

201.5 Dowels: Smooth metal dowels, 5/8-inch in diameter, measuring 24 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 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.

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.

Smooth metal dowels shall be 5/8-inch in diameter and 24 inches in length. All metal dowels shall conform to the requirements of ASTM A615 Grade 60.

201.6 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.

201.7 Surface Finish: 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.

201.8 Curing: The Contractor shall use a liquid membrane-forming curing compound. The curing compound shall be similar or equal to Demicon "Cure Hard" with fugitive dye and shall meet the latest ASTM Specification C-156. Waterproof paper or plastic membrane are acceptable alternatives.

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.

201.9 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.

201.10 Basis of Payment: Concrete Sidewalk shall be measured and paid for at the Contract unit price per square foot as contained in the Bid Proposal, which price shall include the Base Course Underneath Sidewalks, Excavation, and all other materials and all labor, tools, and equipment necessary for completion of the work.

Pedestrian Ramps shall be measured and paid for as a unit at the Contract unit price for each Pedestrian Ramp as contained in the Bid Proposal, which price shall include the Base Course Underneath Sidewalks, Excavation, Detectable Warning Strip, and all other materials and all labor, tools, and equipment necessary for completion of the work.

204.0 GRADING AND TOPSOILING

204.1 Description: This work shall consist of furnishing, placing, and shaping topsoil in areas shown on the plans where directed by the Engineer. The topsoil shall be placed to the depth stated in the Contract or specifications.

204.2 Material: The material shall conform to the requirements of Article M.13.01.1 of the Form 816.

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

During hauling and spreading operations, the Contractor shall immediately remove any material dumped or spilled on the shoulders or pavement.

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

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

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

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

205.0 TURF ESTABLISHMENT

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

The work will also include the installation of erosion control matting of the type indicated where shown on the plans or as directed by the Engineer.

205.2 Materials: The materials for this work shall conform to the requirements of Section M.13 of the Form 816, except as noted below.

Seed mix for roadside areas shall consist of 70% Red Fescue, 20% Kentucky Blue Grass, and 10% Perennial Rye Grass or other mix for high maintenance lawn areas as approved by the Engineer.

The wetland seed mix to be used shall be 25% New England Roadside Matrix Wet Meadow Seed Mix and 75% New England Erosion Control / Restoration Mix, as listed within New England Wetland Plants, Inc.'s catalog or approved equal.

Erosion Control Matting shall be a product approved by the Connecticut Department of Transportation for the intended application as described in the "Qualified Products List" publication, latest edition.

Hydroseeding, when required by the Engineer, shall be performed using a homogenous slurry consisting of wood fiber mulch, fertilizer, live seed, and organic tackifiers conforming to Section M.13 of the Form 816.

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

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

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

(b) Slope and Embankment Areas: These areas shall be made friable and receptive to seeding by approved methods which will not disrupt the line and grade of the slope surface. In no event will seeding be permitted on hard or crusted soil surface.

(c) All areas to be seeded shall be reasonably free from weeds taller than 3 inches. Removal of weed growth from the slope areas shall be by approved methods, including hand-mowing, which do not rut or scar the slope surface, or cause excessive disruption of the slope line or grade. Seeding on level areas shall not be permitted until substantially all weed growth is removed. Seeding on slope areas shall not be permitted without removal or cutting of weed growth except by written permission of the Engineer.

2. Seeding Season: The calendar dates for seeding shall be:
Spring—March 15 to June 15
Fall—August 15 to October 15

All disturbed soil areas shall be treated during the seeding seasons as follows:
(a) Areas at final grade: Seeding will be accomplished.
(b) "Out-of-season" seedings shall be performed in the same manner as "in-season" seedings. Since acceptable turf establishment is less likely, the Contractor shall be responsible for "in-season" reseeding until the turf stand conforms to this specification.

(c) During "out-of-season" periods unseeded areas shall be treated in accordance with Section 2.10, Water Pollution Control.

3. Seeding Methods: The seed mixture shall be applied by any agronomically acceptable procedure. The rate of application shall be no less than 175 pounds per acre or according to manufacturer instructions. Fertilizer conforming to M.13.03 shall be initially applied at a rate of 320 pounds per acre during or preceding seeding. When wood fiber mulch is used, it shall be applied in a water slurry at a rate of 2,000 pounds per acre with or immediately after the application of seed, fertilizer and limestone.

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

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

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

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

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

7. Erosion Control Matting: Erosion control matting shall be installed following seeding where called for on the plans or as directed by the Engineer. Staples shall be installed as per Manufacturer's recommendations. Where two lengths of matting are joined, the end of the up-grade strip shall overlap the down-grade strip. The Contractor shall maintain

and protect the areas with erosion control matting until such time as the turf grass is established. The Contractor shall replace or repair at his own expense any and all erosion control matting areas damaged by fire, water or other causes including the operation of construction equipment. No mowing will be required in the locations where erosion control matting is installed.

205.4 Method of Measurement: This work will be measured for payment by the number of square yards of surface area of accepted established perennial turf grass or wetland vegetation as specified or by the number of square yards surface area of seeding actually covered and as specified.

Restoration of areas disturbed for staging, storage of materials, or other area disturbed for the convenience of the Contractor will not be measured for payment.

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

205.5 Basis of Payment: This work will be paid for at the contract unit price per square yard for "Turf Establishment", “Turf Establishment-Hydroseeding” or “Wetland Seeding”, which price shall include all materials, mowing, maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

Erosion control matting will be paid for at the contract unit price per square yard for "Erosion Control Matting" complete in place and accepted, which price shall include the hay mulch, netting, staples, maintenance, equipment, tools, labor, and work incidental thereto.

206.0 SEDIMENTATION CONTROL SYSTEM

206.1 General: This item shall conform to Section 2.19 of the Form 816, with the following section replaced:

206.2 Basis of Payment (Section 2.19.05): Payment for this work will be made at the contract unit price per linear foot for "Sedimentation Control System" complete in place, which price shall include all materials, equipment, tools and labor incidental to the installation, maintenance, replacement, removal and disposal of the system and surplus material. No payment shall be made for the clean out of accumulated sediment.

207.0 SEDIMENT CONTROL SACK

207.1 General: This work shall consist of furnishing, installing, maintaining, and removing a sedimentation control sack for control of sediment entering catch basins within the project area as directed by the Engineer or as shown on the contract drawings.

207.2 Materials: Sediment control sacks shall be Siltsack® as manufactured by SI® Geosolutions or approved equal, and shall be manufactured from a specially designed woven polypropylene geotextile.

The sediment control sack 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.

207.3 Construction Sequence: To install the sediment control sack 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 sack 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.

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.

The sediment control sack is reusable. Once the construction cycle is complete, the sedimentation control sack shall be removed from the basin and cleaned. The sedimentation control sack shall then be provided to the Town for re-use.

207.4 Basis of Payment: Sediment control sacks shall be paid for as a unit for each sedimentation control sack provided and installed. Maintenance of the sediment control sacks and cleaning after completion of construction as described herein shall also to be included in this bid price.

210.0 TEMPORARY CONSTRUCTION ENTRANCE

210.1 General: Work of this item shall generally consist of the installation and maintenance of a stone construction entrance as located and detailed on the contract drawings. Work shall include base preparation and excavation as necessary.

210.2 Materials: Stone shall consist of No. 3. stone as per section Section M01.01 of the Form 816.

210.3 Measurement and Payment: The work under this item shall be paid at the contract lump sum price for the stone construction entrance completed, and in place as per contract drawings. The unit price shall include all materials, equipment, labor, excavation, and tools incidental to the construction and maintenance of this item.

213.0 EARTHWORK AND GRADING FOR SIDEWALK CONSTRUCTION

213.1 General: This item includes the excavation, formation of embankment, and regrading of project areas as required for construction of the proposed sidewalk to the lines and grades shown on the plans and as directed by the Engineer.

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.

213.2 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. Excavation shall include the saw cutting, removal, and disposal of bituminous concrete and concrete sidewalks, driveways, and pavements, including curbing and tree roots, where necessary, due to the new sidewalk grade and as shown on the plans or as directed by the Engineer. 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 the sidewalks where required. Embankment formation shall be completed as described in Article 2.02.03 of the Form 816, 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.

213.3 Grading Existing Topsoil: Upon completion of sidewalk construction, the Contractor is to 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.

213.4 Lawn Restoration: This work will consist of restoring grass areas disturbed in the Contract work. All work will be in conformance with Section 205.0 TURF ESTABLISHMENT.

213.5 Basis of Payment:
Except as noted below, all of the above-described work under the heading of EARTHWORK AND GRADING FOR SIDEWALK CONSTRUCTION including excavation, formation of embankment, and re-grading of project areas for sidewalk construction and permanent pavement installation will not be measured for payment. Rather, this work shall be included in the Contract unit price for sidewalks, permanent pavement, or other items associated with the work.

Sawcutting, removal, and disposal of existing bituminous pavement and concrete sidewalk shall be paid for at the contract unit price per square yard for "Removal of Pavement", which price shall include all labor, material, tools, and equipment incidental thereto.

214.0 BASE COURSE UNDERNEATH SIDEWALKS

214.1 Description: The Contractor shall make the necessary excavation and furnish material for base construction under sidewalks.

214.2 Material: The material used for base course construction shall conform to the requirements of Section M.02.01 of the Form 816 for broken or crushed stone. It shall consist of sound, tough, and durable stone and shall be free of thin or elongated pieces, lumps of clay, soil, loam, or vegetative matter. All material shall be approved by the Engineer prior to its use.

214.3 Construction Method: The material for the base course shall be spread upon the prepared subgrade to such depth as to give a compacted thickness of eight 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.

214.4 Basis of Payment: There will be no separate payment for this item. All of the above-described work under the heading “Base Course Underneath Sidewalks” shall be included in the Contract Unit Prices for sidewalks or the item associated thereto.

215.0 BITUMINOUS CONCRETE DRIVEWAY

215.1 Description: This item shall consist of bituminous concrete surfaced driveway constructed on a processed stonee base course in the locations and to the dimensions and details shown on the plans or as directed by the Engineer and in accordance with these specifications. This item shall also include the removal and disposal of existing bituminous pavement necessary for driveway replacement work.

215.2 Materials: Materials for this work shall conform to the following requirements:

1. Base Course: The material used for base course construction shall conform to the requirements of Section M.02.01 of the Form 816 for broken or crushed stone.

2. Bituminous Concrete Surface: Materials for this surface shall conform to the requirements of Section M.04, Class 2.

215.3 Construction Methods:

1. Sawcutting: Portions of the driveway or driveway aprons to be replaced shall be saw cut, and the existing pavement removed and disposed of by the Contractor.

2. Excavation: Excavation, including removal of any existing sidewalk, or driveway, shall be made to the required depth below the finished grade, as shown on the plans or as directed by the Engineer. All soft and yielding material shall be removed and replaced with suitable material.

3. Forms: When the bituminous concrete is spread by hand, forms shall be used. Forms shall be of metal or wood, straight, free from warp and of sufficient strength to resist springing from the impact of the roller. If made of wood, they shall be of 2-inch (38-millimeter) surfaced plank except that at sharp curves thinner material may be used; if made of metal, they shall be of an approved section. All forms shall be of a depth equal to the depth of the sidewalks or driveways and shall be securely staked, braced, and held firmly to the required line and grade. All forms shall be cleaned and oiled each time they are used.

4. Base Course: Processed stone base course shall be uniformly spread to the required depth and thoroughly compacted with a roller with a mass of not less than 500 pounds (226 kilograms).

5. Bituminous Concrete Surface: The edges of existing pavement shall be painted with an asphalt emulsion prior to the placement of permanent pavement. Hot laid bituminous concrete shall be placed so as to give a three-inch compacted surface, or a surface that has a depth equal to the existing driveway surface, whichever is greater.

This surface shall be constructed in accordance with the requirements of Section 4.06, except that the material may be spread by hand and thoroughly compacted by multiple passes of a power-driven roller weighing (with a mass) of not less than 500 pounds (226 kilograms). The finished surface shall be free from waves or depressions.

6. Backfilling and Removal of Surplus Material: The sides of the sidewalk or driveway shall be backfilled
with suitable material thoroughly compacted and finished flush with the top of the sidewalk or driveway. All surplus material shall be removed and the site left in a neat and

presentable condition to the satisfaction of the Engineer. In sections inaccessible to the roller, the base course, surface course and backfill shall be hand-tamped with tampers weighing not less than 12 pounds (with a mass of not less than 5.5 kilograms), the face of which shall not exceed 50 square inches (32,000 square millimeters) in area.

215.4 Method of Measurement: This work will be measured for payment as follows:

1. Bituminous Concrete Driveway—Bituminous Concrete Sidewalk: This work will be measured by the
actual number of square yards of completed and accepted sidewalk or driveway.

2. Excavation: Excavation below the finished grade of the sidewalk or driveway, including removal and disposal of existing bituminous concrete, backfilling, and disposal of all surplus materials will not be measured for payment; but the cost shall be included in the price bid for the sidewalk or driveway. Excavation above the finished grade of a proposed sidewalk or driveway, when necessary for the proper installation, will be classified and paid for as described in the Section 2.02 of the Form 816.

3. Base Course: This work will not be measured for payment but the cost thereof shall be included in the price bid for the sidewalk or driveway.

215.5 Basis of Payment: This work will be paid for at the contract unit price per square yard or "Bituminous Concrete Driveway," complete in place, which price shall include all excavation as specified above, backfill, disposal of surplus material, processed stone base course, and all equipment, tools, labor and materials incidental thereto.

216.0 PROCESS STONE DRIVEWAY

216.1 Description: This item shall consist of the installation of a processed stone driveway in the locations and to the dimensions and details shown on the plans or as directed by the Engineer and in accordance with these specifications.

216.2 Materials: Materials for this work shall conform to the following requirements:

Process Stone: The material used for processed stone shall conform to the requirements of Section M.02.01 of the Form 816 for broken or crushed stone.

216.3 Construction Methods:

1. Excavation: Excavation, including removal of any existing sidewalk, or driveway, shall be made to the required depth below the finished grade, as shown on the plans or as directed by the Engineer. All soft and yielding material shall be removed and replaced with suitable material.

2. Processed Stone: Processed stone base shall be uniformly spread to a depth of eight (8) inches and thoroughly compacted with a roller with a mass of not less than 500 pounds (226 kilograms).

3. Backfilling and Removal of Surplus Material: The sides of the sidewalk or driveway shall be backfilled with suitable material thoroughly compacted and finished flush with the top of the sidewalk or driveway. All surplus material shall be removed and the site left in a neat and presentable condition to the satisfaction of the Engineer. In sections inaccessible to the roller, the base course, surface course and backfill shall be hand-tamped with tampers weighing not less than 12 pounds (with a mass of not less than 5.5 kilograms), the face of which shall not exceed 50 square inches (32,000 square millimeters) in area.

216.4 Method of Measurement: This work will be measured for payment as follows:

1. Processed Stone Driveway: This work will be measured by the actual number of square yards of completed and accepted driveway.

2. Excavation: Excavation below the finished grade of the sidewalk or driveway, including removal and disposal of existing bituminous concrete, backfilling, and disposal of all surplus materials will not be measured for payment; but the cost shall be included in the price bid for the sidewalk or driveway. Excavation above the finished grade of a proposed sidewalk or driveway, when necessary for the proper installation, will be classified and paid for as described in the Section 2.02 of the Form 816.

216.5 Basis of Payment: This work will be paid for at the contract unit price per square yard for "Processed Stone Driveway," complete in place, which price shall include all excavation as specified above, backfill, disposal of surplus material, processed stone, and all equipment, tools, labor and materials incidental thereto.

218.0 STAMPED CONCRETE DRIVEWAY

218.1 Description: This item shall consist of a concrete driveway constructed on a processed stone base that incorporates integral concrete pavement color, pattern, textural surface, dry-shake color hardener, concrete staining, and application of a sealant solution as required to match the existing driveway located at #1554 Main Street. Work under this item also includes furnishing and installing joints in accordance with the plans and this specification.

The existing stamped concrete driveway was installed in 2011 by Oak Leaf Concrete Engraving, LLC of West Hartford Connecticut (860-561-1542).

218.2 Materials: Materials for this work shall conform to the following requirements:

1. Portland Cement: Concrete shall conform to the requirements of Article M.03.01 for Class "F" Concrete with a maximum aggregate size of ½".

2. Processed Stone Base: The material used for processed stone shall conform to the requirements of Section M.02.01 of the Form 816 for broken or crushed stone.

3. Reinforcement: Shall be #1010 wire mesh reinforcement conforming to the requirements of Article M.06.01.

4. Color Admixture: Shall contain colored, water-reducing, coloring agents that are lime proof and UV resistant, and without calcium chloride. The color admixture shall conform to the requirements of ASTM C979 and ASTM C494. Admixture shall be added to the concrete at the rates directed by the product manufacturer. (Per previous driveway installer, the base color of existing concrete was “Wheat”, applied at 4 bags per 10 yards of concrete).

5. Curing and Sealing Compound: SCOFIELD® Cureseal-W™ [Semi Gloss]. Curing and sealing compound shall conform to the requirements of ASTM C309 and matching the color admixture manufacturer, for use with integrally colored concrete.

6. Release Agent: pattern tool manufacturer recommended and compatible with integral color additives.

7. Dry-shake Colored Hardener: LITHOCHROME ® Color Hardener or approved equal. As recommended by the pattern tool manufacturer and of a heavy duty grade. (Per previous driveway installer, color used was Scofield “Steadman Buff”).

8. Preformed expansion joint filler shall conform with Article M.03.01 Part 5.(b).(1).

9. Joint Sealant: Select one of the following silicone joint sealants or an approved equal:
Dow Corning 888 or 890-SL Manufactured by: The Dow Corning Corporation
PO Box 994 Midland, MI 48686-0994.

Other silicone joint sealants expressly manufactured for use with concrete will be considered for use provided they are submitted in advance for approval to the Engineer. Other joint sealants will be considered for use only if a complete product description is submitted, as well as documentation describing at least five installations of the product. These documented installations must demonstrate that the product has performed successfully for at least three years under traffic conditions.

10. Backer Rod: An open-cell type rod with an impervious skin that will not outgas when ruptured. Use the backer rod together with the joint sealant. Select one of the following or an Engineer approved equal:

SOF ROD, manufactured by Nomaco Inc.,
CERA-ROD, manufactured by W.R.Meadows, Inc.,
Sandells Open-Cell Backer Rod, manufactured by
Sandell Mfg. Co., Inc.

218.3 Construction Methods: The contractor shall have at least 5 years of experience performing the installation of patterned and colored concrete. The prime Contractor submits a minimum of 5 references proving the satisfactory completion of such work performed by the concrete contractor within 7 calendar days of the award of the contract for Engineer approval. The submittal shall include the names, addresses, and phone numbers of the personnel responsible for the administrating the contracts, and the location of the prior work. If the Engineer determines that the contractor proposed has insufficient experience, or has performed unsatisfactory work on other contracts, the prime Contractor will be required to resubmit documentation for an alternate contractor for the approval of the Engineer.

Construction methods shall conform to the requirements of Article 9.21.03. The surface shall be finished and marked off as directed by the Engineer.

The stamped concrete shall have a uniform and consistent color and pattern matching that of the existing driveway. (Per previous installer, pattern used was “Seamless Texture”, and included a wheeled in “Cobblestone Border” that was stained with a “Brick Red” color). Stamp patterns with respect to the joints to insure the stones in the pattern line up with the joint locations. Follow all manufacturers’ recommendations unless otherwise directed by the Engineer.

Schedule the concrete placement to avoid exposure to excessive wind and heat before applying curing materials. In the event of forecasted rain, snow, or frost within a 24 hour period of time, protect concrete from moisture, freezing, or thawing.

218.4 Method of Measurement: This work will be measured for payment as follows:

1. Stamped Concrete Driveway: This work will be measured for payment by the actual number of square feet of completed and accepted stamped concrete driveway.

2. Excavation: Excavation, backfilling and disposal of surplus material will not be measured for payment; but the cost shall be included in the Contract price.

3. Processed Stone Base: This work will not be measured for payment.

4. Reinforcement: This material will not be measured for payment.

218.5 Basis of Payment: This work will be paid for at the Contract unit price per square foot (S.F.) for "Stamped Concrete Driveway" complete in place, which price shall include all excavation as specified above, backfill, processed stone base, disposal of surplus materials, and all materials, equipment, tools and labor necessary to place, color and pattern the concrete.

220.0 METAL BEAM RAIL TYPE RB-350 (WEATHERING STEEL)

220.1 General: This item shall conform to Section 9.10 METAL BEAM RAIL, of the Form 816, amended as follows:

220.2 Materials: Weathering Steel shall be used for rail elements, terminal sections, and posts which shall meet the requirements described Article M.10.02 of the Form 816.

220.3 Basis of Payment: Add the following to Article 9.10.05:

R-B terminal section end wraps shall be paid for at the contract unit price for each “Metal Beam Rail End Wraps (Weathering Steel)” installed and accepted which price shall include all materials, equipment, tools and labor incidental thereto.

221.0 REMOVE AND RESET POSTS, RAIL AND RAIL ANCHORAGES

221.1 Description: This work shall consist of removing or resetting existing single posts, anchorages, cable guide rail and a single or double line of metal beam rail in the locations indicated on the plans or as ordered by the Engineer.

221.2 Materials: When resetting rail, the Contractor shall reuse any undamaged existing rail elements, appropriate posts, delineators, and lap bolts within the Project limits, as approved by the Engineer to construct the reset rail. The Contractor shall use new materials conforming to the requirements of M.10 of the Form 816 to replace any parts of the existing rail system that are damaged or missing and cannot be obtained from other rail systems being removed or reset within the Project limits.

221.3 Construction Methods: The Construction Methods described in the Form 816 Section 9.10, 9.11, and 9.18 when applicable, shall apply to the resetting of existing rail systems. Prior to commencement of work, the Contractor and Engineer shall inventory the existing rail systems within the Project limits to determine which materials are suitable for reuse.

If resetting or removing railing, the Contractor must complete that work, including any required grading and any replacement of materials, by the end of each day's work. When it is not practical to complete such rail work by the end of the day's work, the Engineer may allow the Contractor to temporarily attach the existing rail to the new rail, concrete barrier curb or temporary terminal treatment.

221.4 Method of Measurement:

1. Remove and Reset Metal Beam Rail: The length of reset rail measured for payment shall be the number of linear feet of completed rail of each type specified on the plans, measured along the top of rail between centers of posts in each continuous section of reset rail.

2. Remove and Reset Rail Anchorages: The number of reset single posts or rail anchorages measured for payment shall be the actual number of each single post or rail anchorage reset as shown on the plans.

3. New Materials: The amounts of new material measured for payment will be the numbers of new rail components authorized by the Engineer.

4. Removal of Cable Guide Rail, Pipe Railing, and Single Posts: This work will not be measured for payment. Rather, this work shall be included in the lump sum price for "Preparation of Site".

221.5 Basis of Payment:

1. Remove and Reset Metal Beam Rail: This will be paid for at the contract unit price per linear foot for Reset Metal Beam Rail" complete in place. This price shall include the complete removal, storage and resetting of existing rail, including excavation, backfilling and disposal of surplus or unsuitable material, and all equipment, tools and labor incidental thereto.

2. Remove and Reset Rail Anchorages: This will be paid for at the contract unit price each for "Remove and Reset Rail Anchorage" complete in place. This price shall include the complete removal, storage and resetting of existing anchorages, including

excavation, backfilling and disposal of surplus or unsuitable material, and all equipment, tools, and labor incidental thereto.

3. New Materials: Authorized new materials will be paid for at the applicable contract unit prices, or in their absence, in accordance with Article 1.04.05.

4. Remove Cable Guiderail, Pipe Railing, and Single Posts: This work will not be measured for payment. Rather, this work shall be included in the contract lump sum price for “Preparation of Site”.

5. Temporary Treatment: There will be no payment for any temporary treatments or attachments.

223.0 REMOVE AND RESET COBBLESTONE BORDER

223.1 Description: This item shall consist of the removal and resetting of cobblestones that form the edge of various landscaped areas adjacent to the proposed sidewalk. These cobblestones are to be relocated in order to provide a minimum of six (6) inches of separation between the face of the stones and the proposed sidewalk, along a curvilinear alignment to be determined in the field in consultation with the property owner.

223.2 Materials: Existing cobblestones from the project area will be reused.

223.3 Construction Methods: The area for the reset cobblestones shall be excavated as required for installation of the stones. The cobblestones may be used to create a well for protection of existing plantings, or to hold back material in a planting bed, as the conditions warrant.

The cobblestones shall be reset on a firm, even base so as to fit neatly and firmly in the location indicated on the plans or where directed, and in accordance with these specifications or as approved by the Engineer.

The cobblestone border shall be backfilled as necessary to reconstruction the landscaped area.

223.4 Method of Measurement: This work shall be measured for payment by the linear foot along the centerline of the relocated cobblestone border for the length reset. Earth excavation and backfill will not be measured for payment.

223.5 Basis of Payment: This work shall be paid for at the Contract Unit Price per linear foot for "Remove and Reset Cobblestone Border" as listed in the bid proposal, complete in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.

228.0 TREE PROTECTION TRENCH

228.1 Description: This work includes excavation of a tree protection trench adjacent to an existing or proposed sidewalk by means of a chain-driven trenching machine with additional pruning of roots using hand methods as required. This is performed adjacent to the proposed sidewalk excavation and within the drip line of an existing tree to cleanly sever roots prior to sidewalk excavation.

The services of a licensed arborist will be required to supervise the above referenced work and shall be included in the contract unit price for tree protection trench.

228.2 Construction Methods: Tree protection trench shall be installed in advance of the intended sidewalk construction during time periods where damage to trees will be minimized, as directed by the Engineer. The work area shall generally include the length of sidewalk within the drip line of the canopy of the tree of concern. Extreme care shall be taken by the Contractor to identify and protect underground utilities within the work area, and any conflicts shall be immediately brought to the attention of the Engineer.

Where tree protection trench is called for on the plans, the Contractor shall use a chain-driven trenching apparatus to cleanly sever tree roots adjacent to the sidewalk to the full depth of the sidewalk excavation as directed by the Engineer. Additional pruning of roots using hand methods may also be required, as directed by the Engineer or licensed arborist supervising the work.

The disturbed area shall be restored to existing grades and shall be seeded per Section 205.00 of the specifications.

228.3 Payment: Tree protection trench shall be measured for payment by the number of linear feet of tree protection trench installed and accepted. This work shall be paid for at the Contract unit price for “Tree Protection Trench”, which price shall include all materials, equipment, tools, labor, and work incidental thereto.

The services of a certified arborist to supervise work under this item shall not be measured separately for payment, but rather shall be included in the contract unit price for “Tree Protection Trench”.

Restoration of disturbed areas shall be measured and paid for under Section 205.00 Turf Establishment.

240.0 SEGMENTAL RETAINING WALL (SITE NO. 1, SITE NO. 2)

240.1 Description: This item will consist of designing, furnishing and constructing segmental retaining walls in the location, grades, and to the dimensions and details shown on the contract drawings and in accordance with these specifications.

Segmental retaining wall (SRW) units shall be machine formed, Portland Cement concrete blocks specifically designed for retaining wall applications as manufactured by VERSA-LOK Retaining Wall of New England (603-883-3042) or approved equal.

240.2 Design:

1 - Design Computations: It is the Contractor's responsibility for the design, detailing and additional construction specifications required to construct the wall. The actual designer of the retaining wall shall be a qualified Professional Engineer licensed in the State of Connecticut and experienced in the design of SRW walls.

2 - Designer's Liability Insurance: The Designer shall secure and maintain at no direct cost to the Town, a Professional Liability Insurance Policy for errors and omissions in the minimum amount of Five Hundred Thousand Dollars ($500,000). The designer may, at his election, obtain a policy containing a maximum One Hundred Twenty Five Thousand Dollars ($125,000) deductible clause, but if he should obtain a policy containing such a clause, the designer shall be liable to the extent of the deductible amount. The Designer shall obtain the appropriate and proper endorsement to its Professional Liability Policy to cover the indemnification clause in this contract as the same relates to negligent acts, errors or omissions in the work performed by the Designer. The Designer shall continue this liability insurance coverage for a period of three years from the date of the acceptance of the work by the Town or for three years after the termination of the contract, whichever is earlier, subject to the continued commercial availability of such insurance.

The designer shall supply the certificate of this insurance to the Engineer prior to the start of construction of the wall. The designer's insurance company shall be licensed in the State of Connecticut.

3 - Preliminary Submissions: Prior to the start of fabrication or construction, the Contractor shall submit to the Engineer a design package, which shall include, but not be limited to the following:

a. Detailed Plans:

Plan sheets shall be approximately 24" x 36"

Stamped by a licensed Professional Engineer (Connecticut).

Full plan view of the wall drawn to scale. The plan view must reflect the horizontal alignment and offset from the horizontal control line to the face of the wall. Beginning and ending stations, all utilities, signs, lights, etc. that affect the construction along with all property lines and easement lines adjacent to the wall shall be shown.

Full elevation view of the wall drawn to scale. Elevation views should indicate the elevation at the top and bottom of walls, horizontal and vertical break points, and the location of finished grade.

Typical cross sections drawn to scale including all appurtenances. Detailed cross section should be provided at significant reinforcement transitions such as wall ends.

Details of all wall components and their connections such as the length, size and type of soil reinforcement and where any changes occur; facing details; connections; etc.

Details for installation of adjacent fence and integration of retaining wall into adjacent drainage structures as shown on the plans.

Certified test reports indicating the connection strength versus normal load relationship for the block-soil reinforcement connection to be used.

Drainage details for embankment backfill including connection to outlets shown on contract drawings.

Design parameters used along with AASHTO references.

Material designations for all materials to be used.

Detailed construction methods including a quality control plan. Construction quality control plans should include monitoring and testing frequencies (e,g, for setting batter and maintaining horizontal and vertical control). Construction restraints should also be listed in the details. Specific requirements for construction around obstructions should be included.

Details of Temporary Earth Retaining System(s) where required.

Treatment at underground utilities where required.

b. Design Computations:

Stamped by a licensed Professional Engineer (Connecticut).

Computations shall clearly refer to the applicable AASHTO provisions as stated in the Notes on the Contract Drawings.

Documentation of computer programs including all design parameters.

c. Construction Specifications:

Construction methods specific to the proprietary retaining wall chosen. These specifications should include construction limitations including vertical clearance, right-of-way limits, etc. Submittal requirements for materials such as certification, quality, and acceptance/rejection criteria should be included. Details on connection of modular units and connection of reinforcements such that assurance of uniform stress transfer should be included.

Any requirements not stated herein.

The submissions for proprietary retaining walls shall be treated as working drawings according to Section 1.05 of the Form 816 amended as follows:

a. Two sets of each submission shall be supplied to the Town

b. The Contractor shall allow 21 days for the review of each submission. If subsequent submissions are required as a result of the review process, 21 days shall be allowed for review of these submissions. No extensions in contract time will be allowed for the review of these submissions.

4 - Final Submissions: Once a proprietary retaining wall design has been reviewed and accepted by the Town, the Contractor shall submit the final plans. The final submission shall include one set of full size (approximately 24" x 36") mylar sheets and one set of full size copies.

The final submission shall be made within 14 days of acceptance by the Town. No work shall be performed on the retaining wall until the final submission has been received by the Engineer

Acceptance of the final design shall not relieve the Contractor of his responsibility under the contract for the successful completion of the work.

The actual designer of the proprietary retaining wall is responsible for the review of any shop drawings prepared for the fabrication of the wall. One set of full size copy of all approved shop drawings shall be submitted to the Engineer's permanent records.

5 - General Design Requirements:

a. All designs for proprietary walls and temporary earth retaining systems shall conform to the latest edition of the American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges and later interims published except as noted otherwise herein:

b. The wall design shall follow the general dimensions of the wall envelope shown in the contract plans.

c. The top of the concrete leveling pad shall be located at or below the theoretical leveling pad elevation. The minimum wall embedment shall be two feet as measured to the top of the leveling pad or as shown on the plans.

d. If footing steps are required, they shall be kept below the minimum embedment depth. Footing steps in addition to those shown on the plans will be permitted at no additional cost to the Town.

e. The wall shall be designed to be within all property lines and easement lines shown on the contract drawings. If additional work areas are necessary for the construction of the proprietary retaining wall, the Contractor shall be responsible for obtaining the rights from the affected property owners. Copies of these rights shall be forwarded to the Town.

f. The top of the wall shall be at or above the top of the wall elevations shown on the plans. The top of the wall may be level or sloped to meet the top of the wall line noted.

g. Cast-in-place concrete will not be an acceptable replacement for areas noted by the wall envelope, except for minor grouting of pipe penetrations.

h. The mechanical wall height for the purposes of design calculations shall be from the top of the leveling pad to the top of the potential failure surface where the failure surface intercepts the ground surface.

i. The minimum length of internal soil reinforcement shall be as specified in AASHTO 5.8.1, except for the minimum eight (8.0') foot length requirement.

i. If there are specific surcharges acting on the wall, they shall also be accounted for. The minimum equivalent fluid pressure used to design the wall shall be 33 lbs./ft^2 per linear foot of wall.

j. The maximum allowable bearing capacity of the soil shall be assumed to be 4 ksf unless otherwise shown on the plans. If additional soils information is required by the designer, it must be obtained by the Contractor and will not be reimbursed by the Town.

k. For limit state allowable stress computations of extensible reinforcements, the combined factor of safety for construction damage and environmental/aging effects shall not be less than 1.75.

240.3 Materials: Materials shall conform to the following requirements and those not listed below shall be as prescribed within the Standard Specifications for Roads, Bridges and Incidental Construction, including supplemental specifications and applicable special provisions.

Contractor shall provide three representative samples of the SRW units for color selection by the Town.

1 – Facing Block: The facing block can be precast or drycast concrete and shall be the color specified on the plans. The block shall meet the following requirements:

a. Drycast Concrete:

The minimum compressive strength of the block shall be 4000 psi measured at 28 days. The maximum water absorption shall be less than five percent.

b. Precast Concrete: Shall conform to the requirements of Section M.03 and as follows:

The minimum compressive strength of the block shall be 4000 psi measured at 28 days.

All precast concrete components shall be air-entrained composed of portland cement, fine and coarse aggregates, admixtures and water. The air-entraining feature may be obtained by the use of either air-entraining portland cement or an approved air-entraining admixture. The entrained-air content shall be not less than four percent or more than seven percent.

2 - Geosynthetic Soil Reinforcement: The minimum strength of the geosynthetic soil reinforcement shall be based on experimental data. The Contractor shall submit to the Engineer a certified test report confirming the strength of the material when tested according to the methods specified in ASTM D5262 and extrapolated according to ASTM D2837 as outlined in AASHTO Article 5.8.7.2 of the Form 816.

3 – Metallic Soil Reinforcement: All soil reinforcement and structural connectors shall be hot dipped galvanized according to the requirements of ASTM A123 (AASHTO M 111). The minimum thickness of the galvanizing shall be based on the service life requirements as previously stated.

Steel strip reinforcement shall be hot rolled to the required shape and dimensions. The steel shall conform to AASHTO M223 (ASTM A572) Grade 65 unless otherwise specified.

Welded wire fabric reinforcement shall be shop fabricated from cold-drawn wire of the sizes and spacings shown on the plans. The wire shall conform to the requirements of ASTM A82, fabricated fabric shall conform to the requirements of ASTM A185.

4 - Metal Connectors: All metal hardware shall be hot dipped galvanized according to the requirements of ASTM A123 (AASHTO M-111). The minimum thickness of the galvanizing shall be based on the service life requirements in the AASHTO Specifications.

5 - Backfill Material: The material for backfill shall be Pervious Structure Backfill conforming to the requirements of Articles M.02.05 and M.02.06 of the Form 816.

6 - Facing Sealer: The face of all exposed drycast block shall be coated with clear Penetrating Sealer Protective Compound conforming to the requirements of Article M.03.02 of the Form 816.

240.4 Construction Methods: All construction methods for items not listed below shall be in accordance with the detailed requirements prescribed for the construction of the several contract items entering into the completed structure as specified in the Standard Specifications for Roads, Bridges, and Incidental Construction.

1 - Installation: The foundation for the structure shall be graded level for a width equal to or exceeding the length of the soil reinforcements, or as shown on the plans. If rock is encountered in the excavation, it shall be removed to provide a level area equal to or exceeding the length of the soil reinforcements, but not greater than the pay limits shown on the plans.

Prior to wall construction, the foundation, if not in rock, shall be compacted as directed by the Engineer. Any foundation soils found to be unsuitable shall be removed and replaced.

At each foundation level, an unreinforced concrete leveling pad shall be provided as shown on the plans. The leveling pad shall have nominal dimensions of 6 inch thickness and 24 inch width, and shall be cast using minimum 2,000 psi 28-day compressive strength concrete. The leveling pad shall be cast to the design elevations as shown on the plans. Allowable elevation tolerances are +0.01 foot (1/8 inch), and -0.02 foot (1/4 inch), from the design elevation.

The materials for the wall shall be handled carefully and installed in accordance with manufacturer's recommendations and specifications. Special care shall be taken in setting the bottom course of blocks to true line and grade.

All blocks above the first course shall interlock with the lower courses by means of connecting pins. Vertical joints shall be staggered with each successive course as shown on the working drawings. Vertical tolerances and horizontal alignment tolerances measured from the face line shown on the plans shall not exceed ½ inch when measured along a 8 foot straightedge. The overall tolerance of the wall from top to bottom shall not exceed ½ inch per eight feet of wall height or one inch total, whichever is the lesser, measured from the face line shown on the plans. A bond breaker shall be placed between the blocks and any adjacent cast-in-place concrete.

2 - Backfilling: Backfill placement shall closely follow erection of each course of panels. Backfill shall be placed in such a manner as to avoid any damage or disturbance to the wall materials or misalignment of the facing panels. Any wall materials which become damaged or disturbed during backfill placement shall be either removed and replaced at the Contractor's expense or corrected, as directed by the Engineer. Any backfill material placed within the reinforced soil mass which does not meet the requirements of this specification shall be corrected or removed and replaced at the Contractor's expense.

Backfill shall be compacted to 95 percent of the maximum density as determined by AASHTO T-99, Method C or D (with oversize correction, as outlined in Note 7).

The moisture content of the backfill material prior to and during compaction shall be uniform throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with a placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniform and acceptable throughout the entire lift. The optimum moisture content shall be determined in accordance with AASHTO T-99, Method C or D (with oversize correction, as outlined in Note 7).

If 30 percent or more of the backfill material is greater than 19 mm in size, AASHTO T-99 is not applicable. For such a material, the acceptance criterion for control of compaction shall be either a minimum of 70 percent of the relative density of the material as determined by a method specification provided by the wall supplier, based on a test compaction section, which defines the type of equipment, lift thickness, number of passes of the specified equipment, and placement moisture content.

The maximum lift thickness after compaction shall not exceed 10 inches, regardless of the vertical spacing between layers of soil reinforcements. The Contractor shall decrease this lift thickness, if necessary, to obtain the specified density. Prior to placement of the soil reinforcements, the backfill elevation at the face shall be level with the connection after compaction. From a point approximately three feet behind the back face of the panels to the free end of the soil reinforcements the backfill shall be two inches above the attachment device elevation unless otherwise shown on the plans.

Compaction within three feet of the back face of the panels shall be achieved by at least three passes of a lightweight mechanical tamper, roller or vibratory system. The specified lift thickness shall be adjusted as warranted by the type of compaction equipment actually used. Care shall be exercised in the compaction process to avoid misalignment of the panels or damage to the attachment devices. Heavy compaction equipment shall not be used to compact backfill within three feet of the wall face.

At the end of each day's operation, the Contractor shall slope the last level of backfill away from the wall facing to direct runoff of rainwater away from the wall face. The Contractor shall control and divert runoff at the ends of the wall such that erosion or washout of the wall section does not occur. In addition, the Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3 - Face Sealer: After the wall has been erected, the entire exposed face of the wall shall be coated with Penetrating Sealer Protective Compound. The application of the sealer shall conform to the requirements Article 8.19.03 of the Form 816.

Several samples of the dry cast block shall be sealed prior to sealing the actual wall to ensure that the sealer will not discolor the block. If the sealer does discolor the block, the Contractor shall change to another approved supplier of sealer.

240.5 Method of Measurement: This work will be paid for on a lump sum basis and will not be measured for payment.

240.6 Basis of Payment: This work will be paid for at the contract lump sum listed in the bid proposal for "SEGMENTAL RETAINING WALL SITE NO. 1" and “SEGMENTAL RETAINING WALL SITE NO. 2” complete in place, which price shall include all work shown within the pay limits shown on the plans for the retaining walls including but not limited to the following:

1. Design, detailing, and specifications for the wall.

2. Excavation for the wall.

3. Design and Construction of temporary earth retaining systems for the support of the slope during construction.

4. Construction of the wall, including the unreinforced concrete leveling pad.

5. The furnishing, placing and compacting of pervious structure backfill within the maximum payment lines.

6. The furnishing and placing of backfill drainage systems for the wall, including underdrain piping, excavation, and modifications of existing drainage structures as required for connection of the underdrain to the existing drainage system.

7. Any other work and materials shown on the plans for the construction of the wall.

The price shall also include all materials, equipment, tools and labor incidental thereto.

If bedrock or large boulders (greater than one cubic yard) are encountered in the excavation, the payment for it's removal will be made under the item "Rock Excavation".

224.0 STONE RETAINING WALL

224.1 Description: This item shall consist of approved stone, constructed so as to fit neatly and firmly in such shapes and at such places as indicated on the plans or where directed, and in accordance with these specifications or as approved by the Engineer.

224.2 Materials: The stone for the retaining wall shall conform as near as practical to, in size color and shape, the existing retaining wall along the driveway of #1554 Main Street. Stone shall be local stone provided by Tower Hill Quarry on New London Turnpike in Glastonbury, Connecticut or approved equal. The Contractor shall submit a sample of the stone to the Engineer for approval. Any variations shall be approved by the Engineer.

The materials for the gravel base shall meet the requirements of Section M.02.01 of the Form 816 for broken or crushed stone.

Drainage aggregate backfill behind the wall shall consist of ¾" stone.

224.3 Construction Methods: The stone retaining wall shall be constructed on a processed stone base and in the location and to the dimensions shown on the plans or as ordered.

1. A foundation for the stone wall consisting of 12-inch of processed stone shall be installed to limits shown on the drawings.

2. Dressing Stone: All necessary dressing or shaping of stone shall be done before the stone is laid in the wall. No dressing or hammering which will loosen the stone will be permitted after it is placed. Stones at angles or at ends of walls shall be roughly squared and dressed to the required lines.

2. Laying Stones: The masonry shall be laid to line in courses, roughly leveled up. The bottom or foundation courses shall be composed of large, selected stones, and all courses shall be laid with bearing beds parallel to the natural bed of the material. Face joints shall have a width of not more than 1 1/2 inches (38 millimeters). In laying rubble masonry, care shall be taken that each stone takes a firm bearing at not less than three separate points upon the underlying course. Open joints, both front and rear, shall be chinked with spalls, fitted to take firm bearing upon their top and bottom surfaces, for the purpose of securing firm bearing throughout the length of the stone. Cap stones shall be mortared in place as shown on the plans.

224.4 Method of Measurement: The quantity of stone retaining wall shall be the actual number of square feet of wall face and cap stones completed and accepted, within the neat lines of the structure as shown on the plans or as ordered by the Engineer.

Processed stone for the base of the wall and ¾" stone backfill for behind the wall shall not be measured for payment, but rather shall be included in the contract unit price for Stone Retaining Wall.

224.5 Basis of Payment: This work of installing the stone masonry retaining wall will be paid for at the contract unit price for "Stone Retaining Wall", complete in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.

250.0 THREE RAIL CEDAR FENCE

250.1 General: The work under this item shall consist of furnishing and installing a 48-inch tall cedar fence with round posts and three round rails, including associated concrete footings to be used as a safety fence along the edge of the proposed sidewalk as shown on the plans.

250.2 Materials:

CONCRETE: Concrete for footings shall conform to CDOT Form 816, Article M.03.01 – Class "C".

Fence shall comply with ASTM F537 Standard Specification for Design, Fabrication and Installation of Fences Constructed of Wood and Related Materials.

SPECIES OF WOOD: Northern White Cedar or other approved durable, decay resistant species.

STRUCTURAL FRAME: (All round members)

1. Nominal post size: 5 inch diameter
2. Nominal rail size: 4 inch diameter
3. Above ground height of fence top rail: 48 inches
4. Post spacing: 8 feet
5. Total number of rails per section: 3

QUALITY STANDARDS FOR SPLIT POSTS AND RAILS: Posts and rails shall be graded on the basis of strength and appearance. Tolerances for dimensional variation are also provided since it is impossible for each post or rail to be exactly alike due to its hand-crafted method of manufacture; therefore the dimensions are average and approximate within tolerances shown.

1. A – ½" tolerance in girth shall be allowed for variation in the finished product.

2. All longitudinal shaping shall be developed by splitting with axe, froe, wedge, or machine. Cut, torn, or rough grain shall not be classified as defects.

3. Knots shall not exceed one half of the narrowest dimension in size.

4. Spiral grain shall not exceed a one-quarter twist within the length of the piece.

5. Kinks, bends, crooks, or sweep shall not be greater than the equivalent of the narrowest dimension, measured as a deviation from a straight line drawn along the center from end to end.

6. No outer bark, sap rot, char, or unsightly discolorations shall be permitted. Limited heart rot or peck in streaks or pockets shall be permitted. Rustic colorations due to normal weathering and seasoning shall be permitted.

7. Scars, wounds, or splits shall not exceed one fourth the depth of the member at the area affected.

250.3 Construction Methods: Drill post holes into firm undisturbed or compacted earth as detailed. Align each post both vertically and laterally. Secure in position and fill with concrete up to within 3" of ground surface.

Install rails in accordance with the manufacturer's installation instructions, accurately to required lines and levels, true, plumb and level.

Clean up during installation and upon completion of fencing work. Remove from site all waste and excess materials, debris, tools, and equipment. Repair any damage resulting from fence installation.

250.4 Basis of Payment: Work completed under this item shall be measured and paid for at the contact unit price per linear foot of "Three Rail Cedar Fence" as listed in the bid proposal, completed in place and accepted by the Engineer. Said unit price shall include all materials, equipment, tools, labor, and work incidental thereto.

301.0 MAINTENANCE AND PROTECTION OF TRAFFIC

301.1 Description: Unless other provisions are made on the plans or in the Special Conditions, the Contractor shall keep the roadway open to traffic for the full length of the project and shall provide a sufficient number of travel lanes and pedestrian pathways to move that traffic ordinarily using the roadway. The travel lanes and pedestrian pathways shall be drained and kept reasonably smooth and in suitable condition at all times in order to provide minimum interference with traffic and consistent with proper execution of the work. Suitable ingress and egress shall be provided at all times where required for all intersecting roads and for all abutting properties that have legal access.

The Contractor shall maintain and protect traffic as follows and as limited in the SPECIAL CONDITIONS Section 17.00 Prosecution and Progress.

MAIN STREET AND SIDE STREETS

The Contractor shall maintain and protect one lane of through traffic in each direction, including turning lanes, each lane on a paved travelpath not less than 11 feet in width.

COMMERCIAL AND RESIDENTIAL DRIVEWAYS

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the project limits. The Contractor will be allowed to close said driveways to perform the required work during those periods when the businesses are closed unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure.

Temporary ramps shall be constructed and maintained to provide suitable access to adjacent residential and commercial driveways throughout all phases of construction.

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

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

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

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

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

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

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

TRAFFIC CONTROL PATTERNS: Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the speed and volume of traffic, duration of operation, and 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.

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 may be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

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

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

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

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

TABLE I – MINIMUM TAPER LENGTHS

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

INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.
b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.
c) Stopping traffic may be allowed as per the contract for such activities as blasting, steel erection, etc; or during paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on

the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation; or to move slow moving equipment across live traffic lanes into the work area.

d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or State Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic.
e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper 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.
g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.
h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

USE OF TRAFFIC DRUMS AND TRAFFIC CONES

a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.
b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 72-hour duration.
c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.
d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

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

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

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

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

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

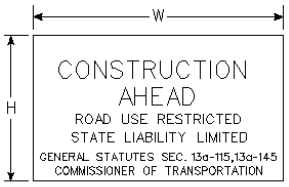
The contract lump sum price for "Maintenance and Protection of Traffic" shall also include furnishing, installing, and removing the material for the temporary traversable slope in those areas where a longitudinal dropdown exists.

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

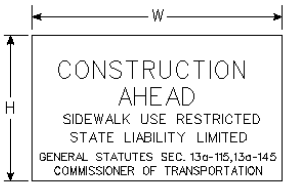
The contract lump sum price for "Maintenance and Protection of Traffic" shall also include temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing, and removing temporary sign supports and foundations if necessary during construction of the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

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

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"

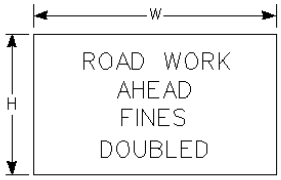
THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

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"

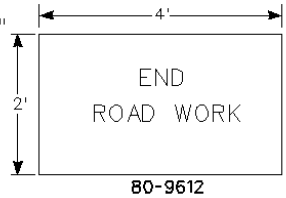
THE REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHEN THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.
THE "ROAD WORK AHEAD, FINES DOUBLED" REGULATORY SIGNS SHALL NOT BE INSTALLED ON TOWN ROADS.
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.



W H
31-1906 48" x 42"

"END ROAD WORK" SIGN

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



80-9612

REV'D 1-02

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN

REQUIRED SIGNS

APPROVED J.Carey PRINCIPAL ENGINEER DATE 1-02

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. A CHANGEABLE MESSAGE SIGN MAY BE UTILIZED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
5. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 72 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.
6. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA WILL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS REOPENED TO ALL LANES OF TRAFFIC.
7. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN THE EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED AND TEMPORARY PAVEMENT MARKINGS THAT DEPICT THE PROPER TRAVELPATHS SHALL BE INSTALLED.
8. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 200' ON LOW SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).
9. FOR LANE CLOSURES ONE (1) MILE OR LONGER, A "REDUCE SPEED TO 45 MPH" SIGN SHALL BE PLACED AT THE ONE MILE POINT AND AT EACH MILE THEREAFTER.
10. 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.
11. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
12. FOR METRIC PROJECTS USE THE CONVERSION CHART BELOW.

METRIC CONVERSION CHART (1" = 25mm)

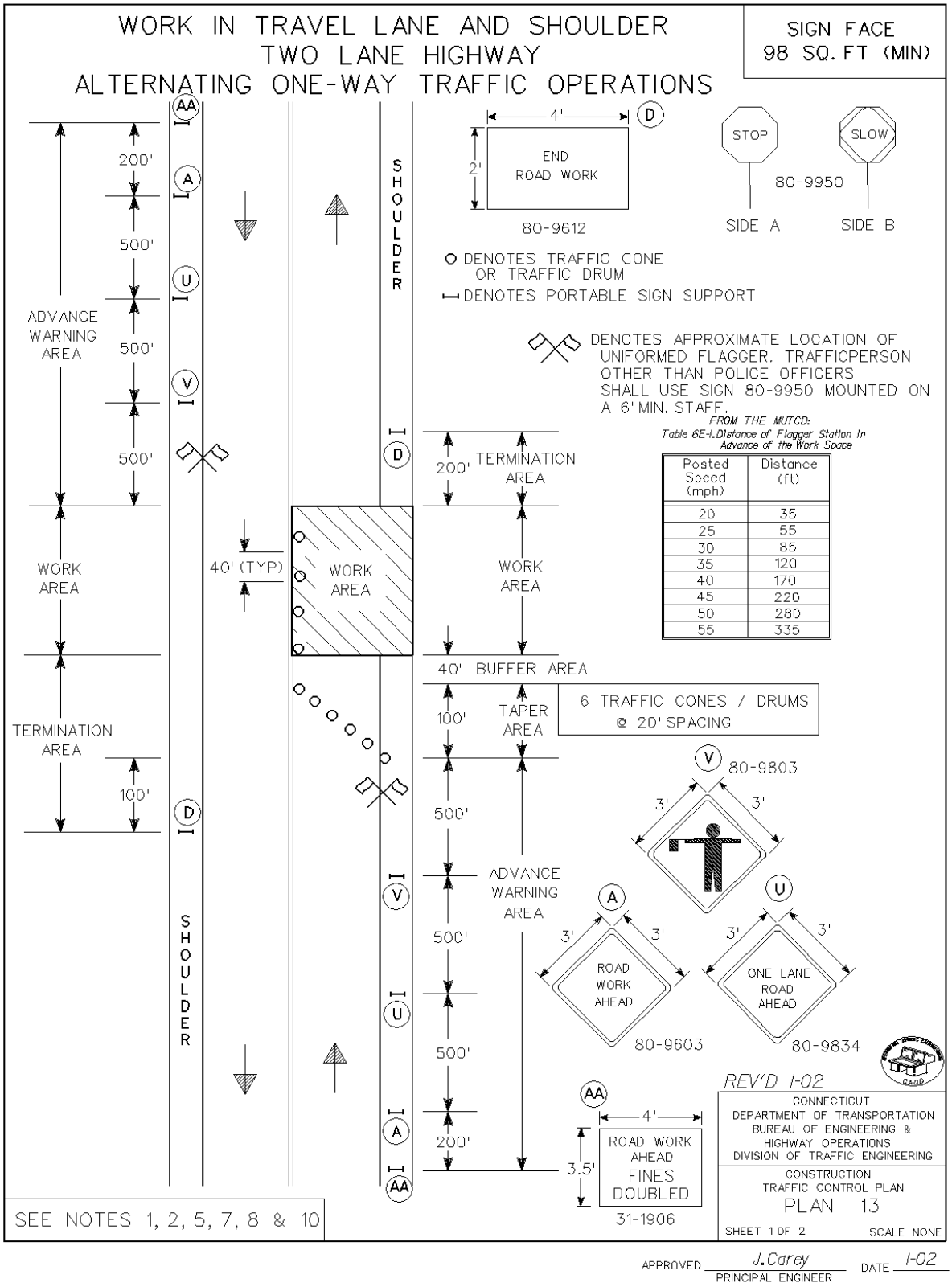
ENGLISH	METRIC	ENGLISH	METRIC	ENGLISH	METRIC
12"	300	42"	1050	72"	1800
18"	450	48"	1200	78"	1950
24"	600	54"	1350	84"	2100
30"	750	60"	1500	90"	2250
36"	900	66"	1650	96"	2400

REV'D 3-11

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
NOTES

NOTES-V8.DGN


WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS
SIGN FACE
98 SQ. FT (MIN)
ADVANCE WARNING AREA
200'
500'
500'
500'
WORK AREA
TERMINATION AREA
100'
40' (TYP)
SHOULDER
SHOULDER
WORK AREA
4'
2'
END ROAD WORK
80-9612
STOP
SLOW
80-9950
SIDE A
SIDE B
O DENOTES TRAFFIC CONE OR TRAFFIC DRUM
I DENOTES PORTABLE SIGN SUPPORT
DENOTES APPROXIMATE LOCATION OF UNIFORMED FLAGGER. TRAFFICPERSON OTHER THAN POLICE OFFICERS SHALL USE SIGN 80-9950 MOUNTED ON A 6' MIN. STAFF.
FROM THE MUTCD:
Table 6E-1.Distance of Flagger Station In Advance of the Work Space
Posted Speed (mph) | Distance (ft)
20 | 35
25 | 55
30 | 85
35 | 120
40 | 170
45 | 220
50 | 280
55 | 335
200' TERMINATION AREA
WORK AREA
40' BUFFER AREA
100' TAPER AREA
6 TRAFFIC CONES / DRUMS @ 20' SPACING
500'
ADVANCE WARNING AREA
500'
500'
200'
80-9803
3'
3'
ROAD WORK AHEAD
80-9603
ONE LANE ROAD AHEAD
80-9834
4'
3.5'
ROAD WORK AHEAD
FINES DOUBLED
31-1906
REV'D 1-02
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 13
SHEET 1 OF 2
SCALE NONE
SEE NOTES 1, 2, 5, 7, 8 & 10
APPROVED J.Carey PRINCIPAL ENGINEER
DATE 1-02

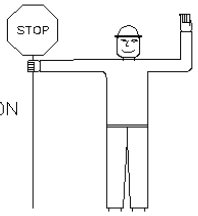
WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.04 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 TYPICAL DETAIL SHEET ENTITLED "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

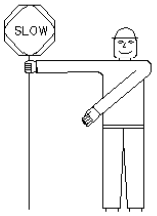
A. TO STOP TRAFFIC

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.



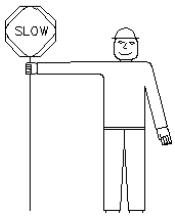
B. TO DIRECT TRAFFIC TO PROCEED

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.



REV'D 1-02

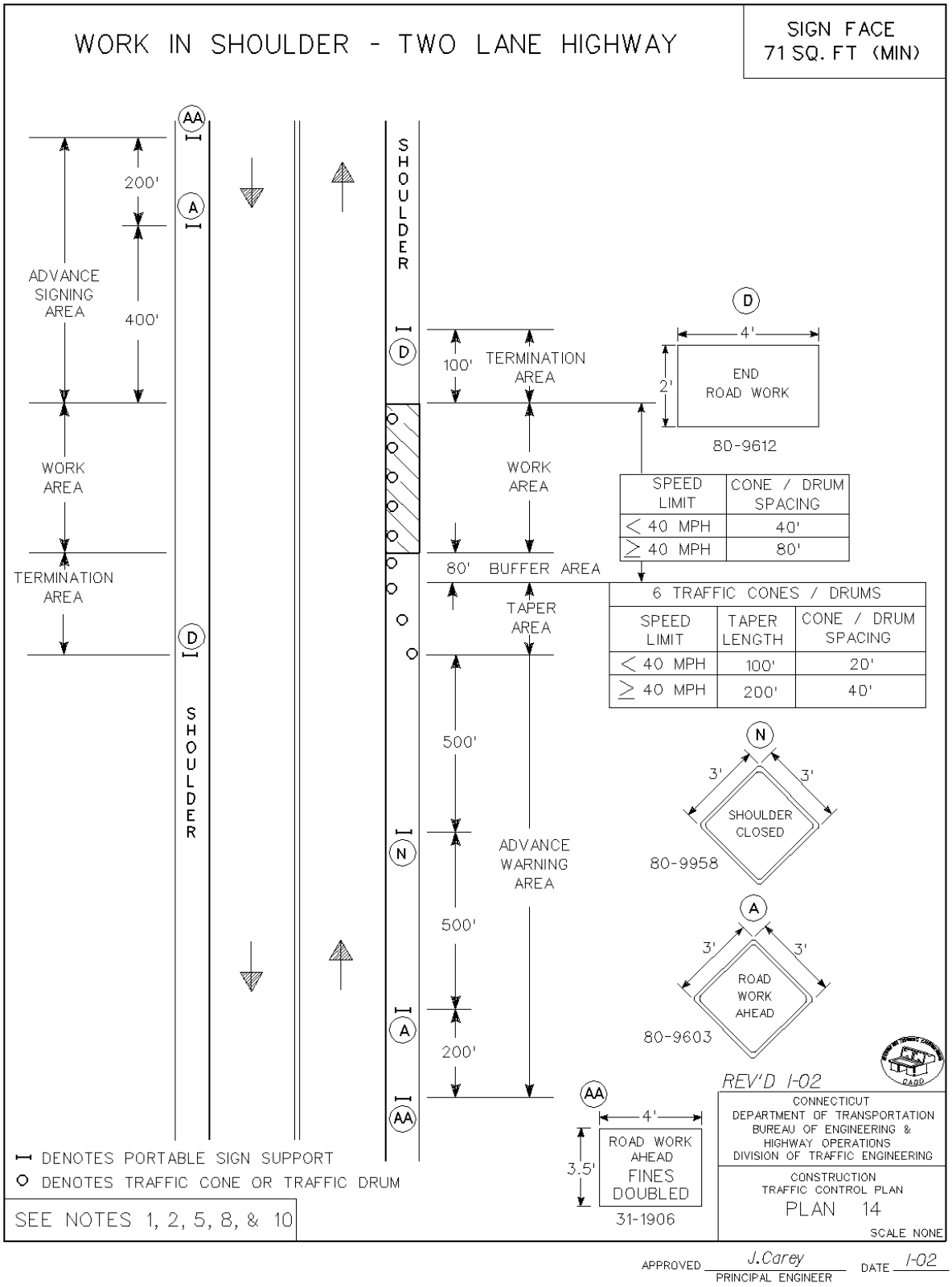
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

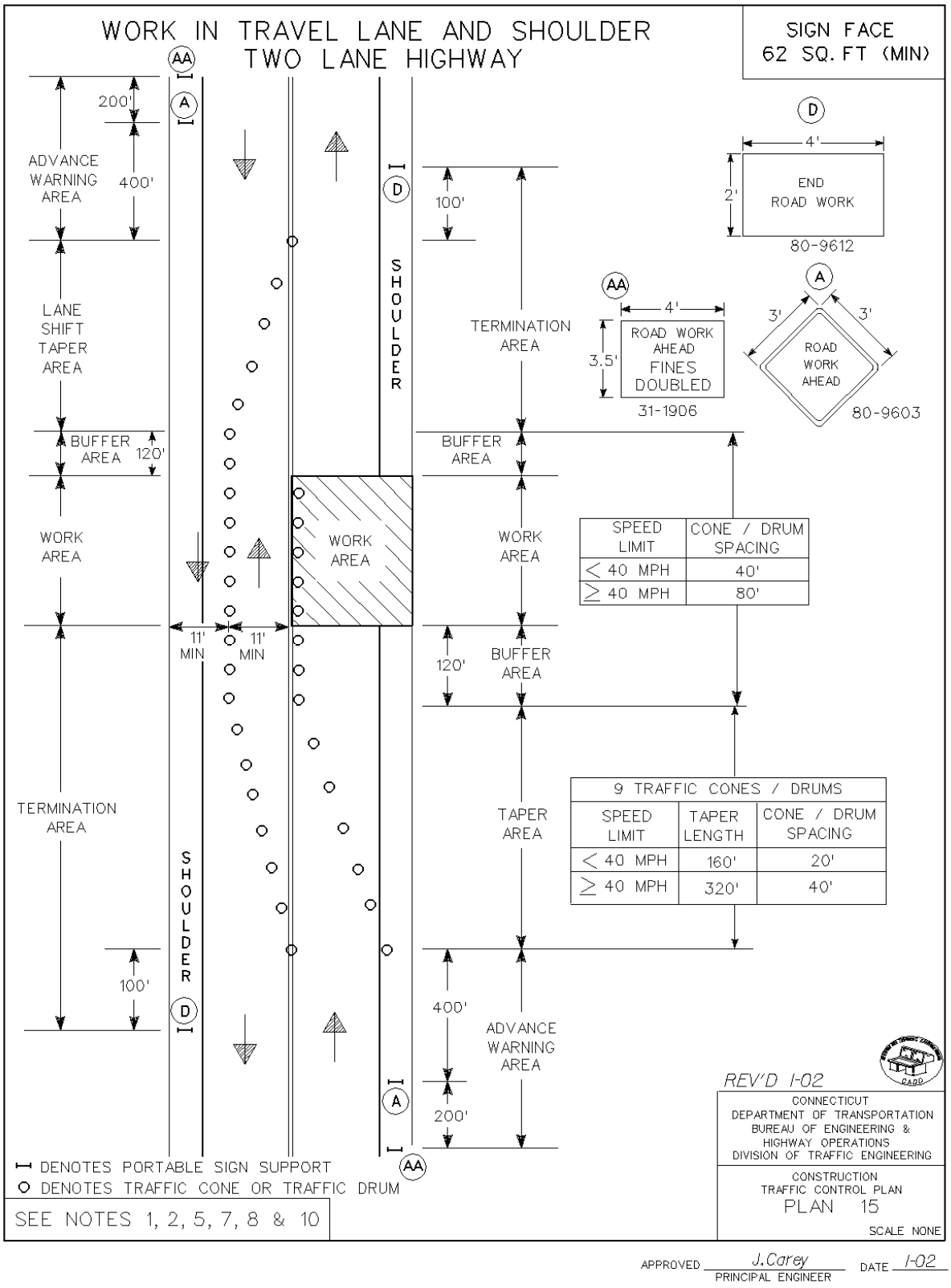
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 13

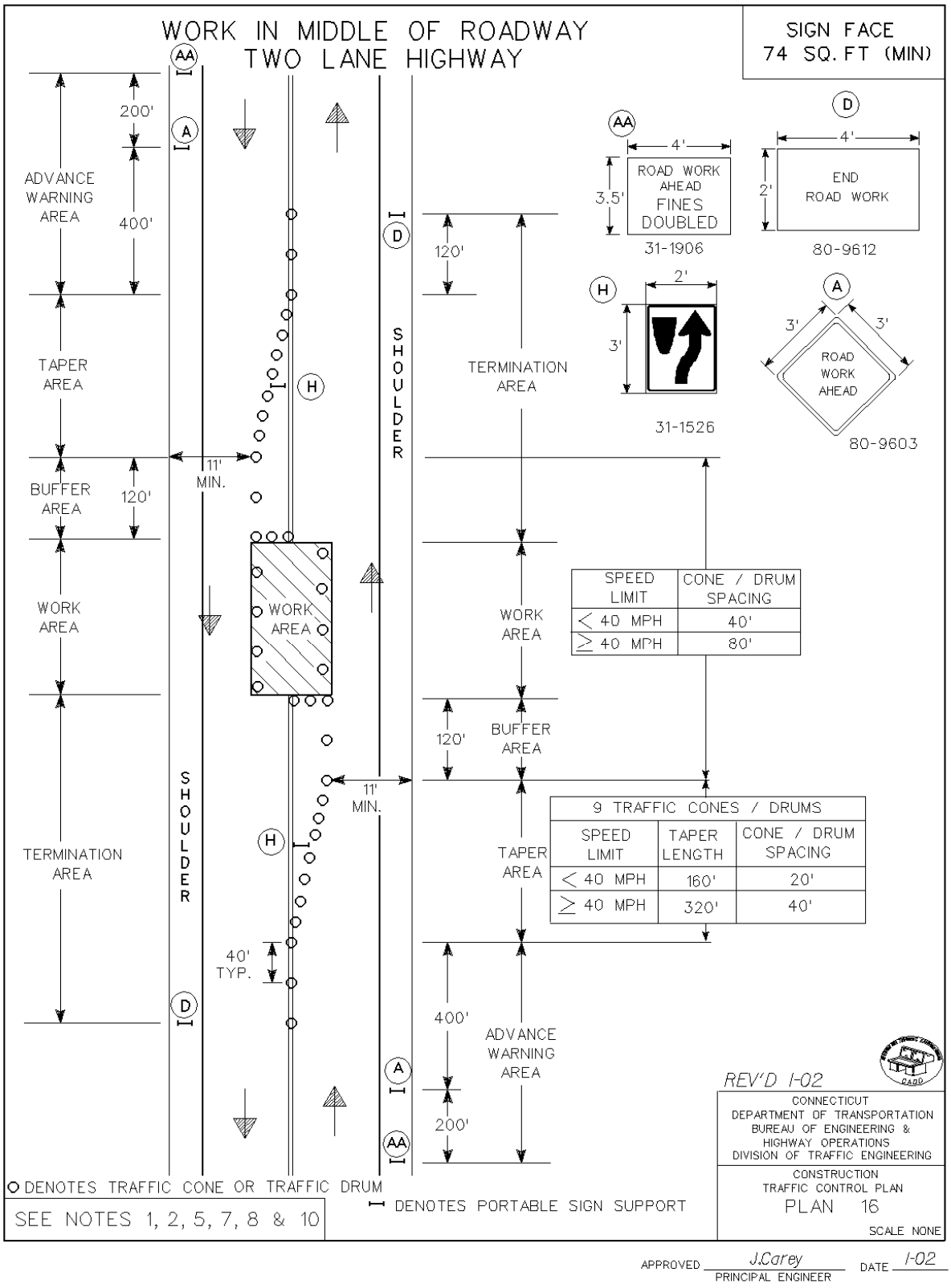
SHEET 2 OF 2 SCALE NONE

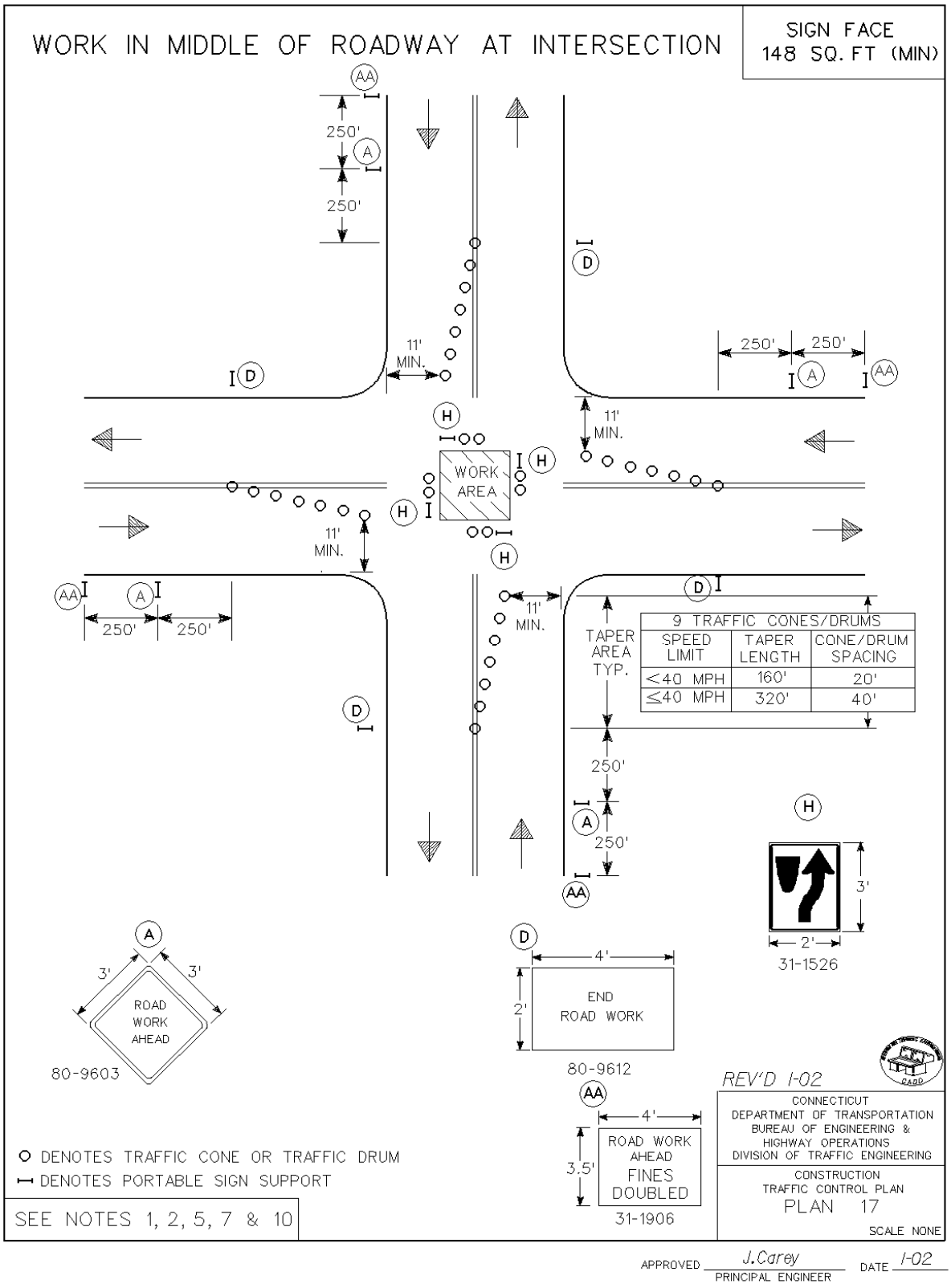
SEE NOTES 1, 2, 5, 7, 8 & 10

APPROVED J. Carey PRINCIPAL ENGINEER DATE 1-02


WORK IN SHOULDER - TWO LANE HIGHWAY
SIGN FACE
71 SQ. FT (MIN)
AA
A
D
N
200'
400'
ADVANCE SIGNING AREA
WORK AREA
TERMINATION AREA
SHOULDER
SHOULDER
100'
TERMINATION AREA
WORK AREA
80' BUFFER AREA
TAPER AREA
500'
500'
200'
ADVANCE WARNING AREA
4'
2'
END ROAD WORK
80-9612
SPEED LIMIT
CONE / DRUM SPACING
< 40 MPH
40'
≥ 40 MPH
80'
6 TRAFFIC CONES / DRUMS
SPEED LIMIT
TAPER LENGTH
CONE / DRUM SPACING
< 40 MPH
100'
20'
≥ 40 MPH
200'
40'
3'
3'
SHOULDER CLOSED
80-9958
ROAD WORK AHEAD
80-9603
4'
3.5'
ROAD WORK AHEAD
FINES DOUBLED
31-1906
I DENOTES PORTABLE SIGN SUPPORT
O DENOTES TRAFFIC CONE OR TRAFFIC DRUM
SEE NOTES 1, 2, 5, 8, & 10
REV'D 1-02
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 14
SCALE NONE
APPROVED J.Carey PRINCIPAL ENGINEER
DATE 1-02


WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
SIGN FACE
62 SQ. FT (MIN)
ADVANCE WARNING AREA
200'
400'
LANE SHIFT TAPER AREA
BUFFER AREA
120'
WORK AREA
TERMINATION AREA
100'
SHOULDER
11' MIN
11' MIN
WORK AREA
TERMINATION AREA
BUFFER AREA
120'
BUFFER AREA
WORK AREA
TAPER AREA
400'
ADVANCE WARNING AREA
200'
SHOULDER
END ROAD WORK
4'
2'
80-9612
ROAD WORK AHEAD FINES DOUBLED
4'
3.5'
31-1906
ROAD WORK AHEAD
3'
3'
80-9603
SPEED LIMIT | CONE / DRUM SPACING
< 40 MPH | 40'
≥ 40 MPH | 80'
9 TRAFFIC CONES / DRUMS
SPEED LIMIT | TAPER LENGTH | CONE / DRUM SPACING
< 40 MPH | 160' | 20'
≥ 40 MPH | 320' | 40'
DENOTES PORTABLE SIGN SUPPORT
DENOTES TRAFFIC CONE OR TRAFFIC DRUM
SEE NOTES 1, 2, 5, 7, 8 & 10
REV'D 1-02
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 15
SCALE NONE
APPROVED J. Carey PRINCIPAL ENGINEER
DATE 1-02


WORK IN MIDDLE OF ROADWAY
TWO LANE HIGHWAY
SIGN FACE
74 SQ. FT (MIN)
ADVANCE WARNING AREA
200'
400'
TAPER AREA
BUFFER AREA
120'
WORK AREA
TERMINATION AREA
11' MIN.
SHOULDER
40' TYP.
ROAD WORK AHEAD
FINES DOUBLED
31-1906
END ROAD WORK
80-9612
31-1526
ROAD WORK AHEAD
80-9603
SPEED LIMIT
CONE / DRUM SPACING
< 40 MPH
≥ 40 MPH
40'
80'
9 TRAFFIC CONES / DRUMS
SPEED LIMIT
TAPER LENGTH
CONE / DRUM SPACING
160'
320'
20'
40'
REV'D 1-02
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 16
SCALE NONE
O DENOTES TRAFFIC CONE OR TRAFFIC DRUM
I DENOTES PORTABLE SIGN SUPPORT
SEE NOTES 1, 2, 5, 7, 8 & 10
APPROVED J.Carey PRINCIPAL ENGINEER
DATE 1-02


WORK IN MIDDLE OF ROADWAY AT INTERSECTION
SIGN FACE
148 SQ. FT (MIN)
AA
250'
A
250'
D
11'
MIN.
250'
250'
A
AA
H
WORK
AREA
11'
MIN.
11'
MIN.
AA
A
250'
250'
11'
MIN.
D
TAPER
AREA
TYP.
9 TRAFFIC CONES/DRUMS
SPEED LIMIT | TAPER LENGTH | CONE/DRUM SPACING
<40 MPH | 160' | 20'
≤40 MPH | 320' | 40'
250'
A
250'
AA
H
3'
2'
31-1526
A
3'
3'
ROAD
WORK
AHEAD
80-9603
D
4'
2'
END
ROAD WORK
80-9612
AA
4'
3.5'
ROAD WORK
AHEAD
FINES
DOUBLED
31-1906
O DENOTES TRAFFIC CONE OR TRAFFIC DRUM
I DENOTES PORTABLE SIGN SUPPORT
SEE NOTES 1, 2, 5, 7 & 10
REV'D 1-02
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING &
HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 17
SCALE NONE
APPROVED J.Carey
PRINCIPAL ENGINEER
DATE 1-02

302.0 TRAFFICPERSON

302.1 General: This item shall conform to Section 9.70 TRAFFICPERSON, of the Form 816.

302.3 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 Legal 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."

303.3 Basis of Payment: Replace Section 9.70.05 with the following:

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

1. Uniformed Flagger: Uniformed flaggers will be paid for at the contract unit price per hour for "Trafficperson (Uniformed Flagger)" as listed in the bid proposal, which price shall include all compensation, insurance benefits, and any other cost or liability incidental to the furnishing of the trafficpersons ordered."

2. Police Officers: 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.

When the trafficperson consists of Town of Glastonbury Police Officers, the Contractor shall provide the invoices from such work to the Engineer and the Town will pay these invoices directly. Under these circumstances, the Contractor will be reimbursed only for the 5% markup on the actual cost of police services under this line item.

305.0 BARRICADE WARNING LIGHTS

305.1 General: This item shall conform to SECTION 9.76 BARRICADE WARNING LIGHTS of the Form 816.

306.0 TRAFFIC CONE

306.1 General: This item shall conform to SECTION 9.77 TRAFFIC CONE of the Form 816.

307.0 TRAFFIC DRUM

307.1 General: This item shall conform to SECTION 9.78 TRAFFIC DRUM of the Form 816.

308.0 CONSTRUCTION BARRICADE TYPE III

308.1 General: The Contractor shall furnish construction barricades to conform to the requirements of NCHRP Report 350 (TL-3) and to the requirements stated in Article 9.71 "Maintenance and Protection of Traffic," as shown on the plans and/or as directed by the Engineer.

308.2 Materials: Prior to using the construction barricades, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices conform to NCHRP Report 350 (TL-3).

Alternate stripes of white and orange Type III or Type VI reflective sheeting shall be applied to the horizontal members as shown on the plans. Application of the reflective sheeting shall conform to the requirements specified by the reflective sheeting manufacturer. Only one type of sheeting shall be used on a barricade and all barricades furnished shall have the same type of reflective sheeting. Reflective sheeting shall conform to the requirements of Article M.18.09.01.

Construction barricades shall be designed and fabricated so as to prevent them from being blown over or displaced by the wind from passing vehicles. Construction barricades shall be approved by the Engineer before they are used.

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

Barricades that are no longer required shall be removed from the project and shall remain the property of the Contractor.

308.4 Method of Measurement: Construction Barricade Type III will be measured for payment by the number of construction barricades required and used.

308.5 Basis of Payment: "Construction Barricade Type III" required and used will be paid for at the Contract unit price per each. Each barricade will be paid for once, regardless of the number of times it is used.

310.0 CONSTRUCTION SIGNS – TYPE III REFLECTIVE SHEETING

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

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

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

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

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

The following types of construction signs shall not be used: mesh, non-rigid, roll-up.

The following portable sign support systems or equivalent systems that meet the above requirements may be used:

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

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

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

310.4 Method of Measurement: Construction Signs - Type III Reflective Sheeting will be measured for payment by the number of square feet of sign face. Sign supports will not be measured for payment.

310.5 Basis of Payment: "Construction Signs – Type III Reflective Sheeting" required and used on the project will be paid for at the Contract unit price per square foot. This price shall include the furnishing and maintenance of the signs, portable sign supports, metal sign posts and all hardware. Each sign and support or posts will be paid for once, regardless of the number of times it is used.

403.0 EARTH TRENCH EXCAVATION

403.01 General: 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.

403.02 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.

403.03 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.

403.04 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.

The maximum permissible trench width to be paid 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 as per maximum trench widths or actual trench width, whichever is the least.

403.05 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.

403.06 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 to 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.

403.07 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.

403.08 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 extend of the open excavation go beyond two structures.

403.09 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.

403.10 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 B concrete if the excavation was for a masonry structure.

403.11 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.

403.12 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.

403.13 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.

403.14 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.

403.15 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 MEASUREMENT AND PAYMENT.

403.16 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.

403.17 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.

403.18 Payment: This item will not be paid for separately. Rather, payment for earth trench excavation and the disposal of surplus excavated material shall be included in the unit price or lump sum price of the item associated therewith.

TABLE 403-1

TRENCH WIDTHS

Maximum pay limits for trench widths are as follows:

Where the Contractor chooses not to use trench supports the Contractor will still be paid as per maximum trench widths.

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

404.0 TRENCH DEWATERING

404.1 General: 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 of in a suitable manner 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.

404.2 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 Mirafi 140 or equal as outlined in Section 409.05 of these specifications, 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.

404.3 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.

404.4 Payment: This item will not be paid for separately. Rather, payment for trench dewatering shall be included in the unit price of the item associated therewith.

405.0 BACKFILLING AND CONSOLIDATION

405.1 General: 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.

405.2 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.

405.3 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.

a. 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.

b. 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.

c. 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.

405.4 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.

405.5 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.

405.6 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.

405.7 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.

405.8 Compaction Test: When, in the opinion of the Engineer, such tests are necessary, the Contractor shall have compaction density tests taken by an approved independent laboratory. Ninety five percent of the maximum density determined in accordance with AA SHOT 180 Method D shall be achieved.

405.9 Payment: This item will not be paid for separately. Rather, payment for backfilling and consolidation shall be included in the unit price or lump sum price of the item associated therewith.

406.0 PIPES AND CULVERTS

406.1 General: These items shall conform to Section 6.51 CULVERTS of the Form 816, modified as follows:

Trench excavation, dewatering, and backfill for these items shall be according to Section 403.0 EARTH TRENCH EXCAVATION, Section 404.0 TRENCH DEWATERING, and Section 405.0 BACKFILLING AND CONSOLIDATION of these specifications.

406.2 Method of Measurement: There will be no direct measurement for trench excavation and there will be no measurement for payment for gravel fill, bedding material, or for the cost of connecting proposed drainage systems with existing systems, but the cost thereof shall be included in the contract unit price per linear foot for the size and type of pipe being installed.

406.3 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 and all other materials, equipment, tools, and labor incidental thereto.

407.0 CATCH BASINS AND DROP INLETS

407.1 General: These items shall conform to Section 5.07 CATCH BASINS, MANHOLES, AND DROP INLETS of the Form 816, modified as follows:

Trench excavation, dewatering, and backfill for these items shall be according to Section 403.0 EARTH TRENCH EXCAVATION, Section 404.0 TRENCH DEWATERING, and Section 405.0 BACKFILLING AND CONSOLIDATION of these specifications.

Manholes shall not be included under this item, but shall conform to Section 508.0 MANHOLES of these specifications.

407.2 Method of Measurement: There will be no direct measurement for trench excavation in the installation of the various drainage appurtenances.

407.3 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.

410.0 UNDERDRAIN

410.1 General: These items shall conform to Section 7.51 UNDERDRAINS AND OUTLETS of the Form 816, modified as follows:

410.2 Construction Methods: Trench excavation, dewatering, and backfill for these items shall be according to Section 403.0 EARTH TRENCH EXCAVATION, Section 404.0 TRENCH DEWATERING, and Section 405.0 BACKFILLING AND CONSOLIDATION of these specifications.

509.0 RESET MANHOLE

509.1 General: Under this item shall be included the alteration or reconstruction of existing 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.

509.2 Construction Methods: 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.

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.

509.3 Payment: Reset Units will be paid for at the contract unit price each for "Reset Manhole," of the type specified, respectively, complete in place, which price shall include excavation, pervious material, backfill, cutting of pavement, removal and replacement of pavement structure, extensions, concrete masonry units, mortar, and all materials, equipment, tools and labor incidental thereto.

Proposal of _____

(hereinafter called "Bidder"), organized and existing under the laws of the State of _____

_____, doing business as _____

_____.

To the Town of Glastonbury (hereinafter called "Town").

In compliance with your Invitation to Bid, the Bidder hereby proposed to furnish materials and/or services as per Bid Number GL-2014-07 in strict accordance with the Bid Documents, within the time set forth therein, and at the prices stated below.

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.

The Bidder acknowledges receipt of the following:

Addendum #1_____

Addendum #2_____

Addendum #3_____

It is the responsibility of the Bidder to check the Town's website for any Addendum before submitting the bid.

TOWN OF GLASTONBURY			
BID / PROPOSAL		**GL # or RPGL #**	**2014-07**
DATE ADVERTISED	**7/01/2013**	**DATE / TIME DUE**	**7/18/2013 at 11:00 A.M.**

NAME OF PROJECT **Main Street Sidewalks – Whapley to Mallard**

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

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 21 of the Information for Bidders.**

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

_____ **5. Acknowledged Code of Ethics on page BP-5.**

_____ **6. Clearly marked envelope with Bid Number, Date, and Time of opening.**

BIDDER NAME:_____

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXT
1	Preparation of Site	LS	1		
2	Test Pits	EA	2		
3	Removal and Re-Establishment of Existing Plantings	LS	1		
4	Permanent Pavement Repair	SY	10		
5	Bituminous Concrete Lip Curb	LF	50		
6	Flood Compensation Area Excavation	LS	1		
7	Removal of Pavement	SY	500		
8	Concrete Sidewalk	SF	9,700		
9	Pedestrian Ramp	EA	10		
10	Grading & Topsoil	SY	2,800		
11	Turf Establishment	SY	2,800		
12	Wetland Seeding	SY	400		
13	Erosion Control Matting Type 'D'	SY	350		
14	Sediment Control System	LF	500		
15	Sediment Control Sack	EA	5		
16	Temporary Construction Entrance	LS	1		
17	Bituminous Concrete Driveway	SY	270		
18	Processed Stone Driveway	SY	30		
19	Stamped Concrete Driveway	SF	240		
20	Metal Beam Rail - Type RB350 (Weathering Steel)	LF	350		
21	Metal Beam Rail End Wraps (Weathering Steel)	EA	3		
22	Remove and Reset Metal Beam Rail	LF	250		

BIDDER NAME:_____

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXT
23	Remove and Reset Cobblestone Border	LF	80		
24	Tree Protection Trench	LF	260		
25	Segmental Retaining Wall Site No. 1	LS	1		
26	Segmental Retaining Wall Site No. 2	LS	1		
27	Stone Retaining Wall	SF	700		
28	Three Rail Cedar Fence	LF	450		
29	Maintenance and Protection of Traffic	LS	1		
30	Trafficperson Uniformed Flagger	HR	400		
31	Trafficperson Municipal Officer	EST	1	$15,000	$15,000
32	Barricade Warning Lights	DAY	600		
33	Traffic Cones	EA	20		
34	Traffic Drums	EA	20		
35	Construction Barricade Type III	EA	5		
36	Construction Signs Type III Reflective Sheeting	SF	100		
37	RCP 15" class IV	LF	45		
38	Underdrain	LF	50		
39	Catch Basin	EA	2		
40	Convert CB to Manhole	EA	2		
41	Reset Manhole	EA	2		

TOTAL BID AMOUNT: $_____

WRITTEN TOTAL AMOUNT:_____

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

ATTACHMENT A: PREVAILING WAGE INFORMATION

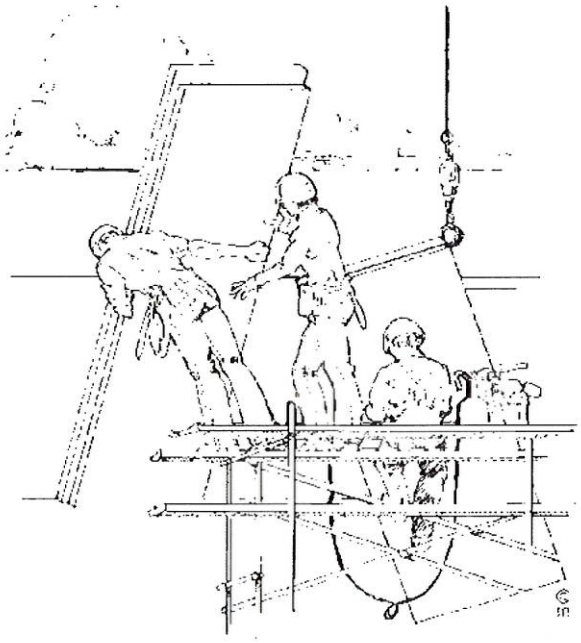
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

Statute 31-55a

Last Updated: April 22, 2010

- Special Notice -

To All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

◂-- Workplace Laws

Published by the Connecticut Department of Labor, Project Management Office

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

I,_____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____,_____.

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine

Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53.

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification.

Below are additional clarifications of specific job duties performed for certain classifications:

Asbestos Insulator

- Handle, install, apply, fabricate, distribute, prepare, alter, repair, or dismantle heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

Carpenter

- Assembly and installation of modular fumiture/fumiture systems.
  [New] a. Free-standing furniture is not covered. This includes: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two- position information access station, file cabinets, storage cabinets, tables, etc.
- Applies fire stopping materials on fire resistive joint systems only.
- Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings.
- Installation of curtain/window walls only where attached to wood or metal studs.

Cleaning Laborer

- The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification.*

Delivery Personnel (Revised)

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.
- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer/tradesman and not a delivery personnel.

Electrician

- Installation or maintenance of telecommunication, LAN wiring or computer equipment.
- Low voltage wiring.

Fork Lift Operator

- Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.
- Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

Glaziers

- Installs light metal sash, head sills, and 2-story aluminum storefronts.
- Installation of aluminum window walls and curtain walls is the 'Soidtwork of the Glaziers and Ironworkers classification which requires either a blended rate or equal composite workforce.

Ironworkers

- Handling, sorting, and installation of reinforcing steel (rebar).
- Installation of aluminum window walls and curtain walls is the "joint work" of the Glaziers and Ironworkers classification which requires either a blended rate or equal composite workforce. Insulated metal and insulated composite panels are still installed by the Ironworker.
- Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation.

Insulator

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.

Lead Paint Removal

- Painter Rate
    1. Removal of lead paint from bridges.
    2. Removal of lead paint as preparation of any surface to be repainted.
    3. Where removal is on a Demolition project prior to reconstruction.
- Laborer Rate
    1. Removal of lead paint from any surface NOT to be repainted.
    2. Where removal is on a *TOTAL* Demolition project only.

Roofers

- Preparation of surface, tear-off and/or removal of any type of roofing, and/or clean-up of any areas where a roof is to be relaid.

Sheet Metal Worker

- Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, wall panel siding, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Insulated metal and insulated composite panels are still installed by the Iron Worker. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers.

Truck Drivers

- Truck Drivers delivering asphalt are covered under prevailing wage while on the site and directly involved in the paving operation.
- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as hs is part of the construction process.


Any questions regarding the proper classification should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd, Wethersfield, CT 06 109 at (860) 263-6543.

Project: Main Street Sidewalks From Whapley Road To Mallard Drive

Minimum Rates and Classifications
for Heavy/Highway Construction

Connecticut Department of Labor
Wage and Workplace Standards Division

ID#: **H** 18030

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: GL-2014-07
Project Town: Glastonbury
FAP Number:
State Number:
Project: Main Street Sidewalks From Whapley Road To Mallard Drive

CLASSIFICATION	Hourly Rate	Benefits
01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 5 and 7**		
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	32.50	25.81
2) Carpenters, Piledrivermen	30.45	21.65

As of: Friday, June 28, 2013

Project: Main Street Sidewalks From Whapley Road To Mallard Drive

2a) Diver Tenders	30.45	21.65
3) Divers	38.91	21.65
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	44.25	17.75
4a) Painters: Brush and Roller	30.62	17.75
4b) Painters: Spray Only	33.62	17.75
4c) Painters: Steel Only	32.62	17.75
4d) Painters: Blast and Spray	33.62	17.75

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Project: Main Street Sidewalks From Whapley Road To Mallard Drive

4e) Painters: Tanks, Tower and Swing	32.62	17.75
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	37.60	23.35
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	33.50	28.98
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	39.31	26.27
----LABORERS---- -		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	26.40	17.15
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen, air tool operator	26.65	17.15

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10) Group 3: Pipelayers	26.90	17.15
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block pavers and curb setters	26.90	17.15
12) Group 5: Toxic waste removal (non-mechanical systems)	28.40	17.15
13) Group 6: Blasters	28.15	17.15
Group 7: Asbestos Removal, non-mechanical systems (does not include leaded joint pipe)	27.40	17.15
Group 8: Traffic control signalmen	16.00	17.15

----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----

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Project: Main Street Sidewalks From Whapley Road To Mallard Drive

13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	31.28	17.15 + a
13b) Brakemen, Trackmen	30.37	17.15 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	30.37	17.15 + a
15) Form Erectors	30.68	17.15 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	30.37	17.15 + a

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Project: Main Street Sidewalks From Whapley Road To Mallard Drive

17) Laborers Topside, Cage Tenders, Bellman	30.26	17.15 + a
18) Miners	31.28	17.15 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	37.41	17.15 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	37.22	17.15 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	35.35	17.15 + a
21) Mucking Machine Operator	37.97	17.15 + a

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----TRUCK DRIVERS----(*see note below)

Two axle trucks	27.88	18.27 + a
Three axle trucks; two axle ready mix	27.98	18.27 + a
Three axle ready mix	28.03	18.27 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	28.08	18.27 + a
Four axle ready-mix	28.13	18.27 + a
Heavy duty trailer (40 tons and over)	28.33	18.27 + a

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Project: Main Street Sidewalks From Whapley Road To Mallard Drive

Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	28.13	18.27 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over. (Trade License Required)	36.05	21.55 + a
Group 2: Cranes (100 ton rate capacity and over); Backhoe/Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer). (Trade License Required)	35.73	21.55 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	34.99	21.55 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	34.60	21.55 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	34.01	21.55 + a

Project: Main Street Sidewalks From Whapley Road To Mallard Drive

Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	34.01	21.55 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	33.70	21.55 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).	33.36	21.55 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	32.96	21.55 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	32.53	21.55 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	30.49	21.55 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	30.49	21.55 + a

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Group 12: Wellpoint Operator.	30.43	21.55 + a
Group 13: Compressor Battery Operator.	29.85	21.55 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	28.71	21.55 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	28.30	21.55 + a
Group 16: Maintenance Engineer/Oiler	27.65	21.55 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	31.96	21.55 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	29.54	21.55 + a

As of: Friday, June 28, 2013

Project: Main Street Sidewalks From Whapley Road To Mallard Drive

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

20) Lineman, Cable Splicer, Dynamite Man	44.36	3% + 13.70
21) Heavy Equipment Operator	39.92	3% + 13.70
22) Equipment Operator, Tractor Trailer Driver, Material Men	37.71	3% + 13.70
23) Driver Groundmen	33.27	3% + 13.70

----LINE CONSTRUCTION----

As of: Friday, June 28, 2013

Project: Main Street Sidewalks From Whapley Road To Mallard Drive

24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.10	6.5% + 10.70
27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45

As of: Friday, June 28, 2013

Project: Main Street Sidewalks From Whapley Road To Mallard Drive

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

As of: Friday, June 28, 2013

Project: Main Street Sidewalks From Whapley Road To Mallard Drive

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: Friday, June 28, 2013

CONNECTICUT DEPARTMENT OF LABOR
Wage and Workplace Standards Division

FOOTNOTES

Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Plasters, Stone Masons
(Building Construction)
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Bricklayer (Residential- Fairfield County)

a. Paid Holiday: If an employee works on Christmas Eve until noon he shall be paid for 8 hours.

Electricians
Fairfield County: West of the Five Mile River in Norwalk

a. $2.00 per hour not to exceed $14.00 per day.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive workdays prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular workday preceding the holiday or the regular workday following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

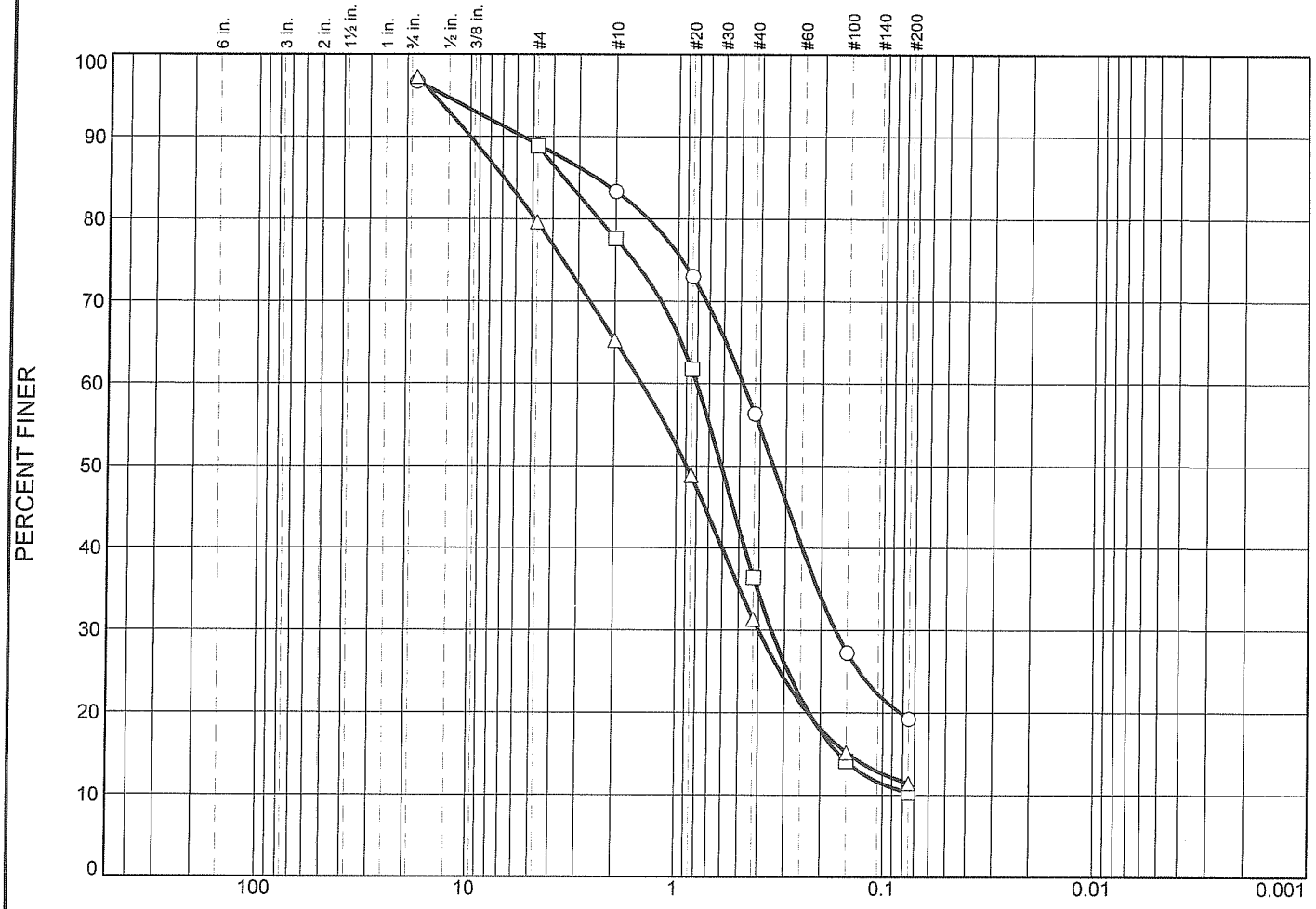
a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

ATTACHMENT B: SOILS INFORMATION

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				6	27	37	19	
□				11	42	26	10	
△				15	34	20	11	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			2.4981	0.4839	0.3446	0.1709				
□			3.5443	0.8046	0.6097	0.3473	0.1625			
△			6.8728	1.4771	0.8923	0.4008	0.1464			

Material Description	USCS	AASHTO
○ fine to coarse sand, little silt & gravel		
□ fine to coarse sand, little silt & gravel		
△ fine to coarse sand, little silt, some gravel		

Project No. **Client:** TOWN OF GLASTONBURY

Project: MAIN STREET SIDEWALKS - PHASE 2

○ **Source of Sample:** PW-1113 **Depth:** S-1

□ **Source of Sample:** PW-1113 **Depth:** S-2

△ **Source of Sample:** PW-1113 **Depth:** S-3

Remarks:

○ Water Content - 10.6%

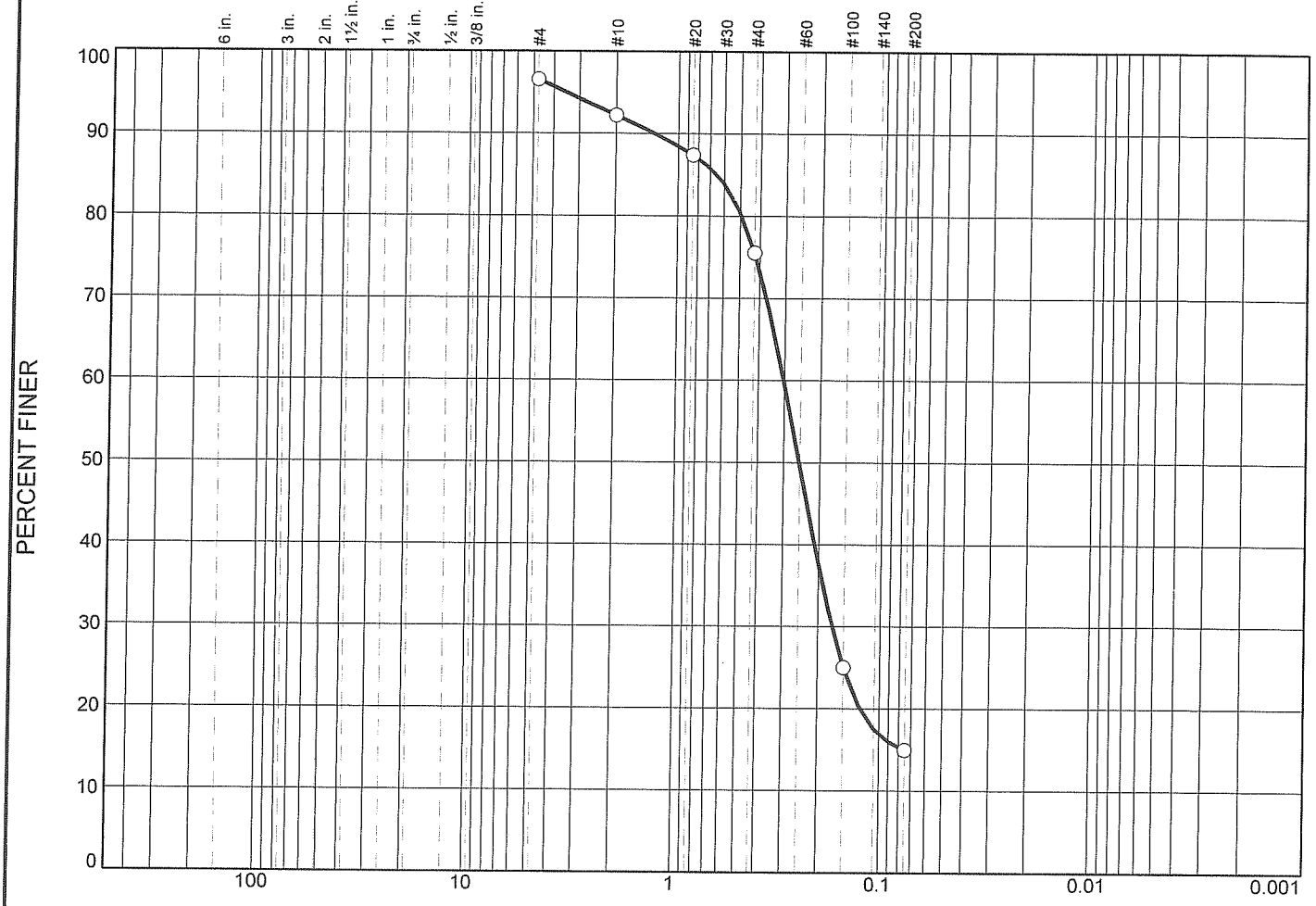
□ Water Content - 7.6%

△ Water Content - 8.7%

CLARENCE WELTI ASSOCIATES, INC.

Figure

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				5	16	61	15	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.6502	0.3030	0.2524	0.1707	0.0751			

Material Description	USCS	AASHTO
○ fine to coarse sand, little silt, trace gravel		

Project No. **Client:** TOWN OF GLASTONBURY

Project: MAIN STREET SIDEWALKS - PHASE 2

○ **Source of Sample:** PW-1113 **Depth:** S-4

Remarks:

○ Water Content - 11.4%

CLARENCE WELTI ASSOCIATES, INC.

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

4/22/2013

Client: TOWN OF GLASTONBURY
Project: MAIN STREET SIDEWALKS - PHASE 2
Location: PW-1113
Depth: S-1
Testing Remarks: Water Content - 10.6%

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 347.50
Tare Wt. = 0.00
Minus #200 from wash = 18%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
423.10	0.00	18 mm	14.10	0.00	97
		#4	32.40	0.00	89
		#10	24.00	0.00	83
		#20	43.70	0.00	73
		#40	70.60	0.00	56
		#100	122.90	0.00	27
		#200	33.90	0.00	19

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
				6	27	37	70			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0823	0.1709	0.3446	0.4839	1.3919	2.4981	5.6335	13.4447

Fineness Modulus
2.17

GRAIN SIZE DISTRIBUTION TEST DATA

4/22/2013

Client: TOWN OF GLASTONBURY
Project: MAIN STREET SIDEWALKS - PHASE 2
Location: PW-1113
Depth: S-2
Testing Remarks: Water Content - 7.6%

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 401.10
Tare Wt. = 0.00
Minus #200 from wash = 9.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
441.00	0.00	#4	49.30	0.00	89
		#10	49.50	0.00	78
		#20	70.00	0.00	62
		#40	111.60	0.00	36
		#100	98.20	0.00	14
		#200	17.00	0.00	10

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
				11	42	26	79			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1625	0.2274	0.3473	0.6097	0.8046	2.4110	3.5443		

Fineness Modulus
2.72

GRAIN SIZE DISTRIBUTION TEST DATA

4/22/2013

Client: TOWN OF GLASTONBURY
Project: MAIN STREET SIDEWALKS - PHASE 2
Location: PW-1113
Depth: S-3
Testing Remarks: Water Content - 8.7%

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 416.30
Tare Wt. = 0.00
Minus #200 from wash = 9.1%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
457.90	0.00	18 mm	12.70	0.00	97
		#4	80.60	0.00	80
		#10	65.90	0.00	65
		#20	74.90	0.00	49
		#40	80.30	0.00	31
		#100	82.90	9.00	15
		#200	17.20	0.00	11

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
				15	34	20	69			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1464	0.2309	0.4008	0.8923	1.4771	4.8680	6.8728	10.0241	14.9878

Fineness Modulus
3.28

GRAIN SIZE DISTRIBUTION TEST DATA

4/22/2013

Client: TOWN OF GLASTONBURY
Project: MAIN STREET SIDEWALKS - PHASE 2
Location: PW-1113
Depth: S-4
Testing Remarks: Water Content - 11.4%

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 344.80
Tare Wt. = 0.00
Minus #200 from wash = 13%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
397.50	0.00	#4	13.70	0.00	97
		#10	17.30	0.00	92
		#20	19.20	0.00	87
		#40	47.00	0.00	76
		#100	200.80	0.00	25
		#200	39.90	0.00	15

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
				5	16	61	82			15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0751	0.1239	0.1707	0.2524	0.3030	0.4923	0.6502	1.3051	3.4905

Fineness Modulus
1.53

ATTACHMENT C: CONSTRUCTION PLANS

FILE: H:\DWG\Streets\Main St\PW-1113 Main St Sidewalks Ph2\Main St Sidewalks - Whapley Rd to Mallard Dr...dwg USER: Steven Troy DATE: 6/27/2013

MEMORANDUM

To: Town Plan & Zoning Commission

From: Tom Mocko, Environmental Planner

Date: May 2, 2013

Re: Recommendation to the Town Plan and Zoning Commission concerning a Section 4.11 (Flood Zone) Special Permit – proposed **Main Street Sidewalks Phase 2** – some 2,500 linear feet of new sidewalks between **Whapley Road and Mallard Drive** – portions of the project within the Flood Zone and adjacent to wetlands – Steve Braun, Assistant Town Engineer

During its Special Meeting of April 25, 2013, the Conservation Commission recommended to the Town Plan and Zoning Commission approval of a Section 4.11 (flood zone) Special Permit for the proposed Main Street Sidewalks Phase 2. The following motion was approved by the Commission:

MOVED, that the Conservation Commission recommends to the Town Plan and Zoning Commission approval of a Section 4.11 (Flood Zone) Special Permit for the Town of Glastonbury's proposed Main Street Sidewalks Phase 2 project in accordance with plans on file in the Office of Community Development and in compliance with the following conditions:

1. Installation of soil erosion and sedimentation control and stabilization measures shall be the Permittee's responsibility. Once installed these measures shall then be inspected by the Environmental Planner prior to land disturbance activities. Afterwards it then shall be the Permittee's responsibility to inspect these control measures during, and immediately following, substantial storm events and maintain and/or replace the control measures, when needed, on a regular basis until the site is vegetatively stabilized. Hay bales shall be replaced every 60 days. The Environmental Planner is hereby authorized to require additional soil erosion and sediment controls and stabilization measures to address situations that arise on the site.

2. Upon completion of the proposed excavation and regrading for the required flood storage compensation to occur north of Hillcrest Road, and prior to seeding and mulching the disturbed soil areas with a specialized conservation seed mix, a Licensed Professional Engineer shall certify in writing that the project met or exceeded the required compensatory flood storage mitigation.

TM:gfn

cc: Daniel A. Pennington, Town Engineer/Manager of Physical Services
Peter R. Carey, Building Official

APPROVED WETLANDS PERMIT MOTION

MOVED, that the Inland Wetlands and Watercourses Agency grants the Town of Glastonbury an inland wetlands and watercourses permit for its Main Street Sidewalks Phase 2 project, which constructs sidewalks between Whapley Road and Mallard Drive and specifically involves wetlands and their upland review area on both sides of Smith Brook on the east side of Main Street and north of Hillcrest Road, in accordance with plans on file in the Office of Community Development and in compliance with the following conditions:

1. Installation of soil erosion and sedimentation control and stabilization measures shall be the Permittee's responsibility. Once installed these measures shall then be inspected by the Environmental Planner prior to land disturbance activities. Afterwards it then shall be the Permittee's responsibility to inspect these control measures during, and immediately following, substantial storm events and maintain and/or replace the control measures, when needed, on a regular basis until the site is vegetatively stabilized. Hay bales shall be replaced every 60 days. The Environmental Planner is hereby authorized to require additional soil erosion and sediment controls and stabilization measures to address situations that arise on the site.
2. Material shall not be stockpiled in wetland areas.
3. Special conservation seed mixes, selected under consultation with the Environmental Planner, shall be used to restore and stabilize the project's disturbed areas within and adjacent to the wetlands in order to establish a native plant community in areas east of the proposed retaining walls and north of Hillcrest Road.

****

Town of Glastonbury
2155 MAIN STREET • P.O. BOX 6523 • GLASTONBURY, CONNECTICUT 06033-6523

TOWN PLAN AND ZONING COMMISSION

SECTION 4.11 FLOOD ZONE SPECIAL PERMIT

APPLICANT/
OWNER: TOWN OF GLASTONBURY
2155 MAIN STREET
POST OFFICE BOX 6523
GLASTONBURY, CT 06033

RE: MAIN STREET SIDEWALKS, PHASE 2, BETWEEN WHAPLEY ROAD & MALLARD DRIVE

MOVED, that the Town Plan and Zoning Commission approve the application of the Town of Glastonbury for a Section 4.11 Flood Zone Special Permit - Main Street Sidewalks Phase 2 – flood zone activity and flood storage compensation on the easterly side of Main Street between Hillcrest Road and the property at 1626 Main Street, , in accordance with the following plans:

"PLAN DEPICTING PROPOSED SIDEWALK IMPROVEMENTS PHASE 2 LOCATED IN GLASTONBURY, CONNECTICUT TOWN OF GLASTONBURY ENGINEERING SCALE: AS SHOWN DRAWN BY: S. TROY 2-12-2013 CHECKED BY: S.M.B. 2-12-2013 APPROVED BY: D.A.P. 2-12-2013 ISSUED FOR PERMITTING 4-11-2013 SHEET NO. 1 OF 10"

"PLAN DEPICTING PROPOSED SIDEWALK IMPROVEMENTS PHASE 2 LOCATED IN GLASTONBURY, CONNECTICUT TOWN OF GLASTONBURY ENGINEERING SCALE: AS SHOWN DRAWN BY: S. TROY 2-12-2013 CHECKED BY: S.M.B. 2-12-2013 APPROVED BY: D.A.P. 2-12-2013 ISSUED FOR PERMITTING 4-11-2013 SHEET NO. 2 OF 10"

"PLAN DEPICTING PROPOSED SIDEWALK IMPROVEMENTS PHASE 2 LOCATED IN GLASTONBURY, CONNECTICUT TOWN OF GLASTONBURY ENGINEERING SCALE: AS SHOWN DRAWN BY: S. TROY 2-12-2013 CHECKED BY: S.M.B. 2-12-2013 APPROVED BY: D.A.P. 2-12-2013 ISSUED FOR PERMITTING 4-11-2013 SHEET NO. 3 OF 10"

"PRELIMINARY PLAN DEPICTING PROPOSED COMPENSATION EXCAVATION FOR PHASE 2 SIDEWALKS LOCATED ON MAIN STREET GLASTONBURY, CONNECTICUT TOWN OF GLASTONBURY ENGINEERING SCALE: AS SHOWN DRAWN BY: S. TROY 1-23-2013 CHECKED BY: S.M.B. 2-4-2013 APPROVED BY: D.A.P. 2-4-2013 SHEET NO. 4 OF 10"

"DETAILS DEPICTING PROPOSED SIDEWALK IMPROVEMENTS PHASE 2 LOCATED ON MAIN STREET GLASTONBURY, CONNECTICUT TOWN OF GLASTONBURY ENGINEERING SCALE: AS SHOWN DRAWN BY: S. TROY 2-12-2013 CHECKED BY: S.M.B. 2-12-2013 APPROVED BY: D.A.P. 2-12-2013 ISSUED FOR PERMITTING 4-11-2013 SHEET NO. 5 OF 10"

and in compliance with the following:

1. Compliance with conditions as recommended by the Conservation Commission during its meeting of April 25, 2013.

APPROVED: TOWN PLAN AND ZONING COMMISSION
MAY 21, 2013

SHARON H. PURTILL, CHAIRMAN

Stephen M. Braun, P.E., Assistant Town Engineer
Town of Glastonbury
2155 Main Street
Glastonbury, Connecticut 06033

Re: Application of the **Town of Glastonbury** (Department of Physical Services) for an inland wetlands and watercourses permit – **proposed Main Street Sidewalks Phase 2** – some 2,500 linear feet of new sidewalks between **Whapley Road and Mallard Drive** – portions of the project within the Flood Zone and adjacent to wetlands

Dear Steve:

At its Special Meeting of April 25, 2013, the Conservation Commission/Inland Wetlands & Watercourses Agency approved an Inland Wetlands and Watercourses Permit, in accordance with the plans and conditions cited in the attached motion.

Please read the conditions of approval carefully and comply with them. Some of the conditions may require interacting with the Environmental Planner (e.g. inspection of soil erosion and sediment control); it will be your responsibility to schedule such interactions. Any questions you may have about the stated conditions can be directed to the Office of Community Development at (860) 652-7511.

This Permit:

- requires that the approved regulated activities be completed within one (1) year from commencement of said activities;
- is valid for five (5) years and thus expires on April 25, 2018; and
- may not be transferred unless authorized by the Inland Wetlands & Watercourses Agency

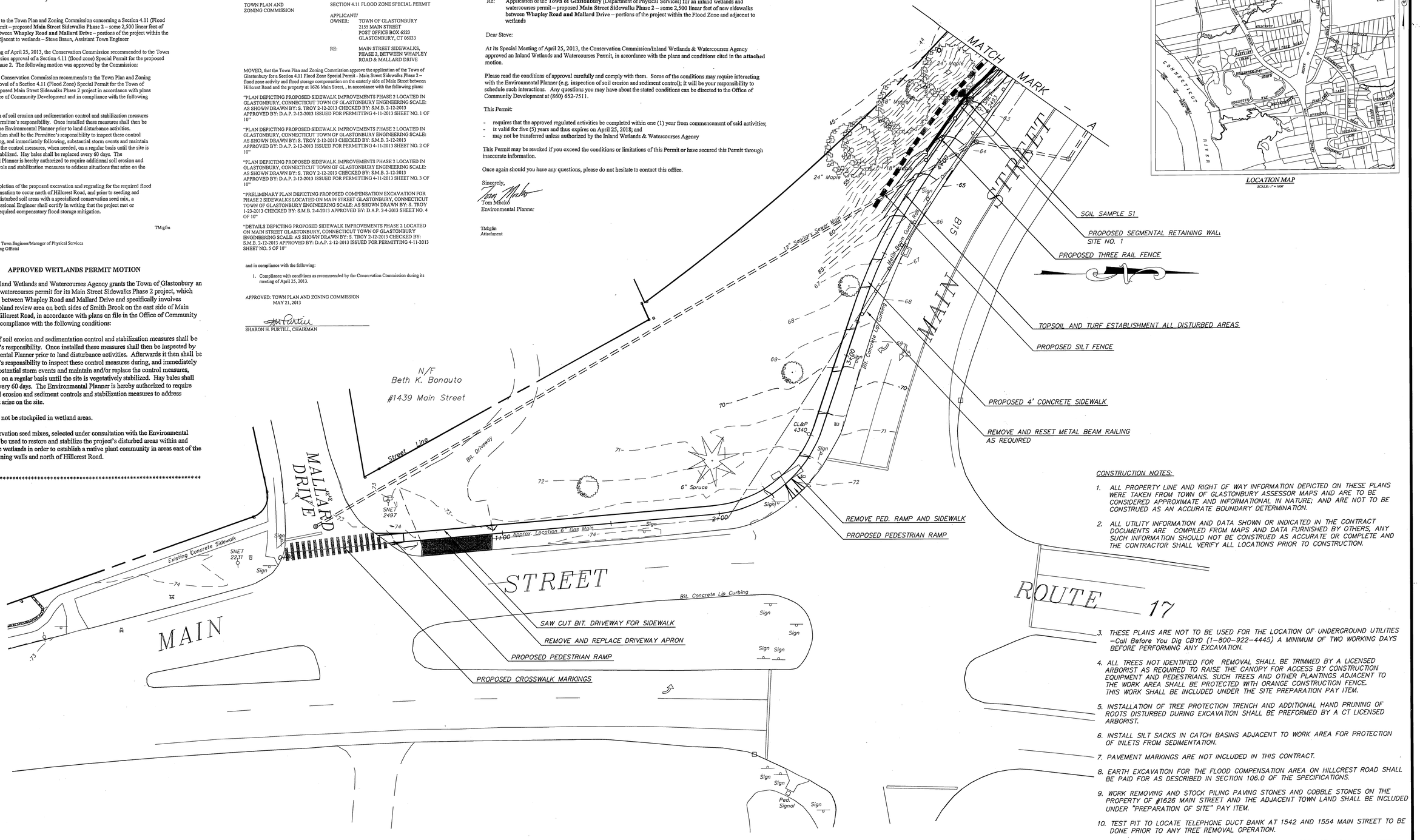
This Permit may be revoked if you exceed the conditions or limitations of this Permit or have secured this Permit through inaccurate information.

Once again should you have any questions, please do not hesitate to contact this office.

Sincerely,

Tom Mocko
Environmental Planner

TM:gfn
Attachment



LOCATION MAP
SCALE: 1" = 1000'

CONSTRUCTION NOTES:

1. ALL PROPERTY LINE AND RIGHT OF WAY INFORMATION DEPICTED ON THESE PLANS WERE TAKEN FROM TOWN OF GLASTONBURY ASSESSOR MAPS AND ARE TO BE CONSIDERED APPROXIMATE AND INFORMATIONAL IN NATURE; AND ARE NOT TO BE CONSTRUED AS AN ACCURATE BOUNDARY DETERMINATION.
2. 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.
3. THESE PLANS ARE NOT TO BE USED FOR THE LOCATION OF UNDERGROUND UTILITIES –Call Before You Dig CBYD (1–800–922–4445) A MINIMUM OF TWO WORKING DAYS BEFORE PERFORMING ANY EXCAVATION.
4. ALL TREES NOT IDENTIFIED FOR REMOVAL SHALL BE TRIMMED BY A LICENSED ARBORIST AS REQUIRED TO RAISE THE CANOPY FOR ACCESS BY CONSTRUCTION EQUIPMENT AND PEDESTRIANS. SUCH TREES AND OTHER PLANTINGS ADJACENT TO THE WORK AREA SHALL BE PROTECTED WITH ORANGE CONSTRUCTION FENCE. THIS WORK SHALL BE INCLUDED UNDER THE SITE PREPARATION PAY ITEM.
5. INSTALLATION OF TREE PROTECTION TRENCH AND ADDITIONAL HAND PRUNING OF ROOTS DISTURBED DURING EXCAVATION SHALL BE PREFORMED BY A CT LICENSED ARBORIST.
6. INSTALL SILT SACKS IN CATCH BASINS ADJACENT TO WORK AREA FOR PROTECTION OF INLETS FROM SEDIMENTATION.
7. PAVEMENT MARKINGS ARE NOT INCLUDED IN THIS CONTRACT.
8. EARTH EXCAVATION FOR THE FLOOD COMPENSATION AREA ON HILLCREST ROAD SHALL BE PAID FOR AS DESCRIBED IN SECTION 106.0 OF THE SPECIFICATIONS.
9. WORK REMOVING AND STOCK PILING PAVING STONES AND COBBLE STONES ON THE PROPERTY OF #1626 MAIN STREET AND THE ADJACENT TOWN LAND SHALL BE INCLUDED UNDER "PREPARATION OF SITE" PAY ITEM.
10. TEST PIT TO LOCATE TELEPHONE DUCT BANK AT 1542 AND 1554 MAIN STREET TO BE DONE PRIOR TO ANY TREE REMOVAL OPERATION.
11. REMOVAL OF CONCRETE RETAINING WALL ON THE PROPERTY OF #1542 MAIN STREET IS INCLUDED UNDER THE "PREPARATION OF SITE" PAY ITEM.

STATE OF CONNECTICUT DANIEL A. PENNINGTON No. 20101 LICENSED PROFESSIONAL ENGINEER

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

DRAWING ISSUE STATUS		
2.	ISSUED FOR CONSTRUCTION	6–14–2013
1.	ISSUED FOR PERMITTING	4–11–2013
NO.	DESCRIPTION	DATE

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	2–12–2013
CHECKED BY: S.M.B.	2–12–2013
APPROVED BY: D.A.P.	2–12–2013
ST. FILE:	

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TOWN OF GLASTONBURY CAD/GIS ENGINEERING

PLAN
DEPICTING PROPOSED
SIDEWALK IMPROVEMENTS
PHASE 2
located on
MAIN STREET
GLASTONBURY, CONNECTICUT

SHEET NO. 1 OF 10

SOUTH HOLLISTER WAY
NORTH HOLLISTER WAY
MAIN STREET
MATCH MARK — A
MATCH MARK — B
MATCH MARK — C
PROPOSED 4' CONCRETE SIDEWALK
REMOVE AND RESET METAL BEAM RAILING AS REQUIRED
PROPOSED SILT FENCE
SOIL SAMPLE S2
REMOVE AND REPLACE DRIVEWAY APRON
PROPOSED 5' CONCRETE SIDEWALK
REMOVE CONCRETE SIDEWALK AND CURBING AND INSTALL PEDESTRIAN RAMP
PROPOSED PEDESTRIAN RAMP
PROPOSED CROSSWALK MARKINGS
Existing Concrete Sidewalk
Bit. Concrete Lip Curbing
Metal Beam Guard Rail
Approx. Location 6" Gas Main
REMOVE TREE
PROPOSED THREE RAIL FENCE
12" Sanitary Sewer Main
PROPOSED SEGMENTAL RETAINING WALL SITE NO. 1
REMOVE AND REPLACE 5' CONCRETE SIDEWALK
SAW CUT PAVEMENT AND REPLACE DRIVEWAY APRON
Street Line
N/F Patrica D. & Henry T. Trustee Hughes
#1492 Main Street
TOPSOIL AND TURF ESTABLISHMENT ALL DISTURBED AREAS
N/F Nancy Allen
WESTVIEW LANE
ELM TREE ROAD
PROPOSED TREE PROTECTION TRENCH
REMOVE PEDESTRIAN RAMP
REMOVE AND REPLACE STAMPED CONCRETE DRIVEWAY
PROPOSED BITUMINOUS CONCRETE LIP CURBING
PROPOSED TYPE "C" C.B. T.F.=39.90' F.L.=37.25'
PROPOSED 7' 12" RCP PIPE
N/F Suzanne W. Glascock
#1500 Main Street
N/F Marion Z. Hallas Trustee
#1510 Main Street
N/F Gloria J. Smith
#1530 Main Street
RELOCATE LIGHT POLE
REPLACE UTILITY POLE (BY OTHERS)
PROPOSED LANDSCAPING AREA
REMOVE STOP BAR
PROPOSED 12" STOP BAR
REMOVE PEDESTRIAN RAMP AND SIDEWALK
N/F Mary Theresa Pallos
REMOVE STONE WALL
PROPOSED TEST PIT (SEE NOTE 10)
REMOVE CONCRETE RETAINING WALL
PROPOSED QUARRY STONE RETAINING WALL
#1542 Main Street
CONSTRUCT TERRACED RETAINING WALL TO CREATE PLANTING AREA (SEE DETAIL)
REMOVE HEMLOCK TREES
N/F Dana M. & James F. Bennett
CONVERT CATCH BASIN TO MANHOLE
RESET COBBLESTONES 6" BEHIND WALK
#1554 Main Street

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

DRAWING ISSUE STATUS		
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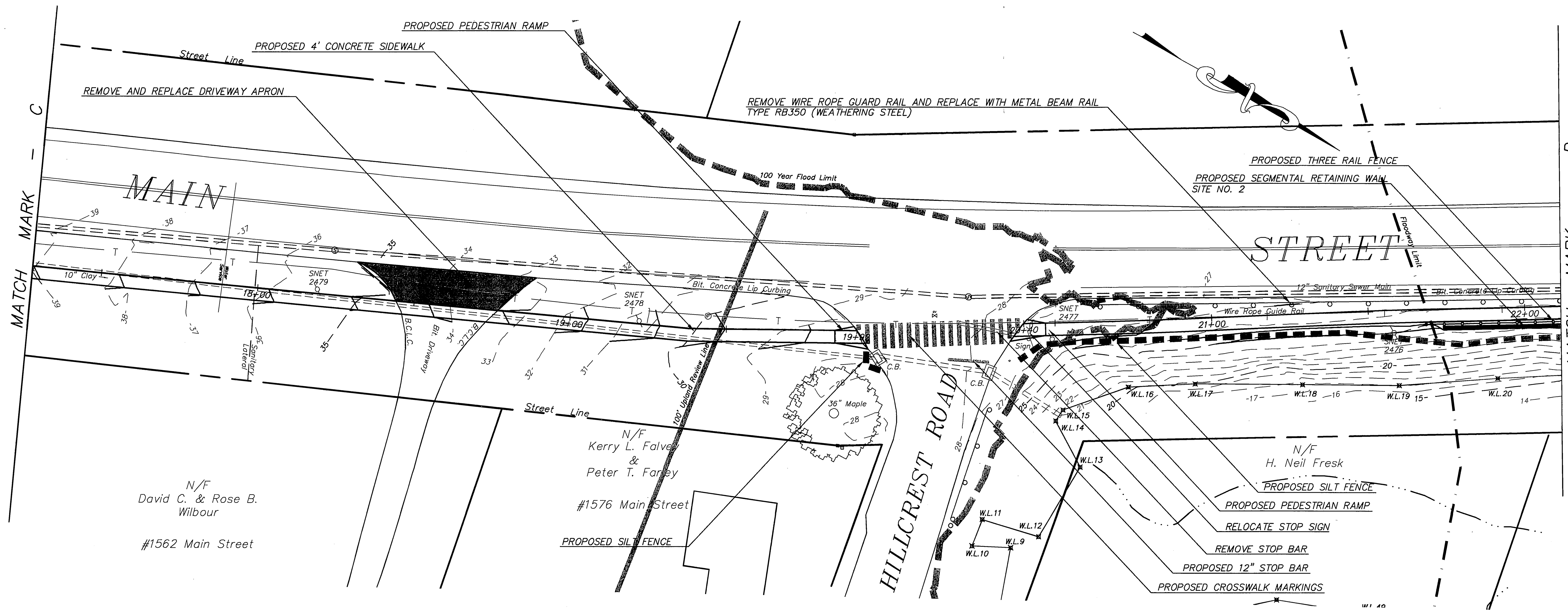
PLAN
DEPICTING PROPOSED
SIDEWALK IMPROVEMENTS
PHASE 2
located on
MAIN STREET
GLASTONBURY, CONNECTICUT

SHEET NO.
2
OF 10

FILE: H:\DWG\Street\Main St\PW-1113 Main St Sidewalks Ph2\Main St Sidewalks - Whapley Rd to Mallard Dr.dwg USER: Steven Troy DATE: 6/27/2013



PROPOSED PEDESTRIAN RAMP
PROPOSED 4' CONCRETE SIDEWALK
REMOVE AND REPLACE DRIVEWAY APRON
REMOVE WIRE ROPE GUARD RAIL AND REPLACE WITH METAL BEAM RAIL TYPE RB350 (WEATHERING STEEL)
PROPOSED THREE RAIL FENCE
PROPOSED SEGMENTAL RETAINING WALL SITE NO. 2
MATCH MARK — C
MATCH MARK — D
MAIN
STREET
Street Line
100 Year Flood Limit
100' Upland Review Line
Floodway Limit
HILLCREST ROAD
N/F David C. & Rose B. Wilbour
#1562 Main Street
N/F Kerry L. Falvey & Peter T. Farley
#1576 Main Street
N/F H. Neil Fresk
36" Maple
PROPOSED SILT FENCE
PROPOSED SILT FENCE
PROPOSED PEDESTRIAN RAMP
RELOCATE STOP SIGN
REMOVE STOP BAR
PROPOSED 12" STOP BAR
PROPOSED CROSSWALK MARKINGS
12" Sanitary Sewer Main
Wire Rope Guide Rail
Bit. Concrete Lip Curbing
SNET 2479
SNET 2478
SNET 2477
SNET 2476
10" Clay
18+00
19+00
21+00
22+00

Smith Brook
MATCH MARK — D
MAIN
STREET
Street Line
RESET COBBLESTONES AS NECESSARY FOR GRADING
PROPOSED BITUMINOUS CONCRETE LIP CURBING
PROPOSED TYPE "C" C.B. T.F.=26.25' F.L.=23.00'
REMOVE AND REPLACE DRIVEWAY APRON
PROPOSED 9' 12" RCP PIPE
REMOVE AND REPLACE DRIVEWAY APRON
PROPOSED BITUMINOUS CONCRETE LIP CURBING
REMOVE AND STOCKPILE PAVING STONES AS DIRECTED
PROPOSED 4' CONCRETE SIDEWALK
RELOCATE HEDGE AS DIRECTED
PROPOSED TREE PROTECTION TRENCH
PROPOSED CROSSWALK MARKINGS
REMOVE CABLE GUARD RAIL AND REPLACE WITH METAL BEAM GUARD RAIL
SOIL SAMPLE S4
PROPOSED THREE RAIL FENCE
RELOCATE UTILITY POLE
C.B. T.F.=25.57' F.L.=23.37'
100 Year Flood Limit
100' Upland Review Line
Floodway Limit
W.L.22 Headwall=21.80' Top of Arch=13.30'
PROTECT EXISTING 12'x4' MASONARY ARCHED BRIDGE STONE AND MORTAR HEADWALL
PROPOSED SILT FENCE
SOIL SAMPLE S3
RELOCATE UTILITY POLE
PROPOSED SEGMENTAL RETAINING WALL SITE NO. 2 - INTEGRATE WALL WITH EXISTING CONCRETE HEADWALL AT STA. 23+95
PROPOSED METAL BEAM GUARD RAIL WITH END WRAP (WEATHERING STEEL)
PROPOSED CONSTRUCTION FENCE
REMOVE EXISTING PIPE GUARD RAIL INSTALL METAL BEAM RAIL WITH END WRAPS (WEATHERING STEEL)
Town of Glastonbury
SAW CUT PAVEMENT
EXPAND PAVEMENT AREA 10'
CONVERT CATCH BASIN TO MANHOLE T.F.=FIT IN FIELD
LOCATE AND PROTECT EXISTING SPRINKLER HEADS, COIL AND SECURE PIPING OUTSIDE OF WORK AREA FOR RE-INSTALLATION BY OTHERS
RESET COBBLESTONES AS NECESSARY FOR GRADING TO CREATE TREE WELL
PROTECT TREE WITH CONSTRUCTION FENCE
T.F.=25.52' F.L.=19.82'(N) F.L.=19.62'(S) F.L.=22.90'(W)
N/F Harry R. White
#1626 Main Street
N/F Maureen Elaine Dwyer
#1642 Main Street
REMOVE TREES
PROTECT TREES
PROPOSED PEDESTRIAN RAMP
CONSTRUCT NEW PROCESS STONE PARKING AREA REMOVE AND STOCKPILE COBBLESTONES AND PAVING STONES AS DIRECTED
PROTECT SHRUB WITH CONSTRUCTION FENCE
WHAPLEY ROAD
Existing Concrete Sidewalk
12" Sanitary Sewer Main
Wire Rope Guid Rail
Bit. Concrete Lip Curbing
15" RCP
Cherry
Cobblestones
15" Maple
18" Maple
24" Maple
Hedge
SNET 2472s
SNET 2471
SNET 2470
SNET 2470s
23+00
24+00
25+00
26+00
27+00

CONSTRUCTION NOTES FOR WORK ALONG SHOULDER OF MAIN STREET BETWEEN STATIONS 21+00 AND 24+50

1. REMOVAL OF EXISTING WIRE ROPE GUIDERAIL SHALL NOT OCCUR UNTIL THE CONTRACTOR HAS ADEQUATE RESOURCES AND MATERIALS MOBILIZED TO COMPLETE ALL WORK IN THIS AREA.
2. WORK AREA SHALL BE PROTECTED WITH TRAFFIC DRUMS, AND TYPE III BARRICADES, AND BARRICADE WARNING LIGHTS AS DESCRIBED IN THE MAINTENANCE AND PROTECTION OF TRAFFIC SPECIFICATIONS.
3. ALL WORK IN THIS AREA, INCLUDING INSTALLATION OF RETAINING WALL AND METAL BEAM GUIDERAIL, SHALL BE COMPLETED AS DESCRIBED IN THE SPECIAL CONDITIONS, SECTION 11.03.

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

NO.	DESCRIPTION	DATE
	DRAWING ISSUE STATUS	
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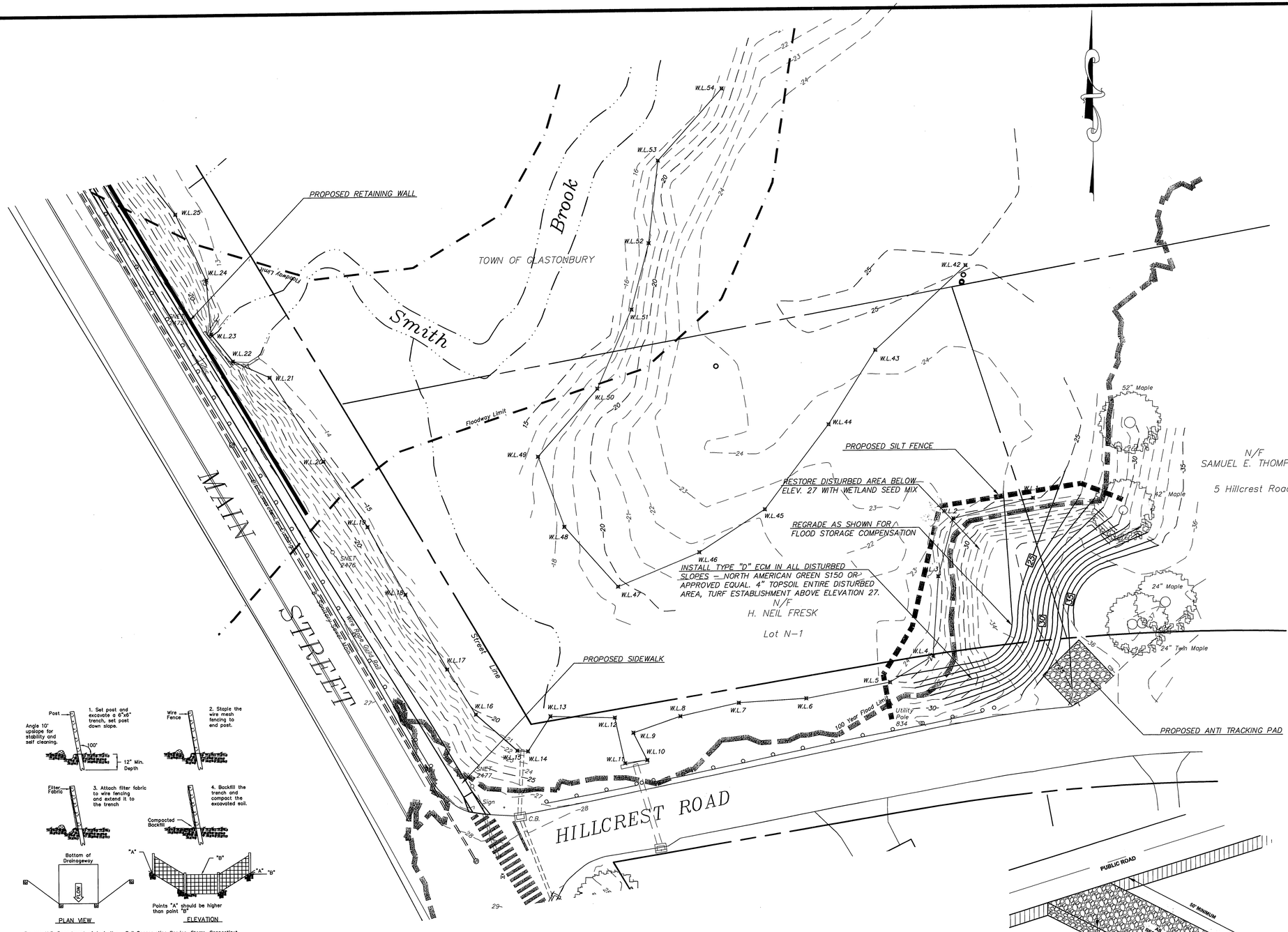
PLAN
DEPICTING PROPOSED
SIDEWALK IMPROVEMENTS
PHASE 2
located on
MAIN STREET
GLASTONBURY, CONNECTICUT

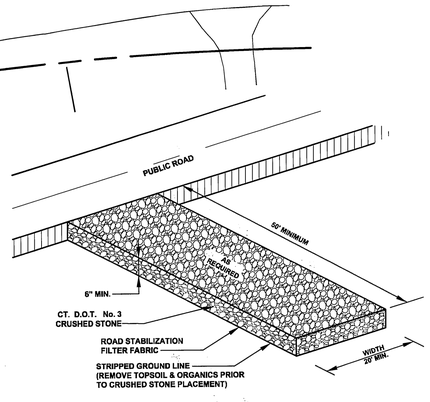
SHEET NO. 3 OF 10

FILE: H:\DWG\Streets\Main St\PW-1113 Main St Sidewalks Ph2\Main St Sidewalks Ph.2 Flood Storage.dwg LOGIN: Steven Troy DATE: 6/27/2013



Source: U.S. Department of Agriculture, Soil Conservation Service, Storrs, Connecticut

PLACEMENT AND CONSTRUCTION OF A SYNTHETIC FILTER BARRIER



ANTI-TRACKING PAD CONSTRUCTION ENTRANCE
NOT TO SCALE

PROJECT NARRATIVE:
THIS PROJECT INCLUDES THE CONSTRUCTION OF APPROXIMATELY 2,500 LINEAR FEET OF NEW FOUR-FOOT-WIDE CONCRETE SIDEWALKS ALONG MAIN STREET BETWEEN WHAPLEY ROAD AND ROUTE 17. THE PROJECT ALSO INCLUDES THE CONSTRUCTION OF RETAINING WALLS AT THREE DIFFERENT LOCATIONS DUE TO STEEP SLOPES ADJACENT TO MAIN STREET. ALSO INCLUDED IN THE WORK IS EXCAVATION OF APPROXIMATELY 850 CUBIC YARDS OF SOIL FROM A FLOOD STORAGE COMPENSATION AREA LOCATED ON THE NORTH SIDE OF HILLCREST ROAD. TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 1.3 ACRES.

WETLAND AREAS IDENTIFIED ALONG THE PROJECT ARE LIMITED TO THOSE ASSOCIATED WITH SMITH BROOK. THE 100-YEAR FLOOD ZONE FOR SMITH BROOK EXTENDS TO ELEVATION 27.4, WHICH IS APPROXIMATELY 1.4 FEET HIGHER THAN THE ELEVATION OF MAIN STREET IN THIS AREA.

PROJECT SPECIFIC SEDIMENTATION AND EROSION CONTROL PLAN
CONSTRUCTION ACTIVITIES OF CONCERN RELATIVE TO THE PROTECTION OF ADJACENT WETLANDS AND WATERCOURSES FROM SEDIMENTATION ARE AS FOLLOWS:

1. DEWATERING: OPEN TRENCH EXCAVATIONS WILL NEED TO BE DEWATERED AS NECESSARY FOR PROPER INSTALLATION OF THE PROPOSED PIPES. IN THESE AREAS, ALL WATER REMOVED FROM THE TRENCH SHALL BE ADEQUATELY TREATED PRIOR TO DISCHARGE USING MEASURES DESCRIBED IN SECTION 5-13 OF THE 2002 CT GUIDELINES FOR EROSION AND SEDIMENT CONTROL. THIS MAY INCLUDE A STONE SUMP AND STANDPIPE FOR PUMP INTAKE PROTECTION, AND A DIRT BAG OR PUMPING SETTLING BASIN FOR TREATMENT OF THE PUMPED WATER PRIOR TO DISCHARGE.

2. STOCKPILING: EXCAVATED MATERIAL SHALL NOT BE STOCKPILED ADJACENT TO STORM DRAIN INLETS, WETLANDS, OR WATERCOURSES. WHEN IT IS NECESSARY BASED ON THE PROPOSED METHODS OF CONSTRUCTION TO STAGE EXCAVATED MATERIAL FOR SHORT DURATIONS IN THE VICINITY OF STORM DRAIN INLETS, THESE INLETS SHALL BE PROPERLY PROTECTED AS DESCRIBED ON THE PLANS. LONGER DURATION STOCKPILING OF MATERIAL, WHEN NECESSARY, SHALL BE ONLY IN LOCATIONS APPROVED IN ADVANCE BY THE ENGINEER, AND SUCH STOCKPILES SHALL BE RINGED WITH A SEDIMENTATION CONTROL SYSTEM.

3. DISTURBED AREAS: LIMITS OF DISTURBANCE SHALL BE IN STRICT ACCORDANCE WITH THE APPROVED PLAN. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH THE FINAL SURFACE TREATMENT AS SOON AS POSSIBLE AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED. DISTURBED AREAS WITH STEEP OR LONG SLOPES AND OTHER AREAS WITH SIGNIFICANT POTENTIAL FOR CAUSING SEDIMENTATION SHALL BE PROTECTED WITH TEMPORARY STRAW MULCH, WOOD CHIPS, EROSION CONTROL MATTING, OR OTHER SUITABLE MATERIALS PRIOR TO SIGNIFICANT FORECASTED RAIN STORM EVENTS TO REDUCE EROSION POTENTIAL.

4. SEGMENTAL RETAINING WALLS AT SITE NO. 1 AND SITE NO. 2 SHALL BE CONSTRUCTED FROM THE STREET SIDE. NO EQUIPMENT WILL BE ALLOWED TO WORK FROM THE BOTTOM OF THE SLOPE OR FROM BEYOND THE LIMIT OF DISTURBANCE SHOWN ON THE PLANS.

5. TRAVEL AREAS: A STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED AT THE ENTRANCE TO THE HILLCREST ROAD FLOOD COMPENSATION AREA AS SHOWN ON THE PLANS AND AS REQUIRED TO PREVENT SOIL FROM BEING TRACKED OUT OF THE CONSTRUCTION SITE AND INTO THE ROAD. THIS CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL ALL DISTURBED AREAS OF THE PROJECT HAVE BEEN RESTORED.

6. SEVERE WEATHER CONTINGENCY PLAN: IN ADVANCE OF A SEVERE WEATHER EVENT, ALL EROSION CONTROLS DESCRIBED ABOVE AND ELSEWHERE ON THE PLANS SHALL BE INSPECTED AND ADJUSTED AS NECESSARY.

7. THE 100 YEAR FLOOD ELEVATION FOR SMITH BROOK IS 27.4, WHICH EXTENDS 1.4 FEET ABOVE THE ELEVATION OF MAIN STREET IN THIS AREA. THE CONTRACTOR SHALL MONITOR WEATHER FORECASTS AND CONNECTICUT RIVER FLOOD WARNINGS AND ADJUST OPERATIONS ACCORDINGLY. ALL STOCKPILED MATERIALS AND EQUIPMENT SHALL BE REMOVED FROM THE FLOOD ZONE PRIOR TO ANY ANTICIPATED FLOODING EVENT AS PROJECTED FLOOD ELEVATIONS REQUIRE.

RESPONSIBLE PARTIES:
THE CONTRACTOR SHALL PROVIDE A REPRESENTATIVE WHO IS RESPONSIBLE FOR IMPLEMENTING THE EROSION AND SEDIMENTATION CONTROL PLAN. THIS INCLUDES THE INSTALLATION AND MAINTENANCE OF ALL CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN.

GENERAL SEDIMENTATION AND EROSION CONTROL REQUIREMENTS:

THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.

IN GENERAL, ALL ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATERBODY, AND CONDUIT CARRYING WATER, ETC. THE DEPARTMENT OF PHYSICAL SERVICES SHALL LIMIT, INSOFAR AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS, AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES AND WATERBODIES, AND TO PREVENT, INSOFAR AS POSSIBLE, EROSION ON THE SITE.

CONSTRUCTION METHODS, IN GENERAL, SHALL BE IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" (2002) BY THE STATE OF CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION.

1. ALL CONTROL MEASURES SHALL BE INSTALLED AS NOTED ABOVE AND AS SHOWN ON THE PLANS.
2. ALL CONTROL MEASURES SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF ANY WORK, INCLUDING PRE-CONSTRUCTION CLEARING AND GRUBBING.
3. ALL CONTROL MEASURES SHALL BE MAINTAINED AND UPGRADED AS REQUIRED TO ACHIEVE PROPER SEDIMENT CONTROL THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL DISTURBED AREAS HAVE BEEN THOROUGHLY STABILIZED.
4. NO CONTROL MEASURES SHALL BE REMOVED WITHOUT APPROVAL FROM THE ENGINEER.
5. ADDITIONAL CONTROL MEASURES SHALL BE INSTALLED DURING THE CONSTRUCTION PERIOD IF DEEMED NECESSARY BY THE ENGINEER.
6. THE LIMITS OF CLEARING, GRADING AND DISTURBANCE, AS SHOWN ON THE PLAN(S), SHALL BE KEPT TO A MINIMUM WITHIN THE APPROVED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE THE LIMITS OF CLEARING SHALL REMAIN TOTALLY INDISTURBED.
7. ANY CONTROL MEASURES RETAINING SEDIMENT OVER 1/2 THEIR HEIGHT SHALL HAVE THE SEDIMENT IMMEDIATELY REMOVED, AND ALL DAMAGED CONTROL MEASURES SHALL BE REMOVED AND REPLACED.
8. ALL NEW AND EXISTING CATCH BASINS LOCATED WITHIN THE PROJECT LIMITS SHALL BE PROTECTED WITH A SEDIMENTATION CONTROL SYSTEM IN GRASSED AREAS OR WITH A SEDIMENTATION CONTROL SACK IN PAVED AREAS UNTIL ALL DISTURBED AREAS HAVE BEEN THOROUGHLY STABILIZED.
9. SEDIMENT REMOVED FROM CONTROL MEASURES AND DRAINAGE FACILITIES SHALL BE DISPOSED OF IN A MANNER THAT IS CONSISTENT WITH STATE AND LOCAL REGULATIONS.
10. THE PLANTING SEASONS FOR THE SPECIFIED SEED MIXTURE SHALL BE AS DEFINED IN THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, UNLESS DIRECTED OTHERWISE BY THE TOWN ENVIROMENTAL PLANNER. OUTSIDE OF THESE SPECIFIED DATES, AREAS WILL BE STABILIZED WITH HAYBALE CHECK DAMS, FILTER FABRIC, OR WOODCHIP MULCH AS REQUIRED TO CONTROL EROSION.

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

NO.	DESCRIPTION	DATE
	DRAWING ISSUE STATUS	
2.	ISSUED FOR CONSTRUCTION	6-14-2013
1.	---	---

TOWN OF GLASTONBURY ENGINEERING CAD

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	1-23-2013
CHECKED BY: S.M.B.	2-4-2013
APPROVED BY: D.A.P.	2-4-2013
ST. FILE:	

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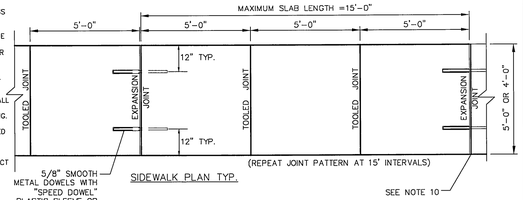
PLAN DEPICTING PROPOSED COMPENSATORY EXCAVATION AND EROSION AND SEDIMENT CONTROL PLAN
located on
MAIN STREET
GLASTONBURY, CONNECTICUT

SHEET NO. 4 OF 10

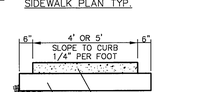
FILE: H:\DWG\Streets\Main St\PW-1113 Main St Sidewalks Ph2\Main St Sidewalks - Whaley Rd to Mallard Dr..dwg USER: Steven Troy DATE: 4/27/2013

NOTES:

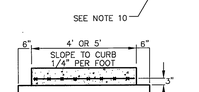
1. CONCRETE SHALL BE CONNDOT CLASS F, (4,000 PSI, 28 DAY STRENGTH).
2. FORMS ARE TO BE SET TRUE TO LINE AND GRADE ON WELL COMPACTED BASE. FORMS SHALL BE 5" STEEL OR 2"x6" LUMBER.
3. PROPER FINISHING PROCEDURES WILL BE FOLLOWED INCLUDING JOINTING, EDGING, AND BROOMING. A FINE BRISTLE BROOM SHOULD BE USED. ALL EDGING TOOL IMPRINTS SHOULD BE STEEL TROWELED PRIOR TO BROOMING.
4. CURING COMPOUND MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
5. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT SURFACE FROM DAMAGE.
6. WALKS SHALL BE BACKFILLED AS SOON AS FORMS ARE REMOVED.
7. ALL CONCRETE SIDEWALK SLABS SHALL BE RECTANGULAR IN SHAPE. NO FIGURE L SLABS ARE TO BE CONSTRUCTED.
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 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 3/8" ASPHALT IMPREGNATED CELLULAR FIBER AND OF A DIMENSION EQUAL TO THE FULL SLAB DEPTH.



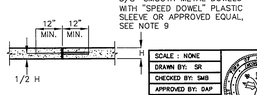
SIDEWALK PLAN TYP.



STANDARD SIDEWALK SECTION

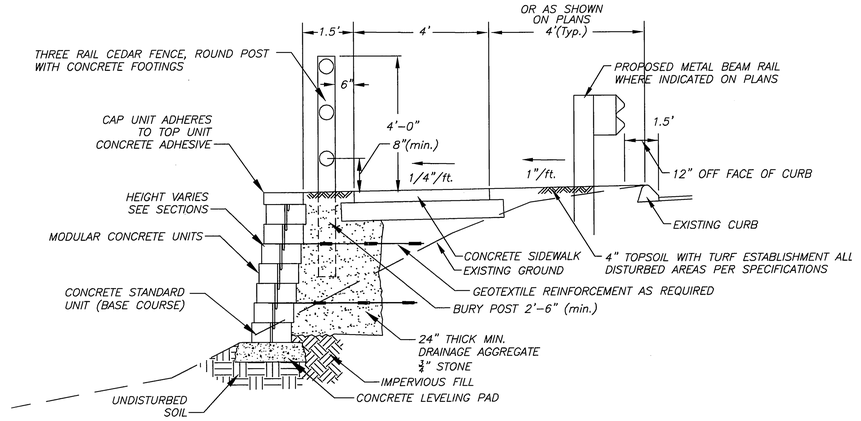


FOR INDUSTRIAL & COMMERCIAL AREAS ONLY DRIVEWAY SECTION



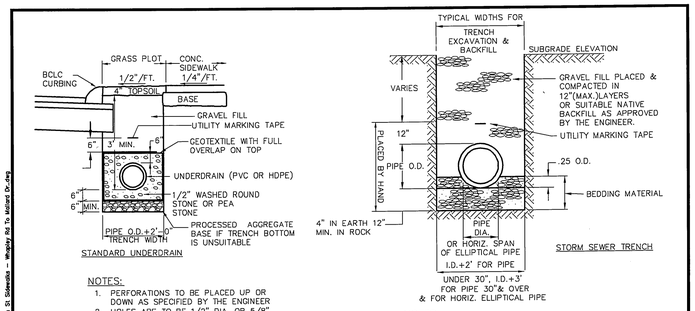
DOWEL DETAIL

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	CONCRETE SIDEWALKS
APPROVED BY: DAP	
LAST REVISED: 2/4/2011	PLATE NO. 6



TYPICAL SECTION—SEGMENTAL RETAINING WALL

NOT TO SCALE



STANDARD UNDERDRAIN

NOTES:

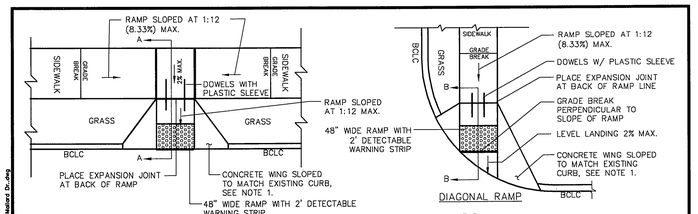
1. PERFORATIONS TO BE PLACED UP OR DOWN AS SPECIFIED BY THE ENGINEER
2. HOLES ARE TO BE 1/2" DIA. OR 5/8" DIA.
3. PIPE SHALL BE MIN. 6" DIA.
4. SLOTTED REINFORCED CONC. PIPE (SRCP) CAN BE USED AS A COMBINED STORM AND UNDERDRAIN SYSTEM.
5. ALL UNDERDRAIN TO BE OUTLETTED DIRECTLY INTO A CATCH BASIN.THE TOP OF THE UNDERDRAIN PIPE IS TO MATCH THE TOP OF THE OUTLET PIPE.
6. INCLUDE CLEANOUTS AT SPACING NOT TO EXCEED 150 FEET.

STORM SEWER TRENCH

NOTES:

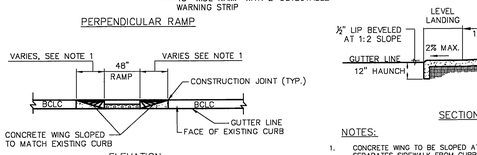
1. ALL CONCRETE PIPE TO BE MINIMUM CLASS IV UNLESS OTHERWISE SPECIFIED.
2. USE WATERTIGHT RUBBER GASKETS IN ALL PIPE JOINTS.
3. PIPE BEDDING MATERIALS SHALL BE SAND OR SANDY SOIL, ALL OF WHICH PASSES 3/8" SIEVE AND <10% PASSING NO. 200 SIEVE.
4. WHEN GROUND WATER IS ENCOUNTERED, 3/4" STONE SHALL BE SUBSTITUTED FOR PIPE BEDDING, AND BACKFILLED TO 12" ABOVE THE TOP OF PIPE.

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	TRENCH FOR STORM DRAIN AND UNDER DRAIN
APPROVED BY: DAP	
LAST REVISED: 4/29/2008	PLATE NO. 20



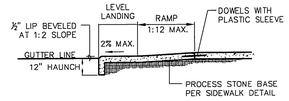
PERPENDICULAR RAMP

DIAGONAL RAMP



ELEVATION

SECTION A–A

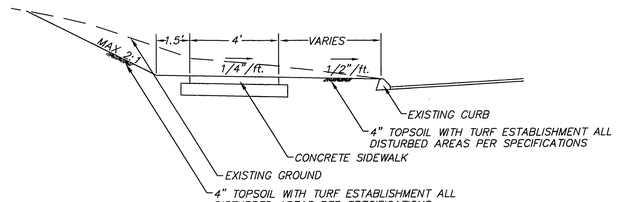


SECTION B–B

NOTES:

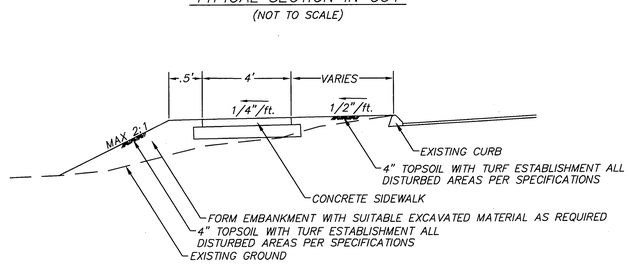
1. CONCRETE WING TO BE SLOPED AT 2 INCHES PER FOOT WHERE GRASS STRIP SEPARATES SIDEWALK FROM CURB. SLOPE WING AT 1 INCH PER FOOT WHERE SIDEWALK DIRECTLY ABUTS CURB. SEE CONNDOT STANDARD DETAILS FOR PARALLEL SIDEWALK RAMP (TYPE 1).
2. GRADE BREAKS AT ENDS OF 1:12 RAMP SHALL ALWAYS BE PERPENDICULAR TO SLOPE OF RAMP AND PARALLEL TO EACH OTHER.
3. DETECTABLE WARNING STRIP SHALL BE PREFABRICATED SURFACE TILE AS MANUFACTURED BY ENGINEERED PLASTICS INC., ADA FABRICATORS INC. OR APPROVED EQUAL. TILE SHALL BE BRICK RED IN COLOR.

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	CONCRETE SIDEWALK RAMPS
APPROVED BY: DAP	
LAST REVISED: 1/26/2012	PLATE NO. 7



TYPICAL SECTION IN CUT

(NOT TO SCALE)

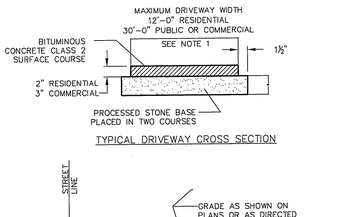


TYPICAL SECTION IN FILL

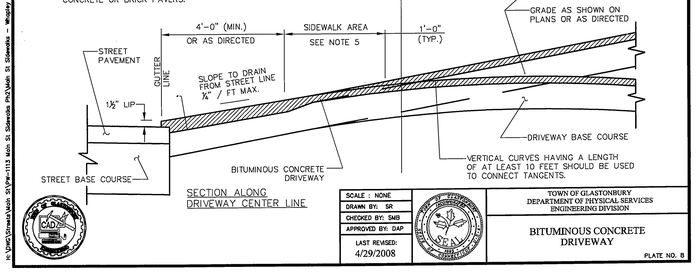
(NOT TO SCALE)

NOTES:

1. PRIVATE RESIDENTIAL DRIVEWAYS SHALL NOT EXCEED 12 FEET IN WIDTH AND PUBLIC OR COMMERCIAL DRIVEWAYS SHALL NOT EXCEED 30 FEET IN WIDTH UNLESS PRIOR APPROVAL IS GIVEN BY THE TOWN MANAGER.
2. DRIVEWAYS SHALL NOT BE CONSTRUCTED WITHIN 20 FEET OF AN INTERSECTION OR 4 FEET OF A CROSS WALK.
3. NO TWO DRIVEWAYS SHALL BE CONSTRUCTED CLOSER THAN 8 FEET APART WHEN MEASURED AT THE GUTTER LINE OF THE STREET.
4. WHERE DRIVEWAYS CROSS EXISTING ROADSIDE DITCHES OR WATERCOURSES, CULVERTS SHALL BE INSTALLED PER SECTION 17-159 OF THE TOWN ORDINANCE.
5. IF CONCRETE SIDEWALKS ARE CALLED FOR THIS AREA SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SIDEWALK DETAIL.
6. A 12" MINIMUM BITUMINOUS OR CONCRETE APRON SHALL BE INSTALLED WHEN DRIVEWAYS ARE CONSTRUCTED USING CONCRETE OR BRICK PAVERS.

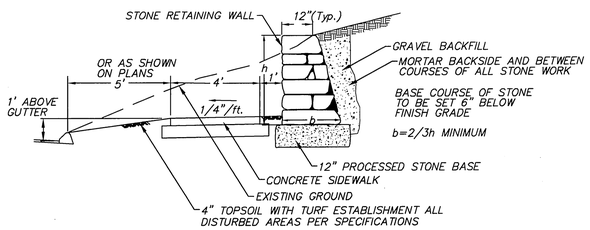


TYPICAL DRIVEWAY CROSS SECTION



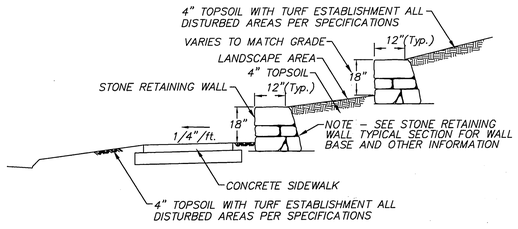
SECTION ALONG DRIVEWAY CENTER LINE

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	BITUMINOUS CONCRETE DRIVEWAY
APPROVED BY: DAP	
LAST REVISED: 4/29/2008	PLATE NO. 8



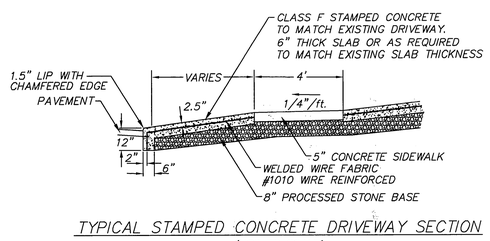
TYPICAL SECTION AT CUT WALL

(NOT TO SCALE)



TYPICAL SECTION AT 15+90

(NOT TO SCALE)



TYPICAL STAMPED CONCRETE DRIVEWAY SECTION

(NOT TO SCALE)

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

NO.	DESCRIPTION	DATE
2.	ISSUED FOR CONSTRUCTION	6-14-2013
1.	ISSUED FOR PERMITTING	4-11-2013

DRAWING ISSUE STATUS

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	2-12-2013
CHECKED BY: S.M.B.	2-12-2013
APPROVED BY: D.A.P.	2-12-2013
ST. FILE:	

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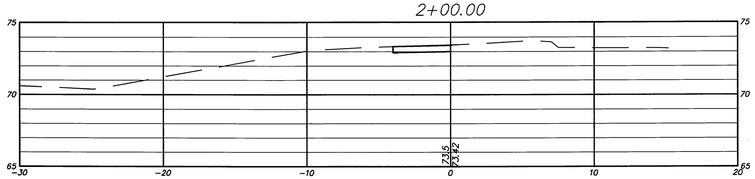
DETAILS DEPICTING PROPOSED SIDEWALK IMPROVEMENTS PHASE 2 located on MAIN STREET GLASTONBURY, CONNECTICUT

SHEET NO. 5 OF 10

2+00.00



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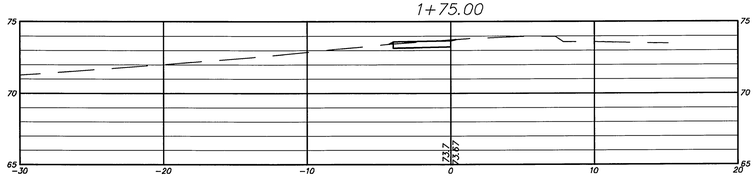

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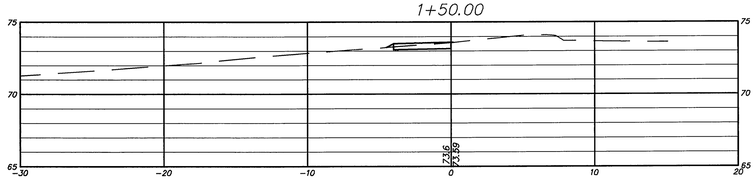

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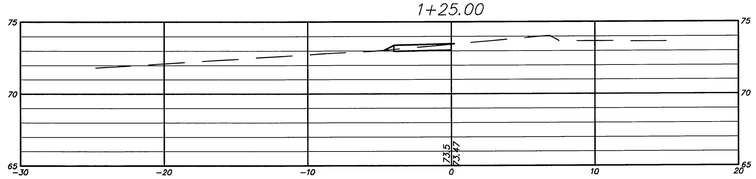

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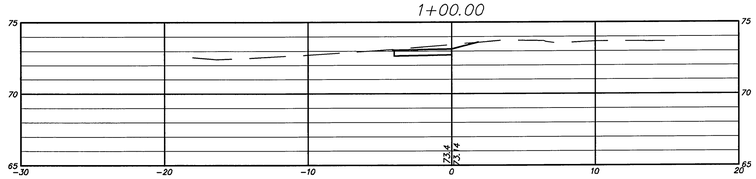

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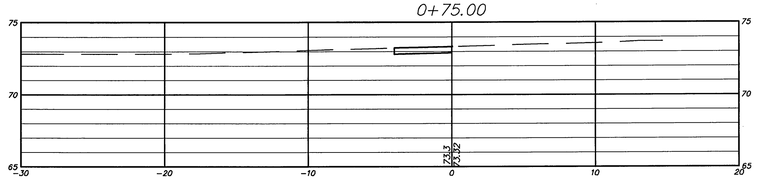

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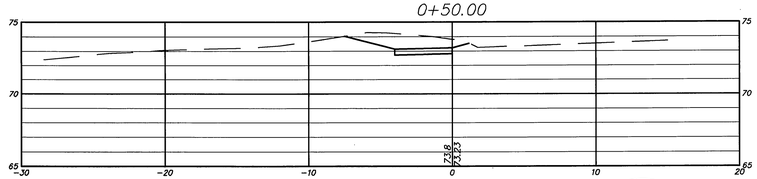

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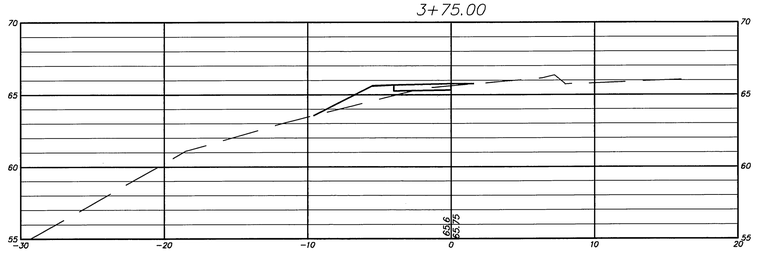

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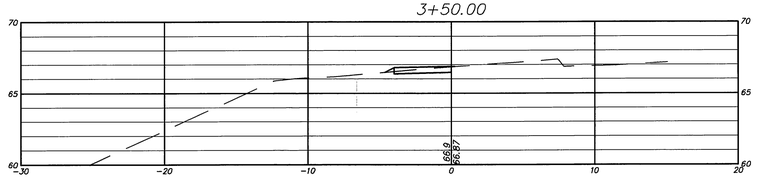

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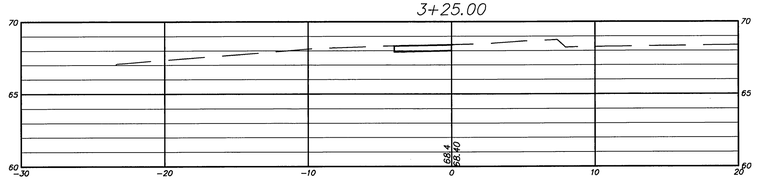

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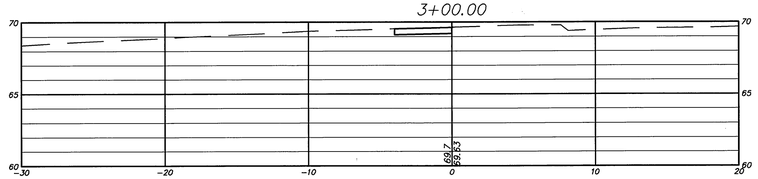

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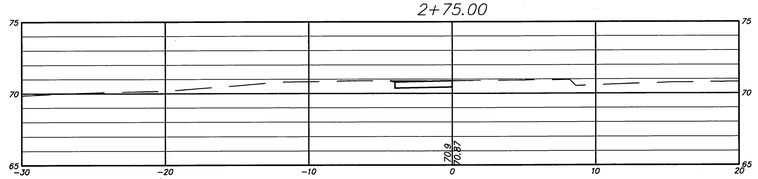

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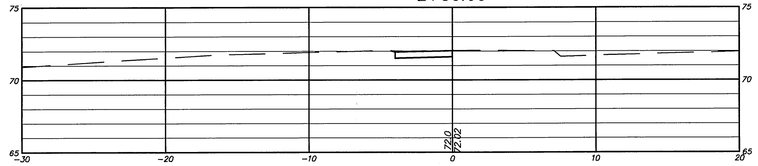

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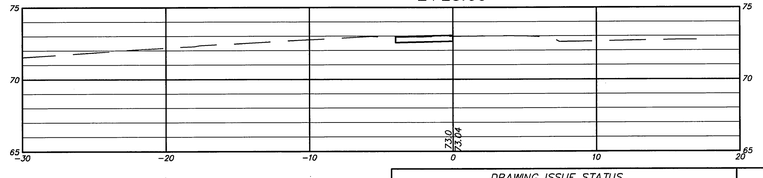

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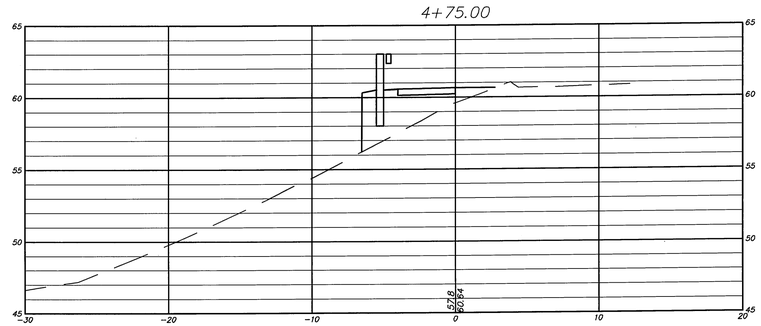

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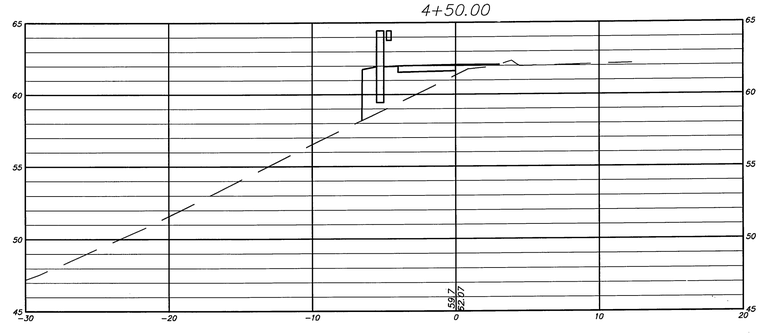

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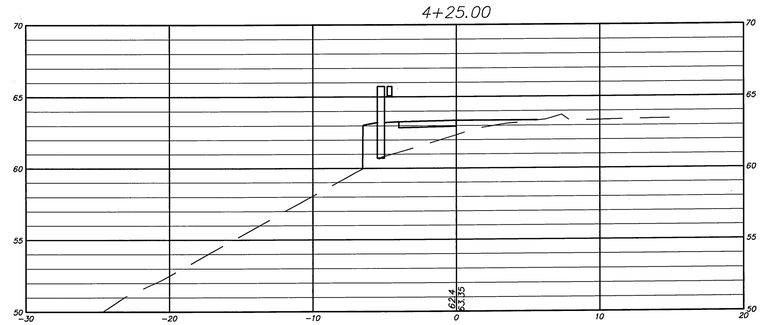

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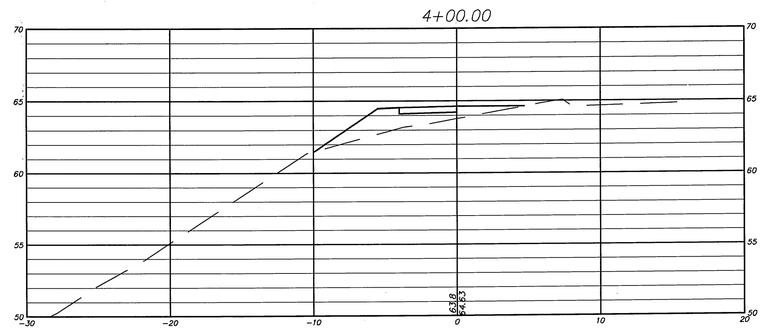

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

STATE OF CONNECTICUT — DANIEL A. PENNINGTON — No. 20101 — LICENSED PROFESSIONAL ENGINEER

DRAWING ISSUE STATUS		
2.	ISSUED FOR CONSTRUCTION	6-14-2013
1.	ISSUED FOR PERMITTING	4-11-2013
NO.	DESCRIPTION	DATE

TOWN OF GLASTONBURY — CAD — ENGINEERING

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	2-12-2013
CHECKED BY: S.M.B.	2-12-2013
APPROVED BY: D.A.P.	2-12-2013
ST. FILE:	

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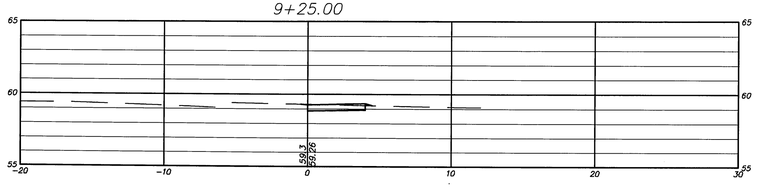
TOWN OF GLASTONBURY — INCORPORATED 1693 — CONNECTICUT — SEAL

CROSS SECTIONS
DEPICTING PROPOSED
SIDEWALK IMPROVEMENTS
PHASE 2
located on
MAIN STREET
GLASTONBURY, CONNECTICUT

SHEET NO. 6 OF 10

9+25.00



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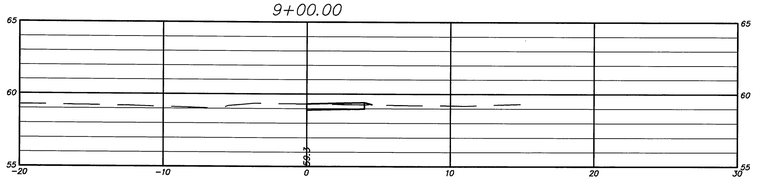

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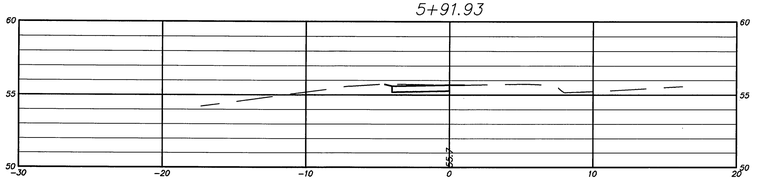

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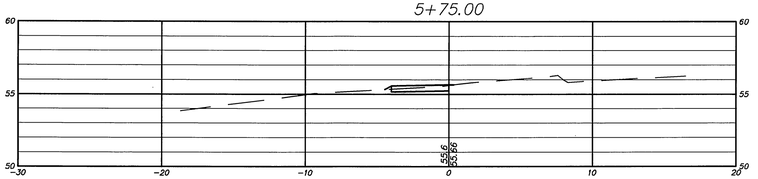

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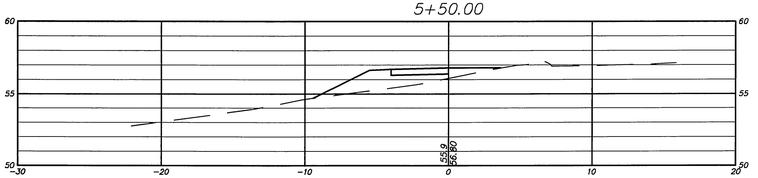

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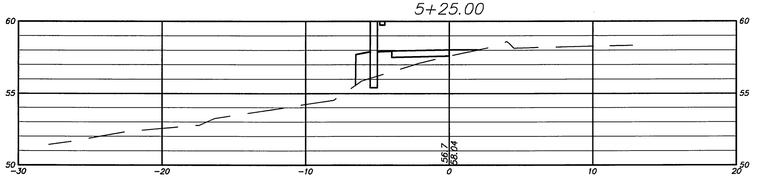

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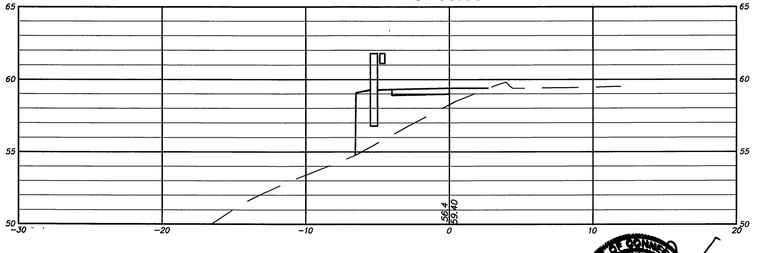

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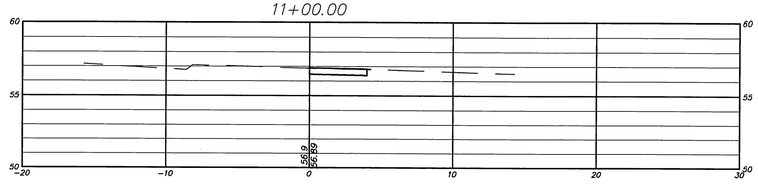

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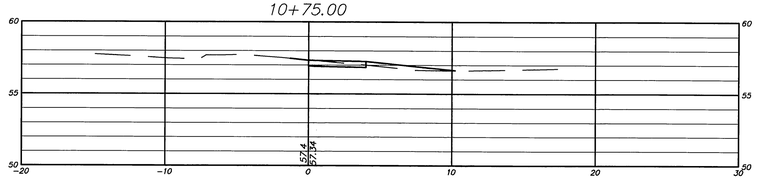

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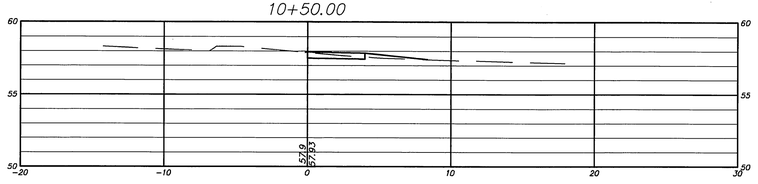

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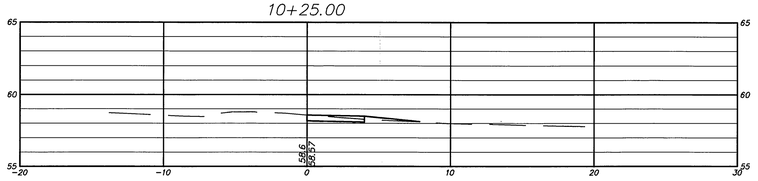

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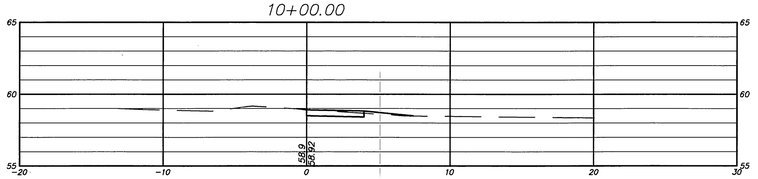

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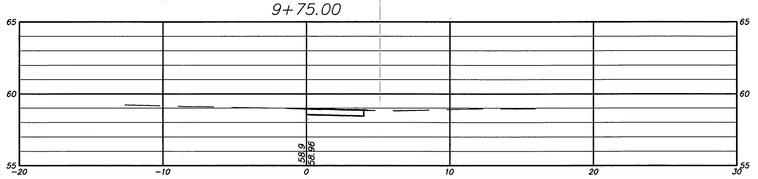

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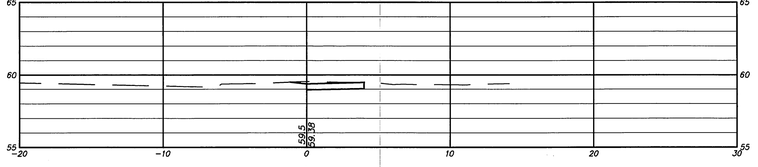

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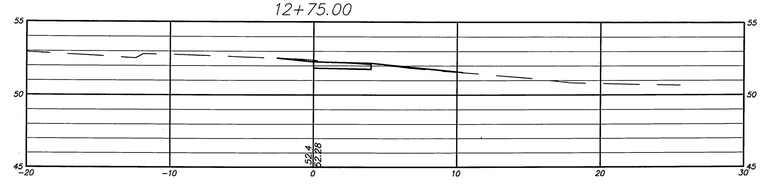

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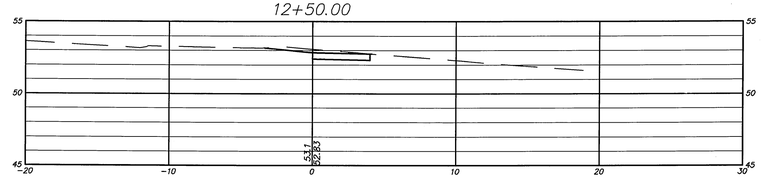

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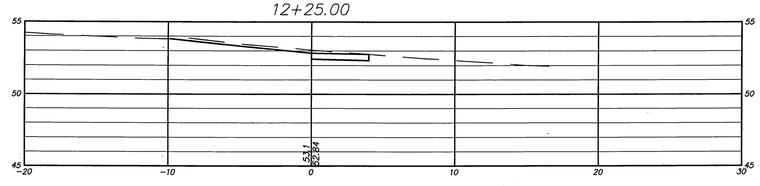

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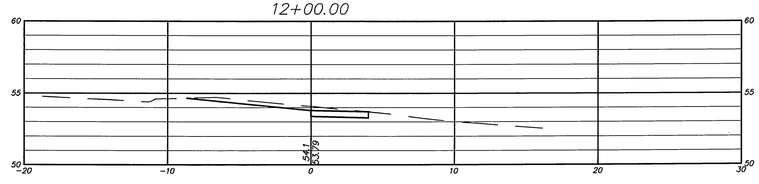

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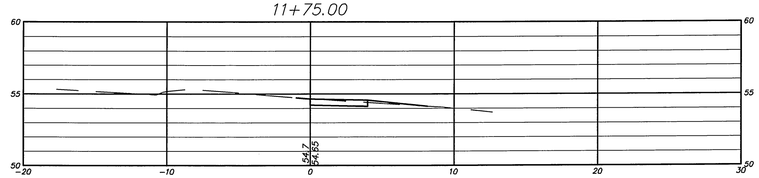

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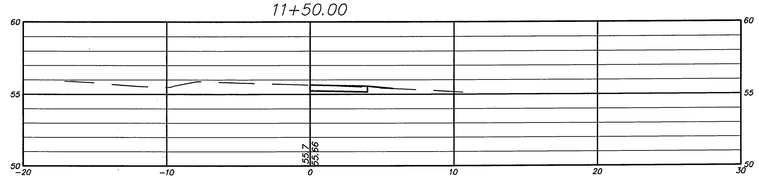

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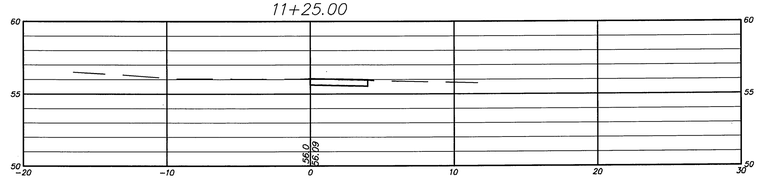

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

DRAWING ISSUE STATUS		
2.	ISSUED FOR CONSTRUCTION	6-14-2013
1.	ISSUED FOR PERMITTING	4-11-2013
NO.	DESCRIPTION	DATE

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	2-12-2013
CHECKED BY: S.M.B.	2-12-2013
APPROVED BY: D.A.P.	2-12-2013
ST. FILE:	

MANUAL REVISIONS TO THIS DOCUMENT ARE PROHIBITED. ALL REVISIONS MUST BE PERFORMED ON CAD/D FILE SHOWN IN THE LEFT MARGIN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE AT (860) 652-7733.

CROSS SECTIONS
DEPICTING PROPOSED
SIDEWALK IMPROVEMENTS
PHASE 2
located on
MAIN STREET
GLASTONBURY, CONNECTICUT

SHEET NO. 7 OF 10

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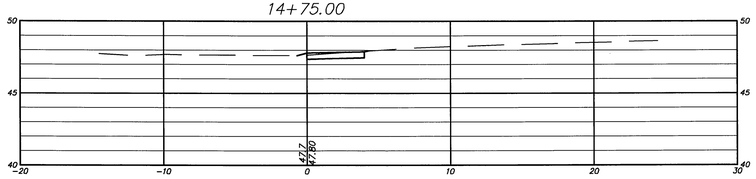

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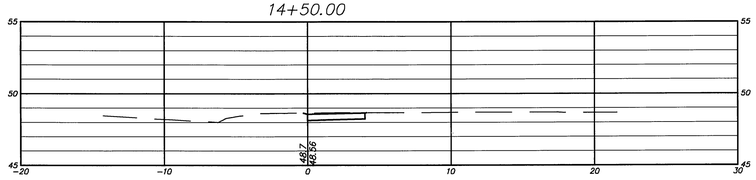

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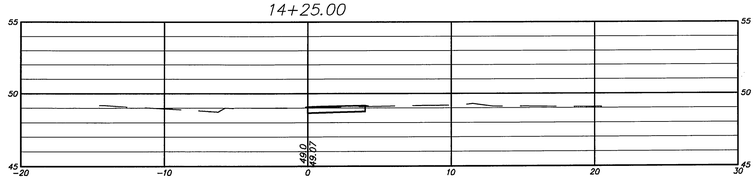

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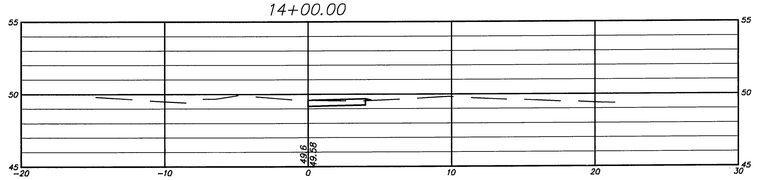

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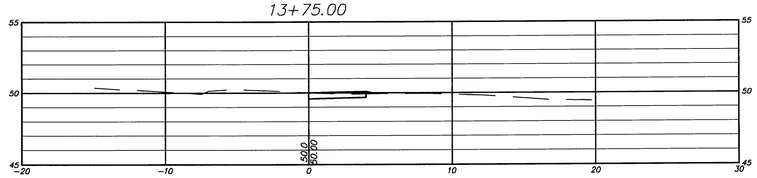

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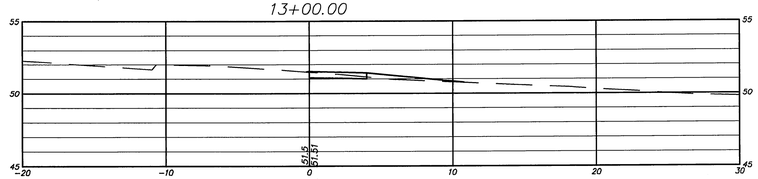

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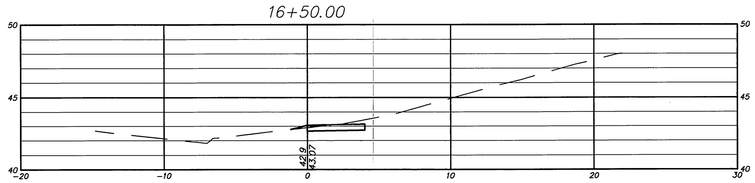

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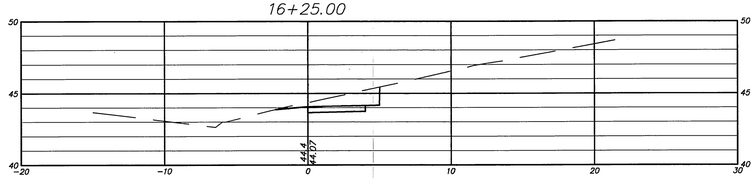

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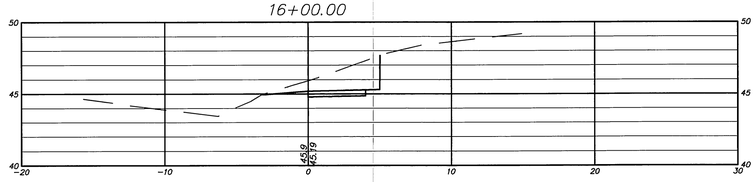

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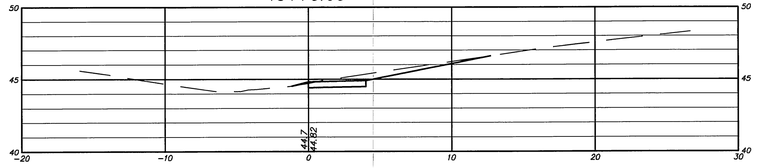

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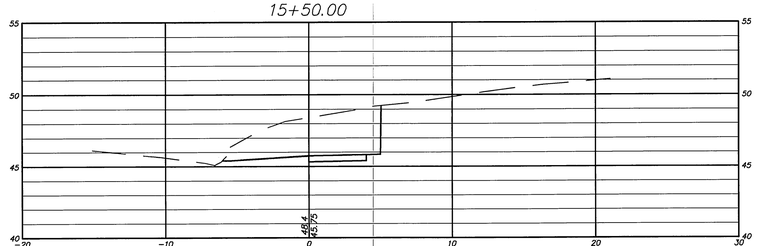

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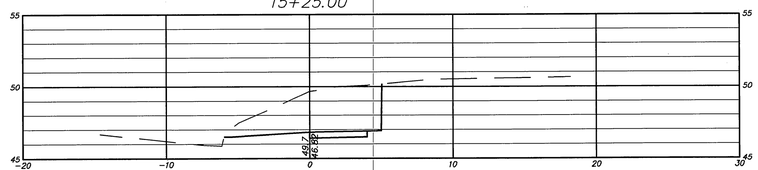

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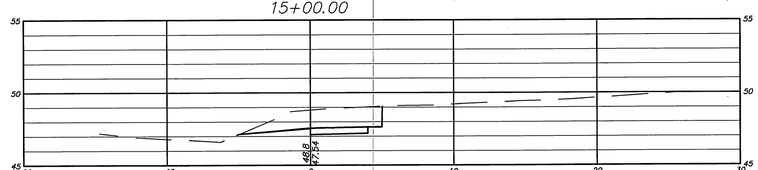

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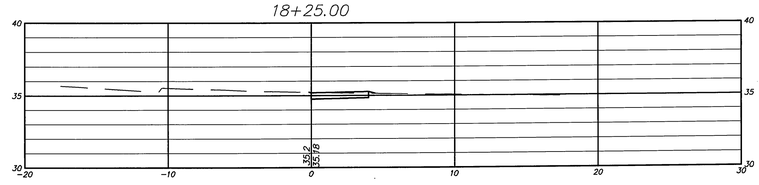

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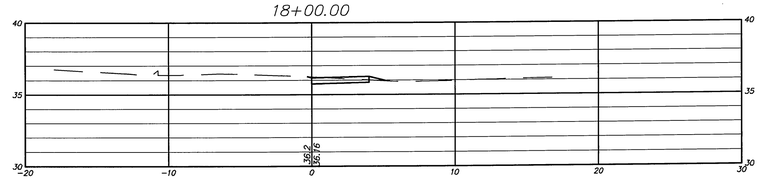

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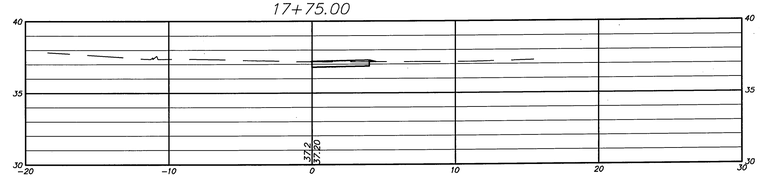

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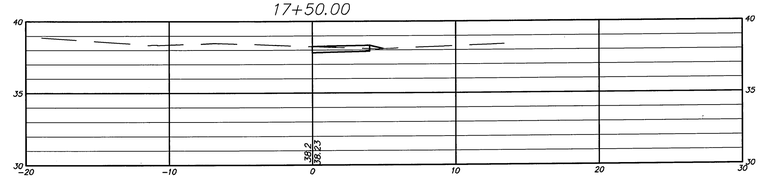

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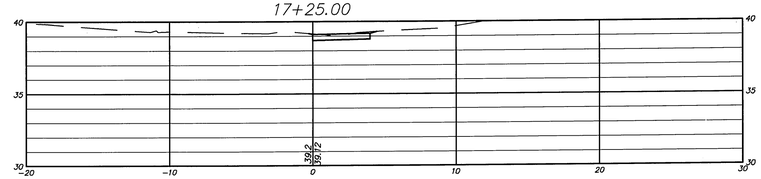

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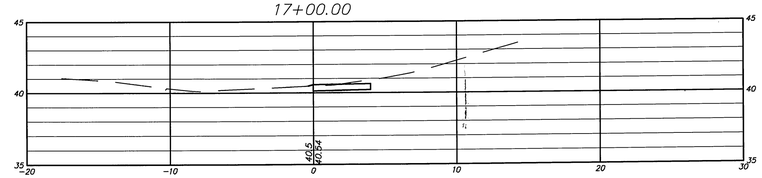

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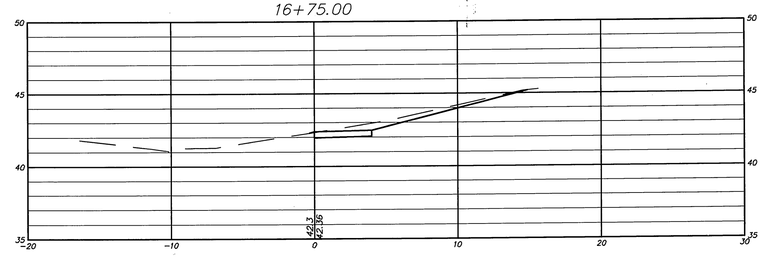

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

STATE OF CONNECTICUT · DANIEL A. PENNINGTON · No. 20101 · LICENSED PROFESSIONAL ENGINEER

DRAWING ISSUE STATUS		
2.	ISSUED FOR CONSTRUCTION	6-14-2013
1.	ISSUED FOR PERMITTING	4-11-2013
NO.	DESCRIPTION	DATE

TOWN OF GLASTONBURY · CAD · ENGINEERING

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	2-12-2013
CHECKED BY: S.M.B.	2-12-2013
APPROVED BY: D.A.P.	2-12-2013
ST. FILE: -	

SEAL · TOWN OF GLASTONBURY · INCORPORATED 1693 · CONNECTICUT

CROSS SECTIONS DEPICTING PROPOSED SIDEWALK IMPROVEMENTS PHASE 2

located on

MAIN STREET

GLASTONBURY, CONNECTICUT

SHEET NO. 8 OF 10

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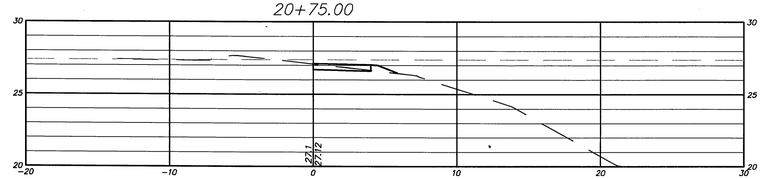

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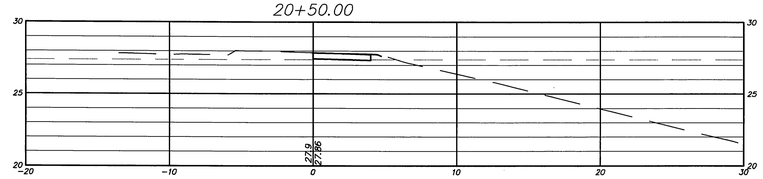

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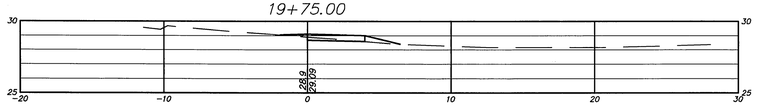

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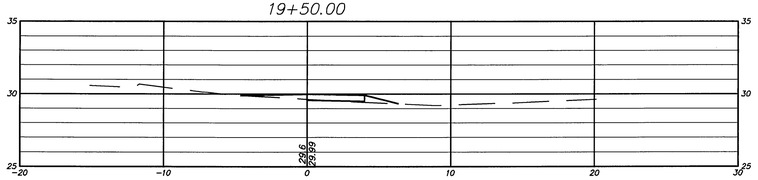

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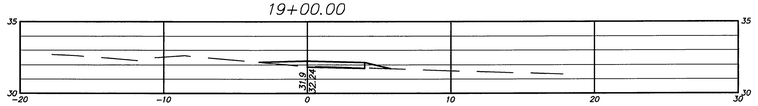

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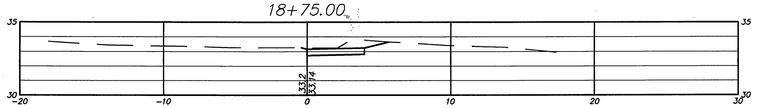

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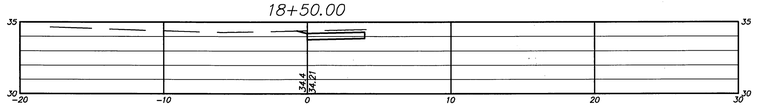

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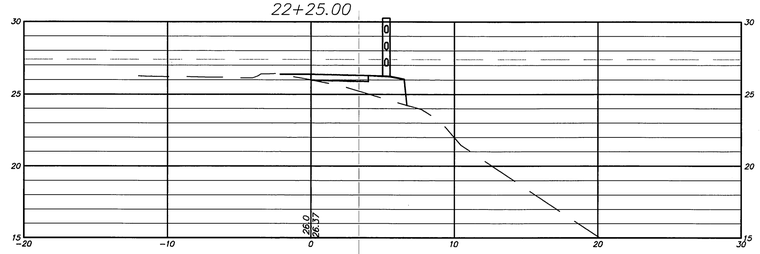

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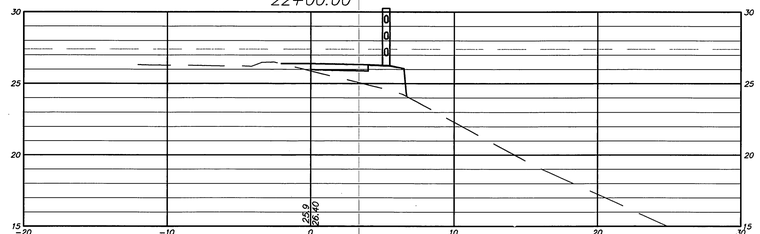

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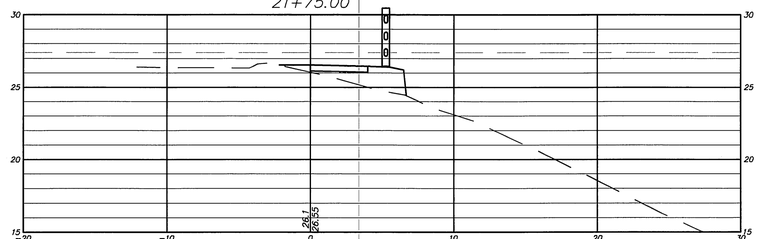

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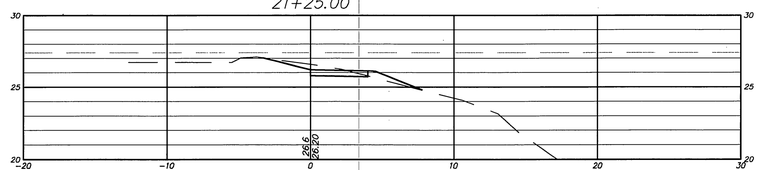

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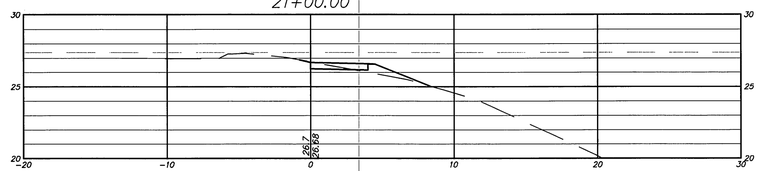

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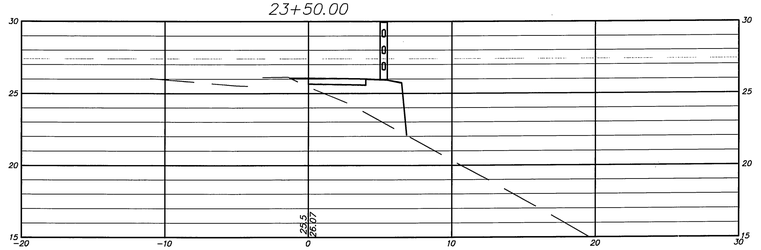

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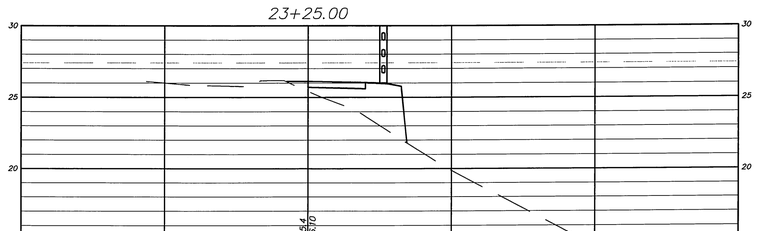

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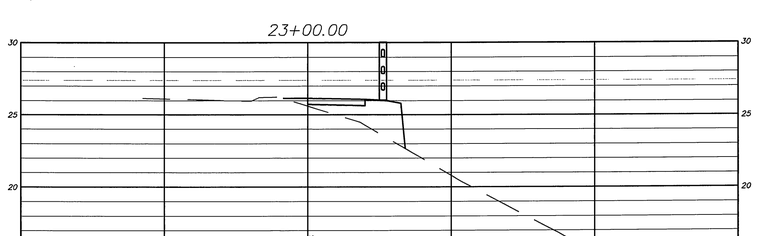

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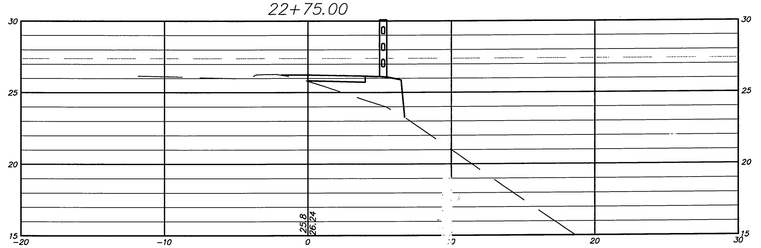

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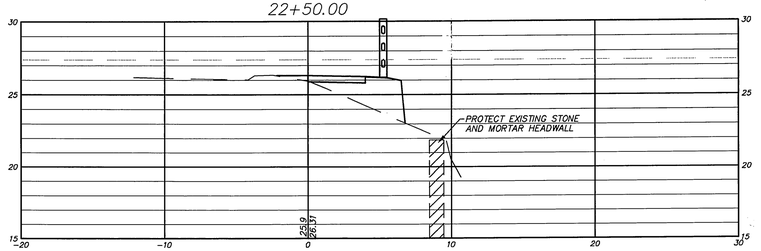

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

STATE OF CONNECTICUT · DANIEL A. PENNINGTON · No. 20101 · LICENSED PROFESSIONAL ENGINEER

DRAWING ISSUE STATUS		
2.	ISSUED FOR CONSTRUCTION	6-14-2013
1.	ISSUED FOR PERMITTING	4-11-2013
NO.	DESCRIPTION	DATE

TOWN OF GLASTONBURY CAD ENGINEERING

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	2-12-2013
CHECKED BY: S.M.B.	2-12-2013
APPROVED BY: D.A.P.	2-12-2013
ST. FILE:	

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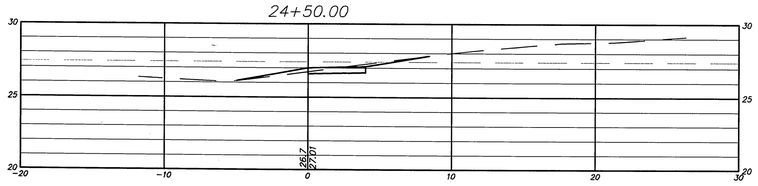
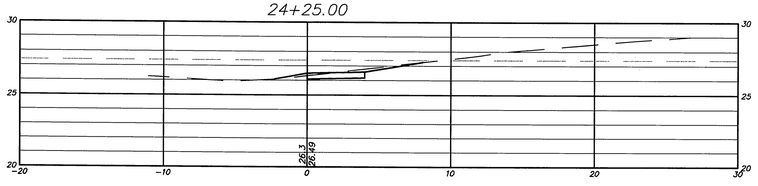
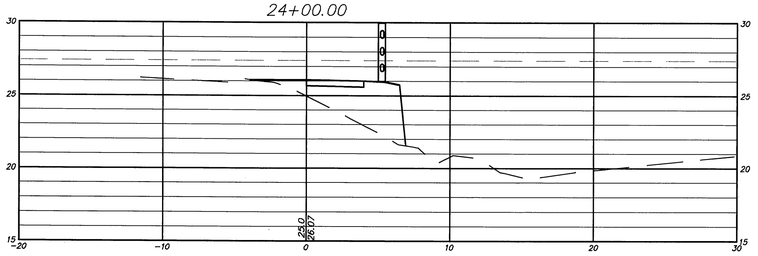
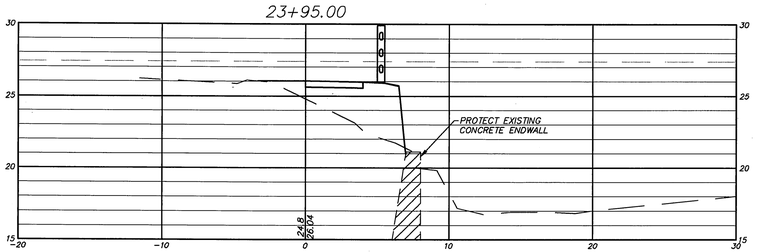
CROSS SECTIONS DEPICTING PROPOSED SIDEWALK IMPROVEMENTS
PHASE 2
located on
MAIN STREET
GLASTONBURY, CONNECTICUT

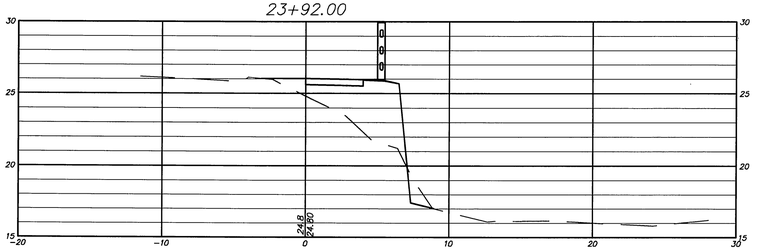
SHEET NO. 9 OF 10

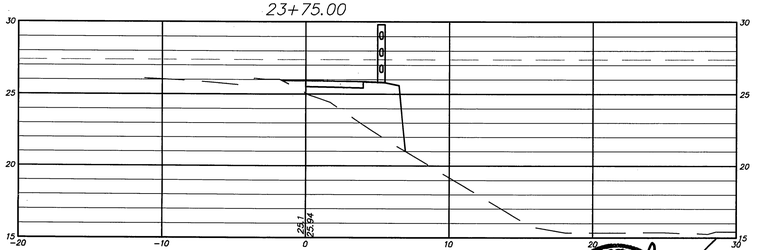












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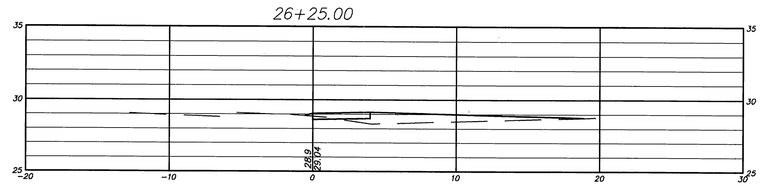
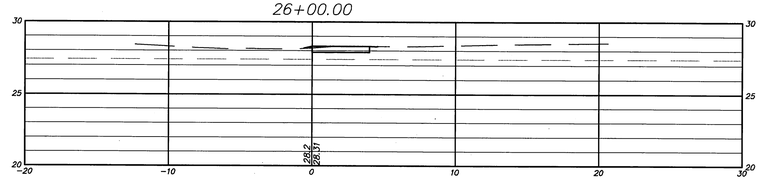
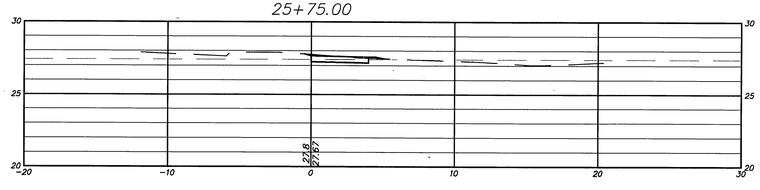
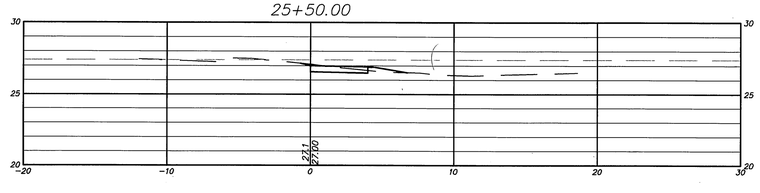
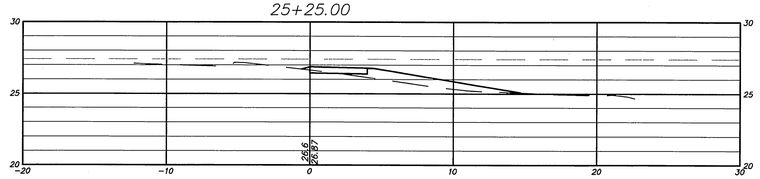
STATE OF CONNECTICUT · DANIEL A. PENNINGTON · No. 20101 · LICENSED ENGINEER

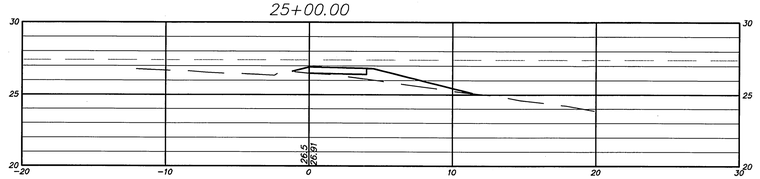


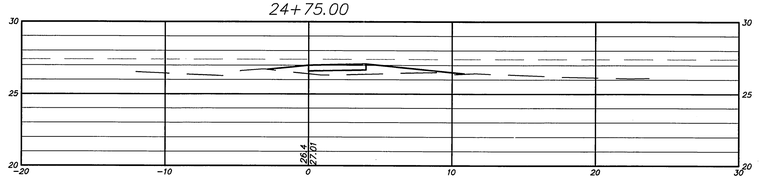


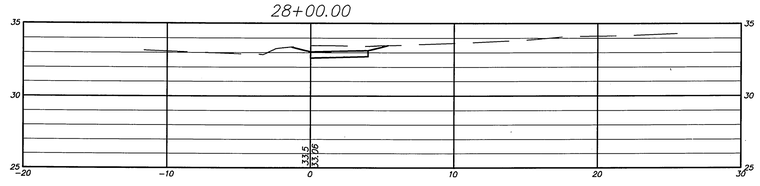


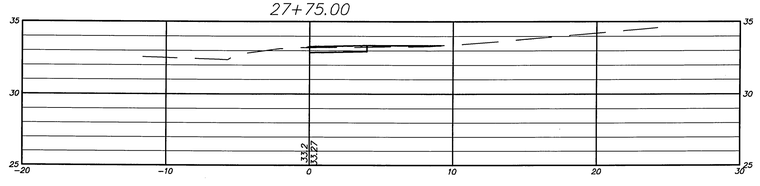


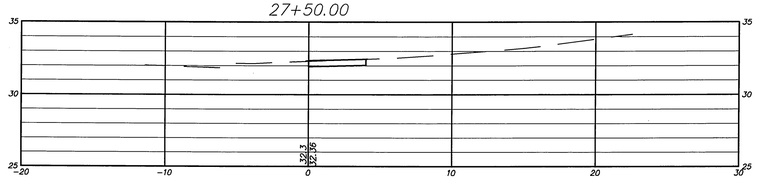


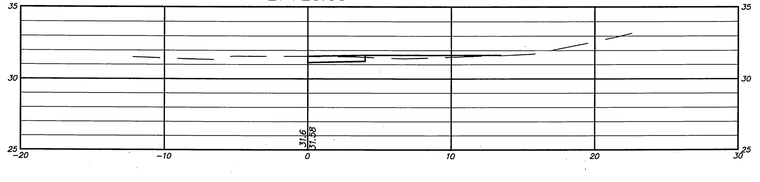


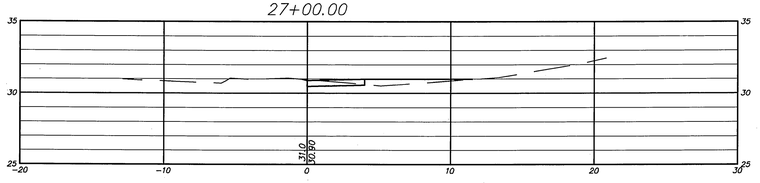


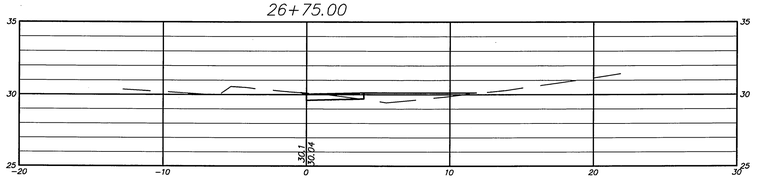


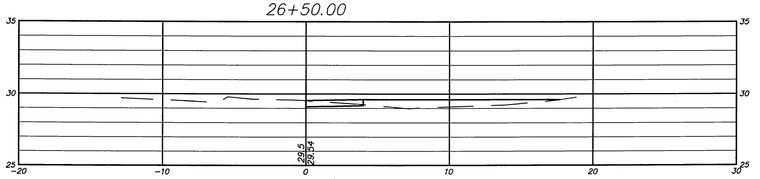












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TOWN OF GLASTONBURY · INCORPORATED 1693 · CONNECTICUT · SEAL

CROSS SECTIONS
DEPICTING PROPOSED
SIDEWALK IMPROVEMENTS
PHASE 2
located on
MAIN STREET
GLASTONBURY, CONNECTICUT

SHEET NO.
10
OF 10