TOWN OF NEW MILFORD

Project Manual & Bid Documents

RECONSTRUCTION OF FORDYCE ROAD

Affirmative Action/Equal Opportunity Employer

Minority/Women Business Enterprises Encouraged To Apply

Funded by:
Town of New Milford
and the
Tax Payers of the Town of New Milford

Prepared by:
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~ Consulting Engineers ~
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Newington, CT 06111
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Mayor Pete Bass

PURCHASING AUTHORITY
Town of New Milford, Connecticut

REQUEST FOR BIDS – Road Reconstruction

Sealed bids will be received at the Purchasing Office until 3 p.m., on Thursday, June 13, 2019. Bids must be in a sealed envelope, addressed to the Purchasing Authority, 10 Main Street, New Milford, CT 06776. Bids will be opened publicly in the E. Paul Martin Room by the Purchasing Authority, Thursday, June 13, 2019 at 3:30 p.m. Late bids will be considered informal and rejected.

INTENT: The Town of New Milford is seeking qualified construction companies to perform drainage and road reconstruction services at various locations throughout town.

Specifications and bid forms for each project must be obtained online at www.newmilford.org.

There will be a mandatory meeting in the E. Paul Martin Room, Town Hall, 10 Main Street, New Milford on Thursday, May 30, 2019 at 10 a.m. All prospective bidders must attend this mandatory meeting in person in order to be considered a qualified respondent.

The Purchasing Authority reserves the right to reject any and all bids. In addition to the bid specifications, all bids are subject to the terms, provisions and conditions of the New Milford "Municipal Purchases" Ordinance, set forth in Article III, Section 2-92 (a) through (o) inclusive, of the Code of New Milford. By bidding on the proposed purchase, the bidder agrees to such terms, provisions and conditions.

Any bidder found by the Purchasing Authority to be delinquent in the payment of taxes and/or sewer use charges due to the Town of New Milford shall be subject to the provisions of Section 2-92 (e) of the Code of New Milford. Copies of the Bid Ordinance may be obtained at the Office of the Town Clerk, Town Hall.

Pete Bass, Mayor
An Equal Opportunity/Affirmative Action Employer

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BIDDING INFORMATION
INSTRUCTIONS FOR BIDDERS – REQUIREMENTS - FORMS

A. GENERAL

1. SUBMISSION, RECEIPT AND OPENING OF BIDS:

The Town of New Milford, CT ("Town" or "Municipality") invites bids on the project described herein. All blanks must be appropriately filled in. Bids will be received by the Purchasing Authority until 3:00 PM on Thursday, June 13, 2019 and then publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed, and delivered to:

Purchasing Authority - Town of New Milford, CT
Roger Sherman Town Hall – Lower Level
10 Main Street
New Milford, CT 06776

Said submissions should be clearly designated as Bid for the Reconstruction of Fordyce Road. The Municipality reserves its right to consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or the authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 45 days after the actual date of the opening thereof. The Municipality may accept or reject any or all bids or any portions thereof and take any action deemed to be in the best interest of the Town.

2. PREPARATION OF BID:

Two (2) original copies of each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures. Each bid must be submitted in a sealed envelope bearing on the outside, the name of the bidder, his address, and **person of contact**. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the paragraph above.

Only complete bids will be accepted. In order for a bid to be complete, it must include all of the following:

A. Bid Forms (Quantity Estimate Sheets & Bid Sheet Summary)
B. Indemnification, Acknowledgement & Agreement
C. Non-Collusion Affidavit of Prime Bidder
D. Certificate as to Corporate Principal
E. Statement of Contractor's Qualifications
F. Bid Security (5% Bid Bond)
G. Certificates of Insurance
H. Any other documents required in the Special Provisions (Section II)

3. QUALIFICATIONS OF BIDDER:

The Municipality may make whatever investigations it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Municipality all information and data for this purpose as the Municipality may request. The Municipality reserves the right to reject any bid if the evidence submitted by, or investigation of, the bidder fails to satisfy the Municipality that the bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

4. ADDENDA AND INTERPRETATIONS:
No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally, **either in person or via phone.**

Every request for such interpretation must be in writing and addressed to:

Michael F. Zarba, P.E.
Director of Public Works - Town of New Milford
mzarba@newmilford.org

and, to be given consideration, must be received no later than 12:00 PM on Tuesday, June 4, 2019. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be posted no later Thursday June 6, 2019. Any addenda shall be posted on the State of Connecticut's DAS Website as well as the Town's website, www.newmilford.org. Failure of any bidder to receive any such addenda or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

5. BID SECURITY; FAILURE TO ENTER CONTRACT:
Each bid must be accompanied by a bid bond duly executed by the bidder as principal and having a surety thereon approved by the Municipality, in the amount of five percent (5%) of the bid.

The successful bidder, upon failure or refusal to execute and deliver the contract, bonds and certificates of insurance required within ten (10) business days after receiving notice of the acceptance of its bid, shall forfeit to the Municipality, as liquidated damages for such failure or refusal, the security deposited with its bid.

6. SECURITY FOR FAITHFUL PERFORMANCE:
Simultaneously with its delivery of the executed contract, the Contractor shall furnish a one hundred percent (100%) surety bond or bonds as security of faithful performance of his contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified herein. The surety on such bond or bonds shall be a duly authorized licensed Connecticut surety satisfactory to the Town, and listed in the Department of Treasury's Listing of Approved Sureties (Circular 570).

7. POWER OF ATTORNEY:
Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney in the form set forth under CT General Statute § 1-352.

8. LAWS AND REGULATIONS:
The bidders' attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the construction of the project shall apply to the contract throughout, and they are considered included in the contract the same as though they were written out in full.

9. CONDITIONS: OBLIGATION OF BIDDER:
Each bidder must inform themselves fully of the conditions relating to the construction of the project and the employment of labor thereto. Failure to do so will not relieve an awarded bidder of their obligation to furnish all material and labor required for executing the provisions of the Agreement. Insofar as possible, the Contractor executing the work must employ such methods or means as will

cause the least interruption of or interference with the work of any other Contractor.

At the time of the opening of the bids, each bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with the plans and the contract documents *(including all addenda)*. The failure or omission of a bidder to examine any form, instrument or document shall in no way relieve the bidder from any obligation with respect to his bid.

10. PRE-BID MEETING

A mandatory pre-bid meeting will be held in the E. Paul Martin Room in New Milford Town Hall, 10 Main Street, New Milford, CT on Thursday May 30, 2019 at 10:00 a.m. DST. Attendance of this meeting is required in order to submit a bid for this project. Representatives of the designing engineering firms will be in attendance, and questions may be asked. Questions and answers will be published in an addendum to the bid. See Item 4. for information on addenda time lines.

11. PREVAILING WAGE

The Bidder shall conform to Connecticut's prevailing wage law codified in Connecticut General Statutes Sections 31-53 and 31-53a. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in these sections, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.Wage rates and associated information can be found in Appendix A.

12. CONTRACT TIME AND LIQUIDATED DAMAGES

The completion date for this contract is November 1, 2019. See the Notice to Contractors in the "Special Provisions".

B. BIDDING REQUIREMENTS AND FORMS

1. Corrections

Any and all erasures or other changes in the Bid must be initialed by the Bidder.

2. Time for Receiving Bids

Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered. The Town is not responsible for any errors or irregularities with the delivery method utilized for submittal of the Proposal. Any proposals received after the closing date and time will be returned unopened.

3. Withdrawal of Bids

Bids may be withdrawn by written request prior to the bid opening. The Bid Guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly.

4. Award of Contract: Rejection of Bids

a. Basis of Award:

1) Bids, as stated in the "Bid Sheet", will be compared on the basis of the sum of the quantities multiplied by respective unit prices, added to lump-sum prices. In the event that there is a discrepancy in the bid sheet between the lump-sum or unit prices written in words and figures, the prices written in words shall govern. The Town agrees to examine and

consider each bid submitted in consideration of the Bidder's Agreements, as herein above set forth in the Bid Sheet.

ALTERNATE's NOTE:

- *Alternate bid items shall include the cost of all labor, materials, equipment, time extension or deletion, general conditions, general requirements, overhead, profit, insurance, for the work. Claims for extras resulting from the acceptance or rejection of any alternate item will not be allowed.*

2) The Town shall have the right to accept or omit any Alternate.

3) The Drawings, Specifications and other Contract Documents shall be considered appropriately modified by either the acceptance or omission of any Alternates.

4) A separate Bid Bond shall be at least one-third of the sum of the Alternates.

5) The contract completion date (calendar days) will be adjusted if Alternates are added. Such adjustment must be memorialized in writing, signed by the Mayor and Director of Public Works, and attached in addendum to the Agreement.

The additional days granted should be considered to perform the alternate work only and substantial completion based on base bid items and contract days.

All costs associated with the above time extensions(s) are to be included in the Alternate Price. After award of the contract, one or more of the alternates for which funds are available may be added to the Contract in the discretion of the Owner. The adjustment to the bid price shall be solely based on the bid price for the alternate(s) added. The Contractor will be notified as to which alternates will be included in the Contract within fourteen (14) calendar days of the Award of Contract.

b. Rejection of Bids:

The **Town specifically** reserves the right to consider as not responsible any Bidder who does not habitually perform with his own forces at least fifty percent (50%) of the dollar value of the work involved in this Contract.

c. Use of Separate Bid Sheets

Bidders should submit forms, as required. Bid documents should not be attached to bid specifications.

QUANTITY ESTIMATE SHEETS

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0201001A	Clearing and Grubbing _____dollars cents	LS	NEC		
0202100	Rock Excavation _____dollars cents	CY	25		
0202452A	Test Pit _____dollars cents	EA	3		
0202529	Cut Bituminous Concrete Pavement _____dollars cents	LF	310		
0202540A	Replace & Reset Iron Pin _____dollars cents	EA	6		
0202553A	Set Monument _____dollars cents	EA	2		

Company Name Signature Date

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0209001	Formation of Subgrade _____dollars cents	SY	410		
0219001	Sedimentation Control System _____dollars cents	LF	1865		
0219011	Sedimentation Control System at Catch Basin _____dollars cents	EA	32		
0304002	Processed Aggregate Base _____dollars cents	CY	140		
403869A	Cold Reclaimed Asphalt Pavement (Includes Handling) _____dollars cents	SY	7530		
0406010-1A	Bituminous Concrete Class 1-1.5 inches _____dollars cents	TON	620		

Company Name

Signature Date

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0406010-2A	Bituminous Concrete Class 2-1.5 inches _____dollars cents	TON	570		
0406236	Material for Tack Coat _____dollars cents	GAL	365		
506001	Concrete for Steps and Copings _____dollars cents	CY	1		
0507831A	Convert Catch Basin to Manhole _____dollars cents	EA	1		
0586001.10A	Type "C" Catch Basin (0'-10'Deep) _____dollars cents	EA	4		
0586040.10A	Type "C-L" Catch Basin (0'-10' Deep) _____dollars cents	EA	2		

Company Name

Signature Date

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0586500.20A	Manhole (0'-20' deep) _____dollars cents	EA	1		
0586601A	Reset Type 'C' Catch Basin _____dollars cents	EA	3		
0586750A	Type "C" Catch Basin Top _____dollars cents	EA	19		
0586751A	Type 'C' Offset Catch Basin Top _____dollars cents	EA	4		
0586790.10A	Remove Drainage Structure - (0'-10' Deep) _____dollars cents	EA	2		
601445A	Embankment Wall (Site No. 1) _____dollars cents	LS	NEC		

Company Name

Signature Date

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0686241.15A	15" High Density Polyethylene Pipe-Smooth (0'-10' Deep) _____dollars cents	LF	425		
0686241.16A	18" High Density Polyethylene Pipe-Smooth (0'-10' Deep) _____dollars cents	LF	110		
0686715.15A	15" High Density Polyethlyene Pipe End _____dollars cents	EA	2		
0686715.16A	18" High Density Polyethylene Pipe End _____dollars cents	EA	1		
0686950.1A	Remove Existing Pipe-(0'-10' Deep) _____dollars cents	LF	50		
0703012A	Modified Riprap _____dollars cents	CY	40		

Company Name

Signature Date

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
751080A	Drainage Pipe Lateral _____dollars cents	LF	80		
0751711	6" Underdrain _____dollars cents	LF	2390		
0751712	6" Underdrain in Storm Pipe Trench _____dollars cents	LF	360		
0815001	Bituminous Concrete Lip Curbing _____dollars cents	LF	3950		
0910025	Metal Beam rail Terminal Element _____dollars cents	EA	2		
0910300	Metal Beam Rail (Type R-B MASH) _____dollars cents	LF	330		

Company Name

Signature Date

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0911924	R-B End Anchorage-Type II _____dollars cents	EA	2		
0912503	Remove Metal Beam Rail _____dollars cents	LF	330		
0922501	Bituminous Concrete Driveway _____dollars cents	SY	595		
0944000	Furnishing and Placing Topsoil _____dollars cents	SY	800		
0950005A	Turf Establishment _____dollars cents	SY	1500		
950013	Erosion Control Matting _____dollars cents	SY	120		

Company Name

Signature Date

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
0971001A	Maintenance and Protection of Traffic _____dollars cents	LS	NEC		
0975004	Mobilization and Project Closeout _____dollars cents	LS	NEC		
0980001	Construction Staking _____dollars cents	LS	NEC		
1208931A	Sign Face - Sheet Aluminum (Type IX Retroflective Sheeting) _____dollars cents	SF	56		
1209431	Thermoplastic Pavement Line - 4" White _____dollars cents	LF	390		
1210102	4" Yellow Epoxy Resin Pavement Markings _____dollars cents	LF	5360		

Company Name

Signature Date

Base Bid Fordyce Road reconstruction

Item #	Work Description and Unit Price in Words	Unit	Estimated Quantity	Unit Price (figures)	Total $ (figures)
1210106	12" White Epoxy Resin Pavement Markings _____dollars cents	LF	120		
1403501	Reset Manhole (Sanitary Sewer) _____dollars cents	EA	14		
				Base Bid Total:	

"Unit Price" amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. In case of discrepency between "Unit Price" and "Total", the unit price will govern.	Base Bid Total (in words): _____dollars _____cents

Company Name

Signature Date

Reconstruction of Fordyce Road
BID SHEET SUMMARY

BASE BID AMOUNT $ _____

TOTAL WRITTEN VALUE (from Quantity Estimate Sheets):

_____DOLLARS and

_____CENTS

ALTERNATE BID
Alternate Bid items will be considered if economically desirable. AMOUNT $ _____**N/A**_____

TOTAL WRITTEN VALUE (from Alternate Quantity Estimate Sheets):

_____**N/A** _____DOLLARS and

_____**N/A** _____CENTS

THIS BID INCLUDES ADDENDUM NOS._____
(please write in all Addenda #'s received)

THE UNDERSIGNED BIDDER UNDERSTANDS THAT, IN ADDITION TO THE BID SPECIFICATIONS, ALL BIDS ARE SUBJECT TO THE TERMS, PROVISIONS AND CONDITIONS OF THE NEW MILFORD "MUNICIPAL PURCHASES" ORDINANCE, SET FORTH IN ARTICLE III, SECTION 2-92 (a) THROUGH (o) INCLUSIVE, OF THE CODE OF NEW MILFORD.

Per Article X, 7.81.c We _____ hereby submit a bid for materials, equipment and/or labor to the Town of New Milford. The bid is for bid documents titled _____. The below named bidder and individual or signatory signing this on behalf of the bidder hereby certify under penalty of perjury that, if this bid is selected, no natural gas waste or oil waste will be used by the undersigned bidder in performance of the contract. We further certify that no subcontractor, agent or vendor will be allowed or permitted to use materials containing natural gas waste or oil waste.

PROPOSAL SUBMITTED: BY: _____ TITLE: _____
NAME (AUTHORIZED CORPORATE OFFICER)

SIGNATURE: _____ DATE: _____

OFFICIAL ADDRESS: The undersigned hereby designates as his/her office to which notice of acceptance and other notices may be mailed, telephoned of delivered:
NAME: _____
ADDRESS: _____
_____
DATE: _____

PHONE (DAY) _____ (CELL) _____FAX: _____
EMAIL: _____

NOTE: This document, in order to be considered valid, must be signed by a principal, officer or owner of the bidding firm. Such signature will attest to the fact that all terms, conditions and specifications have been read, understood and accepted by the bidder.

PURCHASING AUTHORITY
Town of New Milford, Connecticut
INDEMNIFICATION, ACKNOWLEDGEMENT & AGREEMENT

BID: Reconstruction of Fordyce Road

BID OPENING: June 13, 2019

To the fullest extent permitted by law, the contractor shall indemnify and hold harmless the Town of New Milford, and agents and employees of said Town from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including loss or use resulting therefrom, but only to the extent caused in whole or in part by acts or omissions of the contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to the Town of New Milford. In claims against any person or entity indemnified under this paragraph by an employee of the contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this paragraph shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the contractor or a subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

Contractor acknowledge and understands that the Town of New Milford has adopted as its policy, the nondiscrimination agreements and warranties required under Connecticut General Statutes § 4a-60(a)(1) and § 4a-60a(a)(1), as amended in State of Connecticut Public Act 07-245 and sections 9(a)(1) and 10(a)(1) of Public Act 07-142, as those statutes may be amended from time to time. Contractor further agrees to comply with such mandates.

Signature: _____

Printed name: _____

Title: _____

Company: _____

Date: _____

An Equal Opportunity/Affirmative Action Employer

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER
(To Accompany Bid)

State of Connecticut
County of _____

_____being first duly sworn affirms that:

1. He is _____of _____, the Bidder that has submitted the attached bid;
2. He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such bid;
3. Such Price is genuine and is not a collusive or sham bid;
4. Neither the said Bidder nor any of its officers, partners, Owners, agents, representatives, employees or parties in interest, including this affidavit, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by Agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached bid or of any other Bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Town of New Milford, or any person interested in the proposed Contract; and
5. The price or prices quoted in the Subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, Owners, employees or parties in interest, including this affiant.

Signature: _____ Printed name: _____

Title: _____

Company: _____

Date: _____

CERTIFICATE OF ACKNOWLEDGMENT

On this the _____ day of _____, 2019, before me, _____ a Notary Public or Commissioner of the Superior Court or Justice of the Peace in and for said state, personally appeared _____, known to me (or satisfactorily proven) to be the person(s) whose name(s) (is/are) subscribed to the within instrument and acknowledged that (he/she/they) executed, in authorized capacity, the same for the purposes therein contained.

WITNESSS whereof I hereunto set my hand:

_____
Notary Public/Commissioner of the Superior Court/Justice of the Peace (circle one)

_____
My Commission Expires/Juris Number (circle one)

CERTIFICATE AS TO CORPORATE PRINCIPAL
(To Accompany Bid)

I, _____ certify that I am the Secretary of the Corporation named as Principal in the within bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

(Corporate Seal – if available)

Signature: _____ Printed name: _____

Title: _____

Company: _____

Date: _____

STATEMENT OF CONTRACTOR'S QUALIFICATIONS
(To be included with Bid)

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized Please answer questions on separate attached sheets. The Contractor may submit any additional information he desires.

1. Name of Contractor.

2. Permanent main office address, including phone and facsimile numbers.

3. When organized.

4. If a corporation, where incorporated.

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)

7. General character of work performed by your company.

8. Have you ever failed to complete the work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

10. List the more important projects recently completed by your company, stating the approximate cost for each and the month and year completed.

11. List your major equipment available for this Contract, including make and model year.

12. List your experience in work similar to this project.

13. List the background and experience of the principal members of your organization including all personnel licensed by the State of Connecticut.

14. List of the work to be performed by Subcontractors and summarize the dollar value of each Subcontract.

15. Credit available: $

16. Give Bank References:

17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Town of New Milford?

18. The undersigned hereby authorizes and represents any person, firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising

this Statement of Bidder's Qualifications.

Dated this _____ day of _____ 20__

Signature: _____ Printed name: _____

Title: _____

Company: _____

Date: _____

CERTIFICATE OF ACKNOWLEDGMENT

State of Connecticut
County of _____

On this the _____ day of _____, 2019, before me, _____ a Notary Public or Commissioner of the Superior Court or Justice of the Peace in and for said state, personally appeared _____, known to me (or satisfactorily proven) to be the person(s) whose name(s) (is/are) subscribed to the within instrument and acknowledged that (he/she/they) executed, in authorized capacity, the same for the purposes therein contained.

WITNESSS whereof I hereunto set my hand:

_____

Notary Public/Commissioner of the Superior Court (circle one)

_____

My Commission Expires/Juris Number (circle one)

6. Execution of Agreement and Bonds

All bonds required by the Contract Documents shall be obtained from a surety or insurance company that is duly licensed and/or authorized in the State of Connecticut to issue bonds for the limits and coverage required. The surety is further subject to approval by the Finance Director and/or the Town Attorney of New Milford.

Having satisfied all conditions of award as set forth elsewhere in these Documents, the successful Bidder shall, within the period specified in the paragraph above, furnish a Performance Bond in a penal sum of not less than one hundred percent (100%) and a Labor and Material Payment Bond in a penal sum of not less than one hundred percent (100%) of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him in performing the work. Such bonds shall be in the same form as that included in the Contract Documents, or other acceptable form to the Owner and shall bear the same date as or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bonds. These bonds shall be signed by a Guaranty or Surety Company listed in the latest issue of the U.S. Treasury Circular 570 and the penal sum shall be within the maximum specified for such Company in said Circular 570.

Notwithstanding the foregoing, all bonds required by law shall be in accordance with the form and substance so required by law. The failure of the successful Bidder to execute such Agreement and to supply the required bonds within ten (10) calendar days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant, based upon reasons determined sufficient by the Owner, shall constitute a default, and the Owner may either award the Contract to the next lowest responsible Bidder or re-advertise for Bids.

a. Performance and Payment Bond:

The Contractor shall secure and furnish performance and payment bonds in the amount at least equal to the contract price bid. These bonds shall serve to secure the faithful performance and payment of all the Contractor's obligations under the Contract Documents.

These bonds shall remain in effect for a period of two (2) years from the date of acceptance by the Town guaranteeing the bidders work in all phases of construction, which shall also cover all damages due to trench settlement and/or other defects found throughout the two year period.

b. Additional or Substitute Bond:

If at any time the Town becomes dissatisfied with the performance bond as issued by the present surety or sureties, or if for any other reason such bond shall cease to be adequate surety to the Town, the Contractor shall within five (5) days after notice from the Town to do so, substitute an acceptable bond in such form and sum and signed by such other sureties as may be satisfactory to the Town.

The premium on all such bonds shall be paid by the Contractor. No further payment shall be deemed due nor shall be made until new sureties shall have qualified.

c. Power Of Attorney:

Attorneys-in Fact who sign contract bonds must file with each bond a certified copy of their power of attorney to sign said bond.

7. Insurance Requirements: Certificates of Insurance must accompany all bids.
Contractors shall carry the following minimum insurance coverage's and the provisions specified below must be met.

- Insurance carriers providing the required insurance coverage's must have an A.M. Best's financial rating of "A-VII" or better.

- The Town of New Milford, its officials, employees and volunteers, MUST be named as additional insured with reference to this project on a primary and non-contributory basis. The insurer shall waive all rights of subrogation against the Town of New Milford, CT, its officers, employees and volunteers arising from work performed by the Contractor.

- The policy endorsement evidencing this coverage must be provided with the certificate of liability insurance. Any changes in insurance coverage will require (30) thirty days of notice to the Town of New Milford by certified mail with return receipt requested.

- The contract should have a hold harmless indemnification agreement provision which protects the Town of New Milford to the greatest extent that Connecticut Law will allow.

- If Umbrella Liability is used to make up required limits, the policy shall not reduce or restrict coverage provided by the underlying Commercial General Liability or Automobile Liability insurance policies.

- Note that these limits are not all inclusive and are subject to change to reflect scope and cost of individual projects. These minimum required limits are not a limitation of contractor liability.

a. Commercial General Liability
(Form 1988 ISO Occurrence Form or equivalent) Limits of Liability shall be combined bodily injury & property damage.

General Liability Aggregate	$1,000,000.
Products & Completed Operations Aggregate	$1,000,000.
Personal Injury	$1,000,000.
Each Occurrence for Bodily Injury and Property Damage	$2,000,000.
Fire Damage (Any One Fire)	$ 50,000.
Medical Expense (Any One Person)	$ 5,000.
Umbrella Excess	$2,000,000.

Umbrella limits over General Liability limits may be used to make up the required limits. The additional insured coverage MUST be provided by the Umbrella to mirror the General Liability coverage.

b. Automobile Liability
Policies must include coverage for all vehicles utilized on the job including owned vehicles, hired vehicles and non-owned vehicles. Limits of insurance shall be combined single limit

bodily injury and property damage $2,000,000. Umbrella limits over Automobile Liability limits may be used to make up the required limits.

c. Statutory Workers Compensation and Employers Liability

Policy coverage will include limits of $100,000 each accident, $100,000 Disease-each employee and $500,000 Disease-policy limit, or in accordance with the requirements of the State of Connecticut, whichever is greater.

GENERAL SPECIFICATIONS – PART I

A. DEFINITIONS AND TERMINOLOGY

1. Defined Terms:

Wherever the words defined in this section, or pronouns used in their stead, occur in the specifications, they shall have the meanings herein given.

Contract Documents: Whenever the term "Contract Documents" is used herein, it shall include the Agreement, Information to Bidders, General Specifications, Bid Documents, Technical Specifications, Special Notes, Addenda, and Project Plans, including all modifications thereof incorporated in-the documents before their execution.

Director of Public Works: The Director of Public Works (also known as "Public Works Director), of the Town of New Milford, CT, who shall have complete authority, direction and control of all work related to the project.

Engineer: The Engineer shall mean the Town of New Milford Town Engineer, or other person specifically designated/directed as such by the Director of Public Works

Contractor: Party of the second part to the contract, acting directly or through his agent or employees.

Sub-Contractor: Any individual, firm, partnership or corporation to whom the Contractor sub-lets or assigns any part or parts of this project covered by this contract.

Notice: The term "notice" as used herein shall mean and include written notices. Written notice shall be deemed to have been served, when deposited in a United States Mailbox to or at last known business address of the person, firm or corporation for whom intended or to his or their or its duly authorized agent, representative or office, or enclosed in a postage prepaid wrapper or envelope addressed to such person or firm or corporation at his or their or its last known business address. Email and facsimile transmission are acceptable for this provision upon mutual consent, memorialized in writing, of both parties.

2. Abbreviations:

Where any of the following abbreviations are used in the Specifications, they shall have the meaning set forth below:

AASHTO American Association of State Highway Transportation Officials
ACI American Concrete Institute
AISC American Institute of Steel Construction
ASA American Standard Association
ASCE American Society of Civil Engineers
ASTM American Society for Testing and Materials
NEC National Electrical Code

3. Substitutes "(Or Equal Clauses)":

Whenever in this contract or specifications, a particular brand or make of material, device or equipment is shown or specified such brand, make of material, device or equipment should be regarded merely as a standard, unless otherwise specified. If three or more brands, makes of

material, devices or equipment are shown or specified, each should be regarded as the equal of the others.

Subject to the discretion of the Director of Public Works, all material and workmanship shall in every respect be in accordance with what is in conformity with approved modern practice. Whenever the plans, drawings, specifications, other contract documents, or the quality of the work, admit of doubt as to what is permissible, the interpretation will be made by the Director of Public Works, as to which is in accordance with approved modern practice, in order to meet the particular requirements of the contract.

In all cases, new material shall be used unless this provision is waived with a special written notice by the Director of Public Works.

B. SPECIAL PROVISIONS

Each bidder must fully inform himself of the construction and labor conditions relating to the work which is now or will be performed. Failure to do so will not relieve the successful bidder of his obligation to furnish all labor and materials necessary to carry out the provisions of the contract documents and to complete the contemplated work. Inasmuch as possible, the contractor must, in carrying out his work, employ such methods or means as will not cause any interruptions or interference with the work of any other contractor.

The successful bidder must furnish a field and office organization chart and equipment list to be used on the job to demonstrate that he has the capability to perform the work prescribed for this project and shall furnish the Town all other information and data requested on the form provided for this purpose; such submission to be made prior to construction startup.

1**. Inspection of Site:**

Prior to submitting their bid, each Bidder shall visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to the work and labor, and shall fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder shall thoroughly examine and be familiar with all drawings, technical specifications, and contract documents.

The Bidder understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty of guarantee, express or implied, that the subsurface and/or other structures (surface and/or subsurface) actually encountered will be the same as these shown on the drawings or in any of the other contract documents and he agrees that he shall not use or be entitled to use any such information made available to him through the contract documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Town, arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this bid.

2. Sub-Surface Structures:

a. All sub-surface structures and public utility lines have been located as far as possible, as indicated on the plans and information obtained from the respective utilities. The Town does not assume the responsibility for the accuracy of this information.

b. Contractors are required to contact Call Before You Dig (CBYD) at 1-800-922-4455 PRIOR TO performing any excavation.

3. Sub-Surface Conditions:

Bidders are notified that it is obligatory for them to obtain all the information they require as to the existing physical conditions relative to the work and in particular to sub-surface conditions. THE TOWN SHALL NOT BE HELD LIABLE FOR ANY ADDITIONAL COST TO THE CONSTRUCTION WHICH MAY RESULT DUE TO THESE CONDITIONS, and each bidder shall rely exclusively upon his own investigation, and that he makes this bid with the full knowledge of the kind, quality and quantity of work required.

C. EMPLOYMENT OBLIGATIONS OF BIDDERS

1. Superintendent:

The Contractor shall supply a Superintendent full time on the job. Contractor must submit the name and the title of the person assigned Superintendent for this contract and said person must be satisfactory to the Town of New Milford and, except for extraordinary circumstances, shall not be replaced without written consent of the Town.

2. Working Hours and Holidays:

The Contractor shall perform no work during the Town of New Milford employees' holidays nor before or after the Town's normal working hours, without specific approval of the Director. The normal working hours of the Town are Monday through Friday, 8:00 a.m. to 4:00 p.m. Working hours may be limited by project permits. Proposed schedules other than the Town's normal working hours must be submitted in writing and approved by the Director, in writing, PRIOR to the contractor working said hours or days.

THE OFFICIAL TOWN OF NEW MILFORD HOLIDAYS

New Year's Day	Martin Luther King Day
Lincoln's Birthday	Washington's Birthday
Good Friday	Memorial Day
Independence Day	Labor Day
Columbus Day	Veterans' Day
Thanksgiving Day	Friday after Thanksgiving
Christmas Day	

3. Hiring of Local Labor:

The Contractor and every subcontractor working on the project shall employ to the maximum extent practical, in carrying out the work under this contract, qualified persons who regularly reside in the designated area where such project is located. For the purposes of this contract, the designated area is Litchfield County Non-Metro.

The contractor will be responsible for ensuring that subcontractors comply with this goal. This section emphasizes that every contractor and subcontractor undertaking to do work on the project shall employ to the maximum extent practical, in carrying out the work under this contract, qualified persons who regularly reside in the designated area where such project is located. For the purposes of this contract, the designated area is Litchfield County Non-Metro.

4. Qualifications for Employment:
No person under the age of sixteen (16) years and no person currently serving sentences in a penal or correctional institution shall be employed to perform any work on the project under this contract. No person whose age or physical condition is such as to make their employment dangerous to their health or safety, or to the health and safety of others shall be employed to perform any work on the project under this contract; provided that this sentence shall not operate against the employment of physically handicapped persons otherwise employed where such persons may be safely assigned to work which they can ably perform.

There shall be no discrimination because of race, creed, color or political affiliation in employment of persons for work on the project under this contract and by signing this bid document the company so certifies that it is an Equal Opportunity Employer.

This contract is subject to all Federal and State Affirmative Action regulations. This includes the documentation attached and included within the contract.

5. Payment of Employees:
The Contractor and each of his subcontractors shall pay each of his employees engaged in the work on the project under this contract in full (less deductions made mandatory by law) in a timely and routine manner.

6. Accident to Persons Prevention:
a. Precaution shall be exercised at all times for the protection of all persons - including employees - and personal property from injury or loss. The safety provisions of applicable laws, building, and construction codes shall be observed at all times while performing work for this contract. Except as otherwise provided by law, neither the Town of New Milford nor any of its agents shall be responsible for monitoring Contractor's compliance with any laws or regulations.

b. Machinery, equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions as set forth by law and of the "Manual of Accident Prevention for Construction", published by the Associated General Contractors of America, to the extent that such provisions are not in breach of applicable laws.

D. PROTECTION OF PROPERTY
1. Protection of Work and Property:
The Contractor shall at all times safely guard and protect his own work and that of adjacent property from damage. All passageways, guard fences, lights and other facilities required for protection by local conditions must be provided and maintained.

Contractor shall not load any part of any structure or allow any part of any structure to be loaded in a manner that will endanger it or employees or persons occupying or utilizing the area. Nor shall the Contractor allow or subject any part of the work or adjacent property to pressures or stresses that will endanger it. Should any reasonable claim be made by a property owner or occupant the Contractor shall promptly replace and/or make good on any such damage, loss or injury by either negotiation, arbitration or other dispute resolution process. Claims not fully settled by the completion of work shall be grounds for the Town to withhold payments, as necessary.

2. Power of Contractor to Act in an Emergency:
In case of an emergency which threatens loss or injury of property and/or safety of life, the Contractor shall be allowed to act without previous instructions from the Town, as he sees fit. He shall notify the Director of Public Works immediately thereafter of any compensation claimed by the Contractor due to such extra work, and shall submit same to the Director of Public Works for approval.

3. Driveways and Property Entrances:
a. Excavated materials and equipment shall be placed in such position as not to unnecessarily impede travel on the streets, or access to driveways. A sufficiently clear space for pedestrian travel shall be maintained on the sidewalks, and all property entrances and driveways shall be kept clear, where possible. Where necessary, bridges shall be constructed and maintained for residents. Before closing any driveway or entrance, the Contractor shall give the owner or resident of the property involved, due notice of such temporary closing.
b. No direct payment will be allowed for this work or condition, but shall be considered as included in the base bid submitted.

4. Occupying Private Land:
The Contractor shall not (except after written consent from the proper parties) enter or occupy with workers, tools, materials, or equipment, any land outside the right-of-way or property of the Town. A copy of the written consent shall be given to the Director of Public Works.

5. Preservation of Trees:
Trees and shrubs on the site of the work shall be protected during the entire period of the contract, and if injured/removed by the Contractor or his employees, shall be replaced at his expense before the completion of the contract, unless it is:
a. covered by the bid items;
b. pursuant to the Director of Public Works' order

GENERAL SPECIFICATIONS – Part II

A. TRAFFIC AND SAFETY PRECAUTIONS

1. Maintenance of Traffic:

The Contractor shall conduct his operations in such a manner so that he does not impose unnecessary hardship upon the residents along the route of the work. Traffic shall be maintained within the project area except where it is found impracticable, or seriously interferes with the Contractor's operations. If permanent repairs are not completed immediately, the pavement surface along the line of work shall be maintained in a condition comparable to the adjacent road surface.

People living or having business within the barricaded zone shall be permitted to use the highway for auto traffic if possible. The Contractor shall protect all phases of the work from damage due to traffic, etc., and provide necessary watchmen, certified flagmen and/or the New Milford Police Department.

2. Interference With and Protection of Streets:

a. The Contractor shall not close or obstruct any portion of a street, road or private way without obtaining permits therefore from the proper authorities (CT DOT). If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards. Streets, roads, private ways and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.
b. The Contractor shall, at least 24 hours in advance, notify the Police and Fire Departments in writing, with a copy to the Director of Public Works, if the closure of a street or road is necessary. He shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well-lighted, in order to minimize confusion. All detour plans and proposed signage must be approved by the Director of Public Works prior to implementation

3. Insufficiency of Safety Precautions:

If at any time, the work is not properly lighted, barricaded, or in any other respect safe in regard to public travel, persons on or about the work, or public or private property, the Director of Public Works shall have the right to order such safeguards to be erected and such precautions to be taken as he deems advisable and the Contractor shall comply promptly with such orders. The Contractor shall pay all costs and expenses incurred by the Town in so doing.

4. Sanitary Regulations:

When deemed necessary by OSHA or the Director of Public Works, the Contractor shall provide suitable sanitary facilities for the use of those employed on the work. Such facilities shall be made available when the first employees arrive on the site of the work, shall be properly secluded from public observation and shall be constructed and maintained during the progress of the work in suitable numbers and at such points and in such manner as may be required or approved. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the work on the lands of the Town, or on adjacent property.

5. Dust:

The Contractor shall at all times during the execution of this contract, control the nuisance of flying dust, by water sprinkling or by application of $CaCl_2$.

B. MATERIAL INSPECTIONS AND TESTS

1. Materials:

Samples - Inspection – Approval - Unless otherwise expressly provided on the Drawings or in any of the other contract documents, only new material and equipment shall be incorporated in the work.

As soon as possible after execution of the Agreement, the Contractor shall submit to the Director of Public Works the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to determine whether the manufacturer and/or supplier have the ability to furnish a product meeting the specifications.

Facilities and labor for the storage, handling and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the work.

All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented including the name of the building or work location for which the material is intended and the name of the contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Director of Public Works by letter, email or facsimile transmission that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection, testing and approval before the materials and equipment are needed for incorporation in the work. The consequence of his failure to do so shall be the Contractor's sole responsibility.

2. Inspection and Tests:

a. Costs for Tests:

The selection of laboratories and/or agencies for the inspection and tests of supplies, materials or equipment shall be subject to the direction of the Engineer. If inspection, tests, analysis of the materials or equipment should disclose that said material or equipment requires rejection, then the cost of said inspection, test analysis shall be borne by the Contractor and said cost shall be deducted from the Contractor's current estimate by the Engineer. If supplies, material or equipment shall be found acceptable, the cost of said inspection, tests or analysis shall be borne by the Town.

b. Handling and Distribution:

The Contractor shall handle, haul and distribute all materials and all surplus materials on the different portions of the work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the work, and shall be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until the final completion and acceptance of the work.

3. Inspection of Work Away From the Site:

If work to be done away from the construction site is to be inspected on behalf of the Town during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

C. DRAWINGS, SPECIFICATIONS AND SCHEDULES

1. Contractor's Shop and Working Drawings:

a. The Contractor shall submit for approval (in reproducible form unless otherwise specified) shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated for the contract and materials and equipment for which such drawings are specifically requested. Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing, when it is customary to do so. When the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the contract. When so specified, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted for approval in place of shop and working drawings. In such case, requirements shall be as specified for shop and working drawings, insofar as applicable, except that the submission shall be in quadruplicate.

b. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings. No material or equipment shall be purchased or fabricated for the contract until the required shop and working drawings have been submitted as herein above provided and approved as conforming to the contract requirements. All such materials and equipment and the work involved in their installation or incorporated into the work shall then be as shown in and represented by said drawings. Until the necessary approval has been given, the Contractor shall not proceed with any portion of the work such as the construction of foundations, the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which approval is required.

c. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning approved drawings to them. Unless otherwise approved, all shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of the Town, Contractor, and building, equipment or structure to which the drawing applies, and shall be accompanied by a letter of transmittal giving a list of the drawing number and the names mentioned above.

d. The approval of shop and working drawings, etc., will be general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc., necessary for proper fitting and construction of the work as required in the contract and for achieving the result and performance specified hereunder. Should the Contractor submit for approval, equipment that requires modifications to the structures, piping, layout, etc., detailed on the drawings, he shall also submit for approval, details of the proposed modifications. If such equipment and modifications are approved, the Contractor, at no additional cost to the Town, shall do all work necessary to make such modifications.

The marked-up reproducible of the shop and working drawings or one marked-up copy of catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when so requested.

2. Coordination of Plans/Specifications:

Any requirement on the plans or in these Specifications, Special Notes/Provisions shall be equally binding on the Contractor. In case of conflict, the plans shall take precedence over the Specifications. Special Notes/Provisions shall take precedence over Plans and Specifications.

3. Dimensions of Existing Structures:
Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

4. Work To Conform:
During its progress, and on its completion, the work shall conform truly to the lines, levels and grades indicated on the drawings or given by the Director of Public Works and shall be built in a thoroughly substantial and workmanlike manner.

5. Planning And Progress Schedules:
Before starting the work and from time to time during its progress as the Director of Public Works may request the Contractor shall submit a written description of the methods he plans to use in doing the work and the various steps he intends to take. Within two (2) days after the date of starting work, the Contractor shall prepare and submit to the Director of Public Works a written schedule fixing the respective dates for the start and completion of various parts of the work. The Contractor shall update the schedule on a monthly basis and submit each schedule to the Director of Public Works for review, approval and change where necessary during the progress of the work.

6. Precautions During Adverse Weather
During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the work may be properly done and satisfactory in all respects. When required, protection shall be provided by the use of plastic sheets, tarpaulins, wood and building paper shelters or other approved means.

AGREEMENT - Construction Contract

THIS AGREEMENT ("Agreement" or "Construction Contract") is a contract between the Town of New Milford, CT (hereinafter "Town"), a municipal corporation with principal offices located at 10 Main Street – New Milford, CT 06776, and _____ of _____ CT (hereinafter "Contractor"), with principal offices located at _____.

WITNESSETH

WHEREAS, the Contractor has submitted a timely and qualified bid to the Town, in response to the Town's Request for Proposal _____.

WHEREAS, Pursuant to § 2-92 of the Code of Ordinances, the Town through its Purchasing Authority has accepted the Contractor's Proposal for said work, according to the terms set forth herein.

WHEREAS, the Contractor and the Town desire to enter into this Construction Contract and agree as follows:

1. SCOPE OF SERVICES – The Scope of Services shall consist of those duties, functions, obligations, responsibilities and task, as set forth in:
   a. The specifications in the Town of New Milford, CT's Request for Proposal _____, which is incorporated in its entirety by reference herein;
   b. The Contractor's proposal that was submitted, and subsequently awarded in response to the Request for Proposal set forth in 1a.

2. TERM OF CONTRACT; COMPLETION OF WORK; COMPENSATION
   a. The Contractor shall commence work following 1) execution of this Construction Contract by both parties and 2) issuance of Notice to Proceed by the Director of Public Works, and shall complete the work in a diligent and efficient manner on or before _____.
   b. The Town and Contractor expressly recognize that time is of the essence and the Town is positioned to sustain loss if the Contractor fails to complete the work within the period set forth in 2a, plus any extensions thereof agreed to. They also recognize the delay, expense and difficulties involved in proving in an arbitration or legal proceeding the actual loss suffered by the Town if the work is not completed on time. For this reason, instead of requiring any such proof, Town and Contractor agree that as liquidated damages for delay (but not as penalty), Contractor shall pay the Town one thousand dollars ($1,000.00) for each day past the time specified. Furthermore, the Town shall have the right to terminate this Agreement and/or pursue appropriate legal recourse on the Contractor's breach of this Agreement.
   c. The Town shall pay as compensation to the Contractor, for all work completed, those unit prices for the goods and services set forth in the Contractor's bid, subject to available funding and supplemental appropriations made by the procedure set forth in the Town Charter.
   d. The total contract price shall include all charges, direct costs, indirect costs, expenses and fees of the Contractor. Said compensation shall be paid by the Town upon review and approval of the Contractor's invoices for payment by the Director of Public Works. Additionally, the Contractor shall procure and fund all permits and licenses necessary for execution of the work.

e. The Contractor agrees, by the execution of the Contract that they shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing, and the Town shall be justified in rejecting any claim based on facts regarding which the Contractor should have known as a result thereof.

3. REVIEW OF WORK; PAYMENTS; RIGHT TO WITHHOLD
   a. The Contractor will permit the Director of Public Works, or his designee, to review – at any time – all work performed under the terms of this Construction Contract at any stage of the work.
   b. The Contractor shall supply a Superintendent full time on the job. Contractor must submit the name and the title of the person assigned Superintendent for this contract and said person must be satisfactory to the Town of New Milford and, except for extraordinary circumstances, shall not be replaced without written consent of the Town.
   c. All work under the Agreement is subject to complete control of the Town's Director of Public Works. Any direction, determination, or other order given by the Town to the Contractor shall be by the Director of Public Works. In doing so, the Director of Public Works may consult with his staff or any consultants for with respect to technical requirements, but decision making authority shall rest with the Director of Public Works.
   d. The Director of Public Works shall hold final say over quality and suitability of materials and work and may direct the Contractor to 1) correct any work deemed unapproved and 2) to remove any material rejected.
   e. The Contractor agrees to invoice the Town for services performed on a monthly basis as work progresses, sent to the Town no later than the 5th of every month. The Town will issue payments to the Contractor within thirty (30) days after receipt of an invoice. No invoice will be paid prior to services rendered and/or goods received.
   f. The Town shall retain five percent (5%) of each estimate until final completion and acceptance of all work covered by this contract.
   g. It shall be incumbent upon the Contractor to meet with the Director of Public Works, or his designee, to measure and determine actual field quantities of items and/or materials corresponding to that pay period. All materials and supplies must be free from any encumbrances and not subject to any chattel mortgage and/or conditional sale for which interest is retained by the seller/merchant.
   h. The Town specifically reserves the right to withhold any appropriated payment, in whole or in part, due to one or more of the following reasons:
      1) Assuring payment of just claims due any entity supplying labor and/or materials for work covered by this Agreement.
      2) Protecting the Town from loss and/or corrective expenses due to defective work not fully or properly remedied according to the provisions set forth in this Agreement.
      3) Protecting the Town from loss due to injury to persons or damage to the work or property of other contractors, subcontractors, or others caused by the act or neglect of the Contractor or any of his subcontractors or other subordinates.

4. INDEMNIFICATION; INSURANCE; BONDING
   a. The Contractor shall obtain and pay for such insurance as more particularly described in the Town's "Insurance Requirements" as set forth in the Request for Proposal _____.

b. The Contractor shall indemnify and hold harmless the Town, its officers, agents, and employees, from and, if requested, shall defend them against any loss, cost, damage, injury, liability, and claim for injury, liability, and claim for injury to or death of a person, including employees of the Contractor or loss of or damage to property, resulting directly from the Contractor's performance of this Agreement, or by any omission to perform some duty imposed by law or agreement upon the Contractor, its officers, agents and/or employees. The foregoing indemnity shall include, without limitation, reasonable fees of attorneys, Contractors and experts, and related costs and the Town's cost of investigating any claims against it.
c. In addition to the Contractor's obligation to indemnify the Town, the Contractor specifically acknowledges and agrees that it has an immediate and independent obligation to defend the Town from any claim which actually or potentially falls within this indemnification provision, even if the allegations are or may be groundless, false or fraudulent, which obligation arises at the time such claim is tendered to the Contractor by the Town and continues at all times thereafter.
d. The Contractor shall indemnify and hold the Town harmless from all loss and liability, including attorneys' fees, court costs and all other litigation expenses arising out of the Contractor's performance of this Agreement.
e. The Contractor shall secure and furnish performance bonds and payment bonds in the amount at least equal to the contract bid price as set forth in the Request for Proposal _____.

5. BOOKS AND RECORDS

The Contractor shall maintain or cause to be maintained all records, books, or other documents relative to charges, costs, expenses, fees, alleged breaches of Agreement, settlement of claims, or any other matter pertaining to the Contractor's demand for compensation by the Town for a period of not less than two (2) years from the date of the final payment for work performed under this Agreement.

6. REPRESENTATION
   a. The Contractor represents that it is an expert in relation to the work to be performed under this Agreement, including familiarity with all federal, state, and municipal laws which may in any way impact the work and those employed with this project.
   b. The Contractor represents that it is financially solvent.
   c. The Contractor further represents that it has the requisite skill, expertise, and knowledge necessary to perform the scope of services required under the terms of this Agreement, including any supplementary work and the Town relies upon said representation in executing this Agreement.

7. CHANGE ORDERS; EXTRAS; ADDENDUM
   a. Any change in condition learned of by the Contractor during the course of the project must be reported in writing to the Director of Public Works immediately.
   b. It is specifically understood and agreed to by the Contractor that all change orders and/or contract extras must be memorialized in writing.
      1) All change orders – whether proposed by the Town or Contractor - must detail all changes in the work and designate method of determining any changes in the contract sum or duration.
      2) Any revisions to progress schedule, schedule of values, and other documents related to the project shall be addressed in the change orders.

3) After review by legal counsel for each party, change orders must be signed by both the Director of Public Works and Mayor on behalf of the Town, signed by the Contractor, and attached to this Agreement by addendum.

c. The Town shall not be liable for payment of any additional costs unless and until the provisions of this Section and any section related hereto in the Town's Request for Proposal are complied with.

8. SUB-CONTRACTING

The Contractor is prohibited from subcontracting unless it has obtained, in writing, the permission of the Town - specifically the Director of Public Works - to employ the specific subcontractors proposed to be used by the Contractor.

a. The Contractor shall provide the Director of Public Works with the names and addresses of all proposed subcontractors at least five (5) business days prior to their engagement.
b. Any agreement made in violation of this Section shall confer no rights on any subcontractor and shall be null and void.

9. NON-APPROPRIATION

a. Contractor acknowledges that the Town is a municipal corporation and that the Town's obligation to make payments under this Agreement is contingent upon the appropriation by the Town of funds sufficient for such purposes, for each budget year in which this Agreement us in effect.
b. If sufficient funds to provide for the payment(s) hereunder are not appropriated, the Town may terminate this Agreement upon notice in writing to the Contractor.

10. SEVERABILITY; CONTROLLING LAW; OTHER LEGAL PROVISIONS

a. In the event any provision or portion of this contract is judicially or legislatively determined to be invalid, such determination shall not affect or impair the validity of the remaining contract provisions.
b. This contract shall be construed and interpreted in accordance with the laws of the State of Connecticut.
c. In the event there is a conflict between this Agreement and the Town's Request for Proposal package, and/or the Contractor's accepted bid, the Town shall have the sole discretion as to which provision shall govern.
d. All work done under this contract shall be in conformance with the Town of New Milford ROW Ordinance; Town of New Milford ROW Ordinance Detail Drawings; Town of New Milford construction standards; the latest edition Manual of Uniform Traffic Control Devices; Town of New Milford Transportation Design Standards; CT DOT Form 817 or current; the plans and these special provisions.

11. INSPECTION OF CONTRACT WORK; ACCEPTANCE OR REJECTION

a. The Contractor shall thoroughly inspect the work performed under this Agreement within thirty (30) days of the completion thereof. The Town, through its Director of Public Works with the assistance of the Town Engineer, will additionally perform its own independent inspection.
b. Immediately following the inspection of contract work conducted pursuant to Section 11a, the Town through the Director of Public Works shall submit to the Contractor an Affidavit setting forth either acceptance of the work performed under this Agreement or an itemized list of work to be corrected, repaired or replaced.

12. FINAL PAYMENT[1]

a. Upon issuance of a Certificate of Completion, the Contractor shall furnish, within seven (7) calendar days, a Final Estimate indicating all charges, payments, credits and retainage made to date and the final amount owed to the Contractor for all services and materials due.
b. Within thirty (30) days of filing said estimate, the Town shall pay the Contractor the amount therein stated less all prior payments (including retainage) and advances whatsoever to or for the account of the Contractor. All prior estimates and payments, including those relating to extra work, shall be subject to correction by this payment, which throughout this contract is called the Final Payment.
c. Prior to accepting Final Payment, the Contractor must submit to the Town an Affidavit certifying completion of the entire project, including any items pursuant to Section 11b.
d. The acceptance by the Contractor of the Final Payment, shall represent a release to the Town of all claims and of all liability to the contract or for all things done or furnished in connection with this work, and for every act of the Town and others relating to or arising out of this work, accepting the Contractor's claim for interest upon the Final Payment, if the payment is improperly delayed.

13. DISPUTES

a. If a dispute arises out of or relates to this Agreement, or the alleged breach thereof, and if the dispute is not settled through negotiation, the parties agree first to try in good faith to settle the dispute by mediation within thirty (30) days administered under the most recently published Mediation Rules of the American Arbitration Association, before resorting to arbitration, litigation, or some other dispute resolution procedure.
b. The mediation process shall be confidential based on terms acceptable to the mediator and/or mediation service provider.

14. TERMINATION FOR CAUSE

a. If, through any cause arising, the Contractor shall fail to fulfill, in a timely and proper manner, its obligations under this Agreement, or if the Contractor shall violate any of the covenants, agreements or stipulations of this Agreement, the Town shall thereupon have the right to terminate this Agreement for cause by giving written notice to the Contractor of such termination and specifying the effective date thereof, at least five (5) days prior to the effective date of such termination. In such an event, all finished or unfinished reports, documents, data, studies, surveys, drawings, maps, models, photographs, and reports or other material prepared by the Contractor and/or its subcontractors under this Agreement shall, at the option of the Town, become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents and other materials to the effective date of termination.
b. The term "cause" includes, without limitation, the following:
    1) If the Contractor furnished any statement, representation, warranty or certification in connection with this Agreement, which is materially false, deceptive, incorrect, or fatally incomplete.

[1] No payment, final otherwise, shall release the Contractor or sureties from any obligation under this Agreement or of the Performance Bond.

2) If the Contractor fails to perform to the Town's satisfaction any material requirement of the Agreement, or is in violation of any specific provision thereof.

3) If the Town reasonably determines satisfactory performance of the Agreement is substantially endangered or can reasonably anticipate such an occurrence or default.

c. Notwithstanding the above, the Contractor shall not be relieved of liability to the Town for any damages sustained by the Town by virtue of any breach of the Agreement by the Contractor, and the Town may withhold any payment to the Contractor for the purposes of setoff until such time as the exact amount of damages due the Town from the Contractor is determined.

15. TERMINATION FOR CONVENIENCE.

a. The Town may terminate this Agreement at any time the Town determines that the purposes of the distribution of monies under the Agreement would no longer be served by the completion of the work/project.

b. The Town shall effect such termination by giving written notice of termination to the Contractor and specifying the effective date thereof, at least twenty (20) days before the effective date of said termination. In that event, all finished or unfinished documents and other materials as described in this Agreement shall, at the option of the Town, become its property. If the Agreement is terminated by the Town as provided herein, the Contractor shall be paid an amount which bears the same ration to the total compensation as the services actually and satisfactorily performed to the effective date of termination bear to the total services of the Contractor pursuant to the terms of the Agreement, less payments of compensation previously made, and subject to the Town's right of set off for any damages pursuant to the terms of the Agreement.

16. NOTICES

Any required notices set forth herein shall be sent as follows, by certified mail, return receipt requested or by any other delivery services as follows:

a. To the Contractor at the address set forth in the accepted bid.

b. To the Town at: Director of Public Works, Roger Sherman Town Hall – 10 Main Street; New Milford, CT 06776

IN WITNESS WHEREOF, the Town of New Milford, CT has caused this Construction Contract to be signed and executed on its behalf by the Mayor and duly attested by the Director of Public Works, and _____ has signed and executed on behalf of the Contractor, _____, this Agreement this **_____ day of _____, 20__.**

CONTRACTOR	**TOWN OF NEW MILFORD, CT**
_____	_____
Contractor	Pete Bass Mayor
Attested:	
_____	_____
Purchasing Agent	Director of Public Works

SECTION II – SPECIAL PROVISIONS

RECONSTRUCTION OF FORDYCE ROAD

LIST OF SPECIAL PROVISIONS

Note: This list has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this list shall not be considered part of the contract.

ITEM #0950005A – TURF ESTABLISHMENT

ITEM #0975002A — MOBILIZATION AND PROJECT CLOSEOUT

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

ITEM #1208932A – SIGN FACE - SHEET ALUMINUM (RETROREFLECTIVE SHEETING-TYPE)

RECONSTRUCTION OF FORDYCE ROAD

Town of New Milford

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016, as revised by the Supplemental Specifications dated July 2018 (otherwise referred to collectively as "ConnDOT Form 817") is hereby made part of this contract, as modified by the Special Provisions contained herein. The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Special Provisions relate in particular to Reconstruction of Fordyce Road in the Town of New Milford, Connecticut.

NOTICE TO CONTRACTOR - SPECIAL PROVISIONS

All construction under this contract shall adhere to and comply with the Department of Transportation, Form 817, "Standard Specifications for Roads, Bridges, Facilities and Incidental Construction", including the most recent supplements thereto dated January 2018, unless otherwise specified in these provisions.

In Form 817, where the words "State of Connecticut", "Department", "ConnDOT", or "CTDOT" appear, it shall be interpreted to mean "Town of New Milford" as if inserted therein.

The following Special Provisions and Sections of CTDOT Form 817 are here incorporated and made part of this contract. CTDOT Form 817, "Standard Specifications for Roads, Bridges, Facilities and Incidental Construction", including the most recent supplements thereto dated July 2017 shall be referred to as "Standard Specifications" herein.

NOTICE TO CONTRACTOR - CONTRACT TIME AND LIQUIDATED DAMAGES

In order to minimize the hazard, cost and inconvenience to the traveling public, pollution of the environment and the detriment to the business area, it is necessary to limit the time of construction work, which interferes with traffic as specified in Article 1.08.04 of the Special Provisions.

For this contract, an assessment per day for liquidated damages, at a rate of One Thousand Dollars ($1,000) per day shall be applied to each calendar day the work exceeds a completion date of November 1, 2019.

NOTICE TO CONTRACTOR - GENERAL CONDITIONS OF BIDDING EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS & SITE OF WORK

The bidder is required to examine carefully the site of work and the Contract documents including proposal form, plans, special provisions, specifications, supplemental specifications, Contract forms and other Contract documents for the work contemplated, and shall request in writing prior to the bid any clarifications that it deems necessary to prepare its bid. It will be assumed that the bidder has judged for and satisfied itself as to the conditions to be encountered at the site, as to the completeness and requirements of the contract plans and specifications, as to the character, quality and quantities of the work to be performed and materials to be furnished for said work, and as to the requirements of the above contract documents, and in particular, but not limited to, what is required under each Contract item, or under the general cost of the work, or under another or more general Contract item in the absence of particular items. Therefore, while clarifications regarding the Contract documents should be expected from time to time during prosecution of the work and unless these clarifications substantially change the scope of the work, in submitting its bid the bidder shall relinquish any claim to additional compensation or time based upon these clarifications of the Contract documents or a misunderstanding or lack of knowledge of the site conditions, the work required or the method of work required.

The subsurface information furnished is based on interpretation of investigations made only at the specific locations indicated, and no assurance is given that these conditions are necessarily typical of other locations or that they have remained unchanged since the field data were obtained. No assurance is given that the presence or absence of water in subsurface explorations at the time of these explorations will be representative of actual conditions at the time of construction. Such subsurface information as was obtained for use in the design of the Project is available on logs provided in the contract documents or will be made available for inspection upon written request of the bidder. The contractor shall be solely responsible for all assumptions, deductions, or conclusions it may make or derive from its examination of any subsurface information or document provided. The furnishing or making available such information does not provide or make any warranty or representation as to the actual conditions that may be encountered or actual quantities or distribution of quantities of work which will be required.

ESTIMATED QUANTITIES

The quantities shown on the proposal form or in the contract documents are approximate only and are given as a basis of evaluation for award of the contract. Provision of these quantities provides no implied guarantee that these quantities shall remain unchanged in the actual construction, and the contractor shall not plead misunderstanding or deception because of any variation (large or small) between estimated and final quantities. The Town reserves the right to increase or decrease any or all of the quantities, or completely delete contract items, as shown on the proposal form or in the contract documents as it deems necessary to complete the contract project.

BIDDER'S OBLIGATIONS REGARDING DISCOVERY OF AN ERROR IN THE CONTRACT DOCUMENTS

Any bidder that discovers an error in the bid proposal or contract documents, including but not limited to the plans, must report that error in writing prior to the bid and within two (2) business days of discovering the error. A failure to do so may result in finding the contractor to be non-responsible as the low bidder.

NOTICE TO CONTRACTOR - WORK SCHEDULE

The Contractor is required to submit a schedule of work to be completed to the Engineer and obtain approval from the Engineer on the schedule prior to commencing work and shall update the schedule monthly. Should construction occur at a rate different from that indicated in the approved schedule, the Contractor shall submit a revised work schedule to the Engineer for approval.

NOTICE TO CONTRACTOR – TOWN OF NEW MILFORD DISCLAIMER

Town of New Milford Request for Proposals and other information and documents which are obtained through the Internet, World Wide Web sites or other sources other than the Town of New Milford's website are not to be construed to be official information for the purposes of proposals or conducting other business with the Town.

It is the responsibility of each Firm and all other interested parties to obtain all proposal related information and documents from the Town of New Milford's website and/or official sources within the Town.

Persons and/or entities which reproduce and/or make such information available by any means are not authorized by the Town to do so and may be liable for claims resulting from the dissemination of unofficial, incomplete and/or inaccurate information.

NOTICE TO CONTRACTOR - ENVIRONMENTAL PROTECTION & CLEAN-UP

In case of a spill or leak of chemicals, oil, coolant, solvent, hydraulic fluid or other spill that threatens the stream or wetland environment in, under or adjacent to the project area, the contractor will be required to have environmental clean-up or protection materials on-site, in advance of construction and at all times during construction, consisting of a spill clean-up kit, oil absorbent booms and containment booms. These materials shall be kept in a dry and protected location that is easily accessible to employees at all times in case of a spill emergency. As a minimum, the contractor shall have on-site:

- 100' Containment Boom
- Six (6) 3"x 10' Socks or Boom
- Ten (10) 3"x 4' Socks
- Six (6) 18"x 18" Pillows
- Fifty (50) 16"x 20" Heavy-Weight Absorbent Pads
- Five (5) Temporary Disposal Bags
- One (1) Emergency Response Guidebook

If a spill, leak or other event requiring use of these environmental clean-up or protection materials is determined by the Engineer to be caused by the contractor, the cost of the environmental clean-up or protection materials used, as well as the effort to install materials and perform the clean-up, shall not be reimbursable to the contractor, but shall be included in the overall cost of the work. If a spill, leak or other event is determined by the Engineer to have been caused by a source other than the contractor, then the cost of the environmental clean-up or protection materials used, as well as the effort to install materials and perform the clean-up, shall be reimbursable to the contractor as extra work.

NOTICE TO CONTRACTOR – PROTECTION OF EXISTING UTILITIES

Existing utilities shall be maintained during construction except as specifically stated herein and/or noted on the plans and as coordinated with the utilities. The Contractor shall verify the location of underground, structure mounted and overhead utilities. Construction work within the vicinity of utilities shall be performed in accordance with current safety regulations.

The Contractor shall notify "Call Before You Dig" (dial 811 or go to www.cbyd.com), for the location of public utility, in accordance with Section 16-345 of the Regulations of the Department of Utility Control.

Representatives of the various utility companies shall be provided access to the work, by the Contractor.

Contractors are cautioned that it is their responsibility to verify locations, conditions, and field dimensions of all existing features, as actual conditions may differ from the information shown on the plans or contained elsewhere in the contract documents.

The Contractor shall notify the Engineer prior to the start of work and shall be responsible for all coordination with the Town of New Milford. The Contractor shall allow the Engineer complete access to the work.

The Contractor shall be liable for all damages or claims received or sustained by any persons, corporations or property in consequence of damage to the existing utilities, their appurtenances, or other facilities caused directly or indirectly by the operations of the Contractor.

Any damage to any existing private and public utility, including signal equipment and appurtenances, as a result of the Contractors operations, shall be repaired to the utilities and Engineer's satisfaction at no cost to the Town or the Utilities, including all materials, labor, etc., required to complete the repairs.

The Contractor's attention is directed to the requirements of Section 1.07.13 – "Contractor's Responsibilities for Adjacent Property and Services."

Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., water, sanitary, gas, electric ducts, communication ducts, etc., will be encountered and, if so, where such underground installations are located. 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, as noted above.

The following utility operators have facilities within and/or in the vicinity of the project limits. This list is not intended to be exhaustive, and the contractor shall maintain existing utilities subject to this Notice to Contractor.

The Contractor shall notify the utility representatives prior to the start of work.

NOTICE TO CONTRACTOR - UTILITY COORDINATION & RELOCATION

Overhead, elevated and/or underground utility lines may be in conflict with required temporary or permanent construction or the equipment necessary to perform this required construction. While efforts will be made by the Town and utility owners to minimize conflicts, the contractor is advised to plan his construction methods for work adjacent to, above or underneath existing or relocated utilities. Unless otherwise and specifically noted on the plans or separate utility plans are included with the contract drawings, the contractor should have no expectation that any utility will be relocated either temporarily or permanently outside the work area or to accommodate the contractor's construction schedule or methods of operations.

With the exception of utility work specifically included for payment in the contract, the coordination and planning of actual utility relocations, either permanent or temporary, are the joint responsibility of the contractor and individual utility owners. If relocation of utilities is required to accommodate the contractor's construction operations, the contractor is required to coordinate the location and timing of all utility relocations with the individual utility owners, and to plan and phase his construction operations accordingly. In addition to field meetings and correspondence, this coordination may include (but is not limited to) negotiations with utility owners regarding what relocations can be made, adjustments of planned construction operations and techniques, staking of locations, excavation and temporary grading, providing access to existing and future utility pole and/or conduit locations, or other physical work as required to allow for utility relocation work. The contractor shall engage in the necessary coordination of utility relocations and associated work at no additional cost to the project or owner, and shall have no right to additional compensation for costs associated with relocation of utilities, working in close proximity to existing or relocated utilities, staging and phasing of his work or for delays as a result of utility relocation work.

NOTICE TO CONTRACTOR – FINAL ROADWAY GRADES

The Contractor shall ensure that the final grades of the roadway and adjacent topography provides positive drainage. The work involved in establishing the final roadway grades shall be included in the lump sum price for Construction Staking

NOTICE TO CONTRACTOR – FIRE DEPARTMENT, POLICE AND EMERGENCY MEDICAL SERVICES

The Contractor shall contact the Fire Department, Police, and Emergency Medical Services, prior to work and establish coordination necessary as to disruption of services during construction.

NOTICE TO CONTRACTOR - POLICE SERVICES

The Contractor shall be responsible for contacting the Town of Milford Police Department and coordinating and requesting the necessary Police Services. The Contractor shall provide the Town the schedule for review at least once a week.

The Contractor shall ensure that all cancellations of police services are done in time, as agreed upon by the Police Department, to avoid the Town being charged for unused police services. The Contractor will be responsible for all costs associated with late cancellations.

NOTICE TO CONTRACTOR – SAFEGUARDING OF RESIDENCES BUSINESS AND PEDESTRIANS

The Contractor shall maintain and protect traffic operations at all driveways and provide adequate sight lines. The Contractor shall not restrict sight lines with construction equipment when not actively working. The Contractor shall provide and maintain safe pedestrian operations on existing sidewalks or temporary bituminous walks at all times during and after construction hours. The Contractor shall provide adequate protection between work area and pedestrian sidewalk activities as directed by the Engineer.

NOTICE TO CONTRACTOR – CONSTRUCTION STAGING AREA

The Contractor shall submit for review and approval a plan and description for the proposed construction staging area. The plan and description shall be submitted to the Town Engineer within 7 calendar days after the Firm is awarded the contract.

The following is to be included in the plan and/or description:

- Location and type of erosion control measures (if required)
- Anti-tracking Pad location(s)
- Location and type of security fence (if required)
- Location and type of stockpiles stored on-site
- Location and type of hazardous materials stored on-site
- Location and type of equipment stored on-site
- Location and type of vehicles stored on-site
- Times and days in which construction activities will use the staging area
- Estimated number of trips in and out of the staging area
- Date the staging area will become active
- Date the staging area will be removed and returned to original conditions

NOTICE TO CONTRACTOR - VEHICLE EMISSIONS

All motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.

The Contractor shall establish staging zones for vehicles that are waiting to load or unload at the contract area. Such zones shall be located where the emissions from the vehicles will have minimum impact on abutters and the general public.

Idling of delivery and/or dump trucks, or other equipment shall not be permitted during periods of non-active use, and it should be limited to three minutes in accordance with the Regulations of Connecticut State Agencies Section 22a-174-18(b)(3)(c):

No mobile source engine shall be allowed "to operate for more than three (3) consecutive minutes when the mobile source is not in motion, except as follows:

(i) When a mobile source is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,

(ii) When it is necessary to operate defrosting, heating or cooling equipment to ensure the safety or health of the driver or passengers,

(iii) When it is necessary to operate auxiliary equipment that is located in or on the mobile source to accomplish the intended use of the mobile source,

(iv) To bring the mobile source to the manufacturer's recommended operating temperature,

(v) When the outdoor temperature is below twenty degrees Fahrenheit (20 degrees F),

(vi) When the mobile source is undergoing maintenance that requires such mobile

Source be operated for more than three (3) consecutive minutes, or

(vii) When a mobile source is in queue to be inspected by U.S. military personnel prior to gaining access to a U.S. military installation."

All work shall be conducted to ensure that no harmful effects are caused to adjacent sensitive receptors. Sensitive receptors include but are not limited to hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Engine exhaust shall be located away from fresh air intakes, air conditioners, and windows.

A Vehicle Emissions Mitigation plan will be required for areas where extensive work will be performed in close proximity (less than 50 feet (15 meters)) to sensitive receptors. No work will proceed until a sequence of construction and a Vehicle Emissions Mitigation plan is submitted in writing to the Engineer for review and all comments are addressed prior to the commencement of any extensive construction work in close proximity (less than 50 feet (15 meters)) to sensitive receptors. The mitigation plan must address the control of vehicle emissions from all vehicles and construction equipment.

If any equipment is found to be in non-compliance with this specification, the contractor will be issued a Notice of Non-Compliance and given a 24 hour period in which to bring the equipment into compliance or remove it from the project. If the contractor then does not comply, the Engineer shall withhold all payments for the work performed on any item(s) on which the non-conforming equipment was utilized for the time period in which the equipment was out of compliance.

Any costs associated with this "Vehicle Emissions" notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice.

NOTICE TO CONTRACTOR - SALVAGE RIGHTS

The Town shall retain salvage rights to any materials removed as part of the project and shall include but not limited to:

- Field Stone from Retaining Walls
- Existing catch basin grates

The Contractor shall remove and salvage items as noted within the Contract Documents or as directed by the Engineer. Care shall be taken not to damage salvaged items during removal and handling. The salvaged material shall be securely banded to pallets and properly stored until delivered and unloaded by the Contractor to the following Town of New Milford facility:

New Milford Public Works
10 Main Street
New Milford, Connecticut 06776
Contact: Mr. Michael Zarba
Telephone: (860) 355-6040

The Contractor shall notify the above a minimum of 48 hours prior to delivery of salvaged material. Delivery of pallets shall be on flat-bed truck to facilitate removal by forklift at the Town of New Milford facility. The cost of delivery, loading and unloading shall be included in the general cost of the project.

NOTICE TO CONTRACTOR – BITUMINOUS CONCRETE COMPACTION TESTING REQUIREMENTS

The Town of New Milford may choose to exempt the Contractor from taking corings of bituminous concrete pavement to determine the density of the compacted bituminous concrete material as outlined in Section 4.06 – Bituminous Concrete. In lieu of performing corings, the Town of New Milford shall request the Contractor to perform in-place nuclear density compaction tests for bituminous concrete.

In the event the in-place nuclear density tests results for bituminous concrete pavement are unsatisfactory to the Town of New Milford, the Contractor shall be required to take coring of bituminous concrete pavement to determine the density of the compacted bituminous concrete material.

NOTICE TO CONTRACTOR – QUALITY OF WORK

It is the Contractor's responsibility to perform the work of this Contract in accordance with the contract plans and specifications and as directed by the Engineer. The Town reserves the right to withhold payment for any quantity of work which, in the opinion of the Engineer and/or the Town, does not meet the contract requirements. Any and all improvements, or parts thereof, constructed as part of this contract, which in the Engineer and/or the Town's opinion, do not conform to the contract plans and specifications and has resulted in an unacceptable product, will not be measured for payment until corrected by the Contractor at the Contractor's own expense.

Upon receiving notification from the Town that such work has been identified as unacceptable, the Contractor shall immediately proceed to either repair or remove and replace the unacceptable work as directed by the Engineer and/or the Town.

When, in the opinion of the Engineer and/or the Town, the corrective work has been completed and accepted, the original pay items will be measured for payment.

NOTICE TO CONTRACTOR - SUBMITTALS FOR IMPORTED AGGREGATES

In accordance with the requirements in these special provisions and the CT DOT Form 817, specifically the Materials Section, the contractor is hereby notified of the requirement to provide submittals which include tests on the gradation, abrasion, soundness and any other parameters specified for the various aggregate materials proposed for use on this project. The cost for such testing shall be the sole responsibility of the Contractor. The tests must be current and based on a specific source location/pile. No material shall be imported until the Engineer issues a written approval. The Contractor shall also provide testing and documentation of the imported and stockpiled material to confirm consistency with the approved submittals and compliance with these Special Provisions and Standard Specifications of CDOT Form 817.

NOTICE TO CONTRACTOR – CONTRACTOR TRAINING REQUIREMENT FOR 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

In accordance with Connecticut General Statute 31-53b and Public Act No. 08-83, the Contractor is required to furnish proof that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53, 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.

Proof of compliance with the provisions of the statute shall consist of a student course completion card issued by the federal Occupational Safety and Health Administration, or other such proof as deemed appropriate by the Commissioner of the Connecticut Department of Labor, dated no earlier than five years prior to the commencement of the project. Each employer shall affix a copy of the construction safety course completion card

for each applicable employee to the first certified payroll submitted to the Department of Transportation on which the employee's name first appears.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

This section does not apply to employees of public service companies, as defined in section 16-1 of the 2008 supplement to the General Statutes, 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.

The internet website for the federal Occupational Safety and Health Training Institute is http://www.osha.gov/fso/ote/training/edcenters.
Additional information regarding this statute can be found at the Connecticut Department of Labor website, http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

NOTICE TO CONTRACTOR - TREE REMOVAL

The Contractor is required to contact the Town's Tree Warden prior to any removal. The Contractor will be responsible for flagging all public trees to be removed. The Engineer will then review the trees to insure conformance to the plans. The Town will then post the trees, with a 10-day notice/waiting period required. If the tree removal is protested, an appeal process with a Public Hearing will be held prior to the tree removal.

NOTICE TO CONTRACTOR - DUST CONTROL

It shall be the Contractor's responsibility to keep the existing roadway clean and provide adequate dust control by whatever means are necessary, to the satisfaction of the Town and the Engineer. This shall include water, calcium chloride or any sweeping required either by mechanical means or hand sweeping if the use of a mechanical sweeper is not feasible.

NOTICE TO CONTRACTOR - FIELD STONE WALL

The Contractor is notified that dry laid field stone walls are present within the project limits. Special care shall be taken to limit the disturbance to any field stone gravity wall and any disturbed wall shall be reconstructed in like and kind to match both existing and proposed grading limits and included in the cost of Clearing and Grubbing. Existing stone requiring

removal to conduct structure excavation shall be carefully removed, properly stored and protected for future rebuilding.

NOTICE TO CONTRACTOR - ALL-INCLUSIVE DRAINAGE

ADDED SECTIONS:

2.86 – DRAINAGE TRENCH EXCAVATION

ROCK IN DRAINAGE TRENCH EXCAVATION

5.86 – CATCH BASINS, MANHOLES AND DROP INLETS

6.86 – DRAINAGE PIPES

DRAINAGE PIPE ENDS

This Contract contains the above-noted Special Provisions for all-inclusive drainage, developed to replace the following Sections in their entireties:

- Section 5.07 – *Catch Basins, Manholes and Drop Inlets*
- Section 6.51 – *Culverts*
- Section 6.52 – *Culvert Ends*

The Section 5.86 and 6.86 items include excavation and bedding material in the drainage structure, pipe and pipe end unit prices.

Section 2.05 *Trench Excavation* may be included for miscellaneous trenching, where necessary, but will not be used with all-inclusive drainage items.

Other Standard Specifications, Supplemental Specifications or Special Provisions may contain references to Articles or Subarticles from previous versions of Sections 5.07, 6.51 and 6.52 which are no longer valid.

The following Standard Specifications Sections or Supplements contain references to Articles or Subarticles from Section 2.05 which shall remain in effect:

- Section 2.06 – *Ditch Excavation*
- Section 5.06 – *Retaining Walls, Endwalls and Steps*
- Section 7.51 – *Underdrains and Outlets*
- Section 10.01 – *Trenching and Backfilling*

'Rock in Drainage Trench Excavation' is now defined in Section 2.86. 'Rock in Trench Excavation' will remain in Section 2.05 and may be used with trenching not associated with all-inclusive drainage items.

Any references to Articles beginning with "5.07," "6.51," or "6.52" shall refer to the pertinent topic or materials in the new Special Provisions contained herein.

SECTION 1.07 – LEGAL RELATIONS AND RESPONSIBILITIES

Work under this item shall conform to the applicable provisions of Article 1.07.07 – Public Convenience and Safety of the Standard Specifications Form 817 amended as follows:

Add the following:

The Contractor shall provide the necessary access for emergency vehicles through the work zones to abutting properties at all times.

Sweeping and cleaning of surfaces beyond the limits of construction required for dust control or to clean up material caused by spillage or vehicular tracking during the various phases of the work shall be considered as incidental to the work being performed under the Contract and there will be no additional compensation.

The Contractor shall notify all public safety agencies at least 48 hours prior to beginning any construction operation that will provide less than a 10-foot travel lane along any project roadway.

Article 1.07.13 – Contractor's Responsibility for Adjacent Property and Service

Add the following:

The Contractor, in constructing or installing facilities alongside or near drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls, vaults, or other structures shall sustain them securely in place. The Contractor shall coordinate with the officers and agents of the various utility companies and municipal departments to assure that the services of these structures are maintained. The Contractor shall also be responsible for the repair or replacement, at no additional cost to the Town, of any damage to such structures caused by construction operations. The Contractor is responsible to leave them in the same condition as they existed prior to commencement of the work. In case of damage to utilities, the Contractor shall promptly notify the utility owner and shall, if requested by the Engineer, furnish labor and equipment to work temporarily under the utility owner's direction. Pipes or other structures damaged by the operation of the Contractor may be repaired by the utility owner which suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation from the Town.

If during construction there is an existing utility and/or structure found to be in conflict with the proposed work under this Contract, the Contractor shall protect and maintain the services to the utilities and structures and shall notify the Engineer of the conflict. The Engineer will, as soon as possible, identify the utilities to be relocated or other such activities deemed suitable for resolution.

If live service connections are to be interrupted by excavations of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall be plugged off or otherwise made secure.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all of the work involved in protecting or repairing property as specified in this Section shall be included in the prices paid for the various Contract items of work, and no additional compensation will be allowed.

Prior to opening an excavation, effort shall be made to determine whether underground installations will be encountered and, if so, where such underground installations are located. 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.

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Charter Communications Entertainment I, LLC dba Charter Communications of Western Conn.
Mr. Keith Cournoyer,
Construction Supervisor
207 Tuckie Road
North Windham, CT 06256
PHONE: (860) 456-8346 EXT: 53029
E-MAIL: Keith.Cournoyer@charter.com

Frontier
Ms. Lynne DeLucia,
Engineering
1441 North Colony Road
Meriden, CT 06450-4101
PHONE: (203) 238-5000 Mobile: 860-967-4389
E-MAIL: Lynne.m.anastasio@ftr.com

Mr. Gary Swanson B.S.M.E.
Telecommunications Specialist
Outside Network Engineer
555 Lakewood Rd
Waterbury, CT 06704-2420
PHONE: (203) 575-6112
E-MAIL: gary.k.swanson@ftr.com

Mr. Robert Shepard
Telecom. Spec-ONE
555 Lakewood Rd
Waterbury, CT 06704-2420
PHONE: (203) 575-6703 Mobile: (203) 819-0087
E-MAIL: robert.c.shepard@ftr.com

Eversource Energy – Electric Distribution
Mr. Thomas Woronik
Supervisor - Construction Engineering
22 East High Street
East Hampton, CT 06424
PHONE: (860) 267-3891
E-MAIL: Thomas.Woronik@eversource.com

Mr. Walter Moskaluk
Field Engineering/Design
20 Barnabas Road
Newtown, CT 06470
PHONE: (203) 270-5830 Mobile: (203) 524-5347
E-MAIL: Walter.Moskaluk@eversource.com

Town of New Milford

Mr. Michael Zarba
Director of Public Works
10 Main Street
New Milford, CT 06776
PHONE: (860) 355-6040
E-MAIL: mzarba@newmilford.org

Disclaimer: The Contractor shall verify the completeness and accuracy of the information provided above.

SECTION 1.08 - PROSECUTION AND PROGRESS

Section 1.08 - Prosecution and Progress is amended as follows:

Article 1.08.03 – Prosecution of Work of the Standard Specifications Form 817 is amended as follows:

Add the following:

Before starting any work under this Contract, the Contractor shall prepare, and submit to the Engineer for approval, a minimum of 15 days in advance, a plan illustrating the Typical Traffic Management Plan for all roadways to be reclaimed/reconstructed. This plan shall illustrate typical use and layout of construction signs, drums, and other traffic control devices to be employed during each time period of work to maintain traffic and access to abutting properties. The Contractor must obtain approval of the Typical Traffic Management Plan from the Engineer prior to commencing work on the specified roadways.

All appropriate Maintenance and Protection of Traffic devices are to be installed prior to commencing construction operations.

Particular care shall be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Traffic control devices required only during working hour operations shall be removed at the end of each working day.

Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.

The Contractor shall notify all public safety agencies at least 48 hours prior to beginning any construction operation which will provide less than a 10-foot travel lane along any project roadway.

Article 1.08.04 - Limitation of Operations is supplemented by the following:

In order to provide for traffic operations as outlined in the special provision "Maintenance and Protection of Traffic", the Contractor will not be permitted to perform any work which will interfere with normal traffic operation on any project road during the following periods:

On the following Legal Holidays:

New Year’s Day
Martin Luther King Day
Lincoln’s Birthday
Washington’s Birthday
Good Friday

Memorial Day
Independence Day
Labor Day
Columbus Day
Veterans Day
Thanksgiving Day
Day Following Thanksgiving
Christmas Day

Also, any other day between the hours of 5:00 pm and 7:00 am, unless approved otherwise by the Town.

The Contractor will not be allowed to perform any work on Saturday or Sunday, unless approved otherwise by the Town.

All construction activities, including the loading and unloading of materials and equipment, shall be limited to Monday through Friday, 7:00 a.m. to 5:00 p.m., unless approved otherwise by the Town.

The Contractor is further advised that once the bituminous surface of a project roadway has been removed or reclaimed, it shall be the Contractor's responsibility to immediately proceed with the necessary earthwork and grading to establish a base that is of the shape and strength to effectively receive traffic at the end of each work day. Suitable base for traffic shall include: 1) reclaimed segments of roadway where a minimum of six inches of pulverized or reclaimed asphalt and gravel base remains in place following reclamation and has been shaped and graded to permit positive drainage and rolled/compacted to the satisfaction of the Engineer to permit vehicle loads; or 2) segments of roadway that have been excavated to proposed subgrade, backfilled with compacted reclaimed material as subbase, and where processed aggregate base has been placed and compacted in accordance with the contract documents. No traffic will be permitted on the exposed subgrade.

The Contractor shall be limited in the length and area of roadway to be excavated each work day. The extent of length or area excavated each day shall in no case exceed the limits for which a suitable base for traffic can be established by the end of each work day. The Contractor shall not be permitted to excavate more than 500 linear feet of roadway per work day unless it can be demonstrated that a suitable base for traffic can be established by the end of each work day on a consistent and on-going basis as judged by the Engineer.

Roadways will NOT be allowed to be left unpaved for greater than 14 calendar days unless specific written authorization has been requested from, and received by, the Engineer. If said roadway is not paved with binder course within the specified 14-calendar day limit, the Engineer shall notify the Contractor of the deficient condition and the Contractor shall cease all other construction activities until the subject roadway is properly prepared and the specified overlays completed.

The Contractor shall further schedule construction operations to minimize the period of time that vehicle traffic is placed upon any intermediate or leveling overlay course. Prior to the construction of subsequent bituminous courses, any damage noted by the Engineer on the previously placed bituminous courses shall be repaired as directed by the Engineer at the Contractor's expense.

The Contractor shall notify the Engineer 24 hours in advance of the commencement of any paving operations. The purpose of this notice period is to allow ample time to conduct pre-paving condition inspection, obtain approval to pave and to secure paving inspection and testing personnel.

Local detours shall be implemented in accordance with the contract documents.

Access to local property and businesses must be maintained at all times unless prior arrangements are made with property owners or business proprietors.

Provisions shall be made for the safe passage of school buses and emergency vehicles without delay. The contractor shall communicate on an on-going basis with school officials and emergency personnel for the project duration.

All temporary connections to abutting driveways and existing roadways must be accomplished in a satisfactory manner prior to the end of the work day. Excavation and installation of subbase must be accomplished full width for the proposed roadway.

Other Limitations

Longitudinal dropdowns greater than 2 inches will not be allowed during those periods when the roadway is restored to bi-directional traffic either during or at the end of each work day.

Where dropdowns occur between newly completed work, partially completed work, and/or existing paved areas, a gradual transition shall be established with appropriate signage to warn motorists of "Bump" (or other acceptable sign legend). Transitions shall be passable for low clearance vehicles and shall not result in any vehicles "bottoming out".

The cost of furnishing, installing and removing any temporary material or any earthwork or grading required for transitions to establish safe travel conditions shall be included in the contract lump sum for "Maintenance and Protection of Traffic".

SECTION 2.86 - DRAINAGE TRENCH EXCAVATION, ROCK IN DRAINAGE TRENCH EXCAVATION

2.86.01—Description: Drainage trench excavation consists of the excavation necessary for the proper installation of drainage structures, pipes, pipe ends and any other incidental drainage items.

It shall include earth and rock excavation, removal of existing pipes, dewatering, backfill, and disposal of materials; to the trench limits described herein, to the dimensions shown on the plans, or as directed by the Engineer.

Classifications:

(1) Drainage Trench Excavation will include only the excavation necessary for the construction of the drainage items and the removals specified above.

(2) Rock in Drainage Trench Excavation, insofar as it applies to drainage trench excavation, shall be defined as **1/2 cubic yard or more** in volume of the following obstructions removed from the limits of the drainage trench:

(a) rock in definite ledge formation
(b) boulders, or portions of boulders
(c) cement masonry structures
(d) concrete or reinforced concrete structures
(e) reinforced concrete pipe
(f) subsurface concrete pavement or concrete base

The removal shall be as indicated or directed from within the limits defined in 2.86.03 for drainage trench excavation.

2.86.03—Construction Methods:

(1) Drainage Trench Excavation Limits:

Horizontal Limits: Trench widths for pipes, pipe ends, pipe-arches, and drainage structures shall be as follows:

(a) 2 feet greater than the nominal inside diameter of circular pipe or nominal inside span of elliptical pipe or pipe-arch for such diameters or spans of less than 30 inches
(b) 3 feet greater than the nominal inside diameter of circular pipe or the nominal inside span of elliptical pipe or pipe-arch for such diameters or spans that are 30 inches or greater
(c) 4 feet greater than the nominal inside diameter or nominal horizontal inside span for pipe-arches fabricated from structural plates
(d) 2 feet beyond the neat lines of all exterior or foundation walls of drainage structures

Vertical Limits: Trench depths shall extend vertically as follows:

(a) From the bottom of the trench to the bottom of the roadway excavation, or in areas

away from roadway excavation, to the top of existing ground surface.

(b) Where drainage pipe is to be laid in a fill area, the embankment shall be placed and compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

(2) Drainage Trench Excavation: Drainage trench excavation shall be made in conformity with the requirements of the plans, or as directed by the Engineer. The Contractor shall furnish and employ such shores, braces, pumps, or ancillary equipment as needed for the proper protection of property, proper completion of the work, as well as safety of the public and employees of both the Contractor and the Department. All bracing and shoring shall be removed when no longer required for the construction or safety of the work. When required, the Contractor shall provide or have on the Site at all times any OSHA certification for equipment to be used, per 1.07.07. For support of trenches greater than 10 feet in depth, working drawings shall be submitted, in accordance with 1.05.02. The Contractor shall control erosion and sedimentation at trench locations and ensure that pumped water from the drainage excavation is discharged in accordance with the requirements of 1.10.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with approved backfill, thoroughly compacted in lifts not to exceed 6 inches, for the full trench width. The Engineer shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

After the excavation is complete, the Contractor shall notify the Engineer and no drainage structure or material shall be placed in the excavated area until the Engineer has approved the depth of excavation and the character of the foundation material.

(3) Rock in Drainage Trench Excavation:

(a) Rock in Drainage Trench Excavation - Ledge: When rock in definite ledge form is encountered, the Contractor shall excavate a minimum of 12 inches below the bottom of the proposed pipe or drainage structure; and this depth shall be filled with bedding material (as specified in M.08.03-1) below the proposed pipe; or granular fill (as specified in M.02.01) below the proposed drainage structure, which shall be thoroughly compacted in lifts not to exceed 6 inches.

(b) Rock in Drainage Trench Excavation - Boulders: When boulders are encountered, the Contractor shall remove them from the trench and if backfill is required, the void shall be filled with bedding material, surplus excavated material (as specified in 2.02.03-8) or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(c) Rock in Drainage Trench Excavation –Structures: When cement masonry, concrete or reinforced concrete structures are encountered within the drainage trench limits, the Contractor shall remove the structure in its entirety or as directed by the Engineer, and if backfill is required, the void shall be filled with bedding material, surplus excavated material or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(4) Backfill: Suitable material excavated from the drainage trench shall be used as backfill material prior to consideration of using any other source of backfill. Backfill material used shall be of a quality satisfactory to the Engineer and shall be free from large or frozen lumps, wood and other extraneous material. Rock fill or stones larger than 5 inches shall not be placed within 1 foot of the drainage structure or pipe. The grading shall be

completed to the lines shown on the plans, or as ordered, by refilling to the required elevation with approved material, placed in layers not to exceed 6 inches in depth after compaction, which shall be thoroughly compacted with equipment approved by the Engineer.

All surplus or unsuitable material shall be removed and disposed of as directed. Should additional material be required for backfilling, it may be obtained from the Project surplus excavation in accordance with 2.02.03-8 or from borrow pits, gravel pits, or elsewhere as directed by the Engineer.

2.86.04—Method of Measurement:

Drainage Trench Excavation: Drainage trench excavation will not be measured for payment.

If granular fill or borrow is required to replace unsuitable material it will be measured for payment as directed by the Engineer.

Rock in Drainage Trench Excavation: If any material meeting the definition of Rock in Drainage Trench Excavation is encountered, the Contractor shall strip it of sufficient overlying material to allow for proper measurement and shall then notify the Engineer that the rock surface is ready for measurement. If the Contractor fails to give such notice, the Engineer will presume that the measurements taken at the time the Engineer first saw the material in question will give the true quantity of excavation.

Rock in Drainage Trench Excavation will be measured according to the classification provided in 2.86.01 and within the drainage trench excavation limits provided in 2.86.03.

For the removal of underground obstructions, as classified in 2.86.01-2, the measurement shall be the actual volume of rock removed (1/2 cubic yard or more) as approved by the Engineer.

Rock in Drainage Trench Excavation will not be measured for payment in fills.

Bedding Material or other suitable fill, as specified in 2.86.03(3), used to fill voids after rock is excavated will not be measured for payment.

2.86.05—Basis of Payment:

Drainage Trench Excavation: There will be no direct payment for drainage trench excavation required for the installation of drainage pipes, pipe ends, catch basins, drop inlets, manholes, and other drainage structures, or any other incidental drainage work including materials, tools, equipment and labor necessary to complete the drainage trench excavation in conformity with the plans or as directed by the Engineer.

There will be no direct payment for backfill or disposal of surplus material necessary for the satisfactory completion of this work.

There will be no direct payment made for shoring, bracing, dewatering, or for material or equipment necessary for the satisfactory completion of the work.

Where called for on the plans to install temporary earth retaining systems for the support of existing facilities, pavement, utilities, or for other constraints, payment will be made in accordance with such items in the Contract.

If granular fill or borrow is used to replace unsuitable material, payment will be made at the respective Contract unit prices, or in the absence of such items in the Contract, as Extra Work in accordance with 1.04.05.

Rock in Drainage Trench Excavation: When rock, conforming to the description in 2.86.01 is encountered within the limits of drainage trench excavation, its removal will be classified and paid for at the Contract unit price per cubic yard for "Rock in Drainage Trench Excavation 0' –

10' Deep," or "Rock in Drainage Trench Excavation 0' – 20' Deep," as the case may be.

Those portions of drainage trench excavation classified and paid for as "Rock in Drainage Trench Excavation" of the various depths will be the actual volumes of rock excavated within the limits for drainage trench excavation, at the applicable bottom depth price.

Where no item or items for "Rock in Drainage Trench Excavation" at the applicable depth appear in the proposal and rock is encountered in drainage trench excavation, its removal will be paid for as Extra Work in accordance with 1.04.05.

When excavation is necessary in fill, no such excavation will be paid for as "Rock in Drainage Trench Excavation."

When excavation is necessary for any purpose other than drainage-related items, no such excavation will be paid under this item.

Bedding material or any other suitable material used to fill voids vacated by excavated rock will not be paid for but shall be included in the unit price per cubic yard for "Rock in Drainage Trench Excavation."

Pay Item	Pay Unit
Rock in Drainage Trench Excavation 0' - 10' Deep	c.y.
Rock in Drainage Trench Excavation 0' - 20' Deep	c.y.

SECTION 4.06 - BITUMINOUS CONCRETE

Section 4.06 is being deleted in its entirety and replaced with the following:

4.06.01—Description
4.06.02—Materials
4.06.03—Construction Methods

1. **Material Documentation**
2. **Transportation of Mixture**
3. **Paving Equipment**
4. **Test Section**
5. **Transitions for Roadway Surface**
6. **Spreading and Finishing of Mixture**
7. **Longitudinal Joint Construction Methods**
8. **Contractor Quality Control (QC) Requirements**
9. **Temperature and Seasonal Requirements**
10. **Field Density**
11. **Acceptance Sampling and Testing**
12. **Density Dispute Resolution Process**
13. **Corrective Work Procedure**
14. **Protection of the Work**
15. **Cut Bituminous Concrete Pavement**

4.06.04—Method of Measurement
4.06.05—Basis of Payment

4.06.01—Description: Work under this Section shall include the production, delivery, placement and compaction of a uniform textured, non-segregated, smooth bituminous concrete pavement to the grade and cross section shown on the plans.

The following terms as used in this specification are defined as:

Bituminous Concrete: A composite material consisting of prescribed amounts of asphalt binder and aggregates. Asphalt binder may also contain additives engineered to modify specific properties and/or behavior of the composite material. References to bituminous concrete apply to all of its forms, such as those identified as hot-mix asphalt (HMA) or polymer-modified asphalt (PMA).

Bituminous Concrete Plant (Plant): A structure where aggregates and asphalt binder are combined in a controlled fashion into a bituminous concrete mixture suitable for forming pavements and other paved surfaces.

Course: A continuous layer (a lift or multiple lifts) of the same bituminous concrete mixture placed as part of the pavement structure.

Density Lot: The total tonnage of all bituminous concrete placed in a single lift which are:

PWL density lots = When the project total estimated quantity per mixture is larger than 3,500 tons

Simple Average density lots = When the project total estimated quantity per mixture is 3,500 tons or less

Disintegration: Erosion or fragmentation of the pavement surface which can be described as polishing, weathering-oxidizing, scaling, spalling, raveling, or formation of potholes.

Dispute Resolution: A procedure used to resolve conflicts between the Engineer and the Contractor's results that may affect payment.
Hot Mix Asphalt (HMA): A bituminous concrete mixture typically produced at 325°F.
Job Mix Formula (JMF): A recommended aggregate gradation and asphalt binder content to achieve the required mixture properties.
Lift: An application of a bituminous concrete mixture placed and compacted to a specified thickness in a single paver pass.
Percent Within Limits (PWL): The percentage of the lot falling between the Upper Specification Limit (USL) and the Lower Specification Limit (LSL).
Polymer Modified Asphalt (PMA): A bituminous concrete mixture containing a polymer-modified asphalt binder and using a qualified warm mix technology.
Production Lot: The total tonnage of a bituminous concrete mixture from a single source that may receive an adjustment.
Production Sub Lot: Portion of the production lot typically represented by a single sample.
Quality Assurance (QA): All those planned and systematic actions necessary to provide CTDOT the confidence that a Contractor will perform the work as specified in the Contract.
Quality Control (QC): The sum total of activities performed by the vendor (Producer, Manufacturer, and Contractor) to ensure that a product meets contract specification requirements.
Superpave: A bituminous concrete mix design used in mixtures designated as "S*" Where "S" indicates Superpave and * indicates the sieve related to the nominal maximum aggregate size of the mix.
Segregation: A non-uniform distribution of a bituminous concrete mixture in terms of gradation, temperature, or volumetric properties.
Warm Mix Asphalt (WMA) Technology: A qualified additive or technology that may be used to produce a bituminous concrete at reduced temperatures and/or increase workability of the mixture.

4.06.02—Materials: All materials shall meet the requirements of Section M.04.

1. Materials Supply: The bituminous concrete mixture must be from one source of supply and originate from one Plant unless authorized by the Engineer.

2. Recycled Materials: Reclaimed Asphalt Pavement (RAP), Crushed Recycled Container Glass (CRCG), Recycled Asphalt Shingles (RAS), or crumb rubber (CR) from recycled tires may be incorporated in bituminous concrete mixtures in accordance with Project Specifications.

4.06.03—Construction Methods

1. Material Documentation: All vendors producing bituminous concrete must have Plants with automated vehicle-weighing scales, storage scales, and material feeds capable of producing a delivery ticket containing the information below.

a. State of Connecticut printed on ticket.
b. Name of Producer, identification of Plant, and specific storage silo if used.
c. Date and time.
d. Mixture Designation mix type and level. Curb mixtures for machine-placed curbing must state "curb mix only."
e. If WMA Technology is used, "-W"must be listed following the mixture designation.
f. Net weight of mixture loaded into the vehicle. (When RAP and/or RAS is used, the

moisture content shall be excluded from mixture net weight.)

g. Gross weight (equal to the net weight plus the tare weight or the loaded scale weight).
h. Tare weight of vehicle (daily scale weight of the empty vehicle).
i. Project number, purchase order number, name of Contractor (if Contractor other than Producer).
j. Vehicle number - unique means of identification of vehicle.
k. For Batch Plants: individual aggregate, recycled materials, and virgin asphalt max/target/min weights when silos are not used.
l. For every mixture designation: the running daily and project total delivered and sequential load number.

The net weight of mixture loaded into the vehicle must be equal to the cumulative measured weights of its components.

The Contractor must notify the Engineer immediately if, during production, there is a malfunction of the weight recording system in the automated Plant. Manually written tickets containing all required information will be allowed for no more than 1 hour.

The State reserves the right to have an Inspector present to monitor batching and/or weighing operations.

2. Transportation of Mixture: The mixture shall be transported in vehicles that are clean of all foreign material, excessive coating or cleaning agents, and that have no gaps through which material might spill. Any material spilled during the loading or transportation process shall be quantified by re-weighing the vehicle. The Contractor shall load vehicles uniformly so that segregation is minimized. Loaded vehicles shall be tightly covered with waterproof covers acceptable to the Engineer. Mesh covers are prohibited. The cover must minimize air infiltration. Vehicles found not to be in conformance shall not be loaded

Vehicles with loads of bituminous concrete being delivered to State projects must not exceed the statutory or permitted load limits referred to as gross vehicle weight (GVW). The Contractor shall furnish a list and allowable weights of all vehicles transporting mixture. The State reserves the right to check the gross and tare weight of any vehicle. If the gross or tare weight varies from that shown on the delivery ticket by more than 0.4%, the Engineer will recalculate the net weight. The Contractor shall correct the discrepancy to the satisfaction of the Engineer.

If a vehicle delivers mixture to the Project and the delivery ticket indicates that the vehicle is overweight, the load may not be rejected but a “Measured Weight Adjustment” will be taken in accordance with Article 4.06.04.

Vehicle body coating and cleaning agents must not have a deleterious effect on the mixture. The use of solvents or fuel oil, in any concentration, is prohibited for the coating of vehicle bodies.

For each delivery, the Engineer shall be provided a clear, legible copy of the delivery ticket.

3. Paving Equipment: The Contractor shall have the necessary paving and compaction equipment at the Project Site to perform the work. All equipment shall be in good working order and any equipment that is worn, defective, or inadequate for performance of the work shall be repaired or replaced by the Contractor to the satisfaction of the Engineer. During the paving operation, the use of solvents or fuel oil, in any concentration, is strictly prohibited as a release agent or cleaner on any paving equipment (i.e., rollers, pavers, transfer devices, etc.).

Refueling or cleaning of equipment is prohibited in any location on the Project where fuel or solvents might come in contact with paved areas or areas to be paved. Solvents used in cleaning

mechanical equipment or hand tools shall be stored clear of areas paved or to be paved. Before any such equipment and tools are cleaned, they shall be moved off of areas paved or to be paved.

Pavers: Each paver shall have a receiving hopper with sufficient capacity to provide for a uniform spreading operation and a distribution system that places the mix uniformly, without segregation. The paver shall be equipped with and use a vibratory screed system with heaters or burners. The screed system shall be capable of producing a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible screed units as part of the system shall have auger extensions and tunnel extenders as necessary. Automatic screed controls for grade and slope shall be used at all times unless otherwise authorized by the Engineer. The controls shall automatically adjust the screed to compensate for irregularities in the preceding course or existing base. The controls shall maintain the proper transverse slope and be readily adjustable, and shall operate from a fixed or moving reference such as a grade wire or floating beam (minimum length 20 feet).

Rollers: All rollers shall be self-propelled and designed for compaction of bituminous concrete. Roller types shall include steel wheeled, pneumatic, or a combination thereof. Rollers that operate in a dynamic mode shall have drums that use a vibratory or oscillatory system or combination. Vibratory rollers shall be equipped with indicators for amplitude, frequency, and speed settings/readouts to measure the impacts per foot during the compaction process. Oscillatory rollers shall be equipped with frequency indicators. Rollers can operate in the dynamic mode using the oscillatory system on concrete structures such as bridges and catch basins if at the lowest frequency setting.

Pneumatic tire rollers shall be equipped with wide-tread compaction tires capable of exerting an average contact pressure from 60 to 90 psi uniformly over the surface. The Contractor shall furnish documentation to the Engineer regarding tire size, pressure and loading to confirm that the proper contact pressure is being developed and that the loading and contact pressure are uniform for all wheels.

Lighting: For paving operations which will be performed during hours of darkness the paving equipment shall be equipped with lighting fixtures as described below or with an approved equal. Lighting shall minimize glare to passing traffic. The lighting options and minimum number of fixtures are listed in Tables 4.06-1 and 4.06-2.

TABLE 4.06-1: Minimum Paver lighting

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type A	3	Mount over screed area
	Type B (narrow) or Type C (spot)	2	Aim to auger and guideline
	Type B (wide)or Type C (flood)	2	Aim 25feet behind paving machine
2	Type D Balloon	2	Mount over screed area

TABLE 4.06-2: Minimum Roller Lighting

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type B (wide)	2	Aim 50 feet in front of and behind roller

	Type B (narrow)	2	Aim 100 feet in front of and behind roller
2	Type C (flood)	2	Aim 50 feet in front of and behind roller
	Type C (spot)	2	Aim 100 feet in front of and behind roller
3	Type D Balloon	1	Mount above the roller

*All fixtures shall be mounted above the roller.

Type A: Fluorescent fixture shall be heavy duty industrial type. Each fixture shall have a minimum output of 8,000 lumens. The fixtures shall be mounted horizontally and be designed for continuous row installation.

Type B: Each floodlight fixture shall have a minimum output of 18,000 lumens.

Type C: Each fixture shall have a minimum output of 19,000 lumens.

Type D: Balloon light – each balloon light fixture shall have minimum output of 50,000 lumens and emit light equally in all directions.

Material Transfer Vehicle (MTV): A MTV shall be used when placing bituminous concrete surface course (a lift or multiple lifts) as indicated in the Contract except as noted on the plans or as directed by the Engineer. In addition, continuous paving lengths of less than 500 feet may not require the use of a MTV as determined by the Engineer.

The MTV must be a vehicle specifically designed for the purpose of delivering the bituminous concrete mixture from the delivery vehicle to the paver. The MTV must continuously remix the bituminous concrete mixture throughout the placement process.

The use of a MTV will be subject to the requirements stated in Article 1.07.05 Load Restrictions. The Engineer may limit the use of the vehicle if it is determined that the use of the MTV may damage highway components, utilities, or bridges. The Contractor shall submit to the Engineer at time of pre-construction the following information:

1. The make and model of the MTV.
2. The individual axle weights and axle spacing for each piece of paving equipment (haul vehicle, MTV and paver).
3. A working drawing showing the axle spacing in combination with all pieces of equipment that will comprise the paving echelon.

4. Test Section: The Engineer may require the Contractor to place a test section whenever the requirements of this specification or Section M.04 are not met.

The Contractor shall submit the quantity of mixture to be placed and the location of the test section for review and approval by the Engineer. The same equipment used in the construction of a passing test section shall be used throughout production.

If a test section fails to meet specifications, the Contractor shall stop production, make necessary adjustments to the job mix formula, Plant operations, or procedures for placement and compaction. The Contractor shall construct test sections, as allowed by the Engineer, until all the required specifications are met. All test sections shall also be subject to removal as set forth in Article 1.06.04.

5. Transitions for Roadway Surface: Transitions shall be formed at any point on the roadway where the pavement surface deviates, vertically, from the uniform longitudinal profile as specified on the plans. Whether formed by milling or by bituminous concrete mixture, all transition lengths shall meet the criteria below unless otherwise specified.

Permanent Transitions: Defined as any gradual change in pavement elevation that remains as a permanent part of the work.

A transition shall be constructed no closer than 75 feet from either side of a bridge expansion joint or parapet. All permanent transitions, leading and trailing ends shall meet the following length requirements:

Posted Speed Limit	**Permanent Transition Length Required**
> 35 mph	30 feet per inch of elevation change
35 mph or less	15 feet per inch of elevation change

In areas where it is impractical to use the above-described permanent transition lengths, the use of a shorter permanent transition length may be permitted when approved by the Engineer.

Temporary Transitions: Defined as a transition that does not remain a permanent part of the work.

All temporary transitions shall meet the following length requirements:

Posted Speed Limit	**Temporary Transition Length Required**
> 50 mph	Leading Transition: 15 feet per inch of vertical change (thickness) Trailing Transition: 6 feet per inch of vertical change (thickness)
40, 45 or 50 mph	Leading and Trailing: 4 feet per inch of vertical change (thickness)
35 mph or less	Leading and Trailing: 3 feet per inch of vertical change (thickness)

Note: Any temporary transition to be in place over the winter shutdown period or during extended periods of inactivity (more than 14 calendar days) shall meet the greater than 50 mph requirements shown above.

6. Spreading and Finishing of Mixture: Prior to the placement of the mixture, the underlying base course shall be brought to the plan grade and cross section within the allowable tolerance.

Immediately before placing a bituminous concrete lift, a uniform coating of tack coat shall be applied to all existing underlying pavement surfaces and on the exposed surface of a wedge joint. Such surfaces shall be clean and dry. Sweeping or other means acceptable to the Engineer shall be used.

The mixture shall not be placed whenever the surface is wet or frozen.

Tack Coat Application: The tack coat shall be applied by a pressurized spray system that results in uniform overlapping coverage at an application rate of 0.03 to 0.05 gal./s.y. for a non-milled surface and an application rate of 0.05 to 0.07 gal./s.y. for a milled surface. For areas where both milled and un-milled surfaces occur, the tack coat shall be an application rate of 0.03 to 0.05 gal /s.y. The Engineer must approve the equipment and the method of measurement prior to use. The material for tack coat shall be heated to 160°F ± 10°F and shall not be further diluted.

Tack coat shall be allowed sufficient time to break prior to any paving equipment or haul vehicles driving on it.

The Contractor may request to omit the tack coat application between bituminous concrete layers that have not been exposed to traffic and are placed during the same work shift. Requests to omit tack coat application on the upper and lower surfaces of a wedge joint will not be considered.

Placement: The mixture shall be placed and compacted to provide a smooth, dense surface with a uniform texture and no segregation at the specified thickness and dimensions indicated in the plans and specifications.

When unforeseen weather conditions prevent further placement of the mixture, the Engineer is not obligated to accept or place the bituminous concrete mixture that is in transit from the Plant.

In advance of paving, traffic control requirements shall be set up, maintained throughout placement, and shall not be removed until all associated work including density testing is completed.

The mixture temperature will be verified by means of a probe or infrared type of thermometer. The placement temperature range shall be listed in the quality control plan (QCP) for placement and meet the requirements of Table M.04.03-4. Any HMA material that that falls outside the specified temperature range as measured by a probe thermometer may be rejected.

The Contractor shall inspect the newly placed pavement for defects in mixture or placement before rolling is started. Any deviation from standard crown or section shall be immediately remedied by placing additional mixture or removing surplus mixture. Such defects shall be corrected to the satisfaction of the Engineer.

Where it is impracticable due to physical limitations to operate the paving equipment, the Engineer may permit the use of other methods or equipment. Where hand spreading is permitted, the mixture shall be placed by means of suitable shovels and other tools, and in a uniformly loose layer at a thickness that will result in a completed pavement meeting the designed grade and elevation.

Placement Tolerances: Each lift of bituminous concrete placed at a specified thickness shall meet the following requirements for thickness and area. Any pavement exceeding these limits shall be subject to an adjustment or removal. Lift tolerances will not relieve the Contractor from meeting the final designed grade. Lifts of specified non-uniform thickness, i.e. wedge or shim course, shall not be subject to thickness and area adjustments.

a) Thickness: Where the average thickness of the lift exceeds that shown on the plans beyond the tolerances shown in Table 4.06-3, the Engineer will calculate the thickness adjustment in accordance with Article 4.06.04.

TABLE 4.06-3: Thickness Tolerances

Mixture Designation	Lift Tolerance
S1	+/- 3/8 inch
S0.25, S0.375, S0.5	+/- 1/4 inch

Where the thickness of the lift of mixture is less than that shown on the plans beyond the tolerances shown in Table 4.06-3, the Contractor, with the approval of the Engineer, shall take corrective action in accordance with this Section.

b) Area: Where the width of the lift exceeds that shown on the plans by more than the specified thickness, the Engineer will calculate the area adjustment in Article 4.06.04.

c) Delivered Weight of Mixture: When the delivery ticket shows that the truck exceeds the

allowable gross weight for the vehicle type, the Engineer will calculate the weight adjustment in accordance with Article 4.06.04.

Transverse Joints: All transverse joints shall be formed by saw-cutting to expose the full thickness of the lift. Tack coat shall be applied to the sawn face immediately prior to additional mixture being placed.

Compaction: The Contractor shall compact the mixture to meet the density requirements as stated in Article 4.06.04 and eliminate all roller marks without displacement, shoving cracking, or aggregate breakage.

When placing a lift with a specified thickness less than 1 1/2 inches, or a wedge course, the Contractor shall provide a minimum rolling pattern as determined by the development of a compaction curve. The procedure to be used shall be documented in the Contractor's QCP for placement and demonstrated on the first day of placement.

The use of the vibratory system on concrete structures is prohibited. When approved by the Engineer, the Contractor may operate a roller using an oscillatory system at the lowest frequency setting.

If the Engineer determines that the use of compaction equipment in the dynamic mode may damage highway components, utilities or adjacent property, the Contractor shall provide alternate compaction equipment.

Rollers operating in the dynamic mode shall be shut off when changing directions.

These allowances will not relieve the Contractor from meeting pavement compaction requirements.

Surface Requirements:

If in the opinion of the Engineer the smoothness of the finished paved surface is unacceptable, the problem shall be corrected by the Contractor at its own expense.

7. Longitudinal Joint Construction Methods: The Contractor shall use Method I - Notched Wedge Joint (see Figure 4.06-1) when constructing longitudinal joints where lift thicknesses are 1 ½ inches to 3 inches. S1.0 mixtures shall be excluded from using Method I. Method II - Butt Joint (see Figure 4.06-2) shall be used for lifts less than 1 1/2 inches or greater than 3 inches. Each longitudinal joint shall maintain a consistent offset from the centerline of the roadway along its entire length. The difference in elevation between the two faces of any completed longitudinal joint shall not exceed 1/4 inch at any location.

Method I - Notched Wedge Joint:

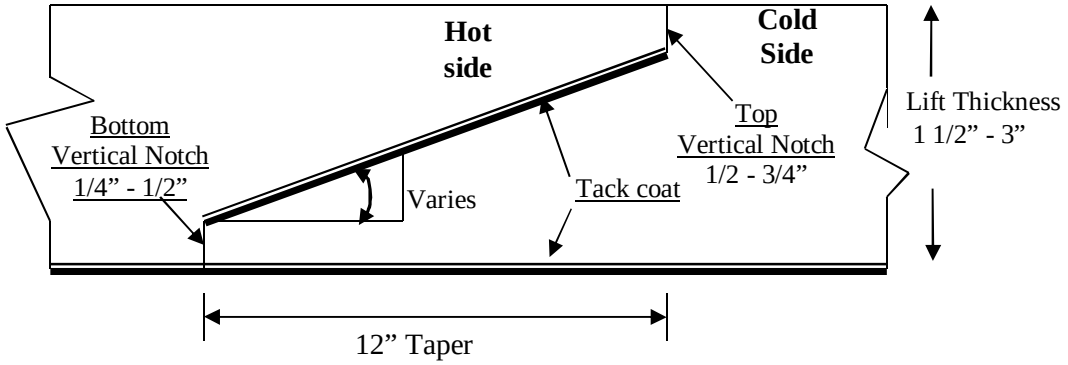
A notched wedge joint shall be constructed as shown in Figure 4.06-1 using a device that is attached to the paver screed and is capable of independently adjusting the top and bottom vertical notches. The device shall have an integrated vibratory system. The top vertical notch must be located at the centerline or lane line in the final lift. The requirement for paving full width "curb to curb" as described in Method II may be waived if addressed in the QC plan and approved by the Engineer.

The taper portion of the wedge joint shall be evenly compacted using equipment other than the paver or notch wedge joint device. The compaction device shall be the same width as the taper and not reduce the angle of the wedge or ravel the top notch of the joint during compaction.

When placed on paved surfaces, the area below the sloped section of the joint shall be treated with tack coat. The top surface of the sloped section of the joint shall be treated with tack coat prior to placing the completing pass.

The taper portion of the wedge joint shall not be exposed to traffic for more than 5 calendar days.

Figure 4.06-1: Notched Wedge Joint (Not to Scale)



Any exposed wedge joint must be located to allow for the free draining of water from the road surface.

The Engineer reserves the right to define the paving limits when using a wedge joint that will be exposed to traffic.

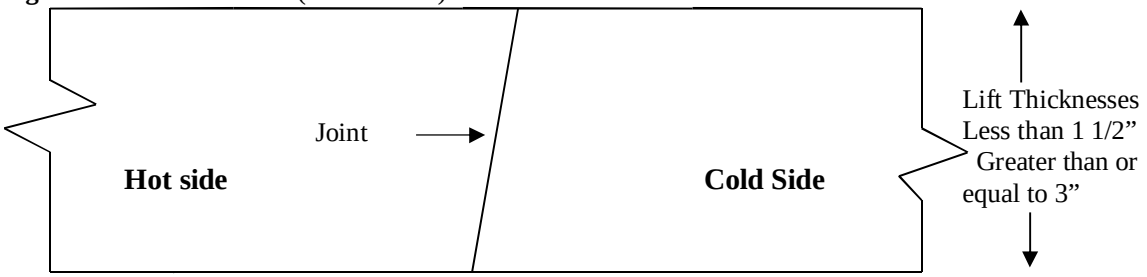
If Method I cannot be used on those lifts which are 1 ½ inches to 3 inches, Method III may be substituted according to the requirements below for "Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment."

Method II - Butt Joint:

When adjoining passes are placed, the Contractor shall use the end gate to create a near vertical edge (refer to Figure 4.06-2). The completing pass (hot side) shall have sufficient mixture so that the compacted thickness is not less than the previous pass (cold side). During placement of multiple lifts, the longitudinal joint shall be constructed in such a manner that it is located at least 6 inch from the joint in the lift immediately below. The joint in the final lift shall be at the centerline or at lane lines. The end gate on the paver should be set so there is an overlap onto the cold side of the joint.

The Contractor shall not allow any butt joint to be incomplete at the end of a work shift unless otherwise allowed by the Engineer. When using this method, the Contractor is not allowed to leave a vertical edge exposed at the end of a work shift and must complete paving of the roadway full width "curb to curb."

Figure 4.06-2: Butt Joint (Not to Scale)

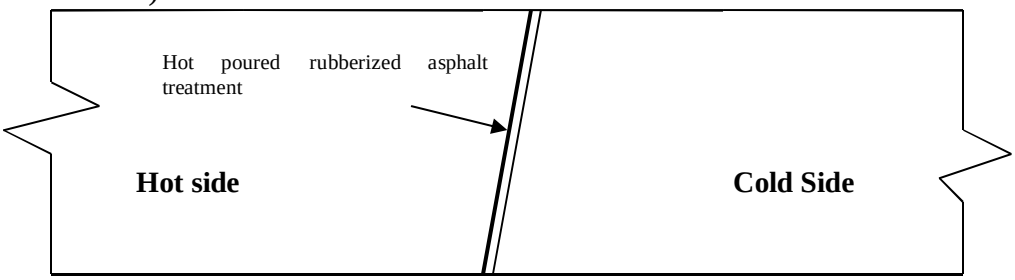


Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment:

If Method I cannot be used due to physical constraints in certain limited locations, the Contractor may submit a request in writing for approval by the Engineer to use Method III as a substitution in those locations. There shall be no additional measurement or payment made

when Method III is substituted for Method I. When required by the Contract or approved by the Engineer, Method III (see Figure 4.06-3) shall be used.

Figure 4.06-3: Butt Joint with Hot Poured Rubberized Asphalt Treatment
(Not to Scale)



All of the requirements of Method II must be met with Method III. In addition, the longitudinal vertical edge must be treated with a rubberized joint seal material meeting the requirements of ASTM D6690, Type 2. The joint sealant shall be placed on the face of the "cold side" of the butt joint as shown above prior to placing the "hot side" of the butt joint. The joint seal material shall be applied in accordance with the manufacturer's recommendation so as to provide a uniform coverage and avoid excess bleeding onto the newly placed pavement.

8. Contractor Quality Control (QC) Requirements: The Contractor shall be responsible for maintaining adequate quality control procedures throughout the production and placement operations. Therefore, the Contractor must ensure that the materials, mixture, and work provided by Subcontractors, Suppliers, and Producers also meet Contract specification requirements.

This effort must be documented in Quality Control Plans (QCP) and must address the actions, inspection, or sampling and testing necessary to keep the production and placement operations in control, to determine when an operation has gone out of control and to respond to correct the situation in a timely fashion.

The Standard QCP for production shall consist of the quality control program specific to the production facility.

There are 3 components to the QCP for placement: a Standard QCP, a Project Summary Sheet that details Project-specific information, and, if applicable, a separate Extended Season Paving Plan as required in 4.06.03-9 "Temperature and Seasonal Requirements."

The Standard QCP for both production and placement shall be submitted to the Department for approval each calendar year and at a minimum of 30 days prior to production or placement.

Production or placement shall not occur until all QCP components have been approved by the Engineer.

Each QCP shall include the name and qualifications of a Quality Control Manager (QCM). The QCM shall be responsible for the administration of the QCP, and any modifications that may become necessary.

The QCM shall have the ability to direct all Contractor personnel on the Project during paving operations.

The QCPs shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QC Technician performing in-place density testing shall be NETTCP certified as a paving inspector.

Approval of the QCP does not relieve the Contractor of its responsibility to comply with the Project specifications. The Contractor may modify the QCPs as work progresses and must document the changes in writing prior to resuming operations. These changes include but are not limited to changes in quality control procedures or personnel. The Department reserves the right to deny significant changes to the QCPs.

QCP for Production: Refer to M.04.03-1.

QCP for Placement: The Standard QCP, Project Summary Sheet, and Extended Season Paving Plan shall conform to the format provided by the Engineer. The format is available at http://www.ct.gov/dot/lib/dot/documents/dconstruction/pat/qcp_outline_hma_placement.pdf

The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that bituminous concrete placement conforms to the requirements as outlined in its QCP during all phases of the work. The Contractor shall document these activities for each day of placement.

The Contractor shall submit complete field density testing and inspection records to the Engineer within 48 hours in a manner acceptable to the Engineer.

The Contractor may obtain 1 mat core and 1 joint core per day for process control, provided this process is detailed in the QCP. The results of these process control cores shall not be used to dispute the Department's determinations from the acceptance cores. The Contractor shall submit the location of each process control core to the Engineer for approval prior to taking the core. The core holes shall be filled to the same requirements described in Subarticle 4.06.03-10.

9. Temperature and Seasonal Requirements: Paving, including placement of temporary pavements, shall be divided into 2 seasons, "In-Season" and "Extended-Season." In-Season paving occurs from May 1 to October 14, and Extended Season paving occurs from October 15 to April 30. The following requirements shall apply unless otherwise authorized or directed by the Engineer:

- Mixtures shall not be placed when the air or subbase temperature is less than 40°F unless approved by the Engineer to facilitate the convenience and/or safety of the motoring public.
- Should paving operations be scheduled during the Extended Season, the Contractor must submit an Extended Season Paving Plan for the Project that addresses minimum delivered mix temperature considering WMA, PMA, or other additives; maximum paver speed; enhanced rolling patterns; and the method to balance mixture delivery and placement operations. Paving during Extended Season shall not commence until the Engineer has approved the plan.

10. Field Density The Contractor shall obtain cores for the determination of mat and longitudinal joint density of bituminous concrete pavements. Within five calendar days of placement, mat and joint cores shall be extracted on each lift with a specified thickness of 1 1/2 inches or more. Joint cores shall not be extracted on HMA S1.0 lifts.

The Contractor shall extract cores from random locations determined by the Engineer in accordance with ASTM D3665. Four (4) or six (6) inch diameter cores shall be extracted for

S0.25, S0.375 and S0.5 mixtures; 6 inch diameter cores shall be required for S1.0 mixtures. The Contractor shall coordinate with the Engineer to witness the extraction, labeling of cores, and filling of the core holes.

Each lift will be separated into lots as follows:

a. Simple Average Density Lots: For total estimated quantities below 2,000 tons, the lift will be evaluated in one lot which will include the total paved tonnage of the lift and all longitudinal joints between the curb lines.
   For total estimated quantities between 2,000 and 3,500 tons, the lift will be evaluated in two lots in which each lot will include approximately half of the total tonnage placed for the full paving width of a lift including all longitudinal joints between the curb lines.
b. PWL Density Lots: Mat density lots will include each 3,500 tons of mixture placed within 30 calendar days. Joint density lots will include 14,000 linear feet of constructed joints. Bridge density lots will always be analyzed using simple average lot methodology.
c. Partial Density Lot (For PWL only): A mat density lot with less than 3,500 tons or a joint density lot with less than 14,000 linear feet due to:
   - completion of the course; or
   - a lot spanning 30 calendar days.

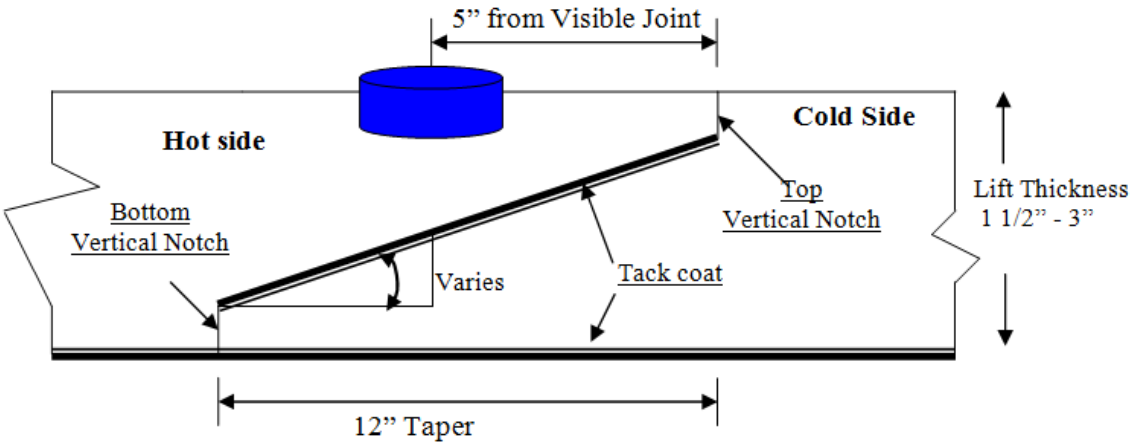
Prior to paving, the type and number of lot(s) will be determined by the Engineer. Noncontiguous areas such as highway ramps may be combined to create one lot.

After the lift has been compacted and cooled, the Contractor shall cut cores to a depth equal to or greater than the lift thickness and shall remove them without damaging the lift(s) to be tested. Any core that is damaged or obviously defective while being obtained will be replaced with a new core from a location within 2 feet measured in a longitudinal direction.

A mat core shall not be located any closer than 1 foot from the edge of a paver pass. If a random number locates a core less than 1 foot from any edge, the location will be adjusted by the Engineer so that the outer edge of the core is 1 foot from the edge of the paver pass.

Method I, Notched Wedge Joint cores shall be taken so that the center of the core is 5 inches from the visible joint on the hot mat side (Figure 4.06-4).

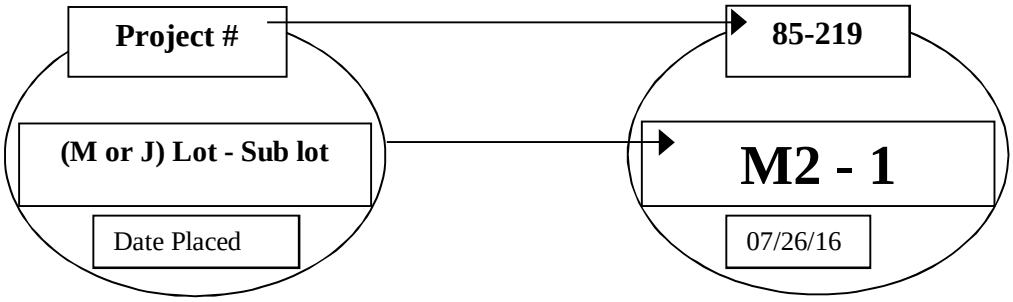
Figure 4.06-4: Notched Wedge Joint Cores (Not to Scale)



When Method II or Method III Butt Joint is used, cores shall be taken from the hot side so the edge of the core is within 1 inch of the longitudinal joint.

The cores shall be labeled by the Contractor with the Project number, date placed, lot number, and sub-lot number. The core's label shall include "M" for a mat core and "J" for a joint core. For example, a mat core from the first lot and the first sub-lot shall be labeled with "M1 – 1." A mat core from the second lot and first sub-lot shall be labeled "M2-1" (see Figure 4.06-5). The Engineer shall fill out a MAT-109 to accompany the cores. The Contractor shall deliver the cores and MAT-109 to the Department's Central Lab. The Contractor shall use a container approved by the Engineer. The container shall have a lid capable of being locked shut and tamper proof. The Contractor shall use foam, bubble wrap, or another suitable material to prevent the cores from being damaged during handling and transportation. Once the cores and MAT-109 are in the container the Engineer will secure the lid using security seals at the removable hinges(s) and at the lid opening(s). The security seals' identification number must be documented on the MAT-109. All sealed containers shall be delivered to the Department's Central Lab within two working days from time of extraction. Central Lab personnel will break the security seal and take possession of the cores.

Figure 4.06-5: Labeling of Cores



Each core hole shall be filled within 4 hours upon core extraction. Prior to being filled, the hole shall be prepared by removing any free water and applying tack coat using a brush or other means to uniformly cover the cut surface. The core hole shall be filled using a bituminous concrete mixture at a minimum temperature of 240°F containing the same or smaller nominal maximum aggregate size and compacted with a hand compactor or other mechanical means to the maximum compaction possible. The bituminous concrete shall be compacted to 1/8 inch above the finished pavement.

Simple Average Density Lots:

A standard simple average density lot is the quantity of material placed within the defined area excluding any bridge decks.

A combo simple average density lot is the quantity of material placed within the defined area including bridge decks less than or equal to 500 feet long.

A bridge simple average density lot is the quantity of material placed on a bridge deck longer than 500 feet.

The number of cores per lot shall be determined in accordance with Table 4.06-4. If a randomly selected mat or joint core location is on a bridge deck, the core is to be obtained on the bridge deck in addition to the core(s) required on the bridge deck.

The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

The longitudinal locations of mat cores within a standard, combo, or bridge lot containing multiple paving passes will be determined using the combined length of the paving passes within the lot.

TABLE 4.06-4: Number of Cores per Lot (Simple Average)

Lot Type	**No. of Mat Cores**		**No. of Joint Cores**	
Standard Lot < 500 Tons	3		3	
Standard Lot ≥ 500 Tons	4		4	
Combo Lot < 500 Tons	2 plus	1 per bridge (≤ 300')	2 plus	1 per bridge (≤ 300)
Combo Lot ≥ 500 Tons[(1)]	4 plus	2 per bridge (301' – 500')	4 plus	2 per bridge (301' – 500')

TABLE 4.06-5: Number of Core per Bridge Density Lot (Simple Average)

Length of Bridge(s) (Feet)	**Minimum No. of Mat Cores**	**Minimum No. of Joint Cores**
< 500	2	2
501 – 1,500	3	3
1,501 – 2,500	4	4
2,501 and greater	5	5

PWL Density Lots:

A PWL mat density lot is 3,500 tons of material placed within the defined area excluding any bridges. One mat core will be obtained per every 500 tons placed.

A PWL joint density lot is 14,000 linear feet of longitudinal joint excluding any joints on bridge decks. One joint core will be obtained per every 2,000 linear feet of joint.

Bridge density lots will always be analyzed as using the simple average lot methodology. The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

11. Acceptance Sampling and Testing: Sampling shall be performed in accordance with ASTM D3665 or a statistically-based procedure of stratified random sampling approved by the Engineer.

Plant Material Acceptance: The Contractor shall provide the required sampling and testing during all phases of the work in accordance with M.04. The Department will verify the Contractor's acceptance test results. Should any test results exceed the specified tolerances in the Department's current QA Program for Materials, the Contractor's test results for a subject lot or sub lot may be replaced with the Department's results for the purpose of calculating adjustments. The verification procedure is included in the Department's current QA Program for Materials.

Density Acceptance: The Engineer will perform all acceptance testing in accordance with AASHTO T 331. The density of each core will be determined using the daily production's average maximum theoretical specific gravity (Gmm) established during the testing of the parent material at the Plant. When there was no testing of the parent material or any Gmm exceeds the specified tolerances in the Department's current QA Program for Materials, the Engineer will determine the maximum theoretical density value to be used for density calculations.

12. Density Dispute Resolution Process: The Contractor and Engineer will work in partnership to avoid potential conflicts and to resolve any differences that may arise during quality control or acceptance testing for density. Both parties will review their sampling and testing procedures and results and share their findings. If the Contractor disputes the Engineer's test results, the Contractor must submit in writing a request to initiate the Dispute Resolution Process within five calendar days of the notification of the test results. No request for dispute resolution will be allowed unless the Contractor provides quality control results from samples taken prior to and after finish rolling, and within the timeframe described in 4.06.03-8 supporting its position. No request for dispute resolution will be allowed for a density lot in which any core was not taken within the required 5 calendar days of placement. Should the dispute not be resolved through evaluation of existing testing data or procedures, the Engineer may authorize the Contractor to obtain a new core or set of core samples per disputed lot. The core samples must be extracted no later than seven calendar days from the date of the Engineer's authorization. All such core samples shall be extracted and the core hole filled using the procedure outlined in 4.06.03-10.

a) Simple Average Lots: The Contractor may only dispute any simple average lot that is adjusted at or below 95 percent payment. The number and location (mat, joint, or structure) of the cores taken for dispute resolution must reflect the number and location of the original cores. The location of each core shall be randomly located within the respective original sub lot. The dispute resolution results shall be combined with the original results and averaged for determining the final in-place density value.

b) PWL Lots: The Contractor may dispute any PWL sublot when the PWL falls below 50% calculated in accordance with section 4.06.04.2.b. An additional random core in the sublot may be taken to validate the accuracy of the core in question. The Department will verify the additional core test result and may average the original test result with the additional core result for purpose of calculating adjustments.

13. Corrective Work Procedure:

If pavement placed by the Contractor does not meet the specifications, and the Engineer requires its replacement or correction, the Contractor shall:

a) Propose a corrective procedure to the Engineer for review and approval prior to any corrective work commencing. The proposal shall include:
   - Limits of pavement to be replaced or corrected, indicating stationing or other landmarks that are readily distinguishable.
   - Proposed work schedule.
   - Construction method and sequence of operations.
   - Methods of maintenance and protection of traffic.
   - Material sources.
   - Names and telephone numbers of supervising personnel.

b) Any corrective courses placed as the final wearing surface shall match the specified lift thickness after completion.

14. Protection of the Work: The Contractor shall protect all sections of the newly finished pavement from damage that may occur as a result of the Contractor's operations for the duration of the Project.

15. Cut Bituminous Concrete Pavement: Work under this item shall consist of making a straight-line cut in the bituminous concrete pavement to the lines delineated on the plans or as directed by the Engineer. The cut shall provide a straight, clean, vertical face with no cracking, tearing or breakage along the cut edge.

4.06.04—Method of Measurement:

1. HMA S* or PMA S*: Bituminous concrete will be measured for payment as the amount of material in tons placed as determined by the net weight on the delivered tickets and adjusted by area, thickness and weight as follows:

Quantity Adjustments**:** Adjustments may be applied to the placed bituminous concrete quantities that will be measured for payment using the following formulas:

Yield Factor for Adjustment Calculation = 0.0575 tons/SY/inch

Actual Area (SY) = [(Measured Length (ft)) x (Avg. of width measurements (ft))]÷9 s.f./SY

Actual Thickness (t) = Total tons delivered / [Actual Area (SY) x 0.0575 tons/SY/inch]

a) Area: If the average width exceeds the allowable tolerance, an adjustment will be made using the following formula. The tolerance for width is equal to the specified thickness (inch) of the lift being placed.

Quantity Adjusted for Area (T_A) = [(L x W_{adj})/9] x (t) x 0.0575 Tons/SY/inch = (-) tons

Where: L = Length (ft)

(t) = Actual thickness (inches)

W_{adj} = (Designed width (ft) + tolerance /12) - Measured Width)

b) Thickness: If the actual average thickness is less than the allowable tolerance, the Contractor shall submit a repair procedure to the Engineer for approval. If the actual thickness exceeds the allowable tolerance, an adjustment will be made using the following formula:

Quantity Adjusted for Thickness (T_T) = A x t_{adj} x 0.0575 = (-) tons

Where: A = Area = {[L x (Design width + tolerance (lift thickness)/12)] / 9}

t_{adj} = Adjusted thickness = [(Dt + tolerance) - Actual thickness]

Dt = Designed thickness (inches)

c) Weight: If the quantity of bituminous concrete representing the mixture delivered to the Project is in excess of the allowable gross vehicle weight (GVW) for each vehicle, an adjustment will be made using the following formula:

Quantity Adjusted for Weight (T_W) = GVW – DGW= (-) tons

Where: DGW = Delivered gross weight as shown on the delivery ticket or measured on a certified scale

2. Bituminous Concrete Adjustment Cost:

a) Production Lot Adjustment: An adjustment may be applied to each production lot as follows:

i. Non-PWL Production Lot (less than 3,500 tons):
The adjustment values in Tables 4.06-6 and 4.06-7 will be calculated for each sub lot based on the Air Void (AV) and Asphalt Binder Content (PB) test results for that sub lot. The total adjustment for each day's production (lot) will be computed as follows:

Tons Adjusted for Superpave Design (T_{SD}) = $[(AdjAV_t + AdjPB_t) / 100] \times Tons$

Where: $AdjAV_t$: Percent adjustment for air voids
$AdjPB_t$: Percent adjustment for asphalt binder
Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

Percent Adjustment for Air Voids = $AdjAV_t = [AdjAV_1 + AdjAV_2 + AdjAV_i + \ldots + AdjAV_n)] /n$

Where: $AdjAV_t$ = Total percent air void adjustment value for the lot
$AdjAV_i$ = Adjustment value from Table 4.06-6 resulting from each sub lot or the average of the adjustment values resulting from multiple tests within a sub lot, as approved by the Engineer.
n = number of sub lots based on Table M.04.03-2

TABLE 4.06-6: Adjustment Values for Air Voids

Adjustment Value ($AdjAV_i$) (%)	**S0.25, S0.375, S0.5, S1 Air Voids (AV)**
+2.5	3.8 - 4.2
+3.125*(AV-3)	3.0 - 3.7
-3.125*(AV-5)	4.3 – 5.0
20*(AV-3)	2.3 – 2.9
-20*(AV-5)	5.1 – 5.7
-20.0	$\leq$ 2.2 or $\geq$ 5.8

Percent Adjustment for Asphalt Binder = $AdjPB_t = [(AdjPB_1 + AdjPB_2 + AdjPB_i + \ldots + AdjPB_n)] /n$

Where: $AdjPB_t$= Total percent liquid binder adjustment value for the lot
$AdjPB_i$ = Adjustment value from Table 4.06-7 resulting from each sub lot
n = number of binder tests in a production lot

TABLE 4.06-7: Adjustment Values for Binder Content

Adjustment Value	**S0.25, S0.375, S0.5, S1**

(AdjAV$_i$) (%)	**Pb**
0.0	JMF Pb ± 0.3
- 10.0	≤ JMF Pb - 0.4 or ≥ JMF Pb + 0.4

ii. PWL Production Lot (3500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on AV, VMA, and PB test results. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

Only one test result will be considered for each sub lot. The specification limits are listed in M.04.

For AV, PB, and voids in mineral aggregate (VMA), the individual material quantity characteristic adjustment (Adj) will be calculated as follows:

For PWL between 50 and 90%: Adj(AV_t or PB_t or VMA_t)= (55 + 0.5 PWL) - 100

For PWL at and above 90%: Adj(AV_t or PB_t or VMA_t)= (77.5 + 0.25 PWL) - 100

Where: $AdjAV_t$ = Total percent AV adjustment value for the lot

$AdjPB_t$= Total percent PB adjustment value for the lot

$AdjVMA_t$= Total percent VMA adjustment value for the lot

A lot with PWL less than 50% in any of the 3 individual material quality characteristics will be evaluated under 1.06.04.

The total adjustment for each production lot will be computed using the following formula:

Tons Adjusted for Superpave Design (T_{SD}) = $[(0.5AdjAV_t + 0.25AdjPB_t + 0.25\ AdjVMA_t) / 100]$ X Tons

Where Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material or if the last test result of the prior lot is over 30 calendar days old, the adjustment will be calculated as indicated in 4.06.04-2.a)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.a)ii.

Production Lot Adjustment: T_{SD} x Unit Price = Est. (Pi)

Where: Unit Price = Contract unit price per ton per type of mixture

Est. (Pi)= Pay Unit in dollars representing incentive or disincentive per lot

b) Density Lot Adjustment: An adjustment may be applied to each density lot as follows:

i. Simple Average Density Lot (less than 3500 tons) and Bridge Lots:

The final lot quantity shall be the difference between the total payable tons for the Project and the sum of the previous lots. If either the Mat or Joint adjustment value is "remove and replace," the density lot shall be removed and replaced (curb to curb).

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

Tons Adjusted for Density (T_D) = $[\{(PA_M \times 0.50) + (PA_J \times 0.50)\} / 100]$ X Tons

Where: T_D = Total tons adjusted for density for each lot

PA_M = Mat density percent adjustment from Table 4.06-8
PA_J = Joint density percent adjustment from Table 4.06-9
Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

TABLE 4.06-8: Adjustment Values for Pavement Mat density

Average Core Result Percent Mat Density	**Percent Adjustment (Bridge and Non-Bridge) [(1)(2)]**
97.1 - 100	-1.667*(ACRPD-98.5)
94.5 – 97.0	+2.5
93.5 – 94.4	+2.5*(ACRPD-93.5)
92.0 – 93.4	0
90.0 – 91.9	-5*(92-ACRPD)
88.0 – 89.9	-10*(91-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

Notes:
(1) ACRPD = Average Core Result Percent Density
(2) All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67.

TABLE 4.06-9: Adjustment Values for Pavement Joint Density

Average Core Result Percent Joint Density	**Percent Adjustment (Bridge and Non-Bridge) [(1)(2)]**
97.1 – 100	-1.667*(ACRPD-98.5)
93.5 – 97.0	+2.5
92.0 – 93.4	+1.667*(ACRPD-92)
91.0 – 91.9	0
89.0 – 90.9	-7.5*(91-ACRPD)
88.0 – 88.9	-15*(90-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

Notes:
(1) ACRPD = Average Core Result Percent Density
(2) All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67

Additionally, any sublot with a density result below 87% will be evaluated under 1.06.04.

ii. PWL Density Lot (3,500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on mat and joint density test results. Only one result will be included for each sublot. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

The specification limits for the PWL determination are as follows:

Mat Density: 91.5-98%

Joint Density: 90-98%

For mat and joint density, the individual percent adjustment (PA) will be calculated as follows:

For PWL between 50 and 90%: PA ($_M$ or $_J$)= 0.25 * PWL – 22.50

For PWL at and above 90%: PA ($_M$ or $_J$)= 0.125 * PWL – 11.25

Where: PA_M = Total percent mat density adjustment value for the PWL mat density lot

PA_J= Total percent joint density adjustment value for the PWL joint density lot

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

A lot with PWL less than 50% will be evaluated under 1.06.04.

The total adjustment for each PWL mat density lot will be computed as follows:

Tons Adjusted for Mat Density (T_{MD}) = (PA_M / 100) X Tons

Where: Tons= Weight of material (tons) in the lot adjusted by 4.06.4-1.

The total adjustment for each PWL joint density lot will be computed as follows:

Tons Adjusted for Joint Density (T_{JD}) = (PA_J / 100) X J_Tons

Tons Adjusted for Joint Density will be calculated at the end of each project or project phase.

Where: $J\_Tons = \text{Tons in project or phase adjusted by 4.06.4} - 1 \times \frac{\text{Lot joint length}}{\text{Joint length in project or phase}}$

All bridge density lot adjustments will be evaluated in accordance with 4.06.04-2.b)i.

Additionally, any sublot with a density result below 87% will be evaluated under 1.06.04.

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material and placement conditions or if the last test result of the prior lot is over 30 calendar days old, the mat and joint individual adjustments will be calculated in accordance to Tables 4.06-8 and 4.06-9. T_{MD} and T_{JD} will be calculated as indicated in 4.06.04-2.b)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.b)ii.

Density Lot Adjustment (Simple Average Lots): T_D x Unit Price = Est. (Di)

Density Lot Adjustment (PWL Lots): (T_{MD} or T_{JD}) x Unit Price = Est. (DMi or DJi)

Where: Unit Price = Contract unit price per ton per type of mixture
Est. (Di)= Pay Unit in dollars representing incentive or disincentive per simple average density lot
Est. (DMi)= Pay Unit in dollars representing incentive or disincentive per PWL mat lot
Est. (DJi)= Pay Unit in dollars representing incentive or disincentive per PWL joint lot

Additionally, any sublot with a density result below 87% will be evaluated under 1.06.04.

3. Transitions for Roadway Surface: The installation of permanent transitions will be measured under the appropriate item used in the formation of the transition.

The quantity of material used for the installation of temporary transitions will be measured for payment under the appropriate item used in the formation of the transition. The installation and removal of a bond breaker and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is not measured for payment.

4. Cut Bituminous Concrete Pavement: The quantity of bituminous concrete pavement cut will be measured in accordance with 2.02.04.

5. Material for Tack Coat: The quantity of tack coat will be measured for payment by the number of gallons furnished and applied on the Project and approved by the Engineer. No tack coat material shall be included that is placed in excess of the tolerance described in 4.06.03.

a. Container Method – Material furnished in a container will be measured to the nearest 1/2 gallon. The volume will be determined by either measuring the volume in the original container by a method approved by the Engineer or using a separate graduated container capable of measuring the volume to the nearest 1/2 gallon. The container in which the material is furnished must include the description of material, including lot number or batch number and manufacturer or product source.
b. Vehicle Method
    i. Measured by Weight: The number of gallons furnished will be determined by weighing the material on calibrated scales furnished by the Contractor. To convert weight to gallons, one of the following formulas will be used:
    Tack Coat (gallons at 60°F) = Measured Weight (pounds) / Weight per gallon at 60°F
    Tack Coat (gallons at 60°F) = 0.996 x Measured Weight (pounds) / Weight per gallon at 77°F
    ii. Measured by automated metering system on the delivery vehicle:
    Tack Coat (gallons at 60°F) = 0.976 x Measured Volume (gallons).

6. Material Transfer Vehicle (MTV): The furnishing and use of a MTV will be measured separately for payment based on the actual number of surface course tons delivered to a paver using the MTV.

4.06.05—Basis of Payment:

1. HMA S* or PMA S*: The furnishing and placing of bituminous concrete will be paid for at the Contract unit price per ton for " HMA S*" or " PMA S*."

All costs associated with providing illumination of the work area are included in the general cost of the work.

All costs associated with cleaning the surface to be paved, including mechanical sweeping, are included in the general cost of the work. All costs associated with constructing longitudinal joints are included in the general cost of the work.

All costs associated with obtaining cores for acceptance testing and dispute resolution are included in the general cost of the work.

2. Bituminous Concrete Adjustment Costs: This adjustment will be calculated using the formulas shown below if all of the measured adjustments in 4.06.04-2 are not equal to zero. A positive or negative adjustment will be applied to monies due the Contractor.

Production Lot: Σ Est (Pi) = Est. (P)
Density Lot (Simple Average Lots): Σ Est (Di) = Est. (D)
Density Lot (PWL): Σ Est (DMi) + Σ (DJi) = Est. (D)
Bituminous Concrete Adjustment Cost= Est. (P) + Est. (D)

Where: Est. ( )= Pay Unit in dollars representing incentive or disincentive in each production or density lot calculated in 4.06.04-2

The Bituminous Concrete Adjustment Cost item, if included in the bid proposal or estimate, is not to be altered in any manner by the Bidder. If the Bidder should alter the amount shown, the altered figure will be disregarded and the original estimated cost will be used for the Contract.

3. Transitions for Roadway Surface: The installation of permanent transitions will be paid under the appropriate item used in the formation of the transition. The quantity of material used for the installation of temporary transitions will be paid under the appropriate pay item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is included in the general cost of the work.

4. The cutting of bituminous concrete pavement will be paid in accordance with 2.02.05.

5. Material for tack coat will be paid for at the Contract unit price per gallon at 60°F for "Material for Tack Coat."

6. The Material Transfer Vehicle (MTV) will be paid at the Contract unit price per ton for "Material Transfer Vehicle."

Pay Item	Pay Unit
HMA S*	ton
PMA S*	ton
Bituminous Concrete Adjustment Cost	est.
Material for Tack Coat	gal.
Material Transfer Vehicle	ton

SECTION 5.86 - CATCH BASINS, MANHOLES AND DROP INLETS

5.86.01—Description: The work under this Section shall consist of furnishing, preparing, and installing catch basins, manholes and drop inlets (and also the removal, abandonment, alteration, reconstruction, or conversion of such existing structures) in conformity with the lines, grades, dimensions and details shown on the plans.

This Section shall also include resetting or replacing catch basin tops as well as manhole frames and covers.

5.86.02—Materials: The materials for this work shall meet the following requirements:

Drainage structures shall meet the requirements of M.08.02 and shall utilize concrete with a 28-day minimum compressive strength of 4000 psi.

Galvanizing shall meet the requirements of M.06.03.

Mortar shall meet the requirements of M.11.04.

Butyl rubber joint seal shall meet the requirements of ASTM C990.

Granular fill, if necessary, shall meet the requirements of M.02.01.

Protective compound material shall be a type appearing on the Department's Qualified Products List and be acceptable to the Engineer, as specified in M.03.09.

5.86.03—Construction Methods: Drainage trench excavation, including rock in drainage trench excavation and backfilling, shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where a drainage structure is to be installed below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the proposed drainage structure or to ensure a uniform foundation for the structure.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with approved granular fill, thoroughly compacted in lifts not to exceed 6 inches. The Engineer shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.

When a drainage structure outside of proposed drainage trench limits is to be removed, it shall be completely removed and all pipes shall be removed or plugged with cement masonry.

When a drainage structure is to be abandoned, the structure shall be removed to a depth 2 feet below the subgrade or as directed by the Engineer. The floor of the structure shall be broken and all pipes shall be plugged with cement masonry.

Drainage structures shall be constructed in accordance with the plans and the requirements contained herein for the character of the work involved. The provisions of 6.02.03 pertaining to bar reinforcement shall apply except that shop drawings need not be submitted for approval unless called for in the plans, Contract or directed by the Engineer. Welding shall be performed in accordance with the applicable sections of the AWS Structural Welding Code, D1.1.

When it becomes necessary to increase the horizontal dimensions of manholes, catch basins and drop inlets to sizes greater than those shown on the plans in order to provide for multiple pipe installations, large pipes or for other reasons, the Contractor shall construct such manholes, catch basins and drop inlets to modified dimensions as directed by the Engineer.

The surfaces of the tops of all catch basins, and drop inlets shall be given a coat of protective compound material, at the manufacturer's recommended application rate, immediately upon completion of the concrete curing period.

All masonry units shall be laid in full mortar beds.

Metal fittings for catch basins, manholes or drop inlets shall be set in full mortar beds or otherwise secured as shown on the plans.

All inlet and outlet pipes shall be set flush with the inside face of the wall of the drainage structure as shown on the plans. The pipes shall extend through the walls for a sufficient distance beyond the outside surface to allow for satisfactory connections, and the concrete or masonry shall be constructed around them neatly to prevent leakage along their outer surfaces.

When constructing a new drainage structure within a run of existing pipe, the section of existing pipe disturbed by the construction shall be replaced with new pipe of identical type and size extending from the drainage structure to the nearest joint of the existing pipe in accordance with 6.86.03 or as directed by the Engineer.

Backfilling shall be performed in accordance with 2.86.03.

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 frames, covers and tops shall be reset as shown on the plans or as directed by the Engineer.

5.86.04—Method of Measurement:

Drainage Trench Excavation: In accordance with 2.86.04, excavation for drainage trench will not be measured for payment but shall be included in the Contract unit price for the type of structure being installed.

Rock in Drainage Trench Excavation: Rock in Drainage Trench Excavation will be measured in accordance with the drainage trench excavation limits described in 2.86.03.

Manholes, Catch Basins and Drop Inlets will be measured as separate units.

Resetting of Manholes, Catch Basins and Drop Inlets will be measured as separate units.

Replacement of frames, covers, and tops will be measured as a unit for catch basin top or manhole frame and cover.

Conversion of drainage structures as specified on the plans, or as directed by the Engineer, including structure reconstruction will be measured for payment as a unit.

Removal or abandonment of drainage structures outside of drainage trench excavation limits, as defined in 2.86.03, will be measured as separate units.

There will be no measurement or direct payment for the application of the protective compound material, the cost of this work shall be considered as included in the general cost of the work.

Measurement for payment for work and materials involved with installing pipes to connect new drainage structures into a run of existing pipe will be as provided for under the applicable Contract items in accordance with 6.86.04.
There will be no measurement or direct payment for plugging existing pipes with cement masonry, the cost of this work will be considered as included in the general cost of the work.

5.86.05—Basis of Payment:

Drainage Trench Excavation for the installation of proposed structures described herein will be paid for under the respective drainage Contract item(s) for which the excavation is being performed, in accordance with the provisions of 2.86.05.

Rock in Drainage Trench Excavation will be paid for in accordance with the provisions of 2.86.05.

Manholes and Catch Basins will be paid for at the Contract unit price for each "Manhole," or "Catch Basin," of the type specified, at "0' to 10' Deep" or "0' to 20' Deep," complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

Drop Inlets will be paid for at the Contract unit price for each "Drop Inlet," of the type specified, complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

Manholes, Catch Basins and Drop Inlets constructed to modified dimensions as directed by the Engineer, will be paid for as follows:

Where the interior floor area has to be increased to accommodate existing field conditions, as measured horizontally at the top of the base of the completed structure, and does not exceed 125% of the interior floor area as shown on the plans for that structure, then the structure shall be paid for at the Contract unit price for each "Manhole," "Catch Basin," or "Drop Inlet" of the type specified. Where the floor area is greater than 125%, the increase in the unit price for the individual structure shall be in direct proportion to the increase of the completed structure interior floor area as compared to the interior floor area as shown on the plans for that structure. Such increased unit price shall include all excavation, materials, equipment, tools, and labor incidental to the completion of the structure.

Reset Units will be paid for at the Contract unit price each for "Reset Manhole," "Reset Catch Basin," or "Reset Drop Inlet," of the type specified, respectively, complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement structure, and all materials, equipment, tools and labor incidental thereto, except when the work requires reconstruction greater than 3 feet, measured vertically, then the entire cost of resetting the unit will be paid for as Extra Work in accordance with the provisions of 1.04.05.

Frames, Covers, and Tops when required in connection with reset units, will be paid for at the Contract unit price each for such "Manhole Frame and Cover" or "(Type) Catch Basin Top," complete in place, including all incidental expense; or when no price exists, the furnishing and placing of such material will be paid for as Extra Work in accordance with the provisions of 1.04.05.

When the catch basin top has a stone or granite curb in its design, the curb or inlet shall be included in the cost of the "(Type) Catch Basin Top."

Conversion of drainage structures will be paid for at the Contract unit price each for "Convert Catch Basin to (Type) Catch Basin," "Convert Catch Basin to (Type) Manhole," or "Convert Manhole to (Type) Catch Basin," complete in place, which price shall include

excavation, cutting of pavement, removal and replacement of pavement, backfill, all alterations to existing structure, all materials including catch basin frame and grate of the type specified, or manhole frame and cover, all equipment, tools and labor incidental thereto.

The maximum change in elevation of frame under these items shall not exceed 3 feet. Greater depth changes, if required, shall be paid for as Extra Work, in accordance with 1.04.05.

Removal or abandonment of drainage structures outside of drainage trench excavation limits as defined in 2.86.03 will be paid for at the Contract unit price each for "Remove Drainage Structure – 0' to 10' Deep," "Remove Drainage Structure – 0' to 20' Deep," or "Abandon Drainage Structure," which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, and all equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
(Type) Catch Basin – 0' to 10' Deep	ea.
(Type) Catch Basin – 0' to 20' Deep	ea.
Manhole (Size) – 0' to 10' Deep	ea.
Manhole (Size) – 0' to 20' Deep	ea.
(Type) Drop Inlet	ea.
Reset Catch Basin	ea.
Reset Manhole	ea.
Reset Drop Inlet	ea.
Convert Catch Basin to (Type) Catch Basin	ea.
Convert Catch Basin to (Type) Manhole	ea.
Convert Manhole to (Type) Catch Basin	ea.
Manhole Frame and Cover	ea.
(Type) Catch Basin Top	ea.
Remove Drainage Structure – 0' to 10' Deep	ea.
Remove Drainage Structure – 0' to 20' Deep	ea.
Abandon Drainage Structure	ea.

SECTION 6.86 - DRAINAGE PIPES, DRAINAGE PIPE ENDS

6.86.01—Description
6.86.02—Materials
6.86.03—Construction Methods
6.86.04—Method of Measurement
6.86.05—Basis of Payment

6.86.01—Description: This work shall consist of furnishing, preparing and installing drainage pipes of the size and type specified, bedding material, joint sealant, rubber gaskets, clamps, collars, grout, grout collars, drainage trench excavation, backfilling or satisfactory disposal of all materials, the removal of which is necessary for the proper completion of the work, connecting proposed drainage systems to existing systems, plugging or abandoning existing pipes and removal of existing pipe within trench limits, as shown on the plans or as directed by the Engineer.

This Section shall also include removal of drainage pipes outside of drainage trench excavation limits, as defined in 2.86.03-1.

6.86.02—Materials: The materials for this work shall meet the following requirements:

Drainage Pipe, Drainage Pipe Ends, Sealers, Gaskets and connection hardware shall meet the requirements of M.08.01.

Bedding Material shall meet the requirements of M.08.03-1.

Granular Fill, if necessary, shall meet the requirements of M.02.01.

Brick Masonry shall meet the requirements of M.11.03 and Mortar shall meet the requirements of M.11.04.

Concrete used for Concrete Pipe Connections shall be Class "F" Concrete meeting the requirements of M.03.

6.86.03—Construction Methods:

(1) Drainage Trench Excavation: Drainage trench excavation and backfilling shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where drainage pipe is to be laid below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the bedding material.

Where drainage pipe is to be laid in a fill area, the embankment shall be placed and compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

(2) Rock in Drainage Trench Excavation: When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.

(3) Drainage Pipe Installation: New or re-laid drainage pipes shall be installed on 4 inches of bedding material (12 inches if over rock in ledge formation), the details as shown on the plans, or as directed by the Engineer. Prior to placement of the drainage pipe, in accordance with the plans, bedding material shall be pre-shaped to 10% of the total height of the pipe in order to keep the pipe in the center of the trench. Following placement of the

drainage pipe, bedding material backfill shall be placed in accordance with the following table:

Internal Pipe Diameter	**Required Bedding Material Backfill**
< 48 inches*	25% of total height of the pipe
≥ 48 inches*	12 inches above the top of the pipe
*Includes pipe arch of equivalent internal horizontal span See Standard Drawing	

The placement of the drainage pipe shall start at the downstream end and progress upstream or as shown on the plans, or as directed by the Engineer. All drainage pipes shall be carefully laid in the center of the drainage trench, true to the lines and grades given. Bell ends shall face upgrade and all joints shall be tight.

Joints in concrete pipe shall be sealed with cold-applied bituminous sealer, preformed plastic gaskets or flexible, watertight, rubber-type gaskets. Portland cement mortar shall not be used for sealing pipe joints except with permission of the Engineer.

When cold-applied bituminous sealer is used, the bell and spigot ends shall be wiped clean and dry before applying the bituminous sealer to the pipe ends. Before the drainage pipes are placed in contact with each other, the spigot or tongue end shall be completely covered with bituminous sealer; then the pipe shall be laid to line and grade so the inside surface of all abutting pipes are flush. Additional bituminous sealer shall be applied to the joint after the connection has been made to ensure a water tight connection.

Where the end of an existing drainage pipe is not compatible with the end of a proposed concrete pipe, the Contractor shall align the inner diameters of the pipes being connected, butt the pipe ends together, and construct a cast-in-place concrete pipe connection, as shown in the plans. Incompatible bell/spigot or tongue/groove ends shall be cut off as required to ensure the interior drainage pipe walls are aligned to provide a smooth transition between the pipes.

Metal pipe and pipe arches shall be carefully joined and firmly clamped together by approved connecting bands, which shall be properly bolted in place before any backfill is placed.

Newly installed drainage pipe which is not in true alignment, or which shows any settlement or distortion, shall be reinstalled in accordance with 1.05.03.

When drainage pipe outside of proposed drainage trench limits is to be removed, it shall be removed to the limits shown on the plans and all remaining pipes shall be plugged with cement masonry.

Where shown on the plans or directed by the Engineer, the Contractor shall plug abandoned existing pipes with cement masonry.

(4) Drainage Pipe End Installation: Reinforced concrete drainage pipe ends shall be placed on a prepared bed of the existing ground and accurately aligned as shown on the plans. The joints shall be sealed as specified in 6.86.03-3 and backfill shall be placed around both sides of the unit simultaneously to the elevation shown on the plans.

Metal drainage pipe ends shall be placed on a prepared bed of the existing ground and accurately aligned as shown on the plans. After the attachment of the drainage pipe end, backfill shall be placed around both sides of the unit up to the elevation shown on the plans, exercising caution to avoid displacement or deformation of the unit.

6.86.04—Method of Measurement: This work will be measured as follows:

Drainage Trench Excavation, in accordance with 2.86.04, will not be measured for payment.

Rock in Drainage Trench Excavation will be measured in accordance with 2.86.04.

Bedding Material will not be measured for payment.

New and Re-laid Pipes and Pipe Arches will be measured for payment by the actual number of linear feet of pipe or pipe arch of the various sizes and types, completed and accepted and measured in place along the invert. Coupling bands and fittings for pipes and pipe arches will not be measured for payment.

Reinforced Concrete Drainage Pipe Ends and Metal Drainage Pipe Ends will be measured for payment as separate units.

Corrugated Metal Pipe Elbows (of the Size and Type specified) will be measured for payment by the actual number of linear feet of pipe elbows completed and accepted, based on 6 linear feet per elbow, as shown on the plans. Coupling bands for elbows will not be measured for payment.

Concrete Pipe Connection will be measured for payment by the number of each concrete pipe connection constructed at locations where proposed concrete pipes tie into an existing pipe with an incompatible end, completed and accepted by the Engineer.

Removal of drainage pipe outside of drainage trench excavation limits, as defined in 2.86.03, will be measured for payment by the actual number of linear feet of drainage pipe removed.

There will be no measurement for plugging existing pipes with cement masonry.

6.86.05—Basis of Payment:

Drainage Trench Excavation for the installation of drainage pipes will not be paid separately but shall be included in the Contract unit price for the respective drainage pipe or pipe end item(s), in accordance with the provisions of 2.86.05.

Rock in Drainage Trench Excavation will be paid for in accordance with the provisions of 2.86.05.

Bedding Material necessary for the installation of drainage items described herein will be included in the Contract unit price for the respective drainage pipe or pipe end item(s). Bedding material required to fill voids when rock in drainage trench is encountered will not be measured for payment but shall be included in the Contract unit price for "Rock in Drainage Trench Excavation," in accordance with 2.86.05.

New Pipes and Pipe Arches will be paid for at the Contract unit price per linear foot for "(Size and Type) Pipe (Thickness) – 0' to 10' Deep," "(Size and Type) Pipe (Thickness) – 0' to 20' Deep," "(Size) Pipe Arch (Thickness) – 0' to 10' Deep" or "(Size) Pipe Arch (Thickness) – 0' to 20' Deep" complete in place, including materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Relaid Pipes and Pipe Arches will be paid for at the Contract unit price per linear foot for "Relaid Pipe (Size and Type) – 0' to 10' Deep," "Re-laid Pipe (Size and Type) – 0' to 20' Deep," "Relaid Pipe Arch (Size and Type) – 0' to 10' Deep," or "Relaid Pipe Arch (Size and Type) – 0' to 20' Deep," complete in place, including all materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Reinforced Concrete Drainage Pipe Ends and Metal Drainage Pipe Ends will be paid for at the Contract unit price for each drainage pipe end of the Size and Type specified, complete in place, including all excavation, materials, attachment systems, equipment, tools and labor incidental thereto.

Corrugated Metal Pipe Elbows will be paid for at the Contract unit price per linear foot for "(Size and Type) Corrugated Metal Pipe Elbow" including all materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Concrete Pipe Connection will be paid for at the Contract unit price each for "Concrete Pipe Connection" complete in place, including all materials, equipment, tools and labor incidental thereto.

Removal of drainage pipes of all types and sizes, outside of drainage trench excavation limits, as defined in 2.86.03-1, will be paid for at the Contract unit price per linear foot for "Remove Existing Pipe – 0' to 10' Deep," or "Remove Existing Pipe – 0' to 20' Deep," which price shall include excavation, temporary trench protection, backfill, and all equipment, tools and labor incidental thereto.

There will be no direct payment for the plugging of existing drainage pipes, but the cost thereof shall be included in the respective drainage Contract item(s).

Pay Item	Pay Unit
(Size and Type) Pipe (Thickness) – 0' to 10' Deep	l.f.
(Size and Type) Pipe (Thickness) – 0' to 20' Deep	l.f.
(Size and Type) Pipe Arch (Thickness) – 0' to 10' Deep	l.f.
(Size and Type) Pipe Arch (Thickness) – 0' to 20' Deep	l.f.
Relaid (Size and Type) Pipe– 0' to 10' Deep	l.f.
Relaid (Size and Type) Pipe– 0' to 20' Deep	l.f.
(Size and Type) Relaid Pipe Arch – 0' to 10' Deep	l.f.
(Size and Type) Relaid Pipe Arch – 0' to 20' Deep	l.f.
(Size) Reinforced Concrete Drainage Pipe End	ea.
(Size) Metal Drainage Pipe End	ea.
(Size and Type) Corrugated Metal Pipe Elbow	l.f.
Concrete Pipe Connection	ea.
Remove Existing Pipe – 0' to 10' Deep	l.f.
Remove Existing Pipe – 0' to 20' Deep	l.f.

SECTION M.04 - BITUMINOUS CONCRETE

Section M.04 is being deleted in its entirety and replaced with the following:

M.04.01—Bituminous Concrete Materials and Facilities
M.04.02—Mix Design and Job Mix Formula (JMF) M.04.03—Production Requirements

NOTE: This is not a Connecticut Department of Transportation (CDOT) project, so there will be no testing by CDOT for this project. All references regarding CDOT testing shall be deleted and replaced with the material producers and/or supplier's requirements, specifications and procedures. Bituminous Concrete shall be tested and inspected as ordered by the Engineer, Owner or his representatives.

Only bituminous concrete material from CDOT approved producers and/or suppliers shall be used on this project.

M.04.01 —Bituminous Concrete Materials and Facilities: Each source of material, and facility or plant used to produce and test bituminous concrete must be qualified on an annual basis by the Engineer. Test Procedures and Specifications referenced herein are in accordance with the latest AASHTO and ASTM Standard Test Procedures and Specifications. Such references when noted with an (M) have been modified by the Engineer and are detailed in Table M.04.03-7.

The Contractor shall submit to the Engineer all sources of coarse aggregate, fine aggregate, mineral filler, PG binder, and if applicable any additives such as but not limited to anti-strip, warm mix, and polymer modifiers. The Contractor shall submit a Safety Data Sheet (SDS) for each grade of binder, and additive to be used on the Project. The Contractor shall not change any material sources without prior approval of the Engineer.

An adequate quantity of each size aggregate, mineral filler, bitumen, and additives, shall be maintained at the bituminous concrete plant site at all times while the plant is in operation to ensure that the plant can consistently produce bituminous concrete mixtures that meet the job mix formula (JMF) as specified in Article M.04.02. The quantity of such material shall be reviewed by the Engineer on an individual plant basis and is dependent upon the plant's daily production capacity. A total quantity of any material on site that amounts to less than one day's production capacity may be cause for the job mix formula to be rejected.

1. Coarse Aggregate:

a. Requirements: The coarse aggregate shall consist of clean, hard, tough, durable fragments of crushed stone or crushed gravel of uniform quality. Aggregates from multiple sources of supply must not be mixed or stored in the same stockpile.

b. Basis of Approval: The request for approval of the source of supply shall include a washed sieve analysis in accordance with AASHTO T 27. The Gsa, Gsb, and Pw_a shall be determined in accordance with AASHTO T 85. The coarse aggregate must not contain more than 1% crusher dust, sand, soft disintegrated pieces, mud, dirt, organic and other injurious materials. When tested for abrasion using AASHTO T 96, the aggregate lossmust not exceed 40%. When tested for soundness using AASHTO T 104 with a magnesium sulfate solution, the coarse aggregate must not have a loss exceeding 10% at the end of 5 cycles.

For all bituminous mixtures, materials shall also meet the coarse aggregate angularity criteria as specified in Tables M.04.02-2 thru M.04.02-4 for blended aggregates retained on the #4 sieve when tested according to ASTM D 5821. The amount of aggregate particles of the coarse aggregate blend retained on the #4 sieve that are flat and elongated shall be determined in accordance with ASTM D 4791 and shall not exceed 10% by weight when tested to a 5:1 ratio, as shown in Tables M.04.02-2 thru M.04.02-4.

2. Fine Aggregate:

a. Requirements: The fine aggregate from each source quarry/pit deposit shall consist of clean, hard, tough, rough-surfaced and angular grains of natural sand; manufactured sand prepared from washed stone screenings; stone screenings, slag or gravel; or combinations thereof, after mechanical screening or manufactured by a process approved by the Engineer. The Contractor is prohibited from mixing two or more sources of fine aggregate on the ground for the purpose of feeding into a plant.

All fine aggregate shall meet the listed criteria shown in items #1 thru #7 of Table M.04.01-1. Table M.04.01-1 indicates the quality tests and criteria required for all fine aggregate sources. Individually approved sources of supply shall not be mixed or stored in the same stockpile. The fine aggregates must be free from injurious amounts of clay, loam, and other deleterious materials.

TABLE M.04.01-1: Fine Aggregate Criteria by Pit/Quarry Source

Item	Title	AASHTO Protocol(s)	Criteria
1	Grading	T 27 & T 11	100% Passing 3/8 inch 95% Passing the #4 min.
2	Absorption	T 84	3% maximum
3	Plasticity limits	T 90	0 or not detectable
4	L.A. Wear	T 96	50% maximum(fine agg. particle size # 8 and above)
5	Soundness by Magnesium Sulfate	T 104	20% maximum @ 5 cycles
6	Clay Lumps and Friable Particles	T 112	3% maximum
7	Deleterious Material	As determined by the Engineer	Organic or inorganic calcite, hematite, shale, clay or clay lumps, friable materials, coal-lignite, shells, loam, mica, clinkers, or organic matter (wood, etc.). -Shall not contain more than 3% by mass of any individual listed constituent and not more than 5% by mass in total of all listed constituents.
8	Petrographic Analysis	ASTM C 295	Terms defined in Section M.04.01-2c.

b. Basis of Approval: A Quality Control Plan for Fine Aggregate (QCPFA) provided by the Contractor shall be submitted for review and approval for each new source documenting how conformance to Items 1 through 7 as shown in Table M.04.01-1 is monitored. The QCPFA must be resubmitted any time the process, location or manner of how the fine aggregate (FA) is manufactured changes, or as requested by the Engineer. The QCPFA must include the locations and manufacturing processing methods. The QCPFA for any source may be suspended by the Engineer due to the production of inconsistent material.

The Contractor shall submit all test results to the Engineer for review. The Contractor shall also include a washed sieve analysis in accordance with AASHTO T 27/T 11. Any fine aggregate component or final combined product shall have 100% passing the 3/8 inch sieve and a minimum of 95% passing the # 4. The Gsa, Gsb, and Pw_a shall be determined in accordance with AASHTO T 84.

The Contractor will be notified by the Engineer if any qualified source of supply fails any portion of Table M.04.01-1. One retest will be allowed for the Contractor to make corrections and/or changes to the process. If, upon retest, the material does not meet the requirements of items 1-7, additional testing will be required in accordance with item 8.

The Contractor may provide a Petrographic analysis of the material performed by a third party acceptable to the Engineer at its' own expense. The Contractor shall submit the results of the analysis with recommended changes to the manufacturing process to the Engineer. The Contractor shall submit fine aggregate samples for testing by the Engineer after the recommended changes have been made.

The Contractor may request the use of such fine aggregate on select project(s) for certain applications of bituminous concrete pavement. Such material will be monitored for a period no less than 48 months, at no cost to the State. Terms of any evaluation and suitable application will be determined by the Engineer.

3. Mineral Filler:

a. Requirements: Mineral filler shall consist of finely divided mineral matter such as rock dust, including limestone dust, slag dust, hydrated lime, hydraulic cement, or other accepted mineral matter. At the time of use it shall be freely flowing and devoid of agglomerations. Mineral filler shall be introduced and controlled at all times during production in a manner acceptable to the Engineer.

b. Basis of Approval: The request for approval of the source of supply shall include the location, manufacturing process, handling and storage methods for the material. Mineral filler shall conform to the requirements of AASHTO M 17.

4. Performance Graded Asphalt Binder:

a. General:

i Liquid PG binders shall be uniformly mixed and blended and be free of contaminants such as fuel oils and other solvents. Binders shall be properly heated and stored to prevent damage or separation.

ii. The blending at mixing plants of PG binder from different suppliers is strictly prohibited. Contractors who blend PG binders will be classified as a supplier and will be required to certify the binder in accordance with AASHTO R 26(M). The binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29. The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R 26(M). The Certified Test Report must also indicate the binder specific gravity at 77ºF; rotational viscosity at 275ºF and 329ºF and the mixing and compaction viscosity- temperature chart for each

shipment.

iii. The Contractor shall submit the name(s) of personnel responsible for receipt, inspection, and record keeping of PG binder materials. Contractor plant personnel shall document specific storage tank(s) where binder will be transferred and stored until used, and provide binder samples to the Engineer upon request. The person(s) shall assure that each shipment (tanker truck) is accompanied by a statement certifying that the transport vehicle was inspected before loading and was found acceptable for the material shipped and that the binder will be free of contamination from any residual material, along with two (2) copies of the bill of lading.

iv. Basis of Approval: The request for approval of the source of supply shall list the location where the material will be manufactured, and the handling and storage methods, along with necessary certification in accordance with AASHTO R 26(M). Only suppliers/refineries that have an approved "Quality Control Plan for Performance Graded Binders" formatted in accordance with AASHTO R 26(M) will be allowed to supply PG binders to Department projects.

b. Neat Performance Grade (PG) Binder:

i. PG binder shall be classified by the supplier as a "Neat" binder for each lot and be so labeled on each bill of lading. Neat PG binders shall be free from modification with: fillers, extenders, reinforcing agents, adhesion promoters, thermoplastic polymers, acid modification and other additives such as re-refined motor oil, and shall indicate such information on each bill of lading and certified test report.

ii. The asphalt binder shall be PG 64S-22.

c. Modified Performance Grade (PG) Binder:

Unless otherwise noted, the asphalt binder shall be Performance Grade PG 64E-22 asphalt modified solely with a Styrene-Butadiene-Styrene (SBS) polymer. The polymer modifier shall be added at either the refinery or terminal and delivered to the bituminous concrete production facility as homogenous blend. The stability of the modified binder shall be verified in accordance with ASTM D7173 using the Dynamic Shear Rheometer (DSR). The DSR $G^*/\sin(\delta)$ results from the top and bottom sections of the ASTM D7173 test shall not differ by more than 10%. The results of ASTM D7173 shall be included on the

Certified Test Report. The binder shall meet the requirements of AASHTO M 332 (including Appendix X1) and AASHTO R 29.

d. Warm Mix Additive or Technology:

i. The warm mix additive or technology must be listed on the NEAUPG Qualified Warm Mix Asphalt (WMA) Technologies List at the time of bid, which may be accessed online at http://www.neaupg.uconn.edu/wma_info.html.

ii. The warm mix additive shall be blended with the asphalt binder in accordance with the manufacturer's recommendations.

iii. The blended binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29 for the specified binder grade. The Contractor shall submit a Certified Test Report showing the results of the testing demonstrating the binder grade. In addition, it must include the grade of the virgin binder, the brand name of the warm mix additive, the manufacturer's suggested rate for the WMA additive, the water injection rate (when applicable) and the WMA Technology manufacturer's recommended mixing and compaction temperature ranges.

5. Emulsified Asphalts:

a. General:

i. Emulsified asphalts shall be homogeneous and be free of contaminants such as fuel oils and other solvents. Emulsions shall be properly stored to prevent damage or separation.

ii. The blending at mixing plants of emulsified asphalts from different suppliers is strictly prohibited. Contractors who blend emulsified asphalts will be classified as a supplier and will be required to certify the emulsion in accordance with AASHTO PP 71. The emulsified asphalt shall meet the requirements of AASHTO M 140(M) or AASHTO M 208 as applicable.

b. Supplier Approval:

i. The request for approval of the source of supply shall list the location where the material is manufactured, the handling and storage methods, and certifications in accordance with AASHTO PP 71. Only suppliers that have an approved "Quality Control Plan for Emulsified Asphalt" formatted in accordance with

AASHTO PP 71 will be allowed to supply emulsified asphalt to Department projects.

ii. The supplier shall submit to the Division Chief a Certified Test Report representing each lot in accordance with AASHTO PP 71. The Certified Test Report shall include test results for each specified requirement for the grade delivered and shall also indicate the density at 60ºF. Additionally, once a month one split sample for each emulsified asphalt grade shall be submitted.

c. Basis of Approval

i. Each shipment of emulsified asphalt delivered to the project site shall be accompanied with the corresponding SDS and Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon at 60°F.

ii. Anionic emulsified asphalts shall conform to the requirements of AASHTO M-140(M). Materials used for tack coat shall not be diluted and meet grade RS-1 or RS-1H. When ambient temperatures are 80˚F and rising, grade SS-1 or SS-lH may be substituted if permitted by the Engineer.

iii. Cationic emulsified asphalt shall conform to the requirements of AASHTO M-208. Materials used for tack coat shall not be diluted and meet grade CRS-1. The settlement and demulsibility test will not be performed unless deemed necessary by the Engineer. When ambient temperatures are 80˚F and rising, grade CSS-1 or CSS-lh may be substituted if permitted by the Engineer.

6. Reclaimed Asphalt Pavement (RAP):

a. Requirements: RAP shall consist of asphalt pavement constructed with asphalt and aggregate reclaimed by cold milling or other removal techniques approved by the Engineer. For bituminous concrete mixtures containing RAP, the Contractor shall submit a JMF in accordance with Article M.04.02 to the Engineer for review.

b. Basis of Approval: The RAP material will be accepted on the basis of one of the following criteria:

i. When the source of all RAP material is from pavements previously constructed on Department projects, the Contractor shall provide a materials certificate listing the detailed locations and lengths of those pavements and that the RAP is only from those locations listed.

ii. When the RAP material source or quality is not known, the Contractor shall test the material and provide the following information along with a request for approval to the Engineer at least 30 calendar days prior to the start of the paving operation. The request shall include a material certificate stating that the RAP consists of aggregates that meet the specification requirements of sub articles M.04.01-1 through 3 and that the binder in the RAP is substantially free of solvents, tars and other contaminants. The Contractor is prohibited from using unapproved material on Department projects and shall take necessary action to prevent contamination of approved RAP stockpiles. Stockpiles of unapproved material shall remain separate from all other RAP materials at all times. The request for approval shall include the following:

1. A 50-pound sample of the RAP to be incorporated into the recycled mixture.
2. A 25-pound sample of the extracted aggregate from the RAP.
3. A statement that RAP material has been crushed to 100% passing the ½ inch sieve and remains free from contaminants such as joint compound, wood, plastic, and metals.

7. Crushed Recycled Container Glass (CRCG):

a. Requirements: The Contractor may propose to use clean and environmentally-acceptable CRCG in an amount not greater than 5% by weight of total aggregate.

Basis of Approval: The Contractor shall submit to the Engineer a request to use CRCG. The request shall state that the CRCG contains no more than 1% by weight of contaminants such as paper, plastic and metal and conform to the following gradation:**CRCG Grading Requirements**

Sieve Size	Percent Passing
3/8-inch	100
No. 4	35-100
No. 200	0.0-10.0

8. Joint Seal Material:

a. Requirements: Joint seal material shall be a hot-poured rubber compound intended for use in sealing joints and cracks in bituminous concrete pavements. Joint seal material must meet the requirements of ASTM D 6690 – Type 2.

9. Recycled Asphalt Shingles (RAS)

a. Requirements: RAS shall consist of processed asphalt roofing shingles from post- consumer asphalt shingles or from manufactured shingle waste. The RAS material under consideration for use in bituminous concrete mixtures must be certified as being asbestos free and shall be entirely free of whole, intact nails. The RAS material shall meet the requirements of AASHTO MP 23.

The producer shall test the RAS material to determine the asphalt content and the gradation of the RAS material. The producer shall take necessary action to prevent contamination of RAS stockpiles.

10. Plant Requirements:

a. Mixing Plant and Machinery: The mixing plant used in the preparation of the bituminous concrete shall comply with AASHTO M 156/ASTM D 995 for a Batch Plant or a Drum Dryer Mixer Plant, and be approved by the Engineer.

b. Storage Silos: For all mixes, the Contractor may use silos for short-term storage of mixtures with prior notification and approval of the Engineer. A silo must have heated cones and an unheated silo cylinder if it does not contain a separate internal heating system. Prior approval must be obtained for storage times greater than those indicated. When multiple silos are filled, the Contractor shall discharge one silo at a time. Simultaneous discharge of multiple silos is not permitted.

Type of silo cylinder	Maximum storage time for all classes (hr)
Open Surge	4 Mfg Recommendations
Unheated – Non-insulated	8 Mfg Recommendations
Unheated – Insulated	18 Mfg Recommendations
Heated – No inert gas	TBD by the Engineer

c. Documentation System: The mixing plant documentation system shall include equipment for accurately proportioning the components of the mixture by weight and in the proper order, controlling the cycle sequence and timing the mixing operations. Recording equipment shall monitor the batching sequence of each component of the mixture and produce a printed record of these operations on each delivery ticket, as specified herein. Material feed controls shall be automatically or manually adjustable to provide proportions within

the tolerances listed below for any batch size.

d. An asterisk (*) shall be automatically printed next to any individual batch weight(s) exceeding the tolerances in ASTM D 995 section 8.7.3. The entire batching and mixing interlock cut-off circuits shall interrupt and stop the automatic batching operations when an error exceeding the acceptable tolerance occurs in proportioning.

   There must be provisions so that scales are not manually adjusted during the printing process. In addition, the system shall be interlocked to allow printing only when the scale has come to a complete rest. A unique printed character (m) shall automatically be printed on the truck and batch plant printout when the automatic batching sequence is interrupted or switched to auto-manual or full manual during proportioning. For each day's production, each project shall be provided a clear, legible copy of these recordings on each delivery ticket.

e. Aggregates: The Contractor shall ensure that aggregate stockpiles are managed to provide uniform gradation and particle shape, prevent segregation and cross contamination in a manner acceptable to the Engineer. For drum plants only, the Contractor shall determine the percent moisture content at a minimum, prior to production and half way through production.

f. Mixture: The dry and wet mix times shall be sufficient to provide proper coating (minimum 95% as determined by AASHTO T 195(M)) of all particles with bitumen and produce a uniform mixture.

   The Contractor shall make necessary adjustments to ensure all types of bituminous concrete mixtures contain no more than 0.5% moisture throughout when tested in accordance with AASHTO T 329.

g. RAP: The Contractor shall indicate the percent of RAP, the moisture content (as a minimum determined twice daily prior to production and halfway through production), and the net dry weight of RAP added to the mixture on each delivery ticket. For each day of production, the production shall conform to the job mix formula and RAP percentage and no change shall be made without the prior approval of the Engineer.

h. Asphalt Binder: The last day of every month, a binder log shall be submitted when the monthly production for the Department exceeds

5000 tons. Blending of PG binders from different suppliers or grades at the bituminous concrete production facility is strictly prohibited.

i. Warm mix additive: For mechanically foamed WMA, the maximum water injection rate shall not exceed 2.0% water by total weight of binder and the water injection rate shall be constantly monitored during production.

j. Field Laboratory: The Contractor shall furnish the Engineer an acceptable field laboratory at the production facility to test bituminous concrete mixtures during production. The field laboratory shall have a minimum of 300 square feet, have a potable water source and drainage in accordance with the CT Department of Public Health Drinking Water Division, and be equipped with all necessary testing equipment as well as with a PC, printer, and telephone with a dedicated hard-wired phone line. In addition, the PC shall have a high speed internet connection with a minimum upstream of 384 Kbps and a functioning web browser with unrestricted access to https://ctmail.ct.gov. This equipment shall be maintained in clean and good working order at all times and be made available for use by the Engineer.

The laboratory shall be equipped with a suitable heating system capable of maintaining a minimum temperature of 65°F. It shall be clean and free of all materials and equipment not associated with the laboratory. Windows shall be installed to provide sufficient light and ventilation. During summer months adequate cooling or ventilation must be provided so the indoor air temperature shall not exceed the ambient outdoor temperature. Light fixtures and outlets shall be installed at convenient locations, and a telephone shall be within audible range of the testing area. The laboratory shall be equipped with an adequate workbench that has a suitable length, width, and sampling tables, and be approved by the Engineer.

The quantity of all equipment and supplies necessary to perform the tests must be sufficient to initiate and complete the number of tests identified in Table M.04.03-2 for the quantity of mixture produced at the facility on a daily basis. The Contractor shall ensure that the Laboratory is adequately supplied at all times during the course of the project with all necessary testing materials and equipment.

The Contractor shall maintain a list of laboratory equipment used in the acceptance testing processes including but not limited to, balances, scales, manometer/vacuum gauge, thermometers, gyratory compactor, clearly showing calibration and/or inspection dates, in accordance with AASHTO R 18. The Contractor shall notify the Engineer if any modifications are made to the equipment within the field laboratory. The Contractor shall take immediate action to replace, repair, and/or recalibrate any piece of equipment that is out of calibration, malfunctioning, or not in operation.

M.04.02 —Mix Design and Job Mix Formula (JMF)

1. Curb Mix:

a. Requirements: When curb mix is specified, the Contractor shall develop a bituminous concrete mix design that includes a JMF consisting of target values for gradation, binder content and air voids as shown in Table M.04.02-1. The Contractor may use RAP in 5% increments up to a maximum of 30% provided a new JMF is accepted by the Engineer.

b. Basis of Approval: The Contractor shall submit to the Engineer a request for approval of the JMF annually in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF must be accepted by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

The Contractor shall test the mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T

209. If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced. An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the plant operation had been consistently producing acceptable mixture.

The Contractor shall not change sources of supply after a JMF has been accepted. Before a new source of supply for materials is used, a new JMF shall be submitted to the Engineer for approval.

TABLE M.04.02 – 1:
Master Ranges for Curb Mix Mixtures

Notes: (a) Compaction Parameter 50gyration N_{des}. (b) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder determined by AASHTO T 164 or AASHTO T 308.		
Mix	**Curb Mix**	**Production Tolerances from JMF target**
Grade of PG Binder content %	**PG 64S-22 6.5 - 9.0**	**0.4**
Sieve Size		
# 200	3.0 – 8.0 (b)	2.0
# 50	10 - 30	4
# 30	20 - 40	5
# 8	40 - 70	6
# 4	65 - 87	7
¼"		
3/8 "	95 - 100	8
½ "	100	8
¾"		8
1"		
2"		
Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%		
Mixture Temperature		
Binder	325°F maximum	
Aggregate	280-350° F	
Mixtures	265-325° F	
Mixture Properties		
VOIDS %	0 – 4.0 (a)	

2. Marshall Method - Class 1, 2, 3, 4, 5, 5A, 5B and 12:

a. Requirements: When specified, the Marshall method shall be employed to develop a bituminous concrete mix design that includes a JMF consisting of target values for gradation and bitumen content for each class of bituminous concrete designated for the

project in accordance with the latest Asphalt Institute's MS-2 manual. Each class of bituminous concrete must meet the requirements as shown in Table M.04.02-1.

b. Basis of Approval: The Contractor shall submit to the Engineer a request for approval of the JMF annually in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF and production percentage of bitumen must be accepted by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF and production percentage of bitumen for each class of mixture. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

The Engineer will test each class of mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T 209(M). If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced. All equipment, tests and computations shall conform to the Marshall method in accordance with AASHTO T 245(M).

An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the plant operation had been consistently producing acceptable mixture.

The Contractor shall not change sources of supply after a JMF has been accepted. Before a new source of supply for materials is used, a new JMF shall be submitted to the Engineer for approval.

c. Marshall Mixture (Virgin): For bituminous concrete mixtures that contain no recycled material, the limits prescribed in Table M.04.02-1 govern. The Contractor shall submit to the Engineer for approval, a JMF with the individual fractions of the aggregate expressed as percentages of the total weight of the mix and the source(s) of all materials. The JMF shall indicate two bitumen contents; the JMF target percentage and a production percentage (actual amount added to mix) of bitumen for each mix class by total weight. For surface course Class 1, a 0.45 power gradation chart shall also be submitted on which is plotted the percentage passing each sieve. The JMF shall

also indicate the target temperature of completed mixture as it is dumped from the mixer and tested in accordance with Article M.04.03.

d. Marshall Mixtures with RAP: In addition to subarticles M.04.02 – 1a through c, RAP in bituminous concrete shall comply with requirements stated in Article M.04.01, and as stated herein. Upon approval of the Engineer, a maximum of 15% RAP may be used with no binder grade modification. RAP material shall not be used with any other recycling option.
The Contractor may increase the RAP percentage in 5% increments up to a maximum of 30% provided a new JMF is accepted by the Engineer. The following information shall be included in the JMF submittal:

- Gradation and asphalt content of the RAP.
- Percentage of RAP to be used.
- Virgin aggregate source(s).
- Total binder content based on total mixture weight.
- Production pull percentage of added virgin binder based on total mixture weight.
- Gradation of combined bituminous concrete mixture (including RAP).
- Grade of virgin added, if greater than 15% of total mix weight.

e. Marshall Mixture with CRCG: In addition to subarticle M.04.02 – 1a through c, for bituminous concrete that contains CRCG, the Contractor shall submit a materials certificate to the Engineer stating that the mixture and its components comply with requirements stated in subarticle M.04.01 - (6). Additionally, 1% hydrated lime, or other accepted non- stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.

3. Cold Patch Method - Class 5, 5A, 5B:

a. Requirements: This mixture must be capable of being stockpiled and workable at all times. A non-stripping agent accepted by the Engineer shall be used in accordance with manufacturer's recommendations. The Contractor shall take necessary steps to ensure that this mixture uses aggregate containing no more than 1% moisture and is not exposed to any rain, snow, or standing water for a period of 6 hours after being mixed. This mixture shall be mixed and stockpiled at the point of production on a paved surface at a height not greater than 4 feet during the first 48 hours prior to its use.

i. Class 5A mixture shall have 3/8 to ½ inch polypropylene fibers

that have been approved by the Engineer added at a rate of 6 pounds per ton of mixture.

ii. Class 5B mixture shall have ¼ inch polyester fibers that have been approved by the Engineer added at the rate of 2 1/2 pounds per ton of mixture.

iii. Class 5 mixture shall not contain fibers.

b. Basis of Approval: The aggregates, fibers and binder (MC-250) shall meet the requirements as specified in sub articles M.04.01-1 through 4 and in Table M.04.02-1. The use of recycled material is not permitted with these classes of bituminous concrete. Mixtures not conforming to the binder content as shown in Table M.04.02-1 shall be subject to rejection. There is a two test minimum per day of production. Mixtures not conforming to the gradation as shown in Table M.04.02-1 shall be subject to payment adjustment as specified in Section 4.06.

TABLE M.04.02 – 1 MASTER RANGES FOR MARSHALL BITUMINOUS-CONCRETE MIXTURES

Notes: (a) 75 blow (Marshall Criteria). (b) 3-6% when used for a roadway wearing surface. (c) For divided highways with 4 or more lanes, a stability of 1500 lbs is required. (d) Contains an accepted non-stripping compound. (e) To help prevent stripping, the mixed material will be stockpiled on a paved surface and at a height not greater than 4 feet during the first 48 hours. (f) As determined by AASHTO T 245(M). (g) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder determined by AASHTO T 164 or AASHTO T 308(M). (h) Mixture with 5% or more aggregate retained on ¾" sieve. (i) Mixtures finer than condition (h) above. (j) Class 5 mixture shall contain no fibers. Class 5A mixture shall have 3/8 to ½ inch polypropylene fibers that have been previously accepted by the Engineer added at a minimum rate of 6 pounds per ton of mixture. Class 5B mixture shall have ¼ inch polyester fibers that have been previously accepted by the Engineer added at the minimum rate of 2 1/2 pounds per ton of mixture

CLASS	**1**	**2**	**3 (Curb Mix)**	**4**	**12**	**5 (e)(j)**	**5A (e)(j)**	**5B (e)(j)**	**JMF % Tol. (±)**
Grade of PG Binder content %	**PG 64-22 5.0 – 6.5**	**PG 64-22 5.0 – 8.0**	**PG 64-22 6.5 - 9.0**	**PG 64-22 4.0 - 6.0**	**PG 64-22 7.5 - 10.0**	**MC-250 (d) 6.0 - 7.5**	**MC-250 (d) 6.0 - 7.5**	**MC-250 (d) 6.0 - 7.5**	0.4
Sieve Size	**Percent Passing (%)**								
# 200	3.0 – 8.0 (g)	3.0 – 8.0 (g)	3.0 – 8.0 (g)	0.0 – 5.0 (g)	3.0 – 10.0 (g)	0.0 - 2.5	0 .0- 2.5	0.0 - 2.5	2.0
# 50	6 – 26	8 – 26	10 - 30	5 - 18	10 - 40				4
# 30	10 - 32	16 - 36	20 - 40		20 - 60	2 - 15	2 – 15	2 - 15	5
# 8	28 - 50	40 - 64	40 - 70	20 - 40	60 - 95	10 - 45	10 – 45	10 - 45	6
# 4	40 - 65	55 - 80	65 - 87	30 - 55	80 - 95	40 - 100	40 – 100	40 - 100	7
¼”									
3/8 “	60 - 82	90 - 100	95 - 100	42 - 66	98 - 100	100	100	100	8
½ “	70 - 100	100	100		100				8
¾”	90 - 100			60 - 80					8
1”	100								
2”				100					
Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%									
Mixture Temperature									
Binder	325°F maximum					140-185° F			
Aggregate	280-350° F					100-175° F			
Mixtures	**265-325° F**				**275-325°F**	**120-175° F**			**25 °F**
Mixture Properties									
VOIDS - %	3.0 – 6.0 (a)	2.0 – 5.0 (b)	0 – 4.0		0 - 5.0 (a)				
Stability (f) lbs. min.	1200 (c)	1000	1000		1000				
FLOW (f) in.	.08 - .15	.08 - .15	.08 - .18		.08 - .15				
VMA % - min.	15(h) :16 (i)								

M.04.03 — Production Requirements:

1. Standard Quality Control Plan (QCP) for Production:

The QCP for production shall describe the organization and procedures which the Contractor shall use to administer quality control. The QCP shall include the procedures used to control the production process, to determine when immediate changes to the processes are needed, and to implement the required changes. The QCP must detail the inspection, sampling and testing protocols to be used, and the frequency for each.

Control Chart(s) shall be developed and maintained for critical aspect(s) of the production process as determined by the Contractor. The control chart(s) shall identify the material property, applicable upper and lower control limits, and be updated with current test data. As a minimum, the following quality characteristics shall be included in the control charts: percent passing #4 sieve, percent passing #200 sieve, binder content, air voids, Gmm and VMA. The control chart(s) shall be used as part of the quality control system to document variability of the bituminous concrete production process. The control chart(s) shall be submitted to the Engineer the first day of each month.

The QCP shall also include the name and qualifications of a Quality Control Manager. The Quality Control Manager shall be responsible for the administration of the QCP, including compliance with the plan and any plan modifications.

The Contractor shall submit complete production testing records to the Engineer within 24 hours in a manner acceptable to the Engineer.

The QCP shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QCP must also include a list of sampling & testing methods and frequencies used during production, and the names of all Quality Control personnel and their duties.

Approval of the QCP does not imply any warranty by the Engineer that adherence to the plan will result in production of bituminous concrete that complies with these specifications. The Contractor shall submit any changes to the QCP as work progresses.

2. Acceptance Sampling & Testing Methods: Acceptance samples of mixtures shall be obtained from the hauling vehicles and tested by the Contractor at the facility during each day's production.

The hauling vehicle from which samples are obtained shall be selected using stratified – random sampling based on the total estimated tons of production in accordance with ASTM D 3665,

except that the first test shall be randomly taken from the first 151 tons or as directed by the Engineer.

The number of sub lots and tests required per sub lot is based on the total estimated tons of production per day as indicated in Table M.04.03-1. Quantities of the same type/level mix per plant may be combined daily for multiple state projects to determine the number of sub lots.

The payment adjustment for air voids and liquid binder will be calculated per sub lot as described in Section 4.06.

An acceptance test shall not be performed within 150 tons of production from a previous acceptance test unless approved by the Engineer. Quality Control tests are not subject to this restriction. Unless otherwise tested, a minimum of one (1) acceptance test shall be performed for every four days of production at a facility for each type/level mix (days of production may or may not be consecutive days).

The Contractor shall submit all acceptance tests results to the Engineer within 24 hours or prior to the next day's production. All acceptance test specimens and supporting documentation must be retained by the Contractor. Verification testing will be performed by the Engineer on the retained specimens in accordance with the Department's QA Program for Materials.

Should the Engineer be unable to verify the Contractor's acceptance test result(s) due to a failure of the Contractor to retain acceptance test specimens or supporting documentation, the Contractor shall review its quality control plan, determine the cause of the nonconformance and respond in writing within 24 hours to the Engineer describing the corrective action taken at the plant. In addition the Contractor must provide supporting documentation or test results to validate the subject acceptance test result(s). The Engineer may invalidate any positive adjustments for material corresponding to the acceptance test(s). Failure of the Contractor to adequately address quality control issues at a facility may result in suspension of production for the project at that facility.

Contractor personnel performing acceptance sampling and testing must be present at the facility prior to, and during production, and be certified as a NETTCP HMA Plant Technician or Interim HMA Plant Technician and be in good standing. Production of material for use on this project must be suspended by the Contractor if such personnel are not present.

Technicians found by the Engineer to be non-compliant with NETTCP or Department policies may be removed by the Engineer from participating in the acceptance testing process for this project until their actions can be reviewed.

Anytime during production that testing equipment becomes inoperable, production can continue for a maximum of 1 hour. The Contractor shall obtain box sample(s) in accordance with Table M.04.03-1 to satisfy the daily acceptance testing requirement for the quantity shipped to the

project. The box sample(s) shall be tested once the equipment issue has been resolved to the satisfaction of the Engineer. Production beyond 1 hour may be considered by the Engineer.

Production will not be permitted beyond that day until the subject equipment issue has been resolved.

Table M.04.03 – 1: Acceptance Testing Frequency per Type/Level/Plant

Daily quantity produced in tons (lot)	Number of Sub Lots/Tests
0 to 150	0, Unless requested by the Engineer
151 to 600	1
601 to 1,200	2
1,201 to 1,800	3
1,801 or greater	1 per 600 tons or portions thereof

i. Marshall Mix Acceptance Sampling and Testing Procedures: When the Marshall mix design is specified, the following acceptance procedures and AASHTO test methods shall be used:

Table M.04.03 – 2: Marshall Acceptance Test Procedures

Protocol	Reference	Description
1	**AASHTO T 30(M)**	Mechanical Analysis of Extracted Aggregate
2	**AASHTO T 40(M)**	Sampling Bituminous Materials
3	**AASHTO T 308(M)**	Binder content by Ignition Oven method (adjusted for aggregate correction factor)
4	**AASHTO T 245(M)**	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
5	**AASHTO T 209(M)**	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
6	**AASHTO T 269(M)**	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
7	**AASHTO T 329**	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

a. Cessation of Supply: Marshall Mix Production shall cease for the Project from any facility that consistently fails to produce mixture that meets the JMF and volumetric properties. The criteria for ceasing the supply of a class of mixture from any plant are as follows:

i. Off-Test Status: The results of AASHTO T 164 or AASHTO T 308(M) and T 30(M) will be used to determine if the mixture is within the tolerances shown in Table M.04.02-1. The Contractor will be notified that a plant is "off test" for a class of

mixture when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that class of mixture.

ii. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the "off test" adjusted payment.

iii. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF change on classes 1, 2, 3, 4 and 12 as allowed by the Engineer prior to any additional testing. A JMF change shall include the date and name of the Engineer that allowed it. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.

iv. The Engineer may cease supply of mixture from the plant when the test results from three non-consecutive samples of a class of mixture are not within the JMF tolerances or the test results from two non-consecutive samples not within the master range indicated in Table M.04.02-1 during any one production period, due to inconsistent production.

v. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

b. Adjustments for Off Test Mixture under Cessation of Supply: The bituminous concrete plant shall cease supplying to the project:

i. When the test results from three consecutive samples are "off test" and not within the JMF tolerances or,

ii. The test results from two consecutive samples are "off test" and not within the ranges indicated in Table M.04.02 – 1 or,

iii. When the percent of material passing the minus #200 sieve material exceeds the percent of extracted bitumen content for three consecutive samples during any production period of the values stated in Table M.04.02-1:
   a. The quantity of mixtures shipped to the project determined to be "off test" and outside the tolerances will be tabulated by the Engineer and will be adjusted in accordance with Section 4.06.
   b. Following cessation, a trial production period will be required at the plant for that class of mixture. Use of that class of mixture from that plant will be prohibited on the Project until the plant has demonstrated the ability to consistently produce acceptable mixture.
   c. When the Engineer has accepted the mixtures from the trial production period, the

use of that mixture on the Project may resume.

3. Curb Mix Acceptance Sampling and Testing Procedures:

Curb Mixes shall be tested by the Contractor at a frequency of one test per every 250 tons of cumulative production, regardless of the day of production.

When these mix designs are specified, the following acceptance procedures and AASHTO test methods shall be used:

TABLE M.04.03 – 2: Curb Mix Acceptance Test Procedures

Protocol	Reference	Description
1	**AASHTO T 30(M)**	Mechanical Analysis of Extracted Aggregate
2	**AASHTO T 168**	Sampling of Bituminous Concrete
3	**AASHTO T 308**	Binder content by Ignition Oven method (adjusted for aggregate correction factor)
4	**AASHTO T 209(M)**	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
5	**AASHTO T 329**	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

a. Determination of Off-Test Status:

i. The test results of AASHTO T 308 and T 30(M) will be used to determine if the mixture is within the tolerances shown in Table M.04.02-1. Curb Mixtures are considered “off test" when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that mixture. If the mix is “off test”, the Contractor must take immediate actions to correct the deficiency and a new acceptance sample shall be tested on the same day or the following day of production.

ii. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the “off test” status.

iii. The Engineer may cease supply from the plant when test results from three consecutive samples are not within the JMF tolerances or the test results from two consecutive samples not within the master range indicated in Table M.04.02-1 regardless of production date.

b. JMF Changes

i. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF change as allowed by the Engineer prior to any additional testing. A JMF change shall include the date and name of the Engineer that allowed it. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.

ii. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

TABLE M.04.03-7:

Modifications to Standard AASHTO and ASTM Test Specifications and Procedures

AASHTO Standard Specification	
Reference	**Modification**
M 140	Emulsified Asphalt grade RS-1H shall meet all the requirements of the emulsified asphalt grade RS-1 except for the penetration requirement of the residue that will change from 100 to 200 penetration units (0.1 mm) to 40 to 90 penetration units (0.1 mm).
M 320	1. Mass change for PG 64-22 shall be a maximum loss of 0.5% when tested in accordance with AASHTO T 240. 2. The two bottles used for the mass change determination may be re-heated and used for further testing.
AASHTO Standard Method of Test	
Reference	**Modification**
T 27	Section 7.7 Samples are not washed
T 30	Section 7.2 thru 7.4 Samples are not routinely washed for production testing
T 168	Samples are taken at one point in the pile. Samples from a hauling vehicle are taken from only one point instead of three as specified. Selection of Samples: Sampling is equally important as the testing, and the sampler shall use every precaution to obtain samples that are truly representative of the bituminous mixture. Box Samples: In order to enhance the rate of processing samples taken in the field by construction or maintenance personnel the samples will be tested in the order received and data processed to be determine conformance to material specifications and to prioritize inspections by laboratory personnel.
T 195	Section 4.3 only one truck load of mixture is sampled. Samples are taken from opposite sides of the load.
T 209	Section 7.2 The average of two bowls is used proportionally in order to satisfy minimum mass requirements. 8.3 Omit Pycnometer method.
T 283	When foaming technology is used, the material used for the fabrication of the specimens shall be cooled to room temperature, and then reheated to the manufactures recommended compaction temperature prior to fabrication of the specimens.
T 308	In addition to the standard testing procedure, the Department has adopted a procedure that addresses a correction factor that is calculated using the composite aggregate percentages (**C**omposite **A**ggregate **C**orrection **F**actor **M**ethod **(CACF)**). The aggregate is burned in compliance with the standard AASHTO procedure Method A exclusively. All modifications are listed for this method only. A2.2 and A2.3 Omit

	A2.4 Omit. Replace with: Determine an aggregate gradation for each aggregate component "blank" in accordance with T30. A2.5 Omit. Replace with: The individual aggregate samples are to be dried in an oven at a maximum temperature of 148 ± 5ºC (300 ± 9º F) to a constant weight. RAP samples are to be oven dried at a maximum temperature of 110 ± 5ºC (230 ± 9º F) to a constant weight. RAP samples will be burned for total binder content only and not to arrive at a correction factor for a mixture. A2.6 and A2.7 and A2.8 Omit. A2.8.1 Omit Note 2 A2.9 Omit. Replace with: Perform a gradation analysis on the residual aggregate in accordance with T30 and compare it to the gradation performed prior to burning. A2.9.1 and A2.9.2 Omit The correction factors for each size aggregate are provided by the Contractor to the Engineer prior to the Annual Plant Inspection. The Engineer may verify the correction factors. The Composite Aggregate Correction Factor (CACF) for any mixture may be calculated by summing the result of the correction factor for each individual aggregate multiplied by the percentage of that aggregate in the overall mixture. (Note: All correction factors must be re-calculated every time the percentage of any aggregate changes within the mixture.) If the average corrected Pb content from the ignition oven differs by 0.3% or more from the average bituminous concrete facility production weigh ticket in five (5) consecutive tests regardless of the production date (moving average), the Contractor shall immediately investigate, determine an assignable cause and correct the issue. When two consecutive moving average differences are 0.3% or more, the Engineer may require a new correction factor calculation for all the aggregate components in the mix. In addition to the standard testing procedure, the Department has adopted a procedure that addresses the time involved between sampling the hot-mix asphalt specimen and the beginning of the test. 6.3 Omit. Replace with: The test specimen must be ready to be placed in an approved ignition furnace for testing within ten minutes of being obtained from the hauling vehicle and the test shall start immediately after.
T 331	6.1 Cores are dried to a constant mass prior to testing using a core-dry machine.

AASHTO Standard Recommended Practices	
Reference	**Modification**
R 26	Quality Control Plans must be formatted in accordance with AASHTO R 26, certifying suppliers of performance-graded asphalt binders, Section 9.0, Suppliers Quality Control Plan, and "NEAUPG Model PGAB QC Plan." 1. The Department requires that all laboratory technician(s) responsible for testing PG-binders be certified or Interim Qualified by the New England Transportation Technician Certification Program (NETTCP) as a PG Asphalt Binder Lab Technician. 2. Sampling of asphalt binders should be done under the supervision of qualified technician. NECTP "Manual of Practice," Chapter 2 Page 2-4 (Key Issues 1-8). 3. All laboratories testing binders for the Department are required to be accredited by the AASHTO Materials Reference Laboratory (AMRL). 4. Sources interested in being approved to supply PG-binders to the Department by use of an "in-line blending system," must record properties of blended material, and additives used. 5. Each source of supply of PG-binder must indicate that the binders contain no additives used to modify or enhance their performance properties. Binders that are manufactured using additives, modifiers, extenders etc., shall disclose the type of additive, percentage and any handling specifications/limitations required. 6. All AASHTO M 320 references shall be replaced with AASHTO M 332. 7. Each year, in April and September, the supplier shall submit test results for two BBR testing at two different temperatures in accordance with AASHTO R 29. Suppliers shall provide AASHTO M 332 testing results and split samples at a minimum of once per lot.

R 35	**<u>Volumetric Calculations of VMA and Correction Factor</u>** VMA_a - Voids in Mineral Aggregate from (Va + Vbe) the mix: A. VMA calculated from the mix shall be determined in accordance with *Formula 5.16.1A*. It can be correlated that the VMA calculated from AASHTO R-35 is equivalent to VMA_a when the Pb_a x (100-Pb_t) / 100 is known and substituted for A_{cf}, as shown in *Formula 5.16.1A (ii)*. Test results from VMA_a shall therefore be required to meet all contract specifications. Values of VMA_a that are out of specifications during production may be cause for the contractor to determine assignable reason, take corrective action, and modify the Job Mix Formula (JMF), as needed. Continued VMA_a data that is out of specifications may be cause for the Engineer to order cessation of supply. *Formula 5.16.1A.* Determining the VMA of bituminous concrete by the mix or air voids & effective binder method: $$VMA_a = V_a + \frac{(Gmb_d \times (Pb_t \times A_{cf}))}{G_b}$$ Where: VMA_a = VMA calculated from plant production mix(V_a + Vb_e) Gmb_d = Bulk specific gravity as determined by AASHTO T 166(M) Pb_t = Total Binder Content (corrected) by AASHTO T 308(M) A_{cf} = Absorption correction factor provided by Contractor (refer to B. i and ii) B. Determining the bituminous concrete mix binder correction factor for each class by use of percent absorption of water by AASHTO T 84/85, AASHTO M 323 and D_f method. This value shall be performed by the Contractor during the mix design only and submitted as a JMF value. Two methods for determining the A_{cf} are shown, although method (i) will be the desired method to be used. Both methods are equivalent when the Gsa, Gsb and Pwa are recent and valid for the mix. *i.* $A_{cf} = Df \times Pwa \times (100 - Pb_t) / 100$ *ii.* $A_{cf} = (Pb_a$ *from annual JMF submittal*$) \times (100 - Pb_t) / 100$ Where: Df = as determined by Formula 5.16.1B. Pwa = as determined by AASHTO T 84/85 Pb_a = as determined by AASHTO M 323 (from annual JMF submittal) D_f (Density Factor): The Contractor shall calculate the bituminous concrete

	mix design D_f (*derived from formula X1.2 APPENDIX X1 of AASHTO R 35)* for each class of material, in accordance with *Formula 5.16.1B.* *Formula 5.16.1B.* Determining the Density Factor *(D_f)* of mix design bituminous concrete: $$D_f = \left(\frac{Gse - Gsb}{Gsa - Gsb} \right)$$ Where: D_f = Density Factor or multiplier determined by AASHTO R-35(M) Gse = Effective Specific Gravity determined by AASHTO M-323 at plant Gsa = Apparent Specific Gravity determined by AASHTO T 84/85 of mix design Gsb = Bulk Specific Gravity determined by AASHTO T 84/85 of mix design

ITEM #0201001A—CLEARING AND GRUBBING

12.08.01—Description: *Add the following:*

This item shall also include the removal and resetting of fences, timber posts, reconstruction of fieldstone walls, ornamental and utilitarian domestic accessories, removal and resetting of existing mailboxes, tree protection, tree removal and trimming and tree stump removal.

This item shall also include the removal, relocation and resetting of all signs and sign posts

12.08.03—Construction Methods: *Add the following:*

The Contractor shall walk the project prior to construction with a representative from the Town. Trees to be removed shall be marked in the field. Extreme care shall be exercised to protect all trees not designated for removal. The trimming of existing trees and/or root systems shall be performed by a licensed arborist.

All tree stumps within the slope limits shall be removed by excavation. Any trees and stumps designated for removal that are located outside the slope limits shall be removed by excavation and the disturbed areas shall be loamed and seeded.

The Contractor shall carefully excavate around any water gate boxes, remove the boxes, install extension stems and air valve extensions, if necessary, reinstall the present gate box, if reusable, adjust the box to final grade using extension rings, if necessary, and refill the excavation, as required by the utility or Engineer. Care shall be taken to prevent material from filling the inside of the gate box.

Extreme care shall be exercised to prevent damage during removal, as well as properly protect, transport and store all items to be removed and reset.

12.08.05—Basis of Payment: *Add the following:*

The cost of tree removal including stumps, protection of existing trees, and trimming of branches shall be included in the contract lump sum bid item "Clearing and Grubbing".

The cost of removal and resetting of fences, timber posts, reconstruction of fieldstone walls, ornamental and utilitarian domestic accessories, removal and resetting of existing mailboxes, tree protection, tree removal, trimming and tree stump removal, and relocation of existing signs and sign posts shall be included in the contract lump sum bid item "Clearing and Grubbing".

The cost of adjusting or resetting gate boxes shall be included in the contract lump sum bid item "Clearing and Grubbing".

ITEM #0202000A — EARTH EXCAVATION

Description: ***A****dd the following*

The work description of this item shall be revised to include shall include removal of existing bituminous pavement outside the proposed roadway limits and/or not paid under other pay items, as well as associated granular pavement base.

Basis of Payment: ***A****dd the following*

Removal of existing bituminous pavement as described above shall be paid at the contract unit price per cubic yard for earth excavation, which price shall include all materials, excavation, equipment, tools and labor incidental thereto.

ITEM #0202452A—TEST PIT

Description:
This item shall consist of excavating test pits to verify utility locations as directed by the Engineer, and shall include saw cutting of bituminous concrete pavement (if required), excavation of material, backfilling and compaction, and placement of temporary pavement patch (if required).

Construction Methods:

Test pits shall be excavated as located and directed by the Engineer. For test pits in the existing paved road, the pavement shall be neatly sawcut prior to digging the test pits. These shall be excavated with a rubber tire backhoe or excavator or other approved equipment. Test pits shall be a minimum of 2 ft. x 2 ft. for shallow (2-3 ft. deep) utilities and a maximum of 6 ft. x 10ft. for deep (8-10 ft. deep) or hard to find utilities. All material except pavement removed from the test pit shall be used to backfill the test pit after the subsurface conditions have been measured and verified. The top two inches of test pits in the paved roadway shall be repaved with Class 2 bituminous concrete that has been thoroughly compacted to match the existing road grade, unless otherwise approved by the Engineer.

Method of Measurement:

Test pits shall be measured by the number of test pits excavated, as directed by the Engineer. The volume of material excavated or time required to dig test pits, the sawcutting of bituminous concrete pavement, and the placement of temporary pavement patch shall not be measured for payment, but the cost thereof shall be included in the contract unit price for this item.

Basis of Payment:

Test pits will be paid by the actual number of test pits excavated as required by the plan or as directed by the engineer, and accepted.

Pay Item	Pay Unit
Test Pit	Each

ITEM #0202540A—REPLACE AND RESET IRON PIN

Description:

This item covers the furnishing of all labor, materials, tools and equipment necessary to accurately position and set iron pin boundary markers at the locations shown on the plans or as directed by the Engineer in accordance with these specifications.

Materials:

Iron pin boundary markers to be set will conform to the Standard Detail provided on the plans.

Construction Methods:

Iron pin boundary markers will be installed by the Contractor in accordance with the plans and profiles as approved. These markers shall be set to the finished grade on the property line, at points as shown on the plans or designated by the Engineer. The installation of iron pin boundary markers shall conform to the Town Detail. The location of all boundary markers as shown on the plans or directed by the Engineer shall be determined and staked in the field by a licensed surveyor before any markers are placed. The locations of the markers will be checked and approved by the Engineer prior to their installation. Boundary markers must be installed to A-2 accuracy and this shall be certified by a Licensed Land Surveyor. Each iron pin shall be set flush with existing grade so as not to be disturbed by mowers or other activity.

The Contractor shall use every reasonable precaution to avoid disturbing or damaging existing iron pins outside of the limits of work. Any iron pin disturbed by construction activity outside of the limits of work shall be reset or replaced by a Licensed Land Surveyor at the Contractors expense.

Method of Measurement:

Measurement for this item will be based on the number of iron pins set and accepted as shown on the plans and specified herein. **The resetting or replacement of existing iron pins outside of the limits of construction disturbed by the contractor in the course of his work will not be measured for payment.**

Basis of Payment:

Payment for this item will be at the contract unit price each for "Replace and Reset Iron Pin". This price shall constitute full payment for all surveying, labor, tools, materials, and equipment necessary for the contractor to supply and set the iron pins as specified herein.

Pay Item	Pay Unit
Replace and Reset Iron Pin	Each

ITEM #0403869A—COLD RECLAIMED ASPHALT PAVEMENT

Scope of Work

Work under this section shall consist of the in-place recycling of an existing pavement. The pavement will be pulverized to a specified particle size, mixed with a specified depth of existing base to a maximum overall depth of ten inches (12"), with calcium chloride (and water) added as required, graded and compacted to the required grade and cross-sections. Where necessary the contractor shall modify the existing sub-grade (raised, lowered or modified with additional aggregates) to meet the required design specifications.

Materials and Methods of Construction:

Materials for reclaimed asphalt pavements shall consist of existing pavements and bases. When it is necessary to improve the base or raise the grade line, additional base material may be specified by the Engineer.

Prior to the start of the pavement rehabilitation, all utilities and drainage systems shall be relocated as necessary.

Methods, equipment, tools, and any machinery to be used during construction shall be approved by the Engineer prior to the start of the project. Prior to the actual pulverization of the pavement, drop inlets or catch basins that might be affected shall be sufficiently barricaded so as to prevent silt or runoff from plugging the drainage system.

The Cold Reclamation process shall include the following steps:

1. Scarify and/or pulverize the roadway surface to a depth of eight inches (8"), or as specified on the plans.

2. If it is necessary to add new aggregate, the contractor is to blend the materials together to a maximum depth of eight inches without contamination of topsoil or unsuitable material

3. Apply uniformly 0.8 gallons per square yard 38% calcium chloride.

4. Thoroughly blend aggregate and calcium chloride together. The mixing depth is the same as the scarified/pulverized depth. If the aggregates are dry, water may be added during this process.

5. Sieve and proctor testing shall be paid by Town.

6. Blade and shape road to the lines and grades as shown on the plans, or as directed by the Engineer. Grading shall be achieved by the use of a motorized grader (John Deere 570 or equivalent.). Remove all berms that were created during blading prior to performing any compaction.

7. Compact road surface. Compaction shall be achieved by the use of a vibratory roller having the capability of producing high amplitude and low frequency vibrations. The compaction shall be a minimum of 95% of the proctor wet density (AASHTO T-180D), and/or as specified by the Engineer.

8. Apply uniformly 0.2 gallons per square yard 38% calcium chloride as a top dressing.

Method of Payment:

Payment will be made at the contract unit price for each square yard of "Cold Reclaimed Asphalt" as measured by the Square Yard(SY), which price shall all materials, equipment, tools and labor incidental thereto including regrading and re-alignment of the road as necessary. Excess material not needed for supplementary base material elsewhere within the project limits will become the property of the contractor.

ITEM #0601445A - EMBANKMENT WALL (SITE NO. 1)

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

Retaining Wall Selection: The Contractor shall select the proprietary embankment retaining wall from the Department's current approved list shown below. The Engineer will reject any proposed retaining wall that is not listed below.

The following is a list of the proprietary embankment retaining walls for this project:

1. VERSA-LOK Retaining Wall
VERSA-LOK of New England
P.O. Box 6002
Nashua, NH 03063
(603) 883-3042

2. MESA Retaining Wall System
TENSAR Earth Technology, Inc.
227 Ritter Road
Sewickley, PA 15143
(412) 749-9190

3. KeySystem I Retaining Wall
Keystone Retaining Wall Systems
13453 County Road 1
Fairhope, AL 36532
(251) 990-5761

4. Pyramid Modular Blockwall
The Reinforced Earth Company
133 Park Street
North Reading, MA 01864
(978) 664-2830

5. Redi-Rock Retaining Wall-Cobblestone Face Mold
Redi-Rock Walls-CT Division
68A South Canal Street
Plainville, CT 06062
(860) 793-6805

6. Recon Retaining Wall
Connecticut Precast Corp.
555 Fan Hill Road
Monroe, CT 06468
(203) 452-1007

No other proprietary retaining walls will be allowed for this project.

This listing does not warrant that the individual walls can be designed to meet either the dimensional, structural, or geotechnical constraints at each site.

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.

2 - Designer's Liability Insurance: The Designer shall secure and maintain at no direct cost to the State, 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 agency head as evidenced by a certificate of acceptance issued to the contractor 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.

- 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 attachment to outlets shown on contract drawings.

- Details of any roadway drainage pipe projecting through the wall, or any attachments to the wall. Details of the treatment of drainage swales or ditches shown on the 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 installation of protective fencing where required.

- Details of Architectural Treatment where required.

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

- Details of wall treatment where the wall abuts other structures.

- Treatment at underground utilities where required.

b. <u>Design Computations:</u>

- 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. <u>Construction Specifications:</u>

- 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 amended as follows:

a. Six sets of each submission shall be supplied to the State

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 Department, the Contractor shall submit the final plans. The final submission shall include one set of full size (approximately 24" x 36") mylar sheets and five sets of full size blue line copies.

The final submission shall be made within 14 days of acceptance by the State. No work shall be preformed on the retaining wall until the final submission has been received by the Department.

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 blue line copies of all approved shop drawings shall be submitted to the Department'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 State.

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 Department.

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 State.

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.

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.

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:

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

ii. The maximum water absorption shall be less than five percent.

The Contractor shall submit to the Engineer a certified test report confirming the compressive strength and water absorption conform to the requirements of ASTM C-140.

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

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

ii. 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.

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 in the AASHTO Specifications.

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.

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.03.01-11.

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 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 8.18.03.

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.

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

Basis of Payment: This work will be paid for at the contract lump sum for "EMBANKMENT WALL (SITE NO.)", complete in place, which price shall include all work shown within the pay limits shown on the plans for the retaining wall 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 Embankment 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.

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 "Structure Excavation - Rock".

Pay Item	*Pay Unit*
Embankment Wall (Site No. 1)	L.S.

ITEM #0703012A — MODIFIED RIPRAP

All of the provisions of Section 7.03 of the Standard Specifications shall apply, supplemented as follows:

Article 7.03.01 - Description: Add the following:
This item shall include non-woven geotextile fabric beneath modified riprap as shown on the plans or directed by the Engineer.

Article 7.03.02 – Materials: Add the following:
Geotextile fabric shall meet the requirements of Article 7.55.02 and Section M.08.01-19.

Article 7.03.03 – Construction Methods: Add the following:
Geotextile fabric shall be installed in accordance with Article 7.55.03.

Article 7.03.04 – Method of Measurement: Add the following:
Geotextile fabric shall not be measured separately for payment and shall be included in the contract unit price for "Modified Riprap".

Article 7.03.05 – Basis of Payment:
Geotextile fabric shall not be paid for separately and shall be included in the contract unit price for "Modified Riprap".

Description	Unit
Modified Riprap	CY

ITEM #0751080A — DRAINAGE PIPE LATERAL

Description:

The work of this item shall consist of the construction of house connections for drainage pipe laterals within the street boundaries or easement boundaries in accordance with details as shown on the plans and as specified herein. Construction shall be at locations shown on the plans or determined in the field by the Engineer.

Materials:

Pipe materials for house connection laterals shall be corrugated polyethylene pipe (smooth interior) ADS N-12 or equal, polyvinyl chloride pipe SDR-35 or equal. Size of pipe shall be six inches or equal to existing unless otherwise indicated on the plans or directed by the Engineer. Provide bends and fittings as required.

Construction Methods:

Construct house connection laterals at locations shown on the plans or as determined in the field by the Engineer. Construct laterals in accordance with details shown on the plans and in accordance with specifications for installing pipe under Article 6.51.03 - Construction Methods of Culverts.

Laterals shall be laid to grade and to points as shown on the plans or as ordered by the Engineer. Laterals shall not be laid to a slope flatter than 0.5 percent.

Any lateral connection to the drainage main pipe shall be made with a hole core bored into the pipe. The hole shall be smooth inside the pipe after core is complete. The connection shall be a watertight joint.

Method of Measurement:

This work will not be measured for payment if the house drainage pipe lateral is broken by contractor in the course of his work. However, if a new lateral is to be placed or reset in accordance with the plans, this work will be measured for payment by the actual number of linear feet of pipe, completed, accepted and measured in place along the invert.

Trench excavation will not be measured for payment but shall be included as part of general work.

Bedding and backfill material will not be measured for payment but shall be included as part of general work.

Basis of Payment:

This work will be paid for at the contract unit price per linear foot for this item, which price shall include all materials, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Drainage Pipe Lateral	L.F.

ITEM #0950005A – TURF ESTABLISHMENT

9.05.01—Description: *Add the following:*

The work included in this item shall consist of providing an establishing grass on areas of topsoil placement for use on residential lawn areas by furnishing and placing seed as shown on the plans or as directed by the Engineer in the field.

9.05.02—Materials: *Add the following:*

Turf Seed Mix - Lawn:

In order to preserve and enhance the diversity, the source for seed mixtures shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland. One approved seed mixture is detailed below. Other proposed mixtures must be approved by the Conn DOT Landscape Design office.

Proportion (Percent)	SPECIES Common name	Scientific name
25	Abbey Kentucky Bluegrass	Poa pratensis
15	Envicta Kentucky Bluegrass	Poa pratensis
25	Pennlawn Red Fescue	Festuca rubra
15	Ambrose Chewing Fescue	Festuca rubra
20	Manhattan Ryegrass	Lolium perenne

Construction Methods: Construction Methods shall be those established as agronomically acceptable and feasible and that are approved by the Engineer. Rate of application shall be field determined in Pure Live Seed (PLS) based on the minimum purity and minimum germination of the seed obtained. Calculate the PLS for each seed species in the mix. Adjust the seeding rate for the above composite mix, based on 250 lbs. per acre. The seed shall be mulched in accordance with Article 9.50.03.

Method of Measurement: This work will be measured for payment by the number of square yards of surface area of accepted established grasses as specified or by the number of square yards of surface area of seeding actually covered and as specified. No separate measurement of Turf Establishment seed mixes used shall be measured for individual payment.

Basis of Payment: This work will be paid for at the contract unit price per square yard for "Turf Establishment" in both manicured lawn areas and edge of road areas which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto. No separate payment shall be made for different seed mixes specified.

Pay Item	Pay Unit
Turf Establishment	SY

ITEM #0975002A — MOBILIZATION AND PROJECT CLOSEOUT

All the applicable provisions of Section 9.75 of the Standard Specifications shall apply, except as amended or supplemented herein:

9.75.01 - Description: Add the following:
This item shall include the cost to furnish and install an anti-tracking pad at the laydown/stockpile area. This item shall also include a construction field office, which is solely at the Contractor's discretion. This project does not require a field office, but the Contractor is allowed to furnish and install one if they choose to do so. The Contractor is responsible for negotiating with landowners and obtaining a laydown/stockpile/field office location prior to commencement of work. The laydown/stockpile/field office location shall be approved by the Town prior to initiation of mobilization.

9.75.02 - Materials: Add the following:
Anti-Tracking pad materials shall be in accordance with Section 2.11.02 of the Standard Specifications.

9.75.03 – Construction Methods: Add the following:
Anti-Tracking pad shall in installed in accordance with Section 2.11.03 of the Standard Specifications.

9.75.04 – Method of Measurement: Add the following:
Construction Field Office and Anti-Tracking pad shall not be measured for payment and shall be included in the lump sum cost of "Mobilization and Project Closeout."

9.75.05 – Basis of Payment: Add the following:
Construction Field Office and Anti-Tracking pad shall not be measured for payment and shall be included in the lump sum cost of "Mobilization and Project Closeout."

Pay Item	Pay Unit
Mobilization and Project Closeout	LS

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

9.71.01 - Description: Add the following:

The Contractor shall maintain and protect traffic as follows and as limited in the Special Provision "Section 1.08 - Prosecution and Progress."

All Project Roadways

The Contractor shall be permitted to close the project roadways when actively working in the roadway. The contractor shall implement the detour in accordance with the contract documents.

The Contractor shall maintain and protect a minimum of one lane for alternating one way traffic on a paved or compacted gravel travel path not less than 10 feet in width or as approved by the Engineer. Gravel travel path shall be compacted reclaimed material or compacted processed aggregate base.

During AM Peak travel periods (7AM to 9AM) and PM Peak travel periods (3PM to 5PM) the contractor shall maintain two way traffic at all times unless approved by the Engineer. Traffic shall be maintained in accordance with the Traffic Control Plans and details. Due to corridor constraints, 10 foot wide lanes are acceptable instead of 11 foot wide lanes shown in the Traffic Control Plans and details.

For alternating one-way traffic operations, the Contractor shall utilize certified flagger(s) and shall have in place appropriate signage. The length of the alternating one-way traffic operation shall not exceed 500 feet (excluding tapers) unless otherwise approved by the Engineer.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor will be allowed to halt traffic for a period of time approved by the Engineer in advance.

The Contractor shall furnish, install and relocate Construction Signs, Temporary Precast Concrete Barrier Curb, Drums, Cones, Construction Barricades, Barricade Warning Lights, temporary construction fencing, etc., as necessary, to safely maintain traffic operations through and around the project site.

Water, sweeping or calcium chloride for dust control that is required as a result of temporary gravel roadways, or as directed by the Engineer, shall be included in this item.

Driveways

The Contractor shall maintain access to and egress from all driveways throughout the project limits unless the Contractor has first negotiated alternate arrangements with the property owners or as otherwise noted on the plans. Driveway construction shall be coordinated with the property owners. At a minimum, temporary graded surfaces shall consist of subbase, processed aggregate base, granular fill, or other suitable materials approved by the Engineer. 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. The cost for installation and maintenance of all such temporary access measures shall be included in the Maintenance and Protection of Traffic item.

9.71.03 - Construction Method: Add the following:

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

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

Use of Traffic Drums and Traffic Cones
Traffic drums or cones shall be used to delineate open trenches, raised catch basins and other hazards.

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS (English Version)
The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

Traffic Control Patterns:
Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

Speed and volume of traffic
Duration of operation
Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

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

Signing
The Contractor shall maintain all existing signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate existing signs and sign supports as many times as deemed necessary and install temporary sign supports and foundations if necessary and as directed by the Engineer. The temporary relocation of any existing signs and supports, the furnishing, installation and removal of any temporary supports and foundations, and the installation and relocation of temporary signs shall be paid for under the item "Maintenance and Protection of Traffic."

When all work is completed, the Contractor shall remove and relocate existing signs to new posts at the permanent locations, as shown on the plans, which shall be paid for under "Clearing and Grubbing."

Signing Patterns

The Contractor shall erect and maintain all temporary signing patterns in accordance with the traffic control plans contained herein, unless directed or approved otherwise by the Engineer. Proper distances between advance warning signs and proper taper lengths are mandatory.

These signs shall be post-mounted on breakaway sign supports or installed on portable sign supports. These signs are to remain for two weeks, after which the signs and sign supports are to be removed.

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.

TABLE I – MINIMUM TAPER LENGTHS

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

SECTION 1. WORK ZONE SAFETY MEETINGS

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

1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. The agenda should include:

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

SECTION 2. GENERAL

2.a) If the required minimum number of signs and equipment are not available; the traffic control pattern shall not be installed.

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

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

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

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS 3.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.

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

3.c) Stopping traffic may be allowed:

- During paving, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.

- To move slow moving equipment across live traffic lanes into the work area.

3.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or 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.

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

3.f) 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.

SECTION 4. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

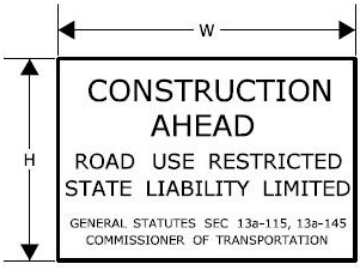
4.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

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

4.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.

4.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.

SERIES 16 SIGNS



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

		W H
16-S	80-1619	48" x 30"

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

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

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

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

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.

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

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

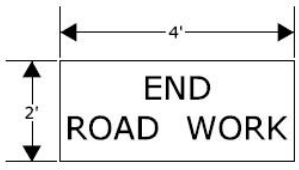
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

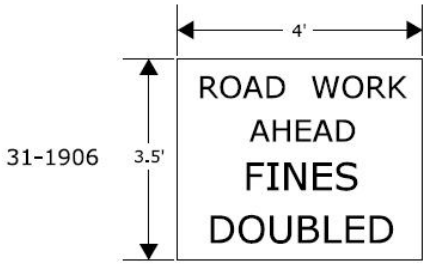
THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

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

"END ROAD WORK" SIGN

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





SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

NOTES FOR TRAFFIC CONTROL PLANS

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

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

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

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

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

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

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

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

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

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

TABLE 1 - MINIMUM TAPER LENGTHS

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

METRIC CONVERSION CHART (1" = 25mm)

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

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

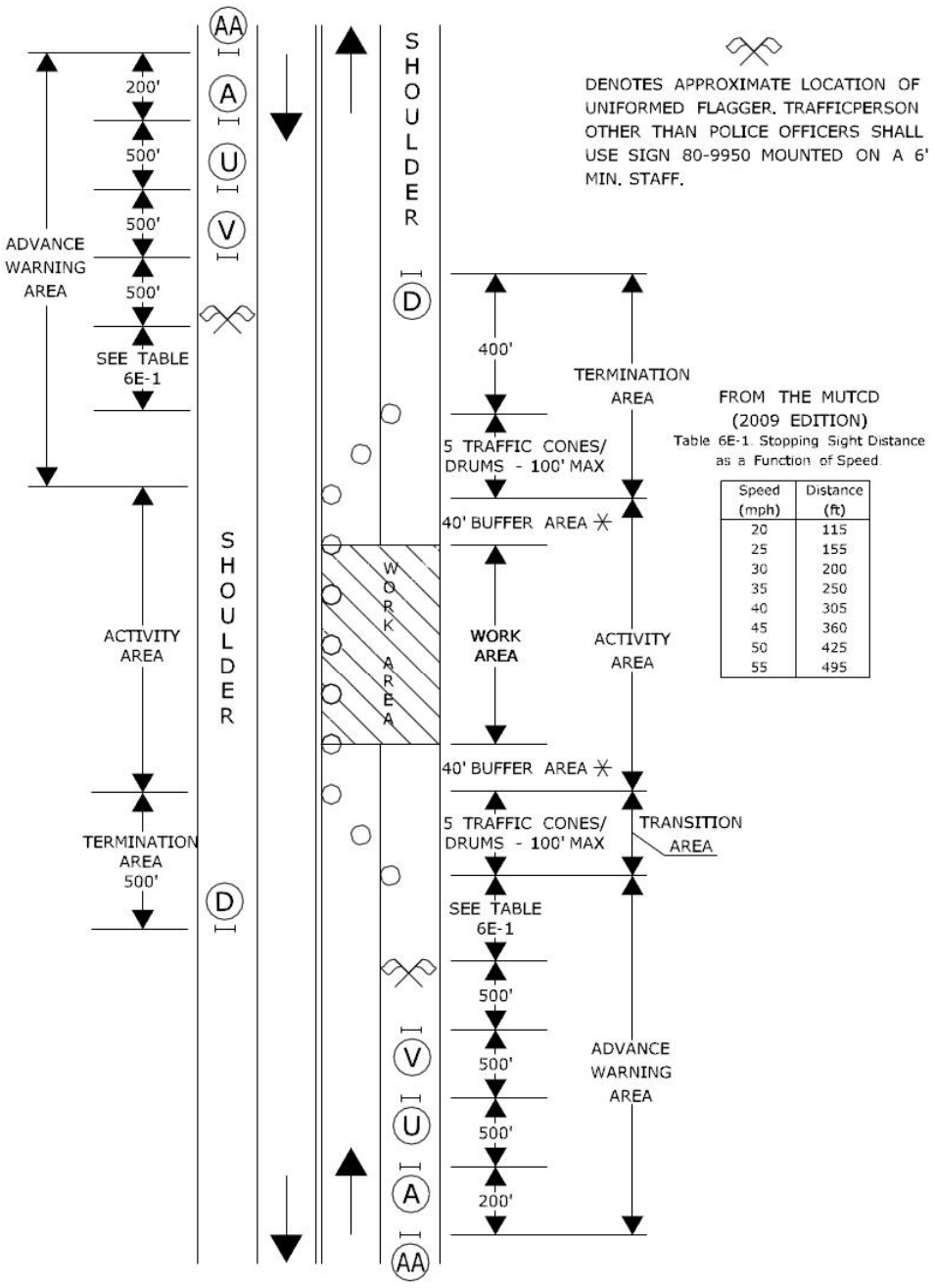
NOTES

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

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

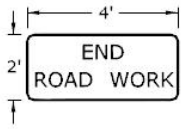
SIGN FACE
108 SQ. FT (MIN.)



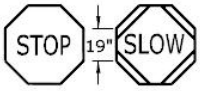
FROM THE MUTCD
(2009 EDITION)
Table 6E-1. Stopping Sight Distance as a Function of Speed

Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495

D 80-9612



80-9950
SIDE A SIDE B

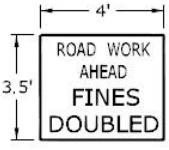


V 80-9803

U 80-9834

A 80-9603

AA 31-1906



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

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 13 - SHEET 1 OF 2

SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:55:23-04'00'
PRINCIPAL ENGINEER

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

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

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

A. TO STOP TRAFFIC

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

B. TO DIRECT TRAFFIC TO PROCEED

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

C. TO ALERT OR SLOW TRAFFIC

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

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

SCALE: NONE

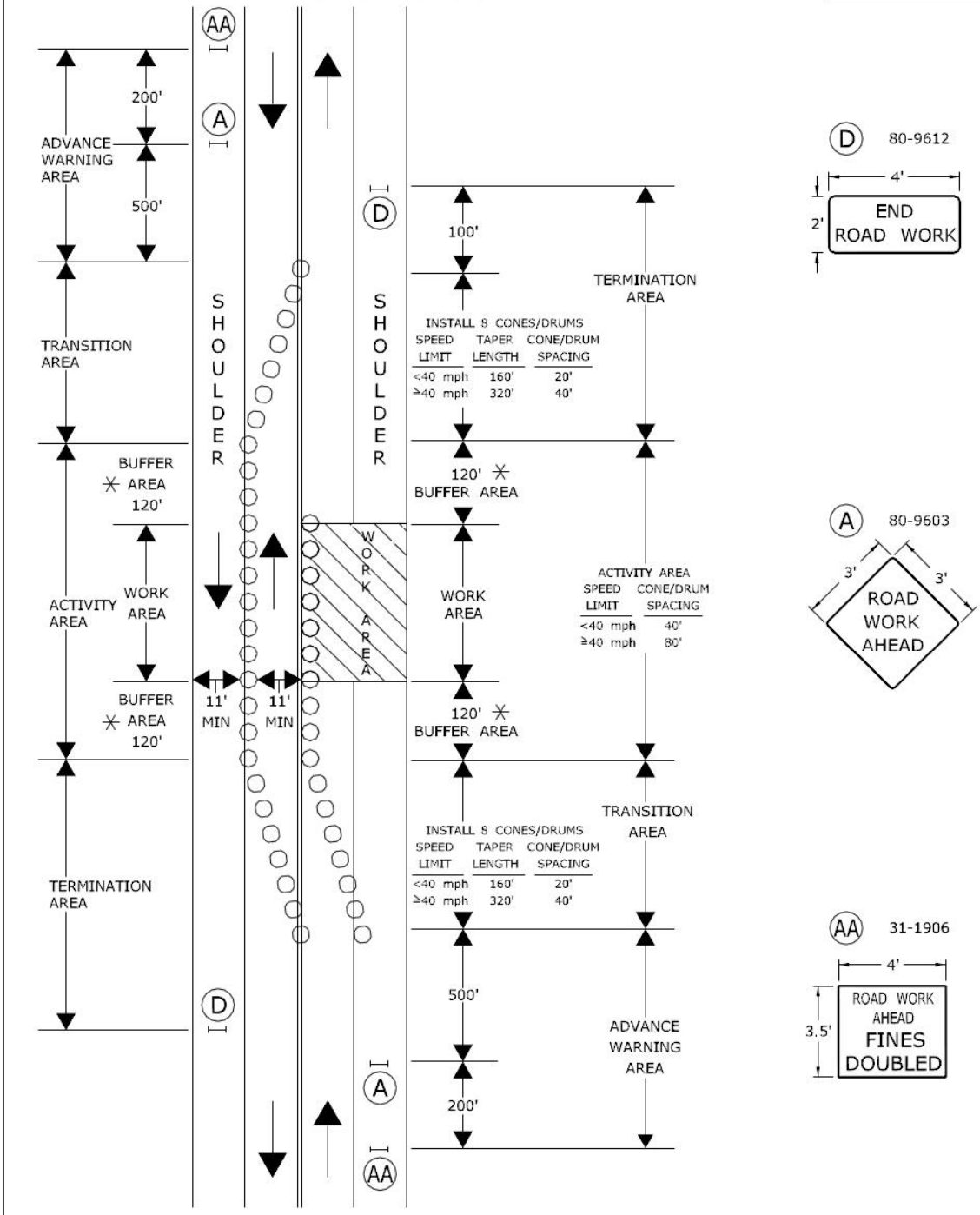
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN.)



D 80-9612

A 80-9603

AA 31-1906

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

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 15

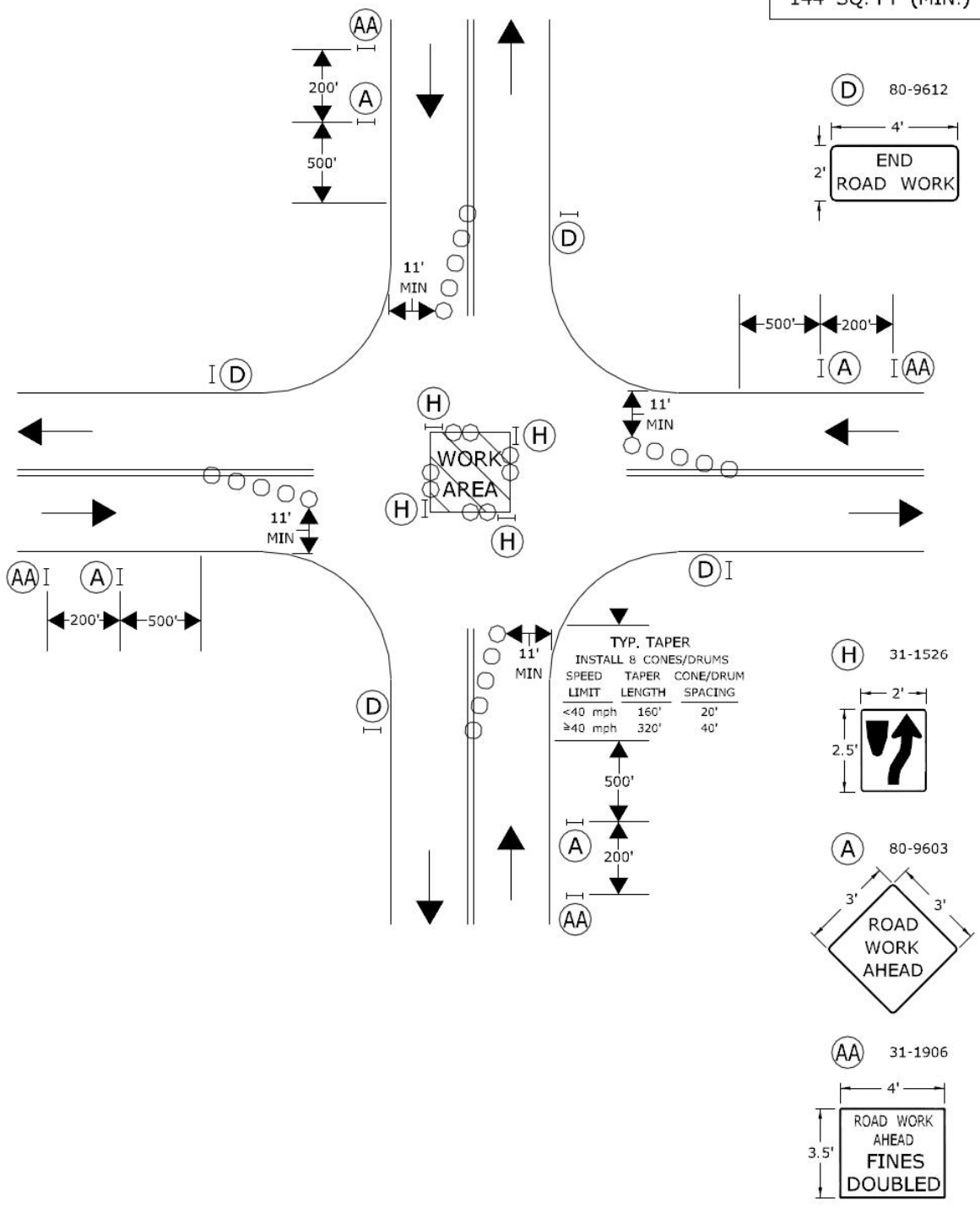
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ Charles S. Harlow 2012.06.05 15:56:29-04'00'
PRINCIPAL ENGINEER

WORK IN MIDDLE OF ROADWAY AT INTERSECTION

SIGN FACE
144 SQ. FT (MIN.)



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

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 17

SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:57:16-04'00'
PRINCIPAL ENGINEER

Article 9.71.05 – Basis of Payment is supplemented by the following:

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.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include any temporary adjustments or modifications required to the permanent drainage structures, including but not limited to the resetting of catch basin and manhole tops as necessary, to facilitate temporary drainage measures prior to final paving.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include the cost for installation and maintenance of all temporary access to all residential properties, including but not limited to temporary graded surfaces consisting of subbase, processed aggregate base, granular fill, or other suitable materials approved by the Engineer.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include furnishing, installing and relocating Construction Signs, Temporary Precast Concrete Barrier Curb, Traffic Drums, Traffic Cones, Construction Barricades, Barricade Warning Lights, temporary construction fencing, and all other additional materials, means and methods to maintain public safety.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include water, sweeping or calcium chloride for dust control that is required as a result of temporary gravel roadways or as directed by the Engineer.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include the cost for installation, maintenance and removal of all temporary pavement markings, as required by the specifications, throughout the duration of the project.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include the cost of the necessary certified flagger(s) required to maintain traffic control patterns and operations in accordance with Section 9.7 of the Form 817. There shall be no separate measurement or payment made for Trafficperson.

Pay Item	Pay Unit
Maintenance and Protection of Traffic	LS

ITEM #1208932A—SIGN FACE - SHEET ALUMINUM (RETROREFLECTIVE SHEETING – TYPE)

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

This item shall also include field testing of metal sign base posts as directed by the Engineer.

12.08.03—Construction Methods:

Delete the last sentence and add the following:

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Engineer who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

Field Testing of Metal Sign Posts: When the sign installations are complete, the Contractor shall notify the Engineer the Project is ready for field testing. Based on the number of posts in the Project, the Engineer will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Engineer. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

12.08.04—Method of Measurement:

Add the following:

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

12.08.05—Basis of Payment:

Replace the entire Article with the following:

This work will be paid for at the Contract unit price per square foot for "Sign Face - Sheet Aluminum" of the type specified complete in place, adjusted by multiplying by the applicable

Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware, including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

Pay Factor Scale: Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

Number of Posts to be Tested and Pay Factors (Based on Number of Defects)

Number of Posts in Project =>	**51-100**	**101-250**	**251-1000**	**>1000**
Sample Size=>	**5 Posts**	**10 Posts**	**40 Posts**	**60 Posts**
0 Defects	1.0	1.0	1.025	1.025
1 Defect	0.9	0.95	0.975	0.983
2 Defects	Rejection	0.9	0.95	0.967
3 Defects	Rejection	Rejection	0.925	0.95
4 Defects	Rejection	Rejection	0.9	0.933
5 Defects	Rejection	Rejection	Rejection	0.917
6 Defects	Rejection	Rejection	Rejection	0.9
7 or more Defects	Rejection	Rejection	Rejection	Rejection

Note: Projects with 50 or fewer posts will not include field testing.

SECTION III – APPENDICES

APPENDIX A – CT DEPARTMENT OF LABOR–WAGE RATES

Project: Reconstruction Of Fordyce Road

Minimum Rates and Classifications
for Heavy/Highway Construction

ID#: **H** 26050

Connecticut Department of Labor
Wage and Workplace Standards Division

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:

Project Town: New Milford

FAP Number:

State Number:

Project: Reconstruction Of Fordyce Road

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	34.72	32.15
2) Carpenters, Piledrivermen	32.60	25.34
2a) Diver Tenders	32.60	25.34

As of: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

3) Divers	41.06	25.34
03a) Millwrights	33.14	25.74
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	49.75	21.05
4a) Painters: Brush and Roller	33.62	21.05
4d) Painters: Blast and Spray	36.62	21.05
4e) Painters: Tanks, Tower and Swing	35.62	21.05
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)	38.82	26.25+3% of gross wage

As of: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	35.47	35.14 + a
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)	42.62	31.21
----LABORERS---- -		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	30.05	20.10
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	30.30	20.10
10) Group 3: Pipelayers	30.55	20.10
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	30.55	20.10

As of: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

12) Group 5: Toxic waste removal (non-mechanical systems)	32.05	20.10
13) Group 6: Blasters	31.80	20.10
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	31.05	20.10
Group 8: Traffic control signalmen	16.00	20.10
Group 9: Hydraulic Drills	29.30	18.90

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

13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	32.22	20.10 + a

Project: Reconstruction Of Fordyce Road

13b) Brakemen, Trackmen	31.28	20.10 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	31.28	20.10 + a
15) Form Erectors	31.60	20.10 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	31.28	20.10 + a
17) Laborers Topside, Cage Tenders, Bellman	31.17	20.10 + a

Project: Reconstruction Of Fordyce Road

18) Miners	32.22	20.10 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	38.53	20.10 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	38.34	20.10 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	36.41	20.10 + a
21) Mucking Machine Operator	39.11	20.10 + a
----TRUCK DRIVERS----(*see note below)		

As of: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

Two axle trucks	29.13	23.33 + a
Three axle trucks; two axle ready mix	29.23	23.33 + a
Three axle ready mix	29.28	23.33 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	29.33	23.33 + a
Four axle ready-mix	29.38	23.33 + a
Heavy duty trailer (40 tons and over)	29.58	23.33 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	29.38	23.33 + a

Project: Reconstruction Of Fordyce Road

----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, Tunnel Boring Machines. (Trade License Required)	39.55	24.30 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	39.23	24.30 + 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)	38.49	24.30 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	38.10	24.30 + 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)	37.51	24.30 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	37.51	24.30 + a

As of: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	37.20	24.30 + 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).	36.86	24.30 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	36.46	24.30 + 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).	36.03	24.30 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	33.99	24.30 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	33.99	24.30 + a
Group 12: Wellpoint Operator.	33.93	24.30 + a

As of: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

Group 13: Compressor Battery Operator.	33.35	24.30 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	32.21	24.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	31.80	24.30 + a
Group 16: Maintenance Engineer/Oiler	31.15	24.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	35.46	24.30 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	33.04	24.30 + a

**NOTE: SEE BELOW

As of: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

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

20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.50	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76

----LINE CONSTRUCTION----

As of: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

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

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**

Project: Reconstruction Of Fordyce Road

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*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

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: Tuesday, May 07, 2019

Project: Reconstruction Of Fordyce Road

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.

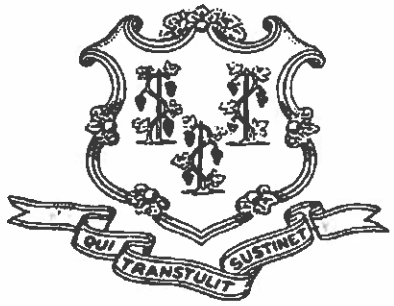
All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

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: Tuesday, May 07, 2019



Opportunity * Guidance * Support

CONNECTICUT DEPARTMENT OF LABOR

THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

If you have QUESTIONS regarding your wages
CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

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.

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.

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.

STATUTE 31-55a

- 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.

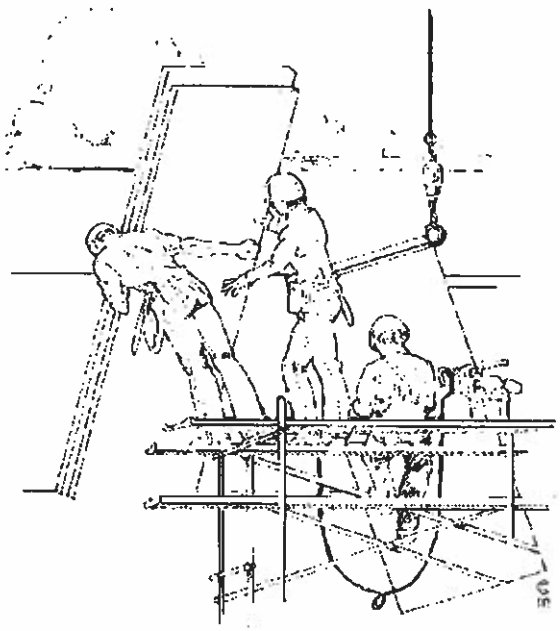
~NOTICE~

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: _____

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

Construction Manager at Risk/General Contractor/Prime Contractor

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): _____

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

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

CONTRACTOR NAME AND ADDRESS:			SUBCONTRACTOR NAME & ADDRESS	WORKER'S COMPENSATION INSURANCE CARRIER POLICY # EFFECTIVE DATE: EXPIRATION DATE:
PAYROLL NUMBER	Week-Ending Date	PROJECT NAME & ADDRESS		

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY																
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER _____ OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA–The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____	_____	_____
(Signature)	(Title)	Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For
Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Week-Ending Date:
Contractor or Subcontractor Business Name:

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY																
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

*IF REQUIRED

12/9/2013
WWS-CP2

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

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

CONTRACTOR NAME AND ADDRESS: Landon Corporation, 15 Connecticut Avenue, Northford, CT 06472

SUBCONTRACTOR NAME & ADDRESS: XYZ Corporation, 2 Main Street, Yantic, CT 06389

WORKER'S COMPENSATION INSURANCE CARRIER: Travelers Insurance Company
POLICY # #BAC8888928
EFFECTIVE DATE 1/1/09
EXPIRATION DATE 12/31/09

PAYROLL NUMBER: 1

Week-Ending Date: 9/26/09

PROJECT NAME & ADDRESS: DOT 105-296, Route 82

PERSON/WORKER, ADDRESS and SECTION	APPR RATE *a	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION / Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE: S 20	M 21	T 22	W 23	TH 24	F 25	S 26	Total ST Hours / Total O/T Hours	BASE HOURLY RATE / TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS: FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY																
Robert Craft 81 Maple Street Willimantic, CT 06226		M/C	Electrical Lineman E-1 1234567 Owner OSHA 123456		8	8	8	8	8		S-TIME 40	$ 30.75 Base Rate	1 $ 5.80 2 $ 3 $ 2.01	$1,582.80				P-xxxx	$1,582.80	#123 $ xxx.xx
											O-TIME	$ 8.82 Cash Fringe	4 $ 5 $ 6 $							
Ronald Jones 212 Elm Street Norwich, CT 06360	65%	M/B	Electrical Apprentice OSHA 234567		8	8	8	8	8		S-TIME 40	$ 19.99 Base Rate	1 $ 2 $ 3 $	$1,464.80	xx.xx	xxx.xx	xx.xx	G-xxx	$1,464.80	#124 $xxx.xx
											O-TIME	$ 16.63 Cash Fringe	4 $ 5 $ 6 $							
Franklin T. Smith 234 Washington Rd. New London, CT 06320 SECTION B		M/H	Project Manager			8					S-TIME 8	$ Base Rate	1 $ 2 $ 3 $	$1,500.00	xx.xx	xx.xx	xx.xx	M-xx.x		#125 xxx.xx
											O-TIME	$ Cash Fringe	4 $ 5 $ 6 $							
											S-TIME	$ Base Rate	1 $ 2 $ 3 $							
											O-TIME	$ Cash Fringe	4 $ 5 $ 6 $							

7/13/2009
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER 1 OF 2

OSHA 10 –ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care Blue Cross 4) Disability _____

2) Pension or retirement _____ 5) Vacation, holiday _____

3) Life Insurance Utopia 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of 9/26/09.

I, Robert Craft of XYZ Corporation, (hereafter known as Employer) in my capacity as Owner (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA–The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY

That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

*****THIS IS A PUBLIC DOCUMENT*****

*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

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(d).

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. If unsure, the employer should seek guidelines for CTDOL.

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

- ***ASBESTOS WORKERS***

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- ***ASBESTOS INSULATOR***

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

- ***BOILERMAKERS***

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- ***BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS***

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- ***CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS***

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: 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.

- **LABORER, CLEANING**

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

• 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 or tradesman, and not a delivery personnel.

- ***ELECTRICIANS***

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- ***ELEVATOR CONSTRUCTORS***

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ****License required by Connecticut General Statutes: R-1,2,5,6.***

- ***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***

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- ***IRONWORKERS***

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- ***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.

- ***LABORERS***

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- ***PAINTERS***

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- ***LEAD PAINT REMOVAL***

• Painter's 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's Rate

1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- ***PLUMBERS AND PIPEFITTERS***

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- ***POWER EQUIPMENT OPERATORS***

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- ***ROOFERS***

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- ***SHEETMETAL WORKERS***

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. 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, 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. 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. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ****License required per Connecticut General Statutes: F-1,2,3,4.***

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

• 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 this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

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, Concrete Finishers, Stone Masons
(Building Construction) and
(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.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' 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 work days 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 work day preceding the holiday or the regular work day 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.

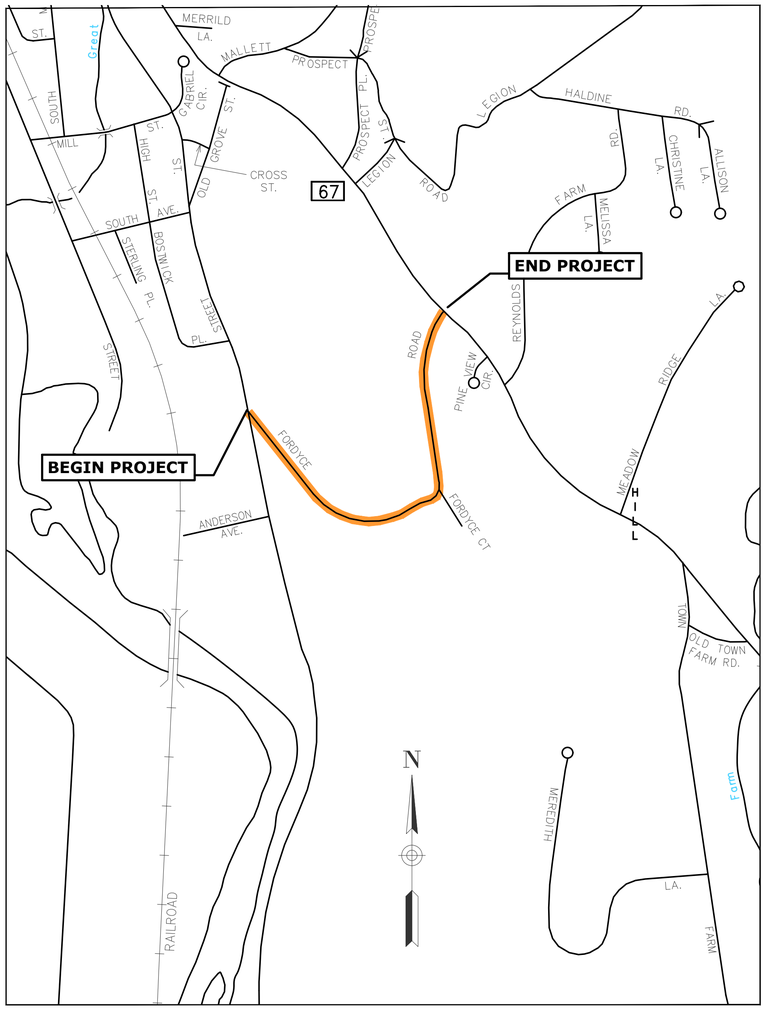
Truck Drivers

(Heavy and Highway Construction & Building Construction)

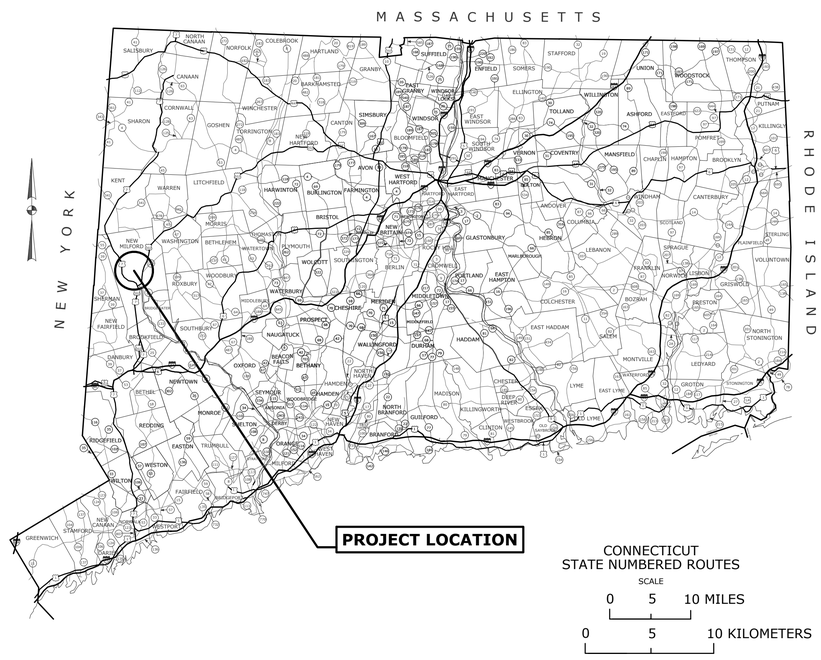
a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

TOWN OF NEW MILFORD CONNECTICUT

PLAN FOR
RECONSTRUCTION OF FORDYCE ROAD
PROJECT LIMITS
STATION 0+24 TO STATION 29+33
TO BE MAINTAINED BY THE TOWN OF NEW MILFORD



LOCATION MAP
SCALE: 1" = 500'



CONNECTICUT
STATE NUMBERED ROUTES
SCALE
0 5 10 MILES
0 5 10 KILOMETERS

ROAD CLASSIFICATION: URBAN COLLECTOR
DESIGN SPEED: 30 MPH
ADT (2019): 855 VPD
ROADSIDE CLEAR ZONE: 7' (*2' MIN.)
K (CREST MIN.): 19 (*6)
K (SAG MIN.): 37 (*12)
GRADE (MIN.): 0.50%
GRADE (MAX.): 10% (*17%)
*(DESIGN EXCEPTIONS)

TECHNICAL SPECIFICATIONS: STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUCTION (FORM 817) AND ALL LATEST SUPPLEMENTAL SPECIFICATIONS THERETO, AS WELL AS THE TOWN OF NEW MILFORD PUBLIC IMPROVEMENT SPECIFICATIONS.

DESIGN STANDARDS: AASHTO POLICY ON THE GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, DATED 2004 AND THE CONNECTICUT DEPARTMENT OF TRANSPORTATION HIGHWAY DESIGN MANUAL DATED 2003.

SURVEY: ALL COORDINATES ON THE PROJECT ARE BASED ON NAD 83. ALL ELEVATIONS ARE BASED ON NAVD 1988.

CONNECTICUT DEPARTMENT OF TRANSPORTATION OR TOWN OF NEW MILFORD BIDDING AND OTHER INFORMATION AND DOCUMENTS WHICH ARE OBTAINED THROUGH THE INTERNET, WORLD WIDE WEB SITES OR OTHER SOURCES ARE NOT TO BE CONSTRUED TO BE OFFICIAL INFORMATION FOR THE PURPOSES OF BIDDING OR CONDUCTING OTHER BUSINESS WITH THE TOWN OF NEW MILFORD.

IT IS THE RESPONSIBILITY OF EACH BIDDER AND ALL OTHER INTERESTED PARTIES TO OBTAIN ALL BIDDING RELATED INFORMATION AND DOCUMENTS FROM OFFICIAL SOURCES WITHIN THE TOWN OF NEW MILFORD.

PERSONS AND/OR ENTITIES WHICH REPRODUCE AND/OR MAKE SUCH INFORMATION AVAILABLE BY ANY MEANS ARE NOT AUTHORIZED BY THE TOWN OF NEW MILFORD TO DO SO AND MAY BE LIABLE FOR CLAIMS RESULTING FROM THE DISSEMINATION OF UNOFFICIAL, INCOMPLETE AND/OR INACCURATE INFORMATION.

STANDARD CONVENTIONS

North Arrow W/No. Coor. — Grid Arrow

Edge Of Road
Concrete Pavement
Dirt Road
B.C.L.C.
Concrete Curb
Guide Rail
Concrete Median Barrier
Bit. Walk
Conc. Sidewalk
Railroad Tracks
Chain Link Fence
Rustic Fence
Pipe Fence
Board Fence
Water Edge
Stream
Ditch
TOWN LINE
Boring Location

Limit Of Marsh
Stone Wall
Ledge Outcrop
Inland Wetland Limits
STATE LINE
Power Line
Swamp
Building
Transmission Tower
Riprap
Hedge Row
Tree Line
Shrub
Evergreen Tree
Deciduous Tree
Retaining Wall
Highway Line
Street Line
Property Line
Lot Line
Easement Line

LEGEND:

Iron Pin (Found)
Monument (Found)
Sign
Sewer Manhole
Electric Manhole
Telephone Manhole
"C" Catch Basin
"C–L" Catch Basin
Light Pole
Metal/Timber Post
Utility Pole
Guy Anchor
Water Gate
Gas Valve
Gas Meter
Mail Box

X — Fence Line
Guide Rail
S — Piping (Sanitary)
D — Piping (Storm)
G — Gas
E — U/G Elec. Line
W — Water Line
OHW — Overhead Utilities
T — U/G Tele. Line

LIST OF DRAWINGS	
SHEET NO.	TITLE
1	TITLE SHEET
2	INDEX PLAN / GENERAL NOTES
3	TYPICAL ROADWAY SECTIONS
4 - 6	EXISTING CONDITIONS PLAN
7 - 9	ROADWAY PLAN
10 - 12	ROADWAY PROFILE
13 - 32	ROADWAY SECTIONS
33	INTERSECTION GRADING PLAN
34 - 35	DRAINAGE DETAILS
36	MISCELLANEOUS DETAILS
37	EROSION AND SEDIMENTATION CONTROL DETAILS
38 - 39	BORING LOGS

CTDOT STANDARD DRAWINGS	
DWG. NO.	**TITLE**
HW-910_17	R-B TERMINAL SECTION
HW-910_20	MASH W-BEAM HARDWARE
HW-910_21	METAL BEAM RAIL (R-B MASH) GUIDERAIL
HW-911_01	R-B END ANCHORAGE TYPE I AND II
TR-1205_01	DELINEATION, DELINEATOR AND OBJECT MARKER DETAILS
TR-1208_01	SIGN SUPPORT AND SIGN PLACEMENT DETAILS, GORE EXIT SIGN
TR-1208_02	METAL SIGN POSTS AND SIGN MOUNTING DETAILS
TR-1210_04	PAVEMENT MARKING LINES AND SYMBOLS
TR-1210_08	PAVEMENT MARKINGS FOR NON FREEWAYS
TR-1220_01	SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS
TR-1220_02	CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES

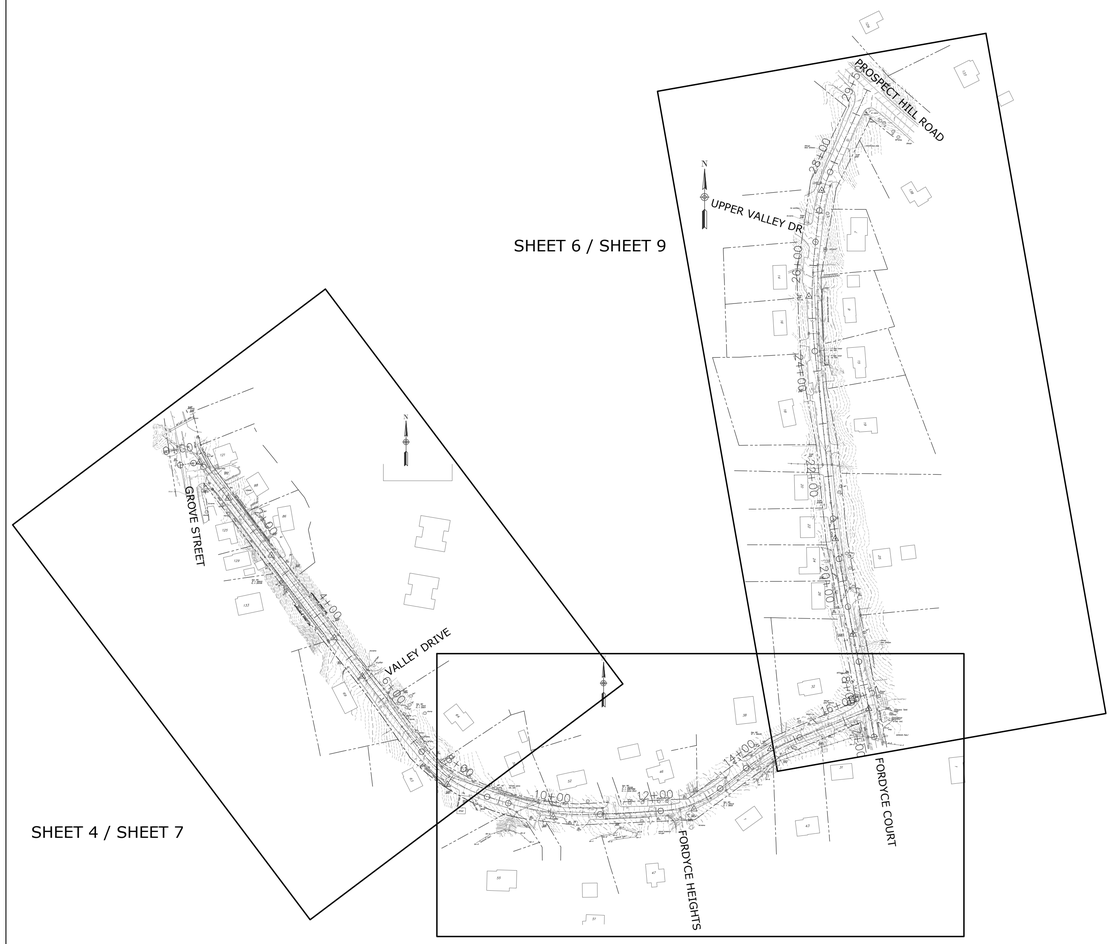
DESIGNED BY WMC CONSULTING ENGINEERS

SUBMITTED BY _____ DATE _____

MAYOR - TOWN OF NEW MILFORD

_____ DATE _____
PETE BASS

DATE: 05/15/19



GENERAL UTILITY NOTES

1. THE LOCATION OF EXISTING UTILITIES AND UNDERGROUND STRUCTURES HAS BEEN COMPILED FROM THE BEST AVAILABLE INFORMATION EXCEPT WHERE TEST PITS WERE DUG. THIS INFORMATION WAS COMPILED UTILIZING UTILITY COMPANY AND TOWN RECORD MAPS AND FIELD SURVEY AND THEREFORE, IS CONSIDERED TO BE APPROXIMATE. ALL UTILITIES AND UNDERGROUND STRUCTURES MAY NOT BE SHOWN.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UTILTIES. UTILITY LINES DAMAGED BY THE CONTRACTOR SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND THE UTILITY COMPANY AND THE COST OF REPAIR WORK SHALL BE BORNE BY THE CONTRACTOR. THE CONTRACTOR SHALL CONTACT CALL-BEFORE-YOU-DIG AT 811 (OR VISIT CBYD.COM) FOR MARKING OF EXISTING UTILITIES AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY EXCAVATION.

3. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF NECESSARY RELOCATIONS IF REQUIRED AND SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF THE UTILITY COMPANIES. ALL REQUIRED UTILITY RELOCATIONS SHALL BE PERFORMED BY THE RESPECTIVE UTILITY COMPANY UNLESS OTHERWISE SPECIFIED.

4. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES PRIOR TO STARTING ANY WORK AND COORDINATE HIS WORK WITH THE UTILITY COMPANY WORK. THE CONTRACTOR SHALL ALSO COORDINATE WITH THE RESPECTIVE UTILITY COMPANY TO HOLD ANY POLES THAT NEED TO BE SUPPORTED DURING THE CONTRACTOR'S TRENCHING OPERATIONS.

5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT EXISTING UTILITIES WHEN INSTALLING PIPE AND STRUCTURES. THE CONTRACTOR SHALL HAND DIG AROUND EXISTING UTILITIES AND PROVIDE SHORING OR OTHER SUCH MEASURES WHEN WORKING IN CLOSE PROXIMITY TO EXISTING UTILITIES TO PROTECT SUCH UTILITIES. THE CONTRACTOR SHALL NOT BE ELIGIBLE FOR ANY ADDITIONAL COMPENSATION FOR EXTRA WORK REQUIRED TO PROTECT EXISTING UTILITIES.

6. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE UTILITY COMPANIES TO RESET ALL UTILITY BOXES TO FINISHED GRADE. ANY GATE BOXES NOT SHOWN ON THE PLANS DUE TO RECENT CONSTRUCTION BY AQUARION WATER SHALL BE INCLUDED AS PART OF THIS PROJECT. THE CONTRACTOR SHALL RESET ANY GATE BOXES WITHIN THE PROJECT LIMITS, OR WHERE APPLICABLE. THIS WORK SHALL BE PAID FOR UNDER "CLEARING AND GRUBBING".

7. WHENEVER A DRAINAGE STRUCTURE OR SPECIAL TYPE "C" CATCH BASIN IS CONSTRUCTED NEAR A WATER MAIN, THE CONTRACTOR SHALL PLACE 2 INCH THICK STYROFOAM (OR EQUIVALENT) INSULATION AROUND THE ADJACENT WATER MAIN. THE WATER MAIN AND BACKFILL SHALL BE SUPPORTED AT ALL TIMES DURING EXCAVATION AND PLACEMENT OF THE DRAINAGE STRUCTURE OR SPECIAL CATCH BASIN. THE COST OF THIS WORK SHALL BE INCLUDED IN THE CONTRACT COST OF THE DRAINAGE ITEM.

8. THE TOWN OF NEW MILFORD SHALL INSPECT ALL WORK PERFORMED BY THE CONTRACTOR ON SANITARY SEWER WORK. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION. PERMITS MAY BE OBTAINED AT THE TOWN OF NEW MILFORD ENGINEERING DEPARTMENT. REQUESTS FOR INSPECTION REQUIRES 24 HOUR NOTICE.

9. ANY EXISTING HYDRANTS WILL BE ADJUSTED OR RELOCATED BY THE WATER COMPANY.

10. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES FOR REMOVAL OF ANY EXISTING ABANDONED UTILITY LINES ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION. THE CONTRACTOR SHALL NOT BE ELIGIBLE FOR ANY ADDITIONAL COMPENSATION FOR EXTRA WORK REQUIRED FOR REMOVAL OF ANY EXISTING ABANDONED UTILITY LINES. EACH RESPECTIVE UTILITY COMPANY SHALL BE RESPONSIBLE TO PROVIDE A MEANS OF DISPOSAL AND TO COORDINATE WITH THE CONTRACTOR FOR REMOVAL OF ANY EXISTING UNDERGROUND UTILITY LINES WHO'S MATERIAL MAY BE CONSIDERED TO BE HAZARDOUS. THE CONTRACTOR SHALL PLUG THE ENDS OF EXISTING ABANDONED UTILITY LINES THAT ARE TO REMAIN BURIED WITH APPROPRIATE END CAPS PROVIDED BY THE UTILITY. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS WORK, BUT SUCH WORK SHALL BE INCLUDED IN THE VARIOUS ITEMS COMPRISING THE WORK.

11. ANY EXISTING SANITARY SEWER LATERALS DAMAGED DURING CONSTRUCTION MUST BE REPLACED AT THE CONTRACTORS EXPENSE. ANY EXISTING SANITARY SEWER LATERALS REQUIRING TEMPORARY REMOVAL AND REINSTALLATION FOR INSTALLATION OF PROPOSED UTILITIES MUST BE RECONSTRUCTED TO WORKING ORDER AND PAID FOR UNDER ITEM "RECONSTRUCT SANITARY SEWER HOUSE LATERAL".

12. THE CONTRACTOR SHALL TAKE PRECAUTION TO PREVENT DAMAGE TO EXISTING UNDERGROUND UTILITIES WHEN OPERATING HEAVY MACHINERY SUCH AS VIBRATORY ROLLERS.

GENERAL NOTES

1. SURVEY INFORMATION IS BASED UPON A FIELD SURVEY PERFORMED BY WILLIAM B. HEARN L.S. JANUARY 2019. ALL ELEVATIONS REFER TO NORTH AMERICAN VERTICAL DATUM (NAVD 1988). STREETLINE INFORMATION AS SHOWN ON THE PLANS IS BASED ON CLASS A-2 ACCURACY. NORTH ARROW AND BEARINGS BASED ON THE CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD 1983).

2. WETLANDS FLAGGED BY REMA ECOLOGICAL SERVICES, LLC ON MARCH 25, 2019.

3. WMC ENGINEERS ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF MAPS AND DATA WHICH HAVE BEEN SUPPLIED BY OTHERS.

4. ALL EXISTING UTILITY LOCATIONS, DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

5. ALL CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 817 AND ADDENDA, AND AS SUPPLEMENTED IN THE SPECIAL PROVISIONS.

6. ALL SLOPES OR DISTURBED AREAS ARE TO BE STABILIZED AND SEEDED WITH GRASS OR SODDED - REFER TO SPECIAL PROVISIONS FOR SEEDING SCHEDULE. ONLY RESIDENTIAL LAWN AREAS DISTURBED DURING CONSTRUCTION SHALL STABILIZED WITH A MINIMUM OF 4 INCHES OF TOPSOIL PRIOR TO SEEDING. THE CONTRACTOR SHALL YORK RAKE THE TOPSOIL PRIOR TO TURF ESTABLISHMENT IF REQUIRED. THE COST OF YORK RAKING SHALL BE INCLUDED IN THE ITEM "FURNISHING AND PLACING TOPSOIL". EROSION CONTROL MATTING SHALL BE PLACED ON SLOPE AREAS AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

7. THE REMOVAL AND RESETTING OF FENCES, STONEWALLS, AND ORNAMENTAL AND UTILITARIAN DOMESTIC ACCESSORIES WITHIN THE HIGHWAY LIMITS AND THE REMOVAL AND RESETTING OF EXISTING MAILBOXES AND PAPER BOXES TO BE PAID FOR UNDER THE ITEM "CLEARING AND GRUBBING" UNLESS OTHERWISE SPECIFIED ON THE PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE PROPERTY OWNERS FOR SAID REMOVAL AND RESETTING.

8. THE CONTRACTOR SHOULD NOTE THAT ALL PRIVATE AND COMMERCIAL MAIL BOXES, SIGNS, ETC. ARE TO BE RELOCATED USING EXISTING SUPPORTS. WHERE EXISTING SUPPORTS ARE NOT SUITABLE FOR RELOCATION, THE CONTRACTOR SHALL PROVIDE A SIMILAR APPLICATION AT NO ADDITIONAL EXPENSE.

9. THE WORK TO REMOVE EXISTING BITUMINOUS PAVEMENT TO BE PAID FOR UNDER THE ITEM "EARTH EXCAVATION".

10. THE COST OF CUTTING BITUMINOUS CONCRETE ROADWAYS AT THE PROJECT LIMITS TO BE PAID FOR AS "CUT BITUMINOUS CONCRETE PAVEMENT". THE COST FOR CUTTING ROAD TRENCHES, DRIVEWAYS AND APPLICABLE SIDEWALK AREAS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH ITEM.

11. BITUMINOUS CONCRETE LIP CURBING SHALL BE PLACED ON THE BINDER COURSE. TACK COAT SHALL BE APPLIED TO THE PAVEMENT PRIOR TO INSTALLATION. THE COST SHALL BE INCLUDED IN THE BID PRICE OF THE CURB.

12. EXISTING CONCRETE MONUMENTS AND PROPERTY IRON PINS WHEN FOUND WITHIN THE WORK LIMITS SHALL BE LOCATED AND REPLACED IF DISTURBED. IF THE CONTRACTOR DISTURBS OR DAMAGES ANY IRON PIN OR MONUMENT OUTSIDE THE LIMITS OF WORK, THEY SHALL BE RESET BY A LISCENSED SURVEYOR AT THE CONTRACTORS EXPENSE.

13. THE CONTRACTOR SHALL WALK THE PROJECT PRIOR TO CONSTRUCTION WITH A REPRESENTATIVE FROM THE TOWN AND THE ENGINEER. TREES TO BE REMOVED SHALL BE MARKED IN THE FIELD. EXTREME CARE SHALL BE EXERCISED TO PROTECT ALL TREES NOT DESIGNATED FOR REMOVAL. THE COST OF THIS WORK SHALL BE INCIDENTAL TO THE PROJECT. ROOT PRUNING AND THE TRIMMING OF EXISTING TREES SHALL BE PERFORMED BY A LICENSED ARBORIST. THE COST OF THIS WORK SHALL BE INCLUDED IN THE CONTRACT BID ITEM "CLEARING AND GRUBBING".

14. ALL TREE STUMPS SHALL BE REMOVED BY EXCAVATION AND THE DISTURBED AREAS SHALL BE LOAMED AND SEEDED. THIS INCLUDES ANY TREES AND STUMPS DESIGNATED FOR REMOVAL THAT ARE LOCATED OUTSIDE THE LIMITS OF GRADING. ALL STUMP REMOVAL SHALL BE PAID FOR UNDER "CLEARING AND GRUBBING".

15. ANY MAINTENANCE OR REFUELING OF EQUIPMENT AND VEHICLES SHALL BE PERFORMED AT LEAST 50 FEET FROM WETLANDS OR WATERCOURSES. OIL, GASOLINE, AND CHEMICALS NEEDED AT THE SITE SHALL BE STORED IN A SECONDARY CONTAINER AT LEAST 50 FEET FROM WETLANDS OR WATERCOURSES AND OUTSIDE OF FLOODPLAIN AND FLOODWAY LIMITS TO PREVENT CONTAMINATION FROM POSSIBLE LEAKS.

16. EFFLUENT FROM DEWATERED WORK AREA(S) SHALL NOT BE DISCHARGED DIRECTLY TO THE STREAM OR STORM DRAINAGE SYSTEM, BUT MUST BE PROCESSED THROUGH TREATMENT STRUCTURES(S). SUCH STRUCTURE(S) SHALL NOT BE LOCATED WITHIN THE STREAM CHANNEL OR ADJACENT WETLANDS.

17. ALL APPROPRIATE EROSION CONTROL AND SEDIMENT CONTROL MEASURES SHALL BE ESTABLISHED PRIOR TO AND MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES.

18. ANY ACTIVITIES OTHER THAN THOSE SHOWN ON THE PLANS OR DETAILED IN THE WETLANDS PERMIT THAT OCCUR IN THE REGULATED WETLANDS AREA SHALL BE SUBJECT TO APPROVAL BY THE LOCAL INLAND/WETLANDS AUTHORITY OR ITS DESIGNATED REPRESENTATIVE.

19. DURING ALL PHASES OF CONSTRUCTION ACTIVITIES, ACCESS FOR THE PROPERTY OWNERS AS WELL AS ALL SERVICE VEHICLES SUCH AS MAIL, TRASH COLLECTION, FUEL DELIVERIES, ETC. SHALL BE MAINTAINED BY THE CONTRACTOR TO ABUTTING PROPERTIES WITHIN THE LIMITS OF THE WORK.

20. ALL CATCH BASIN GRATES TO BE TYPE "A" GALVANIZED.

21. SEDIMENTATION CONTROL AT INLE STRUCTURES (SILT SACKS) SHALL BE INSTALLED AT ALL STRUCTURES CHOSEN BY THE ENGINEER OR TOWN. THIS ITEM SHALL BE PAID FOR UNDER "SEDIMENTATION CONTROL SYSTEM AT CATCH BASIN".

22. ANY EXISTING PROPERTY DRAINS OR FOOTING DRAINS ENCOUNTERED SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND RECONNECTED TO NEW DRAINAGE STRUCTURES. THE COST OF THIS WORK SHALL BE PAID FOR UNDER "DRAINAGE PIPE LATERAL".

23. THE CONTRACTOR SHALL PLUG ALL EXISTING PIPES OR ABANDON INLET STRUCTURES WHERE CURRENT DRAINAGE SYSTEM IS TO BE ABANDONED UNLESS OTHERWISE NOTED ON THE PLANS. THIS WILL NOT BE MEASURED FOR PAYMENT.

24. IF AN EXISTING STORM SEWER IS TO BE REPAIRED, REPLACED, OR EXTENDED, IT IS A WORKING LINE AND MUST BE OPERATIONAL (CONTINUE TO FUNCTION) DURING EVENINGS AND WEEKENDS AS WELL AS ANY OTHER NON-WORKING HOURS.

25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A LOCATION AND PERMISSION FOR A STOCKPILE, FIELD OFFICE AREA, AND ANTI-TRACKING PAD TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

26. SEDIMENT AND EROSION CONTROL MEASURES AS DEPICTED ON THESE PLANS, AND DESCRIBED WITHIN THE SEDIMENT AND EROSION CONTROL NARRATIVE, SHALL BE IMPLEMENTED AND MAINTAINED UNTIL PERMANENT GROUND COVER AND STABILIZATION IS ESTABLISHED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL CONFORM TO THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, CONNECTICUT - REVISED 2002" AND IN ALL CASES BEST MANAGEMENT PRACTICES SHALL PREVAIL.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
N.T.S.

WMC
CONSULTING ENGINEERS
• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

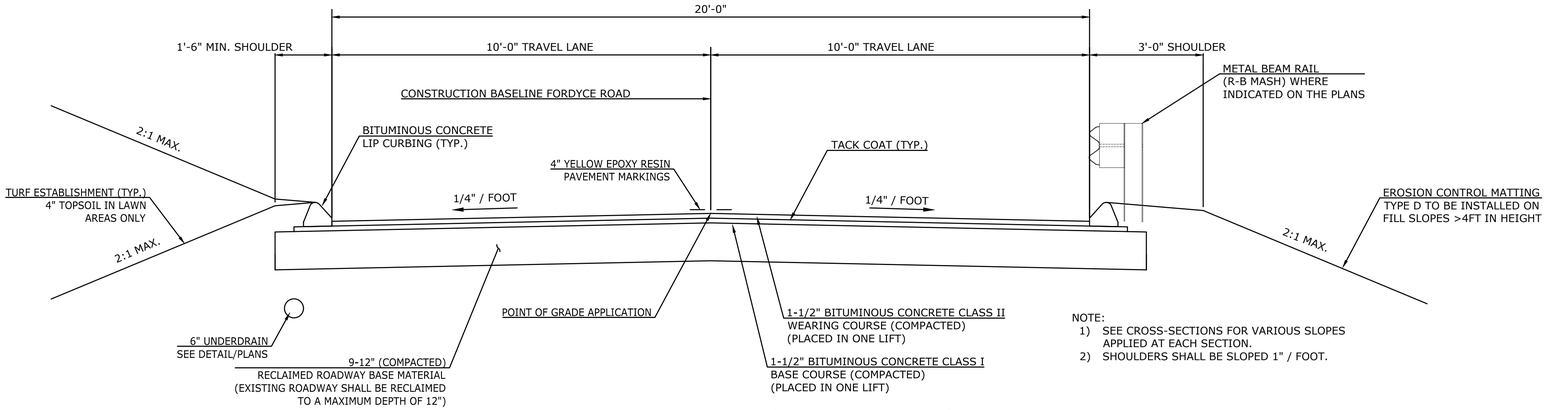
TOWN OF NEW MILFORD

10 MAIN ST

NEW MILFORD, CT 06776

INDEX PLAN / GENERAL NOTES RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

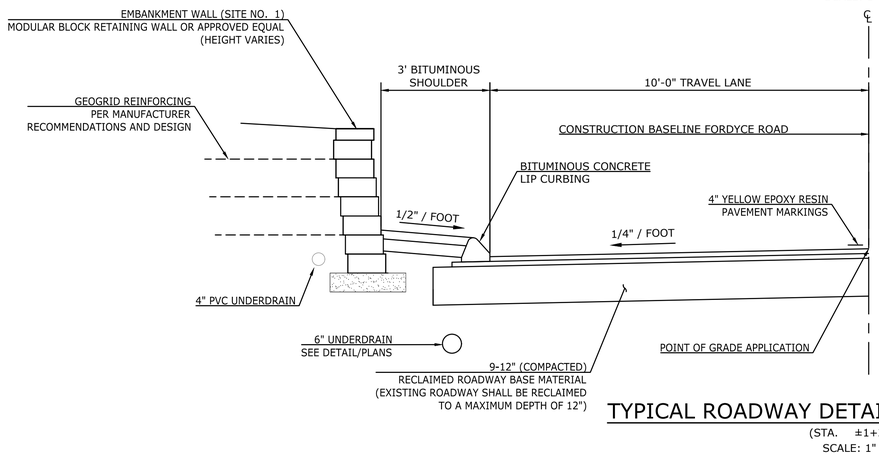
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		2	39



NOTE:
1) SEE CROSS-SECTIONS FOR VARIOUS SLOPES APPLIED AT EACH SECTION.
2) SHOULDERS SHALL BE SLOPED 1" / FOOT.

TYPICAL ROADWAY DETAIL (FORDYCE ROAD)

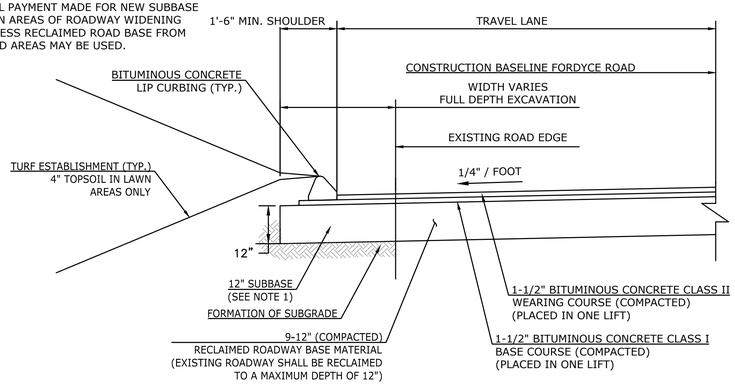
SCALE: 1" = 2'-0"



TYPICAL ROADWAY DETAIL (@ RETAINING WALL)

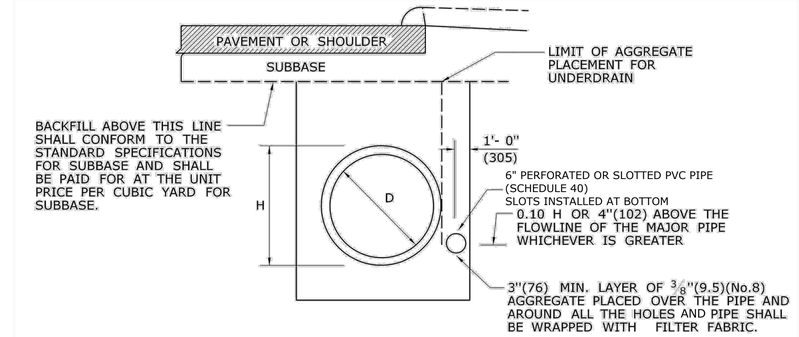
(STA. ±1+22 TO 2+27)
SCALE: 1" = 2'-0"

NOTE:
1) TOWN RESERVES THE RIGHT TO ELIMINATE ADDITIONAL PAYMENT MADE FOR NEW SUBBASE MATERIAL IN AREAS OF ROADWAY WIDENING WHERE EXCESS RECLAIMED ROAD BASE FROM OTHER ROAD AREAS MAY BE USED.



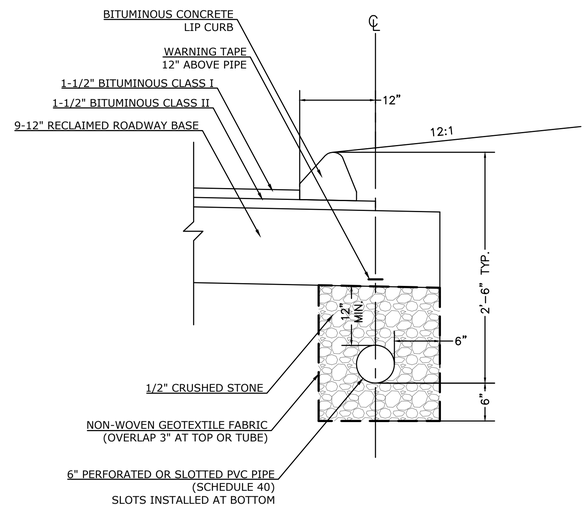
TYPICAL ROADWAY WIDENING DETAIL

SCALE: 1" = 2'-0"



6" UNDERDRAIN IN STORM PIPE TRENCH

N.T.S.



6" UNDERDRAIN @ ROAD

N.T.S.

NO.	DATE	DESCRIPTION

REVISIONS

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DATE	05/15/19

SCALE
1" = 2'

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TOWN OF NEW MILFORD
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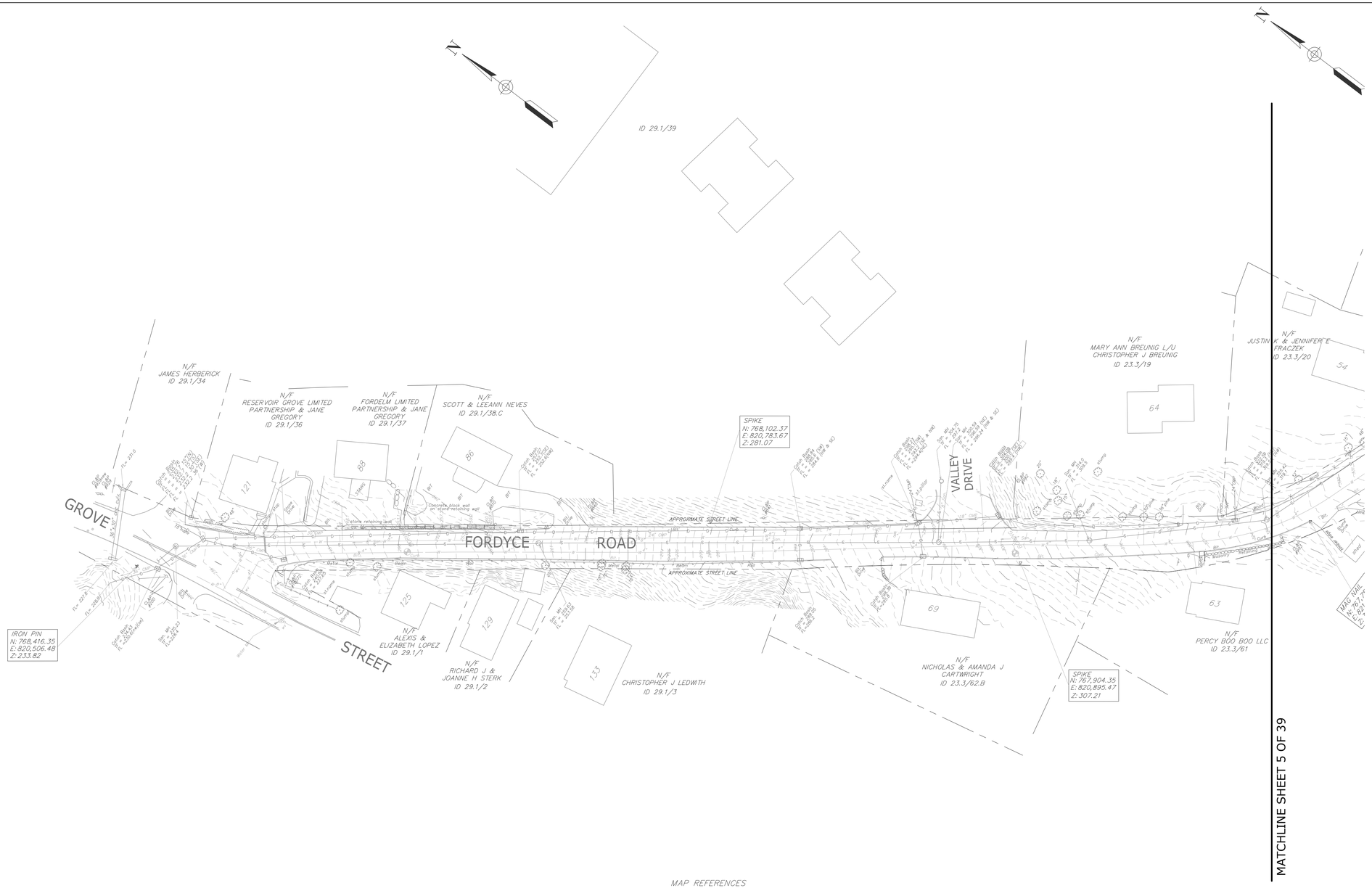
NEW MILFORD, CT 06776

TYPICAL ROADWAY SECTIONS RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		3	39



MATCHLINE SHEET 5 OF 39

THIS MAP AND THE UTILITIES DEPICTED HEREON WERE DERIVED FROM THE BEST AVAILABLE RECORD MAPS AND MARK-OUTS AND ARE APPROXIMATE ONLY AND SHOULD BE FIELD VERIFIED. PLEASE CONTACT "CALL BEFORE YOU DIG" AT 1-800-922-4455. ALL UTILITIES MAY NOT BE DEPICTED.

NOTE
HORIZONTAL DATUM IS CT GRID 1983 NAD. VERTICAL DATUM IS 1988 NAVD. BOTH OBTAINED FROM GPS READINGS. SURVEY PERFORMED IN JANUARY 2019.

MAP REFERENCES
"PARCEL B AND C JOESEPH SAFFI, TRUSTEE GROVE STREET & FORDYCE ROAD NEW MILFORD, CONNECTICUT SCALE: 1"=20' JULY 15,1987 LINWOOD R. GEE & SON, NEW MILFORD"

"PARCEL A JOESEPH SAFFI, TRUSTEE GROVE STREET & FORDYCE ROAD NEW MILFORD, CONNECTICUT SCALE: 1"=20' JULY 15,1987 LINWOOD R. GEE & SON, NEW MILFORD"

"MAP PREPARED FOR ESTATE OF JERRY P. ESPITEE GROVE STREET TOWN OF NEW MILFORD COUTY OF LITCHFIELD STATE OF CONNECTICUT KOWLAND, L.S."

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 40'

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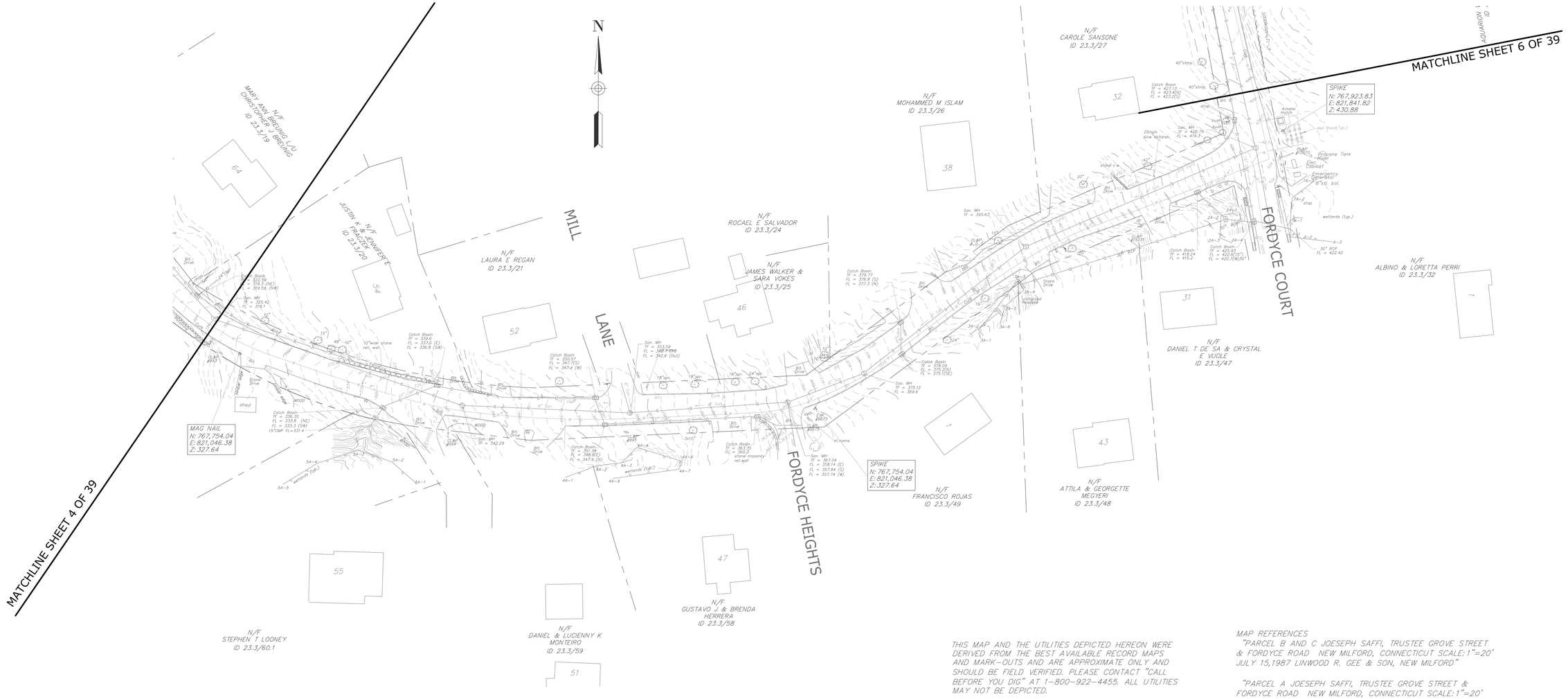
PREPARED FOR
TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

EXISTING CONDITIONS SURVEY (1 OF 3)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		4	39



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"MAP PREPARED FOR ESTATE OF JERRY P. ESPITEE GROVE STREET TOWN OF NEW MILFORD COUTY OF LITCHFIELD STATE OF CONNECTICUT KOWLAND, L.S."

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV. S.R.M.
DESIGN R.E.B.
DRAWN R.E.B.
CHECKED S.R.M.
DATE 05/15/19

SCALE
1" = 40'

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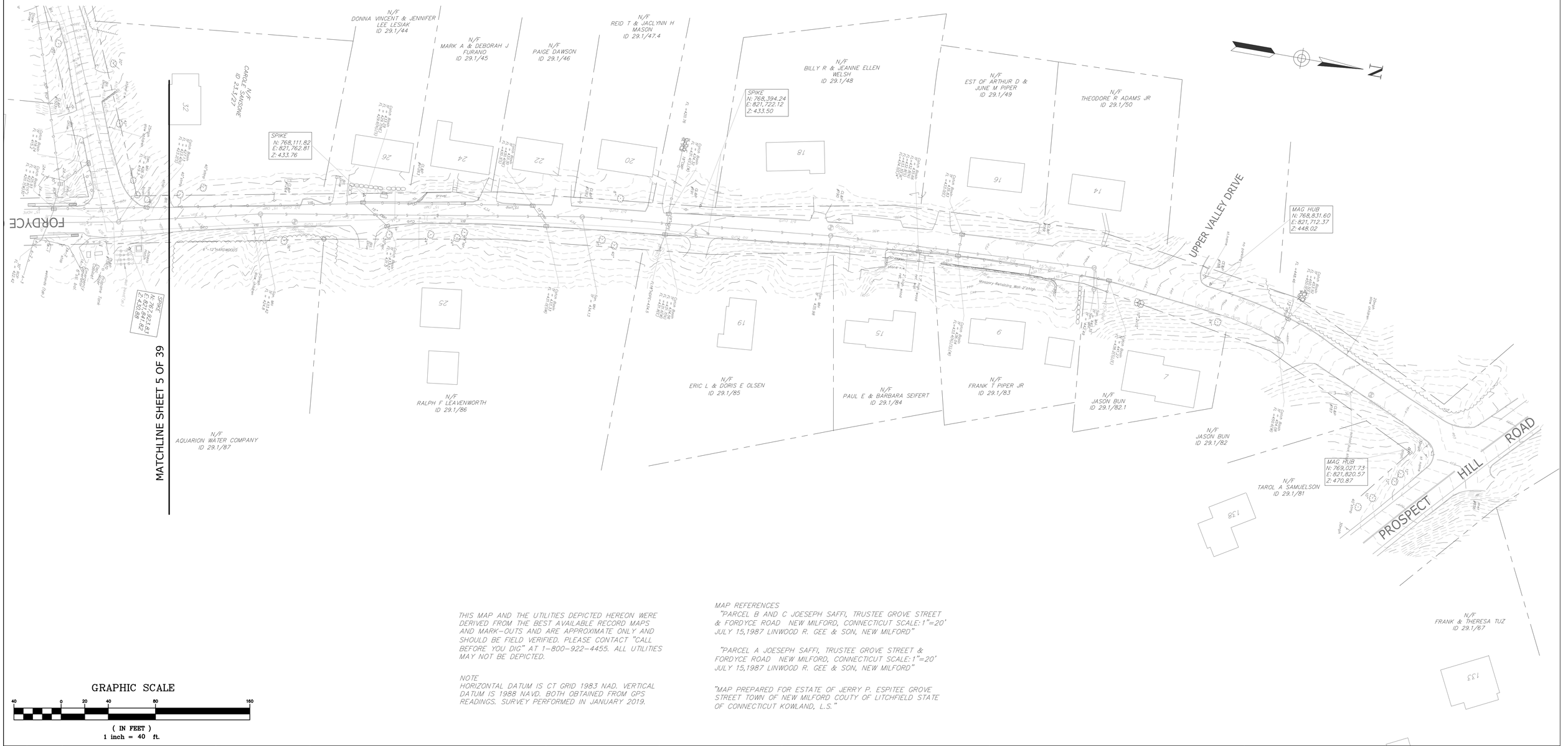
PREPARED FOR

TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

EXISTING CONDITIONS SURVEY (2 OF 3)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET
D –	FORDYCE ROAD –	FORDYCE_FD–	18113.300 –		5 OF 39



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"MAP PREPARED FOR ESTATE OF JERRY P. ESPITEE GROVE STREET TOWN OF NEW MILFORD COUTY OF LITCHFIELD STATE OF CONNECTICUT KOWLAND, L.S."

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 40'

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PREPARED FOR
TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

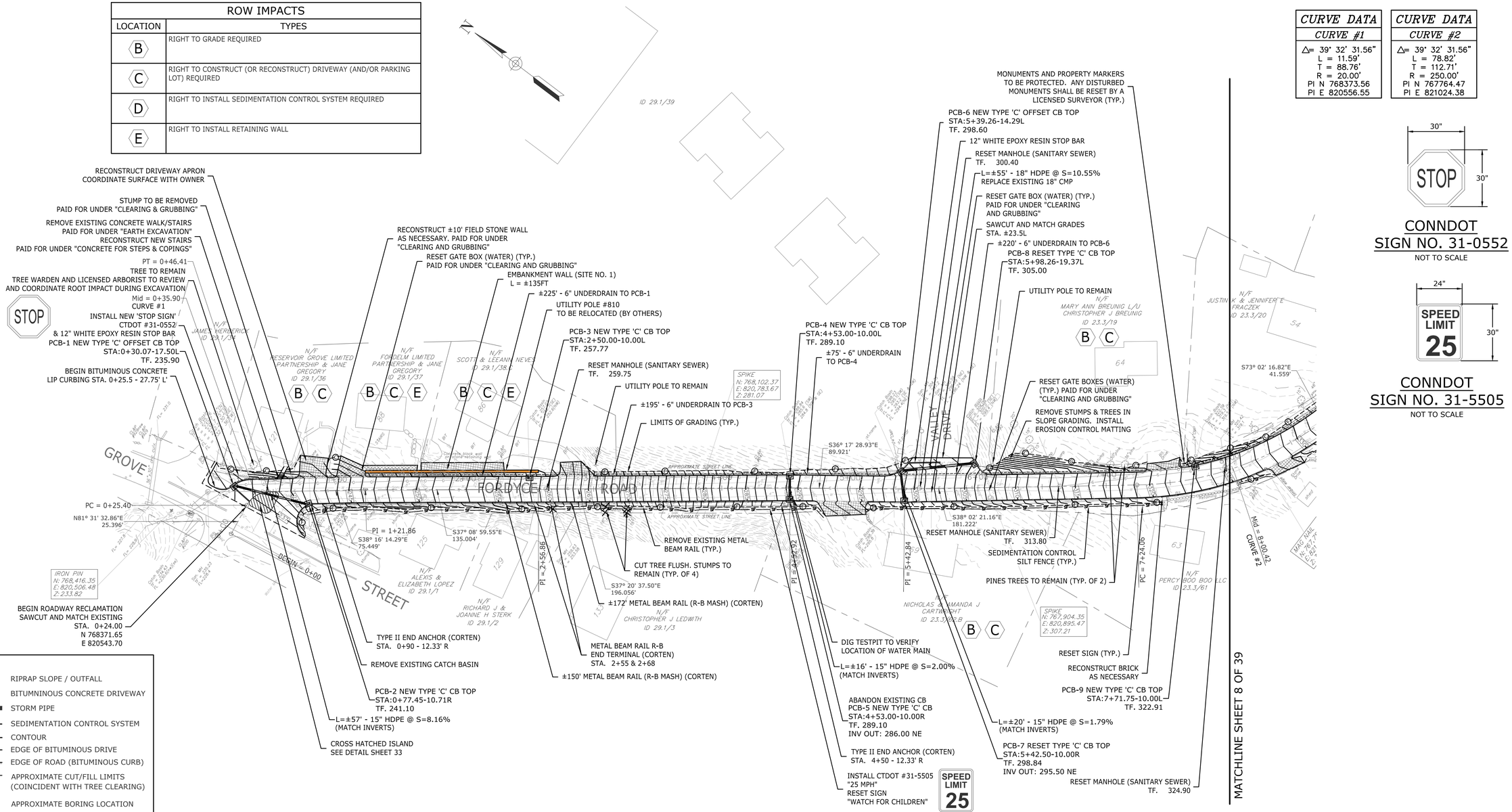
EXISTING CONDITIONS SURVEY (3 OF 3)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		6	39

ROW IMPACTS	
LOCATION	TYPES
B	RIGHT TO GRADE REQUIRED
C	RIGHT TO CONSTRUCT (OR RECONSTRUCT) DRIVEWAY (AND/OR PARKING LOT) REQUIRED
D	RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
E	RIGHT TO INSTALL RETAINING WALL

CURVE DATA
CURVE #1
Δ= 39° 32' 31.56"
L = 11.59'
T = 88.76'
R = 20.00'
PI N 768373.56
PI E 820556.55

CURVE DATA
CURVE #2
Δ= 39° 32' 31.56"
L = 78.82'
T = 112.71'
R = 250.00'
PI N 767764.47
PI E 821024.38



CONNDOT
SIGN NO. 31-0552
NOT TO SCALE

CONNDOT
SIGN NO. 31-5505
NOT TO SCALE

PROPOSED LEGEND:

- RIPRAP SLOPE / OUTFALL
- BITUMINOUS CONCRETE DRIVEWAY
- STORM PIPE
- SF — SEDIMENTATION CONTROL SYSTEM
- 220 — CONTOUR
- EDGE OF BITUMINOUS DRIVE
- EDGE OF ROAD (BITUMINOUS CURB)
- C — F — APPROXIMATE CUT/FILL LIMITS (COINCIDENT WITH TREE CLEARING)
- APPROXIMATE BORING LOCATION
- MONUMENT TO BE SET
- CATCH BASIN / CATCH BASIN TOP
- DRAINAGE MANHOLE
- TREE TO BE REMOVED

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 40'

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PREPARED FOR

TOWN OF NEW MILFORD
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NEW MILFORD, CT 06776

ROADWAY PLAN (STA. 0+24 - 8+00) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

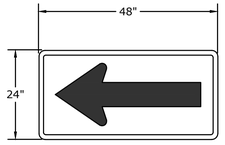
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		7	39

CURVE DATA
CURVE #3
△= 39° 32' 31.56"
L = 175.72'
T = 88.76'
R = 500.00'
PI N 767703.45
PI E 821224.44

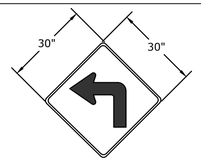
CURVE DATA
CURVE #4
△= 39° 32' 31.56"
L = 122.09'
T = 63.02'
R = 200.00'
PI N 757718.21
PI E 821490.54

CURVE DATA
CURVE #5
△= 39° 32' 31.56"
L = 117.11'
T = 58.98'
R = 400.00'
PI N 767831.96
PI E 821635.34

ROW IMPACTS	
LOCATION	TYPES
B	RIGHT TO GRADE REQUIRED
C	RIGHT TO CONSTRUCT (OR RECONSTRUCT) DRIVEWAY (AND/OR PARKING LOT) REQUIRED
D	RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
F	RIGHT TO CONSTRUCT AND MAINTAIN DRAINAGE SYSTEM REQUIRED



CONNDOT
SIGN NO. 41-4222
NOT TO SCALE



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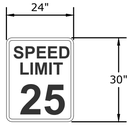
SIGN NO. 41-4006
NOT TO SCALE



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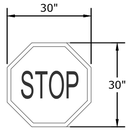
NOT TO SCALE



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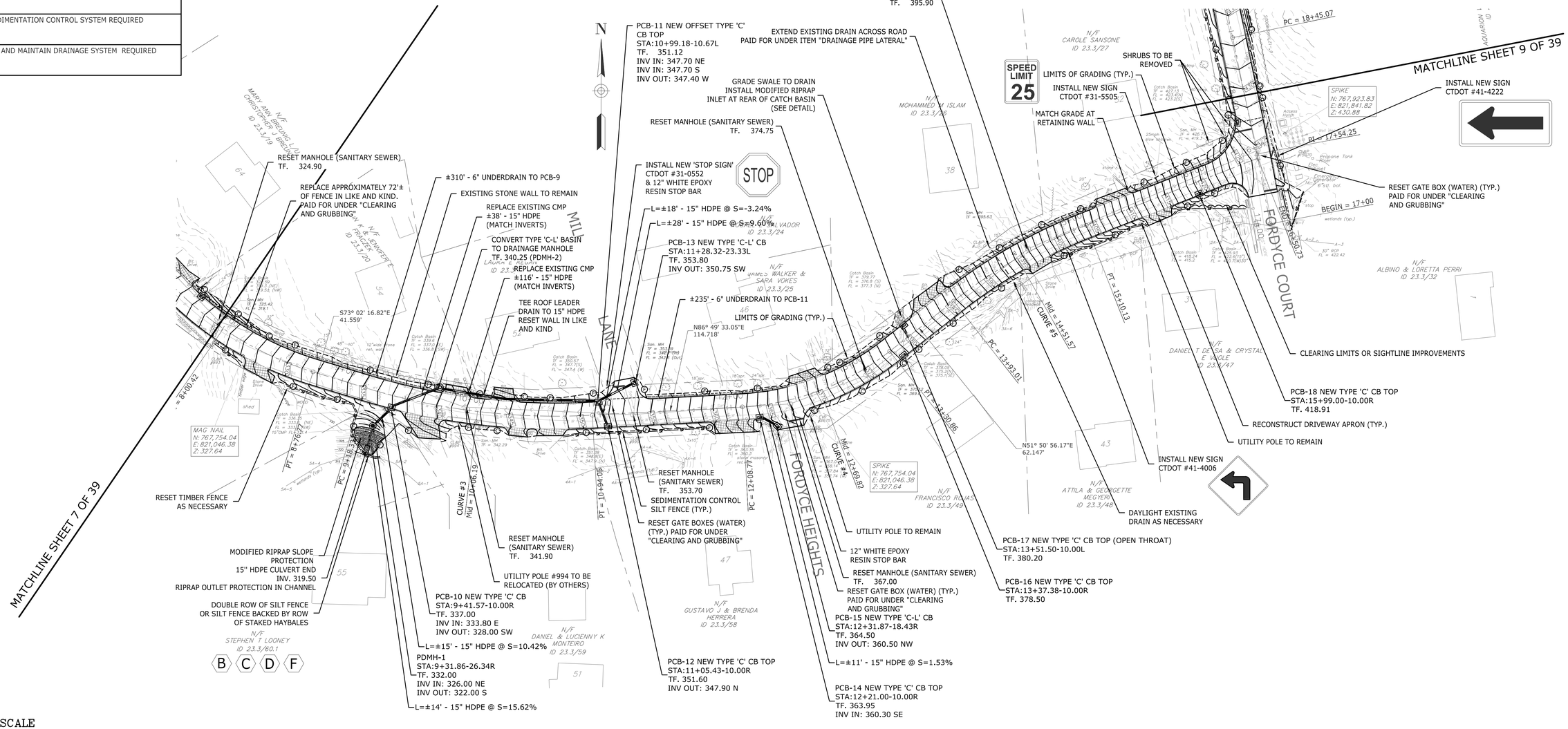
NOT TO SCALE



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NO.	DATE	DESCRIPTION

REVISIONS

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CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 40'

WMC
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PREPARED FOR

TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

ROADWAY PLAN (STA. 8+00 - 16+50.73) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		8	39

CURVE DATA	CURVE DATA	CURVE DATA	CURVE DATA
CURVE #6	CURVE #7	CURVE #8	CURVE #9
△= 1° 12' 39.54"	△= 4° 24' 32.28"	△= 13° 09' 47.88	△= 17° 23' 29.16"
L = 105.68'	L = 76.95'	L = 206.77'	L = 75.88'
T = 52.84'	T = 38.49'	T = 103.84'	T = 38.24'
R = 5000.00'	R = 1000.00'	R = 900.00'	R = 250.00'
PI N 768048.49	PI N 768228.64	PI N 768686.72	PI N 768887.04
PI E 821794.15	PI E 821757.38	PI E 821707.53	PI E 821731.97

ROW IMPACTS	
LOCATION	TYPES
B	RIGHT TO GRADE REQUIRED
C	RIGHT TO CONSTRUCT (OR RECONSTRUCT) DRIVEWAY (AND/OR PARKING LOT) REQUIRED
D	RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
F	RIGHT TO CONSTRUCT AND MAINTAIN DRAINAGE SYSTEM REQUIRED

PCB-20 NEW TYPE 'C' CB
STA:19+85.00-10.00L
TF. 433.46
INV IN: 429.50 N
INV OUT: 429.50 S

INSTALL ±50' CAPE COD CURB
RESTORE AND MATCH GRAVEL
DRIVE AS NECESSARY

PCB-22 NEW TYPE 'C' OFFSET CB TOP
STA:21+07.00-10.00L
TF. 433.57
INV IN: 430.50 E
INV OUT: 430.50 S

RESET MANHOLE (SANITARY SEWER)
TF. 326.75

RESET GATE BOXES (WATER) (TYP.)
PAID FOR UNDER
"CLEARING AND GRUBBING"

INSTALL NEW STOP SIGN
CTDOT #31-0552
& 12" WHITE STOP BAR

PCB-19 NEW TYPE 'C' CB TOP
STA:17+81.13-10.61L
TF. 428.64

BEGIN ROADWAY RECLAMATION
SAWCUT AND MATCH EXISTING
STA. 17+23.00
N 767977.17
E 821826.41

END 35' RADIUS
STA. 17+89.10 - 10.0'L

UTILITY POLE TO REMAIN

REMOVE BITUMINOUS
APRON. TOPSOIL
AND SEED

REMOVE EXISTING
CATCH BASIN

INSTALL 18" HDPE CULVERT END INV. 420.8±
RIPRAP OUTLET PROTECTION
IN CHANNEL L=15'±

L=±52' - 18" HDPE @ S=19.85%
REPLACE EXISTING 18" CMP

PCB-24 NEW TYPE 'C' CB TOP
STA:22+22.00-10.00L
TF. 434.67

L=±16' - 15" HDPE @ S=1.86%

UTILITY POLE
TO REMAIN

UTILITY POLE TO REMAIN

INSTALL ±42' CAPE COD CURB
EXISTING PAVEMENT TO REMAIN

RECONSTRUCT BITUMINOUS
DRIVEWAY APRON (TYP.)

PCB-27 NEW TYPE 'C' CB TOP
STA:24+71.03-10.00L
TF. 436.28

UTILITY POLE TO REMAIN ID 29.1/48

RESET GATE BOXES (WATER) (TYP.)
PAID FOR UNDER
"CLEARING AND GRUBBING"

INSTALL ±65' CAPE COD CURB
EXISTING PAVEMENT TO REMAIN

SAWCUT AND MATCH GRADE
STATION - 15.0'L
12" EPOXY RESIN STOP BAR

L=±15' - 15" HDPE @ S=8.59%

15" HDPE CULVERT END
INV. 449.00
PREFORMED SCOUR HOLE

RESET SIGN

SEDIMENTATION CONTROL
SILT FENCE (TYP.)

INSTALL NEW SIGN
"20 MPH"
CTDOT #31-5505

BEGIN 15' RADIUS
STA. 29+08.59 - 10.0'R

BEGIN 25' RADIUS
STA. 29+16.07 - 10.0'L

END ROADWAY RECLAMATION
SAWCUT & MATCH EXISTING
STA. 29+33.00
N 769060.82
E 821810.60

RESET STOP SIGN
12" WHITE EXPOXY
RESIN STOP BAR
PAVED LEAK OFF
SEE DETAIL

INSTALL NEW SIGN
CTDOT #41-4222

±220' - 6" UNDERDRAIN
DIRECTED TO PCB-19

INSTALL NEW SIGN
"20 MHP"
CTDOT #31-5505

RESET MANHOLE
(SANITARY SEWER)
TF. 333.45

REMOVE EXISTING
CATCH BASIN

REMOVE EXISTING 15" CMP

REPLACE ±20' - 15" CMP
WITH NEW 15" HDPE
(MATCH INVERTS)

L=±16' - 15" HDPE @ S=2.53%

PCB-21 RESET TYPE 'C' CB TOP
STA:19+85.00-10.00R
TF. 433.46
INV OUT: 430.40 W

±115' - 6" UNDERDRAIN
TO PCB-21

TREES TO BE
REMOVED

PCB-23 NEW TYPE 'C' CB
STA:21+07.00-10.00R
TF. 433.57
INV OUT: 430.80 W

RESET GATE BOXES (WATER)
(TYP.) PAID FOR UNDER
"CLEARING AND GRUBBING"

REMOVE EXISTING 15" CMP

REMOVE EXISTING
CATCH BASIN

±110' - 6" UNDERDRAIN TO PCB-23

RESET MANHOLE
(SANITARY SEWER)
TF. 434.20

EXISTING STORM PIPE
TO REMAIN

±208' - 6" UNDERDRAIN IN
STORM PIPE TRENCH TO PCB-25
LIMITS OF GRADING (TYP.)

RESET MANHOLE (SANITARY SEWER)
TF. 435.90

RETAINING WALL TO REMAIN

±122' - 6" UNDERDRAIN IN
STORM PIPE TRENCH TO PCB-28

RESET MANHOLE
(SANITARY SEWER)
TF. 340.50

TREE TO BE REMOVED

±145' - 6" UNDERDRAIN
TO PCB-29

PCB-25 NEW TYPE 'C' CB TOP
STA:22+22.00-10.00R
TF. 434.67

PCB-26 NEW TYPE 'C' CB TOP
STA:24+37.00-10.00R
TF. 436.07

±28' - 6" UNDERDRAIN IN
STORM PIPE TRENCH TO PCB-26

PCB-28 NEW TYPE 'C' CB TOP
STA:24+71.03-10.00R
TF. 436.28

PCB-29 NEW TYPE 'C' CB TOP
STA:26+02.00-10.00R
TF. 441.25

PCB-31 NEW TYPE 'C' CB TOP
STA:27+56.00-10.00R
TF. 454.11
INV OUT: 450.60 W

L=±16' - 15" HDPE @ S=0.50%

PCB-30 NEW TYPE 'C' CB TOP
STA:27+56.00-10.00L
TF. 454.11
INV IN: 450.50 E
INV OUT: 450.50 W

RESET SIGN

±150' - 6" UNDERDRAIN
TO PCB-31

TREES TO BE REMOVED

RESET MONUMENT
TO BE RESET BY A LICENSED SURVEYOER

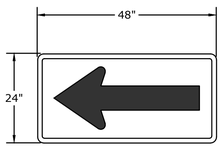
INSTALL NEW STOP SIGN
CTDOT #31-0552
& 12" WHITE EPOXY
RESIN STOP BAR

END 15' RADIUS
STA. 29+23.08 - 28.89'R

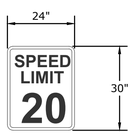
CONTRACTOR SHALL BE RESPONSIBLE
FOR SECURING CONNDOT
ENCROACHMENT PERMIT FOR ALL
WORK ASSOCIATED WITHIN RTE. 67

END 25' RADIUS
STA. 29+39.38 - 25.95'L

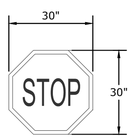
MATCHLINE SHEET 8 OF 39



CONNDOT
SIGN NO. 41-4222
NOT TO SCALE



CONNDOT
SIGN NO. 31-5505
NOT TO SCALE



CONNDOT
SIGN NO. 31-0552
NOT TO SCALE

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

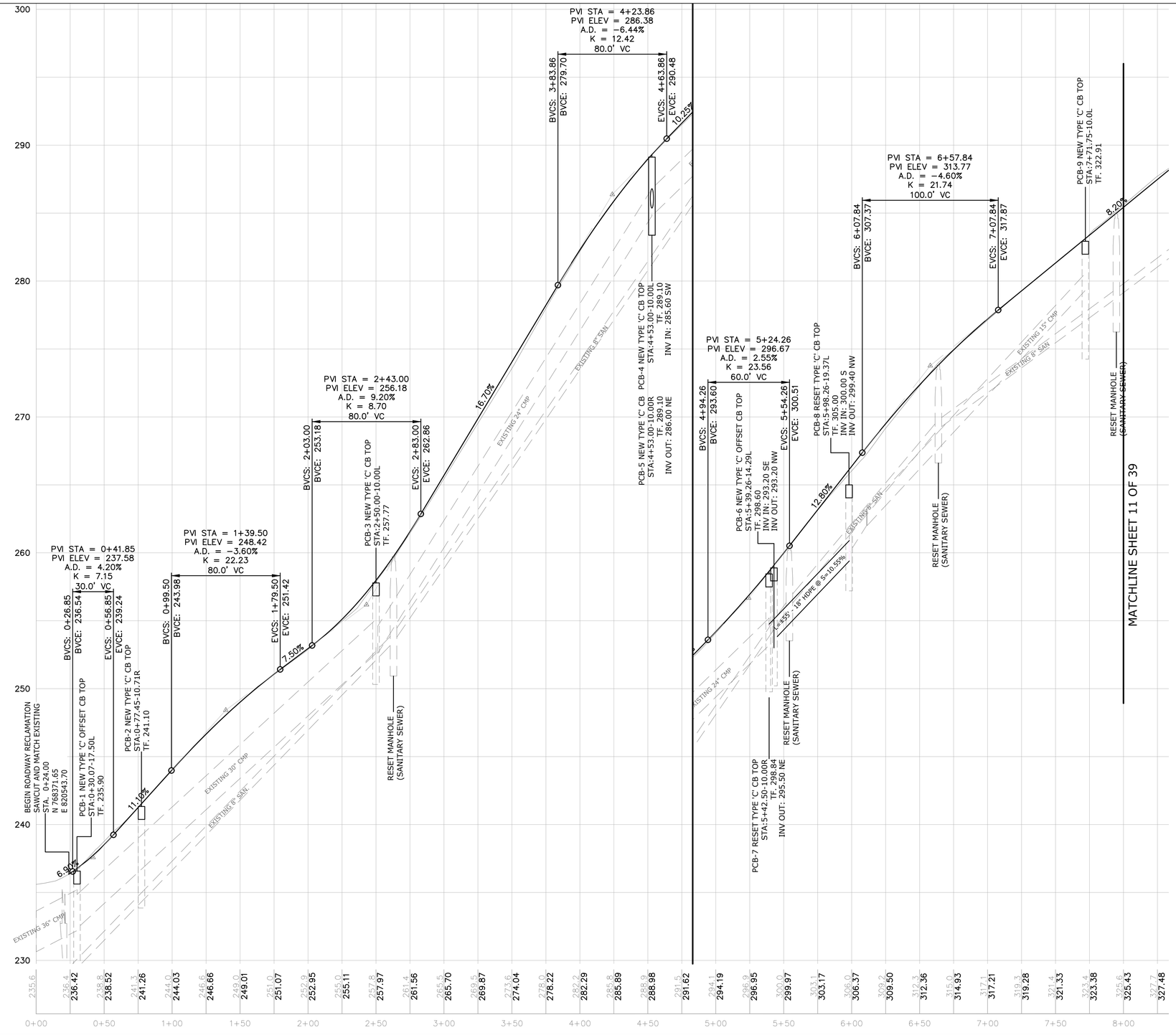
SCALE
1" = 40'

WMC CONSULTING ENGINEERS
• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR
TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

ROADWAY PLAN (STA. 17+23 - 29+33)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		9	39



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

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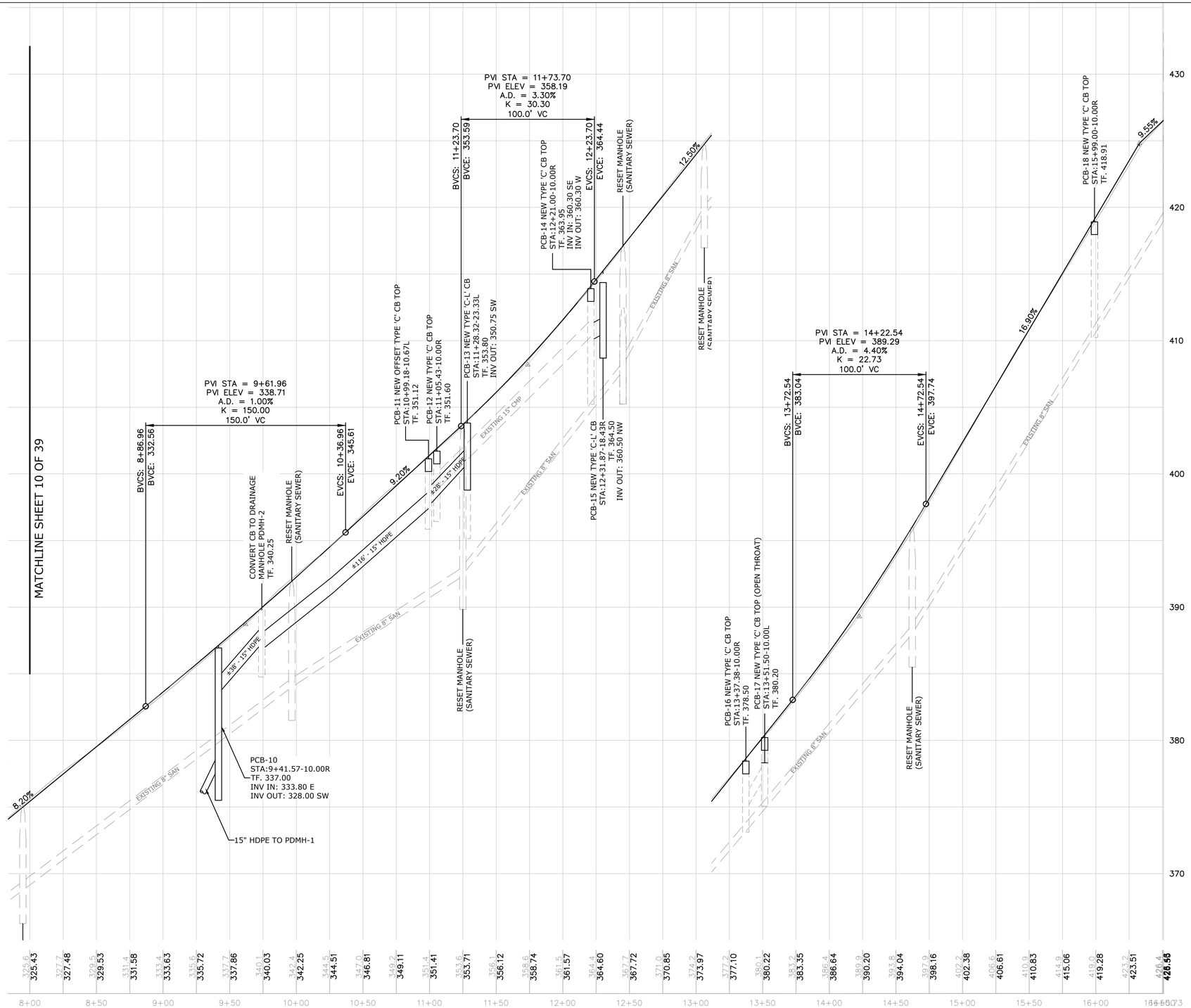
10 MAIN ST
NEW MILFORD, CT 06776

ROADWAY PROFILE (STA. 0+23.88 - 8+00) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		10	39



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

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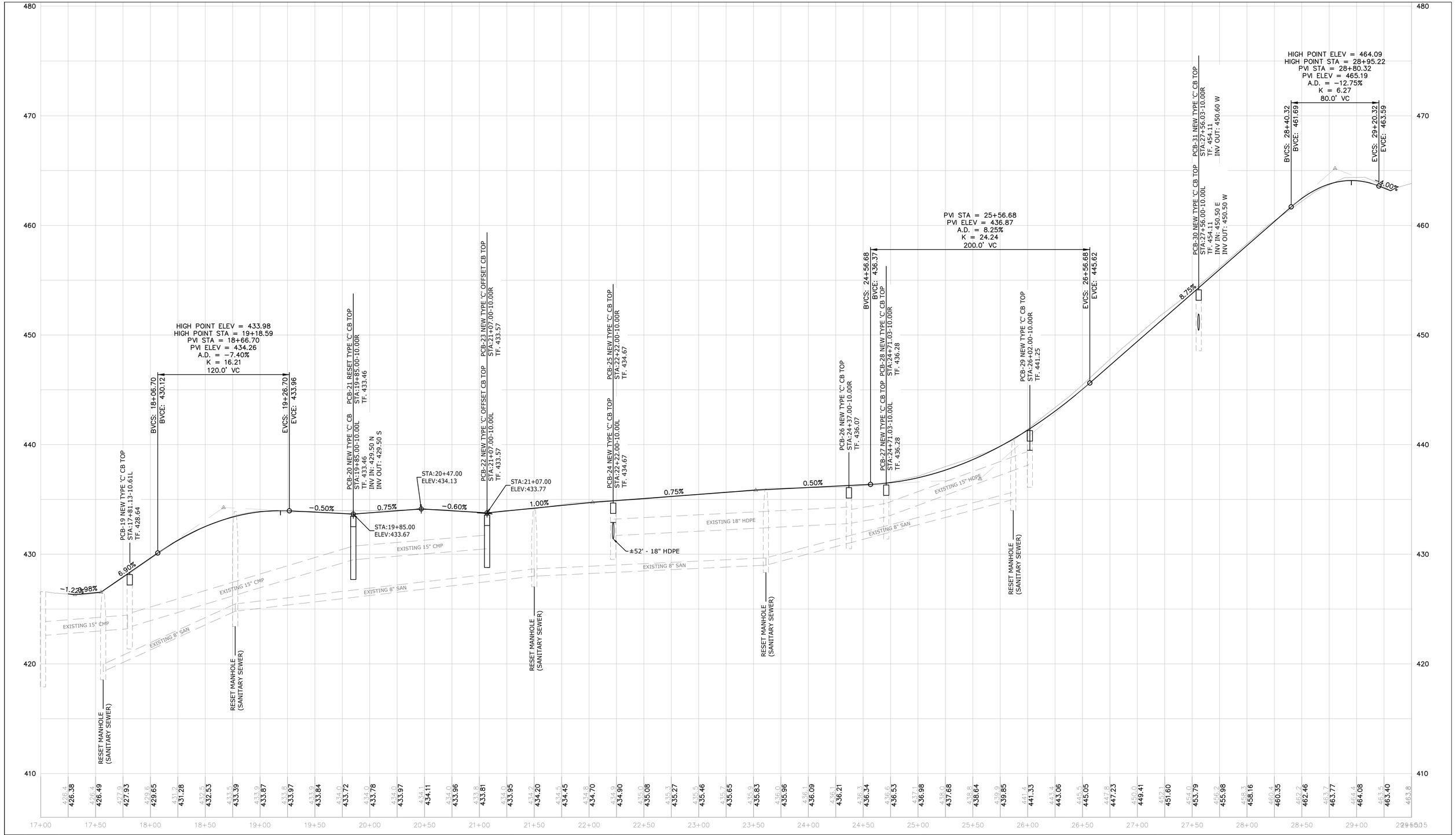
ROADWAY PROFILE (STA. 8+00 - 16+50.73) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		11	39



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
HORIZ: 1" = 40'
VERT: 1" = 4'

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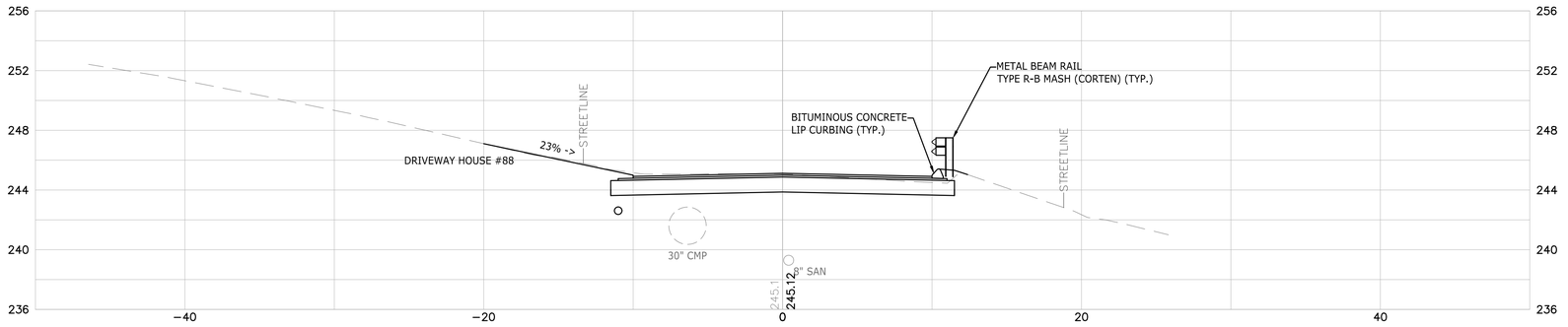
NEW MILFORD, CT 06776

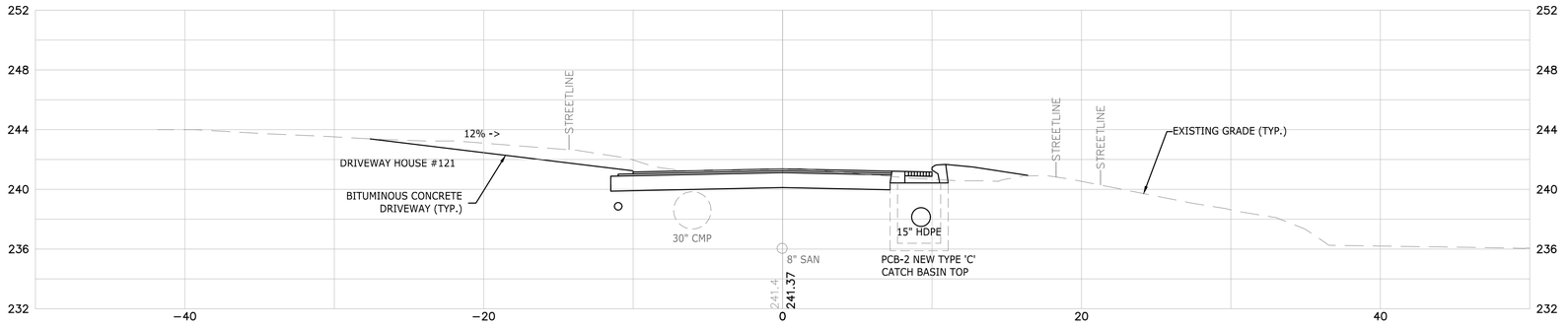
ROADWAY PROFILE (STA. 17+23 - 29+33) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		12	39

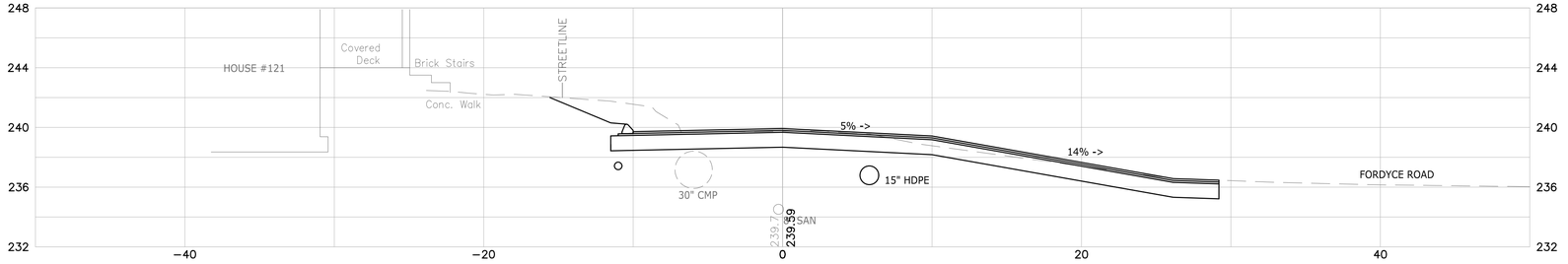
1+10



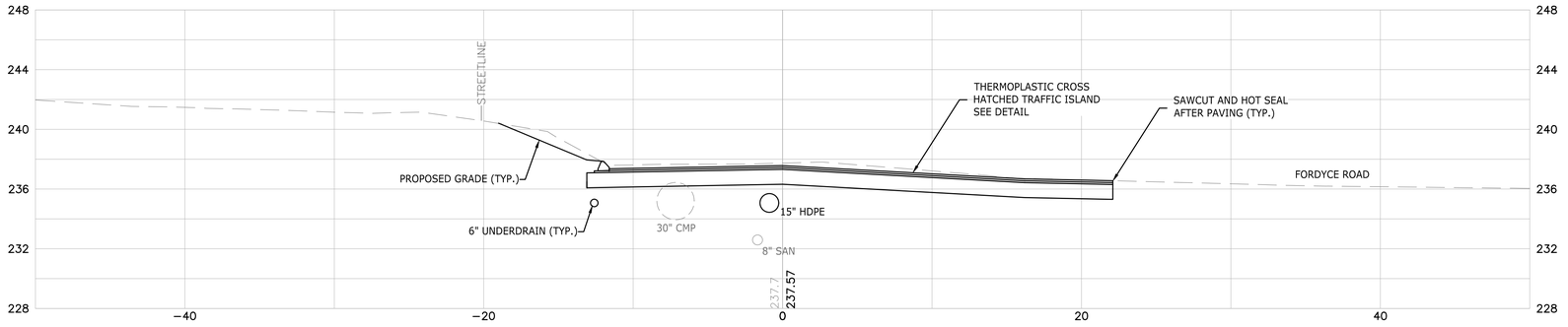
0+76



0+60



0+40



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

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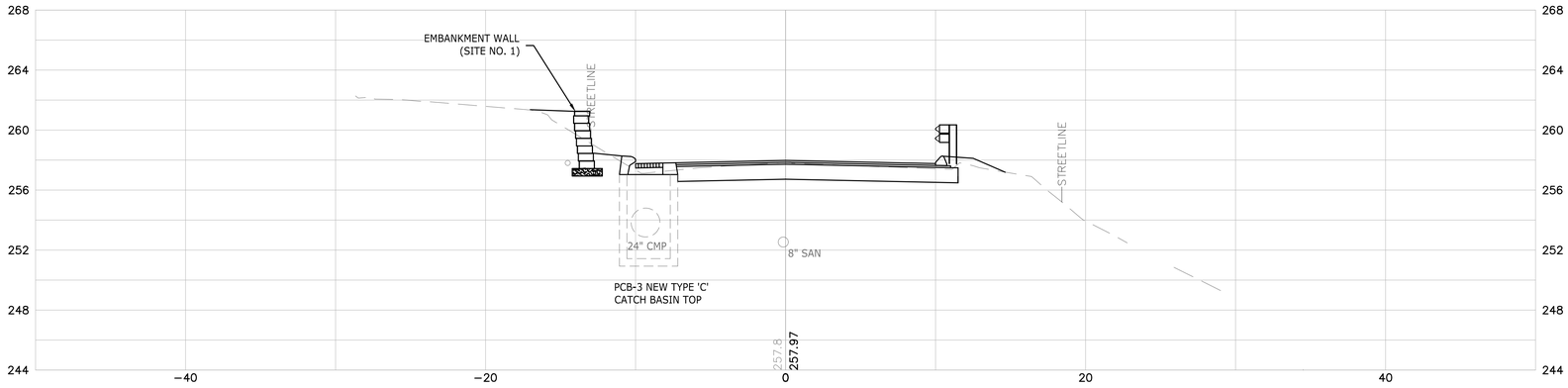
10 MAIN ST

NEW MILFORD, CT 06776

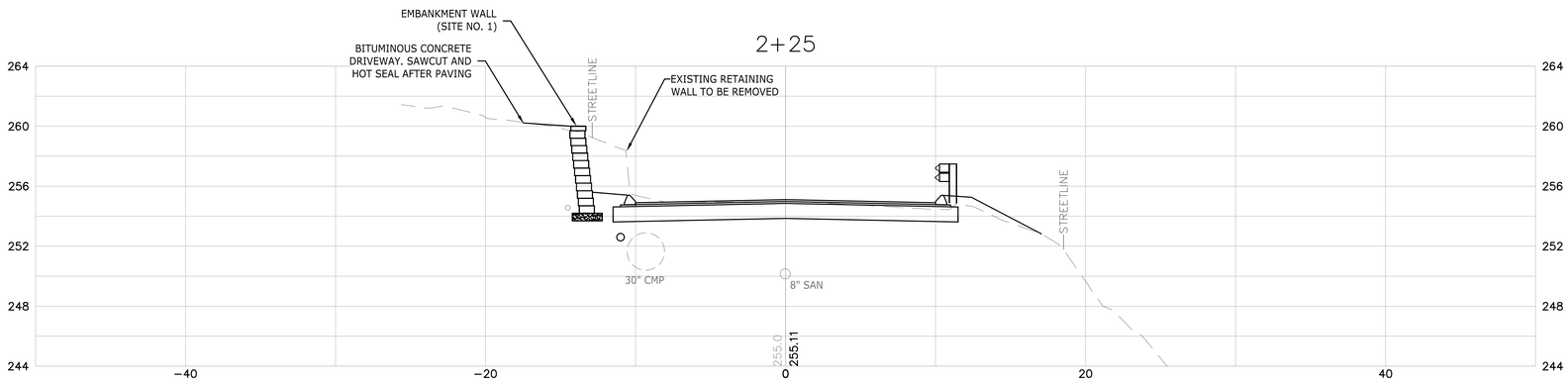
ROADWAY SECTIONS (STA. 0+40 - 1+10) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		13	39

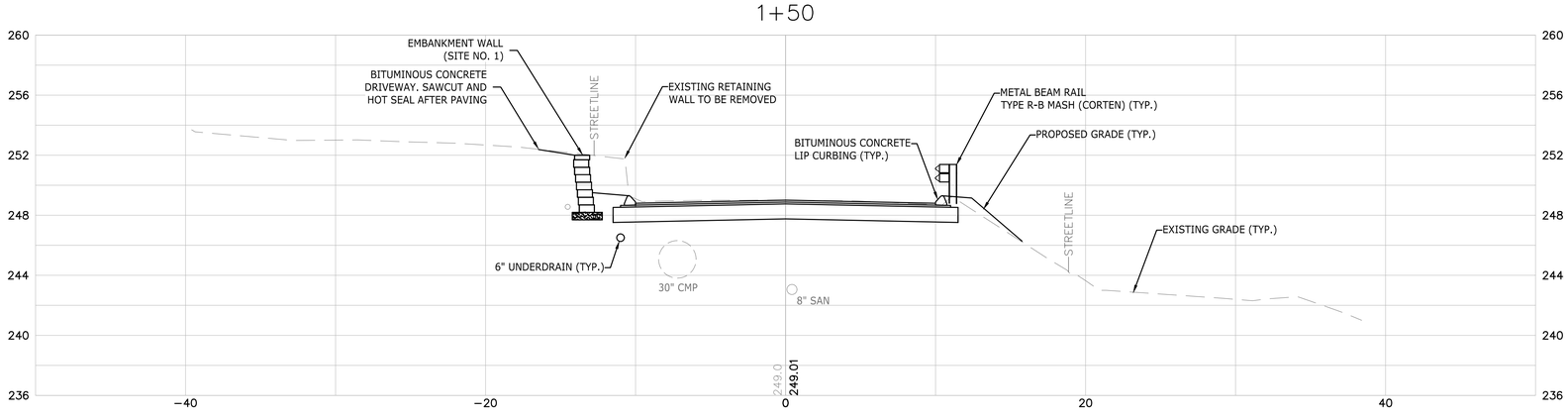
2+50



2+25



1+50



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

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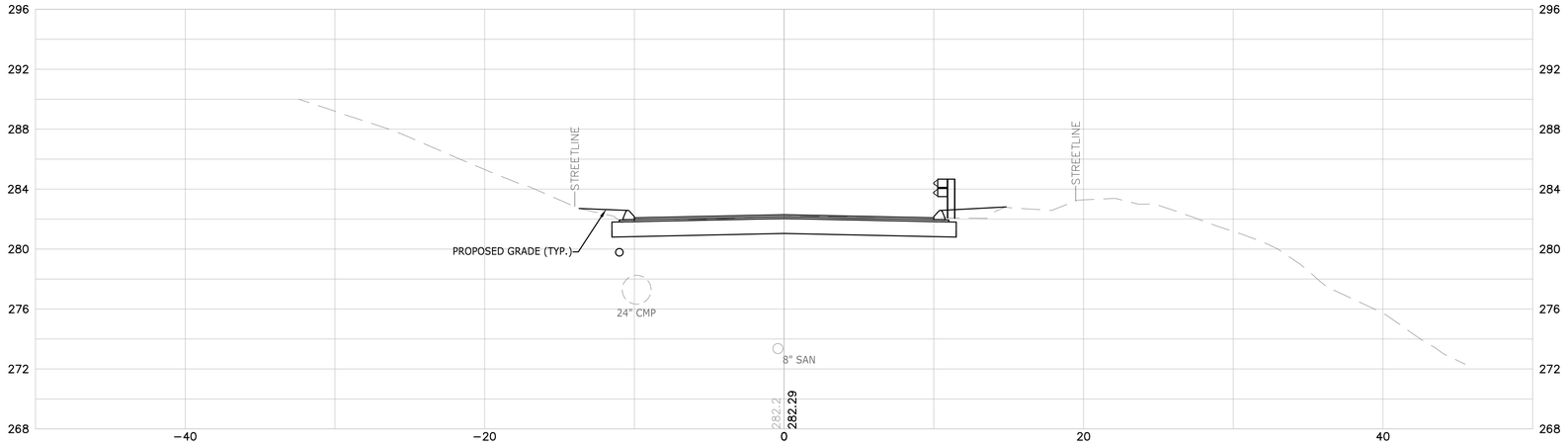
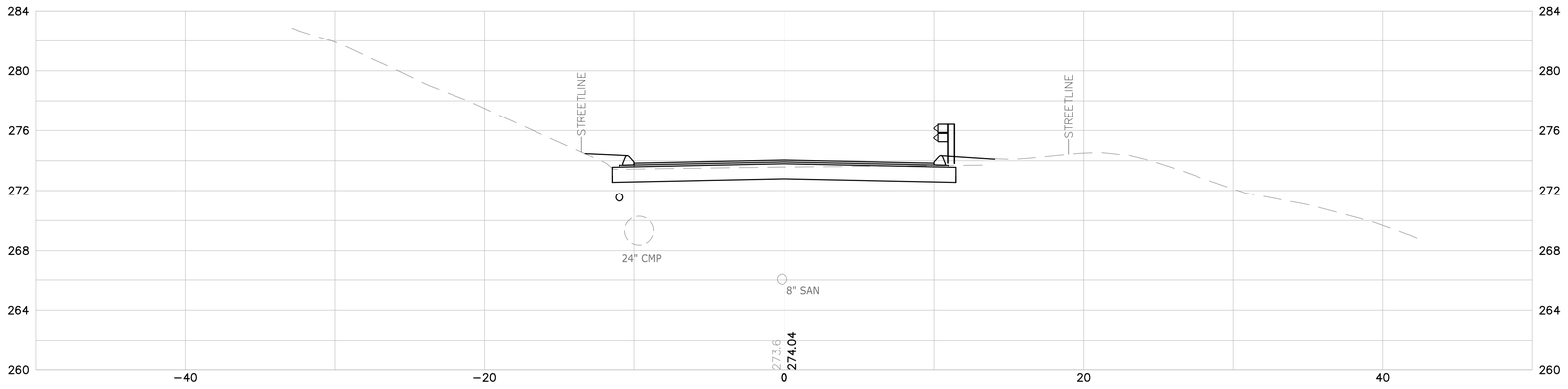
ROADWAY SECTIONS (STA. 1+50 - 2+50) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		14	39

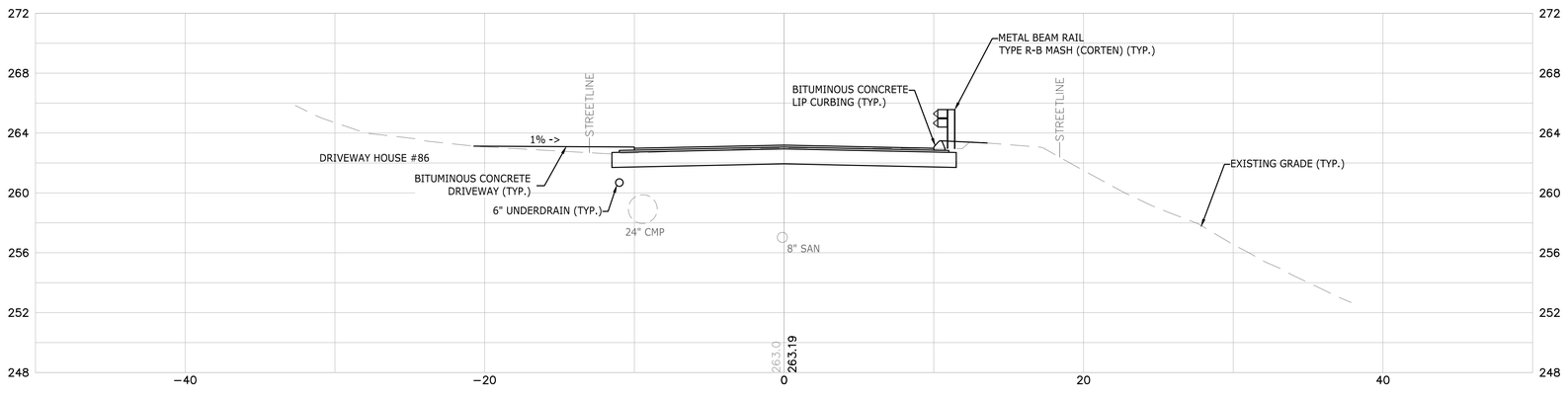
4+00



3+50



2+85



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

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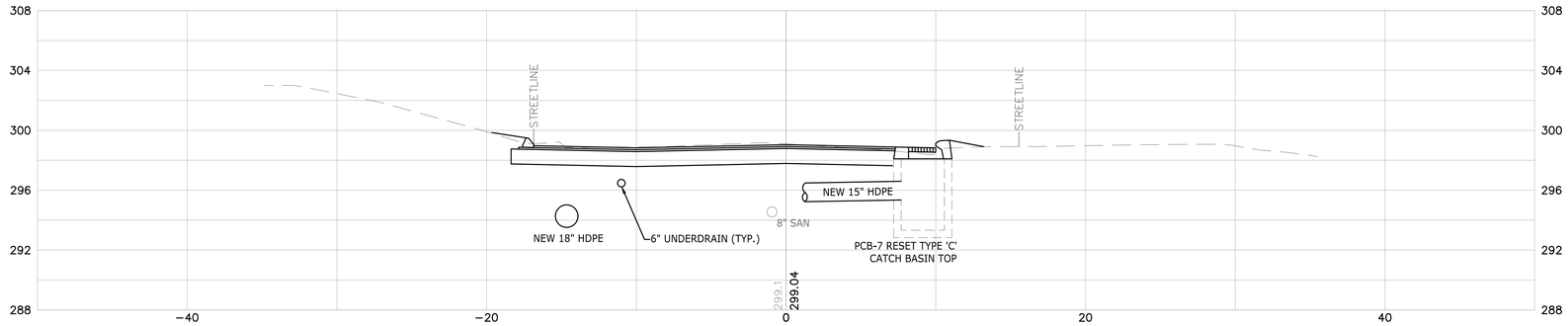
NEW MILFORD, CT 06776

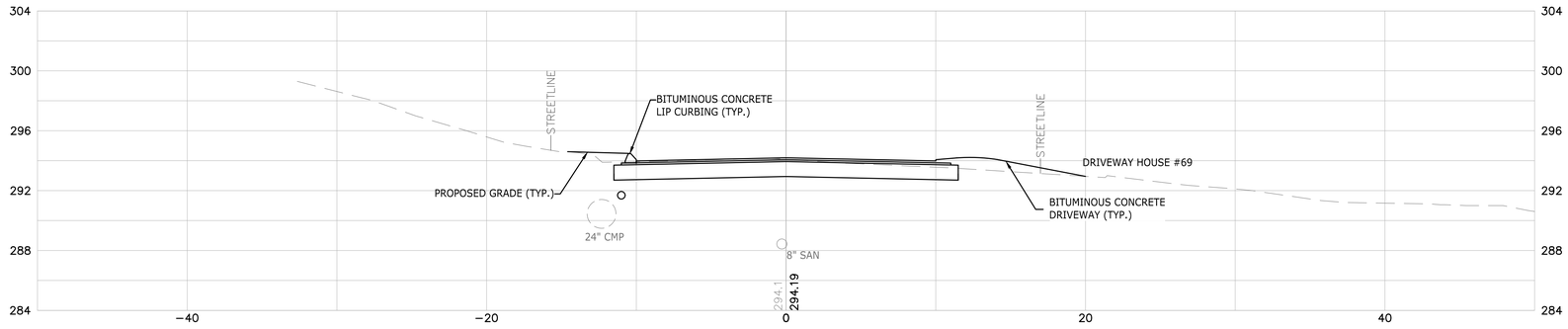
ROADWAY SECTIONS (STA. 2+85 - 4+00) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		15	39

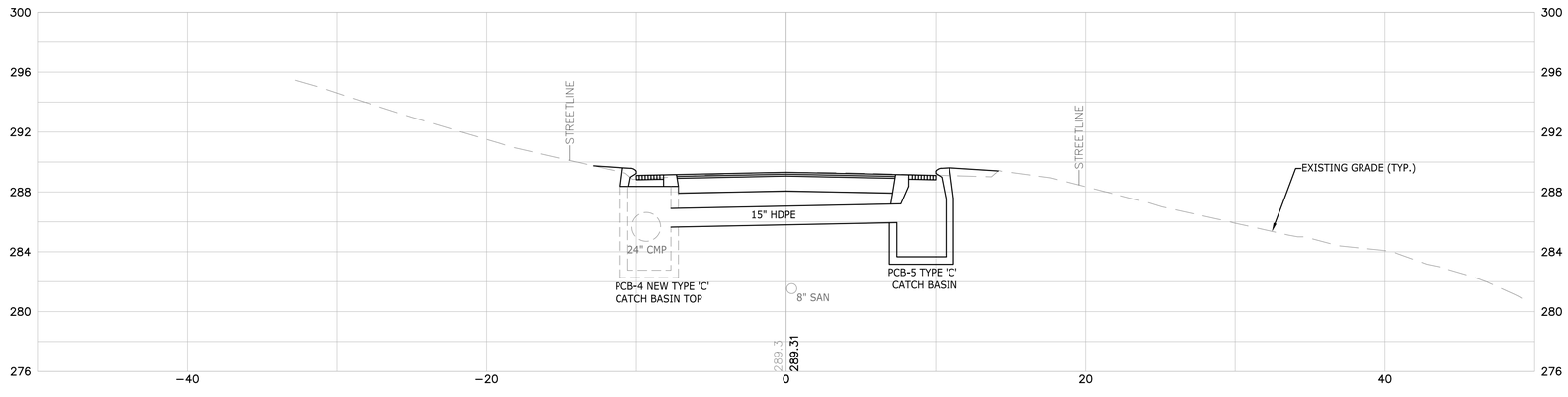
5+42.50



5+00



4+53



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

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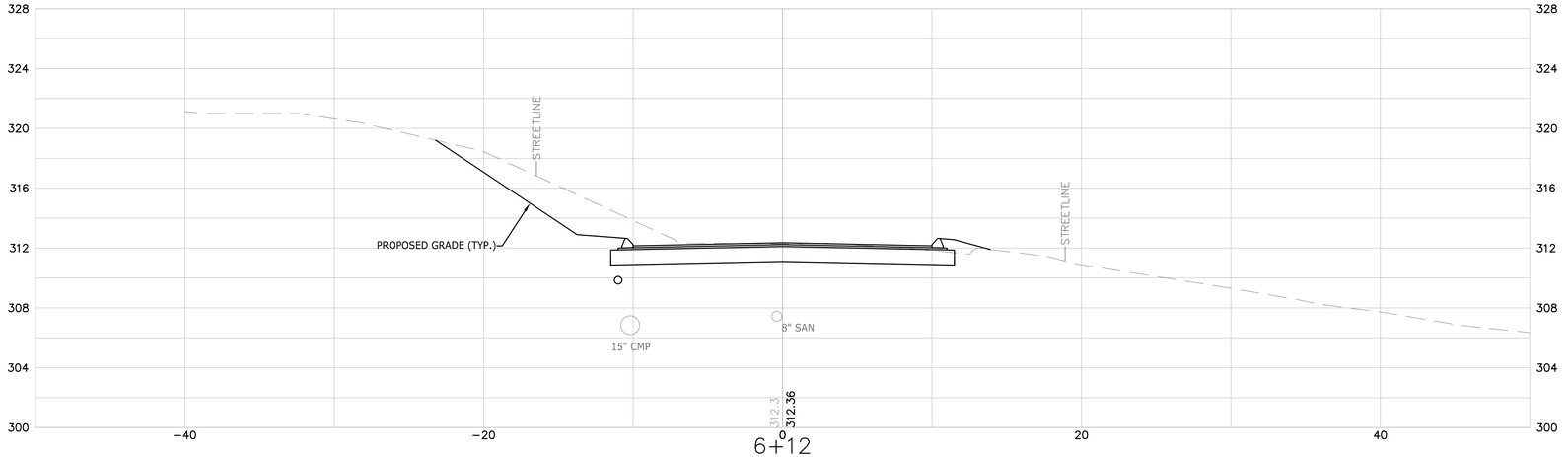
NEW MILFORD, CT 06776

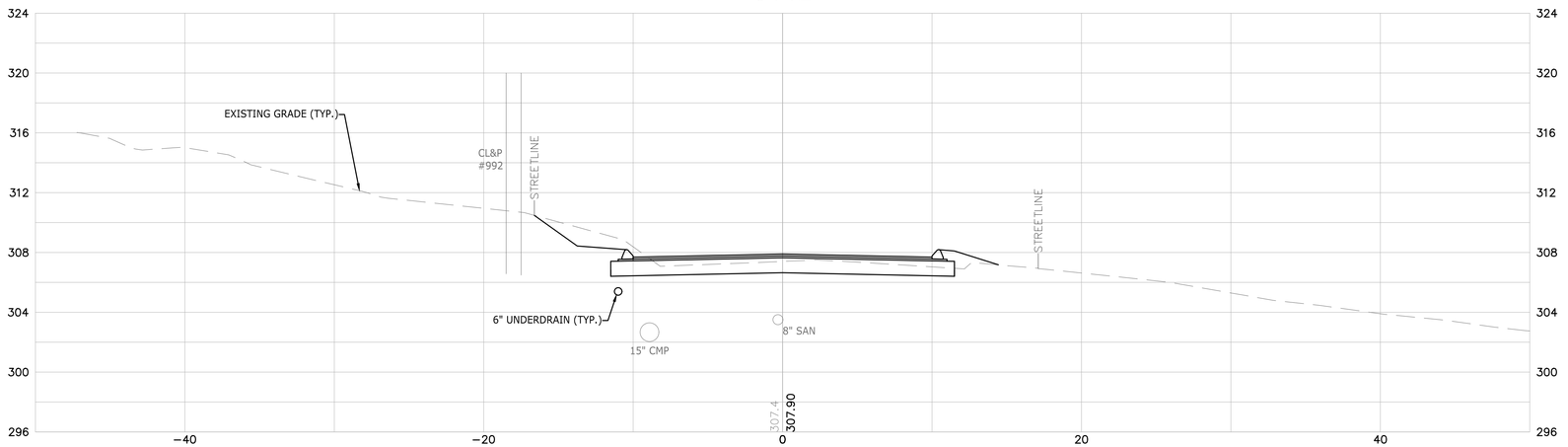
ROADWAY SECTIONS (STA. 4+53 - 5+42.50) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		16	39

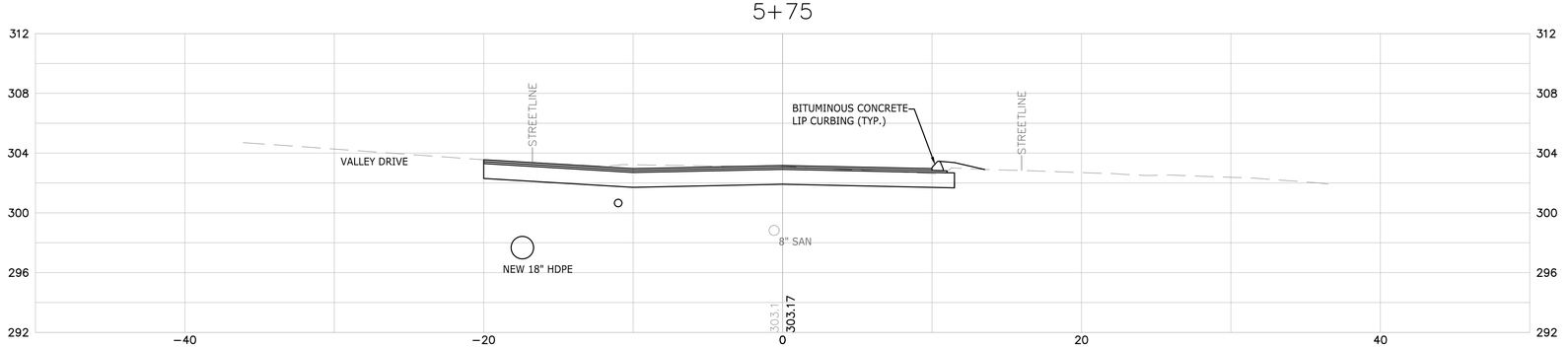
6+50



6+12



5+75



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC
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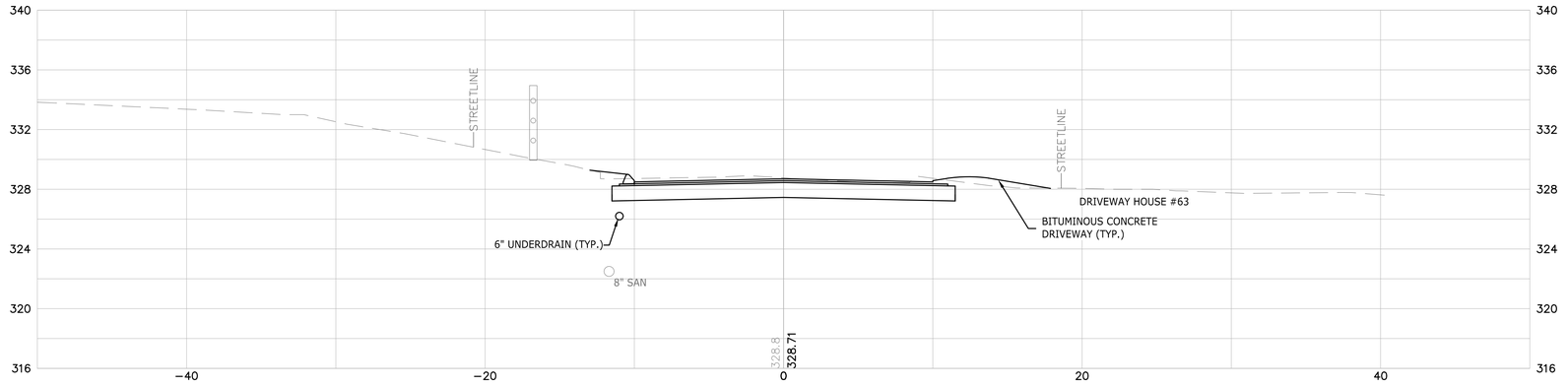
PREPARED FOR

TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

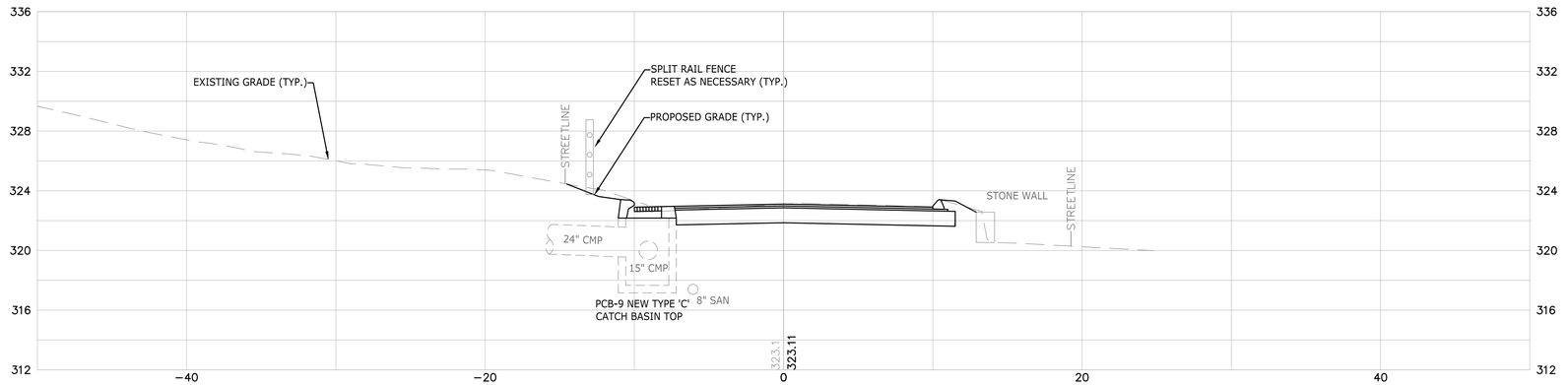
ROADWAY SECTIONS (STA. 5+75 - 6+50)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		17	39

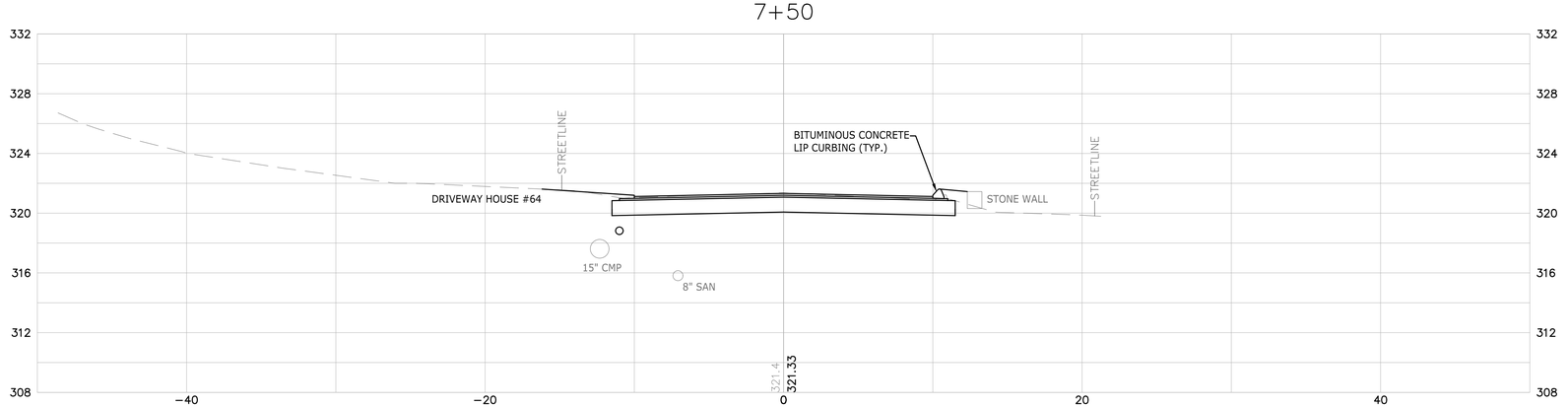
8+40



7+71.75



7+50



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC
CONSULTING ENGINEERS

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PREPARED FOR

TOWN OF NEW MILFORD

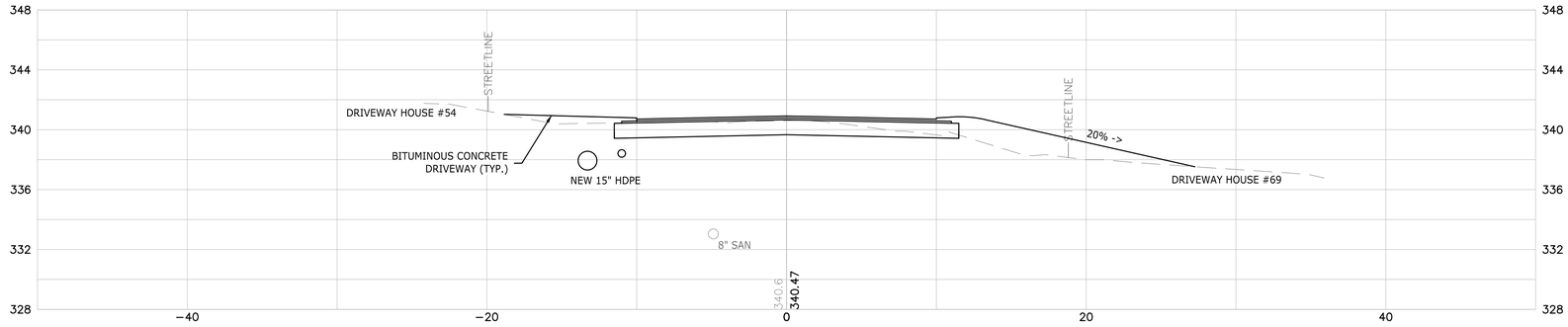
10 MAIN ST

NEW MILFORD, CT 06776

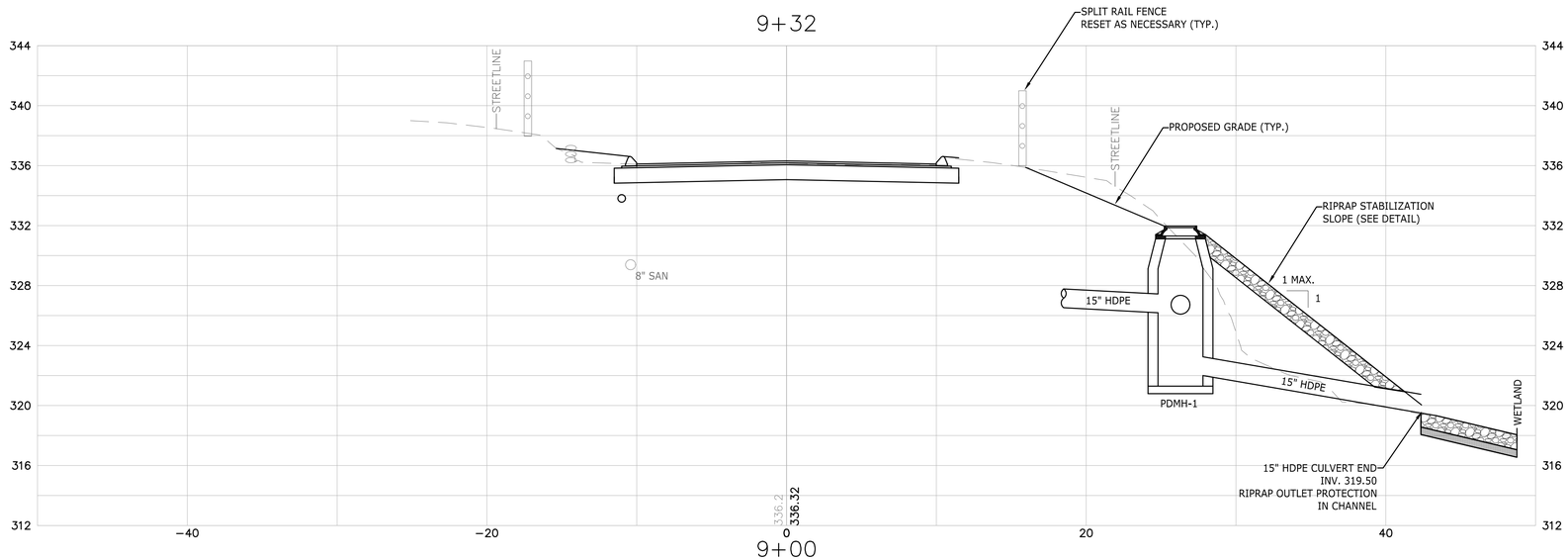
ROADWAY SECTIONS (STA. 7+50 - 8+40) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		18	39

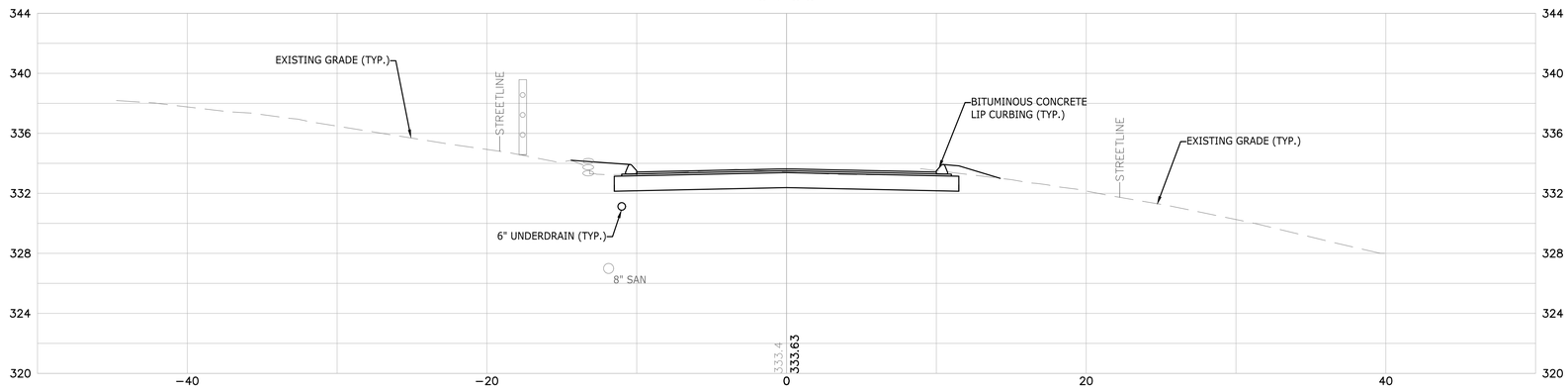
9+80



9+32



9+00



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC
CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

TOWN OF NEW MILFORD

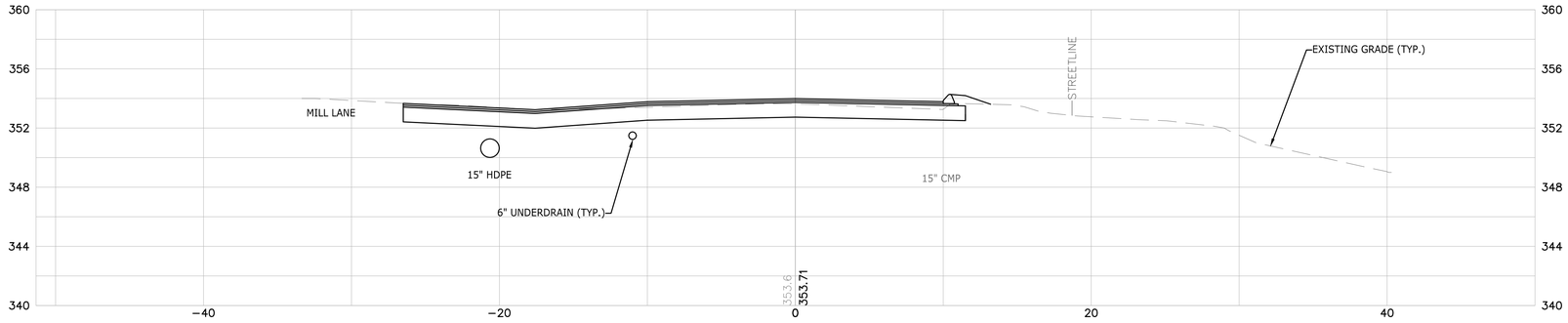
10 MAIN ST

NEW MILFORD, CT 06776

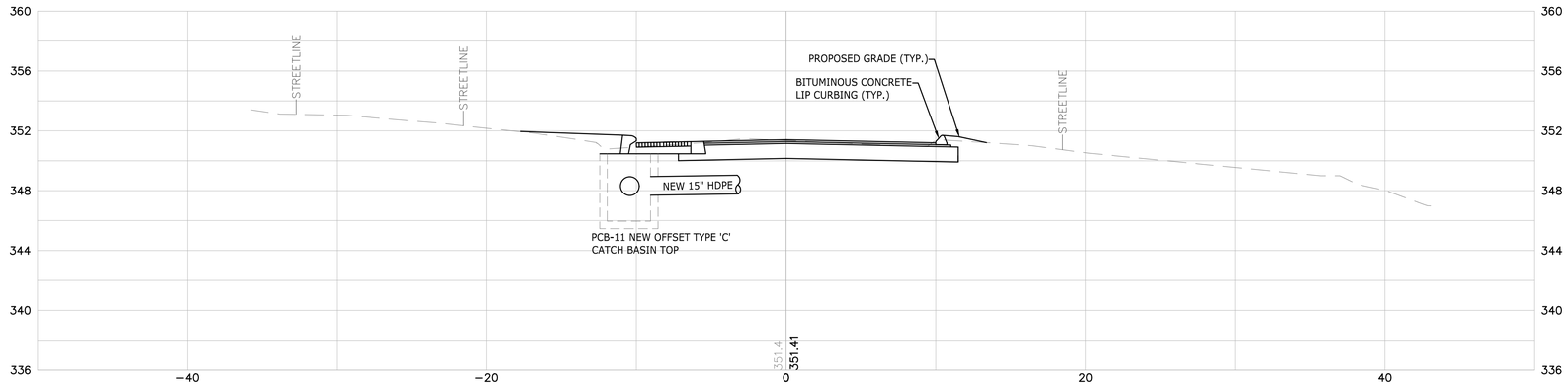
ROADWAY SECTIONS (STA. 9+00 - 9+80) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		19	39

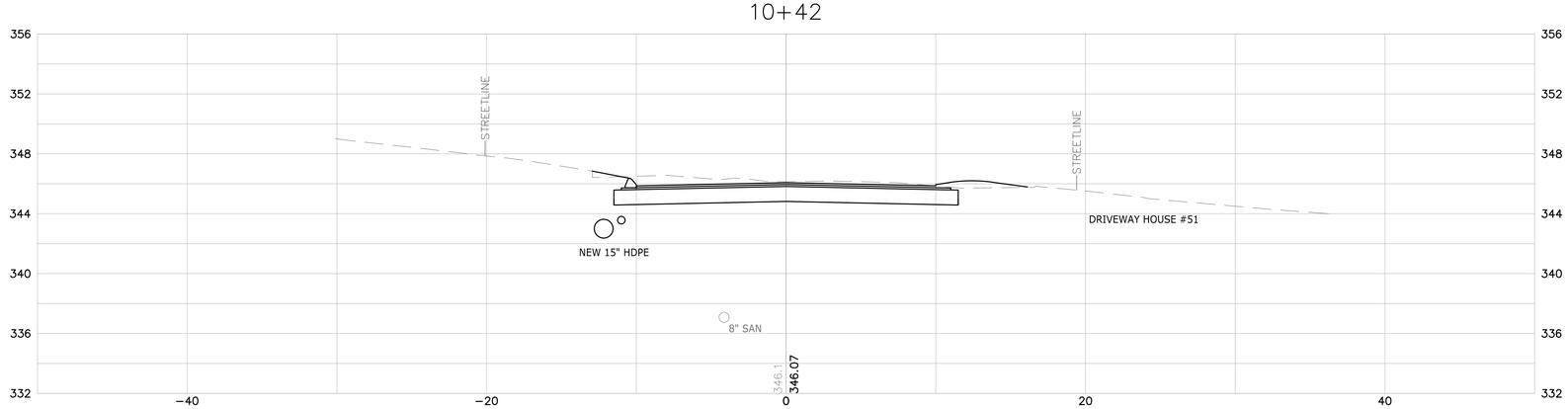
SKEWED ALONG MILL LANE STATION LEFT ONLY 11+25



11+00



10+42



NO.	DATE	DESCRIPTION

REVISIONS

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DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC
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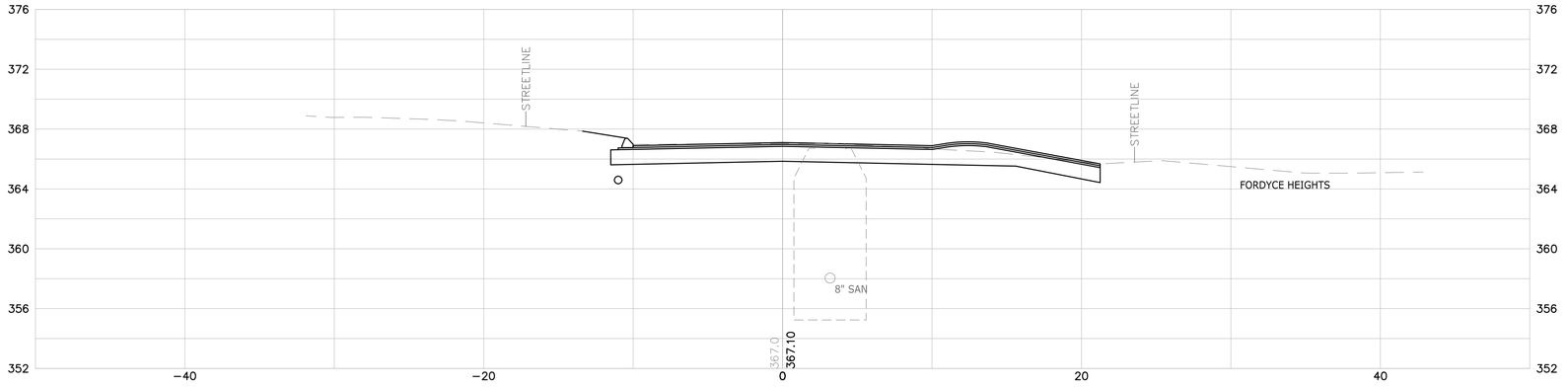
NEW MILFORD, CT 06776

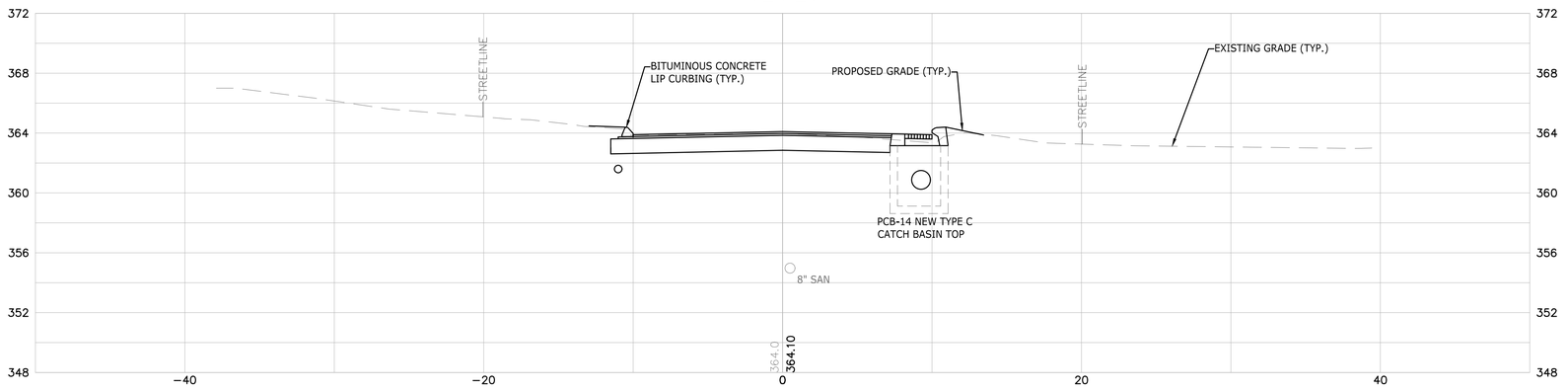
ROADWAY SECTIONS (STA. 10+42 - 11+25) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		20	39

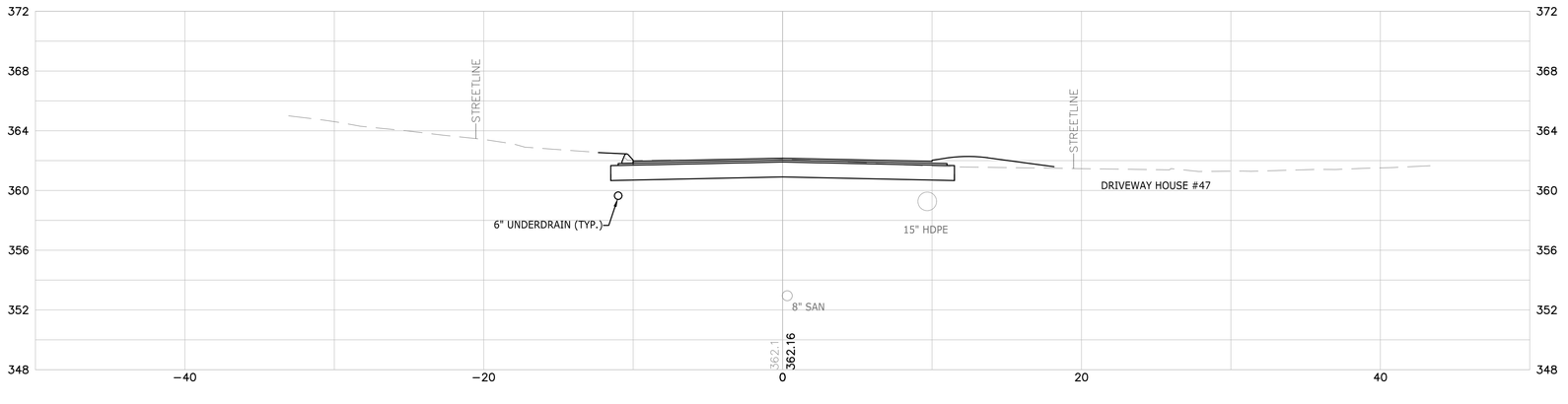
12+45



12+21



12+05



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

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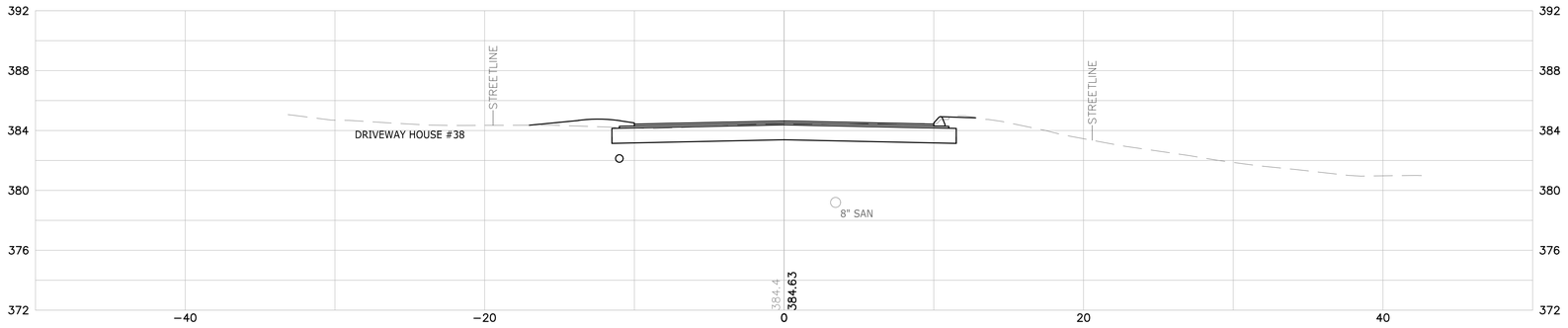
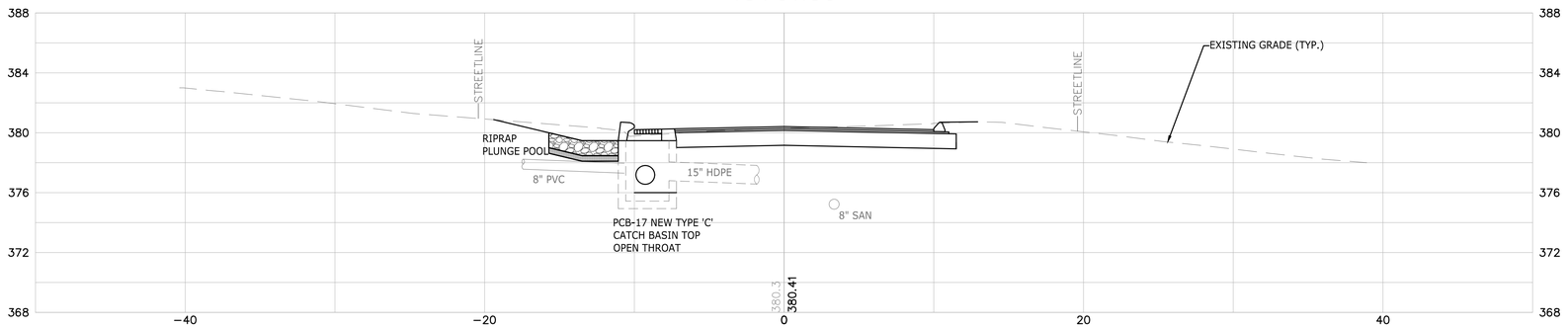
ROADWAY SECTIONS (STA. 12+05 - 12+45) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		21	39

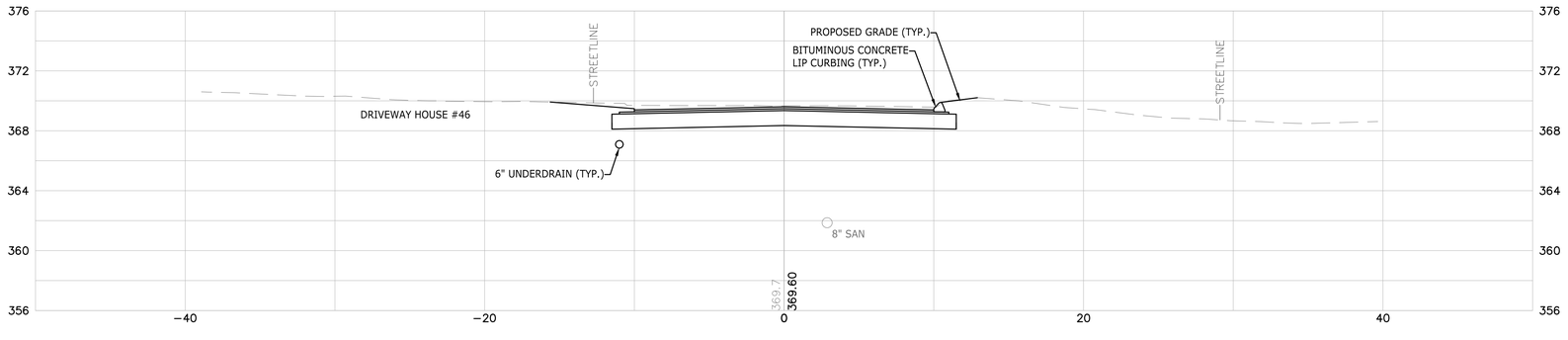
13+85



13+51.50



12+65



NO.	DATE	DESCRIPTION

REVISIONS

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CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

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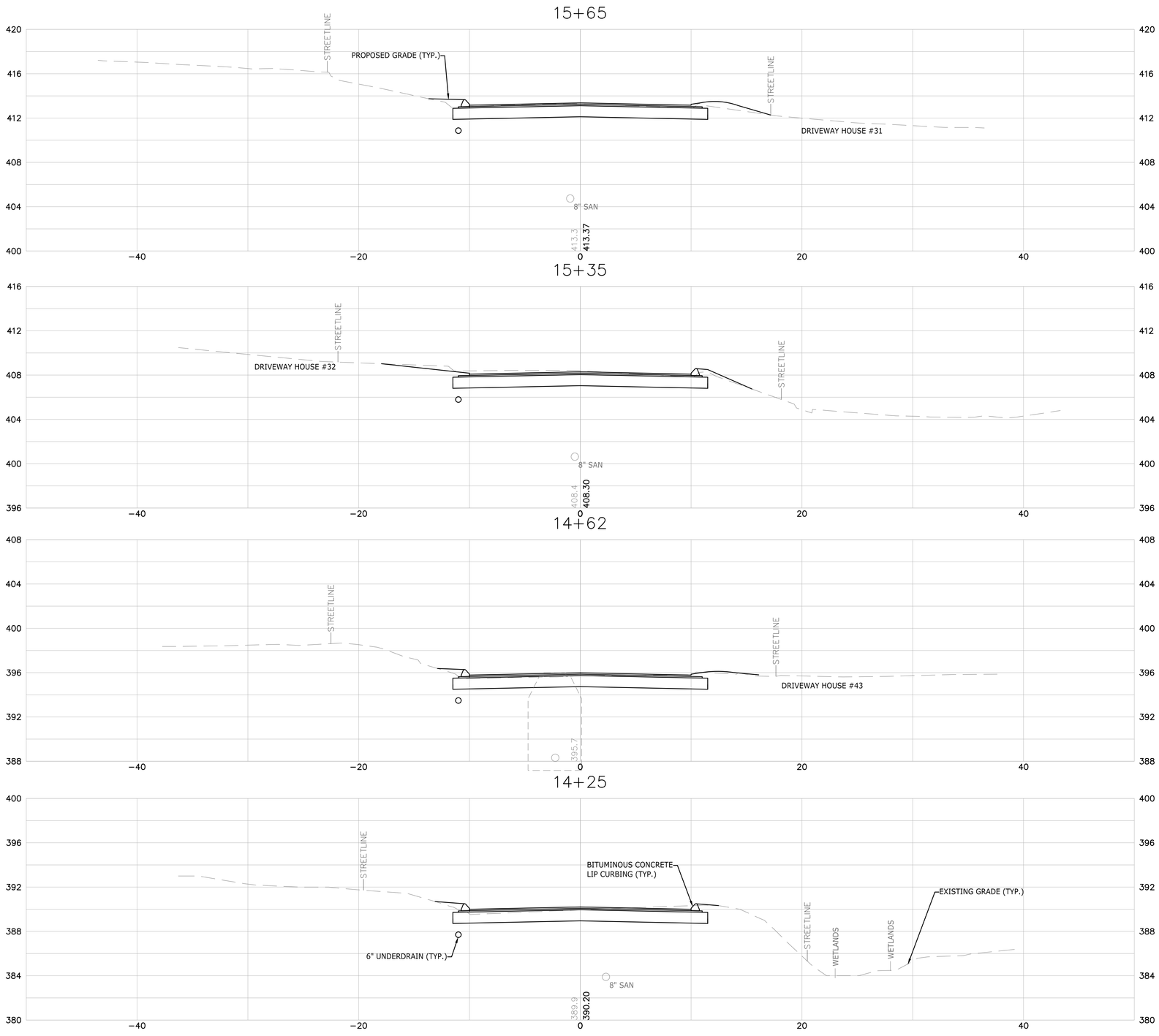
10 MAIN ST
NEW MILFORD, CT 06776

ROADWAY SECTIONS (STA. 12+85 - 13+85) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		22	39



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

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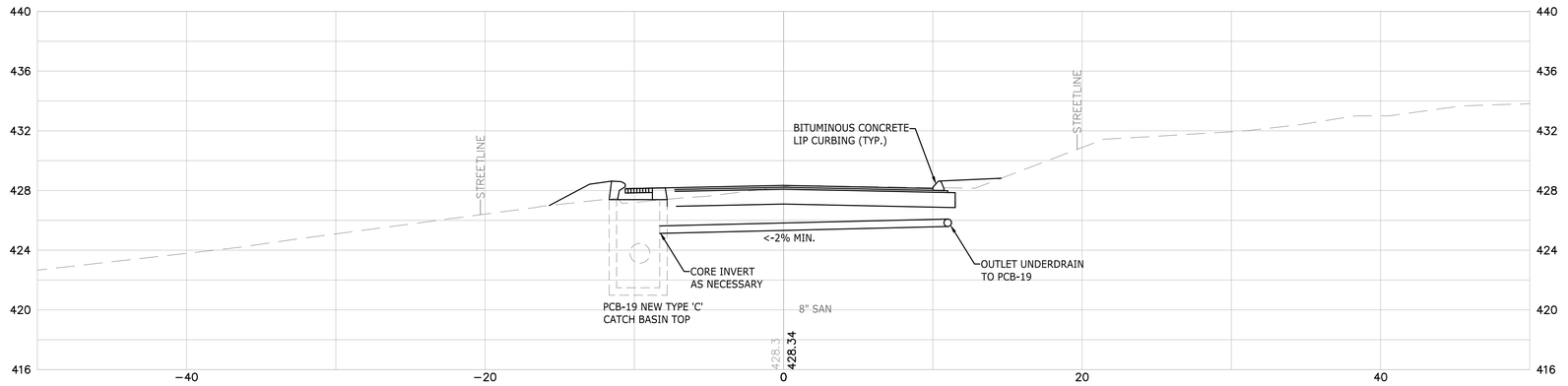
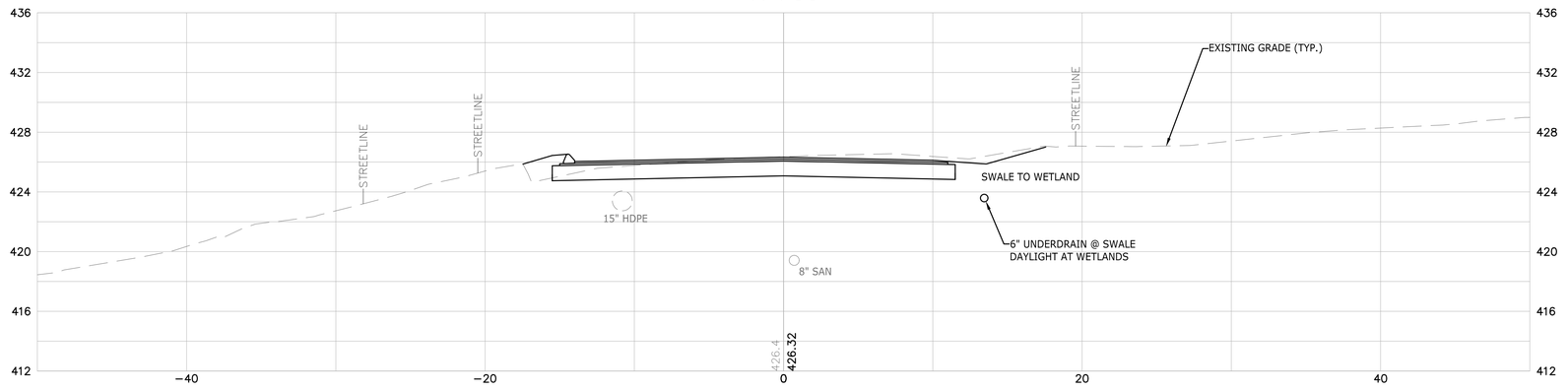
ROADWAY SECTIONS (STA. 14+25 - 15+65) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		23	39

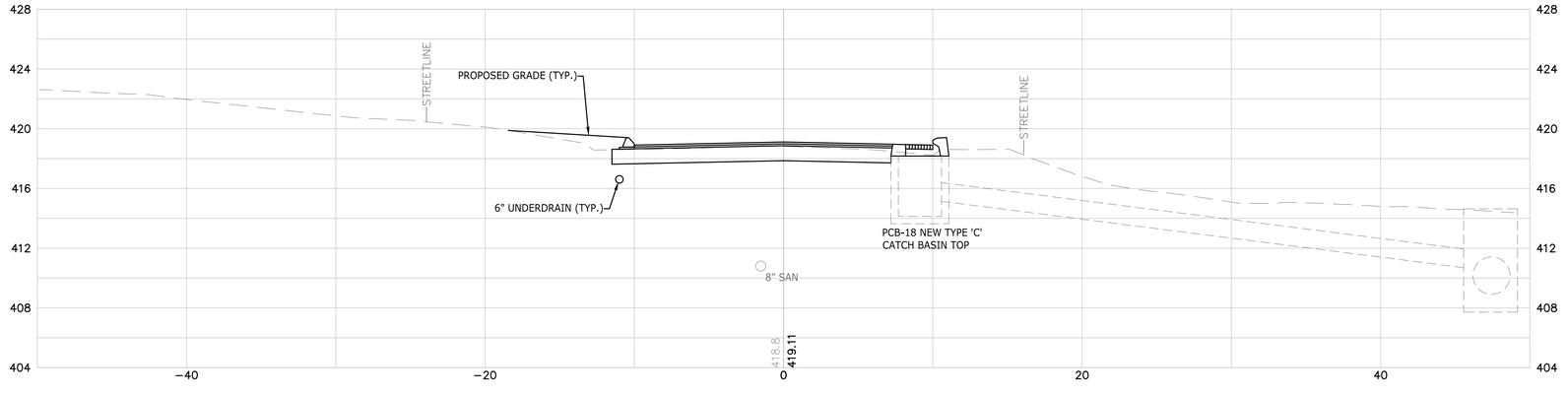
17+81



17+30



15+99



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

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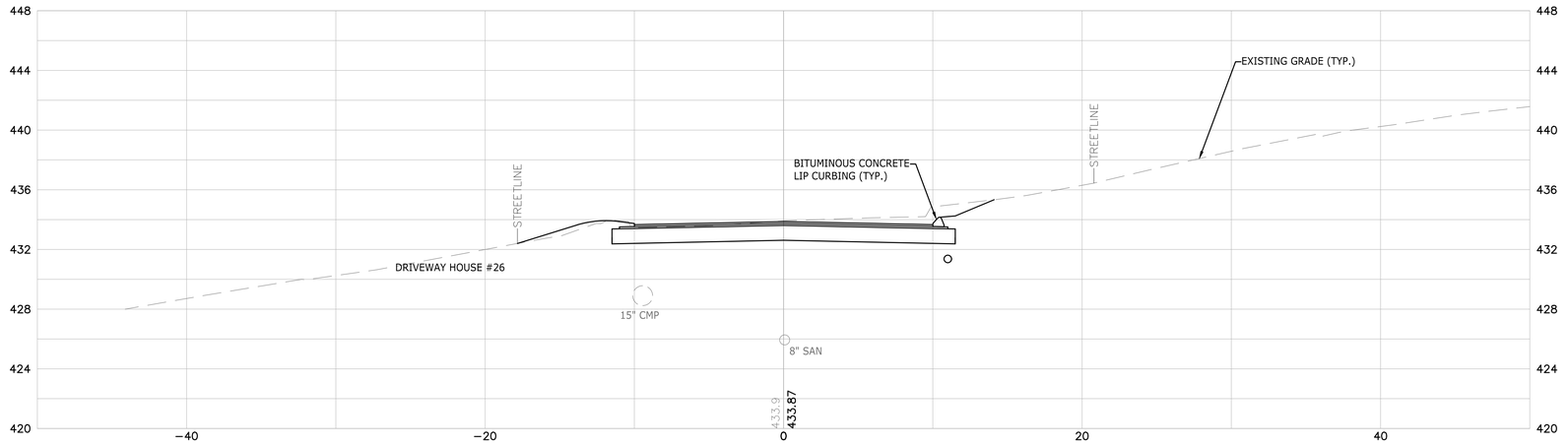
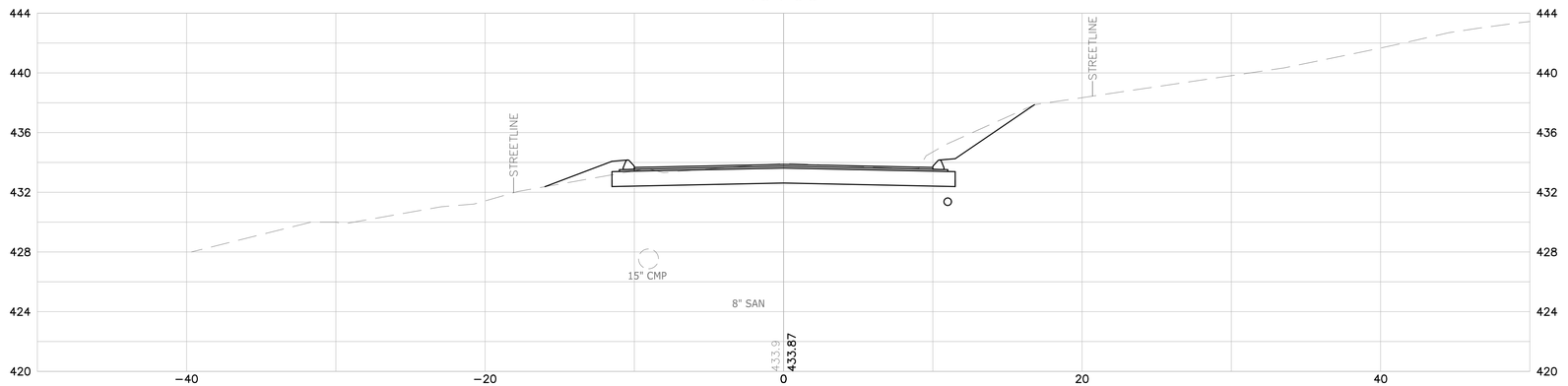
ROADWAY SECTIONS (STA. 15+99 - 17+81) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		24	39

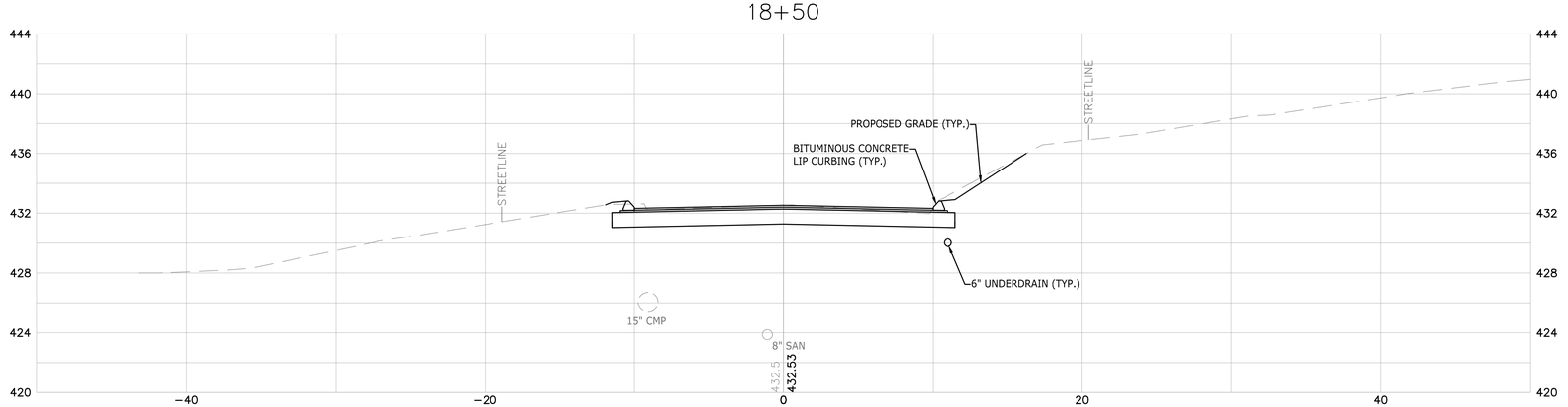
19+45



19+00



18+50



NO.	DATE	DESCRIPTION

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DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
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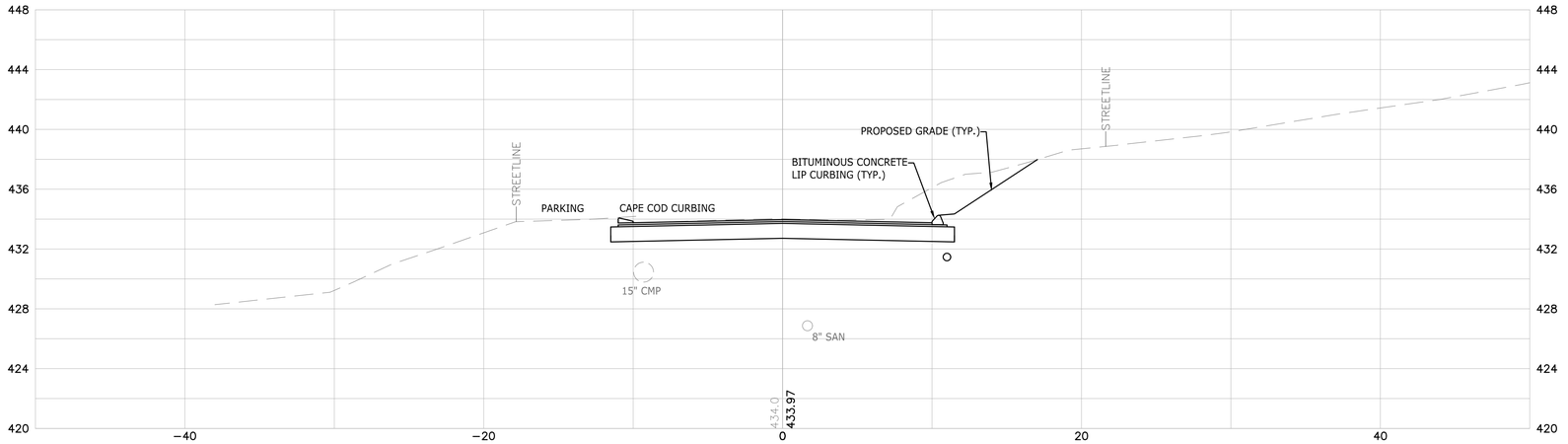
NEW MILFORD, CT 06776

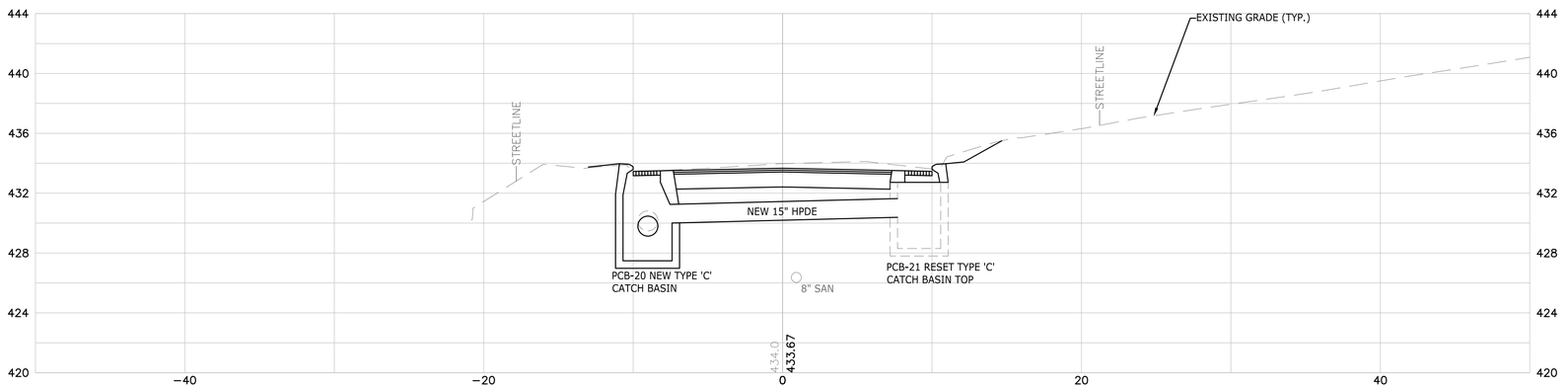
ROADWAY SECTIONS (STA. 18+50 - 19+45)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		25	39

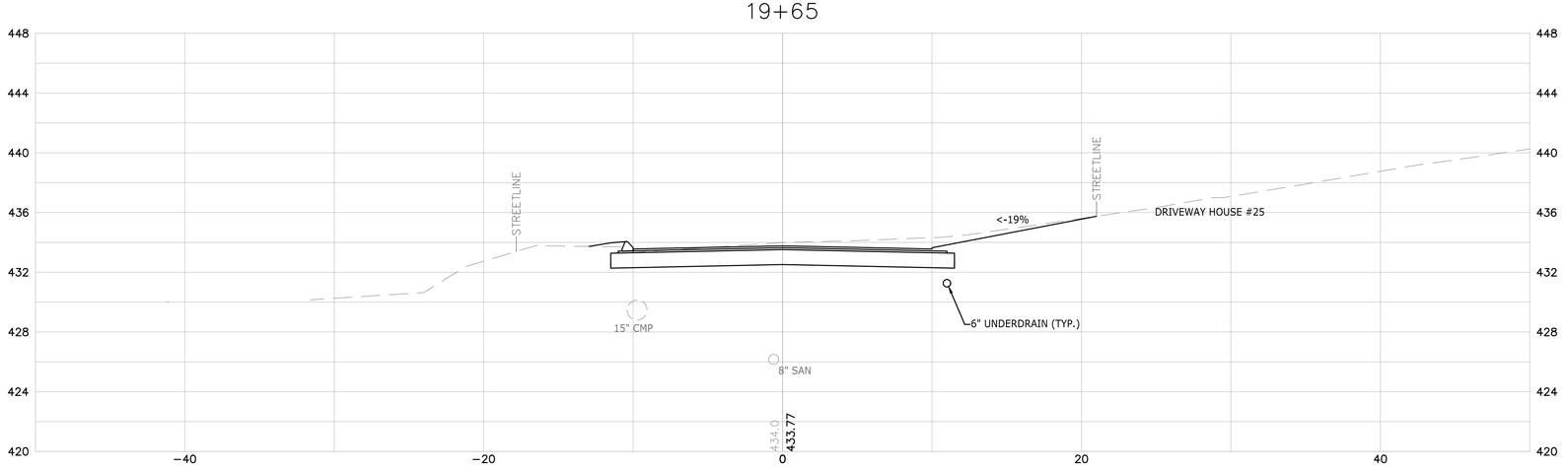
20+25



19+85



19+65



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC
CONSULTING ENGINEERS

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NEWINGTON, CT 06111
(860) 667-9624

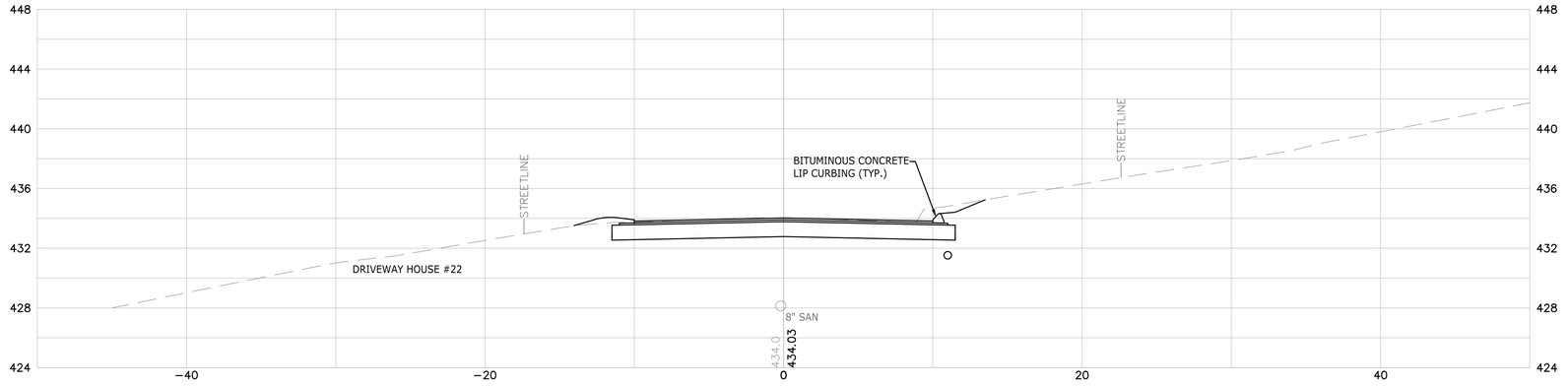
PREPARED FOR

TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

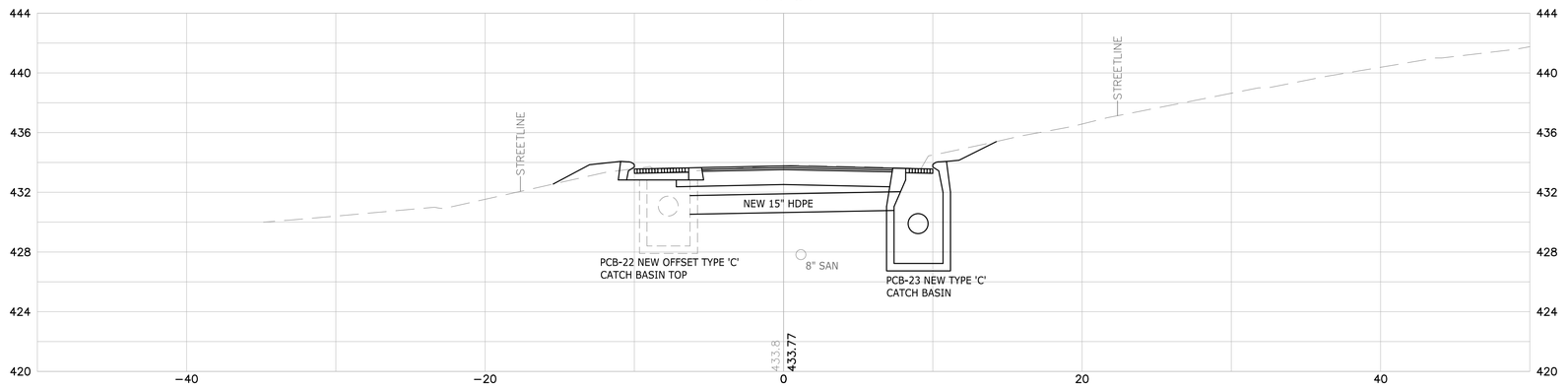
ROADWAY SECTIONS (STA. 19+65 - 20+25) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		26	39

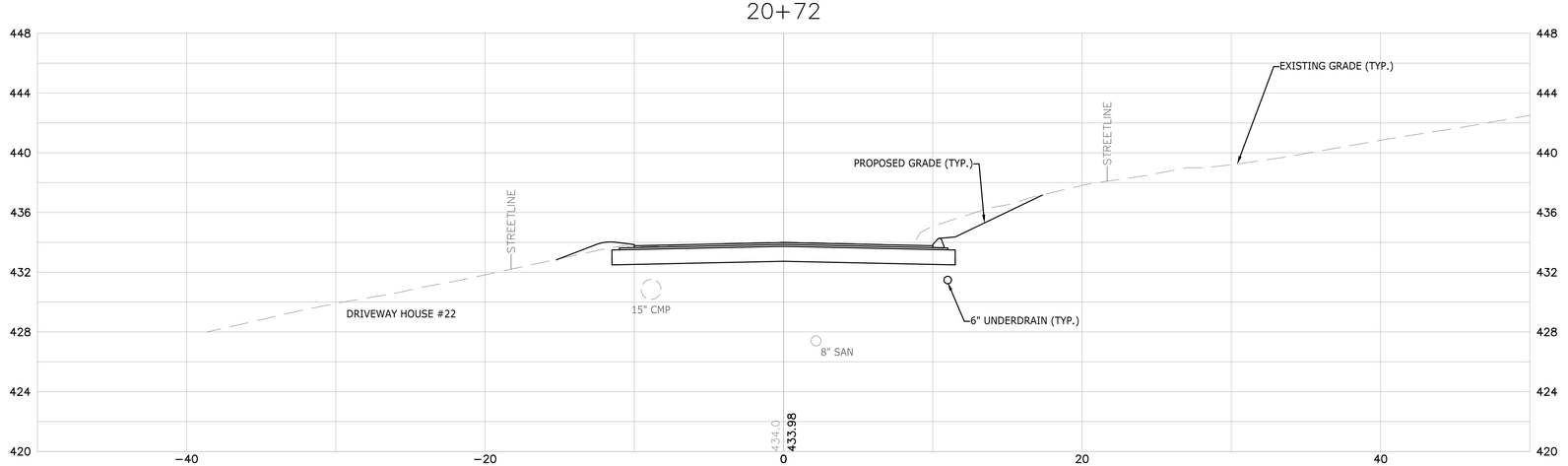
21+33



21+07



20+72



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC
CONSULTING ENGINEERS

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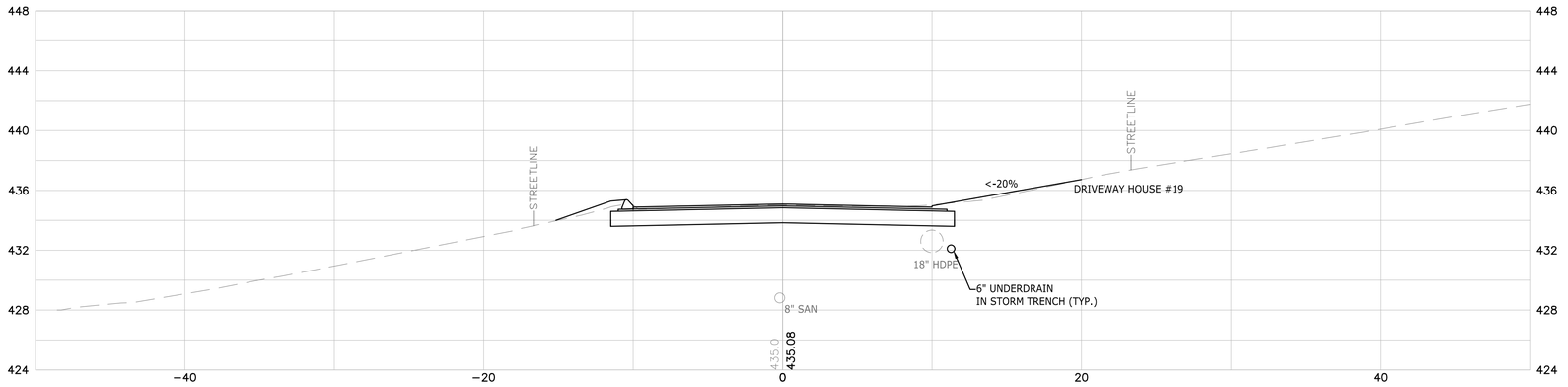
TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

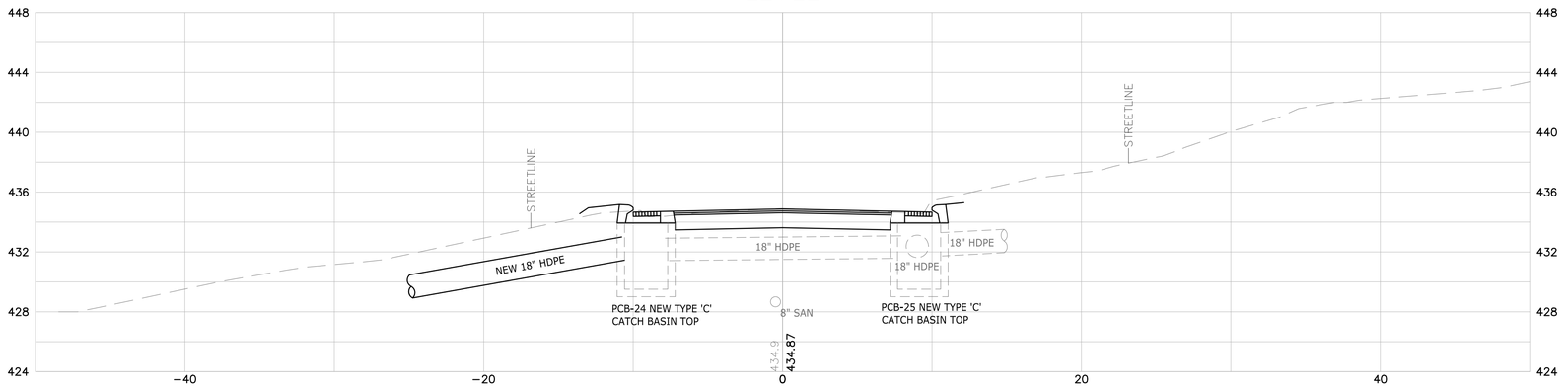
ROADWAY SECTIONS (STA. 20+72 - 21+33) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		27	39

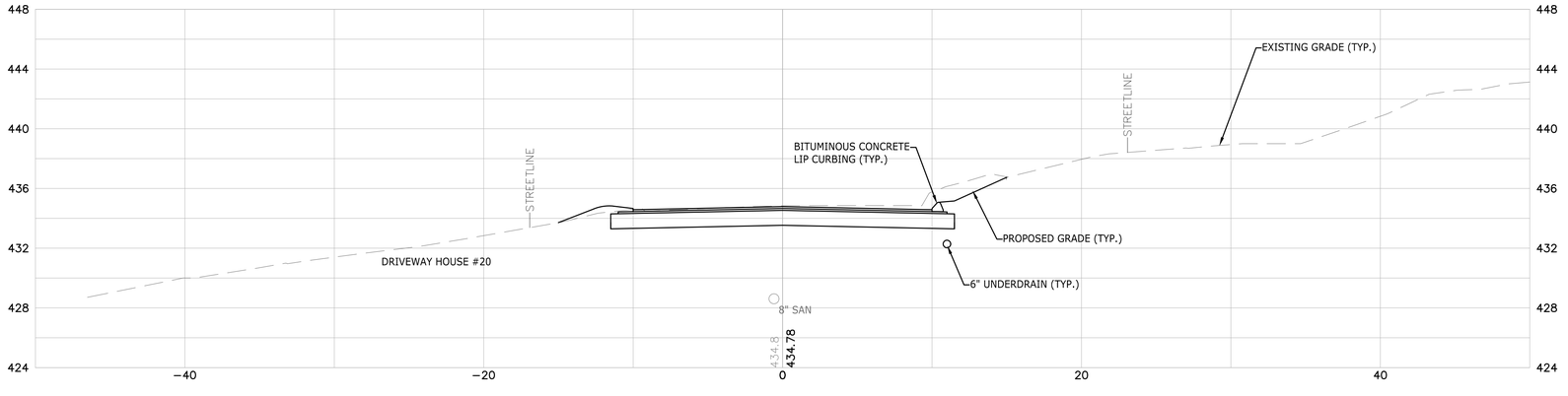
22+50



22+22



22+10



NO.	DATE	DESCRIPTION

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DATE	05/15/19

SCALE
1" = 5'

WMC
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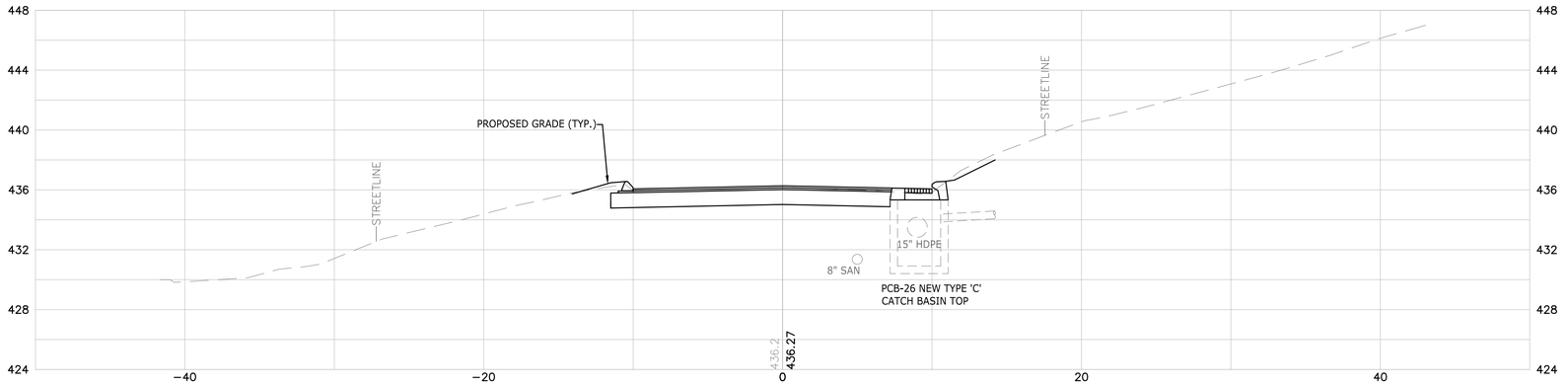
10 MAIN ST
NEW MILFORD, CT 06776

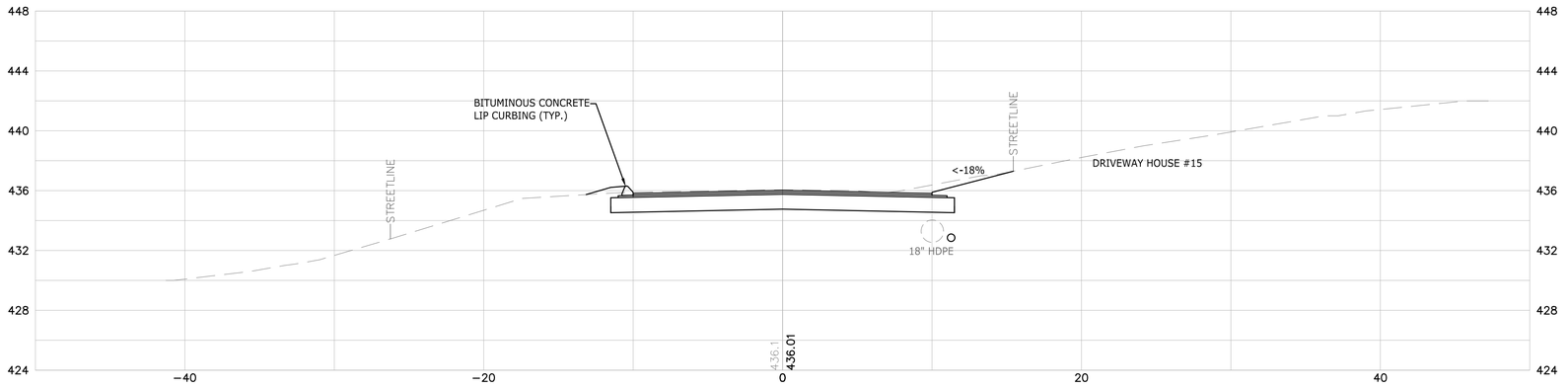
ROADWAY SECTIONS (STA. 22+10 - 22+50)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		28	39

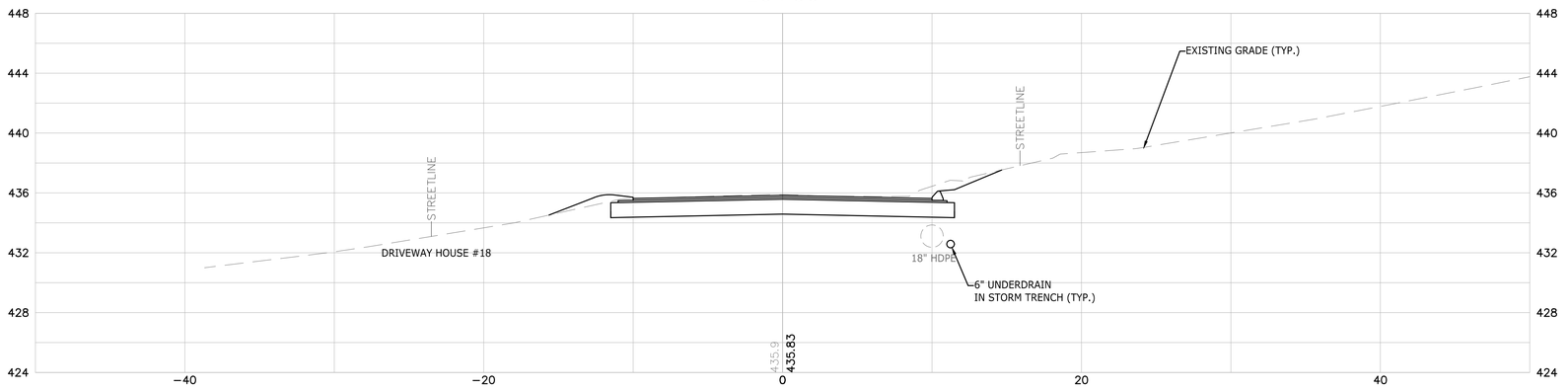
24+37



23+85



23+50



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DATE	05/15/19

SCALE
1" = 5'

WMC
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PREPARED FOR

TOWN OF NEW MILFORD

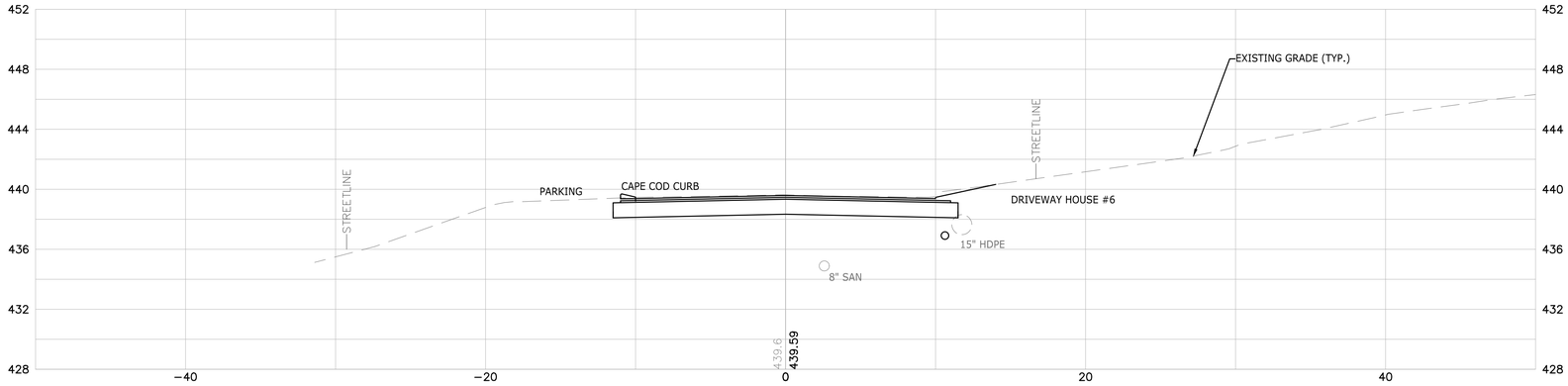
10 MAIN ST

NEW MILFORD, CT 06776

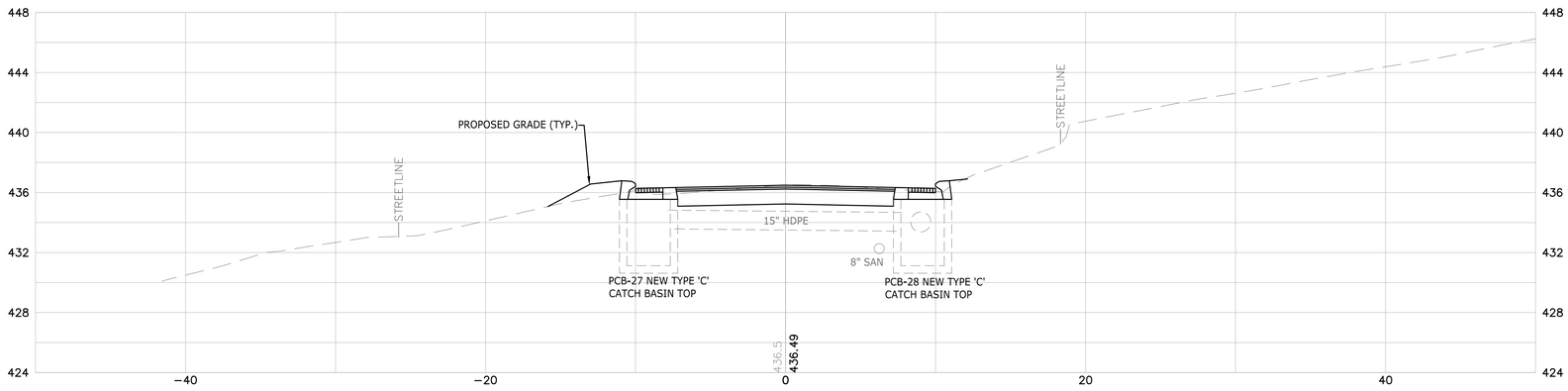
ROADWAY SECTIONS (STA. 23+50 - 24+37) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		29	39

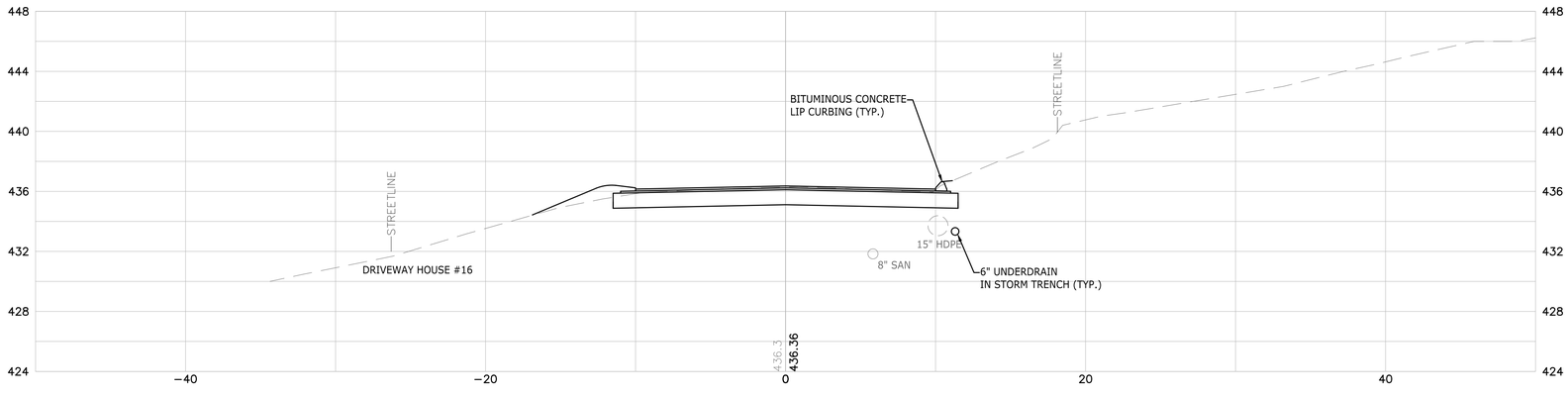
25+70



24+71



24+55



NO.	DATE	DESCRIPTION

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CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC
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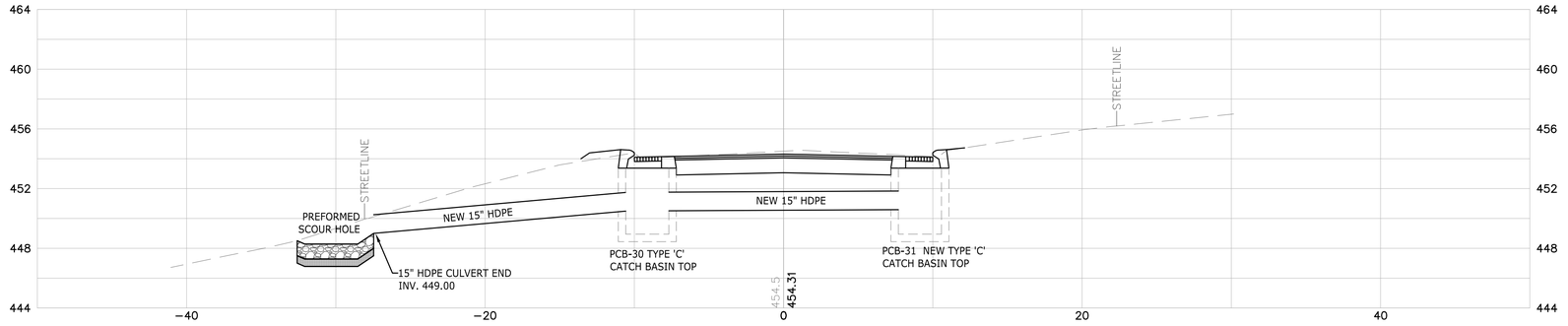
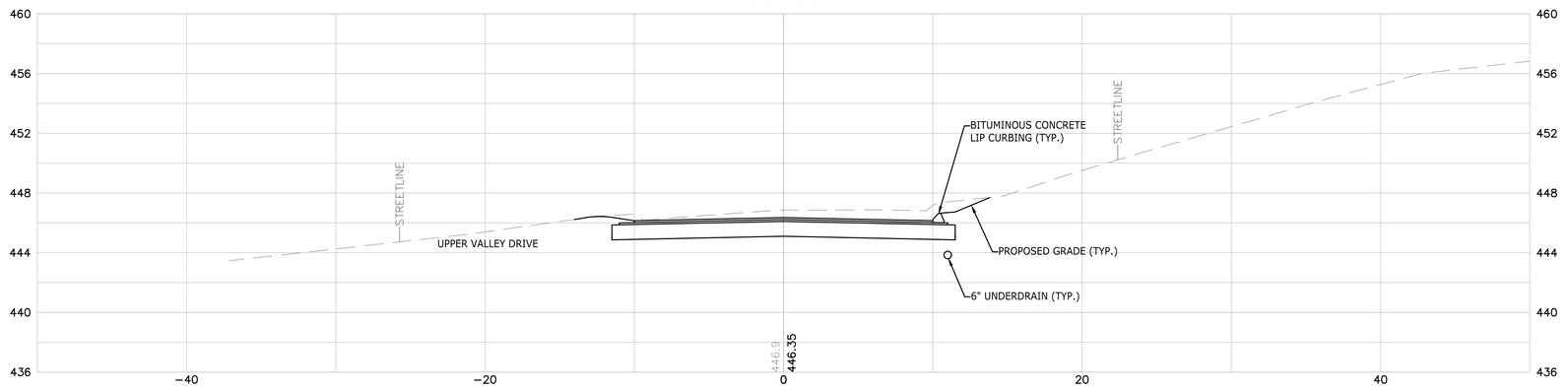
ROADWAY SECTIONS (STA. 24+55 - 25+70) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		30	39

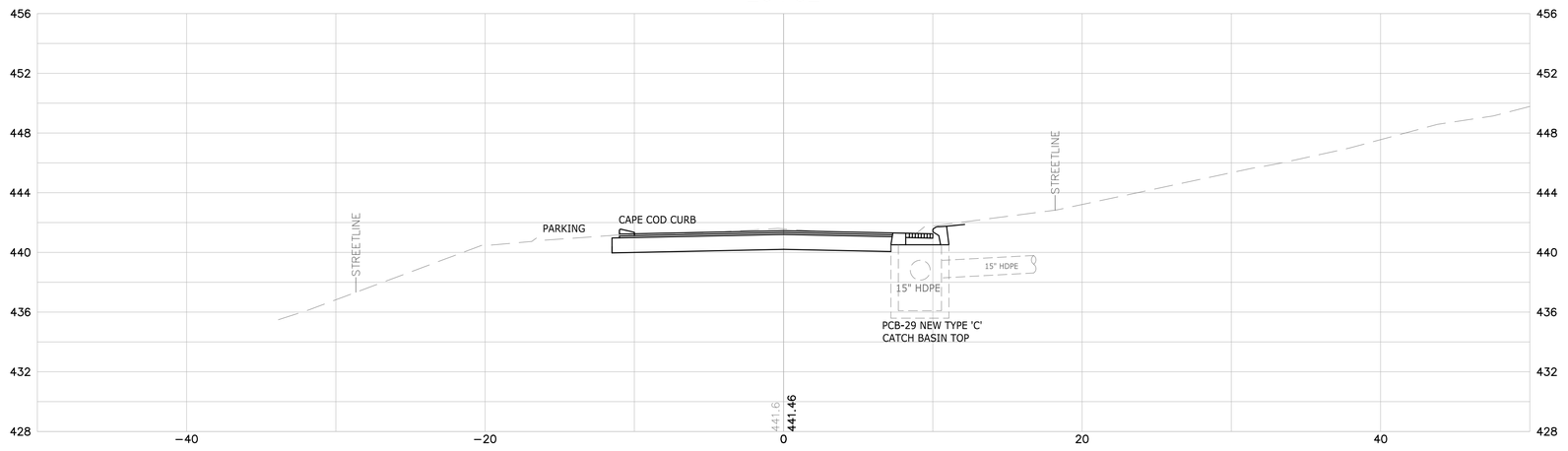
27+56



26+65



26+02



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DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC
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NEWINGTON, CT 06111
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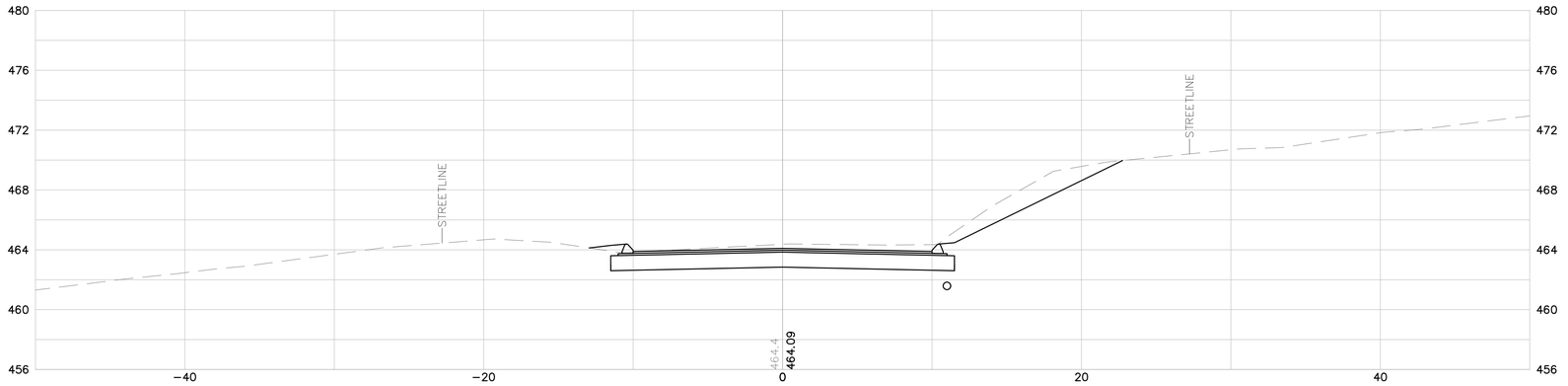
PREPARED FOR

TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

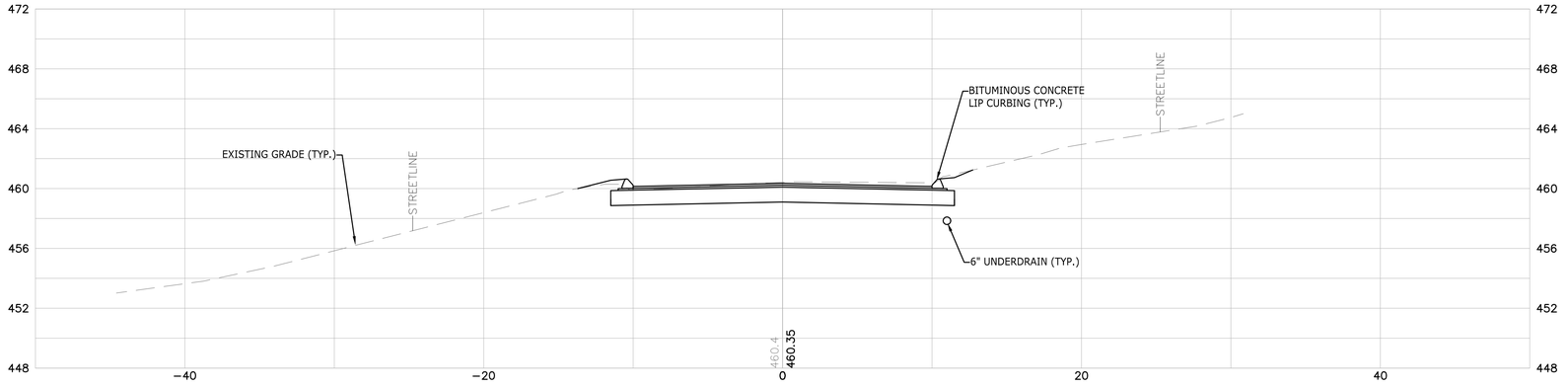
ROADWAY SECTIONS (STA. 26+02 - 27+56) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		31	39

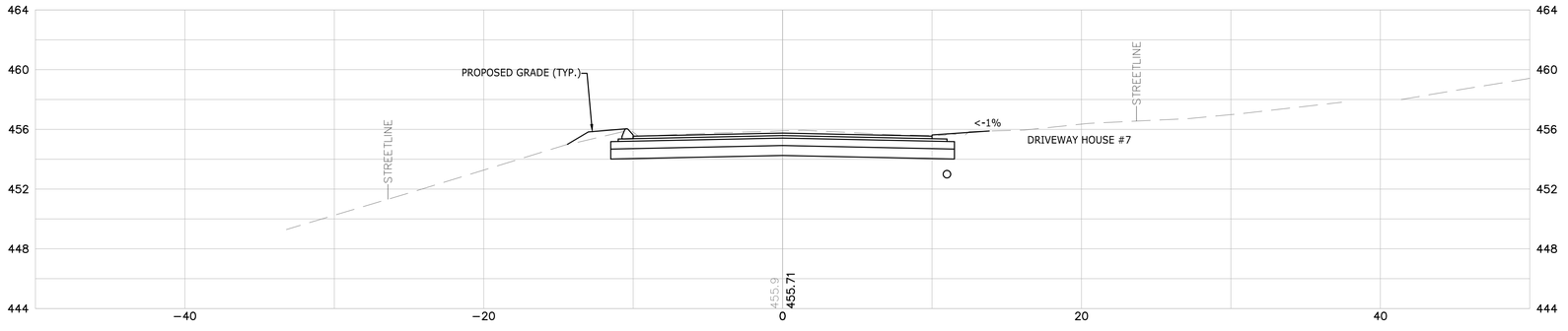
28+95.34



28+25



27+72



NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 5'

WMC CONSULTING ENGINEERS

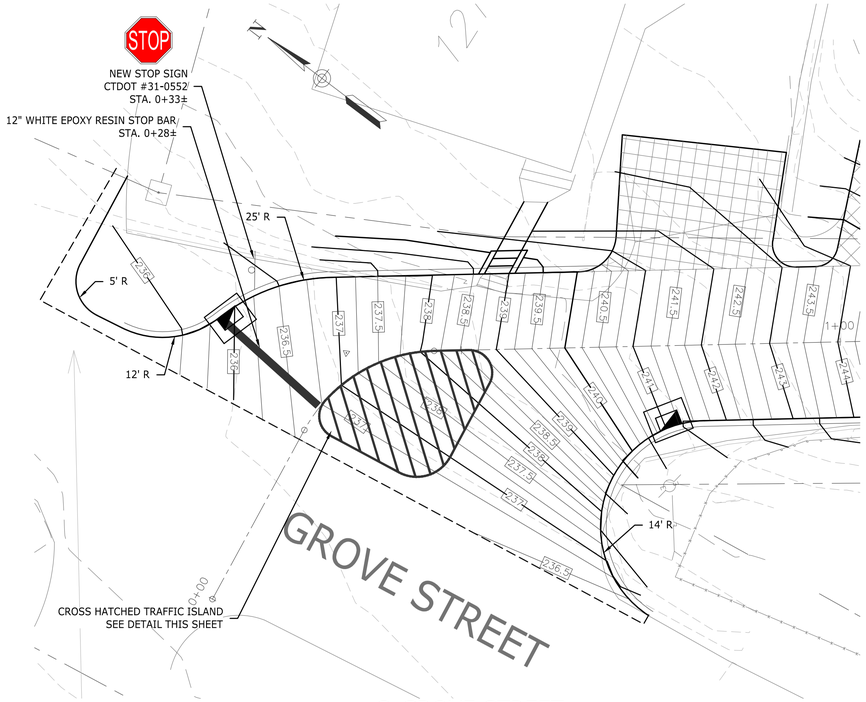
• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

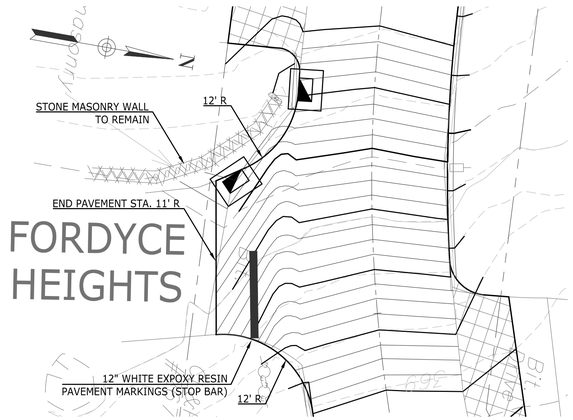
TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

ROADWAY SECTIONS (STA. 27+72 - 28+95.34)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

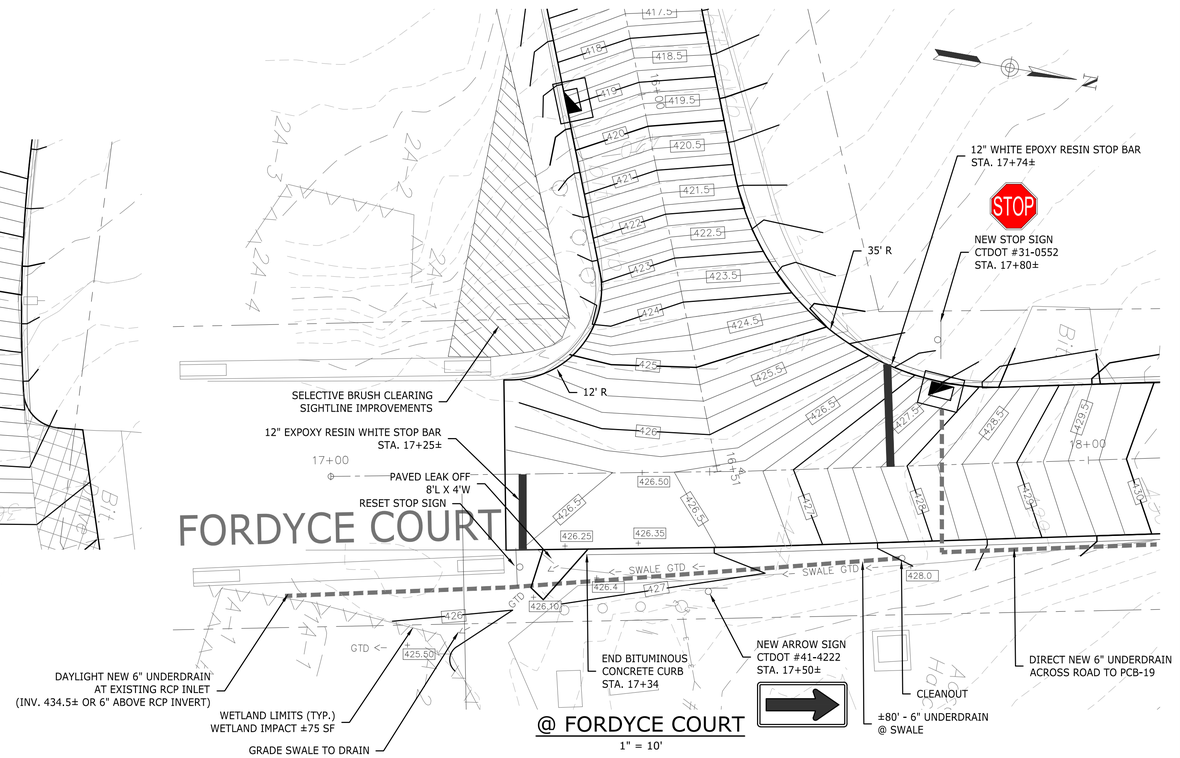
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		32	39



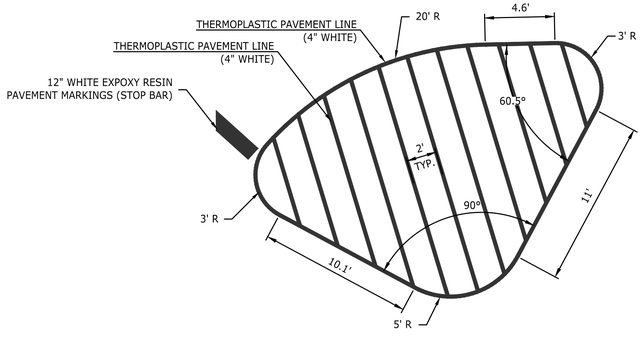
@ GROVE STREET
1" = 10'



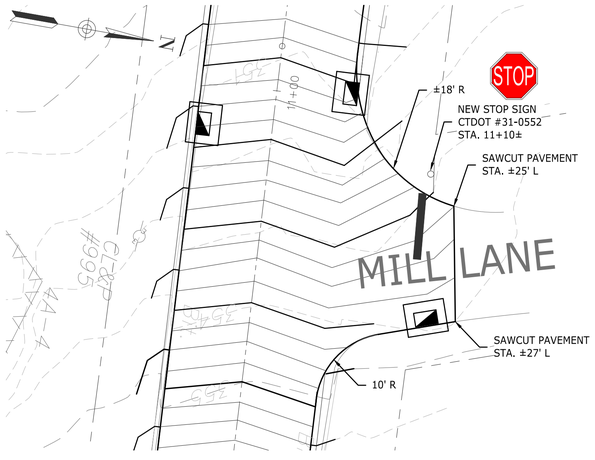
@ FORDYCE HEIGHTS
1" = 10'



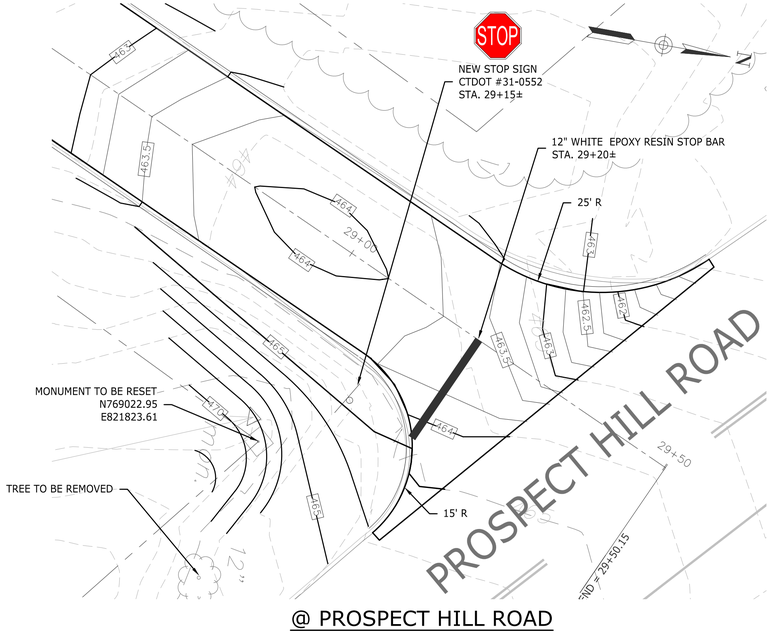
@ FORDYCE COURT
1" = 10'



CROSS HATCHED TRAFFIC ISLAND DETAIL
1" = 5'



@ MILL LANE
1" = 10'



@ PROSPECT HILL ROAD
1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
1" = 10'

WMC
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87 HOLMES ROAD
NEWINGTON, CT 06111
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PREPARED FOR

TOWN OF NEW MILFORD

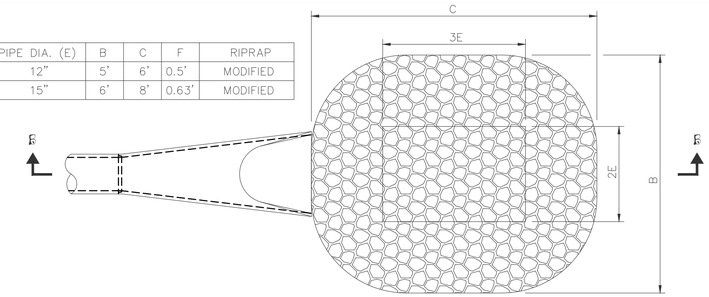
10 MAIN ST

NEW MILFORD, CT 06776

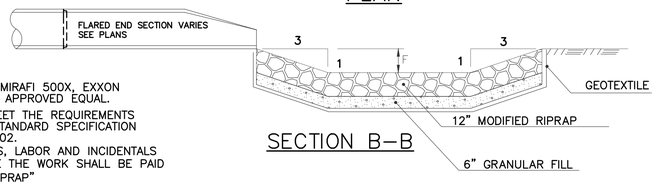
INTERSECTION GRADNG PLAN
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		33	38

LOCATION	PIPE DIA. (E)	B	C	F	RIPRAP
FES 12"	12"	5'	6'	0.5'	MODIFIED
FES 15"	15"	6'	8'	0.63'	MODIFIED



PLAN



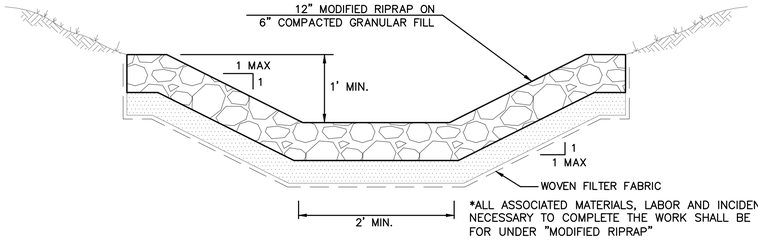
SECTION B–B

NOTES:

1. FILTER FABRIC SHALL BE MIRAFI 500X, EXXON GTF200, AMOCO 2199 OR APPROVED EQUAL.
2. RIP RAP STONE SHALL MEET THE REQUIREMENTS OF CONNECTICUT D.O.T. STANDARD SPECIFICATION FORM 817 ARTICLE: M.12.02.
3. ALL ASSOCIATED MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE PAID FOR UNDER "MODIFIED RIPRAP"

PREFORMED SCOUR HOLE

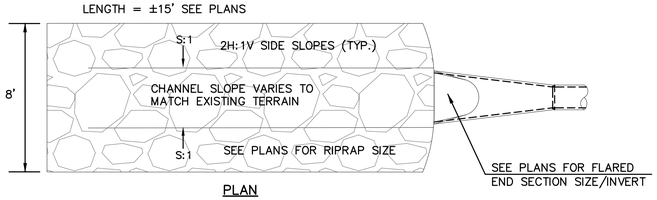
N.T.S.



*ALL ASSOCIATED MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE PAID FOR UNDER "MODIFIED RIPRAP"

MODIFIED RIPRAP SWALE

N.T.S.

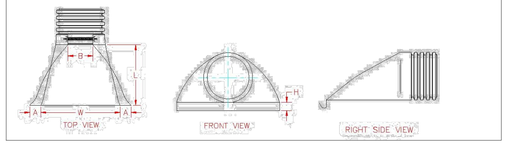


PLAN

RIPRAP OUTLET PROTECTION IN CHANNEL

N.T.S.

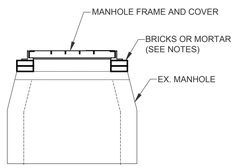
PIPE DIAMETER, in (mm)							
Diamotor in (mm)	12 (300)	15 (375)	18 (450)	24 (600)	30 (750)	36 (900)
A in (mm)	6.5 (165)	6.5 (165)	7.5 (191)	7.5 (191)	7.5 (191)	7.5 (191)
B (max) in (mm)	10.0 (254)	10.0 (254)	15.0 (381)	19.0 (475)	22.0 (559)	25.0 (635)
H in (mm)	6.5 (165)	6.5 (165)	8.5 (165)	6.5 (165)	8.6 (218)	8.6 (218)
L in (mm)	25.0 (635)	25.0 (635)	32.0 (813)	36.0 (914)	58.0 (1473)	58.0 (1473)
W in (mm)	29.0 (737)	29.0 (737)	35.0 (889)	45.0 (1143)	63.0 (1600)	63.0 (1600)



HDPE FLARED END SECTION

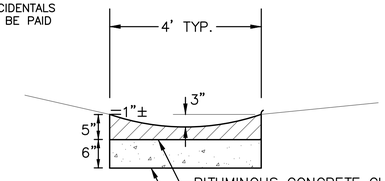
N.T.S.

NOTES:
1) CONTRACTOR MAY REUSE EXISTING MANHOLE FRAME AND COVER, UNLESS DAMAGED BY HIM DURING THE CONSTRUCTION OPERATIONS OR WHEN OTHERWISE INDICATED ON THE PROJECT PLANS.
2) BRICK MANHOLES TO BE RAISED LESS THAN 2" MAY BE RAISED BY APPLYING CLASS "D" MORTAR TO THE TOP OF THE EXISTING BRICKWORK. IF THE MANHOLE IS TO BE RAISED MORE THAN 2", A NEW COURSE OR COURSES OF BRICKWORK SHALL BE PLACED ON TOP OF THE EXISTING BRICKWORK. BRICK OR CONCRETE BLOCK ARE ACCEPTABLE WITH CLASS "D" MORTAR.
3) IF THE MANHOLE IS TO BE LOWERED, REMOVAL OF EXISTING BRICKS, MORTAR, AND/OR RISERS SHALL OCCUR AND BE REPLACED WITH CONCRETE RISER RINGS OF APPROPRIATE SIZE.



TYPICAL MANHOLE ADJUSTING EXISTING MANHOLES

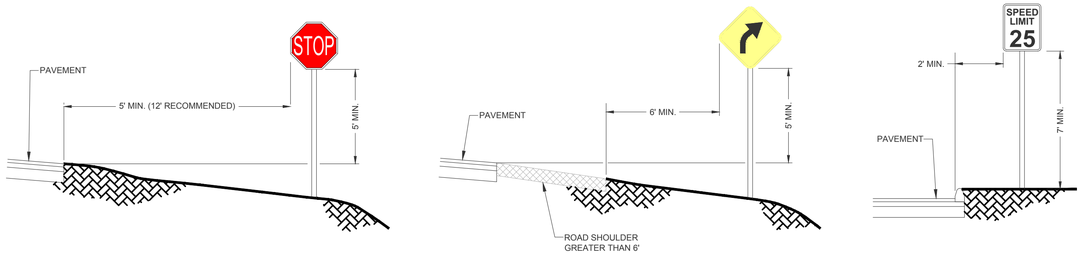
N.T.S.



NOTE: ITEM SHALL BE PAID FOR UNDER "BITUMINOUS CONCRETE CLASS I"

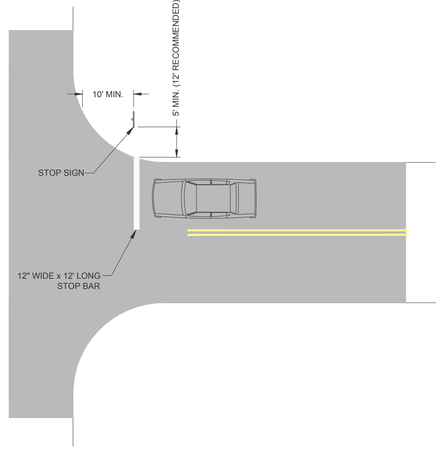
PAVED LEAK–OFF

NOT TO SCALE



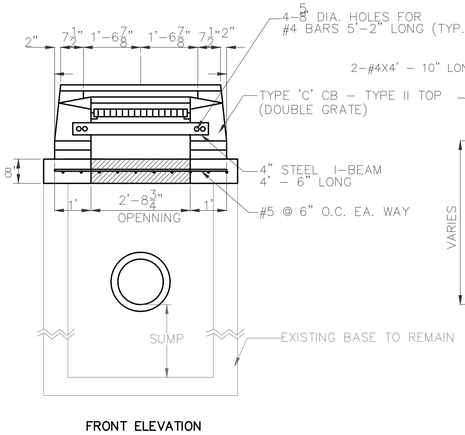
TYPICAL DETAIL OF ROADSIDE SIGNS LOCATED IN RURAL AREAS

N.T.S.

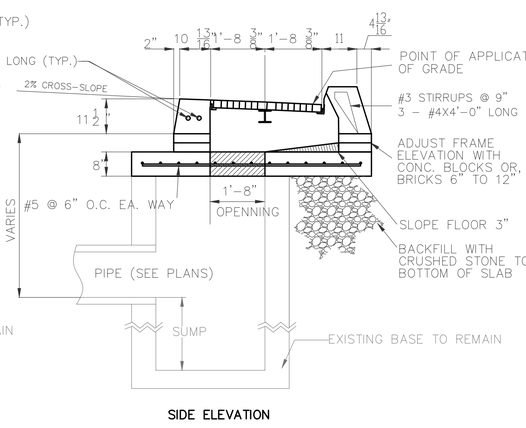


TYPICAL DETAIL OF A RURAL AREA STOP SIGN LOCATION

N.T.S.



FRONT ELEVATION

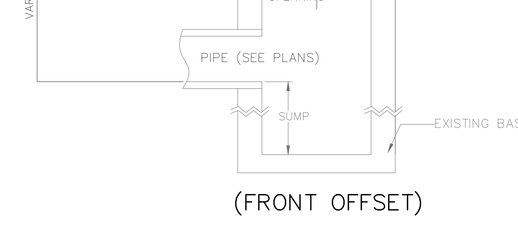


SIDE ELEVATION

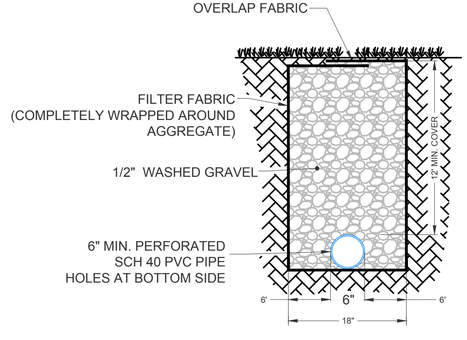
(REAR OFFSET)

OFFSET CATCH BASIN DETAIL

N.T.S.



(FRONT OFFSET)



UNDERDRAIN @ SWALE DETAIL

N.T.S.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
N.T.S.

WMC CONSULTING ENGINEERS

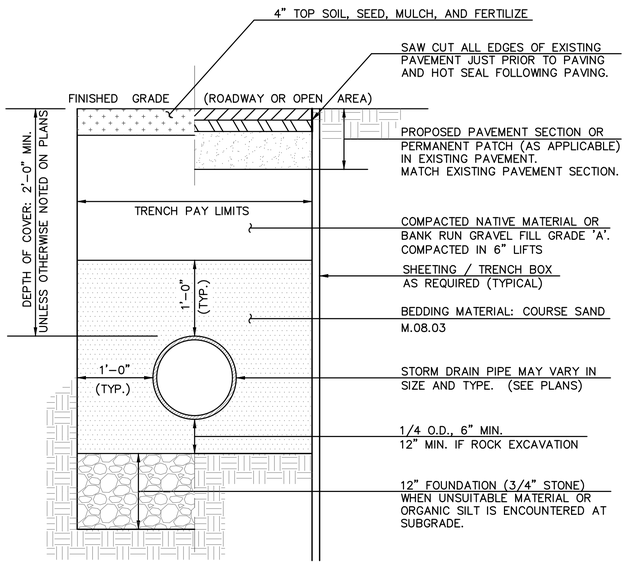
• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

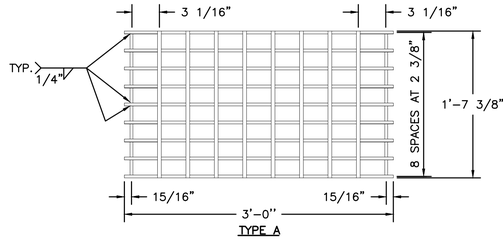
DRAINAGE DETAILS (1 OF 2)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		34	38



STORM DRAIN PIPE TRENCH

N.T.S.

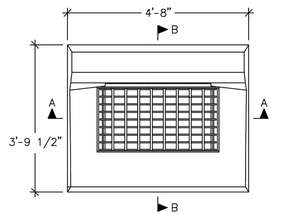


NOTES:

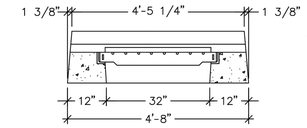
CATCH BASIN GRATE SHALL CONFORM TO CONNECTICUT D.O.T. STANDARD DRAWING #507K TYPE-A.
STEEL FRAMES AND GRATES SHALL BE GALVANIZED IN ACCORDANCE WITH M.06.03 OF D.O.T. FORM 816.
ALL BARS SHALL BE WELDED AT ALL INTERSECTIONS.
ALL METAL UNITS SUBJECT TO MANUFACTURING TOLERANCES.
ONLY LOW HYDROGEN ELECTRODES SHALL BE USED.
DIMENSIONAL TOLERANCES MAY BE ±1/16".
WELDING WILL BE PERFORMED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUCTION.

STEEL FRAME AND GRATE

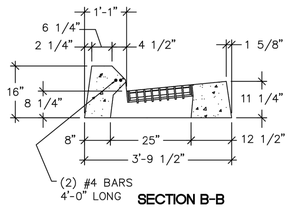
N.T.S.



TOP PLAN VIEW



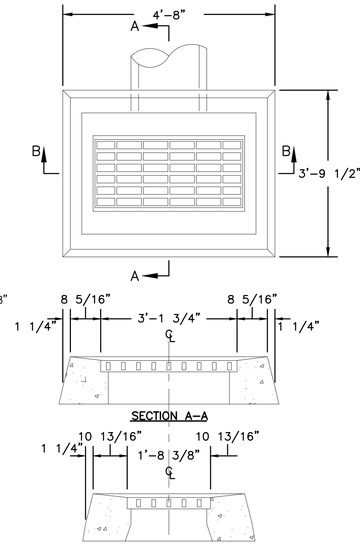
SECTION A-A



SECTION B-B

TYPE 'C' CATCH BASIN TOP

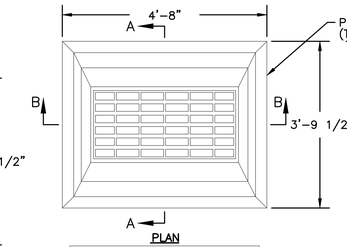
N.T.S.



TYPE 'C-L' CATCH BASIN TOP

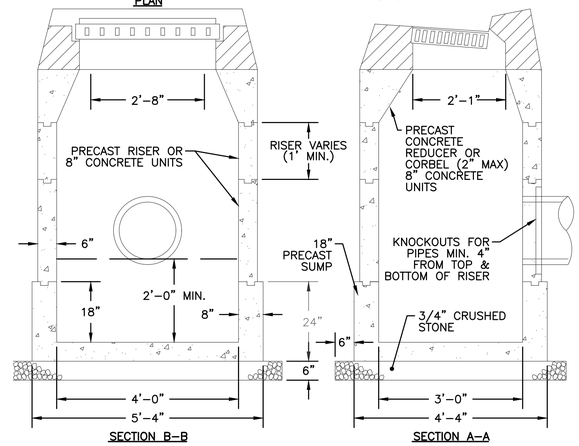
N.T.S.

DESIGN NOTES:
1. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60, MIN. COVER 2" UNLESS NOTED. (ADD'L BARS ADDED FOR HANDLING BARS NOT SHOWN).
2. CONCRETE COMPRESSIVE STRENGTH- 4000 PSI AT 28 DAYS SELF COMPACTING CONCRETE MIX.
3. METHOD OF MANUFACTURE: WET CAST
4. SECTION IS MONOLITHIC.
5. GALVANIZED FRAME & GRATE.
6. GRATE- TYPE A OR B ARE AVAILABLE.



PLAN

NOTES:
1. IN PRECAST RISER SECTIONS, THE KNOCKOUTS OR OPENINGS AROUND THE PIPES SHALL BE MORTARED TO 6".
2. PRECAST REDUCER SHALL BE SPECIFICALLY SIZED & PLACED FOR THE TYPE OF TOP USED.
3. PLACE ALL PRECAST UNITS, TOPS AND CONCRETE BLOCKS IN A CEMENT MORTAR BED.
4. PRECAST UNITS SHALL BE REINFORCED WITH WELDED WIRE FABRIC.



PRECAST TYPE 'C' CATCH BASIN

N.T.S.

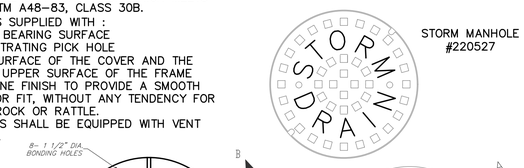
PLAN VIEW

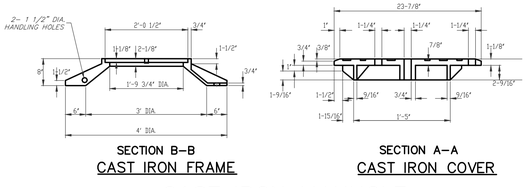
TYPICAL INLET AT REAR OF CATCH BASIN DETAIL

N.T.S.

MANHOLE SPECIFICATIONS :

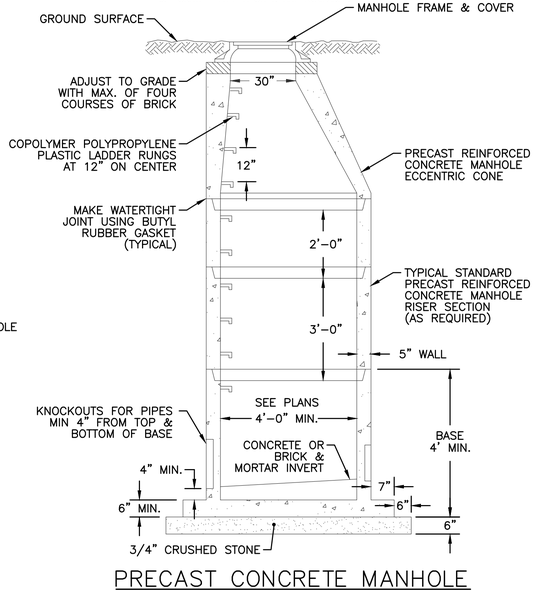
1. PATTERN SHALL BE AS NOTED MANUFACTURED BY THE EJ CO. OR APPROVED EQUAL.
2. AASHTO HS20-44 HIGHWAY LOADING.
3. MATERIAL SHALL GRAY CAST IRON WHICH MEETS OR EXCEEDS ASTM A48-83, CLASS 30B.
4. ALL CASTINGS SUPPLIED WITH :
   -MACHINED BEARING SURFACE
   1 -NON-PENETRATING PICK HOLE
1. THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISH TO PROVIDE A SMOOTH FLAT CONTACT OR FIT, WITHOUT ANY TENDENCY FOR THE COVER TO ROCK OR RATTLE.
2. ALL MANHOLES SHALL BE EQUIPPED WITH VENT HOLE IN CENTER.





CAST IRON MANHOLE FRAME AND COVER

N.T.S.

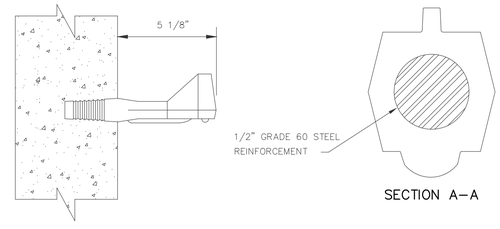


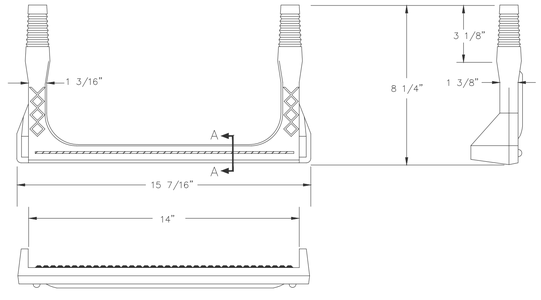
PRECAST CONCRETE MANHOLE

N.T.S.

PRECAST TYPE 'C' CATCH BASIN

N.T.S.





PLASTIC MANHOLE STEP

(FOR INSTALLATION IN PRE-CAST CONCRETE)

N.T.S.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
N.T.S.

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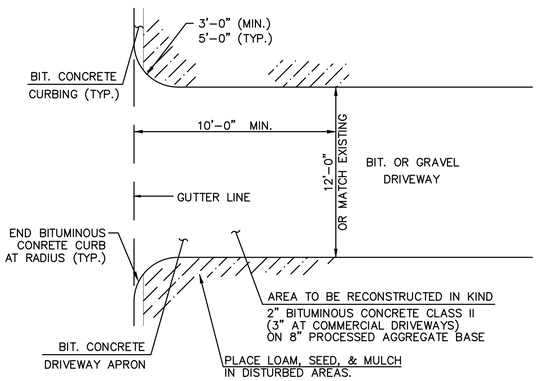
PREPARED FOR

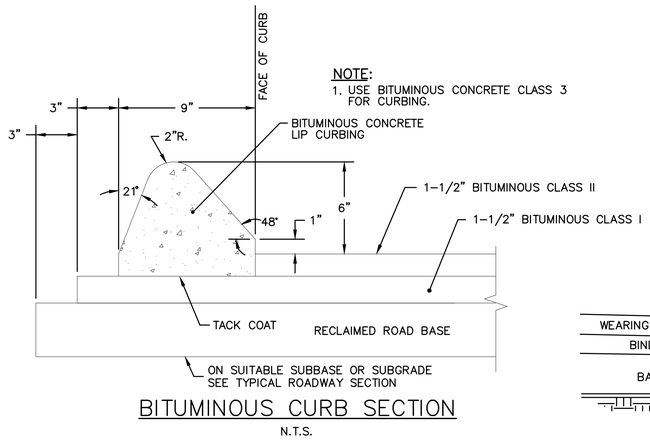
TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

DRAINAGE DETAILS (2 OF 2) RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

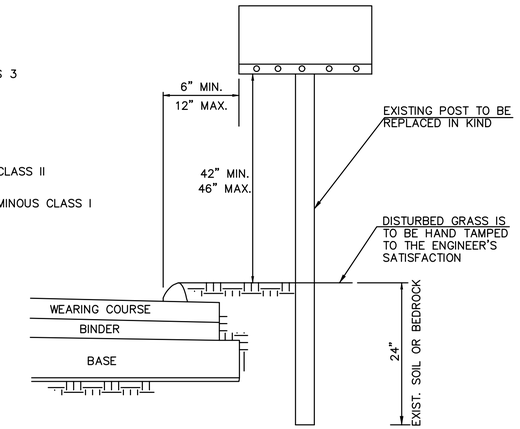
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		35	39



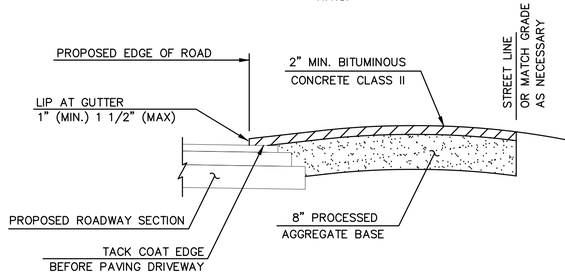
TYPICAL DRIVEWAY PLAN
N.T.S.



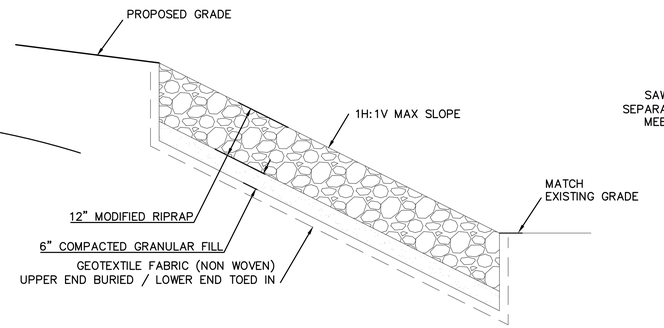
BITUMINOUS CURB SECTION
N.T.S.



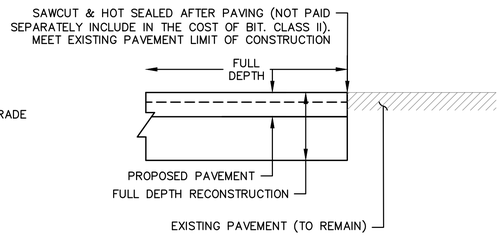
MAILBOX AND PAPER TUBE SETTING LOCATION
N.T.S.



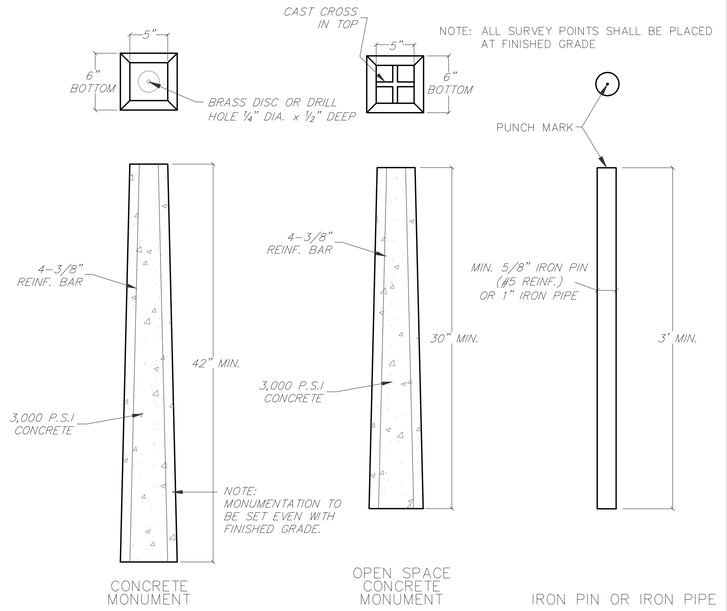
TYPICAL BITUMINOUS DRIVEWAY SECTION
N.T.S.



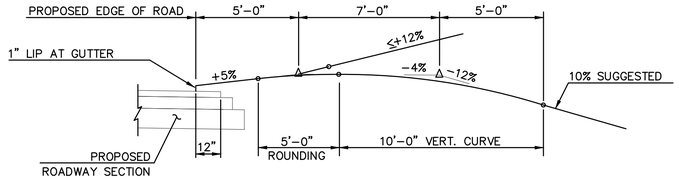
RIPRAP STABILIZATION SLOPE DETAIL
N.T.S.



ROADWAY PAVEMENT TRANSITION DETAIL AT CONSTRUCTION LIMITS
N.T.S.

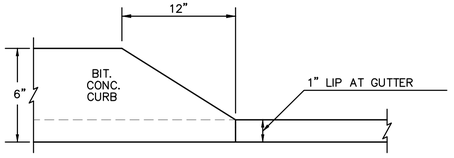


MONUMENTATION DETAILS
N.T.S.

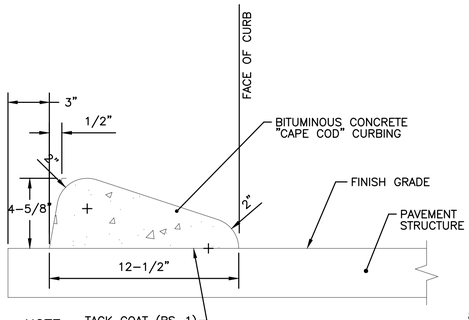


NOTES:
1. USE 5'-0" ROUNDING ONLY FOR DRIVEWAY GRADES LESS THAN OR EQUAL TO +15% OR -4%. FOR DRIVEWAY GRADES GREATER THAN -4%, USE 5'-0" ROUND PLUS 10'-0" VERTICAL CURVE FOR GRADES GREATER THAN 15%, USE 10'-0" VERTICAL CURVE WITH NO 5'-0" ROUNDING.

TYPICAL DRIVEWAY PROFILE
N.T.S.



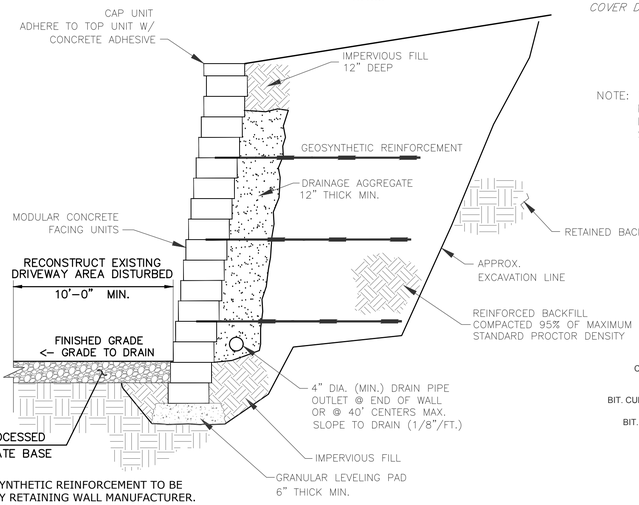
BITUMINOUS CONCRETE LIP CURBING DRIVEWAY DETAIL (PROFILE ALONG GUTTER)
N.T.S.



NOTES:
1. FILTER FABRIC SHALL BE MIRAFI 500X, EXXON GTF200, AMOCO 2199 OR APPROVED EQUAL.
2. RIP RAP STONE SHALL MEET THE REQUIREMENTS OF CONNECTICUT D.O.T. STANDARD SPECIFICATION FORM 817 ARTICLE: M.12.02.
3. ALL ASSOCIATED MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE PAID FOR UNDER "MODIFIED RIPRAP"

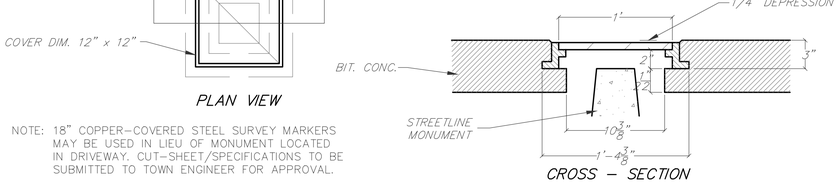
NOTE: TACK COAT (RS-1)
1. USE BITUMINOUS CONCRETE CLASS 3 FOR CURBING.
2. ITEM PAID FOR UNDER "BITUMINOUS CONCRETE LIP CURB"

CAPE COD CURB
N.T.S.

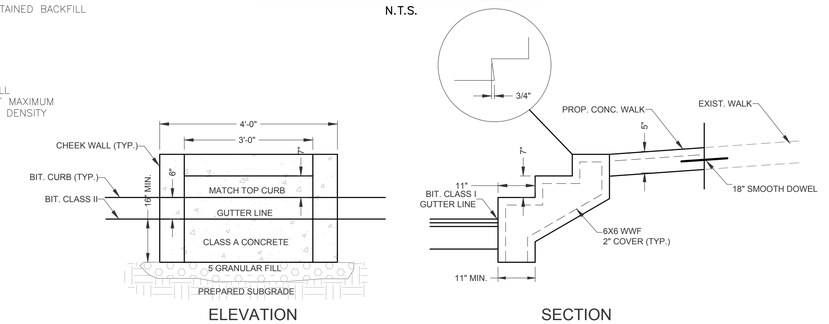


NOTE: GEOSYNTHETIC REINFORCEMENT TO BE DESIGNED BY RETAINING WALL MANUFACTURER. SUBMIT SHOP DRAWINGS BY LICENSED PE.

EMBANKMENT WALL TYPICAL SECTION-REINFORCED RETAINING WALL
N.T.S.



STREETLINE MONUMENT IN PAVEMENT COVER DETAIL



CONCRETE STEPS
N.T.S.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
N.T.S.

WMC CONSULTING ENGINEERS
• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR
TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

MISCELLANEOUS DETAILS RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		36	39

1. SET POSTS AND EXCAVATE A 6"x6" TRENCH. SET POSTS DOWN SLOPE. ANGLE 10° UPSLOPE FOR STABILITY AND SELF CLEANING.

2. ATTACH THE WIRE MESH FENCING TO POST.

3. ATTACH GEOTEXTILE TO THE WIRE FENCING AND EXTEND IT TO THE TRENCH.

4. BACKFILL THE TRENCH AND COMPACT THE EXCAVATED SOIL.

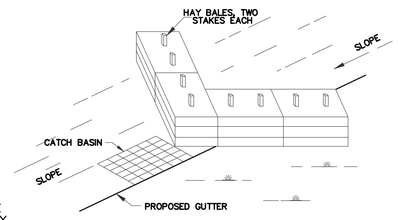
* WHEN INSTALLATION OF TRENCH IS IMPRACTICAL, ALTERNATE INSTALLATION SHALL BE TO LAY 6" FLAP HORIZONTALLY ON GROUND AND BURY FLAP BY RAMP SOIL OR STONE UP TO CONTROL FENCE. DEPTH OF RAMP SHALL BE AS REQUIRED TO HOLD DOWN FLAP WITHOUT LEAKAGE UNDER CONTROL FENCE WHILE MAINTAINING MINIMUM HEIGHT.

GEOTEXTILE FENCE SYSTEM

REFER TO PAGE 5-11-35 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 55 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

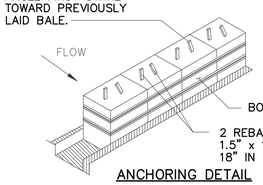
SEDIMENTATION CONTROL SYSTEM INSTALLATION

N.T.S.

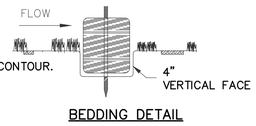


HAY BALE CHECK

N.T.S.



ANCHORING DETAIL



BEDDING DETAIL

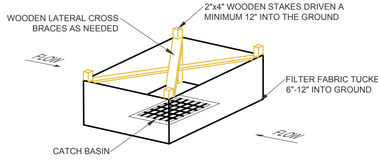
HAY BALE CONSTRUCTION SPECIFICATIONS:

1. HAY BALES SHALL BE PLACED AROUND NEWLY INSTALLED CATCH BASINS IN SAGS AND DROP INLETS TO PREVENT SEDIMENTATION AND OTHER DEBRIS FROM ACCUMULATING ON THE GRATE OR IN THE SUMP. HAY BALES SHOULD BE KEPT CLEAN AND FREE OF DEBRIS TO FACILITATE FLOW.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4", AND PLACED SO THE BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR REBARS DRIVEN THROUGH THE BALE. THE FIRST STAKE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

REFER TO PAGE 5-11-30 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 53 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

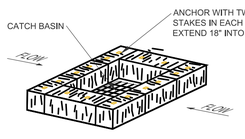
HAY BALE DETAIL

N.T.S.



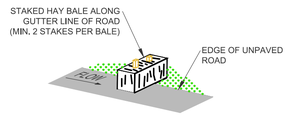
SILT FENCE INSTALLATION AT CATCH BASINS

N.T.S.



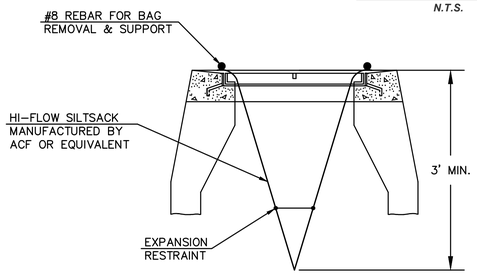
HAY BALE INSTALLATION AT CATCH BASINS

N.T.S.



HAY BALE INSTALLATION ALONG EDGE OF ROAD

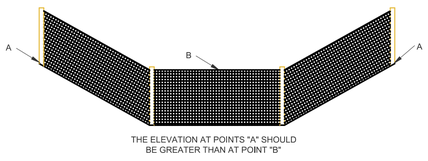
N.T.S.



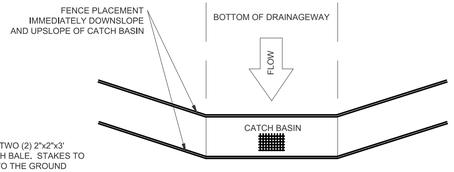
NOTE:
1) SILT SACKS SHALL BE EMPTIED WHEN THEY HAVE COLLECTED 1 TO 1.5 FEET OF SEDIMENT. INSPECT EVERY WEEK OR AFTER EVERY RAINFALL EVENT.
2) SILT SACKS SHALL BE INSTALLED IN STRUCTURES CHOSEN BY THE ENGINEER (OR TOWN)

SILTATION SAC IN CATCH BASIN

N.T.S.

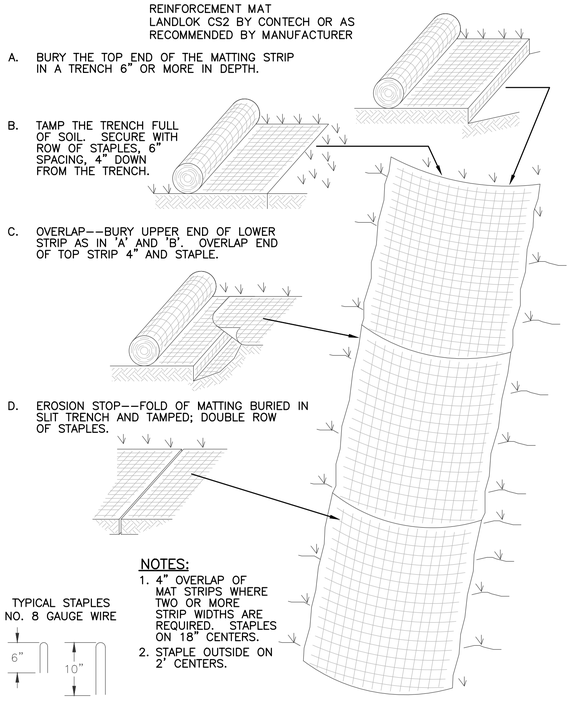


THE ELEVATION AT POINTS "A" SHOULD BE GREATER THAN AT POINT "B"



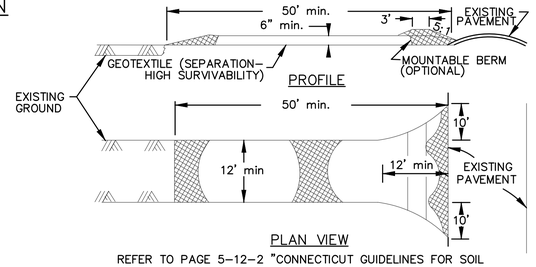
TYPICAL PLACEMENT OF FILTER FABRIC OR HAY BALES IN DRAINAGEWAY ON SLOPING ROADS OR DRAINAGEWAYS

N.T.S.



STEEP SLOPE TREATMENT DETAIL

N.T.S.



REFER TO PAGE 5-12-2 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 50 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

CONSTRUCTION SPECIFICATION:
1. STONE SIZE - USE 2" MINUSE STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FT (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN 6".
4. WIDTH - 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. GEOTEXTILE WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SETTLING AREA SIZED TO HOLD THE VOLUME OF WATER USED DURING ANY 2-HOUR PERIOD.
9. PERIODIC INSPECTION AND NECESSARY MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL.

STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

GENERAL

THIS PLAN PROPOSES EROSION CONTROL MEASURES TO HELP CONTROL ACCELERATED EROSION AND SEDIMENTATION AND REDUCE THE DANGER FROM STORM WATER RUNOFF AT THE SITE. THE RUNOFF SHALL BE CONTROLLED BY THE INTERCEPTION, DIVERSION, AND SAFE DISPOSAL OF PRECIPITATION. RUNOFF SHALL ALSO BE CONTROLLED BY STAGING CONSTRUCTION ACTIVITY AND PRESERVING NATURAL VEGETATION WHENEVER POSSIBLE. EXISTING VEGETATION SHALL BE PROTECTED AND ONLY THAT CLEARING AND GRUBBING ABSOLUTELY NECESSARY FOR THE PROPOSED CONSTRUCTION SHALL BE PERFORMED. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOUR, UNLESS OTHERWISE INDICATED ON THE PLANS. THE CONTRACTOR SHALL TAKE SPECIAL CARE WITH HIS CONSTRUCTION METHODS AND SHALL COMPLY WITH THE FOLLOWING GUIDELINES. REFERENCE IS MADE TO THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" (2002), AS AMENDED. THE GUIDELINES ARE OBTAINABLE FROM THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, 79 ELM STREET, HARTFORD, CONNECTICUT 06106, AND SHOULD BE USED AS A REFERENCE IN CONSTRUCTING THE EROSION AND SEDIMENTATION CONTROLS INDICATED ON THESE PLANS.

EROSION CONTROL

ALL AREAS SHALL BE PROTECTED FROM EROSION DURING AND AFTER CONSTRUCTION, PARTICULARLY THE STORAGE OF EXCAVATED OR STOCKPILED MATERIAL. THE CONTRACTOR SHALL CAREFULLY STRIP ALL TOPSOIL, LOAM, OR ORGANIC MATTER PRIOR TO TRENCHING OR OTHER OPERATIONS AND SHALL STORE THEM SEPARATELY FROM ALL OTHER MATERIALS DURING EXCAVATION. EACH STOCKPILE MUST BE ADEQUATELY RINGED WITH SEDIMENTATION CONTROL SYSTEM (I.E. HAY BALES AND/OR GEOTEXTILE FENCE). DEBRIS AND OTHER WASTE RESULTING FROM EQUIPMENT MAINTENANCE AND CONSTRUCTION WILL NOT BE DISCARDED ON SITE. STABILIZING OF SLOPES SHALL BE DONE IMMEDIATELY AFTER CONSTRUCTION OF SLOPES. SLOPES STEEPER THAN 3:1 SHALL BE PROTECTED WITH EROSION CONTROL MATTING. THIS MATTING IS MANUFACTURED COMBINATIONS OF MULCH AND NETTING AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL OTHER AREAS SHALL BE MULCHED WITH HAY OR STRAW AT A RATE OF 2 TO 3 TONS PER ACRE. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER SPREADING TO PREVENT WINDBLOWING. THE METHODS RECOMMENDED BY THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" SHALL BE USED FOR THE ANCHORING OF MULCH OR NETTING.

EROSION AND SEDIMENTATION CONTROL PLAN

AN EROSION AND SEDIMENTATION CONTROL PLAN MUST BE SUBMITTED IN WRITING TO THE ENGINEER AND APPROVED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
SEDIMENTATION CONTROL SYSTEM - THE SEDIMENTATION CONTROL SYSTEM SHALL CONSIST OF A GEOTEXTILE BARRIER FENCE. THE SEDIMENTATION CONTROL SYSTEM SHALL BE INSTALLED IMMEDIATELY AFTER A CUT SLOPE HAS BEEN GRADED, BEFORE A FILL SLOPE HAS BEEN CREATED AND AS INDICATED ON THE PLANS. THE SYSTEM IS DESIGNED TO INTERCEPT SILT AND SEDIMENT BEFORE IT REACHES THE WETLANDS OR WATERCOURSES. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE FENCE. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. THE SEDIMENTATION CONTROL SYSTEM IS TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE FENCE ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

STACKED HAY BALES - HAY OR STRAW BALES USED FOR EROSION CONTROL SHALL BE STACKED AT CATCH BASINS WHERE SEDIMENT MAY ENTER THE CATCH BASIN OR AS DIRECTED BY THE ENGINEER. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE EROSION CHECKS. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. HAY OR STRAW BALES ARE TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE EROSION CHECKS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

IN ALL AREAS, REMOVAL OF TREES, BUSHES, AND OTHER VEGETATION, AND DISTURBANCE OF THE SOIL, IS TO BE KEPT TO AN ABSOLUTE MINIMUM WHILE ALLOWING PROPER DEVELOPMENT OF THE SITE.

DURING CONSTRUCTION, AS SMALL AN AREA OF SOIL AS POSSIBLE SHOULD BE EXPOSED FOR AS SHORT A TIME AS POSSIBLE. AFTER CONSTRUCTION, GRADE, RESPREAD TOPSOIL, AND STABILIZE SOIL BY SEEDING AND MULCHING AS TO PREVENT EROSION.

EROSION AND SEDIMENTATION CONTROL MAINTENANCE PROCEDURES

ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED DURING CONSTRUCTION ON A DAILY BASIS AND FOLLOWING ALL STORMS BY THE RESIDENT ENGINEER. THE CONTRACTOR SHALL MAINTAIN AND MAKE REPAIRS AND REMOVE SEDIMENT AS REQUESTED BY THE ENGINEER. THIS WORK SHALL BE PERFORMED WITHIN 24 HOURS OF THE REQUEST AND THERE SHALL BE NO SEPARATE PAYMENT FOR THIS WORK.

THE CONTRACTOR SHALL CLEAN SEDIMENT AND DEBRIS FROM ALL DRAINAGE STRUCTURES, AND PIPES AT THE COMPLETION OF CONSTRUCTION, AND AS REQUESTED BY THE ENGINEER TO KEEP THE SYSTEM FUNCTIONING PROPERLY DURING CONSTRUCTION.

FOLLOWING COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REPAIR ALL ERODED AREAS AND ENSURE A GOOD STAND OF TURF IS ESTABLISHED THROUGHOUT. THE CONTRACTOR SHALL REPAIR ALL ERODED OR DISPLACED RIPRAP, AND CLEAN SEDIMENT COVERED STONES.

ALL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE ESTABLISHED PRIOR TO AND BE MAINTAINED THROUGH ALL CONSTRUCTION PHASES.

WETLAND IMPACTS & DISTURBANCE

EQUIPMENT OPERATING IN WETLANDS: OPERATION OF EQUIPMENT IN WETLAND AREAS IS GENERALLY NOT ALLOWED AND MUST BE APPROVED IN ADVANCE. ANY EQUIPMENT OPERATING IN WETLAND AREAS SHALL BE LOW GROUND PRESSURE (LESS THAN 3 PSI) OR SHALL BE SET ON TEMPORARY FILL OR MATTING. TEMPORARY FILL, TIMBER MATTING OR OTHER MATTING MUST BE APPROVED IN ADVANCE AND WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE GENERAL COST OF OTHER RELATED WORK ITEMS.

TEMPORARY FILL: PLACEMENT OF TEMPORARY FILL (SOIL, RIP RAP, ETC.) IN WETLAND AREAS THAT IS NOT SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS IS GENERALLY NOT ALLOWED AND MUST BE APPROVED IN ADVANCE. ANY TEMPORARY FILL APPROVED FOR PLACEMENT, SHALL BE PLACED ON GEOTEXTILE LAID ON THE PRE-CONSTRUCTION WETLAND GRADE. UNCONFINED TEMPORARY FILL THAT IS PLACED IN FLOWING WATER SHALL BE ONLY CLEAN WASHED STONE.

WETLAND DISTURBANCE: ONLY THOSE WETLAND AREAS SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS OR INCLUDED IN APPROVED PERMITS TO BE DISTURBED, OR ADDITIONAL AREAS SPECIFICALLY APPROVED AS ABSOLUTELY NECESSARY TO COMPLETE THE PROPOSED WORK, SHALL BE DISTURBED.

WETLAND & WETLAND FRINGE AREA RESTORATION: ALL DISTURBED WETLAND AND WETLAND FRINGE AREAS SHALL BE RESTORED WITH A WETLAND SEED MIX OR WETLAND TRANSITIONAL SEED MIX CONTAINING ONLY SPECIES NATIVE TO CONNECTICUT. ALL SEED MIX FOR WETLAND OR WETLAND FRINGE (TRANSITIONAL) AREAS MUST BE SUBMITTED AND APPROVED IN ADVANCE. THIS WORK SHALL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE GENERAL COST OF OTHER RELATED WORK ITEMS.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	S.R.M.
DESIGN	R.E.B.
DRAWN	R.E.B.
CHECKED	S.R.M.
DATE	05/15/19

SCALE
N.T.S.

WMC CONSULTING ENGINEERS
• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

TOWN OF NEW MILFORD

10 MAIN ST

NEW MILFORD, CT 06776

EROSION CONTROL DETAILS & NOTES RECONSTRUCTION OF FORDYCE ROAD NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		37	39

Jaime Lloret DRILLER	**TEST BORING REPORT** **ASSOCIATED BORINGS CO., INC.** **119 MARGARET CIRCLE, NAUGATUCK, CT 06770** **Tel (203) 729-5435 Fax (203) 729-5116**	SHEET 1 OF 1
INSPECTOR		CME-45B DRILLING EQUIPMENT
SOILS ENGINEER	PROJECT NAME: Fordyce Rd Pavement Evaluation PROJECT NUMBER:	Wengall McDonnell Costello CLIENT
Surface Elevation:	LOCATION: New Milford, Connecticut	

		Auger	Casing	Sampler	Core Bar	
Date Started: 2/1/2019		Auger	Casing	Sampler	Core Bar	Hole No. **F-1**
Date Finished: 2/1/2019	Type	HSA		SS		Line & Station
Groundwater Observations	Size I. D.	2 1/2 in		2 in		Offset
AT None ' AFTER 0 HRS	Hammer			140 lb	Bit	N Coordinate
AT ' AFTER HRS	Fall			30 in		E. Coordinate

DEPTH	Casing blows per foot	SAMPLE DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	BLOWS PER 6 INCHES ON SAMPLER 0 - 6	6 - 12	12-18	18-24	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		1.0 - 3.0	1	24	10	D	13	11	7	7	4"	Bituminous Concrete
											1	Br. C-F Sand, Some Silt, Little C-F Gravel
		3.0 - 5.0	2	24	0	D	6	8	8	5		Br. Silt, Tr. F. Sand
5											5	
												End of Boring - 5.0
10												
15												
20												
25												
30												
35												
40												

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 5.0 Footage in Rock 0.0 No. of Samples 2 Hole No. F-1

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

Jaime Lloret DRILLER	**TEST BORING REPORT** **ASSOCIATED BORINGS CO., INC.** **119 MARGARET CIRCLE, NAUGATUCK, CT 06770** **Tel (203) 729-5435 Fax (203) 729-5116**	SHEET 1 OF 1
INSPECTOR		CME-45B DRILLING EQUIPMENT
SOILS ENGINEER	PROJECT NAME: Fordyce Rd Pavement Evaluation PROJECT NUMBER:	Wengall McDonnell Costello CLIENT
Surface Elevation:	LOCATION: New Milford, Connecticut	

Date Started: 2/1/2019		Auger	Casing	Sampler	Core Bar	Hole No. **F-1A**
Date Finished: 2/1/2019	Type	HSA		SS		Line & Station
Groundwater Observations	Size I. D.	2 1/2 in		2 in		Offset
AT None ' AFTER 0 HRS	Hammer			140 lb	Bit	N Coordinate
AT ' AFTER HRS	Fall			30 in		E. Coordinate

DEPTH	Casing blows per foot	SAMPLE DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	BLOWS PER 6 INCHES ON SAMPLER 0 - 6	6 - 12	12-18	18-24	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		1.0 - 3.0	1	24	6	D	31	28	21	17	7"	Bituminous Concrete
											1	Br. C-F Sand, Some Silt, Little C-F Gravel
		3.0 - 5.0	2	24	0	D	17	12	12	8		Br. Silt, Tr. F. Sand
5											5	
												End of Boring - 5.0
10												
15												
20												
25												
30												
35												
40												

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 5.0 Footage in Rock 0.0 No. of Samples 2 Hole No. F-1A

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

Jaime Lloret DRILLER	**TEST BORING REPORT** **ASSOCIATED BORINGS CO., INC.** **119 MARGARET CIRCLE, NAUGATUCK, CT 06770** **Tel (203) 729-5435 Fax (203) 729-5116**	SHEET 1 OF 1
INSPECTOR		CME-45B DRILLING EQUIPMENT
SOILS ENGINEER	PROJECT NAME: Fordyce Rd Pavement Evaluation PROJECT NUMBER:	Wengall McDonnell Costello CLIENT
Surface Elevation:	LOCATION: New Milford, Connecticut	

Date Started: 2/1/2019		Auger	Casing	Sampler	Core Bar	Hole No. **F-2**
Date Finished: 2/1/2019	Type	HSA		SS		Line & Station
Groundwater Observations	Size I. D.	2 1/2 in		2 in		Offset
AT None ' AFTER 0 HRS	Hammer			140 lb	Bit	N Coordinate
AT ' AFTER HRS	Fall			30 in		E. Coordinate

DEPTH	Casing blows per foot	SAMPLE DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	BLOWS PER 6 INCHES ON SAMPLER 0 - 6	6 - 12	12-18	18-24	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		1.0 - 3.0	1	24	7	D	9	11	9	8	3"	Bituminous Concrete
											1	Br. C-F Sand, Some Silt, Little C-F Gravel
		3.0 - 5.0	2	24	10	D	6	7	10	11		Br. Silt, Tr. F. Sand
5											5	
												End of Boring - 5.0
10												
15												
20												
25												
30												
35												
40												

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 5.0 Footage in Rock 0.0 No. of Samples 2 Hole No. F-2

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

Jaime Lloret DRILLER	**TEST BORING REPORT** **ASSOCIATED BORINGS CO., INC.** **119 MARGARET CIRCLE, NAUGATUCK, CT 06770** **Tel (203) 729-5435 Fax (203) 729-5116**	SHEET 1 OF 1
INSPECTOR		CME-45B DRILLING EQUIPMENT
SOILS ENGINEER	PROJECT NAME: Fordyce Rd Pavement Evaluation PROJECT NUMBER:	Wengall McDonnell Costello CLIENT
Surface Elevation:	LOCATION: New Milford, Connecticut	

Date Started: 2/1/2019		Auger	Casing	Sampler	Core Bar	Hole No. **F-3**
Date Finished: 2/1/2019	Type	HSA		SS		Line & Station
Groundwater Observations	Size I. D.	2 1/2 in		2 in		Offset
AT 4 ' AFTER 0 HRS	Hammer			140 lb	Bit	N Coordinate
AT ' AFTER HRS	Fall			30 in		E. Coordinate

DEPTH	Casing blows per foot	SAMPLE DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	BLOWS PER 6 INCHES ON SAMPLER 0 - 6	6 - 12	12-18	18-24	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		1.0 - 3.0	1	24	8	D	11	12	9	8	6"	Bituminous Concrete
											1	Br. C-F Sand, Some Silt, Little C-F Gravel
		3.0 - 5.0	2	24	10	D	7	6	5	6		Br. Silt, Tr. F. Sand
5											5	
												End of Boring - 5.0
10												
15												
20												
25												
30												
35												
40												

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 5.0 Footage in Rock 0.0 No. of Samples 2 Hole No. F-3

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

NO.	DATE	DESCRIPTION

REVISIONS

SUPV. S.R.M.
DESIGN R.E.B.
DRAWN R.E.B.
CHECKED S.R.M.
DATE 05/15/19

SCALE
N.T.S.

WMC
CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

TOWN OF NEW MILFORD
10 MAIN ST
NEW MILFORD, CT 06776

ROADWAY BORINGS (1 OF 2)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET
D –	FORDYCE ROAD –	FORDYCE_FD–	18113.300 –		38 OF 39

Jaime Lloret	**TEST BORING REPORT**		SHEET 1 OF 1
DRILLER	**ASSOCIATED BORINGS CO., INC.**		
	119 MARGARET CIRCLE, NAUGATUCK, CT 06770		CME-45B
INSPECTOR	**Tel (203) 729-5435 Fax (203) 729-5116**		DRILLING EQUIPMENT
	PROJECT NAME: Fordyce Rd Pavement Evaluation		Wengall McDonnell Costello
SOILS ENGINEER	PROJECT NUMBER:		CLIENT
Surface Elevation:	LOCATION: New Milford, Connecticut		
Date Started: 2/1/2019		Auger / Casing / Sampler / Core Bar	Hole No. **F-4**
Date Finished: 2/1/2019	Type	HSA / / SS /	Line & Station
Groundwater Observations	Size I. D.	2 1/2 in / / 2 in /	Offset
AT None ' AFTER 0 HRS	Hammer	/ / 140 lb / Bit	N Coordinate
AT ' AFTER HRS	Fall	/ / 30 in /	E. Coordinate

DEPTH	Casing blows per foot	SAMPLE DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	BLOWS PER 6 INCHES ON SAMPLER 0 - 6	6 - 12	12-18	18-24	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		1.0 - 3.0	1	24	7	D	17	19	13	11	5"	Bituminous Concrete
											1	Br. C-F Sand, Some Silt, Little C-F Gravel
		3.0 - 5.0	2	24	7	D	11	12	8	10		Br. Silt, Tr. F. Sand
5											5	End of Boring - 5.0
10												
15												
20												
25												
30												
35												
40												

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 5.0 Footage in Rock 0.0 No. of Samples 2 Hole No. F-4

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

Jaime Lloret	**TEST BORING REPORT**		SHEET 1 OF 1
DRILLER	**ASSOCIATED BORINGS CO., INC.**		
	119 MARGARET CIRCLE, NAUGATUCK, CT 06770		CME-45B
INSPECTOR	**Tel (203) 729-5435 Fax (203) 729-5116**		DRILLING EQUIPMENT
	PROJECT NAME: Fordyce Rd Pavement Evaluation		Wengall McDonnell Costello
SOILS ENGINEER	PROJECT NUMBER:		CLIENT
Surface Elevation:	LOCATION: New Milford, Connecticut		
Date Started: 2/1/2019		Auger / Casing / Sampler / Core Bar	Hole No. **F-5**
Date Finished: 2/1/2019	Type	HSA / / SS /	Line & Station
Groundwater Observations	Size I. D.	2 1/2 in / / 2 in /	Offset
AT None ' AFTER 0 HRS	Hammer	/ / 140 lb / Bit	N Coordinate
AT ' AFTER HRS	Fall	/ / 30 in /	E. Coordinate

DEPTH	Casing blows per foot	SAMPLE DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	BLOWS PER 6 INCHES ON SAMPLER 0 - 6	6 - 12	12-18	18-24	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		1.0 - 3.0	1	24	6	D	12	10	7	5	5"	Bituminous Concrete
												Br. C-F Sand, Some Silt, Little C-F Gravel
		3.0 - 5.0	2	24	8	D	25	20	14	10	3	Br. Silt, Tr. F. Sand
5											5	End of Boring - 5.0
10												
15												
20												
25												
30												
35												
40												

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 5.0 Footage in Rock 0.0 No. of Samples 2 Hole No. F-5

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

Jaime Lloret	**TEST BORING REPORT**		SHEET 1 OF 1
DRILLER	**ASSOCIATED BORINGS CO., INC.**		
	119 MARGARET CIRCLE, NAUGATUCK, CT 06770		CME-45B
INSPECTOR	**Tel (203) 729-5435 Fax (203) 729-5116**		DRILLING EQUIPMENT
	PROJECT NAME: Fordyce Rd Pavement Evaluation		Wengall McDonnell Costello
SOILS ENGINEER	PROJECT NUMBER:		CLIENT
Surface Elevation:	LOCATION: New Milford, Connecticut		
Date Started: 2/1/2019		Auger / Casing / Sampler / Core Bar	Hole No. **F-6**
Date Finished: 2/1/2019	Type	HSA / / SS /	Line & Station
Groundwater Observations	Size I. D.	2 1/2 in / / 2 in /	Offset
AT None ' AFTER 0 HRS	Hammer	/ / 140 lb / Bit	N Coordinate
AT ' AFTER HRS	Fall	/ / 30 in /	E. Coordinate

DEPTH	Casing blows per foot	SAMPLE DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	BLOWS PER 6 INCHES ON SAMPLER 0 - 6	6 - 12	12-18	18-24	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		1.0 - 3.0	1	24	5	D	21	26	17	15	4"	Bituminous Concrete
												Br. C-F Sand, Some Silt, Little C-F Gravel
		3.0 - 5.0	2	24	0	D	12	16	15	11		
5											5	End of Boring - 5.0
10												
15												
20												
25												
30												
35												
40												

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 5.0 Footage in Rock 0.0 No. of Samples 2 Hole No. F-6

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

NO.	DATE	DESCRIPTION

REVISIONS

SUPV. S.R.M.

DESIGN R.E.B.

DRAWN R.E.B.

CHECKED S.R.M.

DATE 05/15/19

SCALE
N.T.S.

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NEWINGTON, CT 06111
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TOWN OF NEW MILFORD

10 MAIN ST

NEW MILFORD, CT 06776

ROADWAY BORINGS (2 OF 2)
RECONSTRUCTION OF FORDYCE ROAD
NEW MILFORD, CONNECTICUT

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	FORDYCE ROAD	FORDYCE_FD	18113.300		39	39