S T A T E O F C O N N E C T I C U T
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

Phone: 860-594-3128

October 7, 2014

Subject: Project No. 151-273
F.A.P. No. 0842(195)
Reconstruction of I-84, Washington Street to Pierpont Road, Town of Waterbury.

NOTICE TO CONTRACTORS:

This is to notify all concerned and especially the prospective bidders that the bid opening for the subject project is still scheduled for **October 15, 2014** at 2:00 P.M. in the Conference Room of the Department of Transportation Administration Building, 2800 Berlin Turnpike, Newington, Connecticut.

Addendum No. 3 is attached and can also be obtained on the Statewide Contracting Portal at http://www.biznet.ct.gov/scp_search/BidResults.aspx?groupid=64

This Addendum is necessary to revise a contract documents.

Pre-Bid Questions and Answers: Questions pertaining to DOT advertised construction projects must be presented through the CTDOT Pre-Bid Q and A Website. The Department cannot guarantee that all questions will be answered prior to the bid date. **PLEASE NOTE - at 12:01 am, the day before the bid, the subject project(s) being bid will be removed from the Q and A Website, Projects Advertised Section, at which time questions can no longer be submitted through the Q and A Website. At this time, the Q and A for those projects will be considered final, unless otherwise stated and/or the bid is postponed to a future date and time to allow for further questions and answers to be posted.**

Philip J. Melchionne
For: Gregory D. Straka
Contracts Manager
Division of Contracts Administration

OCTOBER 2, 2014
RECONSTRUCTION OF I-84
FEDERAL AID PROJECT NO. 0842(195)
STATE PROJECT NO. 0151-0273
CITY OF WATERBURY

ADDENDUM NO. 3

This Addendum addresses the following questions and answers contained on the "CT DOT QUESTIONS AND ANSWERS WEBSITE FOR ADVERTISED CONSTRUCTION PROJECTS":

Question and Answer Nos. 11, 15, 16, 64, 65, 75, 76, 77, 78, 81 and 82.

- The following are in addition to the Questions and Answers cited in Addendum 1:
  15 and 47

- The following are in addition to the Questions and Answers cited in Addendum 2:
  40, 42, 77, 86 and 87

PERMIT

The attached Army Corps of Engineers Permit is hereby added to the Contract.

SPECIAL PROVISIONS

NEW SPECIAL PROVISIONS

The following Special Provisions are hereby added to the Contract:

- INCENTIVE AND LIQUIDATED DAMAGES PROVISIONS
- NOTICE TO CONTRACTOR – GLOBAL POSITIONING SYSTEM (GPS) COORDINATES FOR SIGNS
- NOTICE TO CONTRACTOR – TEMPORARY SHEET PILING
- ITEM NO. 0714050A – TEMPORARY EARTH RETAINING SYSTEM
- ITEM NO. 0715050A – EARTH RETAINING SYSTEM LEFT IN PLACE

REVISED SPECIAL PROVISIONS

The following Special Provisions are hereby deleted in their entirety and replaced with the attached like-named Special Provisions:

- CONTRACT TIME AND LIQUIDATED DAMAGES
- NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE
- SECTION 1.08 – PROSECUTION AND PROGRESS
- SECTION 12.00 – GENERAL CLAUSES FOR HIGHWAY SIGNING
- ITEM NO. 0916111A – NOISE BARRIER WALL (STRUCTURE)
- ITEM NO. 0916126A – NOISE BARRIER WALL
- ITEM NO. 0916219A – ROCK IN POLE EXCAVATION
- ITEM NO. 0969202A – CLASS B OFFICE (ESTIMATED COST)
- ITEM NO. 0969205A – CLASS B OFFICE SUPPLIES
- ITEM NO. 0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC
- ITEM NO. 1105001A – 1 WAY, 1 SECTION SPAN WIRE TRAFFIC SIGNAL
- ITEM NO. 1105003A – 1 WAY, 3 SECTION SPAN WIRE TRAFFIC SIGNAL
- ITEM NO. 1105007A – 2 WAY, 3 SECTION SPAN WIRE TRAFFIC SIGNAL
- ITEM NO. 1105203A – 1 WAY, 3 SECTION POLE MOUNTED TRAFFIC SIGNAL
- ITEM NO. 1105303A – 1 WAY, 3 SECTION PEDESTAL MOUNTED TRAFFIC SIGNAL
- ITEM NO. 1108115A – FULL ACTUATED CONTROLLER 8 PHASE

DELETED SPECIAL PROVISIONS

The following Special Provisions are hereby deleted in their entirety:

- NOTICE TO CONTRACTOR – SEQUENCE OF DRAINAGE CONSTRUCTION
- ITEM NO. 1010021A – CONCRETE HANDHOLE – TYPE II
- ITEM NO. 1103021A – 8500 MM STEEL SPAN POLE
- ITEM NO. 1103022A – 9000 MM STEEL SPAN POLE
- ITEM NO. 1103023A – 10000 MM STEEL SPAN POLE
- ITEM NO. 1103029A – 9500 MM STEEL SPAN POLE

CONTRACT ITEMS

REVISED CONTRACT ITEMS

ITEM NO.	DESCRIPTION	ORIGINAL QUANTITY	REVISED QUANTITY
0601112A	2700 MM X 1800 MM PRECAST CONCRETE BOX CULVERT	79 MM	39 MM
0714050A	TEMPORARY EARTH RETAINING SYSTEM	3,922 SQ M	49,200 SQ M
0715050A	EARTH RETAINING SYSTEM LEFT IN PLACE	200 SQ M	2,040 SQ M

DELETED CONTRACT ITEMS

ITEM NO.	DESCRIPTION	ORIGINAL QUANTITY	REVISED QUANTITY
0714020	TEMPORARY SHEET PILING	53,500 SQ M	0
0715020	SHEET PILING MATERIAL LEFT-IN-PLACE	1,840 SQM	0
0969000A	PROJECT COORDINATOR	LS	0

PLANS

REVISED PLANS

The following Plan Sheets are hereby deleted and replaced with the like-numbered Plan Sheets:

1.02.002

06.06.001
06.06.004

07.01.062
07.01.063
07.01.124

The Detailed Estimate Sheets do not reflect these changes.

The Bid Proposal Form has been revised to reflect these changes.

There will be no change in the number of calendar days due to this Addendum.

The foregoing is hereby made a part of the contract.

MAY 28, 2014
FEDERAL AID PROJECT NO.: 0842(195)
STATE PROJECT NO. 151-273

RECONSTRUCTION OF I-84

City of Waterbury
Federal Aid Project No. 0842(195)

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, 2004, as revised by the Supplemental Specifications dated January 2014 (otherwise referred to collectively as "ConnDOT Form 816") is hereby made part of this contract, as modified by the Special Provisions contained herein. . The State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), May 14, 2010 edition or latest issue, 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 Manual is available upon request from the Transportation Manager of Contracts. The Special Provisions relate in particular to the Reconstruction of I-84 in the City of Waterbury.

COMBINED PROJECTS

There will be but one Contract for Federal Aid Project No. 0842(195) (State Project No. 151-273).

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.

There will be four assessments for liquidated damages and they will be addressed in the following manner:

1. For this contract, an assessment per day for liquidated damages, at a rate of Sixteen Thousand ($16,000.00) Dollars per day shall be applied to each calendar day the work runs in excess of the One Thousand Nine Hundred Fifteen (1,915) allowed calendar days to complete Opening I-84, Ramps and Local roadways to Traffic in

their respective full widths and their final alignments as described in the special provision "Incentive and Liquidated Damages Provisions".

2. For this contract, an assessment per day for liquidated damages, at a rate of Sixteen Thousand Dollars ($16,000.00) per day shall be applied to each calendar day the work runs in excess of the Two Hundred Eighty Five (285) allowed calendar days to complete the EB 23 On-Ramp Construction/Detour work as described in the special provision "Incentive and Liquidated Damages Provisions".

3. For this contract, an assessment per day for liquidated damages, at a rate of Five Thousand Five Hundred Dollars ($5,500.00) per day shall be applied to each calendar day the work runs in excess of the One Thousand Two Hundred Twenty Five (1,225) allowed calendar days to complete the Plank Road East, Scott Road to Harpers Ferry Road work as described in the special provision "Incentive and Liquidated Damages Provisions".

4. For this contract, an assessment per hour for liquidated damages shall be applied to each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours given in Article 1.08.04 of the Special Provisions. The liquidated damages shall be as shown in the following tables entitled "Liquidated Damages Per Hour" for each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours.

For the purpose of administering this contract, normal traffic operations are considered interfered with when:

1. Any portion of the travel lanes or shoulders is occupied by any personnel, equipment, materials, or supplies including signs.

2. The transition between the planes of pavement surfaces is at a rate of 25 mm in less than 4.5 m longitudinally.

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LIQUIDATED DAMAGES PER HOUR

Route I-84 Eastbound West of Exit 19 On-Ramp 2 Lane Section	
If Working Periods Extends Into	1 Lane Closure
1st Hour of Restrictive Period	$ 1,500
2nd Hour of Restrictive Period	$ 5000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 10,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a "2" or "E"

For each hour shown on the Limitation of Operations charts designated with an "E", liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Route I-84 Eastbound Exit 19 On-Ramp to Lane Drop East of Exit 23 Off-Ramp 3 Lane Section		
If Working Periods Extends Into	1 Lane Closure	2 Lane Closure
1st Hour of Restrictive Period	$1,500	$ 5,000
2nd Hour of Restrictive Period	$5,000	$ 25,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 10,000	$ 60,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “3” or “E”

For those hours on the Limitation of Operations charts designated with a "2", the liquidated damages shown above for "1 Lane Closure" shall apply when only one lane is open to traffic.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Route I-84 Eastbound Lane Drop East of Exit 23 Off-Ramp to Exit 25A Off-Ramp 2 Lane Section	
If Working Periods Extends Into	1 Lane Closure
1st Hour of Restrictive Period	$ 5,000
2nd Hour of Restrictive Period	$ 15,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 35,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a "2" or "E".

For each hour shown on the Limitation of Operations charts designated with an "E", liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Route I-84 Eastbound Exit 25A Off-Ramp to Exit 27 Off-Ramp 3 Lane Section			
If Working Periods Extends Into	A.M. 1 Lane Closure	A. M. 2	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$1,500	$ 5,000	$ 1,500
2nd Hour of Restrictive Period	$ 5,000	$ 15,000	$ 5,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 10,000	$ 35,000	$ 10,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “3” or “E”

For those hours on the Limitation of Operations charts designated with a "2", the liquidated damages shown above for "1 Lane Closure" shall apply when only one lane is open to traffic.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Route I-84 Eastbound East of Exit 27 Off-Ramp 3 Lane Section			
If Working Periods Extends Into	A.M. 1 Lane Closure	A.M. 2 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$ 1,500	$ 5000	$ 1,500
2nd Hour of Restrictive Period	$ 5000	$ 15,000	$ 5000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 10,00	$ 35,000	$ 10,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “3” or “E”

For those hours on the Limitation of Operations charts designated with a "2", the liquidated damages shown above for "1 Lane Closure" shall apply when only one lane is open to traffic.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Route I-84 Westbound East of Route I-691 On-Ramp 3 Lane Section			
If Working Periods Extends Into	A.M. 1 Lane Closure	A.M. 2 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$ 1,500	$ 15,000	$ 1,500
2nd Hour of Restrictive Period	$ 5,000	$ 70,000	$ 5,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 10,000	$ 100,000	$ 10,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “3” or “E”

For those hours on the Limitation of Operations charts designated with a "2", the liquidated damages shown above for "1 Lane Closure" shall apply when only one lane is open to traffic.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Route I-84 Westbound Route I-691 On-Ramp to Exit 25A Off-Ramp 3 Lane Section			
If Working Periods Extends Into	A.M. 1 Lane Closure	A.M. 2 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$ 1,500	$ 25,000	$ 1,500
2nd Hour of Restrictive Period	$ 10,000	$ 100,000	$ 5,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 20,000	$ 100,000	$ 10,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “3” or “E”.

For those hours on the Limitation of Operations charts designated with a "2", the liquidated damages shown above for "1 Lane Closure" shall apply when only one lane is open to traffic.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Route I-84 Westbound Exit 25A Off-Ramp to Lane Add West of Exit 23 Off-Ramp 2 Lane Section	
If Working Periods Extends Into	1 Lane Closure
1st Hour of Restrictive Period	$ 80,000
2nd Hour of Restrictive Period	$ 100,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 100,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a "2" or "E".

For each hour shown on the Limitation of Operations charts designated with an "E", liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Route I-84 Westbound West of the Lane Add located West of Exit 23 Off-Ramp 3 Lane Section		
If Working Periods Extends Into	1 Lane Closure	2 Lane Closure
1st Hour of Restrictive Period	$ 1,500	$ 50,000
2nd Hour of Restrictive Period	$ 10,000	$ 100,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 60,000	$ 100,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “3” or “E”.

For those hours on the Limitation of Operations charts designated with a "2", the liquidated damages shown above for "1 Lane Closure" shall apply when only one lane is open to traffic.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

INCENTIVE AND LIQUIDATED DAMAGES PROVISIONS

Time will be of the essence in completing the stage construction for this project and in opening the new bridges, additional travel lanes and shoulders along I-84, ramps and local roadways. In order to reduce the hazard, cost and inconvenience to the traveling public; the pollution of the environment; and the detriments to local businesses which inevitably result from construction projects such as this, it is necessary that the Contractor complete those portions of I-84 Eastbound and Westbound, ramps and local roadways within Project Limits to their full widths at the earliest date possible. To achieve this, the following plan has been established and made a part of the Contract.

The "Incentive Completion Date(s)" are the earliest possible dates that the Department desires to complete the specified Contract Construction Stage elements. The "Allowable Completion Date(s)" are the latest dates that the Contractor will receive incentive payments from the Department to complete the specified Contract Construction Stage elements. Completion prior to the "Incentive Completion Date(s)" will result in a Lump Sum Incentive Payment equal to the Maximum Incentive Payment Amount.

Should the Contractor complete the specified Contract Construction Stage elements after the "Incentive Completion Date(s)" and on or before the "Allowable Completion Date(s)" the total payment shall be as defined below.

> Lump Sum Incentive Payment = Incentive Bonus Payment Amount + ((Incentive Daily Payment Amount) x (number of days the Contract Construction Stage elements are complete before the "Allowable Completion Date"))

Should the Contractor fail to complete the specified Contract Construction Stage elements by the "Allowable Completion Date(s)" no Incentive Bonus Payment will be made and Liquidated Damages will be assessed for each day after the "Allowable Completion Date(s)" to complete the specified Contract Construction Stage elements. ..

> Total Liquidated Damages = Liquidated Damages Daily Amount x (number of days after the "Allowable Completion Date" to complete the Contract Construction Stage elements)

The Contractor shall complete all Contract work and be prepared to open the subject travel ways to traffic at their required widths, with travel lanes and shoulders before the corresponding dates and times. The Incentive and Liquidated Damages payments will be applied as described below. The total combined incentive payment(s) made by the Department to the Contractor under this Contract, if any are due, shall not exceed $6,450,000 for the Project. The total amount of liquidated damages that may be assessed and taken by the Department under this Contract shall not be limited.

Incentive Payment Terms and Conditions

Description of the Work	
Opening I-84, Ramps and Local Roadways to Traffic in their respective full widths and their final alignments: Complete all Contract Construction elements required to open the following roadways to traffic full width with their final number of lanes in their final alignment: I-84 EB, I-84 WB, all on and off ramps within project limits, Hamilton Avenue, Harper's Ferry Road, Scott Road, East Main Street, Reidville Drive, Plank Road and Plank Road East. Elements to be completed and operational include but are not limited to bituminous concrete to its final course, permanent pavement markings, permanent drainage systems; permanent illumination; permanent sign structures and signing; permanent Incident Management System, permanent signalization, all traffic control devices; permanent precast concrete barrier curb, metal beam rail and three-cable guide rail, permanent noise barrier walls and all other items incidental thereto.	
Allowable Completion Date 1915 Calendar Days after authorization to proceed with NTP 2	**Incentive Bonus Payment Amount** $0.00
Incentive Daily Payment Amount $13,595.00	**Maximum Incentive Payment Amount** $4,500,000.00 (331 days @ $13,595.00)
Incentive Completion Date 1584 Calendar Days after authorization to proceed with NTP 2	**Liquidated Damages Daily Amount** $16,000.00

Description of the Work
EB 23 On-Ramp Construction/Detour: The existing EB 23 On-Ramp will be closed in Stage 2 and existing ramp traffic will be detoured to the EB 25 On-Ramp at Scott Road via Hamilton Avenue, Harpers Ferry Road and relocated Reidville Drive. The major project elements that must be completed before the new EB 23 On-Ramp can be constructed and operational are listed below: • Reidville Drive westerly relocated segment (Stage 1) • Hamilton Avenue bridge (Structure 04321) and approaches (Stages 1 and 2) • I-84 westerly bridge over the Mad River (Structure 01224) and the eastbound and westbound roadway approaches – southerly portion (Stage 1) • I-84 EB and WB Crossover Roadways east and west of Structure 01224 (Stage 1) • EB 25 Off-Ramp to Harpers Ferry Road permanent configuration (Stage 2) • EB 23 On-Ramp-Structure 06590, Retaining Walls 102 and 103 and the embankment supported ramp structure (Stage 2)

The closure/reopening of the EB 23 On-Ramp must be limited to the minimum time possible with a **"Maximum"** duration of two hundred eighty-five (285) days but, with an **"Optimum"** duration of two hundred twenty-five (225) days measured from the initial ramp closure to the reopening of the ramp.

The Contractor shall receive an incentive bonus for each day that the work is completed for a maximum of sixty (60) days prior to the **"Maximum"** duration day limitation and will be assessed liquidated damages for each day in excess of the **"Maximum"** duration of two hundred eighty-five (285) days as presented below:

Allowable Completion Date 285 Calendar Days after EB23 On Ramp Closure	**Incentive Bonus Payment Amount** $0.00
Incentive Daily Payment Amount $16,000.00	**Maximum Incentive Payment Amount** $960,000.00 (60 days @ $16,000.00)
Incentive Completion Date 225 Calendar Days after EB23 On Ramp Closure	**Liquidated Damages Daily Amount** $16,000.00

Description of the Work

Plank Road East, Scott Road to Harpers Ferry Road: Existing Plank Road East including the existing WB 24 On-Ramp at the westerly terminus of Plank Road East will remain open throughout the timeframe allotted for the realignment/reconstruction of the existing roadway in Stages 1 thru 5. The construction of the westerly extension to Harpers Ferry Road will be constructed in segments in Stages 1, 4 and 5 since a third of the extended roadway occupies the area of the existing I-84 to be removed. Upon completion, Plank Road East will serve as a two-way frontage road, linking Scott Road to Harpers Ferry Road on the north side of the I-84 WB Roadway.

The major Project elements that must be completed before Plank Road East can function as a two-way frontage road are listed below:

- Plank Road East, east of the Extension (Stages 1 thru 5) and a segment of the Extension abutting the Calvary Cemetery (Stage 1)
- I-84 relocated segment (Stages 1 thru 3)
- Culvert 01227 northerly crossing of the Plank Road East extension
- Plank Road East Extension west of the Calvary Cemetery (Stages 4 and 5)

The construction/opening of Plank Road East, inclusive of the Extension, must be limited to the minimum time possible with a **"Maximum"** duration of 1,225 days, but with an **"Optimum"** duration of 1,045 days measured from the time existing I-84 is removed to the opening of the entire length of roadway from Scott Road to Harpers Ferry Road.

The Contractor shall receive an incentive bonus for each day that the work is completed for a maximum of 180 days prior to the "**Maximum"** duration day limitation and will be assessed liquidated damages for each day beyond the **"Maximum"** duration of 1,225 days as presented below:

Allowable Completion Date 1,225 Calendar Days from the time existing I-84 is removed	**Incentive Bonus Payment Amount** $0.00
Incentive Daily Payment Amount $5,500.00	**Maximum Incentive Payment Amount** $990,000.00 (180 days @ $5,500.00)
Incentive Completion Date 1,045 Calendar Days from the time existing I-84 is removed	**Liquidated Damages Daily Amount** $5,500.00

The Department shall pay to the Contractor a Lump Sum Incentive Payment under Item No. 0108100A, as set forth in the Incentive and Liquidated Damages Table by which the actual completion date of the pertinent work meets or precedes the "Allowable Completion Date." The Engineer shall determine said Date and the amount of any appropriate payment(s) to be made in this regard, subject to the conditions set forth hereinabove. For purposes of calculation and determination of entitlement to incentive payments hereunder, the Allowable Completion Date will be established prior to bid solicitation for the Contract, and said Date will not be adjusted thereafter for any reasons, cause or circumstance, regardless of fault on the part of any party, except in the instance of a catastrophic event (i.e., Acts of God including fire, flood, earthquake, hurricane or other natural disaster), war, invasion, act of foreign enemies, hostilities (regardless of whether war is declared), civil war, rebellion, insurrection, military or usurped power or confiscation, terrorist activities, nationalization, government sanction, blockage, embargo, labor dispute, strike or lockout.

The Department and the Contractor and other parties involved in the Project must anticipate that Project delays may occur and may arise from any one of various kinds of events and circumstances prior to or during the Contract period, including, but not limited to, the deletion of Contract work, the issuing of construction orders, the relocation of utilities, the execution of supplemental agreements, the discovery of differing site conditions, the adding of extra work to the Contract, the emergence of right-of-way conflicts, problems with the obtaining or the terms of permits, action or inaction by persons or entities working on the project or by third parties, delays in the process of reviewing or approving shop drawings, expansion of the physical limits of the Project, the effects of weather conditions on Project activities, the occurrence of weekends or holidays, the suspension of any Project operation, or other events, forces or factors that affect highway construction work. Such events, forces or factors, and the Project delays, disruptions, inefficiencies or any other detrimental effects caused by them, are to be deemed to have been anticipated and contemplated by the parties in entering into this Contract, and shall not extend or constitute cause for extending any Allowable Completion Date for the purpose of determining whether or not any incentive payment is due to the Contractor, or of calculating the amount of any incentive payment due to the Contractor.

Further, any and all costs or detrimental effects incurred by the Contractor in accelerating its work in an attempt to meet the Allowable Completion Date or to increase the amount of

incentive payments that may be due to the Contractor, regardless of the effects of any delay, disruption, inefficiency or other detrimental effect of the kinds of events, forces or factors referred to above, shall be solely the Contractor's responsibility, and may not be used as the basis for any claim by the Contractor for additional compensation. The Contractor's sole means, if any, for recovering such acceleration costs from the State shall be the incentive payment(s) that will be due to it if it completes the pertinent work prior to the relevant Allowable Completion Date.

If a catastrophic event (as defined above) substantially delays or disrupts a portion of the Contract work described in the Incentive and Liquidated Damages Table, and if said effects and their claimed extent are supported by the Contractor's Critical Path Schedule, the Contractor and the Department shall agree on the number of calendar days by which to extend the pertinent Allowable Completion Date(s), and the adjusted Date(s) will be used in calculating any related incentive payment(s). If the Contractor and the Department cannot agree on the appropriate adjustment of the pertinent Date(s), the Department will adjust the Date(s) in accordance with the period of delay that the Department reasonably deems to have been caused solely by the catastrophic event. The Contractor shall have no right whatsoever to contest such determination, save and except in the event that the Contractor establishes that the number of calendar days of delay recognized by the Department in this context was arbitrary and without any reasonable basis.

A Waiver of Claim (WOC) executed between the Contractor and the Department will be issued to establish the extended pertinent Allowable Completion Date(s). The WOC will be incorporated into the Contract by Construction Order. If the Contractor elects to take advantage of the incentive payment provisions, and if any portion of said provisions should conflict with any other provision of the Contract, the Contract shall be interpreted in accordance with these incentive payment provisions:

(1) If the Contractor wishes to take advantage of the incentive payment provisions, the Contractor must actually complete the pertinent work and obtain written verification of the actual completion date from the Engineer on or before the pertinent Allowable Completion Date.

(2) Within 30 days of receiving such verification of its actual completion date, the Contractor must write to the District Engineer of the Department Construction District administering the Project, notifying the District Engineer that the Contractor elects to receive payment(s) under said provisions. A copy of the Engineer's verification of the pertinent actual completion date(s) must be enclosed with the notice to the District Engineer. In said written notice, the Contractor, in the following language, shall:

> "waive and release the State from any and all claims, causes of action, issues, demands, disputes, matters or controversies of any nature or kind, known or unknown, present or potential, which the Contractor, its employees, agents or successors may have, may have had or ever may have against the Department, its officials, employees, consultants, or its other agents or representatives, in connection with the Contract or the Project, including, but not limited to, claims regarding Project work performed or deleted, construction orders, supplemental agreements, delays, disruptions, differing site conditions, utility conflicts, design changes or defects, time extensions, extra work, right-of-way issues, permitting

issues, actions of suppliers or subcontractors or other contractors or third parties, shop drawing review or rejection, expansion of the physical Project limits, weather conditions, weekend or holiday cessation of Project activities, restrictions of working hours, suspensions of the Contractor's operations, extended or unabsorbed home office or jobsite overhead, lost profits, markups on subcontractor work, acceleration costs, and any other direct or indirect costs, and any other adverse impacts, events, conditions or circumstances or potential damages, relating to or arising out of the Contract or the Project. This waiver and release and acknowledgement of satisfaction shall be all-inclusive and absolute, except for any routine adjustment by the Department of final quantity estimates."

If the Contractor does not, (1) prior to the Allowable Completion Date, complete the pertinent Contract work and obtain written verification from the Engineer of the actual completion date of said work, or (2) within 30 days of said written verification, give the required written notice to the District Engineer of its election to receive incentive payment under the Contract, then the Contractor shall have no right to any payment under these incentive payment provisions.

Without regard to any verification by the Engineer that pertinent Contract work has been completed, and without regard to whether or not any incentive has been elected or earned under these provisions, the Contractor shall remain responsible for all such work and the continued maintenance thereof until such date as the Department formally accepts all work under the Contract in accordance with Section 1.08.14 of these Specifications.

Liquidated Damages Terms and Conditions

Whether or not the Contractor elects to take advantage of these incentive payment provisions, these liquidated damage provisions shall apply to all circumstances in which the Engineer does not verify in writing that the pertinent Contract work has been completed by the "Allowable Completion Date" listed in the Incentive and Liquidated Damages Table.

If the Contractor does not complete the pertinent work on or before the applicable Incentive Completion Date but completes the work prior to the Allowable Completion date, the Contractor will be due a reduced incentive amount which will be computed in accordance with the aforementioned formula. The "Liquidated Damages Daily Amount" and "Allowable Completion Date" for each Contract Milestone listed in the Incentive and Liquidated Damages Table is the same Contract Milestone, liquidated damage and calendar date indicated in the special provision "Contract Time and Liquidated Damages".

NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE

The attached project specific utility work schedule was provided to the Connecticut Department of Transportation (Department) by the utility companies regarding their identified work on this project.

The utility scheduling information is provided to assist the Contractor in scheduling its activities. However, the Department does not ensure its accuracy and Section 1.05.06 of the Standard Specifications still is in force.

The utility scheduling information shall be incorporated into the Contractor's pre-award schedule in accordance with the Department's Bidding and Award Manual and Section 1.05.08 of the Contract.

After award, the Contractor shall conduct a utility coordination meeting or meetings to obtain contemporaneous scheduling information from the utilities prior to submitting its baseline schedule to the Department in accordance with Section (***1.05.08 – Schedules and Reports***) of the Contract.

The Contractor shall incorporate the contemporaneous utility scheduling information into its baseline schedule submittal. The baseline schedule shall include Contractor predecessor and successor activities to the utility work in such detail as acceptable to the Engineer.

The utility work schedules are based on the sequence of construction as shown on the bidders plan set. If the contractor makes changes to the proposed sequence of construction the utility relocation schedules must be revised and coordinated by the contractor prior to start of construction.

rev. 5/20/2013	UTILITY WORK SCHEDULE		
CTDOT Project Number:	151-273	Town:	Waterbury
Project Description:	Reconstruction of I-84		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	860-594-2555	Email:	Derek.Brown@ct.gov
Utility Company:	AT&T - East		
Prepared By:	Michael Brecher / Tom Delorenzo	Date Prepared:	15-Aug-14
Phone:	203-575-6779	Email:	MB2738@att.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

All Work to be done by AT&T, it's contractors and the State's contractors will be permanent. All conduit material and manholes will be supplied by AT&T. The State's contractor will install all conduits on the Hamilton Av. Bridge to AT&T specifications and under the the inspection of AT&T's Conduit Inspector. AT&T will place innerducts, copper and fiber cables and perform all splicing as required and needed at AT&T approved time frames. Removal of existing copper and fiber cables will be completed once service to the new cables has been verified. All locations and quantities are estimated. Due to the large scope of this project the work will have to be done in stages; Hamilton Av. Bridge, Scott Rd. Bridge, Reidville Dr., and Harpers Ferry Rd. The State can determine which stage will go 1st, 2nd, 3rd and 4th. The large copper cables being replaced in the two bridges are not stocked items and can take 4-8 weeks to receive once ordered. This is the Hamilton Av. stage.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

Customer notification cannot begin until all the new copper and fiber cables have been placed and tested. The customer notification process for splicing and cutting over an active cable can take 8 to 12 weeks, (cutovers will take place during off hours on overtime). Please note that any time frame given as a start time or duration of work can be affected by make ready work required prior to the start of the job, coordination with the State's contractor, other utilities, permit applications, (State and Municipality, if required), changes in scope of work, inclement weather, lockdown days, (holidays, end of quarter etc.), and emergency situations.

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273 Hamilton Av.		
Utility Company:	AT&T - East		
Prepared By:	Tom Delorenzo/Michael Brecher	Total Calendar Days:	133

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
HA25+400 L of BL	Test Pits to determine if new manhole #1 can fit.	None	2
HA25+210 L of BL	Test Pits to determine if new manhole #2 can fit.	None	2
HA25+400 L of BL	Place new manhole #1	Test Pits	2
HA25+210 L of BL	Place new manhole #2	Test Pits	2
HA25+420 to 25+360	Place 8-4" P Type conduits, 200'	New MH #1 & 2 placed	4
HA25+200 to 25+080	Place 8-4" P Type conduits, 460'	State's contractor place 8-4" Fiberglass conduits in the new Hamilton Av. Bridge	6
HA25+440 to 25+000	Rod and rope conduits, place fiber and copper cables	All conduit work on Hamilton Av Bridge complete. Cable ordered and delivered	20
HA25+440 to 25+000	Splice new fiber and copper cables, test and verify	Fiber and copper cables placed into new duct structure	90
HA25+440 to 25+000	Removal of old cables	Splicing complete	5

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UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273	Town:	Waterbury
Project Description:	Reconstruction of I-84		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	860-594-2555	Email:	Derek.Brown@ct.gov
Utility Company:	AT&T - East		
Prepared By:	Michael Brecher	Date Prepared:	15-Aug-14
Phone:	203-575-6779	Email:	MB2738@att.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

All Work to be done by AT&T, it's contractors and the State's contractors will be permanent. AT&T will replace 13 poles on Reidville Dr. and 2 poles on East Main St. Reidville Dr. appears to consist of ledge so additional "core bore" may be required to get them set. The copper cables on these poles will be replaced, the fiber shifted. All locations and quantities are estimated. Due to the large scope of this project the work will have to be done in stages; Hamilton Av. Bridge, Scott Rd. Bridge, Reidville Dr., and Harpers Ferry Rd. The State can decide which stage will go 1st, 2nd, 3rd and 4th. The large copper cables that are being replaced in the two bridges are not stocked items and can take 4-8 weeks to receive once ordered. This is the Reidville Drive stage.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

Customer notification cannot begin until all the new copper and fiber cables have been placed and tested. The customer notification process for splicing and cutting over an active cable can take 8 to 12 weeks, (cutovers will take place during off hours on overtime). Please note that any time frame given as a start time or duration of work can be affected by make ready work required prior to the start of the job, coordination with the State's contractor, other utilities, permit applications, (State and Municipality, if required), changes in scope of work, inclement weather, lockdown days, (holidays, end of quarter etc.), and emergency situations.

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273 Reidville Dr		
Utility Company:	AT&T - East		
Prepared By:	Michael Brecher	Total Calendar Days:	63

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
EM30+340 to 30+420	Place new poles and anchors	State to get easement for anchors at both locations	2
EM30+340 to 30+420	Shift existing fiber cables, place new copper cable and terminals	All other utilities and CLEC's must have shifted to new poles	5
EM30+340 to 30+420	Splice copper cables and terminals, test and verify	Cable and terminals placed	10
EM30+340 to 30+420	Remove old poles and cable	New cables spliced	1
RD10+100 to 10+500	Place new poles and anchors	Receive ordered material	20
RD10+100 to 10+500	Shift existing fiber cables, place new copper cable and terminals	All other utilities and CLEC's must have shifted to new poles	10
RD10+100 to 10+500	Splice new fiber and copper cables, test and verify	Cable and terminals placed	10
RD10+100 to 10+500	Remove old poles and cable	Splicing complete	5

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UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273	Town:	Waterbury
Project Description:	Reconstruction of I-84		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	860-594-2555	Email:	Derek.Brown@ct.gov
Utility Company:	AT&T - East		
Prepared By:	Michael Brecher	Date Prepared:	15-Aug-14
Phone:	203-575-6779	Email:	MB2738@att.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

All Work to be done by AT&T, it's contractors and the State's contractors will be permanent. AT&T will replace 2 poles on Plank Rd. and 16 poles on Harpers Ferry Rd. The copper cables on these poles will be replaced, the fiber shifted. All locations and quantities are estimated. Due to the large scope of this project the work will have to be done in stages; Hamilton Av. Bridge, Scott Rd. Bridge, Reidville Dr., and Harpers Ferry Rd. The State can determine which stage will go 1st, 2nd, 3rd and 4th. The large copper cables being replaced in the two bridges are not stocked items and can take 4-8 weeks to receive once ordered. This is the Harpers Ferry Rd. stage.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

Customer notification cannot begin until all the new copper and fiber cables have been placed and tested. The customer notification process for splicing and cutting over an active cable can take 8 to 12 weeks, (cutovers will take place during off hours on overtime). Please note that any time frame given as a start time or duration of work can be affected by make ready work required prior to the start of the job, coordination with the State's contractor, other utilities, permit applications, (State and Municipality, if required), changes in scope of work, inclement weather, lockdown days, (holidays, end of quarter etc.), and emergency situations.

UTILITY WORK SCHEDULE

CTDOT Project Number: 151-273 Harpers Ferry

Utility Company: AT&T - East

Prepared By: Michael Brecher

Total Calendar Days: 41

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
HFR60+800 to 60+100	Place new poles and anchors	Receive ordered material	12
HFR60+800 to 60+100	Shift existing fiber cables, place new copper cable and terminals	All other utilities and CLEC's must have shifted to new poles	8
HFR60+800 to 60+100	Splice copper cables and terminals, test and verify	Cable and terminals placed	10
HFR60+800 to 60+100	Remove old poles and cable	New cables spliced	8
PR70+400	Place new poles and anchors	Receive ordered material	2
PR70+400	Shift cable, remove old pole	All other utilities and CLEC's must have shifted to new poles	1

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UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273	Town:	Waterbury
Project Description:	Reconstruction of I-84		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	860-594-2555	Email:	Derek.Brown@ct.gov
Utility Company:	AT&T - East		
Prepared By:	Michael Brecher/Tom Delorenzo	Date Prepared:	15-Aug-14
Phone:	203-575-6779	Email:	MB2738@att.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

All Work to be done by AT&T, it's contractors and the State's contractors will be permanent. AT&T will move existing pole line, 5 poles, from East side of bridge to the West side. All conduit material and manholes will be supplied by AT&T. The State's contractor will install all conduits on the Scott Rd. bridge to AT&T specifications and under the the inspection of AT&T's Conduit Inspector. AT&T will place innerducts, copper and fiber cables and perform all splicing as required and needed at AT&T approved time frames. Removal of existing copper and fiber cables will be completed once service to the new cables has been verified. All locations and quantities are estimated. Due to the large scope of this project the work will have to be done in stages; Hamilton Av. Bridge, Scott Rd. Bridge, Reidville Dr., and Harpers Ferry Rd. The State can determine which stage will go 1st, 2nd, 3rd and 4th. The large copper cables being replaced in the two bridges are not stocked items and can take 4-8 weeks to receive once ordered. This is the Scott Rd. Bridge stage.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

Customer notification cannot begin until all the new copper and fiber cables have been placed and tested. The customer notification process for splicing and cutting over an active cable can take 8 to 12 weeks, (cutovers will take place during off hours on overtime). Please note that any time frame given as a start time or duration of work can be affected by make ready work required prior to the start of the job, coordination with the State's contractor, other utilities, permit applications, (State and Municipality, if required), changes in scope of work, inclement weather, lockdown days, (holidays, end of quarter etc.), and emergency situations.

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273 Scott Rd		
Utility Company:	AT&T - East		
Prepared By:	Tom Delorenzo/Michael Brecher	Total Calendar Days:	122

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
SR5+250 R of BL	Test Pits to determine if new manhole can fit.	None	2
SR5+150 R of BL	Test Pits to determine if new manhole can fit.	None	2
SR5+150 to 5+250	Place new manhole	Test Pits	2
EM30+275 to SR5+380	Place 8-4" P Type conduits, 400'	New Manhole placed	6
SR5+120 to 5+040	Place 8-4" P Type conduits, 265'	State's contractor place 8-4" Fiberglass conduits in the new Scott Rd. bridge	6
SR5+330 to 5+000	Rod and rope conduits, place fiber and copper cables	All conduit work on Hamilton Av Bridge complete. Cable ordered and delivered	15
SR5+330 to 5+000	Splice new fiber and copper cables, test and verify	Fiber and copper cables placed into new duct structure	75
SR5+330 to 5+000	Removal of old cables	Splicing complete	4
SR5+330 to 5+000	Place new pole line over I-84 on West side of Scott Rd. bridge	Beaver Pond Brook gets relocated, trees trimmed	5
SR5+330 to 5+000	Relocate aerial fiber to new pole line	All other utilities & CLEC's shift to new pole line	3
SR5+330 to 5+000	Remove old poles	All cables shifted to new poles	2

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UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273	Town:	Waterbury
Project Description:	I-84 Reconstruction		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	(860) 594-2555	Email:	Derek.Brown@ct.gov
Utility Company:	Comcast of CT/GA/MA/NH/NY/NC/VA/VT,LLC		
Prepared By:	Dave Gerrish	Date Prepared:	8/21/2014
Phone:	203-732-0146 x73801	Email:	dave_gerrish@cable.comcast.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

For the two overpasses, Harpers Ferry Rd. and Scott Rd, that Comcast has current facilieies on, will need to temporarily relocate aerial facilities to a temporary pole line away from the construction area. Once the new bridges are in place, place new facilities in the new structures. This will include rising on the closest pole to the new bridge and placing a vault at or near the base of the pole and extending conduit to the new bridge at the location where the conduits specified for Comcast will be located. Repeat this at each end of the two bridges. Pull fiber and coax through the conduit and across the bridges and tie in at each end.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

All CL&P and Fibertech work will need to be 100% completed before Comcast can begin our reconstruction. Police detail will need to be scheduled and present for all Comcast work. Cutover of new facilities will need to be completed before 8:00AM on day of cutover which will need to fall between Tuesday and Thursday of the week of construction.

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273		
Utility Company:	Comcast of CT/GA/MA/NH/NY/NC/VA/VT,LLC		
Prepared By:	Dave Gerrish	Total Calendar Days:	13.5

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
60+240 to 60+480	Place strand, feeder and fiber cable to temporary pole line across I-84	New poles in place and CL&P and Fibertech work 100% complete	2
60+240 to 60+480	Perform night cut of coax and fiber cables to move traffic to new temporary pole line.	New cables have been run	0.5
60+240 to 60+480	Wreck out all old facilities off old poles line near existing bridge that are to be removed.	Cutover complete and CL&P have completed their removals.	1
5+50 to 5+300	Place strand, feeder and fiber cable to temporary pole line across I-84	New poles in place and CL&P and Fibertech work 100% complete	2
5+50 to 5+300	Perform night cut of coax and fiber cables to move traffic to new temporary pole line.	New cables have been run	0.5
5+50 to 5+300	Wreck out all old facilities off old poles line near existing bridge that are to be removed.	Cutover complete and CL&P have completed their removals.	1
60+240 to 60+480	Trench and place vault and conduit from last permanent pole to bridge abutment on each end.	Permanent pole closest to bridge abutment is in place and new bridge is in place and	2
60+240 to 60+480	Place risers and pull coax and fiber across new bridge through newly placed conduit.	Conduit run has full continuity	1
60+240 to 60+480	Perform night cut of coax and fiber cables to move traffic to permanent conduit structures.	New cables have been run	0.5
60+240 to 60+480	Wreck out all facilities attached to temporary pole line.	CL&P have removed form temporary pole line.	1
5+50 to 5+300	Trench and place vault and conduit from last permanent pole to bridge abutment on each end.	Permanent pole closest to bridge abutment is in place and new bridge is in place and	2

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273		
Utility Company:	Comcast of CT/GA/MA/NH/NY/NC/VA/VT,LLC		
Prepared By:	Dave Gerrish	Total Calendar Days:	2.5

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
5+50 to 5+300	Place risers and pull coax and fiber across new bridge through newly placed conduit.	Conduit run has full continuity	1
5+50 to 5+300	Perform night cut of coax and fiber cables to move traffic to permanent conduit structures.	New cables have been run	0.5
5+50 to 5+300	Wreck out all facilities attached to temporary pole line.	CL&P have removed form temporary pole line.	1

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UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273	Town:	WATERBURY
Project Description:	RECONSTRUCTION OF I-84 CITY OF WATERBURY		
CTDOT Utilities Engineer:	AMMANN & WHITNEY		
Phone:		Email:	
Utility Company:	Yankee Gas Service Company		
Prepared By:	Edward Flanagan	Date Prepared:	5/23/2014
Phone:	(203) 596-3023	Email:	flanaew@nu.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

GENERAL SCOPE OF GAS MAIN WORK: (1.) Establish back-up feed from IP system on East Main Street to IP system on Harpers Ferry Rd to enable retirement of existing 200 mm steel gas main crossing on the existing culvert on Plank Road. Install 55 M of 200 mm steel gas main from Sta 70+070 to 70+125 including 200mm steel gas main to be installed on the new culvert. (2.) Relocate 200 mm steel gas main on Harpers Ferry Rd (approximately 450 M) from Sta 60+200 to Sta 60+650 includes bridge crossing.(3.) Plank Rd. from Sta 70+130 to 70+400 (270M) relocate 100 mm steel gas main and retire 270 M of 100mm steel gas main. (4.) Reidville Dr. relocate 500 M of 200mm steel gas main from Sta 10+000 to Sta 10+500 and retire 500 M of existing 200 mm steel main on old Reidville Dr. (5.) Scott Rd. Relocate 150 mm steel gas main with 200 mm steel gas main from Station 5+125 to Sta 5+333 and retire approximately 208 M of 150 mm gas main (includes bridge crossing). (6) Retire 130 M of 150mm steel main on the existing WB 25 off ramp I-84. (7) Plank Rd. East relocate 150 mm steel main approximate Sta 50+930 (L -5m) in conflict with Proposed 300 mm storm drain. (8) Relocate 100mm steel main at approximate Sta 51+048 (L-9M) in conflict with proposed retaining. (9) Plank Rd East relocate 170 M of 100mm steel main from Sta 51+050 to approximately 51+220 and retire 170M of 100mm of steel main. (10) East Main St. relocate approximately 150 M of 150 mm steel main from Sta 30+200 to Sta 30+ 350. (11) Approximately 7 service replacements and / or tie overs.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

The State's Bridge Contractor shall provide Yankee Gas's Contractor with complete access to the Harpers Ferry Rd. and Scott Rd bridges to install the new 200mm steel gas mains. The State's Contractor shall provide Yankee's Contractor with all staging / scaffolding and a safe work area on the bridges prior to and during Yankee's Contractor installing of the gas main on the bridges. All gas main work shall be completed and activated on Harpers Ferry Rd. and Reidville Dr. before any gas existing facilities can be taken out of service on Scott Rd and East Main Street.

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273		
Utility Company:	YANKEE GAS		
Prepared By:	EDWARD FLANAGAN	Total Calendar Days:	208

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
E. Main St	Establish back-up feed from IP system on E. Main St to IP system on Harpers Ferry Road	None	20
70+070 to 70+125	Retire 55 M of 150 mm stl gas main crossing existing culvert on Plank Rd	Establish Back-up feed from E. Main to Harpers Ferry Rd.	3
70+130 to 70+400	Install 270M of 100mm plastic gas main and replace 13 steel services Plank Rd. Retire existing 100mm	Establish Back-up feed from E. Main to Harpers Ferry Rd.	20
60+200 to 60+650	Cut off and abandon in place the 200mm steel gas main on Harpers Ferry Rd. Includes Bridge Crossing	Establish Back-up feed from E. Main to Harpers Ferry Rd and Scott Rd feed.	5
60+200 to 60+650	Install 200mm Steel Gas Main on Harpers Ferry Rd.	Establish Back-up feed from E. Main to Harpers Ferry Rd and Scott Rd feed.	40
	Install 200mm Steel Gas Main on Harpers Ferry Rd. Bridge	Establish Back-up feed from E. Main to Harpers Ferry Rd and Scott Rd feed.	20
10+000 to 10+500	Install 12" Steel Gas Main on Harpers Ferry Rd. from Hamilton Ave. to new Reidville Dr.	Establish Back-up feed from E. Main to Harpers Ferry Rd and Scott Rd feed.	25
10+000 to 10+500	Reidville Dr. relocate/ install 500M of 200mm steel gas main and retire 500M existing 200mm stl gas.	Maintain feed through Scott Rd.	25
5+125 to 5+333	Scott Rd cut off and abandon in place 150mm and 200mm gas main includes existing bridge crossing.	Completed gas main installations on Harpers Ferry Rd. and Reidville Dr.	5
30+200 to 30+350	East Main St. relocate 150M of 150mm steel main and install new service to Dunkin Donut.	Completed gas main installations on Harpers Ferry Rd. and Reidville Dr.	15
5+125 to 5+333	Scott Rd install 208M of 200mm gas main on Scott Rd.	Completed gas main installations on Harpers Ferry Rd. and Reidville Dr.	30

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273		
Utility Company:	YANKEE GAS		
Prepared By:	EDWARD FLANAGAN	Total Calendar Days:	45

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
	Scott Rd install 200mm gas main on the Scott Rd. Bridge.	Complete all gas main installations on Harpers Ferry Rd. and Reidville Dr.	15
50+875 to 51+140	Install 265M of 100mm plastic main and tie-over and/or replace 5 services	none	25
50 +875 to 51+ 140	Retire 265M of 100mm steel gas main	Install 265M of 100mm plastic main and tie-over and/or replace 5 services	3
	Retire 130M of 150mm steel gas main on the existing WB 25 off Ramp I-84	None	2

rev. 5/20/2013	UTILITY WORK SCHEDULE		
CTDOT Project Number:	151-273	Town:	Waterbury
Project Description:	CTDOT Reconstruction of I-84-Hamilton Ave Bridge		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	860-594-2555	Email:	Derek.Brown@ct.gov
Utility Company:	The Connecticut Light and Power Company		
Prepared By:	Jim Deacon	Date Prepared:	5/26/2014
Phone:	860-496-5219	Email:	james.deacon@nu.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

Install temporary OH line across Rt. 84 to remove existing UG line to accommodate new bridge installation. Once new bridge installation is completed, then new UG facilities to be installed permanently. Temporary OH line to be remove once UG line is completed. Note: Existing UG feeds to traffic signals and street light controls to be maintained from temporary OH line.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

Scheduling of I-84 shutdown all lanes to accommodate installation/removal of OH temporary line-
May Require Nights/weekends/permits/duration-2-2hour intervals
Additional time needed for Rock drilling for pole/anchor installations
Long lead material includes new 5" fiber conduit/bridge hanger brackets for under bridge installation by DOT contractor-12 weeks 2 new 6'X14'X7' manholes-4 months
Coordination between CL&P excavation contractor and states contractor for civil work prior to installation of new manholes and conduit duct line

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273		
Utility Company:	The Connecticut Light and Power Company		
Prepared By:	Jim Deacon	Total Calendar Days:	210

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
Project 151-285	ORDER MATERIALS/SCHEDULING OF RESOURCES MAY INCLUDE BIDDING PROCESS	ADVANCED NOTIFICATION FROM CDOT TO PROCEED	56
Project 151-285	INSTALL NEW POLES/ANCHORS FOR TEMP OH LINE WEST SIDE OF EXISTING BRIDGE	ORDER MATERIALS-SCHEDULE RESOURCES	28
Project 151-285	INSTALL NEW POLES/ANCHORS FOR TEMP OH LINE WEST SIDE OF EXISTING BRIDGE-CONTINUED	EDGE OF NEW CURB SURVEYED BY DOT AND FINAL GRADE TO BE WITHIN 6"	
Project 151-285	CONDUCT TREE TRIMMING FOR OH TEMP LINE	NEW POLES SET	28
Project 151-285	INSTALL NEW OH CONDUCTORS	TREE TRIMMING COMPLETED	21
Project 151-285	REMOVE UG PRIMARY CABLE FROM UG STUCTURES	NEW TEMPORARY OH LINE INSTALLED AND IN SERVICE	14
Project 151-285	REFFED EXISTING ST LIGHT/TRAFFIC CONTROL SIGNALS FROM TEMP OH LINE	NEW TEMPORARY OH LINE INSTALLED	14
Project 151-285	REMOVE UG SECONDARY CABLE	STREET LIGHTS/TRAFFIC CONTROLS FED FROM OH TEMP POLE LINE	14
PROJECT	ABANDON EXISTING UG FACILITIES -MANHOLES/DUCT	STREET LIGHTS AND UG SECONDARY REMOVED FROM MANHOLES	14
PROJECT	INSTALL NEW OH RISER POLES	EDGE OF NEW CURB SURVEYED BY DOT AND FINAL GRADE TO BE WITHIN 6"	7
PROJECT	INSTALL NEW OH CONDUCTOR TO NEW RISER POLES	NEW POLES AND ANCHORS INSTALLED	14

UTILITY WORK SCHEDULE

CTDOT Project Number:	110-127		
Utility Company:	The Connecticut Light and Power Company		
Prepared By:	Jim Deacon	Total Calendar Days:	98

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
PROJECT	REMOVE STREET LIGHT POLES/ABANDON BASES	NOTIFICATION FROM CITY TO DISCONNECT LIGHTS	14
PROJECT	INSTALL NEW UG FACILITIES-2 MANHOLES-EXTEND DUCT LINE TO NEW RISER POLES	FINAL GRADE TO BE WITHIN 6"	21
PROJECT	EXTEND NEW CONDUIT DUCT LINE FROM NEW MANHOLES THRU BRIDGE ABUTMENT KNOCKOUT	ABUTMENT WALL COMPLETE AND GROUTED BY DOT CONTRACTOR	14
PROJECT	INSTALL NEW UG PRIMARY CABLE	CIVIL WORK COMPLETE (INCLUDING HANGERS & CONDUIT ON BRIDGE	21
PROJECT	INSTALL NEW UG PRIMARY CABLE-CONTINUED	BY DOT CONTRACTOR)	
PROJECT	REMOVE TEMPORARY OH LINE	NEW UG FACILITIES INSTALLED	28

GENERAL

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UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273	Town:	Waterbury
Project Description:	CTDOT Reconstruction of I-84-Harpers Ferry Rd Bridge		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	860-594-2555	Email:	Derek.Brown@ct.gov
Utility Company:	The Connecticut Light and Power Company		
Prepared By:	Jim Deacon	Date Prepared:	5/26/2014
Phone:	860-496-5219	Email:	james.deacon@nu.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

Relocate OH line across Rt. 84 to accommodate new bridge installation. Once new bridge installation is completed, then new UG facilities to be installed permanently. Also relocate OH line on Reidville Drive to accommodate new relocation of I-84 alignment.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

Scheduling of I-84 shutdown all lanes to accommodate installation/removal of OH temporary line- May require Nights/weekends/permits/duration-2-2 hour intervals
Additional time needed for Rock drilling for pole installations
Long lead material includes new 5" fiber conduit/bridge hanger brackets for under bridge installation by DOT contractor-12 weeks 2 new 6'X14'X7' manholes-4 months
Off hour cutovers for commercial customers on Reidville Drive- CVS, McDonalds, and Friendly's- May require night/weekends and scheduling may result in delays -Coordination between CL&P and states contractor for civil work prior to installation of manholes/conduit.

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273		
Utility Company:	The Connecticut Light and Power Company		
Prepared By:	Jim Deacon	Total Calendar Days:	217

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
PROJECT	ORDER MATERIALS/SCHEDULING OF RESOURCES- MAY INCLUDE BIDDING PROCESS	NOTIFICATION FROM CDOT TO PROCEED	56
PROJECT	RELOCATE/SHIFT OH LINE- Harpers Ferry Rd-AT BRIDGE	POLES/ANCHORS BY AT&T	21
PROJECT	FRAME/INSTALL NEW OH LINE - Reidville Drive(new)	POLES/ANCHORS BY AT&T	35
PROJECT	REMOVE OH LINE- Reidville Drive(old)	NEW OH LINE BUILT ON NEW REIDVILLE DRIVE	14
PROJECT	RELOCATE OH LINE- Harpers Ferry Rd	POLES/ANCHORS BY AT&T	14
PROJECT	INSTALL NEW OH RISER POLES-Harpers Ferry Rd	EDGE OF NEW CURB SURVEYED BY DOT AND FINAL GRADE TO BE WITHIN 6"	7
PROJECT	INSTALL NEW OH CONDUCTOR TO NEW RISER POLES-Harpers Ferry Rd	NEW POLES AND ANCHORS INSTALLED	14
PROJECT	INSTALL NEW UG FACILITIES-2 MANHOLES-EXTEND DUCT LINE TO NEW RISER POLES	FINAL GRADE TO BE WITHIN 6"	21
PROJECT	EXTEND NEW CONDUIT DUCT LINE FROM NEW MANHOLES THRU BRIDGE ABUTMENT KNOCKOUT	ABUTMENT WALL COMPLETE AND GROUTED BY DOT CONTRACTOR	14
PROJECT	INSTALL NEW UG PRIMARY CABLE	CIVIL WORK COMPLETE (INCLUDING HANGERS & CONDUIT ON BRIDGE	21
PROJECT	INSTALL NEW UG PRIMARY CABLE - CONTINUED	BY CDOT CONTRACTOR)	

UTILITY WORK SCHEDULE

CTDOT Project Number:	110-127		
Utility Company:	The Connecticut Light and Power Company		
Prepared By:	Jim Deacon	Total Calendar Days:	49

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
PROJECT	REMOVE OH LINE- Harpers Ferry Rd	NEW UG CABLE INSTALLED/CUTOVERED	14
PROJECT	REMOVE OH POLES-Harpers Ferry Rd	ALL OTHER UTILITIES REMOVED OFF OLD POLES	7
PR70+100	RELOCATE OH POLE 24352 BY CL&P-Plank Rd	FINAL GRADE ADJUSTMENTS COMPLETED TO WITHIN 6"	7
PR70+390	RELOCATE OH POLE 4615 -Plank Rd	POLES/ANCHORS BY AT&T	7
RD11+330-RD11+450	RELOCATE OH LINE-Reidville Dr	POLES/ANCHORS BY AT&T	14

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UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273	Town:	Waterbury
Project Description:	CTDOT Reconstruction of I-84-Scott Rd Bridge		
CTDOT Utilities Engineer:	Derek Brown		
Phone:	860-594-2555	Email:	Derek.Brown@ct.gov
Utility Company:	The Connecticut Light and Power Company		
Prepared By:	Jim Deacon	Date Prepared:	5/26/2014
Phone:	860-496-5219	Email:	james.deacon@nu.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

Install temporary OH line across Rt. 84 to accommodate new bridge installation. Once new bridge installation is completed, then new UG facilities to be installed permanently. Temporary OH line to be remove once UG line is completed. Note: Existing OH feeds to traffic signals to be maintained from temporary OH line.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

Scheduling of I-84 shutdown all lanes to accommodate installation/removal of OH temporary line-
May require Nights/weekends/permits/duration-2-2hour intervals
Additional time needed for Rock drilling for pole/anchor installations
Long lead material includes new 5" fiber conduit/bridge hanger brackets for under bridge installation by DOT contractor-12 weeks
2 new 6'X14'X7' manholes-4 months -Coordination between C:&P's excavation contractor and state's contractor for civil work prior to installation of new manholes and conduit

UTILITY WORK SCHEDULE

CTDOT Project Number:	151-273		
Utility Company:	The Connecticut Light and Power Company		
Prepared By:	Jim Deacon	Total Calendar Days:	231

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
PROJECT	ORDER MATERIALS/SCHEDULING OF RESOURCES MAY INCLUDE BIDDING PROCESS	NOTIFICATION FROM CDOT TO PROCEED	56
PROJECT	CONDUCT TREE TRIMMING FOR OH TEMP LINE	NEW POLES/ANCHORS SET BY AT&T	28
PROJECT	COMPLETE TEMPORARY OH LINE	TREE TRIMMING COMPLETED	21
PROJECT	PERMANENT RELOCATION OH LINE- Scott Rd	POLES/ANCHORS SET BY AT&T	42
PROJECT	FRAME NEW OH RISER POLES	POLES/ANCHORS SET BY AT&T	7
PROJECT	INSTALL NEW OH CONDUCTOR TO NEW RISER POLES	NEW POLES AND ANCHORS INSTALLED BY AT&T	14
PROJECT	INSTALL NEW UG FACILITIES-2 MANHOLES-EXTEND DUCT LINE TO NEW RISER POLES	FINAL GRADE TO BE WITHIN 6"	21
PROJECT	EXTEND NEW CONDUIT DUCT LINE FROM NEW MANHOLES THRU BRIDGE ABUTMENT KNOCKOUT	ABUTMENT WALL COMPLETE AND GROUTED BY DOT CONTRACTOR	14
PROJECT	INSTALL NEW UG PRIMARY CABLE	CIVIL WORK COMPLETE (INCLUDING HANGER & CONDUIT ON BRIDGE	14
PROJECT	INSTALL NEW UG PRIMARY CABLE-CONTINUED	BY DOT CONTRACTOR)	
PROJECT	REMOVE TEMPORARY OH LINE- Scott Rd	NEW UG FACILITIES INSTALLED AND CUTOVER	14

UTILITY WORK SCHEDULE

CTDOT Project Number: 110-127

Utility Company: The Connecticut Light and Power Company

Prepared By: Jim Deacon Total Calendar Days: 28

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
PROJECT	RELOCATE OH LINE- Reidville Dr	POLES/ANCHORS BY AT&T	28

NOTICE TO CONTRACTOR – GLOBAL POSITIONING SYSTEM (GPS) COORDINATES FOR SIGNS

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new signs. The Engineer shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Contact Mr. Philip J. Cohen at (860) 594-2744 of the Division of Traffic Engineering regarding any SIMS questions. Contact Mr. James R. Spencer at (860) 594-2014 of the Department's Bureau of Policy and Planning regarding any GPS questions. Refer to the special provision for Section 12.00 General Clauses For Highway Signing.

NOTICE TO CONTRACTOR – TEMPORARY SHEET PILING

Anywhere in the contract documents, Temporary Sheet Piling is referenced; it shall be construed to mean Temporary Earth Retaining System.

Anywhere in the contract documents, Temporary Sheet Piling Material Left in Place is referenced; it shall be construed to mean Earth Retaining System Left in Place.

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.04 - Limitation of Operations - Add 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 the described traffic operations on all project roadways as follows:

ROUTE I-84

On the following State observed Legal Holidays:
New Year's Day
Good Friday, Easter*
Memorial Day
Independence Day
Labor Day
Thanksgiving Day**
Christmas Day

The following restrictions also apply:

On the day before and the day after any of the above Legal Holidays.

On the Friday, Saturday and Sunday immediately preceding any of the above Holidays celebrated on a Monday.

On the Saturday, Sunday and Monday immediately following any of the above Holidays celebrated on a Friday.

* From 6:00 a.m. the Thursday before the Holiday to 8:00 p.m. the Monday after the Holiday.

** From 6:00 a.m. the Wednesday before the Holiday to 8:00 p.m. the Monday after the Holiday.

During all other times

The Contractor shall maintain and protect traffic as shown on the accompanying "Limitation of Operations" charts, which dictate the minimum number of lanes that must remain open for each day of the week.

The Contractor will be allowed to halt traffic on Route I-84 and the ramps within the project limits for a period of time not to exceed ten minutes for the purpose of dismantling steel or concrete beams, the erection of steel beams over active roadways and the removal and/or installation of full overhead sign supports over active roadways during the following times:

Route I-84 EB & WB

Monday through Thursday between the hours of 12:01 a.m. and 5:00 a.m.

The Contractor will be allowed to halt traffic on Route I-84 and the ramps within the project limits for a period of time not to exceed ten minutes for rock blasting operations during the following times:

Route I-84 WB

On Tuesday and Wednesday between the hours of 10:00 a.m. and 12:00 p.m.

Route I-84 EB

On Tuesday and Wednesday between the hours of 9:00 a.m. and 11:00 a.m.

Limitation of Operations Chart
Minimum Number of Lanes to Remain Open

Route: I-84 Eastbound Location: West of Exit 19 On-Ramp Number of Through Lanes: 2								Route: I-84 Eastbound Location: Exit 19 On-Ramp to Lane Drop East of Exit 23 Off-Ramp Number of Through Lanes: 3							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1	Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1	1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1	2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1	3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1	4 AM	1	1	1	1	1	1	1
5 AM	1	1	1	1	1	1	1	5 AM	1	1	1	1	1	1	1
6 AM	E	E	E	E	E	1	1	6 AM	E	E	E	E	E	1	1
7 AM	E	E	E	E	E	1	1	7 AM	E	E	E	E	E	2	1
8 AM	E	E	E	E	E	2	1	8 AM	E	E	E	E	E	3	2
9 AM	2	2	2	2	2	2	2	9 AM	3	3	3	3	3	3	3
10 AM	2	2	2	2	2	2	2	10 AM	3	3	3	3	3	E	3
11 AM	2	2	2	2	2	2	2	11 AM	3	3	3	3	3	E	E
Noon	2	2	2	2	2	2	2	Noon	3	3	3	3	E	E	E
1 PM	2	2	2	2	E	2	2	1 PM	3	3	3	3	E	E	E
2 PM	2	2	2	2	E	2	3	2 PM	E	E	E	E	E	E	E
3 PM	E	E	E	E	E	2	3	3 PM	E	E	E	E	E	E	E
4 PM	E	E	E	E	E	2	3	4 PM	E	E	E	E	E	3	E
5 PM	E	E	E	E	E	2	2	5 PM	E	E	E	E	E	3	E
6 PM	2	2	2	2	E	2	2	6 PM	E	E	E	E	E	3	3
7 PM	2	2	2	2	E	2	2	7 PM	3	3	3	3	E	3	3
8 PM	2	2	2	2	2	2	2	8 PM	2	2	2	2	3	2	3
9 PM	1	1	1	1	2	2	2	9 PM	2	2	2	2	2	2	2
10 PM	1	1	1	1	2	1	1	10 PM	2	2	2	2	2	2	2
11 PM	1	1	1	1	1	1	1	11 PM	1	1	1	1	2	2	1

On Holidays and within Holiday Periods, all Hours shall be 'E.'

'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period

Limitation of Operations Chart
Minimum Number of Lanes to Remain Open

Route: I-84 Eastbound Location: Lane Drop East of Exit 23 Off-Ramp to Exit 25A Off-Ramp Number of Through Lanes: 2							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	1	1	1	1	1	1	1
6 AM	E	E	E	E	E	1	1
7 AM	E	E	E	E	E	2	1
8 AM	E	E	E	E	E	2	2
9 AM	E	E	E	E	E	E	2
10 AM	E	E	E	E	E	E	2
11 AM	E	E	E	E	E	E	E
Noon	E	E	E	E	E	E	E
1 PM	E	E	E	E	E	E	E
2 PM	E	E	E	E	E	E	E
3 PM	E	E	E	E	E	E	E
4 PM	E	E	E	E	E	E	E
5 PM	E	E	E	E	E	E	E
6 PM	E	E	E	E	E	2	E
7 PM	E	E	E	E	E	2	E
8 PM	2	2	2	2	E	2	2
9 PM	2	2	2	2	2	2	2
10 PM	2	2	2	2	2	2	2
11 PM	1	1	1	1	1	1	1

Route: I-84 Eastbound Location: Exit 25A Off-Ramp to Exit 27 Off-Ramp Number of Through Lanes: 3							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	1	1	1	1	1	1	1
6 AM	E	E	E	E	E	1	1
7 AM	E	E	E	E	E	2	1
8 AM	E	E	E	E	E	2	2
9 AM	2	2	2	3	3	3	2
10 AM	2	2	2	3	3	3	2
11 AM	2	2	2	3	3	3	3
Noon	2	2	2	3	3	3	3
1 PM	3	3	3	3	3	3	3
2 PM	3	3	3	3	E	3	3
3 PM	E	E	E	E	E	3	3
4 PM	E	E	E	E	E	3	3
5 PM	E	E	E	E	E	3	3
6 PM	3	3	3	3	3	2	3
7 PM	3	3	3	3	3	2	3
8 PM	2	2	2	2	2	2	2
9 PM	2	2	2	2	2	2	2
10 PM	2	2	2	2	2	2	2
11 PM	1	1	1	1	1	1	1

On Holidays and within Holiday Periods, all Hours shall be 'E.'

'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period

Limitation of Operations Chart
Minimum Number of Lanes to Remain Open

Route: I-84 Eastbound Location: East of Exit 27 Off-Ramp Number of Through Lanes: 3							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	1	1	1	1	1	1	1
6 AM	E	E	E	E	E	1	1
7 AM	E	E	E	E	E	2	1
8 AM	E	E	E	E	E	2	2
9 AM	2	2	2	2	2	2	2
10 AM	2	2	2	2	2	3	2
11 AM	2	2	2	2	2	3	3
Noon	2	2	2	2	3	3	3
1 PM	2	2	2	3	3	3	3
2 PM	3	3	3	3	3	3	3
3 PM	E	E	E	E	E	3	3
4 PM	E	E	E	E	E	3	3
5 PM	E	E	E	E	E	3	3
6 PM	3	3	3	3	3	2	3
7 PM	2	2	2	2	3	2	2
8 PM	2	2	2	2	2	2	2
9 PM	2	2	2	2	2	2	2
10 PM	2	2	2	2	2	2	1
11 PM	1	1	1	1	1	1	1

Route: I-84 Westbound Location: East of Route I-691 On-Ramp Number of Through Lanes: 3							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	2	2	2	2	2	1	1
6 AM	E	E	E	E	E	1	1
7 AM	E	E	E	E	E	2	1
8 AM	E	E	E	E	E	2	2
9 AM	2	2	2	2	2	2	2
10 AM	2	2	2	2	2	2	2
11 AM	2	2	2	2	2	3	3
Noon	2	2	2	2	2	3	3
1 PM	2	2	2	2	2	3	3
2 PM	3	3	3	3	3	3	3
3 PM	E	E	E	E	E	2	3
4 PM	E	E	E	E	E	2	3
5 PM	E	E	E	E	E	2	3
6 PM	3	3	3	3	3	2	3
7 PM	2	2	2	2	2	2	2
8 PM	2	2	2	2	2	2	2
9 PM	1	1	1	1	2	2	2
10 PM	1	1	1	1	1	1	1
11 PM	1	1	1	1	1	1	1

On Holidays and within Holiday Periods, all Hours shall be 'E.'

'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period

Limitation of Operations Chart
Minimum Number of Lanes to Remain Open

Route: I-84 Westbound Location: Route I-691 On-Ramp to Exit 25A Off-Ramp Number of Through Lanes: 3							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	2	2	2	2	2	1	1
6 AM	E	E	E	E	E	2	1
7 AM	E	E	E	E	E	2	1
8 AM	E	E	E	E	E	2	2
9 AM	3	3	3	3	3	3	2
10 AM	2	2	2	3	3	3	2
11 AM	2	2	2	3	3	3	3
Noon	2	2	2	3	3	3	3
1 PM	3	3	3	3	3	3	3
2 PM	3	3	3	3	3	3	3
3 PM	E	E	E	E	E	3	3
4 PM	E	E	E	E	E	3	3
5 PM	E	E	E	E	E	2	3
6 PM	3	3	3	3	3	2	3
7 PM	2	2	2	2	3	2	2
8 PM	2	2	2	2	2	2	2
9 PM	1	1	1	1	2	2	2
10 PM	1	1	1	1	1	2	1
11 PM	1	1	1	1	1	1	1

Route: I-84 Westbound Location: Exit 25A Off-Ramp to Lane Add West of Exit 23 Off-Ramp Number of Through Lanes: 2							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	2	2	2	2	2	1	1
6 AM	E	E	E	E	E	2	1
7 AM	E	E	E	E	E	2	2
8 AM	E	E	E	E	E	2	2
9 AM	E	E	E	E	E	E	2
10 AM	E	E	E	E	E	E	E
11 AM	E	E	E	E	E	E	E
Noon	E	E	E	E	E	E	E
1 PM	E	E	E	E	E	E	E
2 PM	E	E	E	E	E	E	E
3 PM	E	E	E	E	E	E	E
4 PM	E	E	E	E	E	E	E
5 PM	E	E	E	E	E	E	E
6 PM	E	E	E	E	E	2	E
7 PM	2	2	2	2	E	2	E
8 PM	2	2	2	2	2	2	2
9 PM	2	2	2	2	2	2	2
10 PM	1	1	1	1	2	2	1
11 PM	1	1	1	1	1	1	1

On Holidays and within Holiday Periods, all Hours shall be 'E.'

'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period

Limitation of Operations Chart
Minimum Number of Lanes to Remain Open

Route: I-84 Westbound Location: West of Lane Add located West of Exit 23 Off-Ramp Number of Through Lanes: 3							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	2	2	2	2	2	1	1
6 AM	E	E	E	E	E	2	2
7 AM	E	E	E	E	E	2	2
8 AM	E	E	E	E	E	3	2
9 AM	3	3	3	3	3	3	3
10 AM	3	3	3	3	3	3	3
11 AM	3	3	3	3	3	3	3
Noon	3	3	3	3	3	3	E
1 PM	3	3	3	3	3	3	E
2 PM	E	E	E	E	E	3	E
3 PM	E	E	E	E	E	3	E
4 PM	E	E	E	E	E	3	E
5 PM	E	E	E	E	E	3	E
6 PM	E	E	E	E	E	3	3
7 PM	3	3	3	3	3	2	3
8 PM	2	2	2	2	2	2	2
9 PM	2	2	2	2	2	2	2
10 PM	2	2	2	2	2	2	1
11 PM	1	1	1	1	1	1	1

On Holidays and within Holiday Periods, all Hours shall be 'E.'

'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period

I-84 EB 23 OFF-RAMP TO HAMILTON AVENUE

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 12:00 p.m. and 7:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

I-84 WB 23 OFF-RAMP TO HAMILTON AVENUE

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

The Contractor will be allowed to temporarily close the existing Off-Ramp for one 48 hour period at the end of Stage 1 and detour traffic to complete the relocated ramp connection to the west side of Hamilton Avenue after the ramp detour is in place and operational. The temporary closure and detour shall not take place during a Holiday week.

The Contractor will be allowed to permanently close and remove the existing Off-Ramp in Stage 2 when the new WB 23 Off-Ramp and the connection to the westerly side of Hamilton Avenue are completed and open to traffic.

I-84 EB 23 ON-RAMP FROM HAMILTON AVENUE

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

The Contractor will be allowed to permanently close and remove the existing On-Ramp in Stage 2 after the ramp detour is in place and operational.

I-84 EB 25 OFF-RAMP TO HARPERS FERRY ROAD

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

The Contractor will be allowed to permanently close the existing Off-Ramp at the end of Stage 1A when the new EB 25 Off-Ramp east of I-84 EB Station 1+700± and its temporary connection is completed and open to traffic.

I-84 WB 24 OFF-RAMP TO PLANK ROAD

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

The Contractor will be allowed to permanently close the existing Off-Ramp in Stage 2 after the ramp detour is in place and operational.

I-84 WB 24 ON-RAMP FROM PLANK ROAD EAST

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

The Contractor will be allowed to permanently close the existing On-Ramp in Stage 5 after completion of Plank Road East and the new WB 24 On-Ramp from Harpers Ferry Road is open to traffic.

I-84 EB 25 ON-RAMP FROM SCOTT ROAD

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

The Contractor will be allowed to permanently close and remove the existing On-Ramp in Stage 4B after the new EB 25 On-Ramp is completed and open to traffic.

I-84 WB 25 OFF-RAMP TO SCOTT ROAD

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

The Contractor will be allowed to permanently close and remove the existing Off-Ramp in Stage 5 after Beaver Pond Brook at the crossing of the existing ramp is relocated and traffic is shifted to the completed section of the new WB 25 Off-Ramp.

ALL OTHER RAMPS AND TURNING ROADWAYS

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

ROUTE 69 - HAMILTON AVENUE

The Contractor will not be allowed to perform any work that will interfere with the existing number of lanes of traffic, including turning lanes at intersections, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic in each direction on:

Monday through Friday between 9:00 a.m. and 3:00 p.m. and between 6:00 p.m. and 8:00 p.m.

During stage construction, the existing number of lanes of traffic will be considered to be the number of lanes shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

HARPERS FERRY ROAD

The Contractor will not be allowed to perform any work that will interfere with the existing number of lanes of traffic, including turning lanes at intersections, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic in each direction on:

Monday through Friday between 9:00 a.m. and 3:00 p.m. and between 6:00 p.m. and 8:00 p.m.

The Contractor will be allowed to halt traffic on Harpers Ferry Road within the project limits for a period of time not to exceed ten minutes as approved by the Engineer during the following times:

Monday through Friday between 10:00 p.m. and 5:00 a.m. the following morning.

During stage construction, the existing number of lanes of traffic will be considered to be the number of lanes shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

SCOTT ROAD

The Contractor will not be allowed to perform any work that will interfere with the existing number of lanes of traffic, including turning lanes at intersections, on:

Monday through Friday between 6:00 a.m. and 11:00 a.m. and between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.
The day before Thanksgiving through January 8

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic in each direction on:

Monday through Friday between 11:00 a.m. and 3:00 p.m. and between 6:00 p.m. and 8:00 p.m.

The Contractor will be allowed to halt traffic on Scott Road within the project limits for a period of time not to exceed ten minutes as approved by the Engineer during the following times:

Monday through Friday between 10:00 p.m. and 5:00 a.m. the following morning.

During stage construction, the existing number of lanes of traffic will be considered to be the number of lanes shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

PLANK ROAD

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic in each direction, including turning lanes, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

The day before Thanksgiving through January 8

The Contractor will be allowed to temporarily close Plank Road between Harpers Ferry Road and Plank Road Station 70+060 in Stage 1 after the detour is in place and operational.

REIDVILLE DRIVE
SR 801 – EAST MAIN STREET

The Contractor will not be allowed to perform any work that will interfere with the existing number of lanes of traffic, including turning lanes at intersections on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

The day before Thanksgiving through January 8

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic in each direction on:

Monday through Friday between 9:00 a.m. and 3:00 p.m. and between 6:00 p.m. and 8:00 p.m.

During stage construction, the existing number of lanes of traffic will be considered to be the number of lanes shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

BROOKDALE LANE
FAIRBANKS STREET

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic in each direction, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

The Contractor will be allowed to permanently close Brookdale Lane at the intersection with Plank Road in Stage 1 after the permanent detour is in place and operational.

The Contractor will be allowed to permanently close Fairbanks Street at the intersection with Plank Road East in Stage 4 after the permanent detour incorporating the Bryan Street improvements is complete and operational.

ALL OTHER ROADWAYS

The Contractor will not be allowed to perform any work that will interfere with the existing number of lanes of traffic, including turning lanes at intersections, on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

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STAGE CONSTRUCTION

The Contractor shall complete the work in accordance with the Maintenance and Protection of Traffic Stage Construction Plans contained within the contract documents.

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ADDITIONAL LANE CLOSURE RESTRICTIONS

It is anticipated that work on adjacent projects may be ongoing simultaneously with this project. The Contractor shall be aware of those projects and anticipate coordination will be required to maintain proper traffic flow at all times on all roadways, in a manner consistent with these specifications and acceptable to the Engineer.

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a 1.6 kilometer clear area length where the entire roadway is open to traffic or the closures have been coordinated and are acceptable to the Engineer. The 1.6 kilometer clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

The Contractor will not be permitted to close a lane if a Contractor working on an adjacent project has the opposite lane closed unless there is at least a 1.6 kilometer clear area length where the entire roadway is open to traffic, measured from the end of the first work area to the beginning of the signing pattern for the next work area.

The Contractor will not be allowed to conduct any roadway or ramp closures and implement associated detours until all of the following conditions are satisfied:

1. The Contractor shall confirm closures and associated detours with the Engineer a minimum of 14 days in advance of the closure.
2. The Contractor has all of the required materials, equipment, tools and labor needed on the site for the construction that requires closure.
3. The Contractor has coordinated the closures with the Engineer and the City of Waterbury, including the City's Emergency Services, at least 14 days in advance of the closure.
4. Road closures and associated detours are approved by the City of Waterbury. The Contractor should not anticipate being able to close roads and implement detours in more than one location simultaneously without prior approval from the Engineer and the City of Waterbury.
5. All necessary detour signing has been installed and approved by the Engineer. The detour signing shall remain covered until the detour is implemented.

SEQUENCE OF OPERATIONS

The Contractor shall conform to the Sequence of Operations listed herein and as shown on the Stage Construction Plans or as directed by the Engineer. Work in any stage of the construction may commence only with prior establishment of the applicable provisions of the "Maintenance and Protection of Traffic" and prior approval of the Engineer.

In the event of an Engineer approved deviation from the sequence of operations, the Contractor shall immediately notify all Utility Companies on this Contract of any such change.

SPECIAL CONDITIONS

The Contractor is advised to begin construction in Stage 1 with filling the preload area for the embankment for the I-84 mainline between WB Station 2 + 060± and WB Station 2 + 320±, EB Station 2 + 085± and EB Station 2 +322± and E24 Station 11+110± and E 24 Station 11+295±.

The material for fill shall be taken from the side hill excavation for the EB 23 On-ramp; the EB 24 Off – Ramp and relocated Reidville Drive. The progress of settlement shall be closely monitored by the Contractor in accordance with Preload Special Provision.

During each ten minute traffic stoppage for blasting operations, the Contractor shall be required to perform the blasting and remove all blast debris from the roadway. If more than one blasting operation is required, the Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for the next blasting operation.

PRE-STAGE 1

- **I-84:**

  Lane Configuration- Maintain two lanes of through traffic in each direction.

  Construction Sequence

  - Install temporary pavement within the existing left shoulder of the east and westbound roadways from west of the Hamilton Avenue Bridge (Bridge No. 04321) at the locations specified below:

    - WB Roadway Station 0+625± to 1+350± and the EB Roadway Station 0+635± to 1+380±
    - EB Roadway Station 1+750± to 1+850 (the bridge over the Mad River (Bridge No. 01224))
    - WB Roadway Station 3+140± to Station 3+360±

  - Shift the east and westbound traffic lanes toward the median after completing the temporary left side pavement construction between WB Stations 0+625± and 1+350± and EB Stations 0+635± and 1+380±

  - Remove the westerly portion of the existing superstructure and abutments/footings of Bridge No. 04321

  - Install temporary pavement within the existing right shoulder of the east and westbound roadways from west of Bridge No. 04321 at the location specified below:

    - WB Roadway Station 1+250± to 1+500± and the EB Roadway Station 1+250± to 1+770±
    - WB Roadway Station 3+240± to Station 4+545± and the EB Roadway 3+300± to 4+585±. Regrade, to an approximate final grade, a band width of approximately 20m abutting the southerly edge of the existing right shoulder of the EB roadway between the southeasterly bank of Beaver Pond Brook and EB Station 3+800±.

  - Shift the east and westbound traffic lanes to the outside after completing the temporary right side pavement construction between WB Stations 1+250± and 1+500± and EB Stations 1+250± and 1+770±

  - Remove the westerly portion of the existing center pier of Bridge No. 04321 and construct the westerly portion of the new center pier.

STAGE 1

- **I-84:**

Lane Configuration - Maintain two lanes of through traffic in each direction along the existing lanes or as required for Pre-Stage 1.

At the westerly mainline bridge over the Mad River (Bridge No. 01224), shift the existing I-84 traffic lanes to the north to accommodate the construction of the southerly half of the new mainline bridge and the new EB 25 Off-Ramp structure.

From WB Station 2+700± to WB Station 3+300±, shift the westbound traffic lanes toward the median to maintain the westbound Off-Ramp to Harpers Ferry Road and the westbound On-Ramp from Plank Road East.

From I-84 WB Station 3+300± to WB Station 4+420±, shift I-84 traffic lanes to the outside to accommodate the reconstruction of the median area.

Construction Sequence

- Reconstruct the outside pavement section including repairs to the exposed concrete pavement slabs, west of Bridge No. 04321. Install permanent pavement (excluding final wearing course) east of the bridge to EB Station 1+400±

- Construct the EB 25 Off-Ramp west of Bridge No. 04321.

- Extend the existing sanitary sewer at E25 Station 10+169± to San. MH-30.

- Construct the southerly half of the EB 23 Off-Ramp and adjacent Retaining Wall 112. Maintain two lanes on the north side of the existing ramp to accommodate off-ramp traffic.

- Relocate the existing sanitary sewer beginning on the north side of I-84 at San. MH-8 to San MH-6. Maintain flow in the existing sewer.

- Construct the WB 23 Off-Ramp, the adjacent access road to Sedimentation Basin No. 2, restore Sedimentation Basin No. 2 and commence construction of Retaining Wall 101 west of WB Station 1+670± and adjacent roadway embankment supported section. Maintain the existing westbound single lane exit ramp with turn lanes to Hamilton Avenue.

- Excavate the side hill within the area to be occupied by the EB 23 On-Ramp, the EB 24 Off-Ramp and Retaining Wall 104. Construct Retaining Wall 104.

- Commence with the relocation of the existing sanitary sewer from San. MH-6 to San. MH-2, 30 meters north of Hamilton Avenue. Maintain flow in the existing sewer.

- Install temporary sheeting along the eastbound roadway between EB Station 1+825± and the west end of Bridge No. 01224 and from the east end of the Bridge to EB Station 1+910± to maintain stability of the approach/exit roadway during the removal/construction of the south side of Bridge No. 01224.

- Demolish and remove the existing pedestrian bridge and the southerly portion of Bridge No. 01224(i.e., superstructure, abutments and center pier) and construct the new pedestrian bridge, a portion of the pedestrian walkway, the southerly portion of Bridge No. 01224, and a portion of the I-84 embankment supported section from 80± meters west of the Mad River (EB Station 1+780±) to the west side of the former Scovill Pond (EB Station 2+085±) and the EB 25 Off-Ramp from EB 25 Station 10+880± to EB 25 Station 11+110±. The demolition/removal and the construction of the abutments, pier and superstructure shall be staged in accordance with the sequence of construction in the Water Handling Plans for the pedestrian bridge and Bridge No. 01224.

- Construct Sedimentation Basin No. 3.

- Preload the embankment for the I-84 EB and WB roadways and the EB 25 Off-Ramp (I-84 WB Station 2+060± to WB Station 2+320±, EB Station 2+085± to EB Station 2+322± and EB 25 Station 11+110± to E24 Station 11+295±).

    - Reshape the preload embankment as required at the end of the settlement period and commence with the construction of the embankment supported pavement sections on the approach/exit side of the bridge.

    - Install temporary sheeting along the southerly edge of existing EB 25 Off-Ramp to Harpers Ferry Road (WB Stations 2+345± to 2+420±) to maintain stability of the existing ramp during Mad River construction adjacent to the existing ramp prior to opening the new EB 25 Off-Ramp.

    - Construct a temporary eastbound crossover segment connecting the completed pavement and the existing pavement east of the completed section of Bridge No. 01224 with the installation of a full depth temporary pavement to accommodate Stage 1A traffic. The existing EB 25 Off-Ramp to Harpers Ferry Road must be maintained.

- Construct Bridge No. 06284 (EB 25 Off-Ramp Bridge over the Mad River), the adjacent Retaining Walls 113 and 114, Retaining Wall 116 and commence with the ramp approach pavement to Harpers Ferry Road and a temporary ramp connection between the eastbound roadway and the new ramp at EB Station

1+700±. The construction of the bridge abutments and superstructure shall be staged in accordance with the Mad River Relocation Water Handling Plans.

- Construct Bridge No. 05774 (easterly mainline bridge over the Mad River) abutments. The construction shall be staged in accordance with the Mad River Relocation Water Handling Plans.

- Construct a temporary on-ramp from Plank Road East to WB I-84 in the vicinity of WB Station 3+300±. Maintain On-Ramp traffic on the existing I-84 on-ramp.

- Reconstruct the median area along I-84 from WB Station 3+360± to the WB Station 4+420±.

- Install temporary pavement in the median between WB stations 4+440± and 4+580± and between WB Stations 4+930± to 5+110± to accommodate eastbound traffic in Stage 2B.

- Construct the relocated sanitary sewer from San. MH-18 (manhole on the north side of I-84 near WB Station 2 + 725±) to San. MH-19 to the north side of Beaver Pond Brook. Maintain flow in the existing sewer. (See Beaver Pond Brook for the relocation adjacent to and across the Brook)

- **Mad River:**

River Flow - Maintain flow in the channel (See Stages A, B, A-1, A-2, B-1 and B-2 of Mad River Relocation Water Handling Plans for details and the permit application for the detailed staging sequence).

Construction Sequence

- Relocate the water main along Brookdale Lane and the water main loop crossing the Mad River (Phases 2 and 3. For Phase 1, see Plank Road). Maintain the existing water main flow across the river at all times.

- Relocate the sanitary sewer (San. MH-16 to 15 to Junction Chamber No. 1) and install the temporary sanitary sewer (San. MH-15 to Temp. San. MH-17C). Maintain the existing sanitary sewer flow at all times (Phases 2 and 3).

- Construct, in two phases, the relocation of the Mad River from MR Station 2+030± to Station 2+180 beginning with the west side construction. Note, construction operations cannot commence until the water main and sanitary sewer installations across the Mad River are completed and operational.

- Construct the rock ramp fishway at existing Century Dam.

- Construct the wing deflector at MR Station 1+630±.

- Commerce with the relocation of the Mad River from MR Station 1+660± to Station 1+930±. The relocation of the river from MR Station 1+660± can not commence until the upstream relocation (MR Stations 2+030± to 2+180±) is completed and operational and the relocation of the river between MR Station 1+885± and Station 1+930± can not be constructed until the new EB 25 Off-Ramp is opened to traffic and the existing ramp bridge removed.

- **Unnamed Stream**

Stream Flow - Maintain flow in the unnamed stream that has shifted off it's original alignment.

Construction Sequence

- Reconstruct, during the Phase of the pedestrian bridge construction, the unknown stream along it's original alignment between the Mad River and the intersection of Hamilton Avenue and Mountain Village Road.

- **Beaver Pond Brook/East Mountain Brook:**

River Flow - Maintain flow in the East Mountain and Beaver Pond Brook channels. (See Beaver Pond Brook Relocation Water Handling Plans).

Construction Sequence

- Construct Culvert No. 003 from the upstream limit on the south to EMB Station 1+018±. (Phase 1).

- Complete the construction of Culvert No. 003 (see Reidville Drive construction sequence) and construct a temporary channel connection between Culvert No. 003 and existing Beaver Pond Brook (Phase 2).

- Relocate the sanitary sewer (San. MH-21 to San. MH-20), construct the temporary connection between San. MH-20 and San. MH-20A and the southerly portion of the sewer across Beaver Pond Brook. Maintain sewer flow at all times.

- Construct the southerly portion of Beaver Pond Brook (BPB Stations 5+365± to 5+440±); construct a section of the westerly barrel/portal structure including Wingwall 2A of Culvert No. 01227 (BPB Station 5+348± to the upstream inlet.

- Construct the northerly half of Beaver Pond Brook between the upstream face of the existing Culvert No. 03727 under Harpers Ferry Road (BPB Station 5+066±) and BPB Station 5+100.

- **Brookdale Lane**

  Lane Configuration – Maintain the existing traffic lanes on Brookdale Lane north of Sycamore Lane.

  Construction Sequence

  - Permanently close Brookdale Lane to through traffic south of Sycamore Lane to Plank Road to accommodate the new Plank Road Bridge (Bridge No. 05668) and the realigned Mad River channel. Provide temporary and permanent traffic routing devices to accommodate local and through traffic via detours around the closed section of Brookdale Lane.

  - Relocate the water main on Brookdale Lane south of Sycamore Lane per the Mad River relocation construction sequence.

  - Reconstruct Brookdale Lane just north of Plank Road to reflect the permanently closed street condition.

Plank Road Bridge (Bridge No. 05668) and Approaches

Lane Configuration – Maintain the existing traffic lanes on Plank Road east of Harpers Ferry Road and west of Station 70+060 on the west side of Harpers Ferry Road

Construction Sequence

- Close Plank Road between Harpers Ferry Road and Station 70+060 to accommodate the removal/replacement of existing Bridge No. 05668 over the Mad River. Detour traffic to the detour roadway system.

- Remove the superstructure of existing Plank Road Bridge (Bridge No. 05568) over the Mad River. Note, the removal is Phase 1 of the Mad River relocation sequence at Plank Road. For Phases 2 and 3 see Mad River construction sequence.

- Relocate, via a loop alignment across the Mad River, the existing water main along Plank Road and the sanitary sewer (San MH-16 to MH-15 across the Mad River to Junction Chamber No. 1) and construct the temporary sanitary sewer (San MH-15C to MH-17C). Maintain existing water main and sanitary sewer flows at all times. See the Mad River relocation detailed construction sequence.

- Remove the existing bridge abutments/footings and construct a replacement structure (Bridge No. 05668) to accommodate the realignment of the Mad River per the Mad River relocation construction sequence. Note that wingwalls 2A and 2B can not be constructed until after the existing bridge substructure elements are removed.

- **Hamilton Avenue Bridge (Bridge No. 04321) and Approach Roadways:**

Lane Configuration - Maintain one northbound lane and two southbound lanes across the bridge and on the north side approach/exit leg of the intersection with the WB 23 Off-Ramp. Maintain a southbound left turn lane and one through southbound lane at the EB 23 On-Ramp intersection and one lane in each direction south of the EB 23 On-Ramp and north of the approach/exit leg of the WB 23 Off-Ramp intersections.

Construction Sequence

- Install temporary pavement at locations on the east side of Hamilton Avenue to accommodate the lane requirements on the east side of the roadway. The temporary pavement installation shall be performed in accordance with the Traffic Control Plans in the MPT specifications.

- Reconstruct the westerly third of the bridge and approach roadways. Note, the removal of the westerly third of the existing superstructure, abutments and footings, the removal of the existing westerly third of the center pier and the construction of the westerly third of the new center pier were completed in Pre-Stage 1.

- Relocate the water main to the west side of the bridge.

- **Reidville Drive:**

Lane Configuration - Maintain existing two-way traffic lanes between Harpers Ferry Road and relocated Reidville Drive Station 10+500± and two-way traffic east of the relocated roadway (RD Station 10+500± to 10+570±) utilizing a one-way two lane operation per the Traffic Control Plans in the MPT specifications. Install temporary pavement markings as directed by the Engineer.

Construction Sequence

- Construct relocated Reidville Drive (including water main installation) from RD 10+005± to Station 10+440±.

- Install temporary sheeting to maintain stability of Reidville Drive during Phase 1 and Phase 2 construction of Culvert No. 3.

- Construct temporary roadway and temporary water main connections to accommodate Culvert No. 003 construction in Phase 2.

- Construct temporary roadway to accommodate Reidville Drive construction in Phase 3.

- Construct Reidville Drive from RD Station 10+440± to Station 10+500± (Phase 3) after completion of Culvert No. 003 in Phase 2. Complete the water main relocation.
- Reconstruct existing Reidville Drive from RD Station 10+500± to Station RD 10+570± half at a time, during allowable hours while maintaining two-way traffic per the Traffic Control Plans in the MPT specifications. At the end of a work day, one lane in each direction must be open to traffic.

- Remove existing Reidville Drive between Harpers Ferry Road and relocated Reidville Drive Station 10+500±.

- **Harpers Ferry Road:**

Lane Configuration - Maintain one lane of traffic in each direction on Harpers Ferry Road between the new intersection with relocated Reidville Drive and Plank Road. Maintain one-way alternating traffic south of the new intersection with Reidville Drive and north of Plank Road utilizing a one-way two lane operation per the Traffic Control Plans in the MPT specifications. At the end of a work day, one lane in each direction with temporary pavement markings as directed by the Engineer must be open to traffic. The Harpers Ferry Road construction north of Beaver Pond Brook shall not commence until the west side of the Mad River relocation construction is completed. See Mad River Relocation Water Handling Plans Stage B.

Construction Sequence

- Construct Retaining Wall 105.

- Construct the west side of Harpers Ferry Road north of Plank Road.

- Construct the embankment to support the widening of Harpers Ferry Road between Beaver Pond Brook and Plank Road.

- Construct the relocated sanitary sewer from the Junction Chamber No. 1 to San MH-13.

- Construct the Haul Road off Harpers Ferry Road to provide access to the east side of the Mad River.

- Construct the temporary roadway to accommodate Harpers Ferry Road traffic during the construction of the Harpers Ferry Bridge (Bridge No. 01226) in Stage 2.

- Construct temporary pavement in the southwest quadrant of the Harpers Ferry Road/Plank Road intersection to accommodate the Harpers Ferry Road southbound traffic in Stage 2.
- Construct Harpers Ferry Road south of the new intersection with Reidville Drive.

- **Plank Road East (PRE Station 50+420± to PRE Station 50+770±):**

Lane Configuration - Maintain the existing traffic lanes on Plank Road East.

Construction Sequence

- Construct new Plank Road East and adjacent Retaining Walls 106 and 119 between PRE Station 50+420± and PRE Station 50+770±.

STAGE 1-A

- **I-84:**

Lane Configuration – Maintain Stage 1 traffic lane configuration along the westbound roadway west of WB Station 2+000±.

Shift eastbound traffic to the temporary eastbound crossover via the completed southerly portion of Bridge No. 01224. Maintain EB 25 Off-Ramp to Harpers Ferry Road via the existing ramp.

Construction Sequence

- Install temporary pavement within in the median between WB Stations 1+540± and 1+990± and a temporary overlay across the deck along the eastbound side of existing Bridge No. 01224 to accommodate westbound traffic in Stage 2 via a temporary roadway segment connecting the existing east and westbound lanes.

- Complete the construction of the EB 25 Off- Ramp east of EB 25 Station 10+820± and the temporary ramp connection between the eastbound roadway and the ramp at EB Station 1+730±.

- Open the EB 25 Off-Ramp to Harpers Ferry Road via the temporary ramp connection. Close the existing off-ramp.

- Remove the existing EB 25 Off-Ramp. The demolition/removal of the ramp bridge over the Mad River shall be staged in accordance with the Mad River Water Handling Plans.

PRE-STAGE 2

- **I-84:**

Lane Configuration – Maintain two lanes of through traffic in each direction.

Construction Sequence

- Install temporary pavement at the locations specified below:
  - WB Roadway, right side Station 0+675± to Station 0+800±
  - EB Roadway, right side Station 0+680± Station 0+815±
- Shift the east and westbound traffic lanes toward the median (temporary pavement in the left shoulder installed in Pre-Stage 1) under the Hamilton Avenue Bridge (Bridge No. 04321)
- Remove the easterly two-thirds of the existing superstructure abutments/footings of Bridge No. 04321.
- Repair the temporary pavement previously installed in Pre-Stage 1 on the outside of the roadway under Bridge 04321 after removal of the abutments/footings described and install temporary pavement in the areas where the abutments were removed
- Shift the east and westbound traffic lanes to the outside after completion of the temporary pavement installation under Bridge 04321.
- Remove the easterly two-thirds of the existing center pier of Bridge No. 04321 and construct the easterly two-thirds of the new center pier.

- **Beaver Pond Brook:**

River Flow- Maintain flow in the existing channel.

Construction Sequence

- Excavate a shelf between the Brook and the WB 25 Off-Ramp between WB Stations 4+040± and 4+160± (See Beaver Pond Brook Water Handling Plans for Details.

STAGE 2

- **I-84:**

Lane Configuration – West of WB Station 0+800±, for approximately 1,500 meters, maintain two eastbound and westbound lanes per Traffic Control Plans in the MPT specifications. At the end of each work day, all lanes must be open to traffic. East of WB Station 0+800±, maintain two lanes of through traffic in each direction along the existing lanes or as required per Pre-Stage 2 per the MPT Staging Plans.

Close the completed section of the EB 25 Off-Ramp west of Bridge No. 04321.

West of and east of the westerly mainline bridge over the Mad River (Bridge No. 01224), maintain the Stage 1A eastbound alignment to the south on the completed portion of the bridge and along the temporary pavement section. Shift the westbound lanes to the existing eastbound lanes on the existing bridge and along the temporary crossover pavement installed in Stage 1A.

From I-84 WB Station 2+700± to WB Station 4+420± and EB Station 3+220± to EB Station 4+460±, shift I-84 traffic lanes to the inside of the roadway to accommodate the reconstruction of the outside lanes and shoulders.

Construction Sequence

- Reconstruct the median and the inside pavement section including repairs to the concrete pavement slabs west of Bridge No. 04321 beginning at WB Station 0+800±.

- Complete the median work west of WB Station 0+800± per the Traffic Control Plans in the MPT specification.

- Complete the median construction from Bridge No. 04321 to I-84 WB Station 1+540±.

- Close the existing EB 23 On-Ramp. Detour on-ramp traffic to the existing on-ramp at Scott Road.

- Construct the new EB 23 On-Ramp structure (Bridge 06590)

- Construct Retaining Walls 102 and 103 and the embankment supported ramp section to Station E23 31+740±.

- Construct the EB 25 Off-Ramp (E25 Station 10+400± to E25 Station 10+820±.).

- Close the existing WB 23 Off-Ramp. Shift Off-Ramp traffic to the completed WB 23 Off-Ramp.

- Remove the existing WB 23 Off-Ramp. Construct Sedimentation Basin No.1.

- Complete the reconstruction of the north side of the EB 23 Off-Ramp. Maintain two lanes on the completed southerly half of the ramp.

- Install temporary sheeting along the westbound roadway between WB Station 1+785± and the west end of Bridge No.01224 and from the east side of the bridge to WB Station 1+865± to maintain stability of the approach/exit roadways during the removal/construction of the north side of Bridge No. 01224.

- Demolish and remove the northerly portion of Bridge No. 01224 (i.e., superstructure, abutments and center pier), construct the northerly portion of the bridge and the pedestrian walkway under the northerly portion of the bridge, construct a portion of the westbound roadway concrete pavement and shoulder on both ends of the bridge and install temporary pavement linking the constructed portion of the new westbound roadway and the existing westbound lanes. The demolition/removal and/or construction of abutments, pier and superstructure shall be staged in accordance with the sequence of construction in the Water Handling Plans for Bridge No. 01224

- Complete the construction of Retaining Wall 101 east of WB Station 1+670 and the northerly portion of the mainline embankment supported section (WB Station 1+560± to WB 1+920±).

- Complete the construction of Bridge No. 05774 and relocated I-84 eastbound and westbound embankment supported roadways from EB Station 2+160± (WB 2+135±) to Bridge No. 05774. Commence with the mainline construction between Harpers Ferry temporary road and Culvert No. 01227 and the terminal end of the W24 On-Ramp between W24 12+135± and 12+325±.

- Incorporate the WB 24 Off-Ramp detour to Harpers Ferry Road and permanently close the WB 24 Off-Ramp to Harpers Ferry Road.

- Construct the westbound roadway northerly concrete pavement and shoulder between WB Station 2+780± and WB Station 3+255± and the temporary pavement transition to meet the existing pavement on both ends and to accommodate Stage 2A westbound traffic.

- Commence with the construction of Retaining Wall 107 (EB Station 3+265± to the westerly wingwall for Culvert No. 02537)

- Construct Retaining Wall 110.

- Construct Retaining Wall 108. Closure with Wingwall 2B of Culvert No. 06622 cannot be constructed until Beaver Pond Brook is relocated in Stage 4.

- Commence with the construction of Retaining Wall 109 from WB Station 4+280± to Station 4+420±.

- Commence with the construction of the outside widening of the eastbound roadway from EB Station 3+265± to Station 4+460±.

- Install temporary sheeting in back of the right shoulders in front of the Scott Road bridge south abutment to accommodate a partial mainline widening under the bridge such that the minimum vertical clearance would be maintained.

- Commence with the construction of the outside widening of the westbound roadway from WB Station 3+360± to Station 4+155± and from WB Station 4+280± to Station 4+420±.

- Install temporary sheeting in front of the Scott Road bridge north abutment to accommodate a partial widening under the bridge such that the minimum vertical clearance would be maintained. Install temporary sheeting between WB Stations 3+360± and 4+280± to prevent the embankment fill from entering Beaver Pond Brook.

- **Mad River:**

River Flow – Maintain flow in the channel as provided at the end of Stage 1 (See Mad River Relocation Water Handling Plans Stage A in the vicinity of Plank Road).

- **Beaver Pond Brook:**

River Flow – Maintain flow in the channel (See Beaver Pond Brook Relocation Water Handling Plans and the sequence of construction for Culvert No. 02537).

Construction Sequence

- Construct the westerly barrel of Culvert No. 01227 between BPB Station 5+278± and BPB Station 5+348±.

- Construct the easterly barrel of the northerly and southerly extensions of Culvert No. 02537 and reconstruct the southerly half of the adjacent upstream and downstream segments of the channel.

- **Hamilton Avenue Bridge (Bridge No. 04321) and Approach Roadways:**

Lane Configuration - Maintain one lane of traffic in each direction.

Construction Sequence

- Reconstruct the easterly two-thirds of Bridge No. 04321. Note, the removal of the easterly two-thirds of the existing abutments and footings, the removal of the easterly two-thirds of the existing center pier and the construction of new easterly portion of the pier were completed in Pre-Stage 2.

- Reconstruct the easterly side of the approach roadways and complete the installation of the sanitary sewer relocation (i.e., San MH-1 to San. MH-2). Maintain sewer flow at all times

- **Harpers Ferry Road Bridge (Bridge No. 01226):**

Lane Configuration – Maintain one lane of traffic in each direction between the EB 25 Off-Ramp/relocated Reidville Drive intersection and the intersection with Plank Road. On the northbound approach to Plank Road, provide a right turn lane at the intersection. North of Plank Road, maintain one-way alternating traffic utilizing a one-way two lane operation per the Traffic Control Plans in the MPT specifications. At the end of a work day, one lane in each direction must be open to traffic.

Construction Sequence

- Open the completed section of Harpers Ferry Road west of the new intersection with relocated Reidville Drive.

- Reconstruct the easterly side of Harpers Ferry Road and relocate the water main north of Plank Road.

- Close existing Harpers Ferry Road on the east side of the new intersection with relocated Reidville Drive. Shift Harpers Ferry Road traffic to the temporary roadway.

- Excavate and complete rock blasting operations in the vicinity of Bridge No. 01226 and Harpers Ferry Road detour roadway. Rock blasting will not be allowed when the new substructure for Bridge No. 01226 is in place.

- Commence with the construction of the Harpers Ferry Road Bridge (Bridge 01226) over relocated I-84.

STAGE 2A

- **I-84:**

Lane Configuration - Maintain two lanes of through traffic in each direction.

Shift the I-84 westbound traffic lanes to the north between WB Station 2+660± and WB Station 2+920± and to the south between WB Station 2+920± and WB Station 3+360± to facilitate additional construction of the westbound roadway concrete pavement.

Shift the I-84 westbound traffic lanes to the inside adjacent to the median between WB Station 4+420± and the easterly project limit.

Shift I-84 eastbound traffic lanes on a south to north alignment between WB Station 2+680± and EB Station 2+960± and between EB Station 3+220± and EB Station 3+400±.

Construction Sequence

- Continue construction of the westbound roadway concrete pavement between WB Station 2+765± and WB Station 2+910±, between WB Station 3+130± and Station 4+155± and from Station 4+280± to Station 4+420±.

- Install temporary pavement in the existing median between WB Stations 2+640± and 2+790± to accommodate eastbound traffic in Stage 3.

- Complete the outside widening of the eastbound roadway between EB Station 3+320± and Station 4+460±.

- Complete the construction of Retaining Wall 109 east of WB Station 4+420±.

- Construct Retaining Wall 111 and the roadway parapet wall between Retaining Walls 109 and 111.

- Construct the northerly two-thirds of the westbound roadway between WB Station 4+420± and the easterly project limit.

- Complete the construction of Retaining Wall 107 from EB Station 3+265± to the wingwall for Culvert No. 02537.

- Open the EB 25 Off-Ramp west of Bridge No. 04321 (Hamilton Avenue Bridge) after completion of Bridge No. 06590 (EB 23 On-Ramp Bridge)

- Remove the temporary EB 245Off-Ramp connection and complete the construction of the EB 23 On-Ramp.

- **Beaver Pond Brook:**

River Flow – Maintain flow in the channel (See the Beaver Pond Brook Relocation Water Handling Plans and the construction sequence from Culvert No. 02537)

Construction Sequence

- Continue construction of westerly barrel of Culvert No. 01227 between BPB Station 5+278± and BPB Station 5+348±

- Construct the westerly extensions of Culvert No. 02537 and reconstruct the river channel at the inlet and outlet face of the Culvert.

STAGE 2B

- **I-84:**

Lane Configuration - Maintain the Stage 2A lane configuration west of WB Station 4+420±.

East of WB Station 4+420±, shift existing westbound traffic on the westbound lanes constructed in Stage 2A.

Shift eastbound traffic to the existing westbound roadway east of WB Station 4+420±.

Construction Sequence

- Complete the Stage 2 outside widening of the westbound roadway east of WB Station 4+420±.

- Construct the southerly two-thirds of the eastbound roadway between EB Station 4+460± and the easterly project limit.

STAGE 3

- **I-84:**

Lane Configuration - Maintain two lanes of through traffic in each direction .

West of the Hamilton Avenue Bridge (Bridge No. 04321), maintain the east and westbound traffic lanes on the completed pavement. East of Bridge No. 04321, shift the eastbound lanes to the inside between Bridge No. 04321 and EB Station 1+730± and to the outside from EB Station 1+730± to the EB crossover roadway constructed in Stage 1. Shift the westbound lanes to the outside of the completed roadway between Bridge No. 04321 and WB Station 1+900± and the temporary pavement constructed in Stage 2 to facilitate continued construction of the east and westbound roadways between Bridge No. 04321 and WB Station 2+040±.

From I-84 WB Station 2+660± to WB Station 3+200±, shift the eastbound and westbound lanes to the completed westbound roadway to facilitate construction south of the eastbound travel lanes.

From WB Station 3+200± to WB Station 3+360±, shift the eastbound lanes to the south side of the eastbound roadway to facilitate construction on both sides of the eastbound lanes.

From WB Station 3+360± to the easterly project limit, shift the eastbound lanes to the outside of the completed roadway to facilitate the construction of the inside lanes.

From WB Station 3+360± to Station 4+420±, shift the westbound lanes to the outside of the completed roadway to facilitate construction of the inside lanes. East of WB Station 4+420± maintain Stage 2B lane configuration.

Construction Sequence

- Open the EB 23 On-Ramp from Hamilton Avenue.

- Install temporary sheeting along Bridge No. 01224 approach/exit roadways (WB Station 1+770± to the west end of the bridge and from the east end of the bridge to 1+870± and EB Station 1+834± to the west end of the bridge and from the east end of the bridge to 1+915±) to maintain stability of the east and westbound roadways to facilitate construction operations during removal/construction of the center portion of Bridge No. 01224.

- Demolish and remove the center portion of existing Bridge No. 01224 (i.e., superstructure, abutments and center pier) and construct the center portion of new Bridge No. 01224 in accordance with the sequence of construction in the Water Handling Plans for Bridge No. 01224.

- Complete the construction of the pedestrian walkway under the center portion of Bridge No. 01224.

- Complete the construction of the inside lanes of the westbound roadway and the outside lanes of the eastbound roadway east of Bridge No. 04321 to WB Station 1+960± and EB Station 1+760± respectively. The median between WB Station 1+560± and Bridge No. 01224 shall be completed in Stage 3A.

- Commence with the construction of relocated I-84 between the east side of Bridge No. 05774 and Harpers Ferry temporary roadway.

- Complete the construction of relocated I-84 between the east side of Harpers Ferry temporary roadway and Culvert No. 01227.

- Construct Retaining Wall 118. Note that this work shall be done during the construction of the northerly half of Beaver Pond Brook between BPB Station 5+351± and 5+440±.

- Complete the construction of Retaining wall 107.

- Construct the southerly two-thirds of relocated/existing I-84 from the east side of Culvert No. 01227 to WB Station 3+200±, the right side of the eastbound roadway between EB Stations 3+235± and 3+310±, and the left side of the westbound roadway and median, except for the area of the temporary eastbound crossover lanes, between WB Stations 3+230± and 3+360±.

- Complete the reconstruction of the inside lanes and median of I-84 from WB Station 3+360± to Station 3+797± and from WB Station 3+860± to the easterly project limit.

- **Mad River:**

River Flow – Maintain flow in the channel (See Water Handling Plans for Bridge No. 01224). Flow in the channel in the vicinity of Plank Road shall be as provided at the end of Stage 1.

- **Beaver Pond Brook:**

River Flow – Maintain flow in the channel (See Beaver Pond Brook Relocation Water Handling Plans).

Construction Sequence

- Construct the easterly barrel of Culvert No. 01227 from BPB Station 5+281± to the upstream inlet face. Note the wingwall cannot be constructed until the relocated sanitary sewer across the north side of Beaver Pond Brook is completed.

- Construct the northerly portion of relocated Beaver Pond Brook from BPB Station 5+440± to the inlet face of Culvert No. 01227 (BPB Station 5+351±) and complete the relocated sanitary sewer connection across the northerly half of Beaver Pond Brook. Maintain sewer flow at all times.

- **Hamilton Avenue Bridge (Bridge No. 04321) and Approach Roadways:**

Lane Configuration - Open and maintain traffic on the reconstructed bridge and approach roadways utilizing the final roadway lane configuration.

- **Harpers Ferry Road Bridge (Bridge No. 01226) and Approach Roadways:**

Lane Configuration - Maintain one traffic lane in each direction north of the new Reidville Drive/EB 24 Off-Ramp intersection. At the Plank Road intersection, provide a right turn lane only lane on the northbound and southbound approaches to the intersection.

Construction Sequence

- Complete the construction of Bridge No.01226.

- Relocate the existing water main between the existing intersection and new intersection with Reidville Drive.

- Commence with the construction of the embankment supported section on the west side of Harpers Ferry Road between the north end of Bridge No. 01226 and existing I-84.

STAGE 3A

- **I-84:**

Lane Configuration - Maintain two lanes of through traffic in each direction.

Shift the Stage 3 eastbound traffic lanes to the outside between Bridge No. 04321 (Hamilton Avenue Bridge) and the eastbound crossover constructed in Stage 1.

Construction Sequence

- Complete the repairs to the existing concrete pavement along the eastbound roadway and the median work between Bridge No. 04321 and Bridge No. 01224.

- Construct the relocated I-84 segment at the Harpers Ferry Road crossing after the new Harpers Ferry Road bridge is completed and the temporary roadway removed.

- **Harpers Ferry Road Bridge (Bridge No.01226) and Approach Roadway:**

Lane Configuration - Maintain the Stage 3 lane configuration north of existing I-84.

Construction Sequence

- Open Bridge No. 01226 to traffic. Provide one lane in each direction and a left turn lane at the new intersection with the EB 25 Off-Ramp and relocated Reidville Drive.

- Remove the temporary Harpers Ferry Road. Continue the construction of the west side of Harpers Ferry Road between Bridge No. 01226 and existing I-84.

STAGE 3B

- **I-84:**

Lane Configuration - Maintain two lanes of through traffic in each direction: shift eastbound traffic to the outside of the completed roadway and maintain Stage 3A temporary traffic lanes for westbound traffic.

Construction Sequence

- Open the relocated eastbound roadway.

- Remove the temporary eastbound traffic crossover and complete the construction of the median and the inside lanes.

STAGE 3C

- **I-84:**

Lane Configuration - Maintain two lanes of through traffic in each direction: shift westbound traffic to the inside lanes of the completed roadway and maintain Stage 3B traffic lanes for eastbound traffic.

Construction Sequence

- Open the relocated westbound roadway.

- Complete the outside lanes of the eastbound roadway formerly occupied by the lanes for Stage 3B westbound traffic.

STAGE 4

- **I-84:**

Lane Configuration - Maintain two lanes of through traffic in each direction.

Construction Sequence

- Install temporary sheeting to maintain the stability of westbound roadway at the crossing of Beaver Pond Brook during staged construction of Culvert No. 01227.

- Remove the existing I-84 roadway (including the mainline bridge over the Mad River) between WB Station 2+000± and the westerly barrel of Culvert No. 01227. Regrade the area. Removal of the bridge shall be staged in accordance with the Mad River Relocation Water Handling Plans.

- Complete the construction of the WB 24 On-Ramp. Construct Retaining Wall 115 and Bridge No. 06591 (WB 24 On-Ramp over relocated Mad River). Bridge No. 06591 shall be staged in accordance with the Mad River Relocation Water Handling Plans.

- Complete the construction of the median area between WB Station 3+180± and WB Station 3+300±

- **Mad River:**

River Flow – Maintain flow in the channel (See Stages C, D and E of Mad River Relocation Water Handling Plans).

Construction Sequence

- Complete the upstream relocation of the Mad River beginning at MR Station 1+900± .

- **Beaver Pond Brook:**

River Flow – Maintain flow in the channel (See the Beaver Pond Brook Sanitary Sewer Crossing and Culvert No. 03727 construction sequence, the Water Handling Plans for the Mad River Stages C, D and E, and Beaver Pond Brook Relocation Water Handling Plans for Culvert No. 01227).

Construction Sequence

- Complete the installation of the temporary sanitary sewer across the southerly side of Beaver Pond Brook and connect to existing San. MH-134. Divert the northerly sewer system flow through the temporary connection. Maintain flow in both existing northerly and southerly sanitary sewer pipes.

- Construct the relocated (permanent) sanitary sewer across the southerly half of Beaver Pond Brook after the temporary connection described is completed and

operational. Maintain existing sewer flow. (See Harpers Ferry Road construction sequence).

- Extend the relocated (permanent) sanitary sewer across the northerly half of Beaver Pond Brook and to a point just downstream of the temporary pipe.

- Construct the westerly portion of the southerly and northerly barrels of Culvert No. 03727 in two phases. The construction of either barrel cannot commence until after the sanitary sewer is relocated and operational. (See Harpers Ferry Road Staging notes).

- Construct the westerly barrel of Culvert No. 01227 from the downstream outlet to BPB Station 5+278±.

- Construct the southerly portion of the relocated brook from the outlet of Culvert No. 01227 to BPB Station 5+190±.

- **Harpers Ferry Road:**

Lane Configuration – Between the new intersection with relocated Reidville Drive/EB 25 Off-Ramp and Plank Road, maintain one traffic lane in each direction, a southbound left turn lane at the intersection with relocated Reidville Drive and a right turn lane on the north and southbound approaches to the Plank Road intersection.

Construction Sequence

- Complete the relocation of the sanitary sewer from San. MH-9 to the section across Beaver Pond Brook then to San. MH-13. Construct the connection between San. MH-13 and San. MH-13A. After completion, divert the sewer flow to the relocated system. Maintain sewer flow at all times.

- Commence with the construction of the west side of Harpers Ferry Road from Plank Road south towards Bridge No. 01226. Install temporary sheeting to maintain the stability of Harpers Ferry Road at the Beaver Pond Brook crossing during the Phases 3 and 4 construction of Culvert No. 03727. The construction of the pavement over Culvert No.03727 cannot occur until the westerly portion of the southerly and northerly barrels of the culvert is completed (See Beaver Pond Brook Staging sequence notes).

- Relocate the water main between the existing Reidville Drive intersection and Plank Road.

- **Relocated Plank Road East (Harpers Ferry Road to PRE Station 50+420±):**

Construction Sequence

- Complete the construction of Retaining Wall 119.

- Commence with the construction of relocated Plank Road East from PRE Station 50+020± at Harpers Ferry Road to PRE Station 50+420±. The roadway over Culvert No. 01227 (PRE Station 50+190± to PRE Station 50+210± cannot be constructed until after the culvert is completed.

- **Plank Road East (Existing-PRE Station 50+770± to Scott Road):**

  - **Lane Configuration** - Maintain two-way traffic on existing Plank Road East between PRE Station 50+835± and Scott Road utilizing a one-way two lane operation per the Traffic Control Plans in the MPT specifications and maintain the existing Plank Road East/Fairbanks Street intersection until Bryan Street construction is completed and operational. Temporary pavement marking as directed by the Engineer shall delineate the traffic lanes.

  Construction Sequence

  - Commence with the reconstruction of existing Plank Road East (PRE Station 50+770± to Station 51+140±) and construct Bryan Street half at a time during allowable hours in accordance with the Traffic control Plans in the MPT specifications. At the end of a work day, one lane in each direction along both roadways must be open to traffic. Prior to closing the Fairbanks Street/Plank Road East intersection install final signing on Bryan Street for two-way operation.

  - Close the Fairbanks Street/Plank Road East intersection. Reroute Fairbanks Street traffic to/from Plank Road East through completed Bryan Street.

  - Construct Retaining Wall 120.

  - Reconstruct the Fairbanks Street/driveway intersection while maintaining driveway traffic at all times.

- **Reidville Drive (RD Station 10+570± to Scott Road):**

  Lane Configuration – Maintain one lane of traffic in each direction and a left turn lane at the intersection with Scott Road utilizing a one-way two lane operation per the Traffic Control Plans in the MPT specifications.

  Construction Sequence

- Commence with the reconstruction of Reidville Drive half at a time during allowable hours. At the end of the work day, one lane in each direction and the left turn lane must be open to traffic.

STAGE 4A

- **I-84:**

Lane Configuration - Maintain the Stage 4 lane configuration in each direction

Maintain the WB 25 Off-Ramp traffic on the north side of the existing ramp to accommodate the relocation of Beaver Pond Brook east of Scott Road (See Beaver Pond Brook Relocation Water Handling Plans Stages A-D).

Maintain the EB 25 On-Ramp traffic on the north side of the existing ramp to accommodate the construction of the new ramp south of the existing ramp.

Construction Sequence

- Install temporary sheeting along the south side of the existing WB 25 Off-Ramp to maintain stability of the ramp during the construction of relocated Beaver Pond Brook.

- Construct the new EB 25 On-Ramp.

- **Beaver Pond Brook:**

River Flow – Maintain flow in the existing channel adjacent to the westbound lanes of I-84. (See Stage A of Beaver Pond Brook Relocation Water Handling Plans).

Construction Sequence

- Reconstruct the northerly portion of existing Beaver Pond Brook between BPB Station 6+266± and BPB Station 6+290±

- Commence with the construction of relocated Beaver Pond Brook between BPB Station 6+290± and BPB 6+450± including Culvert No. 06622 and between BPB Station 6+442± and 6+800± including the easterly half of Culvert No. 014. Note that Culvert No. 06622 wingwall across the existing brook cannot be constructed until relocated Beaver Pond Brook is operational.

- Commence with the construction of the temporary channel downstream and adjacent to the existing WB 25 Off-Ramp in the vicinity of BPB Station 6+800±.

- Relocate the sanitary sewer from W25 Station 13+868± to W25 Station 14+136± (San. MH-24 to San. MH-26A and from 6 meters east of San MH-26A to 15±

meters north of San. MH-27). Connect San. MH-26A to the existing sewer to maintain flow.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Lane Configuration – Between East Main Street and Reidville Drive, maintain traffic on two northbound lanes north of the bridge and one northbound lane across the bridge and one southbound lane north of the bridge and two southbound lanes across the bridge. South of Reidville Drive, maintain one lane in each direction. Of the two southbound lanes, one becomes a combination left thru lane at the intersection with the EB 25 On-Ramp. Of the two northbound lanes, one becomes a left turn lane at the East Main Street and Plank Road East intersections and the other becomes a right turn lane at East Main Street.

Construction Sequence

- Install temporary sheeting on the east side of Scott Road at the relocated crossing of Beaver Pond Brook to maintain the stability of Scott Road during construction of the easterly half of Culvert No.014.

- Install temporary pavement on the west side of south of the bridge.

- Commence with the construction of the easterly half of Bridge No. 01228. South of Reidville Drive, reconstruct the north side of Scott Road and the west side of Schraft Drive.

- Relocate the water main across the bridge and along the approach roadway.

- Install temporary pavement on the east side of Scott Road between the bridge and East Main Street to accommodate Stage 4B traffic operation.

- **East Main Street:**

Lane Configuration - Maintain one traffic lane in each direction utilizing a one-way two lane operation and a westbound left lane at the intersection with Scott Road per the Traffic Control Plans in the MPT specifications. Temporary pavement markings as required shall be installed as directed by the Engineer.

Construction Sequence

- Construct Retaining Wall 121.

- Reconstruct East Main Street half at a time during allowable hours. At the end of a workday, a minimum of one lane in each direction plus the westbound left turn lane must be open to traffic.

- **Plank Road East (Existing-PRE Station 50+770± to Scott Road):**

Lane Configuration - Maintain two-way traffic on existing Plank Road East between PRE Station 50+835± and Scott Road utilizing a one-way two lane operation per Traffic Control Plans in the MPT Specifications. Temporary pavement markings as required shall be installed as directed by the Engineer.

Construction Sequence

- Install temporary sheeting in the southeast quadrant of the Plank Road East/Scott Road intersection to maintain the stability of both roadways during the construction of relocated Beaver Pond Brook.

- Continue constructing Plank Road East half at time between PRE Station 50+770± and 51+140± during allowable hours. At the end of a workday one lane in each direction must be open to traffic.

- **Reidville Drive (RD Station 10+570± to Scott Road):**

Lane Configuration – Maintain one lane in each direction utilizing a one-way two lane operation and a left turn lane at Scott Road per the Traffic Control Plans in the MPT specifications. Temporary pavement markings as required shall be installed as directed by the Engineer.

Construction Sequence

- Continue the reconstruction of Reidville Drive half at a time during allowable hours. At the end of the workday, one lane in each direction and the left turn lane must be open to traffic.

STAGE 4B

- **I-84:**

Lane Configuration - Maintain two through lanes (minimum) in each direction along the mainline.

Construction Sequence

- Shift the eastbound On-Ramp traffic to the new EB 25 On-Ramp. Remove the existing ramp and regrade the area.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Lane Configuration – Maintain the number of lanes provided in Stage 4A.

Construction Sequence

- Install temporary sheeting on the east side of Scott Road at the relocated crossing of Beaver Pond Brook to maintain the stability of Scott Road during construction of the westerly half of Culvert No. 014.

- Continue construction of the easterly half of the bridge.

- Using traffic control measures relocate the sanitary sewer from San MH-32 to San MH-35. Maintain existing sewer flow at all times

- Complete Scott Road and Schraft Drive reconstruction south of Reidville Drive during allowable hours. At the end of a work day one lane in each direction must be open to traffic.

- **Beaver Pond Brook:**

River Flow – Maintain flow in the existing channel, adjacent to the westbound lanes of I-84.

Construction Sequence

- Complete the relocation of Beaver Pond Brook between the downstream end of Culvert No. 06622 and BPB Station 6+800± which includes the construction of the westerly half of Culvert No. 014 and the temporary channel downstream and adjacent to the existing culvert under the existing WB 25 Off-Ramp. Culvert No. 06622 Wingwall 2B across the existing brook cannot be constructed until the relocated brook is operational.

- **Reidville Drive (RD Station 10+570± to Scott Road):**

Lane Configuration – Maintain one lane in each direction utilizing a one-way two lane operation and a left turn lane at the Scott Road intersection per the Traffic Control Plans in the MPT specifications. Temporary pavement markings as required shall be installed as directed by the Engineer.

Construction Sequence

- Complete the reconstruction of Reidville Drive during allowable hours. At the end of the work day, one lane in each direction and the left turn lane must be open to traffic.

- **Plank Road East (Existing-PRE Station 50+770± to Scott Road):**

Lane Configuration - Maintain two-way traffic on existing Plank Road East between PRE Station 50+835± and Scott Road utilizing a one-way two lane operation per Traffic Control Plans in the MPT specifications. Temporary pavement markings as required shall be installed as directed by the Engineer.

Construction Sequence

- Complete the reconstruction of existing Plank Road East between PRE Station 50+835± and PRE Station 51+140± during allowable hours. At the end of the work day, one lane in each direction and the left turn lane must be open to traffic.

- Commence with the construction of relocated Plank Road East between PRE Station 51+140± and Culvert No. 06622.

- **East Main Street:**

Lane Configuration - Maintain one lane of traffic in each direction tilizing a one-way two lane operation and a westbound left turn lane at the Scott Road intersection in accordance with Traffic Control Plans in the MPT specifications.

Construction Sequence

- Complete the reconstruction of East Main Street during allowable hours. At the end of the work day, one lane in each direction and the left turn lane must be open to traffic.

STAGE 4C

- **I-84:**

Lane Configuration - Maintain Stage 4B lane configuration along the mainline and ramps.

Construction Sequence

- Construct the relocated WB 25 Off-Ramp from Scott Road to W25 Station 14+090± and the south half from Station 14+090± to I-84 after Beaver Pond Brook flow is diverted to the relocated channel. The north half cannot be constructed until the Beaver Pond Brook culvert under the existing off-ramp is removed.

- Install temporary sheeting along the north side of the westbound roadway (WB Stations 4+100± to 4+200± to prevent embankment fill from entering the temporary channel/relocated Brook.

- Continue with the outside construction of the westbound roadway between WB Station 3+670± and 4+150± after Beaver Pond Brook flow is diverted to the relocated channel.

- **Beaver Pond Brook:**

River Flow – Divert the river flow to the relocated channel via the temporary channel constructed in Stages 4A and 4B. (See Stage B of Beaver Pond Brook Relocation Water Handling Plans).

Construction sequence

- Reconstruct the southerly portion of Beaver Pond Brook between BPB Station 6+266± and Station 6+290±.

- Construct the southerly portion of the floodplain along Beaver Pond Brook between BPB Station 6+470± and Station 6+760±.

- Construct Culvert No. 06622 Wingwall 2B across the existing brook and connect the wingwall to Retaining Wall 108.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Lane Configuration – Maintain the number of lanes provided in Stage 4A inclusive of the right and left turn lanes.

Construction Sequence

- Complete the construction of the easterly half of Bridge No.01228 and construct 50± meters of the approach roadway north of the bridge.

- Install temporary pavement on the easterly half of the approach roadway to transition from the surface elevation of the completed 50± meter section and the existing roadway surface.

- **Relocated Plank Road East (PRE Station 51+140± to Scott Road):**

Lane Configuration – Maintain all lanes on existing Plank Road East.

Construction Sequence

- Continue the construction of relocated Plank Road East between PRE Station 51+140± and Station 51+280±.

STAGE 5

- **I-84:**

Lane Configuration - Maintain Stage 4C traffic lane configuration.

Construction Sequence

- Open the new WB 24 On-Ramp.

- Close the existing W25 Off-Ramp and open the new ramp to traffic.

- Complete the construction of Retaining Wall 109(W 25 Station 14+090± to WB Station 4+280±) and continue construction of westbound (WB Station 3+660± to WB 3+780±, WB 3+860± to WB 4+060± and WB 4+160± to WB 4+280±) I-84 and the WB 25 Off-Ramp. (See Beaver Pond Brook Relocation Water Handling Plans Stages C and D).

- **Beaver Pond Brook:**

River Flow – Maintain flow in the relocated channel and the existing channel to remain (See Beaver Pond Brook Relocation Water Handling Plans for Culvert No. 01227 and Stages C and D and Beaver Pond Brook Culvert No. 03727 Construction Sequence).

Construction Sequence

- Construct the easterly portion of southerly and northerly barrels of Culvert No. 03727 in two phases. (See Harpers Ferry Road staging sequence notes).

- Construct the easterly barrel of Culvert No. 01227 from BPB Station 5+281± to the downstream outlet and reconstruct the northerly portion of Beaver Pond Brook from the culvert outlet to BPB Station 5+190±.

- Excavate a shelf with a base elevation 137.5 on the northerly side of the brook between BPB Stations 6+850± and 6+970± before removing the culvert under the existing WB 25 Off-Ramp.

- Remove the northerly culvert barrel and construct the northerly portion of Beaver Pond Brook and floodplain from BPB Station 6+780± to Station 6+890±.

- Complete the relocation of the sanitary sewer (the 6± meter section east and adjacent to San MH-26A and the section from 15± meters north of San. MH-27 to San MH-29). Maintain sewer flow at all times.

- Remove the existing southerly culvert barrel and construct the southerly portion of Beaver Pond Brook between BPB Station 6+780± and Station 6+890±.

- Complete the construction of the southerly half of relocated Beaver Pond Brook between BPB Station 6+890± and 6+970.

- Complete the construction of the northerly half of relocated Beaver Pond Brook between BPB Stations 6+880± and 6+970.

- **Harpers Ferry Road:**

  Lane Configuration - Maintain one traffic lane in each direction north of the southbound approach to the intersection with relocated Reidville Drive and the EB 24-Off Ramp. At the intersection provide two thru southbound lanes and a left turn lane.

  Construction Sequence

  - Remove the existing bridge over the existing I-84 roadway.

  - Install temporary sheeting to maintain the stability of Harpers Ferry Road at the Beaver Pond Brook crossing during the Phases 1 and 2 construction of Culvert No. 03727

  - Reconstruct the east side of Harpers Ferry Road north of new Bridge No. 01226. Note the section over Beaver Pond Brook cannot be constructed until Culvert No. 03727 is completed.

- **Plank Road (East of Harpers Ferry Road):**

  Lane Configuration - Maintain two-way traffic utilizing a one-way two lane operation per the Traffic Control Plans in the MPT specifications. At the end of a work day, the entire roadway width must be open to traffic. Temporary pavement markings as required shall be installed as directed by the Engineer.

Construction Sequence

- Reconstruct Plank Road half at a time during allowable hours. At the end of a work day, the entire roadway width temporary pavement markings as directed by the Engineer.

Scott Road Bridge (Bridge No. 01228) and Approach Roadways:

Lane Configuration – Between East Main Street and Reidville Drive utilizing the completed easterly side of the bridge and the partially completed approach roadway, maintain traffic on two northbound lanes north of the bridge and one northbound lane across the bridge and one southbound lane north of the bridge and two southbound lanes across the bridge. Of the two northbound lanes, one becomes a left turn lane at Plank Road East and East Main Street; Of the two southbound lanes, one becomes a left turn lane at the EB 25 On-Ramp. South of Reidville Drive, maintain a one lane approach to Reidville Drive/EB 25 On-Ramp.

Construction Sequence

- Commence with the reconstruction of the westerly half of the bridge and construct 50± meters of the approach roadway north of the bridge.

- **Relocated Plank Road East at Scott Road**

Lane Configuration - Maintain existing traffic lanes on existing Plank Road East.

Construction Sequence

- Complete the construction of relocated Plank Road East.

STAGE 5A

- **I-84:**

Lane Configuration - Maintain Stage 4C traffic lane configuration.

Construction Sequence

- Complete the construction of I-84 along the westbound roadway (WB 3+660± to WB 3+780±, WB 3+860± to WB 4+060± and WB 4+160± to 4+280±). The section under the Scott Road Bridge cannot be constructed until the west half of the northerly abutment is completed.

- **Relocated Plank Road East and Existing Plank Road East:**

Lane Configuration – Open relocated Plank Road East to traffic. Maintain existing Plank Road (Scott Road to PRE Station 51+140±) to accommodate driveway traffic.

Construction Sequence

- Reconstruct existing Plank Road East from 40± meters west of Scott Road to Scott Road. At the end of a work day, one lane in each direction must be open to accommodate driveway traffic.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Lane Configuration – Maintain the Stage 5A lane configuration except that northbound left turn lanes will be maintained at the East Main Street and the relocated Plank Road East intersections.

Construction Sequence

- Complete construction of the westerly half of the bridge and the westerly side of the approach roadway between Reidville Drive and East Main Street.

STAGE 5B

- **I-84:**

Lane Configuration – Open all lanes on I-84, except that two lanes in each direction shall be maintained between WB Station 3+780± and WB 3+860± and EB 3+850± and EB 4+010±.

Construction Sequence

- Complete the median construction in Phase 1.

- Shift eastbound and westbound traffic to the inside lanes at the end of Phase 1.

- Complete the outside construction along the eastbound and westbound roadways in Phase 2.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Lane Configuration – Between East Main Street and Reidville Drive in the northbound direction, maintain a left turn lane at the relocated Plank Road East intersection and a left turn lane and a right turn lane at East Main Street. In the southbound direction, maintain a combination thru/right turn lane at the intersections with relocated Plank Road East and Reidville Drive and a left turn lane for EB 25 On-Ramp traffic. South of Reidville Drive, maintain a one lane approach to the Reidville Drive/EB 25 On-Ramp intersection.

Construction Sequence

- Complete construction of the east side of Scott Road between East Main Street and the WB 25 Off-Ramp.

STAGE 5C

- **I-84 and Local Streets:**

At the end of Stage 5B and utilizing the Traffic Control Plans in the MPT specifications, install final pavement top course, final pavement markings and signing.

Article 1.08.07 - Determination of Contract Time:

Delete the second, third and fourth paragraphs and replace them with the following:

When the contract time is on a calendar day basis, it shall be the number of consecutive calendar days stated in the contract, INCLUDING the time period from December 1 through March 31 of each year. The contract time will begin on the effective date of the Engineer's order to commence work, and it will be computed on a consecutive day basis, including all Saturdays, Sundays, Holidays, and non-work days.

1.08.08 - Extension of Time:

Delete the last paragraph, "If an approved extension of time…. the following April 1".

Article 1.08.09 - Failure to Complete Work on Time:

Delete the second paragraph, "If the last day...the project is substantially completed" *and replace it with* "Liquidated damages as specified in the Contract shall be assessed against the Contractor per calendar day from that day until the date on which the project is substantially completed.".

SECTION 12.00 – GENERAL CLAUSES FOR HIGHWAY SIGNING

Description:

Work under this item shall conform to the requirements of Section 12.00 supplemented as follows:

12.00.06 – Data Labels:

For the purpose of developing and maintaining a highway sign inventory and for the purpose of sampling and testing reflective sheeting, the Contractor shall affix a Data Label(s) to the back of each sign face-extruded aluminum sign and each sign face-sheet aluminum sign in the vicinity of the lower left hand corner or quadrant. Data Labels shall be 2 (two) separate 5 (five) inch by 3 (three) inch (125mm by 75mm), non-reflective weatherproof films with black copy on a yellow background having a pressure sensitive adhesive backing.

A "Fabrication" Data Label is to include information about the sign fabricator, date of fabrication and the sheeting manufacturer - type. An "Installation" Data Label is to include The State Project Number or Maintenance Permit Number that installed the sign and date of installation.

The cost of the data labels coded and in place on the sign shall be included in the unit cost of the respective sign material. Payment for the respective quantities of each sign face-extruded aluminum sign and each sign face-sheet aluminum sign may be withheld until all Data Label(s) have been installed to the satisfaction of the Engineer.

The Data Label designs, with additional notes relative to design requirements are attached herewith.

12.00.07 – Global Positioning System (GPS) coordinates for signs:

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new permanent signs (temporary and construction signs are not to be included) installed in the project. The Engineer shall forward the sign data to the Division of Traffic Engineering. The horizontal datum is to be set to the State Plane Coordinate System, North American Datum of 1983 (NAD83) in feet. The minimum tolerance must be within 10 feet. The format of the GPS information shall be provided in a Microsoft Office compatible spreadsheet (Excel) file with data for each sign. The record for each sign installed is to be compatible with the anticipated CTDOT Sign Inventory and Management System (CTSIMS). The following format shall be used. However, the data fields noted by "#" are not required for the project submission. These entries will be completed as part of the Traffic Engineering CTSIMS data upload.

The cost of this work shall be included in the cost of the respective sign face – sheet aluminum and sign face – extruded aluminum items. The receipt of this electronic database must be received and accepted by the Engineer prior to final payment for items involving permanent highway signing. The electronic database information shall detail information regarding the sign actually installed by the project.

	Field Number	Type	size	Description
	1	text	20	Record Number (starting at 1…)
	2	text	20	Sign Catalog Number
#	3	text	10	Size Height
#	4	text	10	Size Width
	5	text	25	Legend
#	6	text	10	Background Color
#	7	text	10	Copy Color
	8	Link	25	Material (see acceptable categories)
	9	text	30	Comments if any
#	10	text	20	MUTCD Type
	11	text	15	Town
	12	text	5	Route
	13	text	5	Route direction
#	14	text	10	Highway Log Mileage
	15	text	15	Latitude
	16	text	15	Longitude
	17	text	25	Mounting Type
	18	text	25	Reflective Sheeting Type
	19	date	25	Date Installed
	20	text	10	Number of Posts
	21	text	255	Sheeting Manufacturer name and address
	22	text	15	State Project Number (or)
	23	text	15	Encroachment Permit number.
	24	Graphic	*	Sign Picture Graphic.

* Graphics provided shall be representative of the sign supplied and be in color. Graphic formats shall be either JPG or TIFF and provided with a recommended pixel density of 800 x 600. The graphic shall be inserted in the supplied media in field 24 for each sign.

DATA LABELS

NON REFLECTIVE, WEATHERPROOF FILM

BLACK COPY, YELLOW BACKGROUND

CONN DOT
SIGN FACE DATA LABEL

Fabricator: (Insert NAME or State)

Sheeting Manufacturer - Type

(Insert NAME - TYPE)

Date Fabricated - Month / Year

J	F	M	A	M	J	J	A	S	O	N	D
12	13	14	15	16	17	18	19	20	21	22	23

CONN DOT
SIGN FACE DATA LABEL

Installed By:

Project No.: (Insert 000-0000 or State)

Permit No.: (Insert D_-000000)

Date Installed - Month / Year

J	F	M	A	M	J	J	A	S	O	N	D
12	13	14	15	16	17	18	19	20	21	22	23

Data Labels To Be 5 Inch By 3 Inch Each (125mm x 75mm) With Face Designs As Shown Above.

All Copy Ink Must Be Durable And Not Fade, Discolor, Or Smudge.

All Variable Legends To Be Included At Label Fabrication.

Only One "Installed By" Permit Or Project Number Should Be Provided.

Sign Fabrication And / Or Installation By State Forces, Insert "State."
The Month And Year Of Fabrication And Installation May Be Punched Or Marked Out

The Back Of The Data Label Must Contain A Pre-coated Pressure-Sensitive Adhesive Covered By A Removable Liner.

At Application, The Liner Must Be removable Without Soaking In Water Or Other Solvents.

The Adhesive Must Form A Durable Bond To Surfaces That Are Smooth, Clean, Corrosion-Free And Weather Resistant.

Completed Data Labels Must Not Discolor, Crack, Craze, Blister, Delaminate, Peel, Chalk, Or Lose Adhesion When Subjected To Temperatures From -30 Degrees to 200 Degrees Fahrenheit.

ITEM #0714050A – TEMPORARY EARTH RETAINING SYSTEM

Description:

For purposes of this specification, temporary earth retaining system shall be any type of adequately braced temporary retaining wall such as temporary sheet piling which the Contractor elects to build to satisfy, and which does satisfy, the condition that existing facilities be properly retained during excavation or fill for the placement of substructure or other facilities. Where temporary earth retaining systems are required to be constructed within areas designated on the plans as "restricted zones" for the purpose of limiting noise and vibration in adjacent neighborhoods, driven sheet piling type retaining systems shall not be acceptable.

Temporary earth retaining system shall be designed by the Contractor and constructed where shown on the plans or as directed by the Engineer when it becomes necessary, in the opinion of the Engineer, to install temporary earth retaining system for the support of existing facilities, pavement, utilities, or for other constraints.

Materials:

Materials of steel sheet piling shall conform to the requirement of ASTM A328. Timber sheet piling shall conform to the requirements of Subarticle M.09.01-1. Materials other than steel or timber, or a combination of these may be used provided they are properly designed for the purpose intended. Systems utilizing other material(s) shall conform to the manufacturer's specifications and project specifications. The parts list shall be furnished for the proprietary system and the Contractor shall provide the material certificates for the parts.

Construction Methods:

Temporary earth retaining system shall be safely designed and carried to adequate depths and braced as necessary for proper performance of the work. The design shall be in accordance with the latest edition of the applicable AASHTO design specifications. The support system shall provide an approximately plumb face at the plan location and grades, and shall support all loads imposed by the embankment including hydrostatic forces as applicable; live load surcharge from vehicular traffic and construction equipment; and lateral forces from temporary or permanent highway railing systems located on supported earthen sections. The support system shall be designed and detailed to interface with substructure units as required to retain the earthen material. The design and details of the temporary earth retaining system shall be compatible with all construction staging requirements including highway railing systems and shall be detailed to not interfere with the staged construction of approach slabs.

Construction of the earth retaining system shall be such as to permit excavation or fill as required. Interior dimensions shall be such as to give sufficient clearance for the required

construction including the installation of both plumb and battered piles and the placement of forms. Movement of the system or bracing which prevent the proper completion of the substructure shall be corrected at the sole expense of the Contractor. No part of the temporary earth retaining system or bracing shall be allowed to extend into the substructure without written permission of the Engineer.

Acceptable types of earth retention systems within the limits of a noise and vibration "restricted zone" shall not include any sheet piling system required to be driven either using impact or vibratory methods. The Contractor may make a written request to the Engineer for an exception from this restriction for a specific location. Any such request shall include details of the proposed system and reasons why other less disruptive systems are not appropriate for the application. A written approval from the Engineer granting the exception shall be required prior to the Contractor making a working drawing submission for a driven sheet piling system.

Working drawings and design calculations for temporary earth retaining system shall be submitted in accordance with the requirements of Article 1.05.02(2). The working drawings and design calculations shall be prepared, sealed, and signed by a Professional Engineer, licensed in the state of Connecticut. The furnishing of such plans shall not serve to relieve the Contractor of any part of his responsibility for the safety of the work or for the successful completion of the project.

Unless otherwise ordered by the Engineer, all parts of the temporary earth retaining system shall be removed upon completion of the work for which it was provided. The excavation shall be backfilled and properly compacted, prior to removal of the system unless otherwise permitted by the Engineer. Temporary earth retaining system may be left in place at the option of the Contractor if so permitted by the Engineer, provided that it is cut off at an elevation as directed by the Engineer and the cutoffs removed from the site.

Method of Measurement:

Temporary earth retaining system will be measured for payment by the number of square meters of temporary retaining wall completed and accepted, as computed from the horizontal and vertical payment lines shown on the plans or as ordered by the Engineer. If no payment limits are shown on the plans, the limits used for payment will be the actual horizontal limit of temporary earth retaining system installed and accepted, and the vertical limit as measured from the bottom of the exposed face of the wall system to the top of the retained earth behind the system. The measurement for temporary earth retaining system which is used as a common wall for staged construction will be the horizontal payment limit shown on the plans and the greater vertical dimension of the common wall face.

The Contractor may propose earth retaining system limits beyond the payment limits shown on the plans, subject to the approval of the Engineer. At locations where such expanded limits are approved by the Engineer, the payment limit will not be increased beyond the maximum limit shown on the plans. No additional payment will be made to the Contractor for the area of earth retaining system beyond the stated payment limits.

No measurement will be made of end extensions or returns necessary for the safety of the retained facility. Earth retaining system ordered left in place by the Engineer shall be measured in accordance with the Item "Earth Retaining System Left In Place".

Earth retaining systems left in place solely at the Contractor's option, and with the Engineer's permission, will not have an additional payment at the contract unit price per square meter for "Earth Retaining System Left in Place."

Basis of Payment:

Payment for this work will be made at the contract unit price per square meter for "Temporary Earth Retaining System," measured as described above, which price shall include all design, materials, equipment and labor incidental to the construction and removal of the temporary earth retaining system required at the locations specified on the plans including retention systems in "restricted zones"; including removal of obstructions, repair and correction, adjustments or reconstruction required by the plans. Any common earth retaining system for staged construction will be measured for payment only once.

At locations where the Contractor proposes and is allowed to leave all or parts of the earth retaining system in place, no additional payment will be made to the Contractor when such material left in place is encountered in subsequent construction activities including, but not limited to trench excavation in areas of soil nail walls.

Pay Item	Pay Unit
Temporary Earth Retaining System	SQ.M.

ITEM #0715050A – EARTH RETAINING SYSTEM LEFT IN PLACE

Description:

This specification covers only that portion of the temporary earth retaining system that may be ordered left in place by the Engineer or designated in the plans to be left in place.

Materials:

Not applicable.

Construction Methods:

The Contractor shall submit to the Engineer for approval, plans showing the proposed method of construction prior to the start of such construction.

Method of Measurement:

Earth retaining system material left in place will be measured for payment by the square meter. This area will be measured or computed from the horizontal and vertical payment limits shown on the plans or as ordered. If no payment limits are shown on the plans, the limits used for payment will be the actual horizontal limit of temporary earth retaining system ordered or designated in the plans to be left in place, and the vertical limit will correspond to the method of measurement of the temporary earth retaining system.

Temporary earth retaining system left in place solely at the Contractor's option, and with the Engineer's permission, will not be measured for payment.

Basis of Payment:

Payment for this work will be made as follows:

That portion of the temporary earth retaining system ordered or designated in the plans to be left in place will be paid for at the contract unit price per square meter for "Earth Retaining System Left in Place," applying to one or more structures or portions of structures, which price shall include only the cost of material left in place. All other expenses shall be paid for under the item for "Temporary Earth Retaining System."

Pay Item	Pay Unit
Earth Retaining System Left in Place	SQ.M.

ITEM #0916111A – NOISE BARRIER WALL (STRUCTURE)

Section 9.16 Noise Barrier Wall is hereby deleted in its entirety and replaced with the following:

Description:

Work under this item shall consist of designing, fabricating, furnishing and erecting a Noise Barrier Wall (Structure) to be supported by an appurtenant structure at the locations shown on the Contract Drawings, in this specification, or as directed by the Engineer.

Noise Barrier Wall (Structure) shall have a reinforced normal-weight concrete core and by virtue of its overall construction and composition, is impervious to the passage of light and has the ability to absorb noise.

The structural support system of the Noise Barrier Wall (Structure) may be attached, to either an existing structure or new construction, as indicated in the Contract Drawings. This specialized construction of a noise barrier wall shall be fully designed, detailed and manufactured taking into account its structural adequacy and integrity with the supporting structure.

Specific types of walls are indicated on the Contract Drawings and in this specification that are acceptable by the Connecticut Department of Transportation (Department) to be constructed on specific locations based on their conformance with the requirements in the project. The Contractor shall select the appropriate wall type from a list in the Contract Drawings and in this specification.

The Contractor is directed to verify at the site, all dimensions and information pertaining to the existing construction that are needed in the design, preparation of Working Drawings and in the overall execution of this project.

The Contract Drawings prepared by the Department for this project contain only conceptual and schematic interpretations for the general approach of design. The Contractor shall prepare its structural design calculations and Working Drawings based on the concept and scheme as presented in the Contract Drawings, and in conformance with this specification. **The structural design calculations and Working Drawings prepared by the Contractor shall be reviewed and approved by the Engineer prior to the start of fabrication of any element of the Noise Barrier Wall (Structure).**

Within seven (7) days after the bid opening, the Contractor shall identify by type, name and manufacturer, the specific type of noise barrier wall for each location upon which its bid is based. All noise barrier wall segments or panels selected for each location shall be furnished from the same manufacturer and shall be of the same type, pattern and color.

The Contractor is explicitly notified that no other types of Noise Barrier Wall (Structure) shall be approved to be constructed at each specific site other than the types shown in the Contract Drawings.

Materials:

The materials to be used for the various components of the Noise Barrier Wall (Structure), including all appurtenant support systems, shall be as specified in the Contract Drawings.

The Noise Barrier Wall (Structure) chosen shall be selected from a list of manufacturers provided on the Contract Drawings and in this Specification. This list identifies various manufactured types of noise barrier wall systems that are considered appropriate and acceptable for each specific location in the project, but does not guarantee that all of the listed proprietary noise barrier wall systems can be designed to meet all of the dimensional, structural, or geotechnical constraints at each site. **The Contractor shall not commence with the production of its proposed system of Noise Barrier Wall (Structure) without the Engineer's review and written approval.**

The General List shown in this Specification and on the Contract Drawings identifies the acceptable manufactured systems of Noise Barrier Wall (Structure) of the absorptive type, and their manufacturers, for use in all Connecticut Department of Transportation's projects:

1. **NB15**
Armtec Ltd. (formerly Durisol)
8270 Greensboro Drive
McLean, VA 22102
(860) 873-1737
www.armtec.com

2. Whisper Wall
Concrete Innovation Services
4212 Lafayette Center Drive Suite 1-A
Chantilly, VA 20151
(703) 222-9702
www.whisper-wall.com

3. Soundsorb
Concrete Solutions, Inc.
3300 Bee Cave Road, Suite 650
Austin, TX 78746
(512)327-8481
www.soundsorb.com

Not all of the above-listed walls are suited for use at specific locations due to structural requirements and concerns or, that the environment or locality warrants a certain type or style of wall to be used. Refer to the Contract Drawings for the specific types of Noise Barrier Wall (Structure) that are acceptable for each specific location in the project.

The materials used for the types of noise barrier walls shall be durable, and not be prone to developing openings, cracks or gaps from loading, warping, splitting, shrinkage, expansion, delamination, weathering and other weather-related and climactic-induced deterioration. The noise barrier wall panels shall be U.V.-resistant, flame-retardant, and could resist degradation from ozone, hydrocarbons and freeze-thaw cycling.

The Noise Barrier Wall (Structure) shall be able to provide a minimum Sound Transmission Class (S.T.C.) rating of 34 measured by ASTM E90. The Noise Reduction Coefficient (N.R.C.) shall have a minimum rating of 0.70, as measured by ASTM C423 and E 795. The sound-absorbing portions of the wall shall be durable and resistant against deterioration of material and damage from moderate scratch and abrasion and shall have a minimum of 20-year life cycle free from peeling, rotting or visible deterioration.

The Noise Barrier Wall (Structure) shall have a textured surface pattern on both sides if not shown otherwise in the Contract drawings. Specific textured surface patterns have been approved for use by the Department. The selected pattern for each wall location shall be as shown or noted on the Contract Drawings, and other patterns will not be acceptable. If both sides of the Noise Barrier Wall (Structure) contain a textured surface pattern, the side of the panels covered with the sound-absorbing material shall consistently face the roadway throughout the project. The sound-absorbing material shall be installed on the entire wall face that is exposed to the roadway.

The color of the Noise Barrier Wall (Structure) exposed to traffic will be indicated on the Contract Plans, conforming to Federal Standard 595 Colors except if specified otherwise on the plans. Only one color may be used on the wall components to maintain uniformity, except where specified otherwise on the Contract plans.

Federal Standard 595 Color No.	Color
FS 36492	Gray
FS 34230	Green
FS 30215	Brown
FS 36622	Gray

The Noise Barrier Wall (Structure) panels shall be integrally-pigmented to a significant depth into its cross-section in conformance with the requirements of ASTM C979, in order to produce a uniform color should the panel become scratched, chipped or otherwise surface-damaged. Variation in color or shading from panel to panel shall not be acceptable. Field-staining or painting to achieve a uniform overall color is not allowed.

Individualized design panels may vary from standard wall colors, textures, and patterns, as depicted in the Contract Drawings.

The Noise Barrier Wall (Structure) shall have a suitable surface for repainting, staining, sandblasting or other acceptable method of returning the panels to their original color and texture should they become damaged after construction. Touching-up, re-staining, repainting, or sandblasting portions of the panels shall not result in visible color variation.

The manufacturer of the Noise Barrier Wall (Structure) shall provide to the Department, an Aesthetic Coating Warranty of its product that covers a minimum of ten (10) years.

The Contractor shall also supply the Department with two (2) full-panel sections of Noise Barrier Wall (Structure) measuring 4 feet high of similar length and width as the panels to be constructed. These panels of noise barrier walls shall be of the same color and pattern as the Noise Barrier Wall (Structure) to be constructed. These noise barrier wall panels shall be delivered and unloaded at a recommended D.O.T. Maintenance Facility that will be ultimately responsible for the maintenance of the Noise Barrier Walls.

Other:

All other materials shall conform to the requirements as indicated on the approved Working Drawings of the specific system of Noise Barrier Wall (Structure) selected for the project.

Construction Methods:

Design:

The Noise Barrier Wall (Structure), including all structural supports such as but not limited to, reinforced concrete parapets, barrier curbs, columns, piles, caissons and footings, anchor bolts, and structural steel columns, beams, bolts and plates for the framing and support of the noise barrier wall, shall be designed for the most severe combination of gravity and lateral loads in accordance with the AASHTO LRFD Bridge Design Specifications, 6th edition dated 2012 and the Standard Specifications for Highway Bridges (AASHTO – 2002 with Interim Specifications up to and including 2003).

At the specific locations shown on the Contract Drawings containing the concrete-type Noise Barrier Wall (Structure), the entire length of the wall must be fully supported along the bottom panel, with a structural steel beam that spans between steel columns. The steel beam on either side of the column must frame onto the column so as to impose a stabilizing dead load on the assembly against overturning from lateral loads. All steel components of the structural system supporting the Noise Barrier Wall (Structure), including but not limited to beams, columns, base plates and anchor bolts shall be galvanized after fabrication.

The visible sections of the Noise Barrier Wall (Structure) shall have the same color, pattern, texture and height of individual panels as that of the adjacent sections of Noise Barrier Wall in the Highway portions of the project, unless otherwise specified in the Contract Drawings or this Specification.

At a minimum, the top of the Noise Barrier Wall (Structure) shall be at the Top of the Wall Elevations shown on the Contract Drawings.

The bottom panel of the Noise Barrier Wall (Structure) shall have a minimum height of 4 feet.

The Noise Barrier Wall (Structure) shall also be designed in accordance with the manufacturer's requirements, details and specifications for the type of wall chosen if proved that such design parameters are consistent with, or more adequate and stringent than the design requirements established in this Specification or in the Contract Drawings, and if reviewed and approved by the Engineer.

The concrete Noise Barrier Wall (Structure) shall have an integral cap with a minimum height of 6" on the top panels. The caps shall not be cast with a sound-absorptive material.

The horizontal joint lines between panels in Noise Barrier Wall (Structure) shall match for a minimum distance of 60 feet. If steps-up are required in cases of significant changes in grade, the elevation difference between the horizontal joints of adjacent panels shall not be less than 3" or greater than 12". These requirements shall also apply to the top elevations of the walls. Strict adherence to these requirements may be waived at angle breaks greater than 30

degrees or as approved by the Engineer.

When a particular type of noise barrier wall transitions into a different type, or when a segment of noise barrier wall transitions onto an adjacent segment as necessitated by geometric offset on plan and/or elevation or by the differences in the support structures, or as indicated in the Contract Drawings, the Contractor shall be responsible for the design of the transition and connection components of the noise barrier wall systems.

All longitudinal gaps between the noise barrier wall panels and the top of parapets must be provided with auxiliary members to close such gaps and prevent the escape of noise. The system or mechanism to prevent the escape of noise through these gaps must be designed by the manufacturers of Noise Barrier Wall (Structure), and be clearly detailed in the Contractor's Working Drawings. The design and detail drawings must take into account the relative movements between the noise barrier wall panels and parapets.

The structural design of Noise Barrier Wall (Structure) shall take into account any expansion and contraction movements of the various framing components and supporting structures due to changes in temperature, most especially at locations in proximity with expansion joints at the bridge deck and parapets. A thermal expansion and contraction of not less than 1 ½ inches of the bridge deck, bridge parapets and wingwall parapets at all existing expansion joints must be accounted for in the design. Provisions to account for the localized and global effects of these temperature-induced movements in the design of the various framing components and supporting structures must be explicitly detailed in the Contractor's Working Drawings.

Submittals:

The Contractor shall be fully responsible for the structural design, preparation of drawings and conformance to all additional specifications required for the selected Noise Barrier Wall (Structure). The Designer or Responsible Engineer shall have at least Five (5) years of professional experience in the structural design of the afore-mentioned types of noise barrier walls. All drawings to be submitted by the Contractor shall conform to Section 1.05.02 of Form 816 regarding Working Drawings with the following additions:

Preliminary Submissions for Proprietary Noise Barrier Wall (Structure): Prior to the start of fabrication or the construction of the Noise Barrier Wall (Structure), the Contractor shall submit to the Engineer a design package, which shall include six (6) sets of Working Drawings and four (4) sets of Structural Design Calculations for review and approval by the Engineer in accordance with Article 1.05.02 The design package shall include, but not be limited to the following:

Working Drawings and Structural Design Calculations:

1. Plans shall be submitted on 22" x 34" paper sheets.

2. All Plans and Computations to be submitted to the Engineer shall be stamped by a licensed Professional Engineer in the State of Connecticut, who shall also

be available for consultation in interpreting his computations and drawings, and in the resolution of any issues that may occur during the performance of his work.

3. Full Plan View, drawn to scale, of the Noise Barrier Wall. This view shall show:
    a. Beginning and end of the wall, as well as any angle points;
    b. Posts shall be identified, numbered and located with the proposed coordinates;
    c. Roadway baseline with 100-ft stations labeled;
    d. Location of existing and/or proposed cantilever and truss sign supports, if any;
    e. Location of existing and/or proposed utilities. (Any existing utilities which are shown on the plans should be verified in the field.)

4. Full Elevation View (Roadway side), drawn to scale, of the Noise Barrier Wall, and including:
    a. Elevations of the finished top and bottom of the Noise Barrier Wall panels at all locations;
    b. Panel sizes;
    c. Location of horizontal angle points;
    d. Post lengths.
    e. Transitions between different wall styles or types;
    f. The approximate locations of 100-ft. baseline stations (perpendicular);
    g. Location of access for fire hoses or other appurtenances as applicable.

5. Drawings shall include Plans, Details and Sections for the following:
    a. Representative wall panels showing the pattern, color, and texture of the proposed Noise Barrier Wall
    b. Any individualized design panel depicting pattern, dimensions, depth of pattern, textures, and colors
    c. Footings for all expected soil conditions (soil, rock, partial soil/rock)
    d. Attachment and anchorage of the Noise Barrier Wall gravity and lateral loads resisting systems onto the parapets of the existing bridge and wingwalls or onto new concrete columns, considering:
        i. Anchor bolts in sustained tension loading must not be installed in a chemical anchoring material.
        ii. Show arrangement of anchor bolts on plan and section.
        iii. Consideration of tolerances for the locations of Noise Barrier Wall posts relative to locations of expansion joints in the parapets.
        iv. Details and methods for eliminating gaps between the parapet top and side with the Noise Barrier Wall panels.
        v. Allowable installation tolerances for posts including allowable variations of horizontal spacing and from plumb.

e. New columns and footings supporting the Noise Barrier Wall gravity and lateral loads resisting systems
f. Transition between different wall styles or types
g. Transition between walls at geometric offset on plan and elevation
h. Transition between walls on different supporting structures
i. Provisions for temperature expansion and contraction in the wall support systems.
j. Methods of protection of any existing utilities, facilities and sub-structures during the construction of the Noise Barrier Wall
k. Any false-work required to temporarily support the components during construction.
l. Construction and installation procedures
m. Allowable fabrication tolerances for wall panels and posts

6. Calculations shall include:
   a. Computations shall clearly comply with and reference applicable AASTHO provisions.
   b. Structural design for the footings/foundations for the Noise Barrier Wall, modeling all expected soil conditions (soil, rock, and partial soil/rock).
   c. Structural design for the support and framing systems of the Noise Barrier Wall for the combination of gravity and lateral loads (wind and seismic).
   d. Structural design for the attachment and anchorage of the support and framing systems of the Noise Barrier Wall for the combination of gravity and lateral loads (wind and seismic).
   e. Structural design for the gravity and lateral (wind and seismic) load resisting systems of the Noise Barrier Wall.
   f. Documentation of computer programs utilized, including all design parameters.

Final Submissions of Noise Barrier Wall (Structure) Drawings:

Once the Working Drawings for the Noise Barrier Wall (Structure) have been reviewed and accepted by the Department, the Contractor shall submit the Final Plans. The final submission shall be made within 14 days of acceptance by the Department. No work shall be performed on the walls until the final submission has been received. Acceptance of the final design shall not relieve the Contractor of his responsibility under the Contract for the successful completion of the work.

One CD containing the final approved drawings in pdf format and five (5) sets of full size paper copies shall be submitted for Final Working Drawings and Shop Drawings for the Department's use and permanent records. Submissions in electronic format shall be created on ANSI D (22’ x 34” full scale (1” electronic file = 1” paper) sheets. The purpose of creating these drawings on ANSI D sheets is so that they may be printed/plotted at that size or smaller without loss of

legibility.

Construction Specifications:

1. Construction tolerances, methods and material specifications specific to the noise barrier walls chosen shall be provided to the Department. Submittal requirements for materials such as certification, quality, and acceptance/rejection criteria should be included.

2. Any requirements from the Manufacturer specific to the noise barrier wall that are not stated herein shall also be included.

Tolerances:

All noise barrier wall components shall conform to the following:

Posts

Post Dimension Tolerances:

1. Post Height = $\pm$1/2”

Post Vertical Sweep:

1. Posts $\leq$ 16’ long = $\pm$1/8”
2. Posts > 16’ long = $\pm$1/4”

Post Installation:

1. In horizontal plane from plan location = $\pm$1”
2. In horizontal plane from center of cylindrical footing = $\pm$1”
3. In horizontal plane from adjacent post = $\pm$1/2”
4. Post plumb = $\pm{}^{1}/_{8}$” per 10’ of wall height

Panels

Panel Dimension Tolerances:

1. Panel Length and Height = $\pm$1/4”
2. Panel Structural Thickness = $\pm$1/4”
3. Panel Absorptive Material Thickness = $\pm$1/4”
4. Panel Horizontal Sweep = $\pm$1/8”
5. Panel Vertical Sweep = $\pm$1/8”

Position of Lifting Inserts:

1. Along Panel Length = $\pm$1”
2. Along Panel Thickness = $\pm$1/4”

Reinforcing Steel Tolerances:

1. Splice = +1” from Standard Lap Splice Requirement
2. Concrete Cover = +2”

Other

There shall be no openings in the wall or under the wall, which would allow sound transmission.

Fabrication of Panels:

Textured Surface Treatment: Formed surfaces other than the exposed face shall not require a textured finish. The textured surface finish shall be similar and consistent in material and construction with that of the Highway portion of Noise Barrier Wall in the project.

If the proposed noise barrier wall is being used to replace an existing noise barrier wall, the top of the proposed noise barrier wall shall be constructed to no lower than the top elevation of the existing wall or as shown on the Contract Plans, or unless specifically noted otherwise.

Unexpected Obstructions:

If during construction, the avoidance of unexpected or unforeseen obstructions requires the revision of portions of the original design, the Contractor shall provide a revised design of the affected portions for review and written approval by the Engineer.

The Contractor shall schedule its construction operations such that access to the areas behind the walls would not be required in the performance of the remainder of the work once access has been rendered difficult or inexpedient. The Contractor, having caused its own access to be restricted or limited, as a result of prioritizing to finish grades, stabilize slopes or establish turf ahead of the other work, shall not be permitted to use any of these circumstances as a reason to not perform or finish the required work. Should the Contractor need access to these areas, the additional work to re-establish grades, re-establish slopes, re-establish turf or any work to restore the ground to a finished condition as shown in the Contract Drawings, shall be performed at the sole expense of the Contractor.

The Contractor shall restore all ground beyond the established Limits of Disturbance, if disturbed by the construction of the noise barrier walls. The ground restoration shall be in accordance with the proposed finished condition shown in the Contract Drawings. The Contractor shall remove all excess materials from the site.

Prior to any excavation, the Contractor shall field-verify the location of all existing utilities, sewers and culverts shown on the Contract Plans. Should a sewer, or culvert be damaged by the Contractor's omission or negligence, the Contractor shall replace the damaged sections at its own cost.

On-Site Representative: A qualified and experienced representative from the manufacturer of noise barrier wall shall be present at the site during the start of construction to assist the Contractor and the Engineer. The representative shall also be available for consultation on an as-needed basis, if requested by the Contractor or the Engineer.

Installation: All panel units shall be installed in accordance with the Manufacturer's recommendations by an Installer who is duly qualified, approved and certified by the Manufacturer to perform the work, and who exhibits reasonable familiarity and experience for the type of work involved in the installation of Noise Barrier Wall (Structure) described in this Specification and Contract Drawings.

Special care shall be taken to properly set the bottom panel units true-to-line and grade. All bottom panel units shall have a minimum height of 4 feet.

The assembly of the various components shall be performed in such a manner that no undue strain or stress is placed on any of the members that constitute the completed structure.

Inspection and Rejection:

Marking: The date of manufacture, the production lot number, and the piece-mark shall be clearly marked on the side of each panel or module.

The quality of materials, the process of manufacture, and the finished units shall be subject to inspection by the Engineer prior to shipment.

Panels with textured surface treatments shall be rejected if the exposed face deviates from the look of the approved model as to color or texture as determined by the Engineer.

Acceptance Criteria for Sound Barrier Wall (Structure):

Precast components shall be accepted for use in wall construction provided the concrete strength meets or exceeds the minimum compressive strength requirement, and the panel or module dimensions are free from any chipping, cracks, honeycomb surface treatment, open texture concrete, broken corners or other defects as determined by the Engineer.

The Contractor shall be responsible for ensuring a completed sound barrier wall system free of discoloration, cracks or objectionable marks which may adversely affect the barriers performance, aesthetics, or serviceability as determined by the Engineer. All panels that exhibit any form of structural damage, as determined by the Engineer, will be rejected without any cost to the Department, either at the fabrication shop or at the construction site, even after installation, but prior to acceptance of the job.

Panels with textured surface treatments shall be rejected if the color and texture on the exposed faces deviate, or show variations from the approved model, as determined by the Engineer.

Rejected panels deemed to require repair or replacement shall be replaced at the Contractor’s expense. No payment shall be made for removing, temporarily storing, or re-installing panels to enable access to the panel to be replaced. Any panels that are damaged during panel replacement shall also be replaced or repaired per the direction of the Engineer. Any work to stabilize areas adjacent to the wall required due to replacement of cracked or damaged panels shall be done at

the Contractor's own cost.

Method of Measurement:

Noise Barrier Wall (Structure) shall be measured for payment by the number of square meter of Noise Barrier Wall (Structure) completed and accepted within the limits indicated on the plans or as ordered by the Engineer and shall be measured from center to center distance between vertical columns supporting each wall panel. The vertical pay limit shall be measured from the bottom to the top of the barrier panel section. Each span between columns shall be measured for payment separately, as stepping may be required.

The two (2) full panel sections of Noise Barrier Wall (Structure) delivered to the D.O.T. Maintenance Facility shall be measured and paid for as Noise Barrier Wall (Structure) (sq m)

Basis of Payment:

Payment for this work will be made at the Contract unit price per square meter for Noise Barrier Wall (Structure) complete in place, which price shall include engineering and design, on-call and on-site services of the representative from the wall manufacturers, all work and materials used for the fabrication, complete installation and construction of the walls, facing panels, excavation, grading, disposal of surplus material, equipment, tools, labor and work incidental to the installation of the wall.

Payment shall also include the cost for all materials and labor for the construction of concrete columns and footings as designed by the Contractor and the retrofit of the existing retaining wall if found structurally inadequate for the addition of new loads as designed by the Contractor.

Payment shall also include the pigmentation and coatings of the walls.

No payment shall be made for survey, field-verification work and the preparation of working drawings.

PAY ITEM	PAY UNIT
0916111A - Noise Barrier Wall (Structure)	SQ.M

ITEM#0916126A–NOISE BARRIER WALL
ITEM#0916219A–ROCK IN POLE EXCAVATION

Section 9.16 Noise Barrier Wall is hereby deleted in its entirety and replaced with the following:

Description:

Work under this item shall consist of designing, fabricating, furnishing and erecting noise barrier wall systems in the locations, elevations, and dimensions shown on the plans, and in accordance with these specifications or as directed by the Engineer. Specific types of walls may be required by the Contract drawings; the Contractor may select any one of the types listed and detailed on the plans.

Materials:

The noise wall chosen shall be selected from a list provided on the Contract drawings specific to each site. This list appearing on the Contract drawings will identify all manufactured noise barrier walls that are considered appropriate and acceptable for each specific project site. This does not warrant that all listed noise walls can be designed to meet either the dimensional, structural, or geotechnical constraints at each site. The Engineer will reject any proposed noise barrier wall that is not listed on the Contract drawings.

Within seven (7) days after the bid opening, the Contractor shall identify by the type and name, in his proposal, the specific type of the wall for each location upon which his bid is based. All noise barriers selected for each location shall be furnished from the same manufacturer and shall be on the same type pattern and color.

The list shown on the Contract drawings has been derived from the following general list of acceptable manufactured noise barrier walls for Department projects; no other noise barrier walls will be allowed.

1. NB 15
   Armtec Ltd.
   8270 Greensboro Drive
   McLean, VA 22102
   (860)-873-1737
   www.armtec.com

2. Whisper Wall
   Concrete Innovation Services
   4212 Lafayette Center Drive Suite 1-A
   Chantilly, VA 20151
   703-222-9702
   www.whisper-wall.com

3. Soundsorb
   Concrete Solutions, Inc.
   3300 Bee Cave Road, Suite 650
   Austin, TX 78746
   512-327-8481

www.soundsorb.com

Some of these walls are specifically suited for use in special locations where there are structural concerns or the surrounding area warrants a certain type or style of wall to be used. **Note: See the Contract drawings for the specific noise barrier walls that are acceptable for each site.**

Material(s) used for the noise barrier wall shall durable, and not prone to developing openings, cracks or gaps from loading, warping, splitting, shrinkage, delamination, or weathering. Noise barrier wall panels shall be U.V. resistant, flame retardant, and resist degradation from ozone, hydrocarbons and freeze/thaw cycling. The sound absorbing portions of the wall shall be durable, resistant to erosion of material and damage from moderate abrasion. The noise barrier wall shall have a minimum 20 year life cycle free from peeling, rotting or visible deterioration.

Absorptive noise barrier wall(s) shall be able to provide a minimum Sound Transmission Class (S.T.C.) rating of 34 measured by ASTM E90. The Noise Reduction Coefficient (N.R.C.) shall have a minimum rating of 0.70, as measured by ASTM C423 and E 795.

Specific textured surface patterns have been approved for use by the Department. The selected pattern for each wall location shall be as shown on the Contract drawings. Other patterns will not be acceptable.

The noise barrier wall shall have a textured surface pattern on both sides if not noted otherwise in the Contract drawings. If both sides of the noise barrier wall contain a textured surface pattern, the more textured or sound absorptive side (covered by sound-absorbing material) shall consistently face the roadway throughout the project. The bottom panel of an absorptive noise barrier wall shall not have sound-absorbing material installed on the exposed face due to potential damage from traffic and snow plowing operations.

The color of the noise barrier wall exposed to traffic will be indicated on the plans, conforming to Federal Standard 595 Colors except if specified otherwise on the Contract plans. Only one color may be used on the wall components to maintain uniformity, except where specified otherwise on the Contract plans.

Federal Standard 595 Color No.	**Color**
FS 36492	Gray
FS 36622	Gray
FS 34230	Green
FS 30215	Brown

The noise barrier wall panels shall be integrally-pigmented (meeting the requirements of ASTM C979,) a significant depth into its cross-section so as to produce a uniform color should the panel become scratched, chipped or otherwise surface damaged. Variation in color or shading from panel to panel shall not be acceptable during construction. Field staining or painting to achieve a uniform overall color is not allowed during construction.

Individualized design panels may vary from standard noise barrier wall colors, textures, and patterns, as depicted in the Contract drawings.

The manufacturer of the noise barrier wall shall provide an aesthetic coating warranty to the Department of Transportation for a minimum of 10 years.

The noise barrier wall shall have a suitable surface for repainting, staining, sandblasting or other acceptable method of returning panels to their original color and texture should it become damaged after construction. Touching up, restaining, repainting, or sandblasting portions of the panel shall not result in visible color variation. Additionally, the noise wall manufacturer shall supply the Department with 25 gallons of matching color paint or stain to repair surface damage or vandalism. The matching color paint or stain shall be supplied along with the supplier name, wall location, project number, and a color identification number.

The Contractor shall also supply four (4) full panel sections of noise barrier wall, measuring 4 feet high each to the Department. These sections of noise barrier wall shall be of the same color and pattern as the noise barrier wall. The Contractor shall deliver and unload the materials at the recommended D.O.T. Maintenance Facility. The noise wall sections and matching color paint/stain shall be delivered and unloaded at the recommended D.O.T. Maintenance facility that will be ultimately responsible for the noise barrier wall.

Reinforcing steel shall conform to the requirements of Article M.06.01. Additionally, all steel components, including fasteners and anchor bolts shall be completely hot-dip galvanized, after fabrication, in accordance with ASTM A123 or ASTM A153, as applicable. Zinc-rich field primer for touch up shall conform to the requirements of ASTM A780. The use of aerosol spray cans shall not be permitted.

Concrete for footings shall have a minimum 28 day compressive strength f'c, of 3000 psi and conform to the requirements of Article M.03.01.

Wall sections which are mounted on a structure or used to maintain a grade difference on each side of the wall (earth retaining panels), as identified in the Contract drawings shall be designed and manufactured for those purposes. Specific calculations and details will be required when these types of walls are specified. Noise Barrier Wall mounted on a structure shall conform to the requirements of the special provision for "Noise Barrier Wall (Structure)."

Noise Barrier Wall (Structure) (additional requirements):

Noise barrier wall on structures shall have the same color, pattern, and texture on visible portions as the other sections of noise barrier wall unless otherwise specified in the Contract plans or special provision for Noise Barrier Wall (Structure). Due to the presence of a parapet, for absorptive walls, the acoustic covering shall be on the entire wall facing traffic.

Noise Barrier Wall (Earth Retaining Panels) (additional requirements):
Earth retaining panels produced by the noise wall manufacturer will be allowed where specified in the Contract Drawings, where the grade difference between the front and back of the noise barrier wall does not exceed 3 feet.

Noise barrier wall (earth retaining panels) shall have the same color, pattern, and texture on visible portions as the other sections of noise barrier wall. Integrated sections shall be designed and reinforced to withstand any earth retaining lateral loads. Other necessary materials such as drainage holes, subdrain, filter fabric, or stone necessary to properly construct the integral retaining wall shall conform to manufacturer's specifications.

Other:

Rock in so far as it applies to "Rock in Pole Excavation" shall be defined as rock in definite ledge formation, boulders or portions of boulders, cement masonry structures, concrete structures, old noise wall footings or portland cement concrete pavement having a cross-sectional area that exceeds 50% of the cross-sectional area of the designed noise barrier wall upright support hole.

Crushed Stone, if required to be placed under or adjacent to the barrier associated with drainage and erosion control shall conform to No. 3 Crushed Stone per Article M.01.01.

Backfill for Noise Barrier Wall (Earth Retaining Panels) shall be pervious structure backfill conforming to the requirements of Articles M.02.05 and M.02.06.

All other materials shall conform to the requirements as indicated on the individual noise barrier wall plans and approved working drawings.

Experience:
The Noise Barrier Wall Designer shall submit to the Engineer documentation specifying a minimum of five years of experience designing the type of Noise Barrier Walls specified in the Contract Plans. The Contractor shall submit to the Engineer evidence of experience constructing Noise Barrier Walls. This documentation needs to be reviewed and approved by the Engineer prior to commencing the design of the Noise Barrier Walls.

Construction Methods:

Design:
Noise barrier walls shall be designed in accordance with the AASHTO LRFD Bridge Design Specifications, 6th edition dated 2012

The noise barrier wall shall also be designed in accordance with the manufacturer's requirements, details and specifications for the noise barrier chosen.

General Design Requirements:
The top of the noise barrier wall shall be at the top of the wall elevations (at a minimum) shown on the Contract drawings.

The bottom panel shall be a minimum height of 54 inches and shall be precast reinforced concrete. It shall be uncolored and without pattern or acoustic material on either face.

If the Contractor is required to use different types of wall, or transition at structures, based on the Contract plans, he shall design the transition or connection of the two types.

Noise Barriers shall have a reinforced integral cap with a minimum height of 6" on the top panels. Caps shall not be cast with sound absorptive material.

For aesthetic purposes, except in cases of significant changes in grade, horizontal joint lines between panels shall match for a minimum distance of 60 feet, and if steps are required, the elevation difference between the horizontal joints of adjacent panels shall not be less than 3" or greater than 1'-0". These requirements shall also apply to the top elevation of the noise barrier wall. Strict adherence to these requirements is not necessary at angle breaks greater than 30 degrees or as approved by the Engineer.

Crushed stone shall be placed adjacent/under the noise barrier wall as depicted in the Contract Drawings to allow for cross drainage from one side of the wall to the other, to prevent erosion, or to function as a splash pad.

Submittals:
The Contractor is fully responsible for the design, detailing and additional specifications required for the selected noise barrier wall. All submitted drawings shall conform to section 1.05.02 of Form 816 regarding working drawings with the following additions:

Preliminary Submissions for Proprietary Noise Barrier Walls:
Prior to the start of fabrication or noise barrier wall construction, the Contractor shall submit to the Engineer a design package, which shall include six (6) sets of working drawings and four (4)

sets of design calculations for review in accordance with Article 1.05.02. The design package shall conform, but not be limited to the following:

Detailed Plans and Computations:

1. Plans shall be submitted on 22" x 34" paper sheets.

2. All submittals (plans and computations) shall be stamped by a licensed Professional Engineer in the State of Connecticut, who shall also be available for consultation in interpreting his computations and drawings, and in the resolution of any problems, which may occur during the performance of his work.

3. Full plan view of the noise barrier wall, drawn to scale. This view shall show:
    a. beginning and end of the wall, as well as any angle points;
    b. posts shall be identified and numbered, with proposed coordinates of where each post will be placed;
    c. roadway baseline with 100-ft stations labeled;
    d. location of existing and/or proposed cantilever and truss sign supports;
    e. location of existing and/or proposed drainage systems/utilities. (Any existing drainage systems and/or utilities which are shown on the plans should be field verified.)

4. Full elevation view (roadway side) of the noise barrier wall, drawn to scale, and including:
    a. elevations of the finished top and bottom of the noise barrier wall panels at all locations;
    b. finished grade against the wall (on both sides);
    c. panel sizes;
    d. location of horizontal angle points;
    e. post length and post embedment dimension.
    f. transitions between different wall styles or types;
    g. the approximate locations of 100’ baseline stations (perpendicular);
    h. location of access for fire hoses or other appurtenances as applicable.

5. Details shall include:
    a. detail and description of the pattern, color, and texture of the proposed noise barrier wall;
    b. details for any individualized design panel depicting pattern, dimensions, depth of pattern, textures, and colors;
    c. details for noise barrier wall foundations/footings, for all expected soil conditions (soil, rock, partial soil/rock);
    d. transitions between different wall styles or types;

e. details for excavating holes for foundations including drilling and dewatering methods (if required);
f. reinforcement details for the bottom precast concrete panel;
g. details of stepped installations on longitudinal slopes (as required);
h. detail for methods of constructing the noise barrier wall in the vicinity of any existing or proposed drainage systems in the vicinity of the wall;
i. detail for methods of protection of the existing facilities during the construction of the noise barrier wall;
j. drainage details:
    i. crushed stone placed adjacent to and/or under the wall panels where proposed on the Contract;
    ii. provisions for swaling longitudinally along walls;
    iii. structural drainage systems for transporting runoff from one side of the wall to the other side for noise barrier walls and for earth retaining panels;
k. details of any falsework required to temporarily support the components during construction.

6. Plans shall also include:
    a. specifications for all materials used in the construction of the noise barrier wall system;
    b. detailed construction and installation procedures;
    c. allowable fabrication tolerances for wall panels and posts;
    d. allowable installation tolerances for posts, including for allowable variations of horizontal spacing and from plumb.

7. Calculations shall include:
    a. computations shall clearly comply with and reference applicable AASTHO provisions;
    b. calculations for the noise barrier wall foundations/footings, modeling all expected soil conditions (soil, rock, partial soil/rock);
    c. calculations for vertical loading of the bottom precast concrete panels (supported on the ends with a uniform load of the total panel weight above.)
    d. documentation of computer programs utilized, including all design parameters;
    e. computations for earth retaining panels shall conform to the latest edition of the AASHTO Standard Specifications for Highway Bridges including the latest Interims published except as noted herein. Additionally:
        i. earth retaining panels will only be allowed where the grade difference between the front and back of the noise barrier wall does not exceed 3 feet;

ii. noise barrier walls with earth retaining panels shall be designed for a minimum 4 foot embedment;
iii. consider a minimum live load surcharge equal to two feet of soil at a unit weight of 125 pounds per cubic foot. If there are a specific live load surcharges, acting on the wall, they shall also be accounted for;
iv. the minimum equivalent fluid pressure used to design the wall shall be 33 pounds per cubic foot per linear foot of wall.

Final Submissions of Noise Barrier Wall Drawings:
Once the working drawings have been reviewed and accepted by the Department, the Contractor shall submit the final plans. The final submission shall be made within 14 days of acceptance by the Department. No work shall be performed on the wall until the final submission has been received. Acceptance of the final design shall not relieve the Contractor of his responsibility under the Contract for the successful completion of the work.

One CD containing the final approved drawings in .pdf format and five (5) sets of full size paper copies shall be submitted for final working drawings and shop drawings for the Department's use and permanent records. Submissions in electronic format shall be created on ANSI D (22' x 34" full scale (1" electronic file = 1" paper) sheets. The purpose of creating these drawings on ANSI D sheets is so that they may be printed/plotted at that size or smaller without loss of legibility.

Construction Specifications:

1. Construction tolerances, methods and material specifications specific to the noise barrier walls chosen shall be provided. Submittal requirements for materials such as certification, quality, and acceptance/rejection criteria should be included.

2. Any manufacturer requirements specific to the noise barrier wall not stated herein shall also be included.

Tolerances:
All noise barrier wall components shall conform to the following:

Posts

Post Dimension Tolerances:

1. Post Height = $\pm$1/2"

Post Vertical Sweep:

1. Posts $\leq$ 16' long = $\pm$1/8"
2. Posts > 16' long = $\pm$1/4"

Post Installation:

1. In horizontal plane from plan location = ±1”
2. In horizontal plane from center of cylindrical footing = ±1”
3. In horizontal plane from adjacent post = ±1/2”
4. Post plumb = ±1” per 10’ of wall height

Panels

Panel Dimension Tolerances:

1. Panel Length and Height = ±1/4”
2. Panel Structural Thickness = ±1/4”
3. Panel Absorptive Material Thickness = ±1/4”
4. Panel Horizontal Sweep = ±1/8”
5. Panel Vertical Sweep = ±1/8”

Position of Lifting Inserts:

1. Along Panel Length = ±1”
2. Along Panel Thickness = ±1/4”

Reinforcing Steel Tolerances:

1. Splice = +1” from Standard Lap Splice Requirement
2. Concrete Cover = +2”

Other

There shall be no visible openings in the wall or under the wall, which would allow sound transmission.

Fabrication of Panels:

Textured Surface Treatment: Formed surfaces other than the exposed face shall not require a textured finish. If a textured surface finish is proposed for the wall, before proceeding with production, two (2) noise barrier wall panel samples (matching in surface treatment and color) shall be created:

1. one 24” x 24” x full thickness shall be provided by the fabricator for the Engineer's approval of color and surface treatment(s). Regular panel production may not commence without the Engineer’s approval;
2. one full width x full thickness x four (4) feet high model panel, to use as a guide and standard for the color and finish to be furnished on production panels. This model panel shall be kept at the fabricator's plant to be used for comparison purposes during production. It may be used on the project at the end of precasting operations with permission from the Engineer.

If the proposed noise barrier wall is being used to replace an existing noise barrier wall, the existing wall(s) shall be removed and properly disposed of. All permits for its disposal shall be obtained by the Contractor and included in the cost. In this case, the proposed noise barrier wall shall be constructed no lower than to the top elevation of the existing wall or as shown on the Contract plans unless specifically noted otherwise.

Unexpected Obstructions:

Prior to any excavation, the Contractor shall field verify the location of all existing utilities, sewers and culverts shown on the Contract plans. Should a sewer, or culvert be damaged by the Contractor's omission or negligence, the Contractor shall replace the damaged sections at his own cost.

If during construction, the avoidance of unexpected utilities, drainage or other obstructions requires the use of closer post spacing than that shown on the Contract plans, the Contractor shall furnish additional foundations, posts, and panels as directed by the Engineer. The additional foundations, posts, and panels shall conform to the Contract documents and other approved drawings and specifications. Field cutting of posts or panels will not be accepted.

For noise barrier walls installed on grade, the posts shall be set in concrete in predrilled holes unless alternate methods are proposed by the noise barrier wall designer and approved by the Engineer. The concrete shall fill the bore to the full depth of the hole and shall be slightly crowned at the top for drainage. The drilled hole shall be reasonably true and plumb to the stated diameter and depth. Precautions shall be taken in the operational procedures to protect the hole from collapse. Should rock or other obstructions be encountered in making the hole, this material shall be removed and any space outside the designed pier diameter shall be replaced with concrete. The concrete shall be placed in the dry, against the existing soil or rock. All disturbed material around the concrete shall be compacted.

The Contractor shall plan his operations such that access is not required to areas behind the wall once access is difficult or once these areas have been stabilized. The Contractor, having caused his own access to be restricted, through finished grades or stabilized slopes shall not be allowed to use this as an acceptable reason to not perform required work. Should the Contractor need access to these areas, all reestablishment of grades, stabilizing slopes, or turf establishment shall be done at his own cost.

All ground beyond the limits disturbed by the installation of the wall shall be restored to it's proposed finished condition and all excess material shall be removed from the site.

On Site Representative:

A qualified and experienced representative from the wall supplier shall be at the site at the initiation of the wall construction to assist the Contractor and the Engineer. The representative shall also be available for consultation on an as needed basis, as requested by the Contractor or the Engineer.

Installation:

Panel units shall be installed in accordance with manufacturer's recommendations. Special care shall be taken in setting the bottom course of units properly and to true line and grade.

Assembly of the various components shall be performed in such a manner that no undue strain or stress is placed on any of the members that constitute the completed structure.

Inspection and Rejection:

Marking: The date of manufacture, the production lot number, and the piece-mark shall be clearly marked on the side of each panel or module.

The quality of materials, the process of manufacture, and the finished units shall be subject to inspection by the Engineer prior to shipment.

Panels with textured surface treatments shall be rejected if there are variations in the exposed face that deviates from the approved model as to color or texture as determined by the Engineer.

Acceptance Criteria for Noise Barrier Wall:
Precast components shall be accepted for use in wall construction provided the concrete strength meets or exceeds the minimum compressive strength requirement, and the panel or module dimensions are free from any chipping, cracks, honeycomb surface treatment, open texture concrete, broken corners or other defects as determined by the Engineer.

The Contractor shall be responsible for ensuring a completed sound barrier system free of discoloration, cracks or objectionable marks which may adversely affect the barriers performance, aesthetics, or serviceability as determined by the Engineer. All structurally cracked panels, as determined by the Engineer, will be rejected either at the fabrication shop or at the construction site, even after installation, but prior to acceptance of the job.

Rejected panels deemed to require repair or replacement shall be replaced at the Contractor's expense. No payment shall be made for removing, temporarily storing, or reinstalling panels to enable access to the panel to be replaced. Any panels which are damaged during panel replacement shall also be replaced or repaired per the direction of the Engineer.

Method of Measurement:

Noise barrier wall and noise barrier wall (structure) shall be measured for payment from center to center of each vertical column supporting the wall by the number of square meter of wall system completed and accepted within the limits indicated on the plans or as ordered by the Engineer. The vertical pay limit shall be from the bottom of the barrier panel section to the top of the barrier panel. Each span between columns shall be measured for payment separately, as stepping may be required.

Noise barrier wall (earth retaining panels) shall be measured for payment by the actual number of square meters of Noise barrier wall (earth retaining panels) installed and accepted. The vertical pay limit for each panel section shall extend from the bottom of the lowest panel, up to the top of the barrier panel above, specifically identified and constructed to retain earth.

Work or features for underdrainage associated with noise barrier wall (earth retaining panels) such a sweep holes, underdrains, filter fabric, pervious structure backfill, and stone backfill for piping shall not be measured for payment but included in the item: Noise barrier wall (earth retaining panels).

Rock in so far as it applies to "Rock in Pole Excavation" shall be defined as rock in definite ledge formation, boulders or portions of boulders, cement masonry structures, or existing concrete structures. Where rock is encountered, it will be measured for payment from the top of the rock to the bottom of the necessary rock excavation when such rock has a cross-sectional area that exceeds 50% of the cross-sectional area of the designed noise wall upright support hole. Concrete required to fill the excavation beyond the designed support hole diameter or depth will not be measured for payment.

Matching color paint or stain shall not be measured for payment but included in the price for the noise barrier wall.

The four (4) full panel sections of noise barrier wall delivered to the D.O.T. Maintenance Facility, shall be measured and paid for as Noise Barrier Wall (sq m).

Crushed Stone used under and/or adjacent to the Noise barrier wall will be measured and paid separately under the appropriate Contract item.

Basis of Payment:

Payment for this work will be made at the Contract unit price per square meter for Noise Barrier Wall or Noise barrier wall (earth retaining panels), and noise barrier wall (structure) complete in place, which price shall include engineering, all materials utilized for the fabrication and installation of the wall itself (panel sections, stepping blocks, anchoring mechanisms, support columns and all necessary hardware), facing panels, excavation, grading, disposal of surplus material, equipment, tools, labor and work incidental to the installation of the wall. Payment shall also include the pigmentation of the wall and coatings.

Any additional material ie: fill, reuse or borrow necessary to construct an access road, temporary pads or any other method for the removal of noise barrier wall or the installation of any portion of the noise barrier wall will not be measured for payment but included in the item or in the overall cost of the work. This extra material shall be disposed of at no additional cost to the

State. Final grades in the front and back of the wall will conform to the proposed cross sections and final approved working drawings.

When rock is encountered within the limits of excavation for vertical supports, its removal will be paid for at the Contract unit price per vertical meter for "Rock in Pole Excavation," which price shall include any additional excavation to remove the rock and any additional concrete required to fill the excavation beyond the designed pier hole diameter or depth.

Additional foundations, posts, and panels required due to unexpected field changes of the approved design directed by the Engineer shall be paid for at the square foot Contract price for that item.

No payment shall be made for weepholes, subdrainage, filter fabric or stone backfill for underdrainage associated with the noise barrier wall (earth retaining panels). These items shall be included in the cost of the wall.

No payment shall be made for survey, field verification, preparation of working drawings or for paint or stain required to repair vandalism.

PAY ITEM	PAY UNIT
916126A-Noise Barrier Wall	SQ.M
916219A - Rock in Pole Excavation	v.m.

ITEM #0916126A
ITEM #0916219A

ITEM #0969202A – CLASS B OFFICE (ESTIMATED COST)

Description: Under this item, office quarters will be located, leased, built out and furnished by the Contractor, for the use of CTDOT and other personnel engaged in the Reconstruction of I-84 in Waterbury. The Class B Office shall be located convenient to the project corridor at a location approved by the Engineer.

It shall be separated from any office occupied by the Contractor. The Class B Office shall conform to the standards for Class B office space and shall be approved by the Engineer. It shall provide a minimum of 10,000 square feet of floor space and shall be built out as shown on a building floor plan as provided by the Engineer. Specific details and requirements of the office space, build out, furnishings, equipment, building services including security and maintenance shall be as specified by the Engineer.

The lease shall be transferable and renewable so that the Class B Office can be maintained for the duration of the program or as determined by the Engineer.

Prior to leasing, build out and furnishing any office space under this Item, the Contractor shall obtain and submit to the Engineer a minimum of three quotes conforming to the requirements in Appendix A. The Contractor shall submit quotes to the State within 10 days of Award of the Contract. The Engineer will review the quotes submitted and respond in writing within 10 days of receipt of the quotes.

Method of Measurement: The sum of the money shown on the estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the bid price even though payment will be made only for the actual costs incurred for the Class B Office. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded, and the original price will be used to determine the total bid for the contract.

Basis of Payment: The item "Furnish Class B Office" shall be paid for in accordance with Section 1.09. The Administrative Expense specified in subparagraph (e) shall be limited to 5% on the cost of the lease.

APPENDIX A

I. INTRODUCTION

The State of Connecticut, Department of Transportation (State) will accept lease proposals/site offerings from property owners (Owner) or their representative(s) to lease usable office space with on-site, reserved, paved and lighted parking for vehicles for use and occupancy by the Department of Transportation and it's consultants for a term of five (5) years, with one (1) or two (2) six (6) month renewal options. The term of the lease will start on or about January 1, 2015. Offers from option holders cannot be considered. The premises must be accessible to handicapped individuals and public transportation. Preference will be given to proponents offering renewal options.

II. SPACE REQUIREMENTS

A. Minimum Net Usable Office Space: The State will require the following minimum square feet of net usable office space as part of the lease. The space provided shall have a minimum ceiling height of 8 feet. The Owner shall describe in the proposal response how they will provide each of these requirements.

1. The State will require a base amount of 10,000 square feet of net usable office space.

B. Minimum Number of Parking Spaces: The State will require the following minimum number of on-site, paved and lighted parking spaces as part of the lease agreement. The owner shall describe in the proposal response how they will provide each of these requirements.

1. The State will require forty (40) reserved parking spaces as described above plus parking capacity at the building for an additional thirty (30) visitors.

2. Handicapped accessible parking spaces, as required by State and local ordinances, shall not be included in the calculation of the number of parking spaces provided to the State under this requirement.

C. Location: The office space shall be located within close proximity to the project corridor. The office space shall be located no more than one (1) mile from the Project Site.

III. OFFICE RENOVATIONS

As part of the lease agreement, and included in the square foot price, the owner shall improve the area to be occupied by the State to provide the following base requirements:

A. Suitable office space to a minimum of Class B Office standards, for the purpose of conducting consulting engineering practice.

B. The space shall be furnished with new carpeting, paint, and window treatments.

C. The space shall provide a minimum of twenty (20) offices. Offices shall be approximately 160 square feet each and each shall be provided with a door.

D. The space shall provide a minimum of two (2) common rooms suitable for a minimum of 10 cubicles per room.

E. The space shall provide a minimum of three conference rooms with one approximately 500 square feet and others approximately 200 square feet each.

F. The space shall provide a kitchenette area with a countertop area including a sink, with outlets for microwave and refrigerator. Area shall be approximately 150 square feet.

G. The space shall provide a minimum of one computer server storage rooms with a minimum of 100 square feet each. Server storage rooms shall be fireproof, air-conditioned and supplied with locking doors and dedicated electrical outlets.

The owner shall coordinate with appropriate individuals within the State to ensure desired work is in accordance with State's needs. The owner will be responsible for preparing and furnishing drawings and specifications for the improvements, ensuring their compliance with all governing federal, state, and municipal laws, ordinances, rules, regulations, and orders relative to property, environmental, and health and safety matters as part of the improvements. The base renovations shall be completed no later than 4 weeks after the signing of the lease.

IV. ADDITIONAL LEASE CONDITIONS

A. Quotes: Quotes provided shall include a price per square meter for leasing the base space amount, including the base renovations listed herein. Additional prices shall be provided for the two options to lease additional space specified herein, including the base renovations listed herein.

B. Transfers: The lease holder shall be a construction Contractor currently retained by the State to perform work under a current State Construction Project. The lease shall be transferable to subsequent construction Contractors retained by the State, as required. The tenant, the State of Connecticut and its consultants, will remain as the tenant for the duration of the lease. The timing and number of the transfers of the lease shall vary.

C. Security Deposit: The owner shall not request a security deposit as a condition of the lease. D.

Increases: Any yearly percentage increases in the square foot price shall be specified as part of the proposal submitted.

E. Utility Costs: Utility costs shall be included in the square foot price. For any utility cost not included in the square foot price (electricity, HVAC, water, etc.) the owner shall provide estimated costs per square foot based on past history for the building or space proposed.

V. SECURITY REQUIREMENTS

A. The office space provided shall be located within a building with a 24 hour, full-time security system. The space provided to the State shall be provided within a separate zone of this system so as to allow the zone to be activated/deactivated at the States discretion.

B. The building shall be provided with a security guard at the main entrance to the building. The guard shall be present during normal business hours, with a minimum of 8 a.m. to 4 p.m. Monday through Friday, with the exception of holidays.

C. The State and its consultants shall have access to the space 24 hours a day, 7 days a week, 365 day per year, including holidays.

VI. BUILDING MAINTENANCE/OPERATIONS

A. The owner shall provide all required building operation activities and services, including repairs and maintenance (including preventative).

B. The owner shall provide building custodial services and cleaning to include a high standard of cleanliness, including rubbish removal and recycling (in accordance with State regulations).

C. The owner shall provide parking allocation and control, as well as snow and ice removal.

D. The owner shall assure compliance with all health and safety related issues such as, but not necessarily limited to, building code requirements, fire code requirements, OSHA requirements, indoor air quality issues, and general building occupant safety, including conducting fire drills and developing, posting, and training occupants concerning building evacuation plans.

E. Restrooms made available to tenants under the lease shall meet current Americans with Disabilities Act (ADA) code requirements and not be grandfathered under the code.

F. The owner shall provide a plan for ensuring compliance with Connecticut Public Act 07-124, "An Act Concerning the Inspection and Evaluation of Air Quality in State Buildings".

G. The owner shall provide as part of the proposal a description of the elevators within the building available for tenant use.

H. The owner shall provide as part of the proposal a description of the telecommunications currently provided to the building.

I. Electrical service requirements: Electricity Service provided to the premises will be no less than six watts per square foot (exclusive of electrical capacity needed to service base building HVAC). Electrical service shall be a minimum of 120/240 volt, 1 phase, 3 wire.

J. HVAC requirements: Heating, ventilation, and air conditioning ("HVAC") will be provided as required for the comfortable use and occupancy of the premises at all hours At all times when HVAC is to be provided under this lease, the HVAC system provided shall be sufficient to maintain conditions in the premises to not more than 25C (78°F) during warmer seasons nor less than 20C (69°F) in colder seasons.

K. Lighting: All lighting shall be in working order and shall be sufficient to provide a minimum of 1075 lux (107 foot-candles) at desk level height.

ITEM #0969205A – CLASS B OFFICE SUPPLIES

Description: Under this item, the Contractor will provide supplies and furnishings for the Class B Office quarters used by ConnDOT and other personnel engaged in the Reconstruction of I-84 in Waterbury for the duration of the project.

Supplies and furnishings for the Class B Office shall be provided for the duration of the contract.

Materials: Materials shall be in like new condition for the purpose intended and shall be approved by the Engineer.

Office Requirements:

The Contractor shall provide the following additional new supplies, equipment, facilities, and/or services at the Class B Office on this contract to include at least the following to the satisfaction of the Engineer:

40 - Office desks (36" by 60") with L-shape return (24" x48"), with drawers, locks, and matching high-back desk chairs with arms that have pneumatic seat height adjustment and dual wheel casters on the legs or base.

80 - Office Chairs

2 - Standard secretarial type desk and matching desk chair that has pneumatic seat height adjustment and dual wheel casters on the legs or base.

1 - Conference table, 44in x 20 ft (nominal).

2 - Conference table, 44in x 12 ft (nominal).

40 - Conference table chairs, medium back padded, swiveling with casters.

16 - Fire resistant cabinets (letter size/4 drawer), locking.

10 - Non-fire resistant cabinets (letter size/4 drawer), locking.

6 - Drafting, type tables each 3 ft x 6 ft, self-supported.

6 - Drafters' stools.

2 - Flat file (4/drawers).

2 - Heavy Duty Stapler, capable of 160 sheets, minimum

2 - Heavy Duty 3 hole punch

2 - Multifunction color copier/scanner/facsimile/printer machine with auto document feeder and sorter/stapler. All supplies, paper and maintenance shall be provided by the Contractor. Specified below under Computer Hardware and Software.

36 - Personal computer tables – 6 ft x 2.5 ft size and quality for the purpose intended.

1 - Hot and cold water dispensing unit and supply of cups and bottled water shall be supplied by the Contractor for the duration of the project.

4 - Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.

3 - "POD" style conference room telephone. (I.e. Polycom SoundStation 2 Conferencer) with remote external microphones

46 - Desktop computer systems as specified below under Computer Hardware and Software.

4 - Black and White Laser printers and supplies as specified below under Computer Hardware and Software.

2 - Color Laser printer and supplies as specified below under Computer Hardware and Software
1 - HP Design Jet T2300 – Full size color printer plotter scanner inc. paper and ink supplies.
2 - SMART Board 885ix interactive whiteboard system with speakers (includes an interactive white board and projector) or equivalent. Including all necessary software and installation accessories as needed.
1 - Dell 1610 HD Projector with HDMI connector cables
2 – Projector screens (1-free standing 65", 1-100" hanging screen complete with mounting hdwre)
1- Logitech BCC950 Conference Cam – or equivalent
1- 70" 1080P LED 120hz Television with Wall mount and all cables necessary to accommodate video conferencing

10 - Digital Camera and supplies as specified below under Computer Hardware and Software.
42 - Wastebaskets - two 30 gal and forty 5 gal.
42 - Recycling Bins. (two large, forty five 5 gal)
1 - Cross-cut paper shredder, commercial grade.
2 - Electric pencil sharpeners.
25 - Wall clocks.
* - Fire extinguishers - provide and install type and number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.
2 - First Aid kit.
20 - Tables - 3 ft x 6 ft.
15 - Cubicles - 6 ft x 6 ft, soundproof type, portable and freestanding.
10 - Vertical plan racks for 2 sets of 2 ft x 3 ft plans for each rack. Inc all necessary plan clamps
2 - Double door supply cabinet with 4 shelves and a lock - 6 ft x 4 ft.
4 - Easel/Chalkboard
40 - Open bookcases - 4 shelf - 3 ft long.
5 - Infrared Thermometer, including certified calibration, case, cleaning wipes.
5 - Concrete Air Meter as specified below under Concrete Testing Equipment.
5 - Concrete Slump Cone as specified below under Concrete Testing Equipment.
1 - The latest version of Primavera Contractor software (deluxe version or equivalent, capable of servicing 2000 or more activities) with associated data pack, including Oracle technical support for the duration of the Contract, licensed to ConnDOT. The software is to remain the property of the Engineer at the conclusion of the Contract.
1 - Set of the following building and fire codes, consistent with the Contract Documents, to remain the property of the Engineer at the conclusion of the Contract:
International Building Code with the State Building Code, including latest Connecticut Supplement.
International Plumbing Code International
Mechanical Code International Existing Building
Code International Energy Conservation Code
NFPA 70 National Electric Code ICC/ANSI
A117.1
The Fire Safety Code, including latest Connecticut Supplement
International Fire Code NFPA 1
Uniform Fire Code NFPA 101 Life

Safety Code
"Americans with Disabilities Act Accessibility Guidelines"

1 - Set of the following Means books, updated throughout the Contract life, to remain the property of the Engineer at the conclusion of the Contract:
"Building Construction Cost Data" "Heavy
Construction Cost Data" "Electrical
Construction Cost Data" "Plumbing
Construction Cost Data" "Mechanical
Construction Cost Data"

The furnishings and equipment required herein, except as noted above, shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project. Computer Hardware and Software:

Before ordering the computer hardware and software, the Contractor must provide a copy of their proposed PC specifications to the CDOT Project Engineer for review by the CDOT Data Center. If the specification meets or exceeds the minimum specifications listed below, then the Contractor will be notified that the order may be placed.

Before any equipment is delivered to the Data Center, arrangements must be made a minimum of 24 hours in advance by contacting 860-594-3500. All software, hardware and licenses listed below shall be clearly labeled, specifying the (1) Project No., (2) Contractor Name, (3) Project Engineer's Name and (4) Project Engineer's Phone No., and shall be delivered to the CDOT Data Center, 2710 Berlin Turnpike, Newington, CT, where it will be configured and prepared for field installation. Installation will then be coordinated with field personnel and the computer system specified will be stationed in the Department's project field office.

The computer system furnished shall have all software and hardware necessary for the complete installation of the latest versions of the software listed, and therefore supplements the minimum specifications below. The Engineer reserves the right to expand or relax the specification to adapt to the software and hardware limitations and availability, the compatibility with current agency systems, and to provide the Department with a computer system that can handle the needs of the project. This requirement is to ensure that the rapid changing environment that computer systems have experienced does not leave the needs of the project orphan to what has been specified. There will not be any price adjustment due to the change in the minimum system requirements.
The Contractor shall provide the Engineer with a licensed copy registered in the Department's name of the latest versions of the software listed and maintain customer support services offered by each software producer for the duration of the Contract. The Contractor shall deliver to the Engineer all supporting documentation for the software and hardware including any instructions or manuals. The Contractor shall provide original backup media for the software.

The Contractor shall provide the computer system with all required maintenance and repairs (including labor and parts) throughout the Contract life.

Once the Contract has been completed, the computer will remain the property of the Contractor. Prior to the return of any computer(s) to the Contractor, field personnel will coordinate with the

Data Center personnel for the removal of Department owned equipment, software, data, and associated equipment.

A) Computer – Minimum Specification:
Processor – Intel® Core 2 Duo Processor (2.00 GHz, 800 MHz FSB 2MB L2 Cache) Memory – 2 GB DIMM DDR2 667MHz.
Monitor – Dual 24.0 inch LCD color monitors.
Graphics – Intel Graphics Media Accelerator 3100. or equivalent.
Hard Drive – 160 GB Ultra ATA hard drive (Western Digital, IBM or Seagate). Floppy Drive – 3.5 inch 1.44MB diskette drive.
Optical Drive – CD-RW/DVD-RW Combo.
Multimedia Package – Integrated Sound Blaster Compatible AC97 Sound and speakers. Case – Small Form or Mid Tower, capable of vertical or horizontal orientation. Integrated Network Adapter – comparable to 3COM PCI 10/100 twisted pair Ethernet. Keyboard – 104+ Keyboard.
Mouse – Optical 2-button mouse with scroll wheel.
Operating System – Windows XP Professional Service Pack 2; Windows Vista Capable.
Application Software – MS Office 2007 Professional Edition.
Additional Software (Latest Releases, including subscription services for the life of the Contract.–

- Norton Anti-Virus and CD/DVD burning software (ROXIO or NERO),
- Adobe Acrobat Professional
- See exceptions noted above for Primavera Contractor and other additional software

Resource or Driver CD/DVD – CD/DVD with all drivers and resource information so that computer can be restored to original prior to shipment back to the contractor.
Uninterrupted power supply – APC Back-UPS 500VA.

Note A1: All hardware components must be installed before delivery. All software documentation and CD-ROMs/DVD for Microsoft Windows XP Professional, Microsoft Office 2007 Professional Edition, and other software required software must be provided. Computer Brands are limited to Dell, Gateway and HP brands only. No other brands will be accepted. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications and approved printer list as soon as possible after the contract is awarded.

Note A2: As of June 30, 2008, Microsoft will no longer distribute Windows XP for retail sale, although the date for specific computer manufacturers may be different. Please consult your manufacturer for details. The Department still requires Windows XP on all PCs. Microsoft has stated that any PCs that are purchased with either Windows Vista Business, or Vista Ultimate are automatically entitled to "downgrade rights", which allow the PC to be rolled back to Windows XP. Please consult the specific manufacturer for details on downgrading new PCs to Microsoft Windows XP after June 30, 2008.

B) Black and White Laser Printer – Minimum Specification:
Print speed – 35 ppm.
Resolution – 1,200 x 1,200 dpi.
Paper size – Up to 216 mm x 355 mm (8.5 in x 14 in). RAM –
128 MB.
Print Drivers – Must support HP PCL6 and HP PCL5e. Printer
cable – 1.8 m (6 ft).
Capable of automatic duplex printing (two-sided)

Note B1: Laser printer brand is limited to Hewlett-Packard only. The CTDOT Project Engineer will provide the Contractor with a copy of the current PC specifications and approved printer list as soon as possible after the contract is awarded.

C) Color Laser Printer – Minimum Specification:
Print speed – 17 ppm.
Resolution – 600 x 600 dpi.
Paper size – Up to 216 mm x 355 mm (8.5 in x 14 in). RAM –
64MB.
Print Drivers – Must support HP PCL6 and HP PCL5e. Printer
cable – 1.8 m (6 ft).
Capable of duplex printing (two-sided)

Note C1: Color Laser printer brands is limited to Hewlett-Packard only. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications and approved printer list as soon as possible after the contract is awarded.

D) Multifunction color copier/scanner/facsimile/printer machine:
Copy speed – 20 ppm.
Resolution – 600 x 600 dpi. Paper size –
Up to 12 in x 18 in
Print Drivers – Must support HP PCL6 and HP PCL5e. Printer
cable – 1.8 m (6 ft).
Capable of duplex printing (two-sided)

Note D1: Multifunction brands are limited to Savin only. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications and approved printer list as soon as possible after the contract is awarded.

E) Digital Camera – Minimum Specification:
Optical – 10mega pixel, with 3x optical zoom.
Memory – 32 GB.
Features – Date/time stamp feature.
Connectivity – USB cable or memory card reader.
Software – Must be compatible with Windows XP and Vista. Power –
Rechargeable battery and charger.

The Contractor is responsible for service and repairs to all computer hardware. All repairs must be performed with-in 48 hours. If the repairs require more than a 48 hours then a replacement must be provided. All supplies, paper and maintenance for the computers, laptops, printers, copiers, and fax machines shall be provided by the Contractor.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following. All testing equipment will remain the property of the Contractor at the completion of the project.

A) Concrete Cylinder Curing Box (20 ea.)– meeting the requirements of Section 6.12 of the Standard Specifications.

B) Air Meter – The air meter provided shall be in good working order and will meet the requirements of AASHTO T 152.

C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

Turbidity Monitoring

Provide 1 Turbidity Meter meeting the requirements of Hach 2100Q Handheld Turbidity Meter or approved equal.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the amount of forty thousand dollars ($40,000.00), in order to insure all State-owned data equipment and supplies used in the office, against all losses. The Contractor shall be named insured on that policy, and the Department shall be an additional named insured on the policy. These losses shall include, but not be limited to: theft, fire, and physical damage. The Department will be responsible for all maintenance costs of Department owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current Department equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement equipment within seven days, the Department may provide replacement equipment and deduct the cost of the equipment from monies due or which may become due the Contractor under the contract or under any other contract. The Contractor's financial liability under this paragraph shall be limited to the amount of the insurance coverage required by this paragraph. If the cost of equipment replacement required by this paragraph should exceed the required amount of the insurance coverage, the Department will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

Method of Measurement: The providing of supplies and furnishings for the Class B Office will be measured for payment by the number of calendar months that supplies and furnishing are provided to the Class B Office under this contract, measured to the nearest month.

Basis of Payment: The providing of supplies and furnishings for the Class B Office will be paid at the listed unit price per month for "Class B Office Supplies", which price shall include all material, equipment, labor, and work incidental thereto.

Any items not covered under this provision required for the operation of the Class B Office will be paid for as Extra Work as defined under Section 1.09.

Pay Item	Pay Unit
Class B Office Supplies	Month

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description is supplemented by the following:

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

ROUTE I-84

The Contractor shall maintain and protect the minimum number of through lanes and shoulders as dictated in the Special Provision for Section 1.08 - Prosecution and Progress "Limitations of Operations - Minimum Number of Lanes to Remain Open" Chart, on a paved travel path not less than 3.6 meters in width per lane.

The Contractor shall be allowed to halt traffic for a period of time not to exceed 10 minutes for the purpose of dismantling steel or concrete beams, the erection of steel beams over active roadways, the removal and/or installation of full overhead sign supports over active roadways, and rock blasting operations. If more than one 10-minute period is required, the Contractor shall allow all stored vehicles to proceed through the work area prior to the next stoppage.

I-84 EB 23 OFF-RAMP TO HAMILTON AVENUE

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

I-84 WB 23 OFF-RAMP TO HAMILTON AVENUE

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

The Contractor will be allowed to temporarily close the existing Off-Ramp for one 48 hour period at the end of Stage 1 and detour traffic as shown on the Detour Plan contained in the contract plans.

The Contractor will be allowed to permanently close and remove the existing Off-Ramp in Stage 2 and open the new WB 23 Off-Ramp and the connection to the westerly side of Hamilton Avenue as shown in the Maintenance and Protection of Traffic plans contained in the contract plans.

I-84 EB 23 ON-RAMP FROM HAMILTON AVENUE

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

The Contractor will be allowed to permanently close and remove the existing On-Ramp in Stage 2 and detour traffic as shown on the Detour Plan contained in the contract plans.

I-84 EB 25 OFF-RAMP TO HARPERS FERRY ROAD

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

The Contractor will be allowed to permanently close the existing Off-Ramp at the end of Stage 1A and open the new EB 25 Off-Ramp east of I-84 EB Station 1+700+/- and its temporary connection as shown on the Maintenance and Protection of Traffic plans contained in the contract plans.

I-84 WB 24 OFF-RAMP TO PLANK ROAD

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

The Contractor will be allowed to permanently close the existing Off-Ramp in Stage 2 and detour traffic as shown on the Detour Plan contained in the contract plans.

I-84 WB 24 ON-RAMP FROM PLANK ROAD EAST

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

After completion of Plank Road East, the Contractor will be allowed to permanently close the existing On-Ramp in Stage 5 and open the new WB 24 on-ramp from Harpers Ferry as shown on the Maintenance and Protection of Traffic plans contained in the contract plans.

I-84 EB 25 ON-RAMP FROM SCOTT ROAD

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

The Contractor will be allowed to permanently close and remove the existing On-Ramp in Stage 4B and open the new EB 25 On-Ramp as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

I-84 WB 25 OFF-RAMP TO SCOTT ROAD

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

After Beaver Pond Brook at the crossing of the existing ramp is relocated, the Contractor will be allowed to permanently close and remove the existing Off-Ramp in Stage 5 and shift traffic to the completed section of the new WB 25 Off-Ramp as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

ALL OTHER RAMPS AND TURNING ROADWAYS

The Contractor shall maintain and protect existing traffic operations. During stage construction, existing traffic operations will be considered to be as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 3.6 meters in width.

ROUTE 69 - HAMILTON AVENUE

The Contractor shall provide 0.3 meter shoulders and shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travelpath not less than 3.3 meters in width. During stage construction, the existing number of lanes of traffic will be considered to be the number of lanes shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least one lane of traffic in each direction, each lane on a paved travel path not less than 3.3 meters in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travelpath not less than 3.6 meters in width. The length of the alternating one-way traffic operation shall not exceed 100 meters.

HARPERS FERRY ROAD

The Contractor shall provide 0.3 meter shoulders and shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travelpath not less than 3.3 meters in width. During stage construction, the existing number of lanes of traffic will be considered to be the number of lanes shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least one lane of traffic in each direction, each lane on a paved travel path not less than 3.3 meters in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travelpath not less than 3.6 meters in width. The length of the alternating one-way traffic operation shall not exceed 100 meters.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor will be allowed to halt traffic for a period not to exceed ten minutes. The Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for another ten-minute period.

SCOTT ROAD

The Contractor shall provide 0.3 meter shoulders and shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travelpath not less than 3.3 meters in width. During stage construction, the existing number of lanes of traffic will be considered to be the number of lanes shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least one lane of traffic in each direction, each lane on a paved travel path not less than 3.3 meters in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travelpath not less than 3.6 meters in width. The length of the alternating one-way traffic operation shall not exceed 100 meters.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor will be allowed to halt traffic for a period not to exceed ten minutes. The Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for another ten-minute period.

PLANK ROAD

The Contractor shall maintain and protect one lane of through traffic in each direction and turning lanes at intersections, each lane on a paved travelpath not less than 3.3 meters in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travelpath not less than 3.6 meters in width. The length of the alternating one-way traffic operation shall not exceed 100 meters.

The Contractor will be allowed to temporarily close Plank Road between Harpers Ferry Road and Plank Road Station No. 70+060 in Stage 1 and detour traffic as shown on the Detour Plan contained in the contract plans.

REIDVILLE DRIVE
SR 801 – EAST MAIN STREET

The Contractor shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travel path not less than 3.3 meters in width. During stage construction, the existing number of lanes of traffic will be considered to be the number of lanes shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least one lane of traffic in each direction, each lane on a paved travel path not less than 3.3 meters in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an

alternating one-way traffic operation on a paved travelpath not less than 3.6 meters in width. The length of the alternating one-way traffic operation shall not exceed 100 meters.

BROOKDALE LANE
FAIRBANKS STREET

The Contractor shall maintain and protect one lane of traffic in each direction on a paved travelpath not less than 3.3 meters in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travelpath not less than 3.6 meters in width. The length of the alternating one-way traffic operation shall not exceed 100 meters.

The Contractor will be allowed to permanently close Brookdale Lane at the intersection with Plank Road in Stage 1 and permanently detour traffic as shown on the Maintenance and Protection of Traffic plans contained in the contract plans.

The Contractor will be allowed to permanently close Fairbanks Street at the intersection with Plank Road East in Stage 4 and permanently detour traffic as shown on the Maintenance and Protection of Traffic plans contained in the contract plans.

ALL OTHER ROADWAYS

The Contractor shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travelpath not less than 3.3 meters in width. Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least one lane of traffic in each direction, each lane on a paved travel path not less than 3.3 meters in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travelpath not less than 3.6 meters in width. The length of the alternating one-way traffic operation shall not exceed 100 meters.

Article 9.71.03 – Construction Method is supplemented by the following:

General

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction, in which case, the Contractor will be allowed to maintain traffic on processed aggregate for a duration not to exceed 10 calendar days. The unpaved section shall be the full

width of the road and perpendicular to the travel lanes. Opposing traffic lane dividers shall be used as a centerline.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a workday (work night), or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3-foot shoulder between the work area and travel lanes, with traffic drums spaced every 50 feet. At the end of the workday, if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary traversable slope of 4:1 or flatter that is acceptable to the Engineer.

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

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

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

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

Construction vehicles entering travel lanes at speeds less than the posted speed are interfering with traffic, and shall not be allowed without a lane closure. The lane closure shall be of sufficient length to allow vehicles to enter or exit the work area at posted speeds, in order to merge with existing traffic.

Traffic Signals

The Contractor shall install final pavement markings and signing prior to the proposed traffic signals being made fully operational.

Requirements for Winter

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

Stage Construction

The Contractor shall maintain and protect traffic on all project roadways as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans.

Commercial and Residential Driveways

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

Signing Patterns

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory. 1 m Traffic Cones or Traffic Drums are to be utilized to continue a lane closure on expressways.

Existing Signing

The Contractor shall maintain all existing overhead and side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate 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.

When all work is completed, unless shown on the Maintenance and Protection of Traffic Plans or as directed by the Engineer, the Contractor shall remove existing signs and install new signs as shown on the Signing and Pavement Marking Plans contained in the contract plans.

Pavement Markings - Limited Access Highways, Turning Roadways and Ramps

During construction, the Contractor shall maintain all pavement markings throughout the limits of the project.

Interim Pavement Markings

The Contractor shall install painted pavement markings, which shall include lane lines (broken lines), shoulder edge lines, stop bars, lane-use arrows and gore markings, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. All painted pavement markings will be paid under the appropriate items.

If the Contractor does not install permanent Epoxy Resin Pavement Markings by the end of the work day/night on exit ramps where the final course of bituminous concrete pavement has been installed, the Contractor shall install temporary 300 mm wide white stop bars. The temporary stop bars shall consist of Temporary Plastic Pavement Marking Tape and shall be installed by the end of the work day/night. Stop bars may consist of two 150 mm wide white markings or three 100 mm wide white markings placed side by side. The Contractor shall remove and dispose of these markings when the permanent Epoxy Resin Pavement Markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

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

Final Pavement Markings

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

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

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

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

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

Interim Pavement Markings

The Contractor shall install painted pavement markings, which shall include centerlines, shoulder edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of

the work day/night. If the next course of bituminous concrete pavement will be placed within seven days, shoulder edge lines are not required. The painted pavement markings will be paid under the appropriate items.

If the Contractor will install another course of bituminous concrete pavement within 24 hours, the Contractor may install Temporary Plastic Pavement Marking Tape in place of the painted pavement markings by the end of the work day/night. These temporary pavement markings shall include centerlines, lane lines (broken lines) and stop bars; shoulder edge lines are not required. Centerlines shall consist of two 100 mm wide yellow markings, 600 mm in length, side by side, 100 mm to 153 mm apart, at 12 meter intervals. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 150 mm wide white markings or three 100 mm wide white markings placed side by side. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

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

Final Pavement Markings

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

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

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

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TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and

efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

TRAFFIC CONTROL PATTERNS

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

Speed and volume of traffic
Duration of operation
Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

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

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

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

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

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

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

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

PLACEMENT OF SIGNS

Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area.

On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

ALLOWABLE ADJUSTMENT OF SIGNS AND DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS

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

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

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

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

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

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET (METERS) FOR A SINGLE LANE CLOSURE
30 OR LESS	180 (60)
35	250 (75)
40	320 (100)
45	540 (165)
50	600 (185)
55	660 (200)
65	780 (240)

SECTION 1. WORK ZONE SAFETY MEETINGS

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

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

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

SECTION 2. GENERAL

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

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

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

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

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

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

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

3.c) Stopping traffic may be allowed:

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

3.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or State Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic. If required, traffic slowing techniques may be used and shall include the use of Truck Mounted Impact Attenuators (TMAs) as appropriate, for a minimum of one mile (1.6 kilometers) in advance of the pattern starting point. Once the advanced warning signs and the first ten traffic cones/drums are installed/removed, the TMAs and sign crew shall continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.

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

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

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

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

SECTION 4. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

4.a) On limited access roadways, one Flashing Arrow shall be used for each lane that is closed. The Flashing Arrow shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the traffic control plan. For multiple lane closures, one Flashing Arrow is required for each lane closed. If conditions warrant, additional Flashing Arrows should be employed (i.e.: curves, major ramps, etc.).

4.b) On non-limited access roadways, the use of a Flashing Arrow for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Flashing Arrow.

4.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.

4.d) The Flashing Arrow board display shall be in the “arrow” mode for lane closure tapers and in the “caution” mode (four corners) for shoulder work, blocking the shoulder, or roadside work near the shoulder. The Flashing Arrow shall be in the “caution” mode when it is positioned in the closed lane.

4.e) The Flashing Arrow shall not be used on a multi-lane roadway to laterally shift all lanes of traffic, because unnecessary lane changing may result.

SECTION 5. USE OF TRUCK MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)

5.a) For lane closures on limited access roadways, a minimum of two TMAs shall be used to install and remove traffic control patterns. If two TMAs are not available, the pattern shall not be installed.

5.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to utilize the TMAs.

5.c) Generally, to establish the advance and transition signing, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane. The flashing arrow board mounted on the TMA should be in the "flashing arrow" mode when taking the lane. The sign truck and workers should be immediately ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Changeable Message Signs, signs, Flashing Arrows, and cones/drums are installed. The flashing arrow board mounted on the TMA should be in the "caution" mode when traveling in the closed lane.

5.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each additional work area as needed. The flashing arrow board mounted on the TMA should be in the "caution" mode when in the closed lane.

5.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to the specification entitled "Type 'D' Portable Impact Attenuation System". Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) should be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.

5.f) TMAs should be paid in accordance with how the unit is utilized. When it is used as a TMA and is in the proper location as specified, and then it should be paid at the specified hourly rate for "Type 'D' Portable Impact Attenuation System". When the TMA is used as a Flashing Arrow, it should be paid at the daily rate for "High Mounted Internally Illuminated Flashing Arrow". If a TMA is used to install and remove a pattern and then is used as a Flashing Arrow, the unit should be paid as a "Type 'D' Portable Impact Attenuation System" for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove), and is also paid for the day as a "High Mounted Internally Illuminated Flashing Arrow".

SECTION 6. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

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

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

6.c) Traffic Cones less than 42 inches (1 meter) in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

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

SECTION 7. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS (CMS)

7.a) For lane closures on limited access roadways, one CMS shall be used in advance of the traffic control pattern. Prior to installing the pattern, the CMS shall be installed and in operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The CMS shall be positioned ½ mile (800 m) - 1 mile (1600 m) ahead of the lane closure taper. If the nearest Exit ramp is greater than the specified ½ mile (800 m) - 1 mile (1600 m) distance, than an additional CMS shall be positioned a sufficient distance ahead of the Exit ramp to alert motorists to the work and therefore offer them an opportunity to take the exit.

7.b) CMS should not be installed within 1000 feet (300 m) of an existing CMS.

7.c) On non-limited access roadways, the use of CMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the CMS.

7.d) The advance CMS is typically placed off the right shoulder, 5 feet (1.5 m) from the edge of pavement. In areas where the CMS cannot be placed beyond the edge of pavement, it may be placed on the paved shoulder with a minimum of five (5) traffic drums placed in a taper in front of it to delineate its position. The advance CMS shall be adequately protected if it is used for a continuous duration of 36 hours or more.

7.e) When the CMS are no longer required, they should be removed from the clear zone and have the display screen cleared and turned 90° away from the roadway.

7.f) The CMS generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).

7.g) The CMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs (Examples include:

Exit 34 Closed Sat/Sun - Use Exit 35, All Lanes Closed - Use Shoulder, Workers on Road - Slow Down).

7.h) Messages that need to be displayed for long periods of time, such as during stage construction, should be displayed with construction signs. For special signs, please coordinate with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.

7.i) The messages that are allowed on the CMS are as follows:

Message No.	Frame 1	Frame 2	Message No.	Frame 1	Frame 2
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	WORKERS ON ROAD	SLOW DOWN
5	RIGHT LANE CLOSED	MERGE LEFT	13	EXIT XX CLOSED	USE EXIT YY
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	EXIT XX CLOSED USE YY	FOLLOW DETOUR
7	RIGHT LANE CLOSED	REDUCE SPEED	15	2 LANES SHIFT AHEAD	USE CAUTION
8	2 RIGHT LANES CLOSED	REDUCE SPEED	16	3 LANES SHIFT AHEAD	USE CAUTION

For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

SECTION 8. TRAFFIC SHIFT SEQUENCING AND OPERATION PLANS

The Contractor shall develop and submit to the Engineer for review and approval, complete "Traffic Shift Sequencing and Operations Plans" specific to each work zone location. The "Traffic Shift Sequencing and Operations Plans" shall include a listing of all activities including schedule and all required temporary traffic control signing patterns for temporary lane and/or shoulder closures, temporary traffic shifts and temporary detours on any required roadway required to complete the Traffic Shift including any sub-phases. The "Traffic Shift Sequencing and Operations Plans" shall be prepared and implemented in accordance with the plans and special provisions including but not limited to the Special Provisions "Maintenance & Protection of Traffic" and "Section 1.08 – Prosecution and Progress", the Maintenance and Protection of Traffic Plans, Department Standards, and MUTCD requirements. Cost for this work to be included under Maintenance and Protection of Traffic and shall include but not limited to the following:

Work Plans

The Contractor shall develop and submit to the Engineer for review and approval complete "Work Plans" for each portion of the project where the Contractor's operations require lane closures, shoulder closures, detours or coordination of the work with adjacent projects. Each "Work Plan" shall include at a minimum the following information:

- A complete statement of the scope-of-work and the manner in which the Contractor's operations will be coordinated with the operations of adjacent projects.

- A complete description of the Contractor's sequencing and operations accompanied by plans with sufficient detail to adequately depict the work. Each "Work Plan" shall be titled and sequentially numbered.

- The required traffic control and safety measures required to be in place prior to the start of and during the work. A 24-hour emergency contact list.

- A schedule of the Contractor's operations with the approximate duration of each portion of the work.

Traffic Control Look-Ahead Reports/Schedules

The Contractor shall develop and submit to the Engineer, on the Friday of the previous week, two-week "Traffic Control Look-Ahead Reports/Schedules" that detail the Contractor's proposed use of traffic control signing patterns for temporary lane and/or shoulder closures, temporary traffic shifts and temporary detours and the use of "Trafficperson" required to complete construction operations are in place on any roadway on the project. The actual traffic shifts, etc. will be coordinated with adjacent projects and activities such that conflicts and impacts with operations are minimized.

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

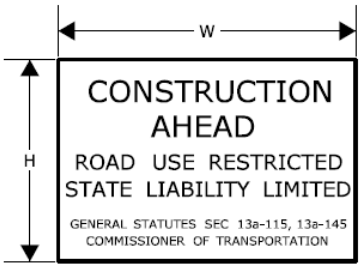
CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

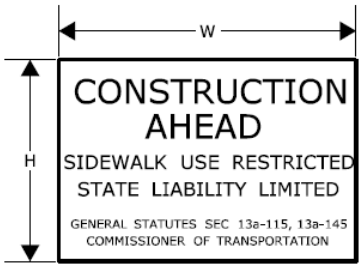
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

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.

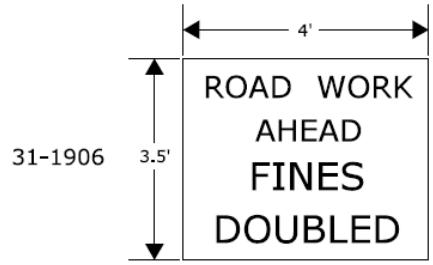
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

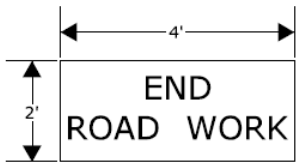
THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

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

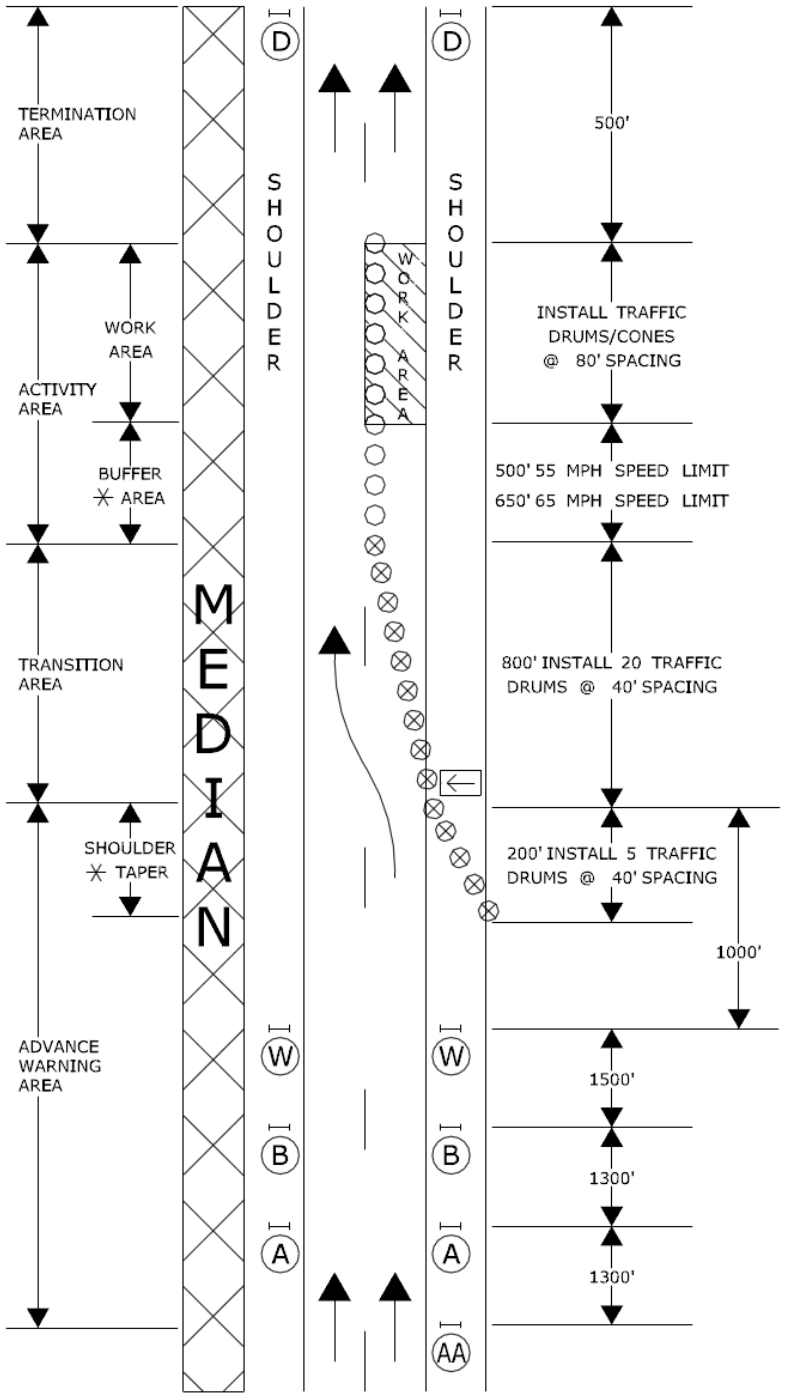
CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

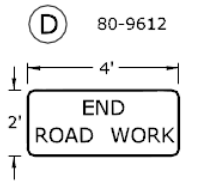
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

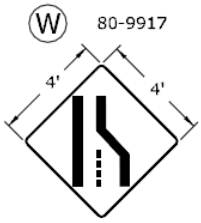
APPROVED Charles S. Harlow 2012.06.05 11:35:43-04'00'
PRINCIPAL ENGINEER

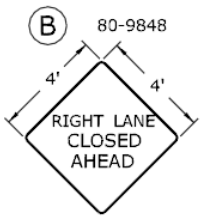
WORK IN RIGHT LANE - MULTILANE HIGHWAY

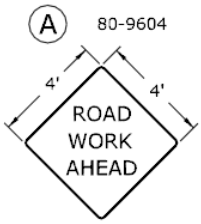
SIGN FACE
126 SQ. FT (MIN.)

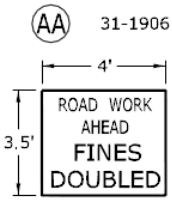












TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 1

SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

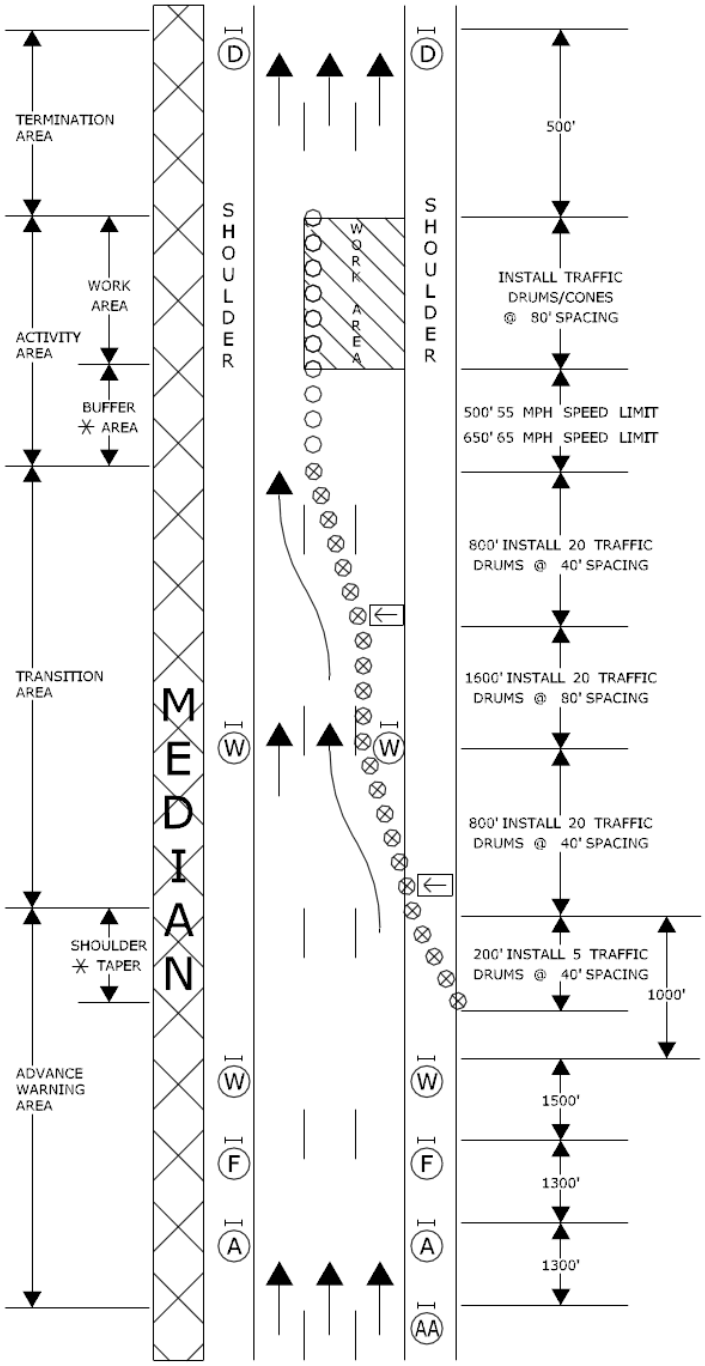
APPROVED

Charles S. Harlow
2012.06.05 15:51:00-04'00'

PRINCIPAL ENGINEER

WORK IN RIGHT TWO LANES - MULTILANE HIGHWAY

SIGN FACE
158 SQ. FT (MIN.)



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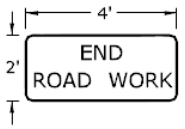

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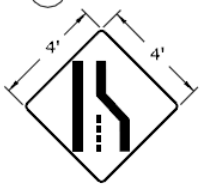

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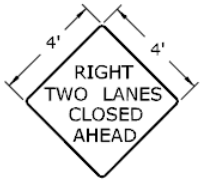
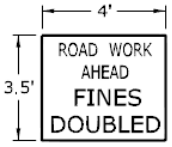


A 80-9604

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 2

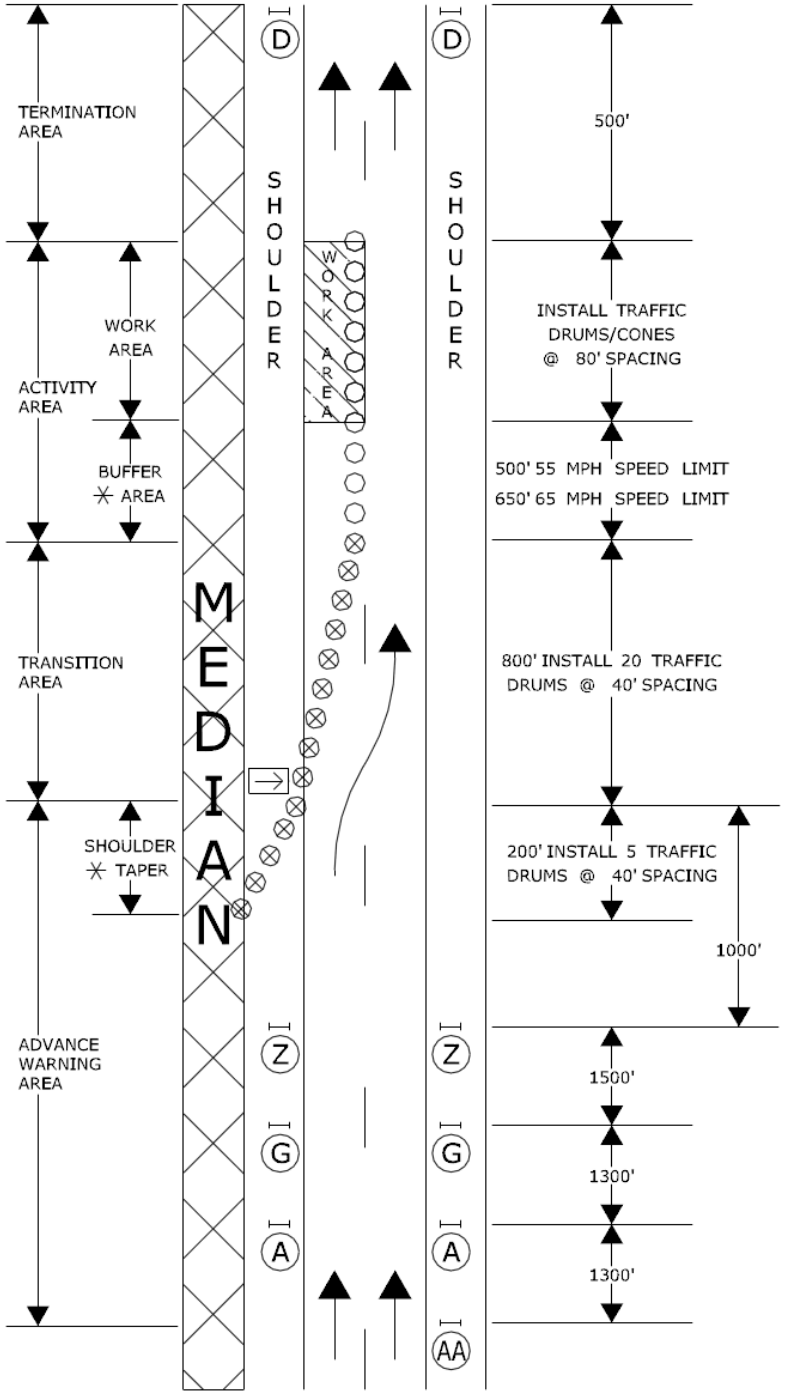
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

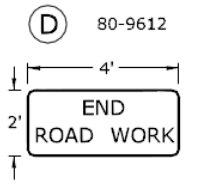
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

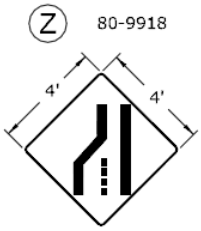
APPROVED Charles S. Harlow 2012.06.05 15:51:23-04'00'
PRINCIPAL ENGINEER

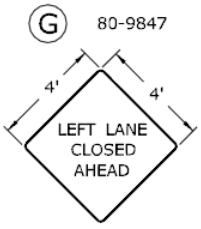
WORK IN LEFT LANE - MULTILANE HIGHWAY

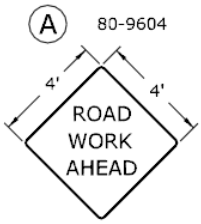
SIGN FACE
126 SQ. FT (MIN.)

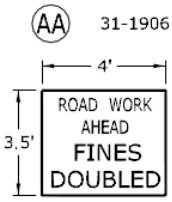












TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 3

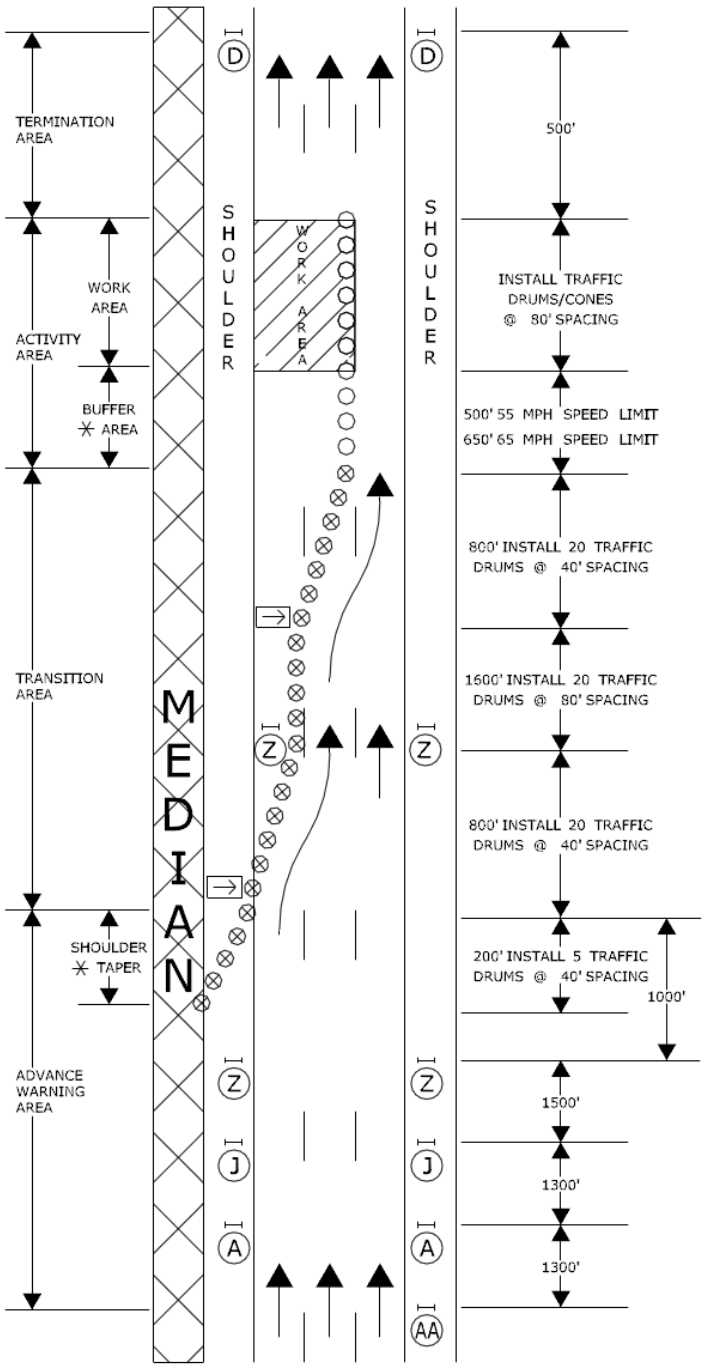
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

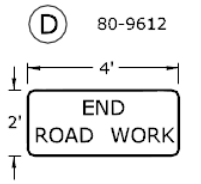
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

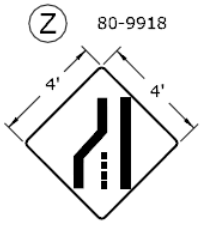
APPROVED Charles S. Harlow 2012.06.05 15:51:46-04'00'
PRINCIPAL ENGINEER

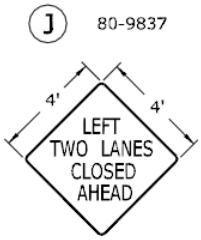
WORK IN LEFT TWO LANES - MULTILANE HIGHWAY

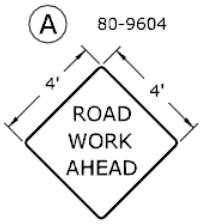
SIGN FACE
158 SQ. FT (MIN.)

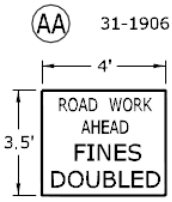












TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 4

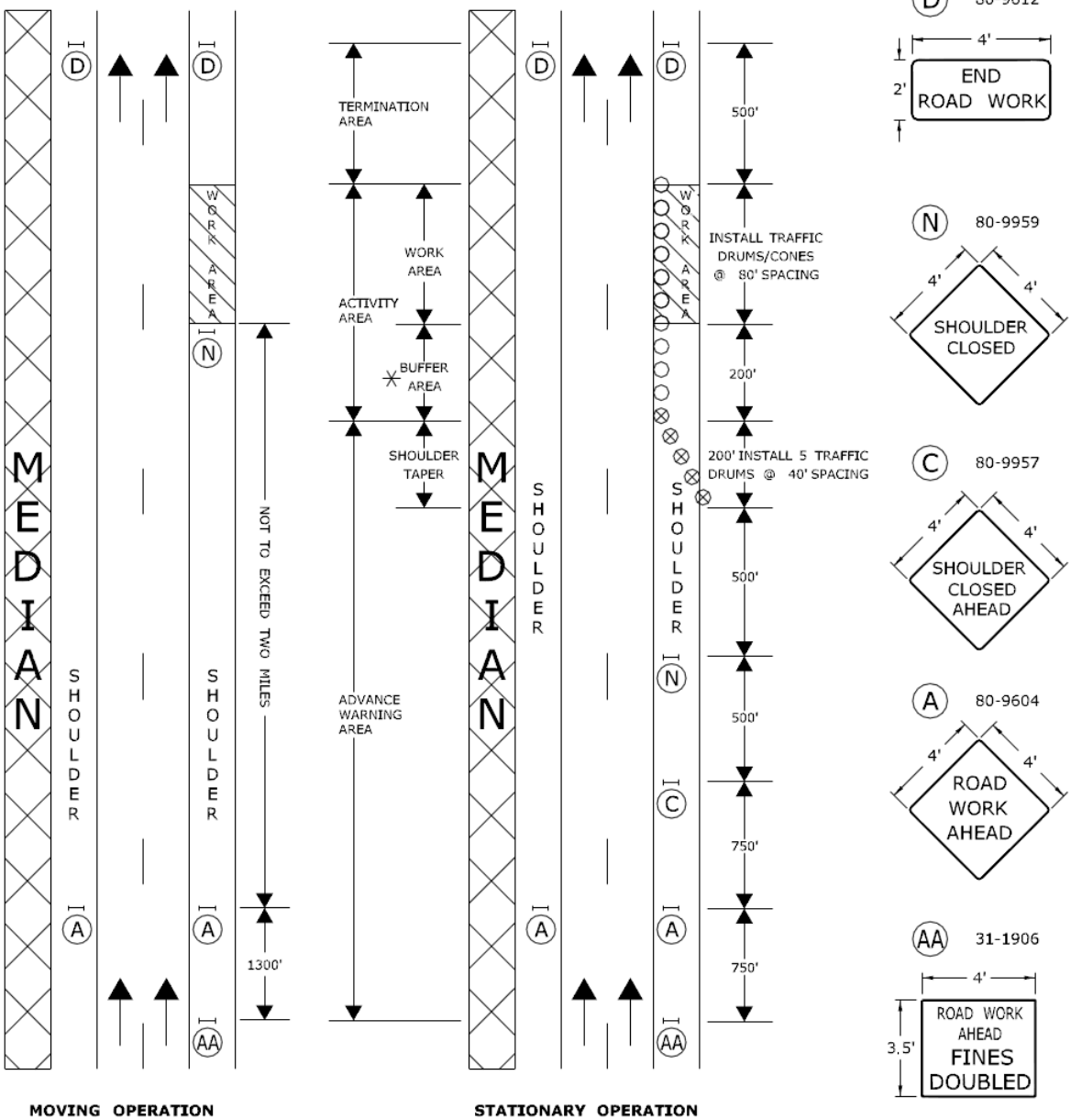
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:52:10-04'00'
PRINCIPAL ENGINEER

WORK IN SHOULDER AREA - MULTILANE HIGHWAY

SIGN FACE
94 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 6

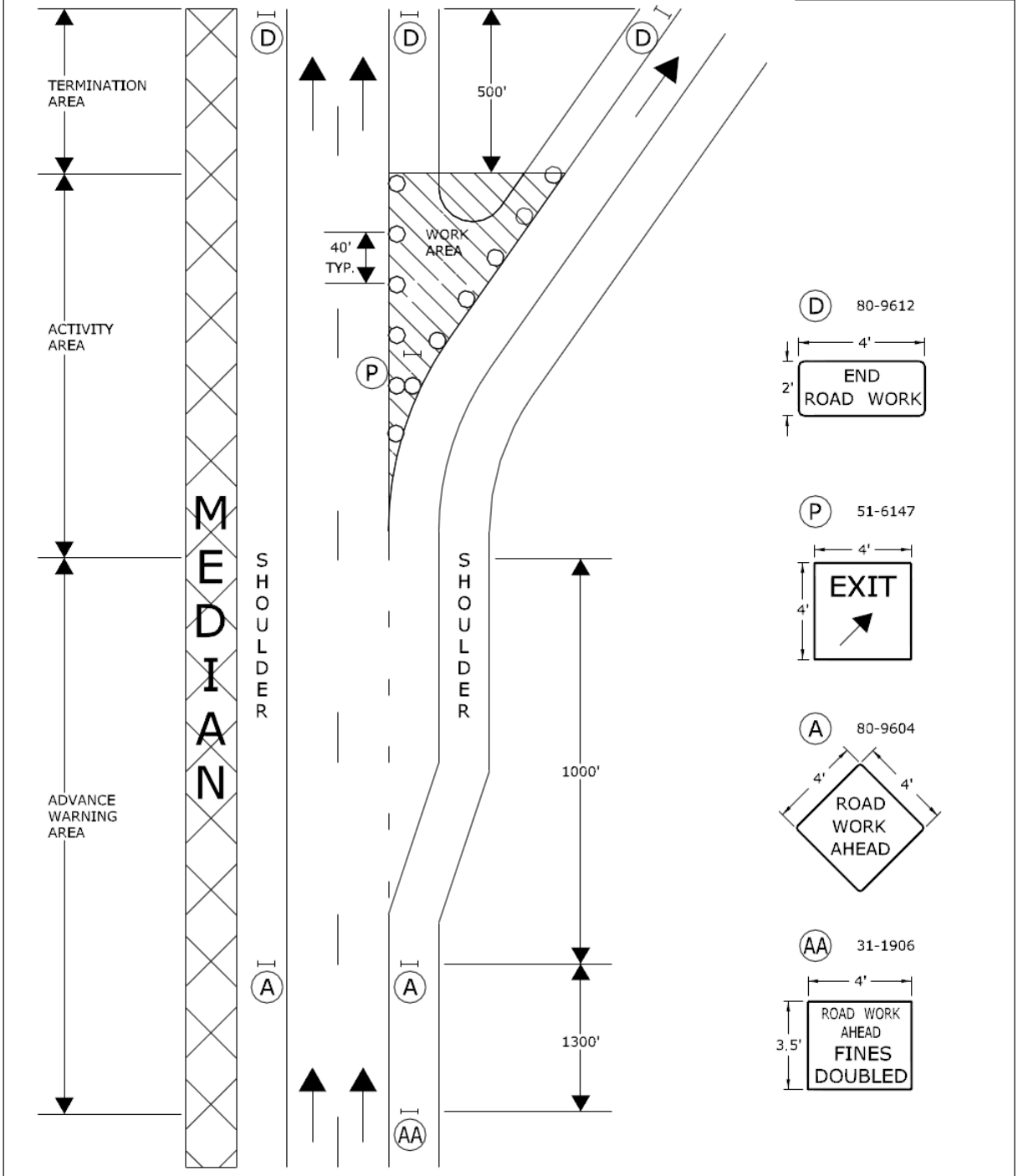
SEE NOTES 1, 2, 4, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:52:38-04'00'
PRINCIPAL ENGINEER

WORK IN RAMP GORE AREA

SIGN FACE
86 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 7

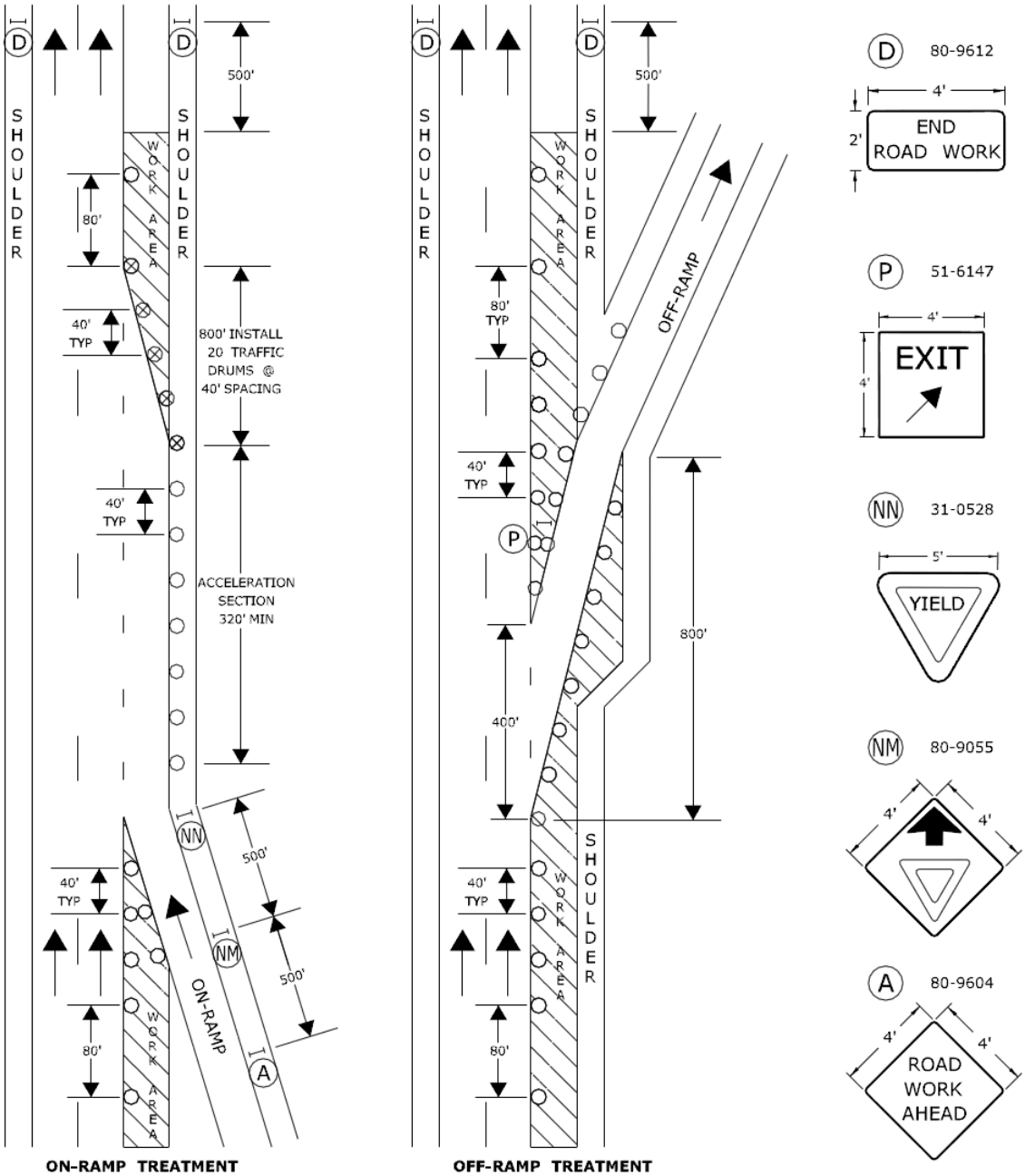
SEE NOTES 1, 2, 4, 8, 10

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:53:03-04'00'
PRINCIPAL ENGINEER

TYPICAL RAMP TREATMENTS FOR MAINLINE LANE CLOSURE - MULTILANE HIGHWAY

SIGN FACE
SQ. FT VARIES



ON-RAMP TREATMENT **OFF-RAMP TREATMENT**

USE TRAFFIC CONTROL PLAN 1 TO CLOSE THE RIGHT LANE

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

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 8

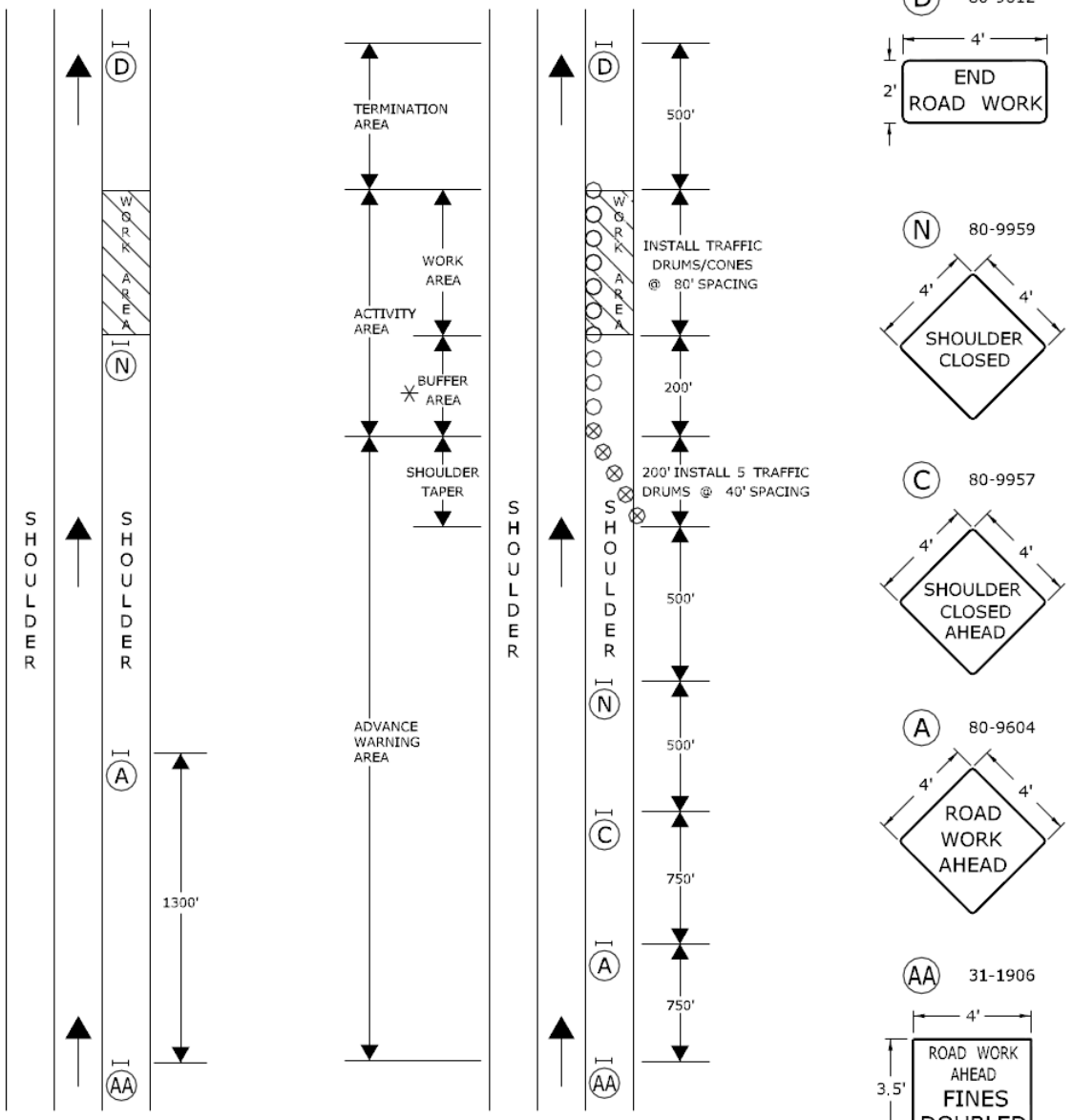
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9, 10

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:53:31-04'00'
PRINCIPAL ENGINEER

WORK IN SHOULDER AREA - TURNING ROADWAYS / RAMPS

SIGN FACE
70 SQ. FT (MIN.)



MOVING OPERATION **STATIONARY OPERATION**

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

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 9

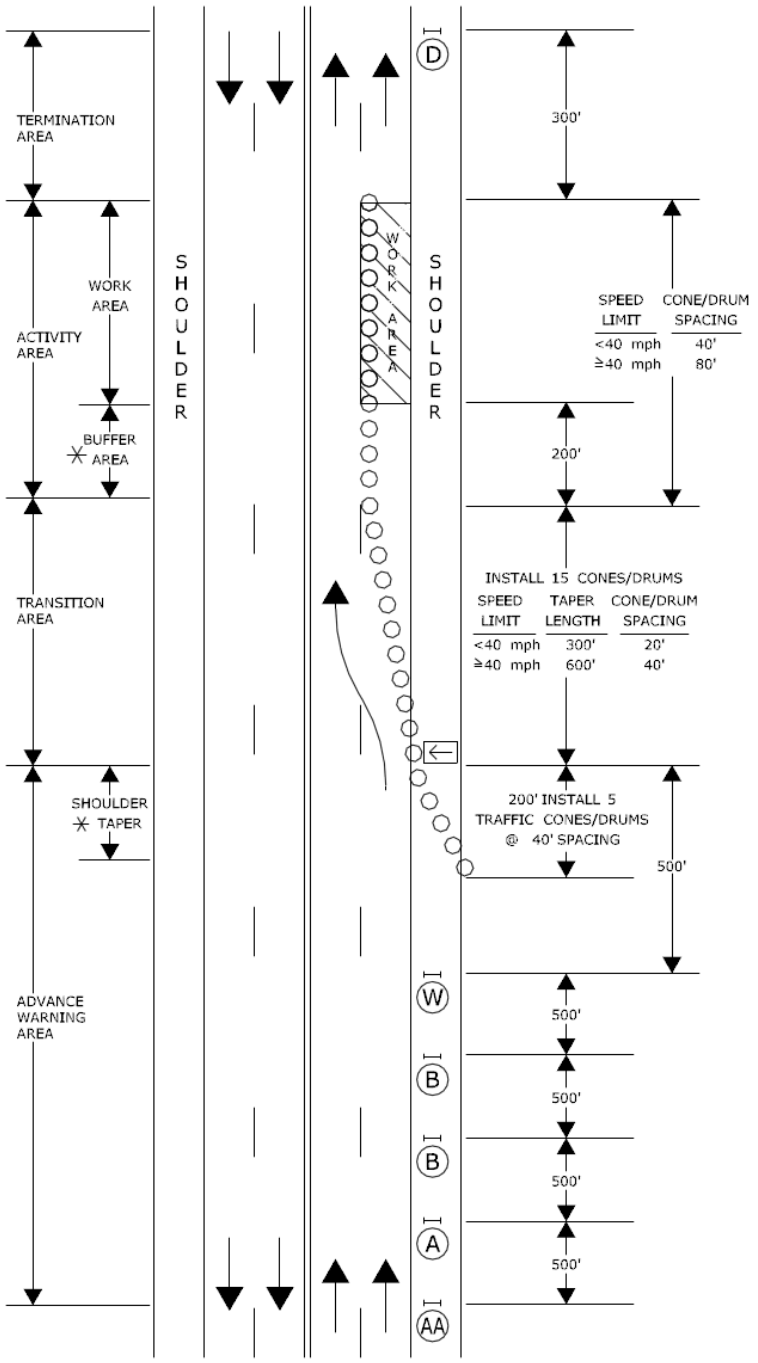
SEE NOTES 1, 2, 4, 8

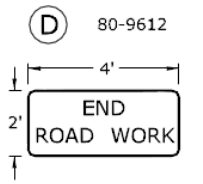
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

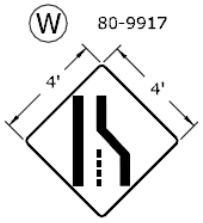
APPROVED Charles S. Harlow 2012.06.05 15:53:53-04'00'
PRINCIPAL ENGINEER

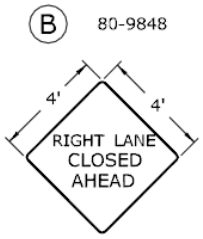
WORK IN RIGHT LANE - 4 LANE UNDIVIDED HIGHWAY

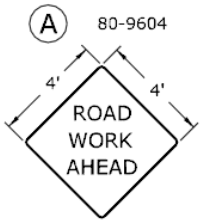
SIGN FACE
86 SQ. FT (MIN.)

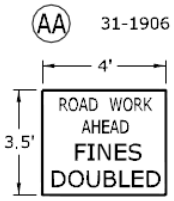












TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 10

SEE NOTES 1, 2, 3, 4, 5, 6, 7, 8

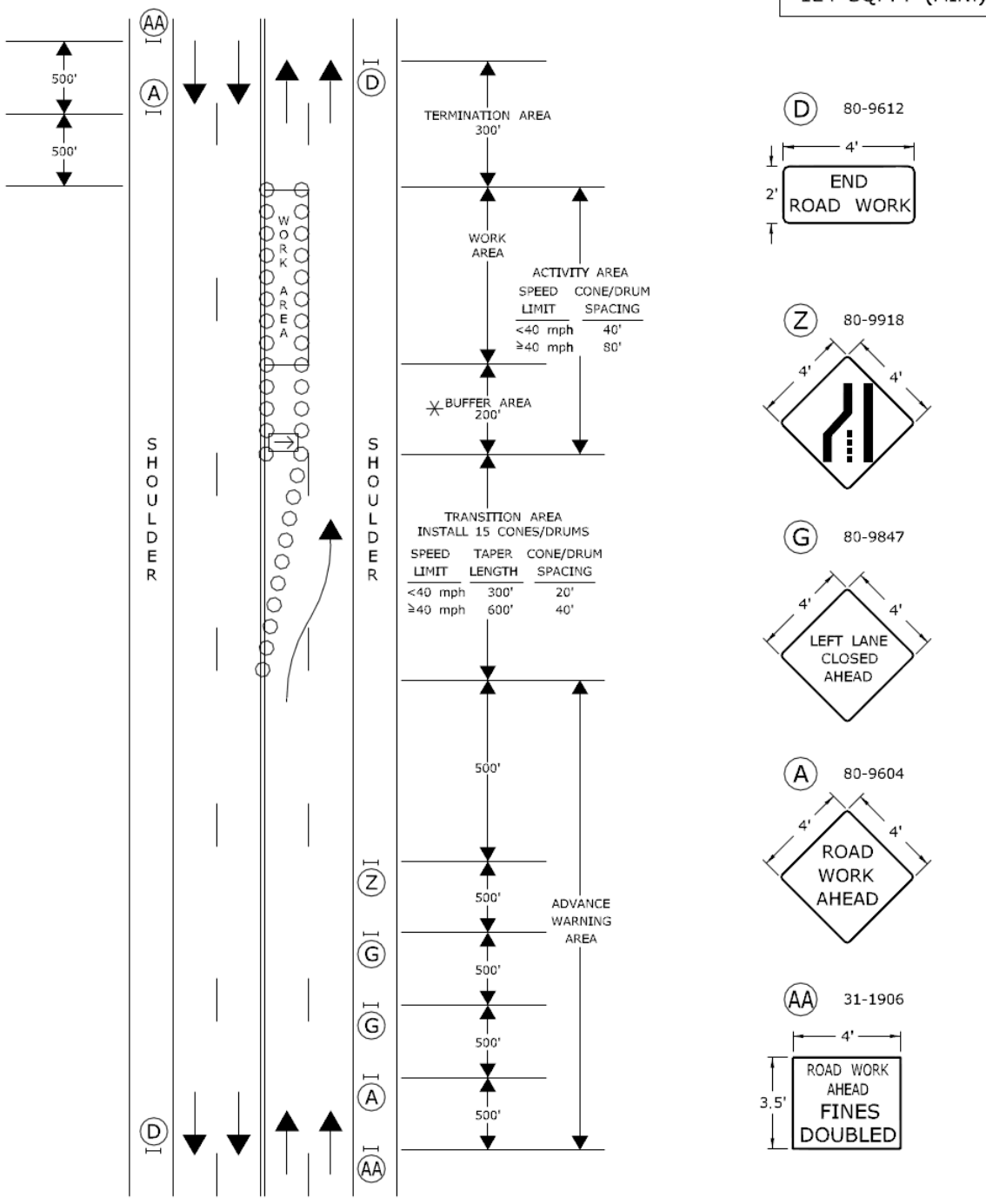
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 15:54:15-04'00'

WORK IN LEFT LANE - 4 LANE UNDIVIDED HIGHWAY

SIGN FACE
124 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 11

SEE NOTES 1, 2, 3, 4, 5, 6, 7, 8

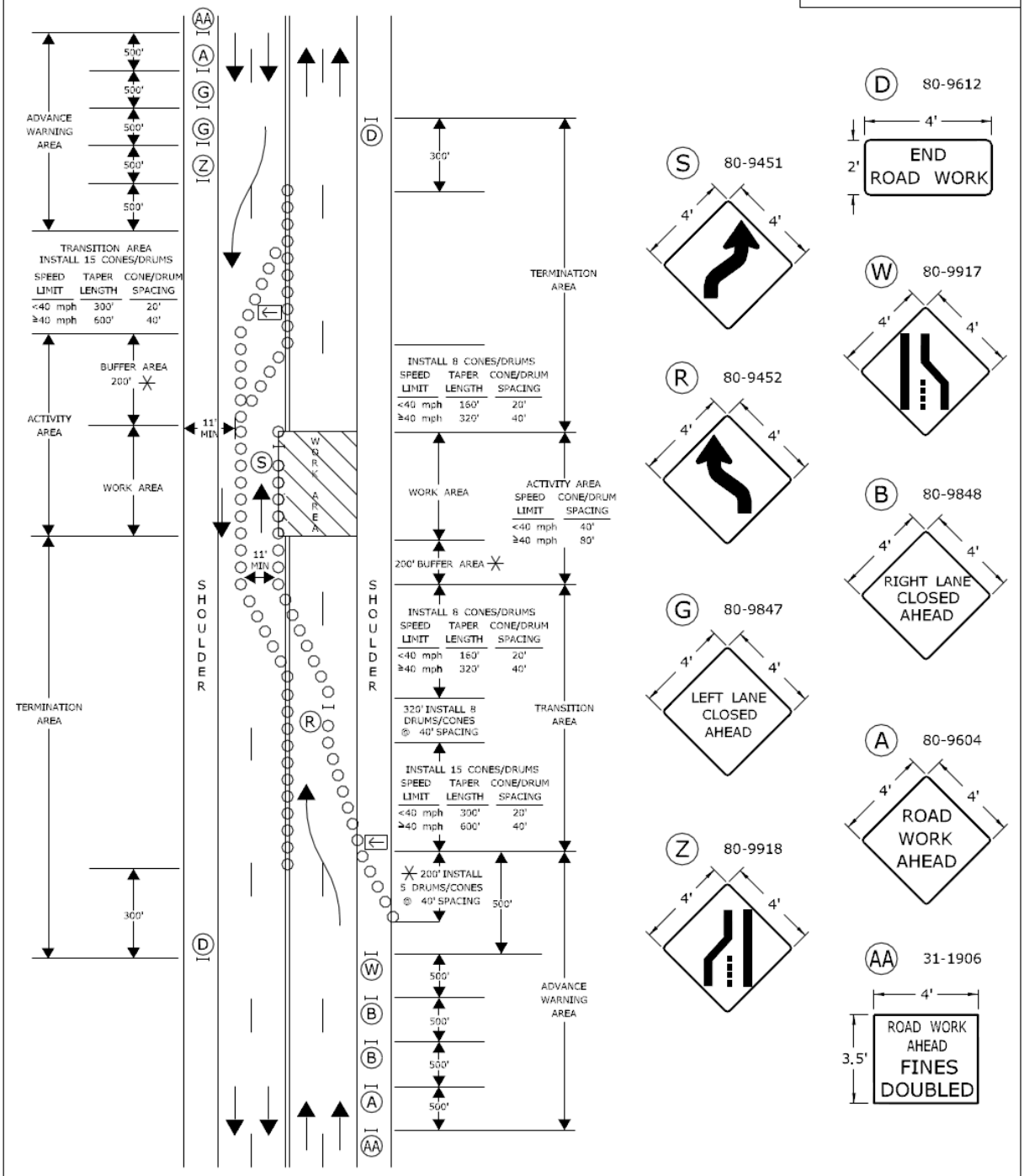
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 15:54:36-04'00'

WORK IN BOTH LANES - 4 LANE UNDIVIDED HIGHWAY

SIGN FACE
204 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

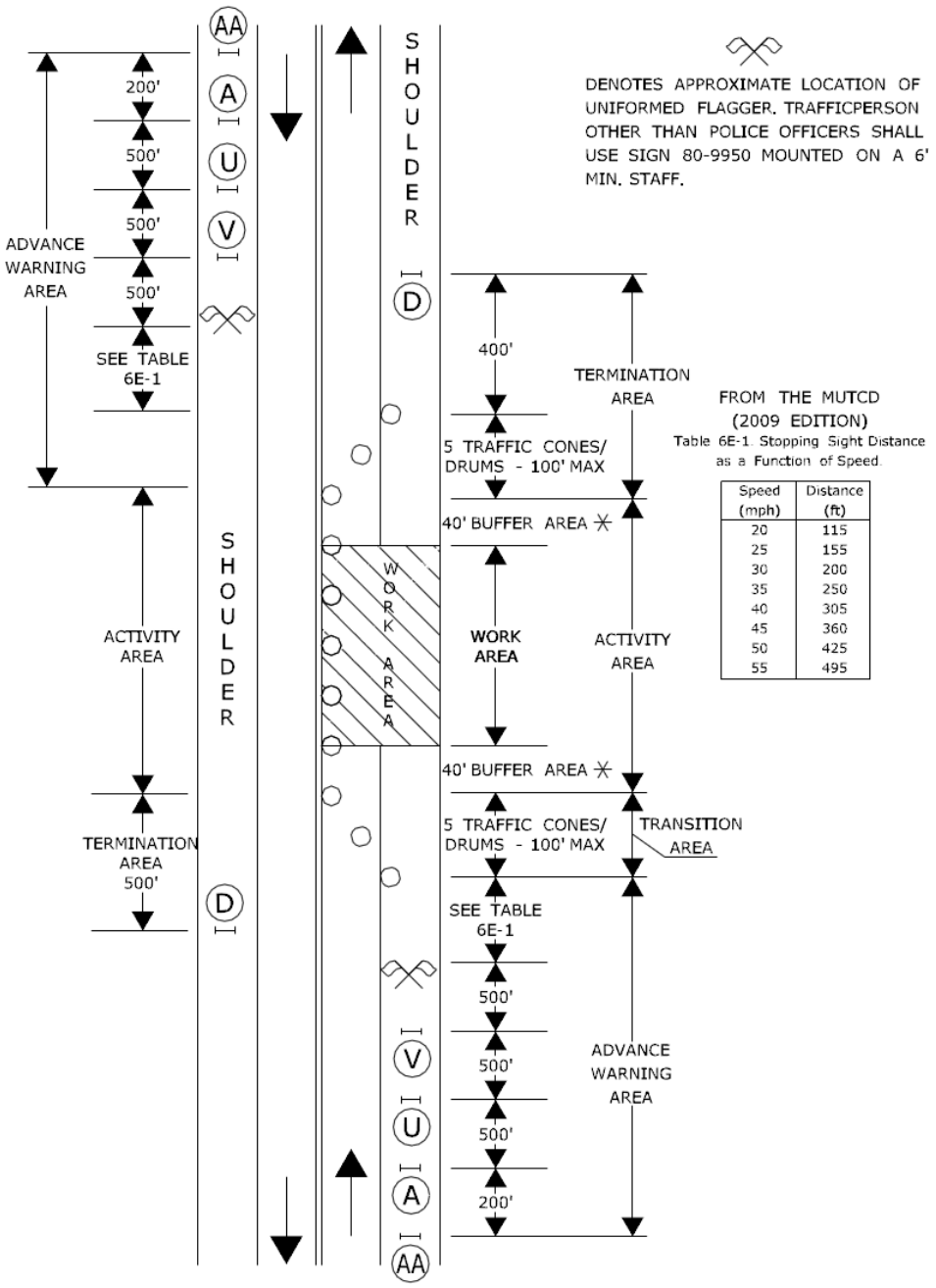
PLAN 12

SEE NOTES 1, 2, 3, 4, 5, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:55:01-04'00'

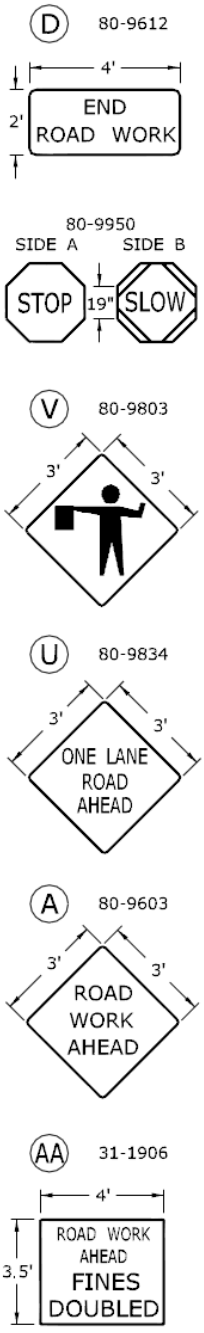
WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS



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

SIGN FACE
108 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 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

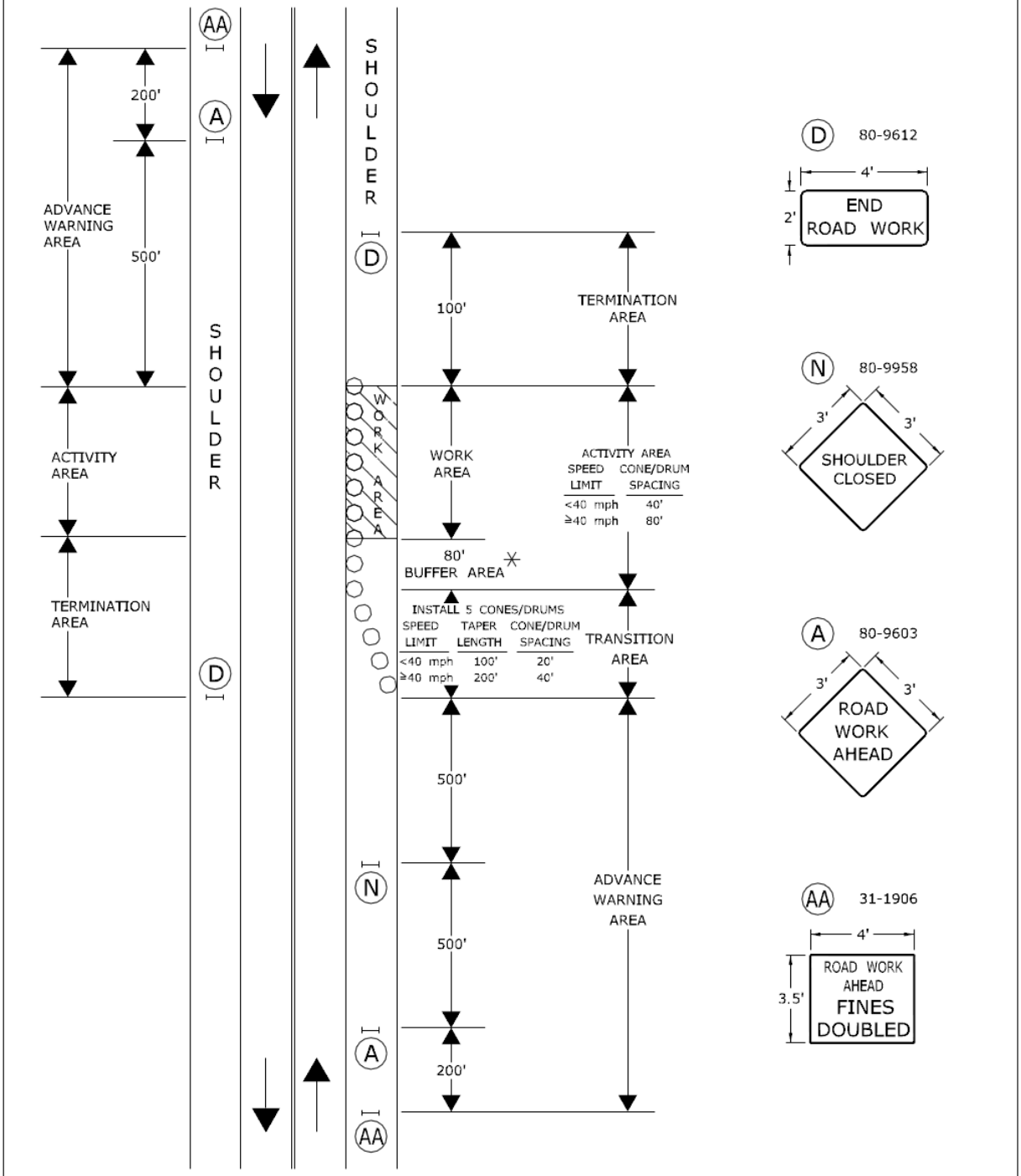
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

WORK IN SHOULDER - TWO LANE HIGHWAY

SIGN FACE
71 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 14

SEE NOTES 1, 2, 4, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

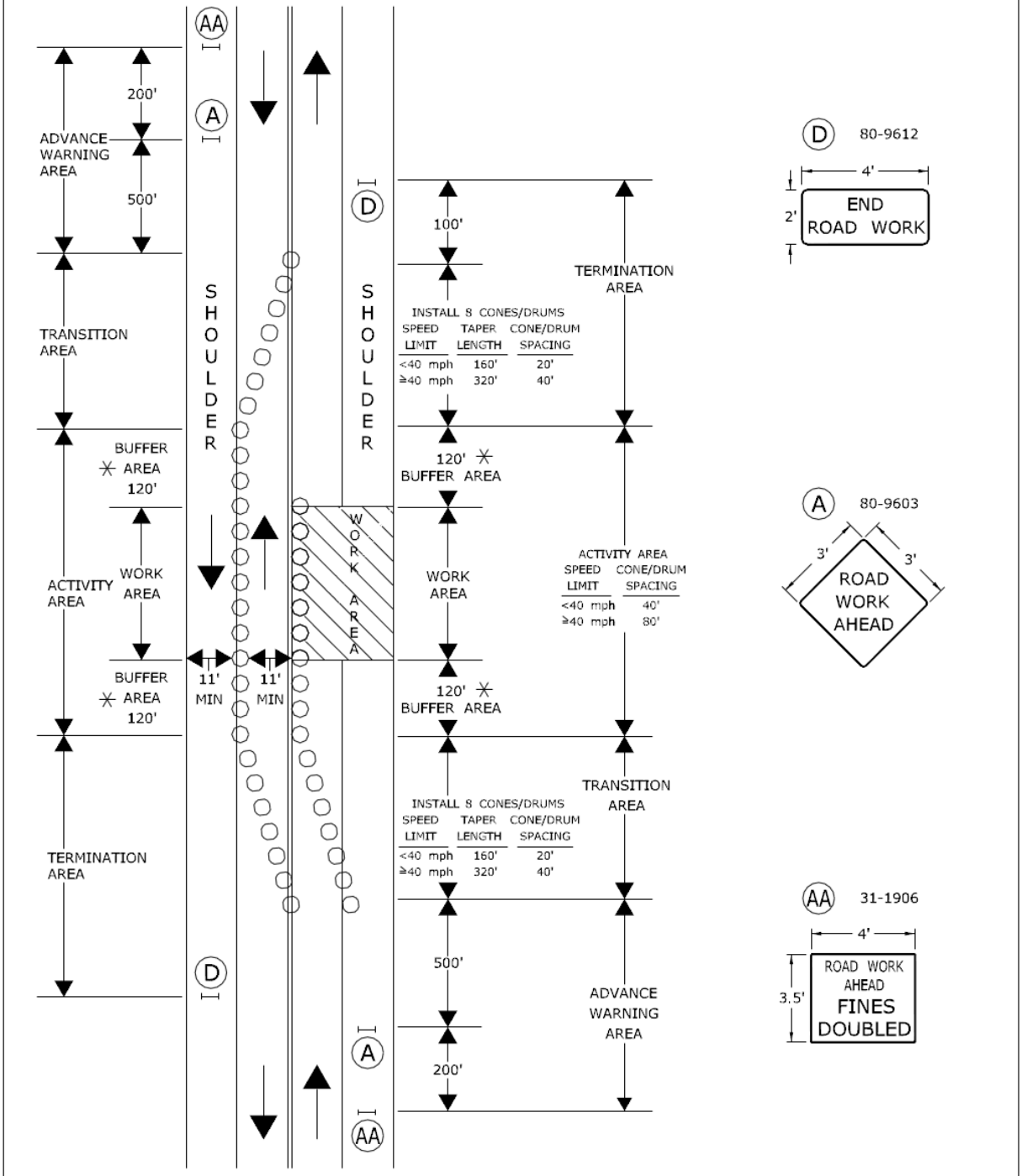
APPROVED

Charles S. Harlow
2012.06.05 15:56:09-04'00'

PRINCIPAL ENGINEER

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN.)



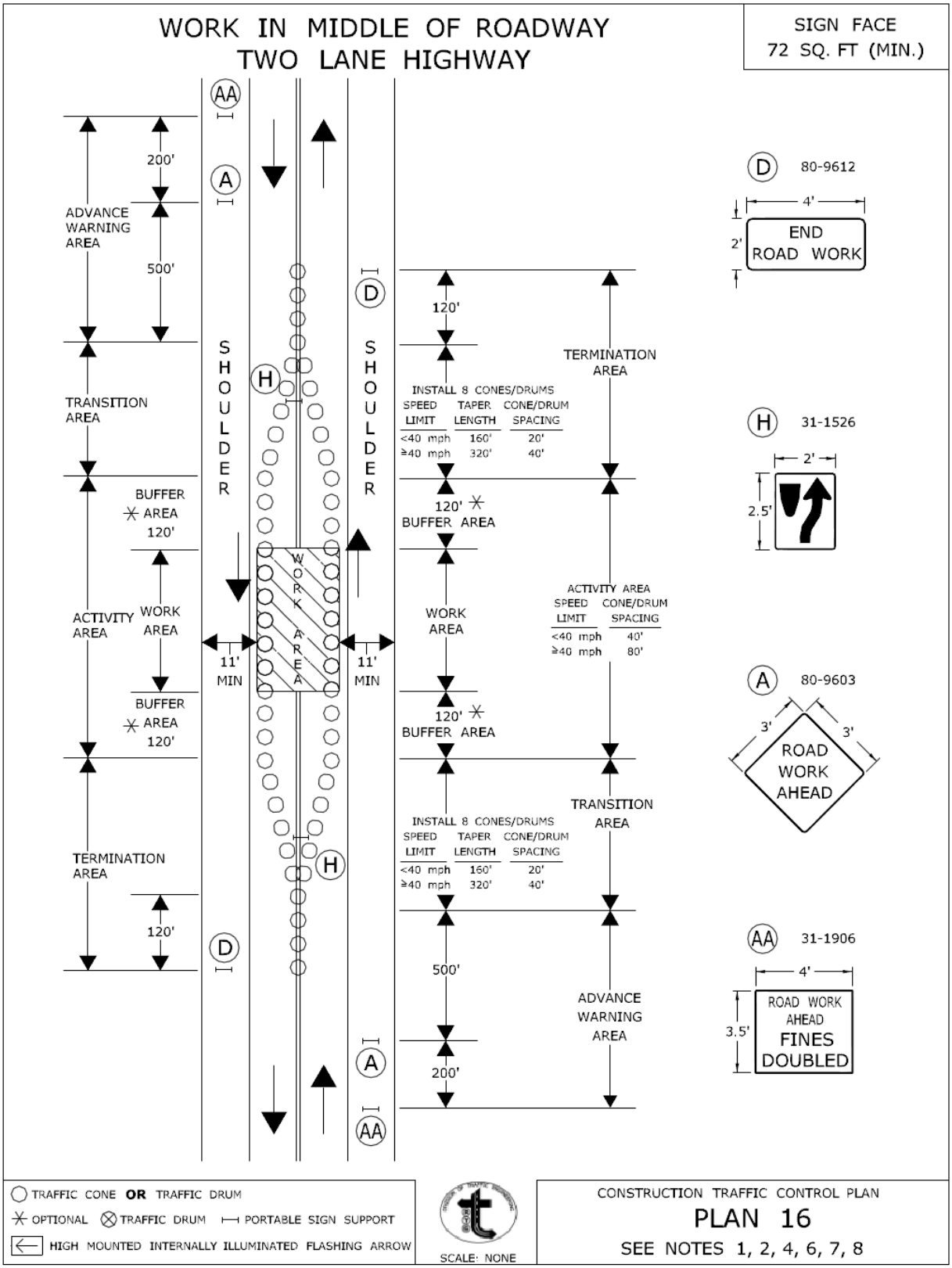
TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

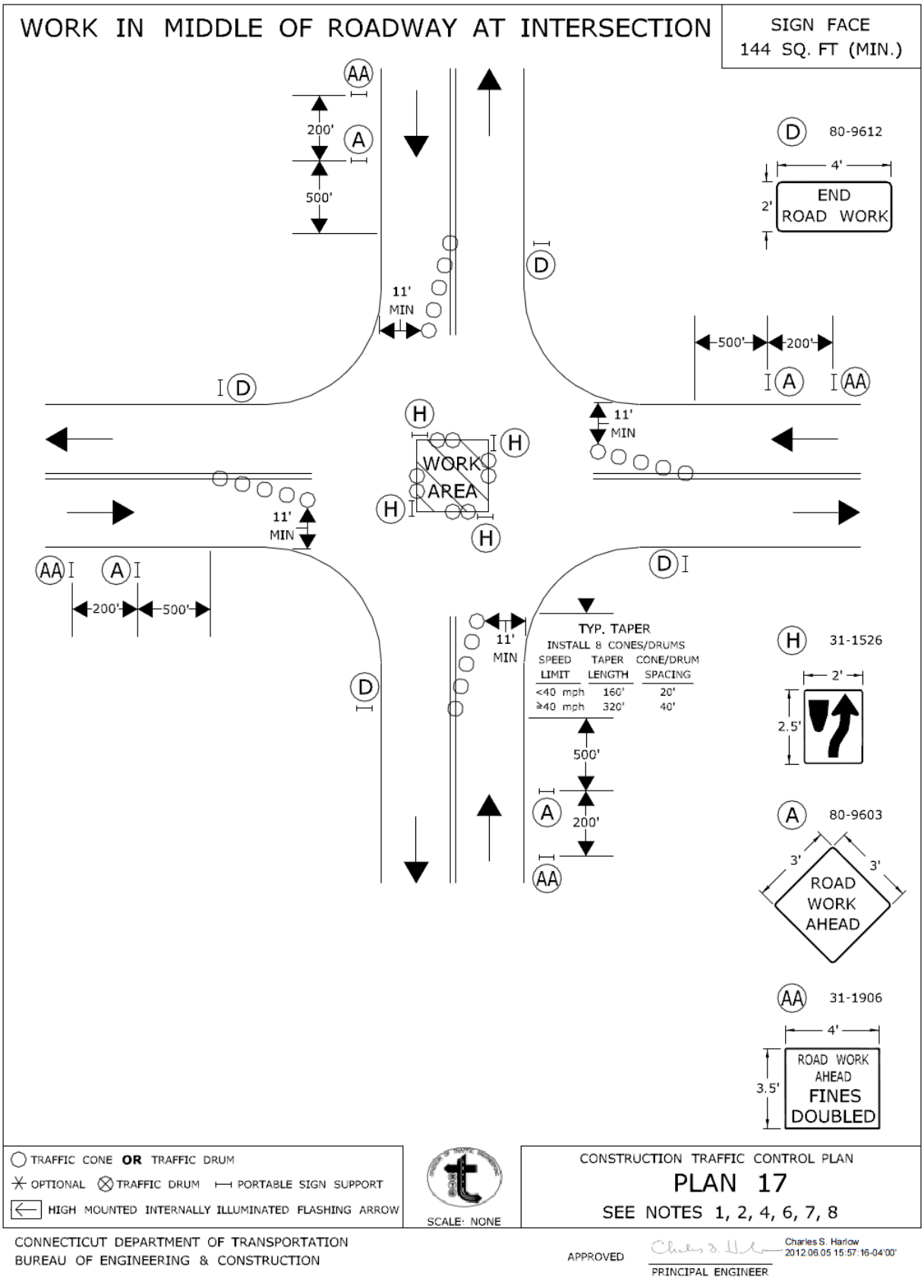
SCALE: NONE

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

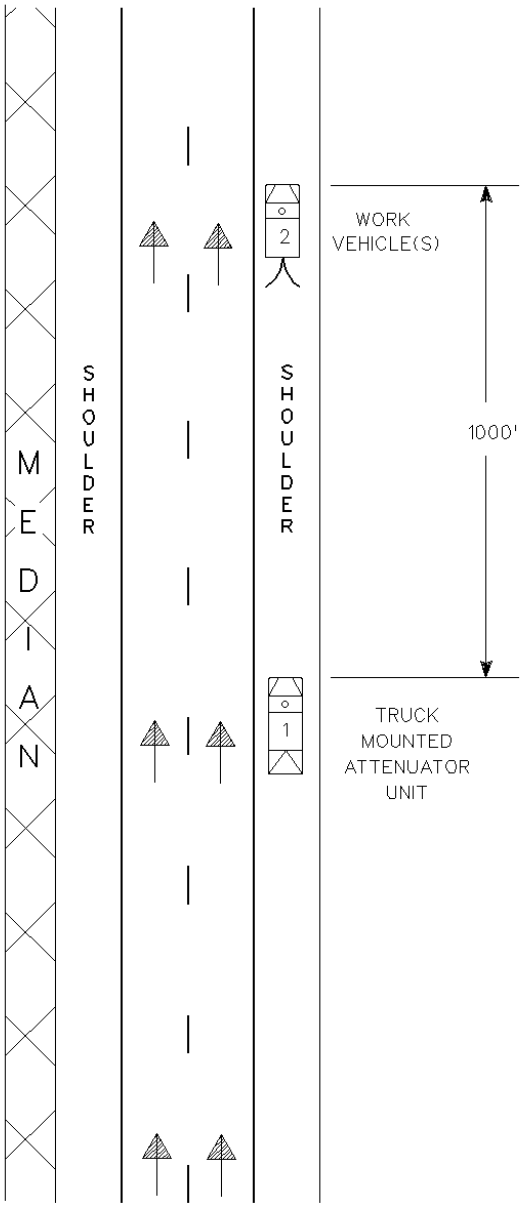
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:56:29-04'00'
PRINCIPAL ENGINEER

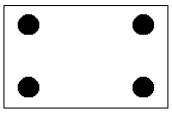

WORK IN MIDDLE OF ROADWAY
TWO LANE HIGHWAY
SIGN FACE
72 SQ. FT (MIN.)
AA
A
D
H
200'
500'
ADVANCE WARNING AREA
TRANSITION AREA
BUFFER AREA 120'
ACTIVITY AREA
WORK AREA
BUFFER AREA 120'
TERMINATION AREA
120'
SHOULDER
SHOULDER
WORK AREA
11' MIN
11' MIN
120'
TERMINATION AREA
INSTALL 8 CONES/DRUMS
SPEED LIMIT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


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

MOVING OPERATION ON RIGHT SHOULDER
MULTILANE HIGHWAY & SECONDARY ROADWAYS



SIGN MOUNTED ON TRUCK 1



DEPARTMENT APPROVED
ARROW BOARD
(FLASHING YELLOW MODE)

REV'D 1-02

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

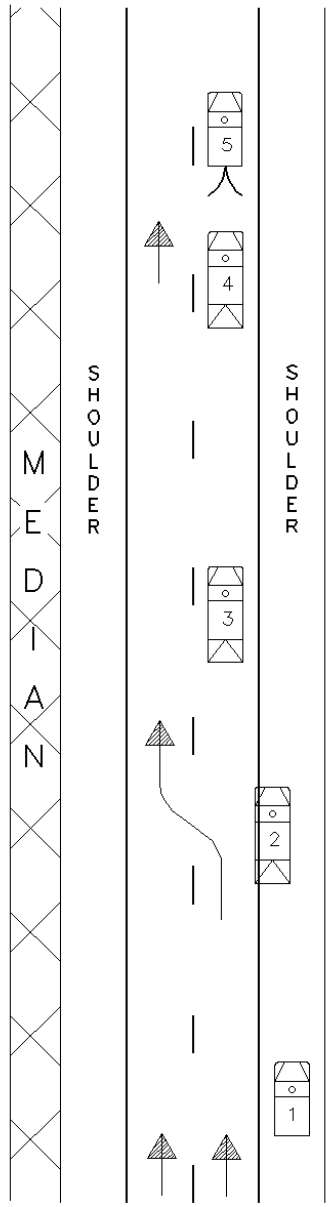
CONSTRUCTION
TRAFFIC CONTROL PLAN

PLAN 19

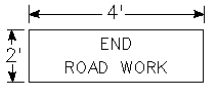
SCALE NONE

APPROVED J. Mccall PRINCIPAL ENGINEER DATE 1-30-02

MOVING OPERATION IN RIGHT LANE AND OUTSIDE SHOULDER AT THE SAME TIME MULTILANE HIGHWAY

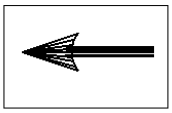


SIGN MOUNTED ON VEHICLE 5



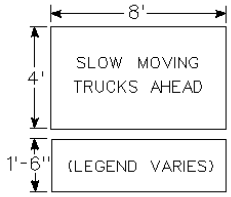
80-9612

SIGN MOUNTED ON TRUCKS 2, 3, & 4



DEPARTMENT APPROVED ARROW BOARD

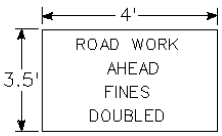
SIGNS MOUNTED ON VEHICLE 1



80-9815
THIS SIGN SHOULD BE COVERED WHEN NOT IN USE.

80-9914
USE APPROPRIATE MESSAGE FOR OPERATION.

SIGN MOUNTED ON VEHICLE 2



31-1906

REV'D 1-02

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

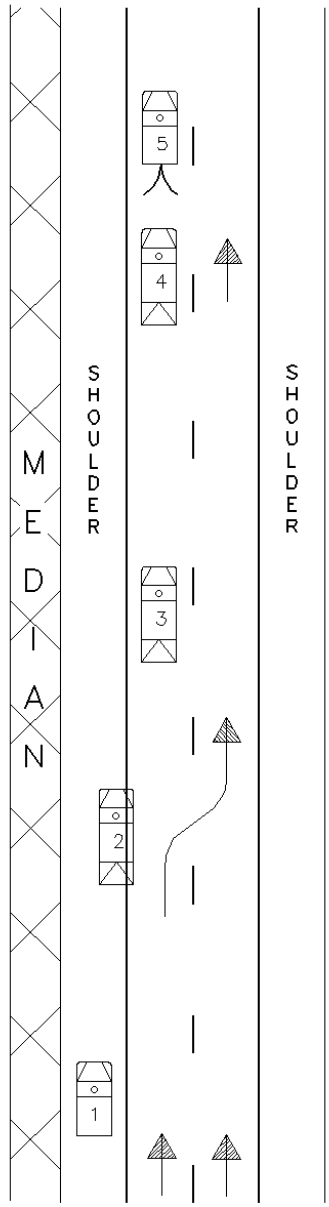
CONSTRUCTION
TRAFFIC CONTROL PLAN

PLAN 20

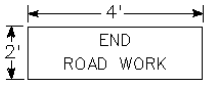
SCALE NONE

APPROVED John D. Micali PRINCIPAL ENGINEER DATE 1-30-02

MOVING OPERATION IN LEFT LANE AND INSIDE SHOULDER AT THE SAME TIME MULTILANE HIGHWAY

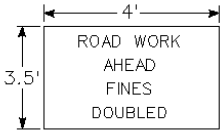


SIGN MOUNTED ON VEHICLE 5



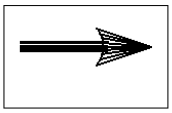
80-9612

SIGN MOUNTED ON VEHICLE 2



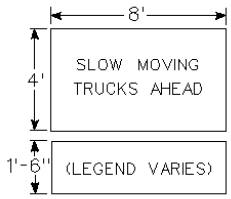
31-1906

SIGN MOUNTED ON TRUCKS 2, 3, & 4



DEPARTMENT APPROVED ARROW BOARD

SIGNS MOUNTED ON VEHICLE 1



80-9815
THIS SIGN SHOULD BE COVERED WHEN NOT IN USE.

80-9914
USE APPROPRIATE MESSAGE FOR OPERATION.

WHEN THE LEFT SHOULDER WIDTH CANNNOT ACCOMMODATE A VEHICLE, THEN ADVANCE WARNING VEHICLE 1 MAY DRIVE PARTIALLY IN THE LANE.

REV'D 1-02

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

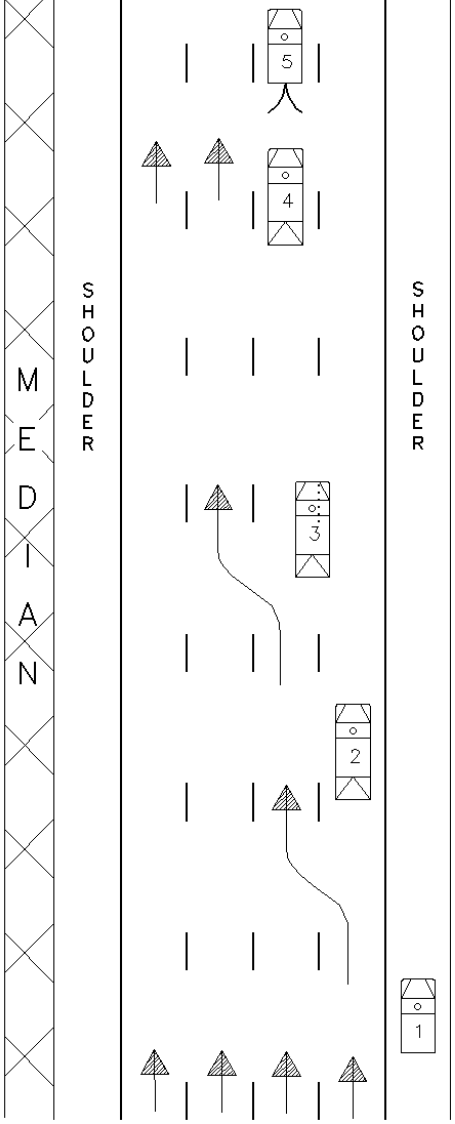
CONSTRUCTION
TRAFFIC CONTROL PLAN

PLAN 21

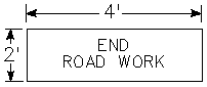
SCALE NONE

APPROVED John D. Micall PRINCIPAL ENGINEER DATE 1-30-02

MOVING OPERATION IN CENTER LANE
MULTILANE HIGHWAY

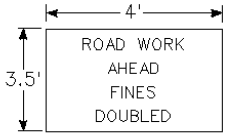


SIGN MOUNTED ON VEHICLE 5



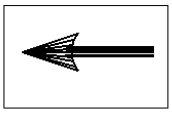
80-9612

SIGN MOUNTED ON VEHICLE 2



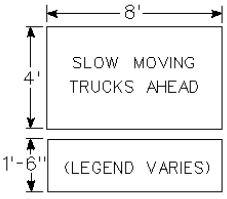
31-1906

SIGN MOUNTED ON TRUCKS 2, 3, & 4



DEPARTMENT APPROVED ARROW BOARD

SIGNS MOUNTED ON VEHICLE 1



80-9815
THIS SIGN SHOULD BE COVERED WHEN NOT IN USE.

80-9914
USE APPROPRIATE MESSAGE FOR OPERATION.

REV'D 1-02

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

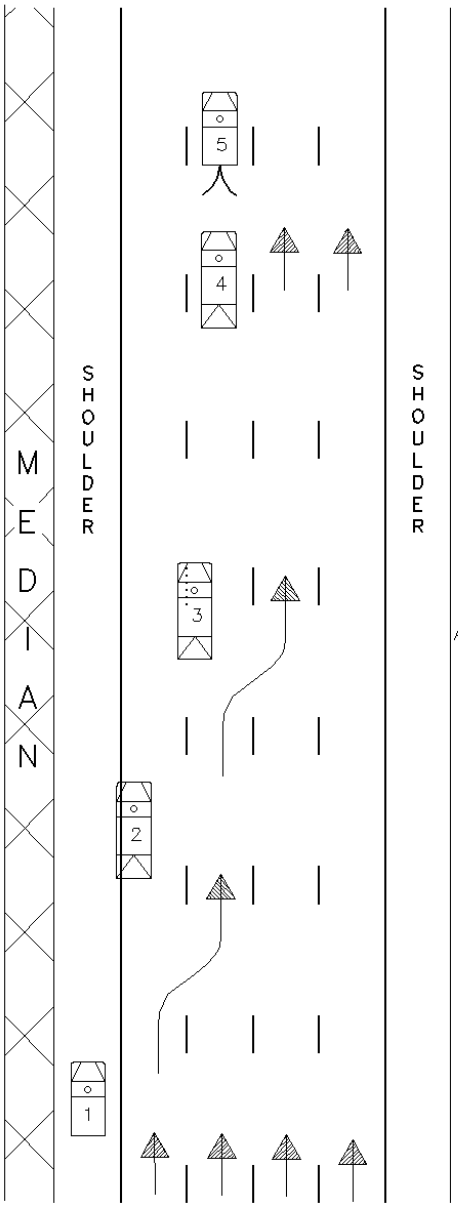
CONSTRUCTION
TRAFFIC CONTROL PLAN

PLAN 22

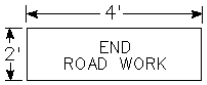
SCALE NONE

APPROVED John D. Micall
PRINCIPAL ENGINEER
DATE 1-30-02

MOVING OPERATION IN CENTER LANE
MULTILANE HIGHWAY

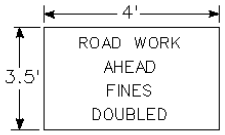


SIGN MOUNTED ON VEHICLE 5



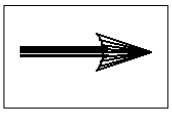
80-9612

SIGN MOUNTED ON VEHICLE 2



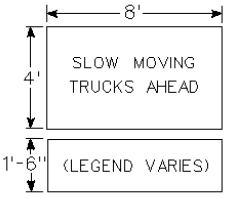
31-1906

SIGN MOUNTED ON TRUCKS 2, 3, & 4



DEPARTMENT APPROVED
ARROW BOARD

SIGNS MOUNTED ON VEHICLE 1



80-9815
THIS SIGN SHOULD BE COVERED WHEN NOT IN USE.

80-9914
USE APPROPRIATE MESSAGE FOR OPERATION.

WHEN THE LEFT SHOULDER WIDTH CANNNOT ACCOMMODATE A VEHICLE, THEN ADVANCE WARNING VEHICLE 1 MAY DRIVE PARTIALLY IN THE LANE.

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

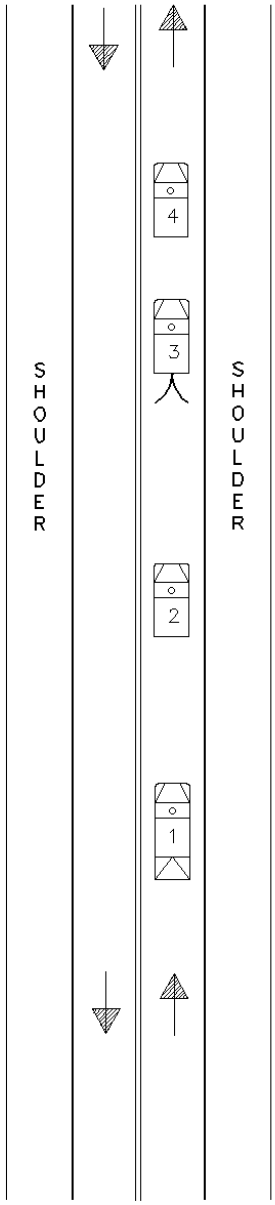
CONSTRUCTION
TRAFFIC CONTROL PLAN

PLAN 23

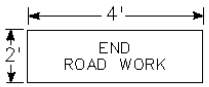
SCALE NONE

APPROVED John D. Micali
PRINCIPAL ENGINEER
DATE 1-30-02

MOVING OPERATION
TWO LANE HIGHWAY

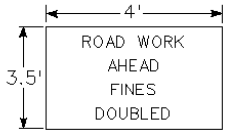


SIGN MOUNTED ON VEHICLE 4



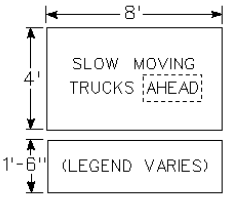
80-9612

SIGN MOUNTED ON VEHICLE 2



31-1906

SIGNS MOUNTED ON VEHICLE 1



80-9815
COVER THE WORD "AHEAD" WITH BLANK PANEL

80-9914
USE APPROPRIATE MESSAGE FOR OPERATION.

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

CONSTRUCTION
TRAFFIC CONTROL PLAN

PLAN 24

SCALE NONE

APPROVED John D. Micall
PRINCIPAL ENGINEEER
DATE 1-30-02

Article 9.71.05 – Basis of Payment is supplemented by the following:

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item "Maintenance and Protection of Traffic". Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing, and removing the material for the 4H:1V traversable slope shall be paid for under the item "Maintenance and Protection of Traffic."

ITEM #1105001A - 1 WAY, 1 SECTION SPAN WIRE TRAFFIC SIGNAL

ITEM #1105003A - 1 WAY, 3 SECTION SPAN WIRE TRAFFIC SIGNAL

ITEM #1105007A - 2 WAY, 3 SECTION SPAN WIRE TRAFFIC SIGNAL

ITEM #1105203A - 1 WAY, 3 SECTION POLE MOUNTED TRAFFIC SIGNAL

ITEM #1105303A - 1 WAY, 3 SECTION PEDESTAL MOUNTED TRAFFIC SIGNAL

Article 11.05.03 – Construction Methods:

Add the following paragraph:

Circular indications that have an identification mark (such as an arrow) on the top of the lens shall be installed with that mark at the 12 o-clock position.

Article M.16.06 - Traffic Signals

Sub Article 3 - Housing:

In the last sentence, between the words “housing” and “shall” add “and all internal hardware”.

Add the following after the last paragraph.

Each section of the housing shall be provided with a removable visor. The visor shall be the cap type, unless otherwise noted on the plan. The visor shall be a minimum .05 inch (.13 mm) thick. The visor shall be the twist on type and secured to the signal by four equidistant flat tabs screwed to the signal head.

Sub Article 4 - Brackets:

Add the following at the end of the last paragraph:

Install a 2” wide yellow retroreflective strip (Type IV sheeting) along the perimeter of the face of the backplate.

Delete Sub Article 5 - Optical Unit and **Sub Article 6** – Lamp Socket and replace with the following:

Optical Unit, Light Emitting Diode:

(a) General:

Only Optical Units that meet the requirements contained herein supplied by the below manufacturers that have been tested by the Department's Signal Lab will be accepted. Final approval for model numbers will be done at the time of the catalog cut submittals.

Duralight
Trastar, Inc.
860 N. Dorothy Dr., Suite 600
Richardson, TX 75081

GE Lighting Solutions
Corporate Headquarters
1975 Noble Road Building 338E
East Cleveland, OH 44112-6300

Dialight
1501 Foute 34 South
Farmingdale, NJ 07727

Leotek
726 South Hillview Drive
Milpitas, CA 95035

The materials for Light Emitting Diode (LED), Optical Unit, circular and arrow, shall conform to the following:

- The ITE Performance Specification for Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement for circular indications dated June 27, 2005.
- The ITE Performance Specification for Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement for arrow indications dated July 1, 2007.

Section 4, Adjustable Traffic Signals and General Housing sections of the **Department of Transportation Functional Specifications for Traffic Control Equipment, current edition governs.** Where the Department of Transportation Functional Specifications conflict with this

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ITEM #1105003A
ITEM #1105007A
ITEM #1105203A
ITEM #1105303A

Special Provision or the 2005/2007 ITE Performance Specifications, this Special Provision and the 2005/2007 ITE Performance Specifications shall govern.

The Optical Unit shall have an Incandescent look and be made up of a smooth surfaced outer shell, multiple LED light sources, a filtered power supply and a back cover, assembled into a sealed unit. The Optical Unit shall be certified as meeting the 2005/2007 ITE Specifications by Intertek Testing Services, Inc. (ITSNA, formerly ETL) or another organization currently recognized by the Occupational Safety and Health Administration (OSHA) as a Nationally Recognized Testing Laboratory (NRTL.) The Optical Unit shall perform to the requirements of the ITE Specification for a minimum of 60 months.

A "Swing Test" will be performed by the Department to ensure no significant dimming or blanking occurs, until the lamp is obscured by the visor. All L.E.D Lamps will be subjected to further field testing for reliable operation.

The Arrow Optical Unit shall be "Omni-Directional" so that it may be oriented in a right, left or straight configuration without degradation of performance.

(b) Electrical Requirement:

Operating voltage:

80 to 135 Volts AC with cutoff voltage (no visible indication) below 35Volts AC.

Power requirements:

Circular Indications: 12", (300 mm) – no more than 16 Watts
Circular Indications: 8", (200mm) - no more than 16 Watts
Arrows Indications: 12", (300mm) - no more than 16 Watts

Power Supply:

Fused and filtered to provide excess current protection and over voltage protection from electrical surges and transient voltages.

(c) Photometric Requirement:

Beam Color:

Meet 2005/2007 ITE Specifications

(d) Mechanical Requirements:

Diameter:

The Circular Optical Unit shall fit into standard 12" (300mm) or 8" (200mm) housing.
The Arrow Optical Unit shall fit 12" (300mm) housings only.

Enclosure:

UV (Ultraviolet) stabilized polycarbonate back cover.
Clear lens cover for all Red, Yellow and Green Circular Optical Units.
For Arrow Optical Units the arrow indication segment of the lens shall be clear.
Enclosure sealed and waterproofed to eliminate dirt contamination and be suitable for

ITEM #1105001A
ITEM #1105003A
ITEM #1105007A
ITEM #1105203A
ITEM #1105303A

installation in all weather conditions.

Clearly mark on the housing the following information:

- Manufacturer & model number
- Date of manufacture (must be within one year of installation)

The model number shall end with the number of LEDs used to comprise the unit as the last digits of the model number. Example, if the unit comprised of 3 LEDs and the model is x12y, then the new model number shall read x12y3.

Operating temperature:

Meet 2005/2007 ITE Specification

Wiring: L.E.D. lamps shall have **color coded 16 AWG wires** for identification of heads as follows:

RED L.E.D. Lamps	RED with WHITE neutral
YELLOW L.E.D. Lamps	YELLOW with WHITE neutral
GREEN L.E.D. Lamps	GREEN or Brown with WHITE neutral
RED L.E.D. ARROWS	RED/WHITE with WHITE neutral
YELLOW L.E.D. ARROWS	YELLOW/WHITE with WHITE neutral
GREEN L.E.D. ARROWS	GREEN/WHITE or BROWN/WHITE with WHITE neutral
GREEN/YELLOW LE.D ARROWS	GREEN/WHITE or BROWN/WHITE, YELLOW/WHITE, with WHITE neutral

Wires shall be terminated with a Block Spade, 6-8 stud/ 16-14 wire size.

All Circular Optical Units shall be supplied with a minimum 40" pigtail and all Arrow Optical Units Supplied with a minimum 60" pigtail.

Sub Article 9 - **Painting:**

Third coat: Replace the first two sentences with the following:

All brackets and hardware shall be painted yellow by the manufacturer. The color shall be No. 13538, Federal Standard No. 595.

At intersections at Merritt Parkway interchanges, all brackets and hardware shall be painted dark green by the manufacturer. The color shall be No. 14056, Federal Standard No. 595.

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ITEM #1105003A
ITEM #1105007A
ITEM #1105203A
ITEM #1105303A

ITEM #1108115A - FULL ACTUATED CONTROLLER 8 PHASE

Article 11.08.01 - Description: Delete the second paragraph and replace with the following:

This item shall consist of furnishing and installing an actuated controller, which shall be a completely digital solid state unit, for controlling the operation of the traffic signals.

The controller shall be completely furnished with the number of phases called for in the item. The cabinet to house the controller shall be completely wired and all sub-bases shall be complete with load switches and flash relays as specified in the **Functional Specifications For Traffic Control Equipment**. The cabinet shall also have all necessary auxiliary equipment required to provide the sequence and timing indicated on the plans. A time switch shall be installed in each cabinet.

Article 11.08.03 – Construction Methods: Delete the entire second paragraph.

Article M.16.09 - Controllers: Add the following sub-articles:

2. Actuated Controllers: The purpose of this sub-article is to set forth minimum design and operating requirements for the materials and components for a digitally timed actuated controller.

The Connecticut Department of Transportation Functional Specifications for Traffic Control Equipment, current edition governs the material for the Controller Assembly. The Functional Specifications are advertised biennial for vendors to provide equipment to the State on a low bid basis. All underlined text indicates an addition or revision to these specifications from the previous version. The Functional Specifications are available on the Departments website.

The following sections of the **Notice to Bidders**, pages 1 - 10, shall apply to contract supplied traffic controllers: 12, 15, 16, 17, 18, & 19.

Item 1108115A – FULL ACTUATED CONTROLLER 8 PHASE shall conform to the requirements of Section 1, pages 11 – 94. The Controller Unit (CU) shall conform to the requirements of Item 1D1, CONTROLLER (PRE-EMPTION TYPE), pages 29 – 31. All cabinets shall conform to the specifications of the "D" CABINET REQUIREMENTS, pages 78 – 84.

Controllers in a closed loop system shall conform to the requirements of Section 27, INTERNAL CLOSED LOOP SYSTEM FOR EXISTING NAZTEC SYSTEM, pages 162 – 185, in addition to the above requirements.

The solid state time switch shall conform to Section 13. FOUR CIRCUIT SOLID STATE TIME CLOCK WITH TIME BASE COORDINATION OPTION TC/TBC, pages 140 - 143.

Traffic signal equipment which has not been previously approved to meet the requirements of the Functional Specifications for the above items, will not be approved for use on this contract.

Several parts of Item 1 of the Functional Specifications do not apply to contract supplied and developer supplied traffic controllers. The specifications which are to be disregarded are listed below.

Item 1A-1	- Controller, Two Phase Microprocessor Keyboard Entry - Type 6 Conflict Monitor
Item 1A-2	- Two Phase Type "A" Cabinet

Supplemental specifications listed below, have been added for material and controller operations which the Department of Transportation does not include in the Functional Specifications for Traffic Control Equipment.

U.C.F. Time Switch Flash Command Procedure
Time Clock/Time Base Installation Requirements

24 Volt Relay	Type A
110 Volt Relay	Type F
	Type G

Time Delay Relay
Non-Actuated Advance Green Phase
Actuated Advance Green Phase
Non-Actuated Clearance / Lag Green Phase
Actuated Clearance / Lag Green Phase
Flashing Stop Ahead Sign
Max II Actuation By Pedestrian Call

UNIFORM CODE FLASH COMMAND PROCEDURE

1. Activate the **MINIMUM RECALL** input to the controller to ensure cycling prior to transferring to flashing operation.
2. Omit all non-actuated and actuated artery advance phases.
3. Omit phases 1 & 5 of all quad sequences.
4. Activate the **STOP TIME** input to the controller, upon entering flash, to prevent cycling.
5. Transfer to flash at the end of the last side street all red condition (at the point the artery **ON** output becomes active).
6. Special technical notes on the intersection plan supercede the above requirements.

TC/TBC INSTALLATION REQUIREMENTS

The following requirements are to be observed when engineering the installation of TC/TBC:

1 a. Circuit 1 shall be designated FLASH and be reserved for night flash command.
b. Circuit 2 shall be designated MAX 2 and be reserved for Max 2 command.
c. Circuit 3 shall be designated COORD and shall select coordinated operation of the intersection.
d. Circuit 4 shall be the yield, and force off command to the controller.

2. All clock outputs shall be active to select the function specified. For example; If the TC/TBC were removed for repair, no inputs would be applied to the controller. The intersection will then operate non-coordinated, in Max 1. Programming the TC/TBC without cycle and offset is not an acceptable method to create a non-coordinated operation. Refer to the typical hookup diagram.

3. All TC/TBC clock installations shall be wired as detailed in figure 1. This method is used for both full and semi actuated operation.

4. Midnight resync shall occur at 12:00 AM.

5. A program card shall be completed indicating all input steps and settings. Four copies shall be provided. One copy left in the cabinet. Three delivered to the engineer along with the cabinet wiring diagrams.

TIME CLOCK / TIME BASE COORDINATION

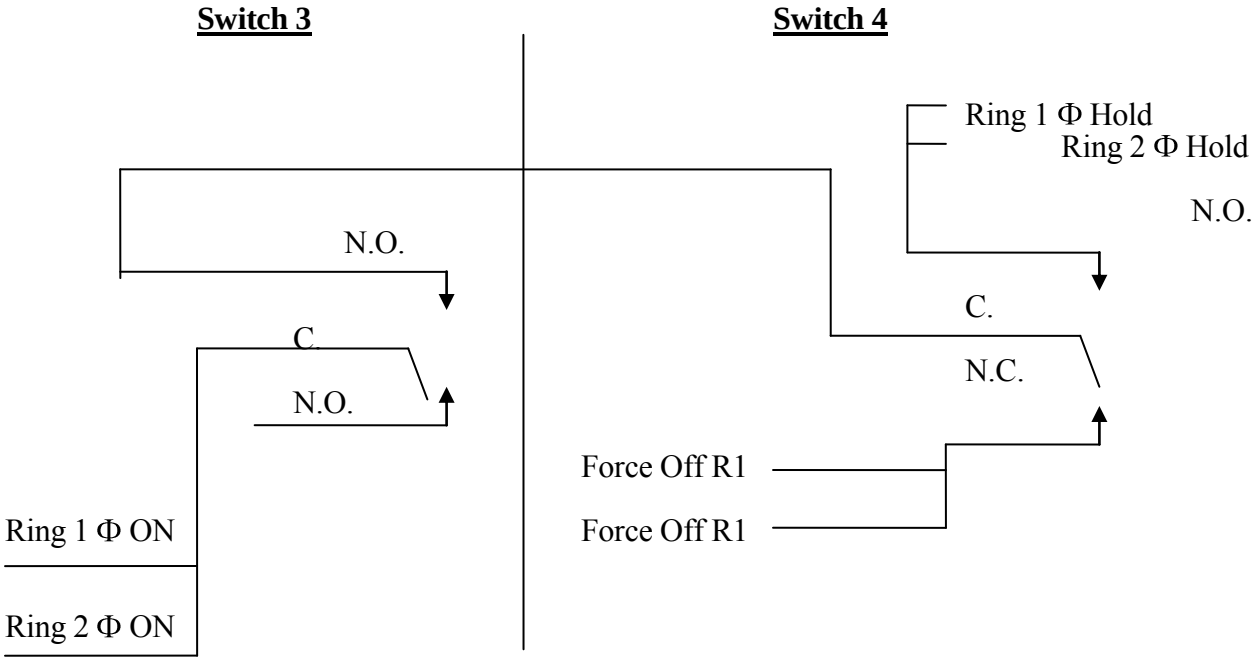


FIG. 1

24 VOLT RELAY

All 24 Volt relays shall meet the requirements of one of the following two types. Diodes shall be installed across the coils of all direct current relays to shunt the reverse voltage generated when the coil de-energizes. All diodes shall be general purpose ECG 125 1000prv @ 25A or equivalent, rated at least .5 amp forward biased. Diodes shall be external to the relay, not enclosed in the dust cover.

TYPE A: Midland Ross, Midtex 155-92 or equivalent.

DESCRIPTION:
This relay shall be enclosed in a clear polycarbonate removable dust cover. It shall have a mechanical life of more than 100,000 operations at rated load.

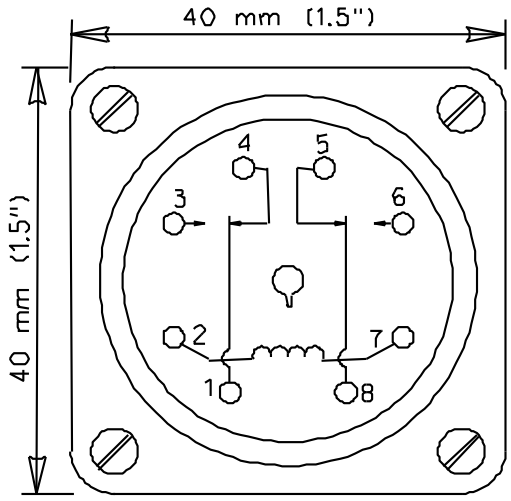
CONTACTS:
The contacts shall be 2 form C (D.P.D.T), U.L. rated at 5 amps 120 volts A.C. The contacts shall be pure fine silver (gold flash). There shall be no tungsten (lamp) load on the contacts of this relay.

COIL: The coil shall operate on 24 V.D.C. and have no less than 450 OHMS impedance.

SIZE: The relay shall be no larger than 65mm(2.5") H x 40mm(1.5") L x 40mm(1.5") W.

BASE: This relay shall have an eight pin octal plug-in base with the pin designation shown below:

1. Common (1)
2. Coil
3. Normally open (1)
4. Normally closed (1)
5. N.C. (2)
6. N.O. (2)
7. Coil (2)
8. Comm.



Bottom View And Wiring Diagram

SOCKET: The socket shall be a closed back, screw terminal type. The front mounted screws shall be 6-32 capable of accepting #14 AWG wire.

110 VOLT RELAY

All 110 volt relays shall meet the requirements of one of the following two types. Across the coil of each relay there shall be a molded suppressor rated at .1uf - 47 ohm @ 600V to suppress electrical noise created by the energization / de-energization of the relay.

TYPE F: Midland Ross, Midtex 136-62T3A1 or equivalent

DESCRIPTION:
Relays of this type shall function as flash transfer, power switching and signal drive. Other uses are acceptable, however, type G relays cannot be used for the above applications.

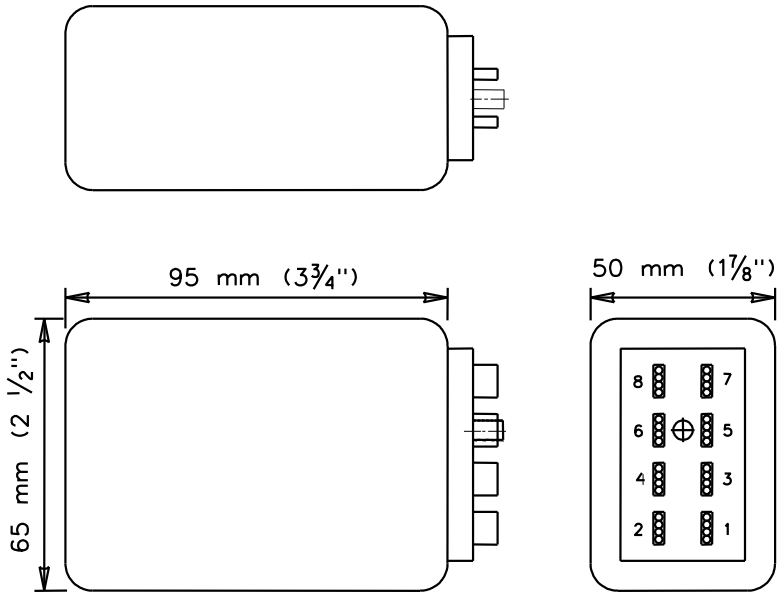
CONTACTS:
The contacts shall be in the D.P.D.T. form and consist of 10mm(3/8") diameter silver cadmium oxide, rated at 20 Amps @ 117 VAC resistive.

COIL:
The coil shall operate on 110 VAC. No semi-conductors will be allowed in the coil circuit of this relay.

SIZE:
The relay shall be enclosed in a clear plastic dust cover. The overall dimensions shall be no larger than 63mm(2 1/2") x 94mm(3 3/4") x 47mm(1 7/8") as illustrated below.

BASE:
This relay shall have an eight blade plug-in base, Ventron Beau Plug P-5408 or equivalent with the pin designations as shown below:

1. Coil
2. Coil
3. N.C. 1
4. N.C. 2
5. Comm. 1
6. Comm. 2
7. N.O. 1
8. N.O. 2



SOCKET:
The socket shall be Ventron Beau Plug S-5408 or equivalent, contacts rated at 15 Amps @ 1750 VRMS.

TYPE G: Magnecraft, W 88 ACXP-8 or equivalent

DESCRIPTION:

Relays of this type shall function in low current switching applications such as interconnect interface or pre-emption circuits. A clear polycarbonate plastic enclosure shall cover the relay mechanism.

CONTACTS:

The contacts shall be in the D.P.D.T. form and consist of 5mm (3/16") diameter gold flashed, silver alloy, rated at 10 Amps @ 120 VAC resistive.

COIL:

The coil shall operate on 120 Volts AC and require a nominal 3 VA.

SIZE:

Height, length and width dimensions shall be the same as the 24 volt relay Type A: 35mm (1 3/8") x 60mm (2 3/8") x 35mm (1 3/8").

BASE:

The base shall be an octal plug with the pin designations the same as the 24 volt relay Type A.

SOCKET:

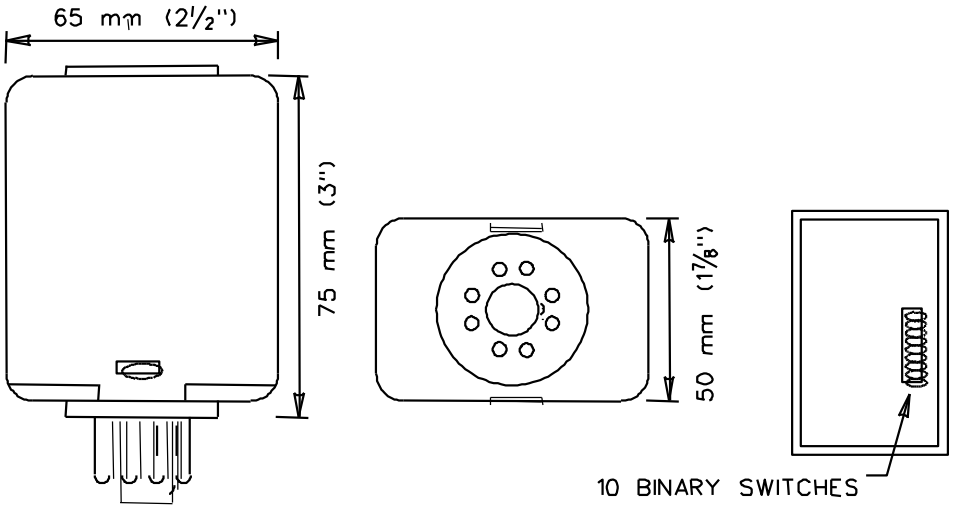
The socket shall be the same as that for the 24 volt relay Type A.

TIME DELAY RELAY

120 VAC SSAC TDM120A or equivalent
24 VDC SSAC TDM24DL or equivalent

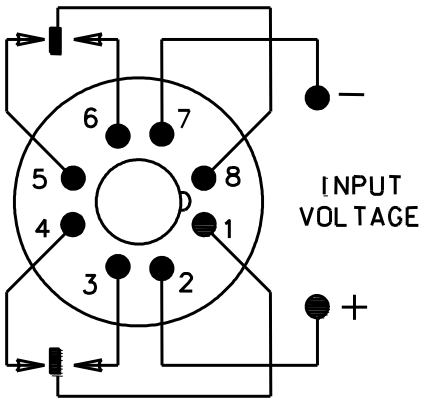
DESCRIPTION:

The time delay relays shall be self enclosed, plug-in, delay on operate type. They shall be digitally timed and adjustable by the use of dip switches located on the top of the case. The timing range shall be 1 to 1023 seconds in 1 second intervals. The time delay relays shall have an internal double pole double throw relay with form "C" contacts rated at 10 amps 120 volts AC. They shall operate accurately in a temperature range of -20 to +65 degrees C. A 120 volt AC input shall initiate timing of the 120 VAC TDR and a 24 VDC input shall initiate timing of the 24 VDC TDR. Removal of the input voltage shall reset the timer. Maximum dimensions of the case shall be as shown below.



SOCKET:

The socket shall be a standard octal base (8 pin) with screw terminal connectors. The pin designation shall be as shown below.



OCTAL (8 PIN) BASE

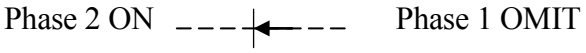
NON-ACTUATED ADVANCE GREEN PHASE

Where the timing and sequence indicates an advance green phase that always precedes the phase in recall (usually phase 2), and that either is fixed timed or is to be extended only, the following guidelines shall be in effect:

1. The parent phase ON output shall be diode connected to the advance phase OMIT input.

2. If the advance phase is to be extendable, it shall be in minimum recall. If the advance phase is fixed timed, it shall be in maximum recall. A different advance time may be selected by switching to maximum 2.

Example: Phase 1 is the advance phase (extendable), in minimum recall.
Phase 2 is the artery, in recall.
Phase 4 is the minor street, in non-lock.



Where the timing and sequence indicates an advance phase that is fixed timed (not extendable), and that always precedes either a phase other than phase 2 or a phase not in recall, the following guidelines shall be in effect:

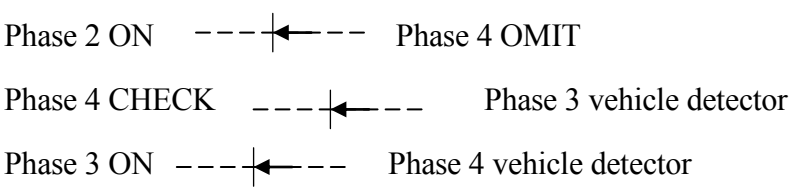
1. The recall phase (usually Phase 2) ON output shall be diode connected to the advance phase's, parent phase OMIT input.

2. The parent phase CHECK output shall be diode connected to the advance phase vehicle detector input.

3. The advance phase ON output shall be diode connected to the following parent phase vehicle detector input. This is to insure a green indication on the parent phase.

4. The advance phase shall be in the non-lock mode. The advance time shall be selected from the maximum interval.

Example: Phase 2 is the artery, in recall.
Phase 3 is the advance for phase 4, in non-lock mode.
Phase 4 (parent phase) is the minor street, in non-lock mode.



ACTUATED ADVANCE GREEN

Where the timing and sequence indicates an advance green phase that is to be extended only, and is to always precede either a phase other than phase 2 or a phase not in recall, the following guidelines shall be in effect:

1. The phase ON outputs of all phases that could precede the advance phase, shall be diode connected to the parent phase OMIT input.

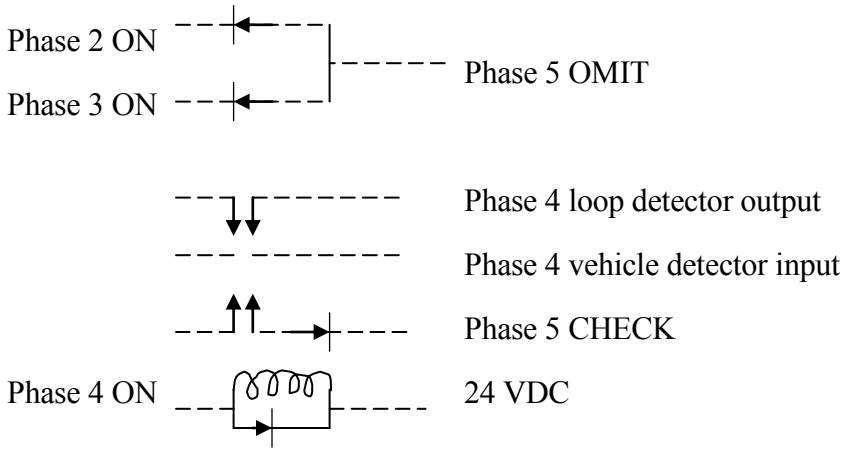
2. The parent phase CHECK output shall be diode connected, through the normally closed contacts of a relay, to the advance phase vehicle detector input. The advance phase loop detector output shall be connected to the normally open contacts.

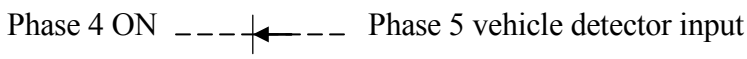
3. The relay coil shall be energized by the advance phase ON output, which in turn will switch the vehicle detector input from the parent phase CHECK circuit to the loop detector.

4. The advance phase ON output shall be diode connected to the following parent phase vehicle detector input. This is to insure a green indication from the parent phase.

5. The advance phase shall be in the non-lock mode.

Example: Phase 2 is the artery, in recall.
Phase 3 is the pedestrian phase.
Phase 4 is the advance for phase 5, in non-lock.
Phase 5 (parent phase) is the minor street, in non-lock.





The 24 volt relay shall be Type C as previously described in these specifications.

NON-ACTUATED CLEARANCE PHASE

NON-ACTUATED LAG GREEN PHASE

Where the timing and sequence indicates a non-actuated clearance phase or a lagging green phase that always follows the phase in recall, the following guidelines shall be in effect:

1. The parent phase ON output shall be diode connected to all appropriate phase OMIT inputs except the clearance phase.

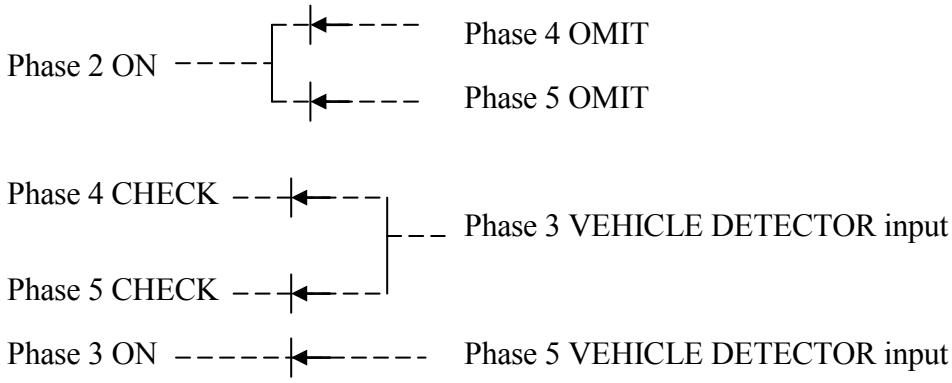
2. The remaining actuated phases shall have their CHECK outputs diode connected to the clearance phase vehicle detector input.

3. The clearance phase ON output shall be diode connected to the following phases vehicle detector input (if the phase is in non-lock mode). This will prevent the controller from returning to the parent phase from the clearance phase without servicing the minor street.

4. The clearance phase shall be in the non-lock mode.

5. The clearance, or lag green time shall be selected from the maximum interval.

Example: Phase 2 is the artery, in recall.
Phase 3 is the clearance phase, in non-lock.
Phase 4 is the pedestrian phase.
Phase 5 is the minor street, in non-lock.



Where the timing and sequence shows a non-actuated clearance phase or lagging green phase following either a phase other than phase 2 or a phase not in recall, the following guidelines shall be in effect:

1. The parent phase ON output shall be diode connected to the following clearance phase vehicle detector input. This insures the clearance phase will always follow the parent phase.

2. The clearance phase shall be in the non-lock mode.

3. The clearance, or lag green time shall be selected from the minimum green interval.

ACTUATED CLEARANCE PHASE

ACTUATED LAG GREEN PHASE

Where the timing and sequence indicates an actuated lagging green phase that is to be extended only, and always follows another phase, the following guidelines shall be in effect:

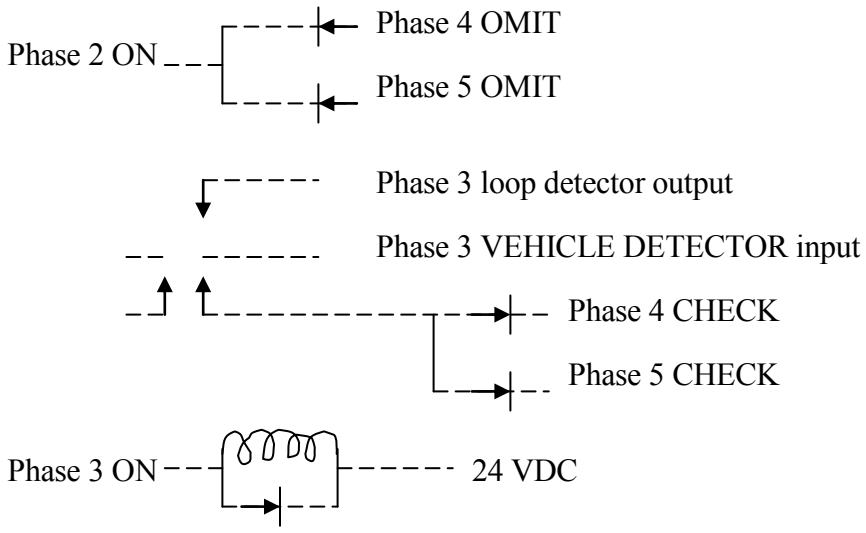
1. The parent phase (usually phase 2) ON output shall be diode connected to the phase OMIT inputs of all phases that could follow the lag phase.

2. The CHECK outputs of all phases that could follow the lag phase shall be diode connected, through the normally closed contacts of a relay, to the lag phase vehicle detector input. The lag phase loop detector output shall be connected to the normally open contacts.

3. The relay coil shall be energized by the lag phase ON output which in turn will switch the phase detector input from the CHECK circuits to the loop detector.

4. The lag phase shall be in the non-lock mode.

Example: Phase 2 (parent phase) is the artery, in recall.
Phase 3 is the lag phase, in non-lock.
Phase 4 is the pedestrian phase.
Phase 5 is the minor street, in non-lock.



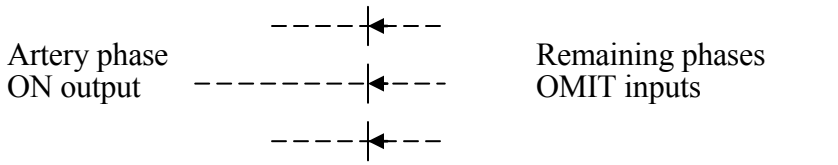
The 24 VDC relay shall be Type C as previously described in these specifications.

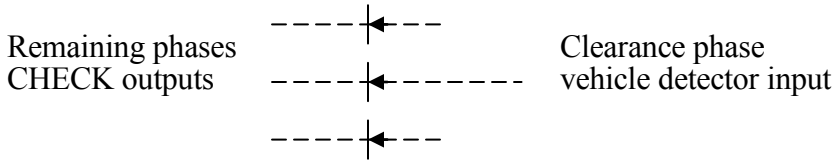
FLASHING STOP AHEAD SIGN

Where the timing and sequence indicates a flashing stop ahead sign, the clearance interval following the phase that the sign is off shall be timed by the following method.

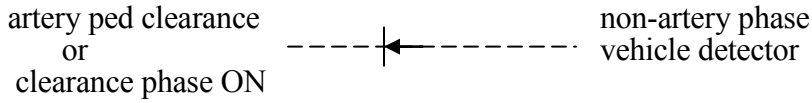
The following phase shall be used for the clearance time. These phases shall be overlapped. The green indication will be maintained by the overlap feature and the following phase green time will be the stop ahead sign clearance.

The artery phase ON output shall be diode connected to all other phase OMIT inputs except the clearance phase and the artery phase. The CHECK outputs from the remaining phases (as needed) shall be diode connected to the sign clearance phase vehicle detector input. The clearance phase shall be in the non-lock mode.

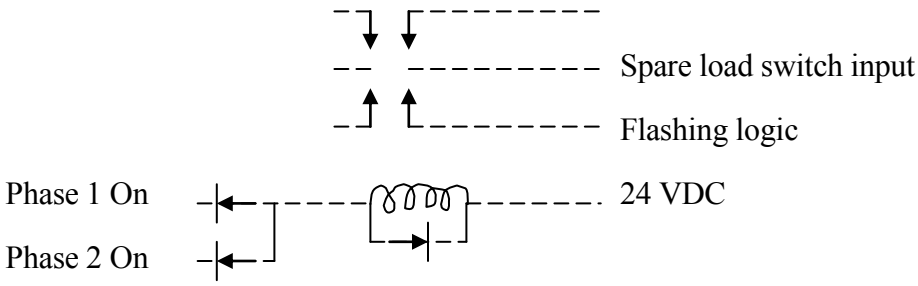




If the non-artery phases are in the non-lock mode, a call must be forced to the non-artery phase once the controller leaves the artery Hold interval (either artery walk or artery green). This prevents a false "Stop Ahead" indication if a vehicle turns right on red during the flashing sign clearance interval.



Unless otherwise shown on the plans, the 110 VAC flash power shall be from a spare load switch in the controller cabinet. The load switch input shall be driven with the flashing logic output from the controller. The flashing logic output shall be disconnected from the load switch during the intervals the sign is inactive.



Typical drive circuit for “WHEN FLASHING STOP AHEAD” sign

TIME BASE COORDINATION
MAX II ACTUATION BY PEDESTRIAN CALL

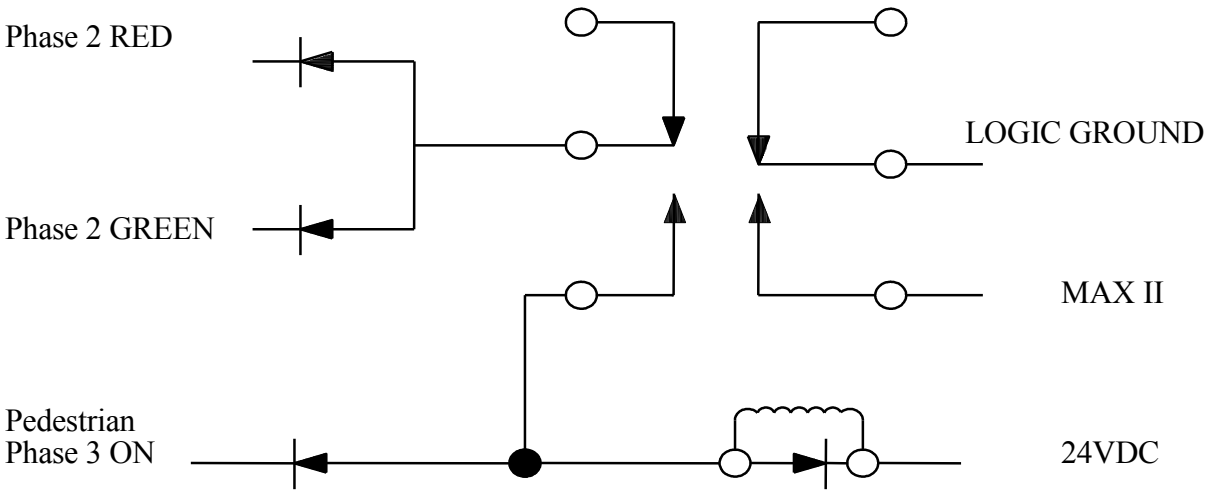
When the sum of the split times, including the walk and don't walk, exceed the background cycle length, the designer may choose to either allow a double cycle of the background timer or reduce the phase timings when the ped phase is called. Reduction of the phase timing by switching to MAX 2 avoids double cycling.

Where indicated on the plans the exclusive pedestrian phase will call MAX II. The minor movement max 2 times are set low so that the total phase times do not exceed the coordination cycle length.

Install a 24 volt relay connected to the inputs and outputs as shown on the following schematic.

Operation: When the controller advances to the exclusive pedestrian phase, the relay is actuated and latched. MAX II timing is selected for one complete cycle, until the relay is unlatched by the artery yellow (absence of red or green).

Example: Phase 2 is the artery. Phase 3 is the exclusive pedestrian phase.



DEPARTMENT OF THE ARMY PERMIT

Permittee Connecticut Department of Transportation (CTDOT), 2800 Berlin Turnpike, P.O. Box 317546, Newington, CT 06131-7546

Permit No. NAE-2012-1062

Issuing Office New England District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Excavate/fill/backfill in approximately 1.27 acres (1.09 ac. permanent, 0.18 ac. temporary) of wetlands/waters areas, including replacement/rehabilitation of existing culverts along I-84 (in Waterbury and Cheshire) and relocation/reconfiguration of portions of stream systems (Mad River, Beaver Pond Brook), in association with the widening/reconstruction of a 2.7-mile section of I-84 in Waterbury, CT (State Project No. 151-273) extending from Washington Avenue east to Pierpont Road. Permanent and temporary impacts to wetlands and watercourse areas are shown on Table 1 below.
The widening (add third travel lane and full width shoulders in each direction)/reconstruction and safety improvements project include the realignment of the highway in the vicinity of Harpers Ferry Road (Interchange No. 24) to eliminate the existing sharp reverse curvature, and interchange reconfiguration within the project limits.

Project Location:

The site coordinates are: Latitude 41.538° N, Longitude 73.002° W (at Beaver Pond Brook resource along south side of I-84 within the project area) in Waterbury, Connecticut .

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2019. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. The permittee shall ensure that a copy of this permit is at the work site (and the project office) authorized by this permit whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit shall be made a part of any and all contracts and sub-contracts for work that affects areas of Corps jurisdiction at the site of the work authorized by this permit. This shall be achieved by including the entire permit in the specifications for work. The term "entire permit" means this permit (including its drawings, plans, appendices and other attachments) and also includes permit modifications.

(Special conditions continued on Page 5)

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

(PERMITTEE) CTDOT _____ *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Barbara Newman for _____ 9/24/14
(DISTRICT ENGINEER) *(DATE)*

Christopher J. Barron
Colonel, Corps of Engineers

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) _____ *(DATE)*

☆U.S. GOVERNMENT PRINTING OFFICE: 1986 — 717-425

Project Description cont'd from page 1:

The reconfiguration of interchanges consists of the elimination of two existing weave sections (EB 23 On-Ramp/EB 24 Off-Ramp and WB 25 On-Ramp/WB 24 Off-Ramp), providing a new WB 24 On-Ramp from Harpers Ferry Road and relocation of the WB 25 Off-Ramp to Scott Road.

An operational lane will be provided for Westbound I-84 between Harpers Ferry Road (Interchange No. 24 Westbound On-Ramp) and Hamilton Avenue (Interchange No. 23 Westbound Off-Ramp) to improve flow of traffic.

As a result of the realignment of I-84 and reconfiguration of the ramps, portions of the following State and local roads intersecting within the project limits will be reconstructed: Hamilton Avenue; Harpers Ferry Road; Scott Road; Plank Road; Reidville Drive; Plank Road East; and East Main Street.

The project includes the construction/replacement of eight highway bridges (four over watercourses), one pedestrian crossing over the Mad River, seven culverts (five within the Beaver Pond Brook, one within East Mountain Brook and one within the Mad River), and twenty retaining wall features.

The project also includes rehabilitation of five existing culverts including four corrugated metal pipe (CMP) culverts in the project area, some of which will be rehabilitated by culvert lining of the existing deteriorated CMP cross culverts located under high highway embankments. Among them are a 750mm (30inch) and a 1,500mm (60 inch) CMP culverts located outside of the 2.7 mile section above identified project limits in the Town of Cheshire approximately 1,400 meters (4,600± feet) and 3,300 meters (10,800± feet) east of Pierpont Road, respectively.

Additional associated work includes sanitary sewer and water line reconstruction, general drainage improvements, noise abatement, and new highway signing and pavement markings.

The authorized work is described and shown on the attached project plans entitled "RECONSTRUCTION OF I-84 CITY OF WATERBURY" on thirty-three (33) sheets, various plot dates (12/18/2013, 1/10/2014, 1/13/2014, and 1/28/2014).

Compensatory mitigation is required consisting of an ILF payment into the AUDUBON CT In-Lieu-Fee Program and permittee-responsible mitigation. Permittee-responsible mitigation consists of approximately 0.57 acres of onsite wetland enhancement area at the confluence of Beaver Pond Brook and Mad River; and onsite stream/habitat enhancement sites on approximately 3,383 LF of the Mad River and Beaver Pond Brook in association with the reconstruction and reconfiguration of segments of the Mad River and Beaver Pond Brook stream systems within the project area.

Permittee-responsible mitigation is as described and shown on the attached Figure 1 entitled: "COMPENSATORY MITIGATION PLAN I-84 Habitat Enhancement Sites Mad River and Beaver Pond Brook Waterbury, Connecticut", dated "1/29/2014", and as further detailed in a mitigation plan entitled: 'Compensatory Wetland and Waters of the U.S. Mitigation Plan for Reconstruction of I-84 in Waterbury, Connecticut State Project No. 151-273 Federal Aid Project No. NHI-84-2 (172)33', dated 'January 31, 2014' (title page attached).

Table 1. Summary of Watercourse & Wetland Impacts												
REACH	Channel Permanent (Area)		Channel Temporary (Area)		Channel Permanent (Linear)		Channel Temporary (Linear)		Wetlands Permanent		Wetlands Temporary	
	S M	Ac.	S M	Ac.	M	FEET	M	FEET	SM	Ac.	S M	Ac.
MR #1	89	0.02	0	0.00	27	89	0	0	875	0.22	0	0.00
MR #2	774	0.19	1,193	0.29	125	410	203	666	132	0.03	0	0.00
MR #3	0	0.00	1,057	0.26	0	0	37	121	469	0.12	129	0.03
MR #4	3,459	0.85	4,230	1.05	144	472	279	915	1,612	0.40	0	0.00
MR #5	1,325	0.33	2,533	0.63	110	361	167	548	419	0.10	251	0.06
Sub Total	5,647	1.39	9,013	2.23	706	1,332	686	2,251	3,517	0.87	380	0.09
BPB #1	0	0.00	327	0.08	9	30	35	115	0	0.00	0	0.00
BPB #2	799	0.20	991	0.24	107	351	132	433	379	0.09	0	0.00
BPB #3	0	0.00	0	0.00	0	0	0	0	0	0.00	0	0.00
BPB #4	120	0.03	306	0.08	12	39	43	141	0	0.00	0	0.00
BPB #5	0	0.00	0	0.00	0	0	0	0	0	0.00	0	0.00
BPB #6	4,163	1.03	965	0.24	495	1,624	98	322	279	0.07	0	0.00
BPB #6A	0	0.00	0	0.00	0	0	0	0	242	0.06	259	0.06
BPB #7	0	0.00	0	0.00	0	0	0	0	0	0.00	0	0.00
BPB #8	2	0.00	195	0.05	2	7	80	262	0	0.00	0	0.0
BPB #8A	0	0.00	0	0.00	0	0	0	0	0	0.00	22	0.01
BPB #9	0	0.00	0	0.00	0	0	0	0	0	0.00	26	0.01
Sub Total	5,084	1.26	2,784	0.69	625	2,051	388	1,273	900	0.22	307	0.08
CB #1	0	0.00	0	0.00	0	0	0	0	0	0.00	53	0.01
All Sites	**10,731**	**2.65**	**11,797**	**2.92**	**1,031**	**3,383**	**1,074**	**3,524**	**4,417**	**1.09**	**740**	**0.18**

(Special conditions continued from Page 2)

Condition #1 cont'd:
If the permit is issued after the construction specifications, but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. If the permit is issued after receipt of bids or quotes, the entire permit shall be included in the contract or sub-contract. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

2. The permittee shall complete and return the attached Compliance Certification Form within one month following the completion of the authorized work.

3. No temporary fill (e.g., gravel, cofferdams, construction/swamp mats, log, corduroy, culverts) may be placed in wetlands and/or waters of the United States unless specifically authorized by this permit. Temporary fill that is authorized herein shall adhere to the following:

a. All temporary fill shall be stabilized to prevent its eroding into portions of waters of the U.S., including wetlands, where it is not authorized.

b. Unconfined temporary fill authorized for discharge into waters of the U.S., including wetlands, shall consist of material that minimizes impacts to water quality (e.g. sandbags, clean gravel, stone, aggregate, etc.).
c. Temporary fill authorized for discharge into wetlands should be placed on geotextile fabric or other material (e.g., straw) laid on the pre-construction wetland grade where practicable to minimize impacts.
d. Temporary fill shall be removed as soon as it is no longer needed, disposed of at an upland site, and suitably contained to prevent subsequent erosion into waters of the U.S, including wetlands.
e. Waters of the U.S., including wetlands, where temporary fill was discharged shall be restored
f. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must be placed in a manner that will not be eroded by expected high flows.

4. Adequate sedimentation and erosion control devices, such as geotextile silt fences or other devices capable of filtering sediments, shall be installed and properly maintained to minimize impacts on wetlands and/or waters during construction. These devices must be removed after soils disturbed by construction activities are stabilized by revegetation or other means. The sediment collected by these devices must be periodically removed and placed in uplands, in a manner that will prevent its erosion and transport to wetlands and/or waters.

5. All areas of wetlands and/or waters, which are disturbed during construction, except those authorized herein for permanent impact, shall be restored to their approximate original elevation (but not higher) and condition by careful protection, and/or removal and replacement, of existing soil and vegetation. In addition, if upland clearing, grubbing, or other construction activity results in, or may result in, soil erosion with transport and deposition into a wetland or waterway, devices such as geotextile silt fences, sediment trenches, etc., shall be installed and properly maintained to minimize such impacts during construction. These devices must be removed upon completion of work and stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland.

6. The permittee shall provide compensatory mitigation (ILF and permittee-responsible) for aquatic resource impacts as follows:

a. ILF mitigation shall consist of the payment of $363,817.00 to the Connecticut In-Lieu Fee program. The permittee shall a) make a cashier's check or bank draft out to "National Audubon Society, Inc.," and include "Corps file number NAE-2012-01062" and the statement "For ILF account only"; b) enclose the attached "Connecticut In-lieu Fee Project Impact Worksheet"; c) send a) and b) to: Executive Director, National Audubon-Society, Inc., Connecticut Chapter, Attn: ILF Program, 613 Riversville Road, Greenwich, CT 06831; and d) send a copy of the check or bank draft to: PATS Branch, Regulatory Division, New England District, US Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751.

   Authorized work may not begin until you receive a copy of the Notification of Sale of Credits Letter from Audubon-CT acknowledging receipt of your check and accepting compensatory mitigation responsibility for your project.

b. Permittee-responsible mitigation shall be provided consisting of approximately 0.57 acres of onsite wetland enhancement area at the confluence of Beaver Pond Brook and Mad River; and onsite stream/habitat enhancement sites on approximately 3,383 LF of the Mad River and Beaver Pond Brook

in association with the reconstruction and reconfiguration of segments of the Mad River and Beaver Pond Brook stream systems within the project area.

The elements of the permittee-responsible mitigation are as shown on the attached Figure 1 entitled: 'COMPENSATORY MITIGATION PLAN I-84 Habitat Enhancement Sites Mad River and Beaver Pond Brook Waterbury, Connecticut', dated '1/29/2014', and shall be performed in accordance with the attached mitigation plan (title page attached) entitled: '**Compensatory Wetland and Waters of the U.S. Mitigation Plan for Reconstruction of I-84 in Waterbury, Connecticut State Project No. 151-273 Federal Aid Project No. NHI-84-2 (172) 33', dated 'January 31, 2014'**. The permittee-responsible mitigation work shall be completed within one year of the first impacts to regulated resources unless the Corps provides a written extension.

7. Your responsibility to complete the required compensatory mitigation as set forth in Special Condition 6.b above will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers. The term "mitigation success" means success as defined in the mitigation plan this permit requires you to implement. Demonstration of success under this permit shall consist of the required mitigation monitoring, corrective measures, submittal of mitigation monitoring reports, and a final wetland assessment.

8. The introduction, spread, or the increased risk of invasion of non-native invasive plant or animal species on the project site, due to the site work, into new or disturbed areas, or areas adjacent to the project site shall be managed and controlled. Prior to being onsite, the contractor shall thoroughly inspect and remove seeds, plant material, soil, mud, insects, and other invertebrates on all equipment, including construction mats, to be used on the project site to prohibit introduction of invasive organisms. At a minimum, the following shall be inspected and cleaned on terrestrial vehicles where applicable:

Rubber Tired Vehicles - Crevices in upper surface and panels, tires, rims, and fender wells, spare tire mounting area, bumpers, front and rear quarter panels, around and behind grills, bottom of radiator vent openings, brake mechanisms, transmission, stabilizer bar, shock absorbers, front and rear axles, beds, suspension units, exhaust systems, light casings, and mirrors.
Tracked Land Vehicles - Crevices in upper surface and panels, top of axles and tensioners, support rollers, between rubber or gridded areas, beneath fenders, hatches, under casings, and grills.
Interiors of All Vehicles - Beneath seats, beneath floor mats, upholstery, beneath foot pedals, inside folds of gear shift cover.

When equipment has been previously used in an area known or suspected to contain live zebra or quagga mussels at any life stage, the contractor shall thoroughly clean all equipment that was in contact with the body of water before bringing it to the project site.

9. Work shall conform to the permit plans and work authorized by this permit. Any proposed modifications to the authorized work or plans shall be submitted to our office for written approval prior to implementation.

10. Except where stated otherwise, reports, drawings, correspondence and any other submittals required by this permit shall be marked with the words "Permit No. NAE-2012-1062", and shall be submitted via: a) MAIL: Attn: Susan Lee – Regulatory Division, Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751, or b) FAX: (978) 318-8303. Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit. Requirements for immediate notification to the Corps shall be done by telephone to (978) 318-8338.