

TECHNICAL SPECIFICATIONS

Standard CT DOT FORM 816 ITEMS

Cut Bituminous Concrete Pavement:

The contractor shall saw cut the bituminous concrete pavement at the locations as shown on the plans and details, or as directed in the field by the Town Engineer or assigned representative.

All work shall be in accordance with Article 4.06 of CT DOT FORM 816, dated July 2015 with the exception of Articles 4.06.04 and 4.06.05 which are amended and modified as follows:

Delete Article 4.06.04 Method of Measurement
Delete Article 4.06.05 Basis of Payment

This work will not be measured for payment and will be included in the cost of "Chimney Replacements" or Sanitary Sewer Point Repair

Temporary Pavement Repair:

The Contractor shall place bituminous concrete pavement at the locations as shown on the plans and details, or as directed in the field by the Town Engineer or assigned representative.

All work shall be in accordance with Article 4.06 of CT DOT FORM 816, dated July 2015 with the exception of Articles 4.06.04 and 4.06.05 which are amended and modified as follows:

Delete Article 4.06.04 Method of Measurement
Delete Article 4.06.05 Basis of Payment

This work will not be measured for payment and will be included in the cost of "Chimney Replacements" or Sanitary Sewer Point Repair

Item No. 500 Pavement Repair (less than 200 square yards) Item No. 510 Pavement Repair (more than 200 square yards) Item No. 520 Pavement repair for Hurd Road

The Contractor shall place bituminous concrete pavement at the locations as shown on the plans and details, or as directed in the field by the Town Engineer or assigned representative.

All work shall be in accordance with Article 4.06 of CT DOT FORM 816, dated July 2015 with the exception of Articles 4.06.04 and 4.06.05 which are amended and modified as follows:

Delete Article 4.06.04 Method of Measurement and Replace with the following:

This work will be measured for payment per Square Yard under the quantity in the bid schedule. There will be no separate measurement of area for 2" milling, tack coat, and saw cutting.

Delete Article 4.06.05 Basis of Payment

This work will be paid for at the contract unit price for each item specified below which price shall include materials, equipment, tools, labor, transportation, operations and all work incidental thereto.

Item No.	Description	Pay Unit
200	Pavement Repair (less than 200 square yards)	SY
210	Pavement Repair (more than 200 square yards)	SY
220	Pavement repair for Hurd Road	SY.

Base Bid Pay Items

- ITEM No. 300 – SANITARY CHIMNEY REPLACEMENT (0’ – 9.9’ Deep)**
ITEM No. 310 – SANITARY CHIMNEY REPLACEMENT (10’ – 14.9’ Deep)
ITEM No. 320 – SANITARY CHIMNEY REPLACEMENT (15’ – 19.9’ Deep)
ITEM No. 330 – SANITARY CHIMNEY REPLACEMENT (20’ – 24.9’ Deep)
ITEM No. 340 – SANITARY CHIMNEY REPLACEMENT (25’ – 30’ Deep)

ALTERNATE Bid Pay Items

- ITEM No. 400 – SANITARY SEWER POINT REPAIR (0’ – 9.9’ Deep)**
ITEM No. 410 – SANITARY SEWER POINT REPAIR (10’ – 14.9’ Deep)
ITEM No. 420 – SANITARY SEWER POINT REPAIR (15’ – 19.9’ Deep)
ITEM No. 430 – SANITARY SEWER POINT REPAIR (20’ – 24.9’ Deep)
ITEM No. 440 – SANITARY SEWER POINT REPAIR (25’ – 30’ Deep)

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
1. PVC Gravity Pipe and Fittings
 2. Precast Concrete Chimneys

1.2 REFERENCES

- A. ASTM D2412 - Standard Test Method for External Loading Properties of Plastic Pipe by Parallel-Plate Loading.
- B. ASTM D2444 - Standard Test Method for Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight).
- C. ASTM D3034 - Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
- D. ASTM D3212 - Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- E. ASTM F477 - Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- F. ASTM F679 - Specification for Polyvinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.

1.3 SUBMITTALS

- A. Submit specifications and shop drawings for materials and equipment furnished under this Section.
- B. Prior to first shipment of pipe, submit certified test reports that the pipe for this Contract was manufactured and tested in accordance with the ASTM Standards specified herein.

1.4 QUALITY ASSURANCE

- A. Each type of PVC pipe and fittings shall be from a single manufacturer.

- B. Inspection of the pipe will also be made by the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the job site.

PART 2 PRODUCTS

2.1 MATERIALS

A. Gravity Pipe

1. Polyvinyl chloride (PVC) pipe shall be of the size indicated on the Drawings or as specified and shall conform to the latest revision of ASTM D3034, Type SDR 35 for diameters less than or equal to 15 inch diameter and ASTM F679 for pipe greater than 15 inch diameter. Standard laying lengths shall not exceed 14.0 feet.
2. Joints shall be elastomeric gasket joints and shall provide a watertight seal. Assembly of joints shall be in accordance with ASTM D3212.
3. The minimum "pipe stiffness" (load divided by change in inside diameter in direction of load application) at 5% deflection shall be at least 46 psi for pipe tested in accordance with ASTM D2412.
4. No shattering or splitting shall be evident when 150 ft.-lbs. and 210 ft.-lbs. is impacted on 4 inch and 6 inch diameter pipe, respectively, in accordance with ASTM Method of Test D2444.
5. Pipe lengths and fittings to be used on the project shall be clearly marked on the outside in bold type with the name of the manufacturer, pipe size, pipe material, pipe class, and ASTM designation.
6. Lateral Service Chimneys
 - a. Pipe and fittings shall be 6 inch diameter and be of the same material as the main line PVC pipe.
 - b. Construct service chimneys with precast concrete sections. Cast-in-place chimneys will not be acceptable.

PART 3 EXECUTION

3.1 HANDLING PIPE AND FITTINGS

- A. Take care in loading, transporting, and unloading to prevent injury to the pipe. Do not drop pipe or fittings. Examine pipe and fittings before installing, and no piece shall be installed that is found to be defective.
- B. If any defective pipe is discovered after it has been installed, remove and replace it with a sound pipe in a satisfactory manner. Thoroughly clean pipe and fittings before installing, keep clean until they are used in the work, and conform to the lines, grades and dimensions required when installed.
- C. Pipe ends requiring cutting shall be cut square without damage to the remaining pipe. Bevel cut pipe ends 1/8 inch at approximately 30 degrees

to provide proper assembly of the joint. Beveling can be done with a coarse file or portable grinder.

- D. Support stored pipe from below at not more than 3 foot intervals to prevent deformation. Do not stack pipe higher than 6 feet. Store pipe and fittings in a manner which will keep them at ambient outdoor temperatures. Provide temporary shading as required to meet this requirement. Simply covering of the pipe and fittings which allows temperature buildup when exposed to direct sunlight will not be permitted.

3.2 INSTALLATION

- A. No single piece of pipe shall be laid unless it is generally straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16 inch per foot of length. If a piece of pipe fails to meet this required check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.
- B. Install piping and fittings true to alignment and grade. If necessary, each length of pipe shall be cleaned out before installation.
- C. All PVC gravity pipe shall be installed on a bed of 3/4-inch crushed stone borrow and have a minimum depth of 6 inches. The 3/4-inch crushed stone borrow shall also completely encase the pipe and cover the pipe to a grade 6 inches over the top of the pipe for the entire width of the trench. Bell holes shall be made in the 3/4-inch crushed stone borrow bedding such that the pipe shall be uniformly supported throughout the entire length of the barrel section.
- D. Deflections in Pipe Alignment
 1. Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions or where long-radius curves are permitted, the amount of deflection allowed shall not exceed that required for satisfactory making of the joint, and shall be approved by the Engineer.
 2. Prior to deflecting the pipeline, the spigot of the pipeline should be marked flush with the bell end to assure that the spigot is not withdrawn excessively as the result of the deflection. After the pipe is deflected, an adequate depth of jointing material must remain on the side where the spigot is away from home and an adequate width of caulking space must remain on the opposite side of the pipe at the face of the bell.
 3. The maximum deflection recommended by the manufacturer when using any pipe system must be observed when deflecting a pipeline.
 4. In general, all radius curves called for on the Drawings or permitted at the time of construction are to be made using full lengths of pipe. The use of short lengths of pipe and extra joints in order to make a smaller radius turn will not be allowed without the written approval of Engineer.
- E. Unsuitable Laying Conditions
 1. No pipe shall be laid in water, in an unsuitable trench or during unsuitable weather conditions.

F. Chimney Construction Methods

1. The Contractor shall carefully place the pipe, fittings and precast concrete sections forming the house service chimney in accordance with the standard detail for "Precast Concrete Chimney." The pipe fittings shall be braced and supported as necessary to ensure they stay in the proper position while the precast concrete sections are placed. Chimneys shall be constructed in such a manner that loads are not transferred to the mainline pipe or tee.

PART 4 METHOD OF MEASUREMENT

Sanitary chimney replacements will be measured as units. The depth category for the item "Sanitary Chimney Replacement" will be determined by measuring from the existing ground surface elevation down to the invert of the existing sanitary sewer main at the chimney location. There will be no separate measurement for removal of existing chimneys. There will be no separate measurement for excavation, backfill, temporary pavement, pipe stubs (including repair collars) required to reconnect to existing sanitary main, bypass pumping or Maintenance & Protection of Traffic required for sanitary chimney replacement. All such costs are to be included in the unit cost for the pay item "Sanitary Chimney Replacement" of the depth noted.

Sanitary point repairs will be measured as units. The depth category for the item "Sanitary Point Repair" will be determined by measuring from the existing ground surface elevation down to the invert of the existing sanitary sewer main at the point repair location. There will be no separate measurement for removal of existing pipe at repair locations. There will be no separate measurement for excavation, backfill, temporary pavement, pipe stubs (including repair collars) required to reconnect to existing sanitary main, bypass pumping or Maintenance & Protection of Traffic required for sanitary point repairs. All such costs are to be included in the unit cost for the pay item "Sanitary Point Repair" of the depth noted.

PART 5 BASIS OF PAYMENT

Sanitary sewer chimney replacements will be paid for at the contract unit price Each for "Sanitary Chimney Replacement" of the depth noted, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto. There will be no separate payment for removal of existing chimneys at replacement locations. There will be no separate payment for excavation, backfill, temporary pavement, pipe stubs (including repair collars) required to reconnect to existing sanitary main, bypass pumping or Maintenance & Protection of Traffic required for sanitary chimney replacements. All such costs are to be included in the unit cost for the pay item "Sanitary Chimney Replacement" of the depth noted.

Sanitary Point Repairs will be paid for at the Contract unit price each for "Sanitary Point Repair" of the depth noted, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto. There will be no separate payment for removal of existing pipe at repair locations. There will be no separate payment for excavation, backfill, temporary pavement, pipe stubs (including repair collars) required to reconnect to existing sanitary main, bypass pumping or Maintenance & Protection of Traffic required for sanitary point repairs. All such costs are to be included in the unit cost for the pay item "Sanitary Point Repair" of the depth noted.

Base Bid Pay Items

PAY ITEM	DESCRIPTION	PAY UNIT
300	SANITARY CHIMNEY REPLACEMENT (0' - 9.9' DEEP)	EACH
310	SANITARY CHIMNEY REPLACEMENT (10' - 14.9' DEEP)	EACH
320	SANITARY CHIMNEY REPLACEMENT (15' - 19.9' DEEP)	EACH
330	SANITARY CHIMNEY REPLACEMENT (20' - 24.9' DEEP)	EACH
340	SANITARY CHIMNEY REPLACEMENT (25' - 30' DEEP)	EACH

Alternate Bid Pay Items

PAY ITEM	DESCRIPTION	PAY UNIT
400	SANITARY SEWER POINT REPAIR (0' - 10' DEEP)	EACH
410	SANITARY SEWER POINT REPAIR (10' - 14.9' DEEP)	EACH
420	SANITARY SEWER POINT REPAIR (15' - 19.9' DEEP)	EACH
430	SANITARY SEWER POINT REPAIR (20' - 24.9' DEEP)	EACH
440	SANITARY SEWER POINT REPAIR (25' - 30' DEEP)	EACH

ITEM 0971001A MAINTENANCE AND PROTECTION OF TRAFFIC

There will be no method of measurement or basis of payment for this item. The cost of this item is to be included in the cost of other items. Maintenance and Protection of Traffic and all materials, equipment, tools and labor incidental thereto shall be included in the general cost of all other pay items.

Article 9.71.01 – Description is supplemented by the following:

The Contractor shall maintain and protect traffic in the project area. The Contractor shall submit a plan showing proposed Maintenance and Protection of Traffic measures for approval by the Town of Trumbull and the Engineer prior to the start of construction activities.

ALL ROADWAYS

The Contractor shall maintain and protect one lane of through traffic in each direction, each lane on a paved travel path not less than 11 feet 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 travel path not less than 12 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet.

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.

Article 9.71.03 - Construction Method is supplemented as follows:

SIGNING

The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary and install temporary sign supports and foundations if necessary and as directed by the Engineer. The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports and foundations, 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).

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.

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.

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

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

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

**Allowable Adjustment of Signs and Devices
Shown on the Traffic Control Plans**

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

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

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

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

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

TABLE I – MINIMUM TAPER LENGTHS

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

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 Trumbull DPW.

SECTION 2. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

- 2.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.
- 2.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.
- 2.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.
- 2.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, State Police may use traffic slowing techniques, including the use of Truck Mounted Impact Attenuators (TMAs) as appropriate, for a minimum of one mile in advance of the pattern starting point. Once the advanced warning signs and the first ten traffic cones/drums are installed/removed, the two TMAs and sign crew should continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.
- 2.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

- 2.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 2.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.
- 2.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 3. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

- 3.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.).
- 3.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.
- 3.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.
- 3.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.
- 3.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.
- 3.f) If the required number of Flashing Arrows is not available, the traffic control pattern shall not be installed.

SECTION 4. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

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

SECTION 5. GENERAL

- 5.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.
- 5.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.
- 5.c) Failure of the Contractor to have the required minimum number of signs and equipment, which results in the not being installed, shall not be a reason for a time extension.
- 5.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 6. WORK ZONE SAFETY MEETING AGENDA

- 1) Review Project scope of work and time.
- 2) Review requirements of the Trumbull Police Department traffic control.
- 3) Review Work Zone Safety Procedures.
- 4) Review Contractor's schedule and method of operations.
- 5) Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
- 6) Open discussion of work zone questions and issues.

8) Discussion of review and approval process for changes in contract requirements as they relate to work zone areas.

SERIES 16 SIGNS

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

		W	H
16-S	80-1619	48"	30"

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

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

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

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

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.

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

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

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

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

THE "ROAD WORK AHEAD, FINES DOUBLED" REGULATORY SIGNS SHALL NOT BE INSTALLED ON TOWN ROADS.

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

	W	H
31-1906	48"	42"

"END ROAD WORK" SIGN

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

80-9612

REV'D I-02

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

CONSTRUCTION
TRAFFIC CONTROL PLAN

REQUIRED SIGNS

APPROVED J. Carey DATE I-02
PRINCIPAL ENGINEER

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.
2. SIGNS (AA), (A) AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.
3. SEE TABLE #1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.
4. A CHANGEABLE MESSAGE SIGN MAY BE UTILIZED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
5. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 72 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.
6. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA WILL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS REOPENED TO ALL LANES OF TRAFFIC.
7. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN THE EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED AND TEMPORARY PAVEMENT MARKINGS THAT DEPICT THE PROPER TRAVEL PATHS SHALL BE INSTALLED.
8. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 200' ON LOW SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).
9. FOR LANE CLOSURES ONE (1) MILE OR LONGER, A "REDUCE SPEED TO 45 MPH" SIGN SHALL BE PLACED AT THE ONE MILE POINT AND AT EACH MILE THEREAFTER.
10. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
11. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

REV'D 1-02



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

CONSTRUCTION
TRAFFIC CONTROL PLAN
NOTES

NOTES.DGN

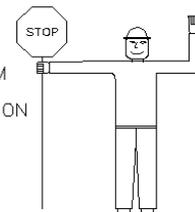
WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.04 FLAGGER PROCEDURES IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TYPICAL DETAIL SHEET ENTITLED "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

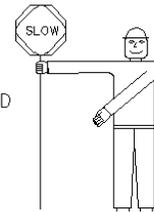
A. TO STOP TRAFFIC

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



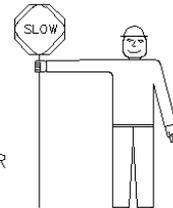
B. TO DIRECT TRAFFIC TO PROCEED

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



C. TO ALERT OR SLOW TRAFFIC

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



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

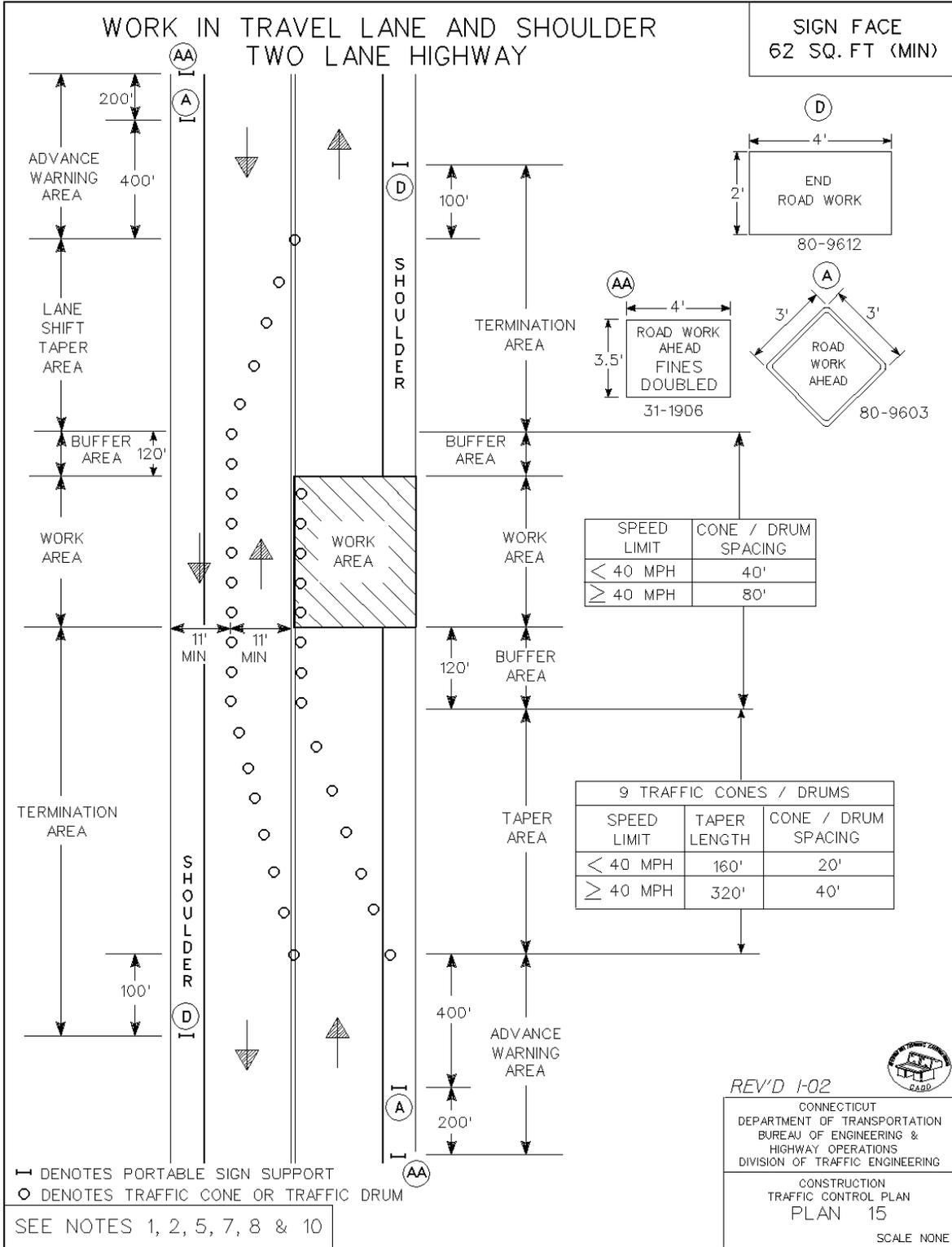
REV'D 1-02



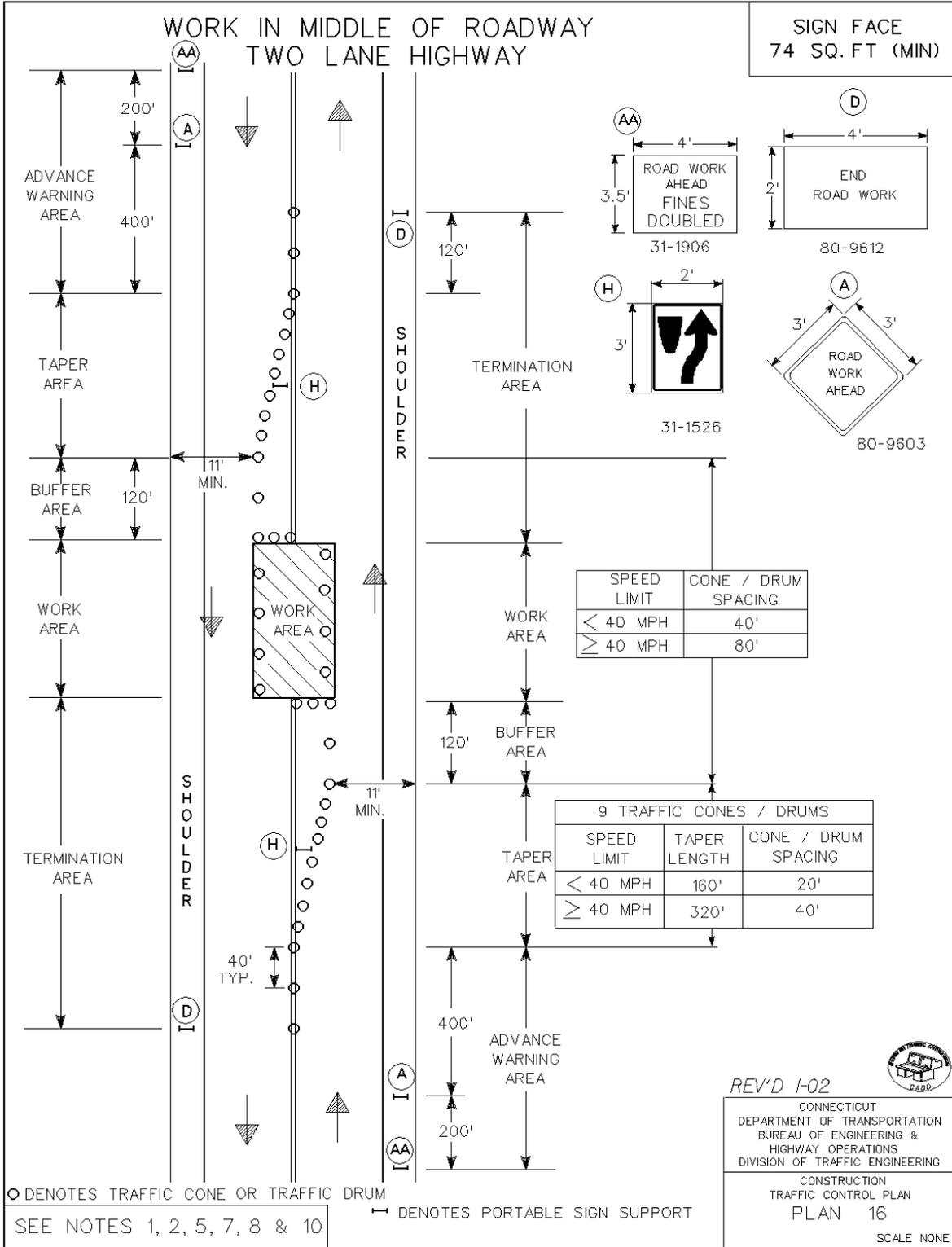
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING &
HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 13
SHEET 2 OF 2 SCALE NONE

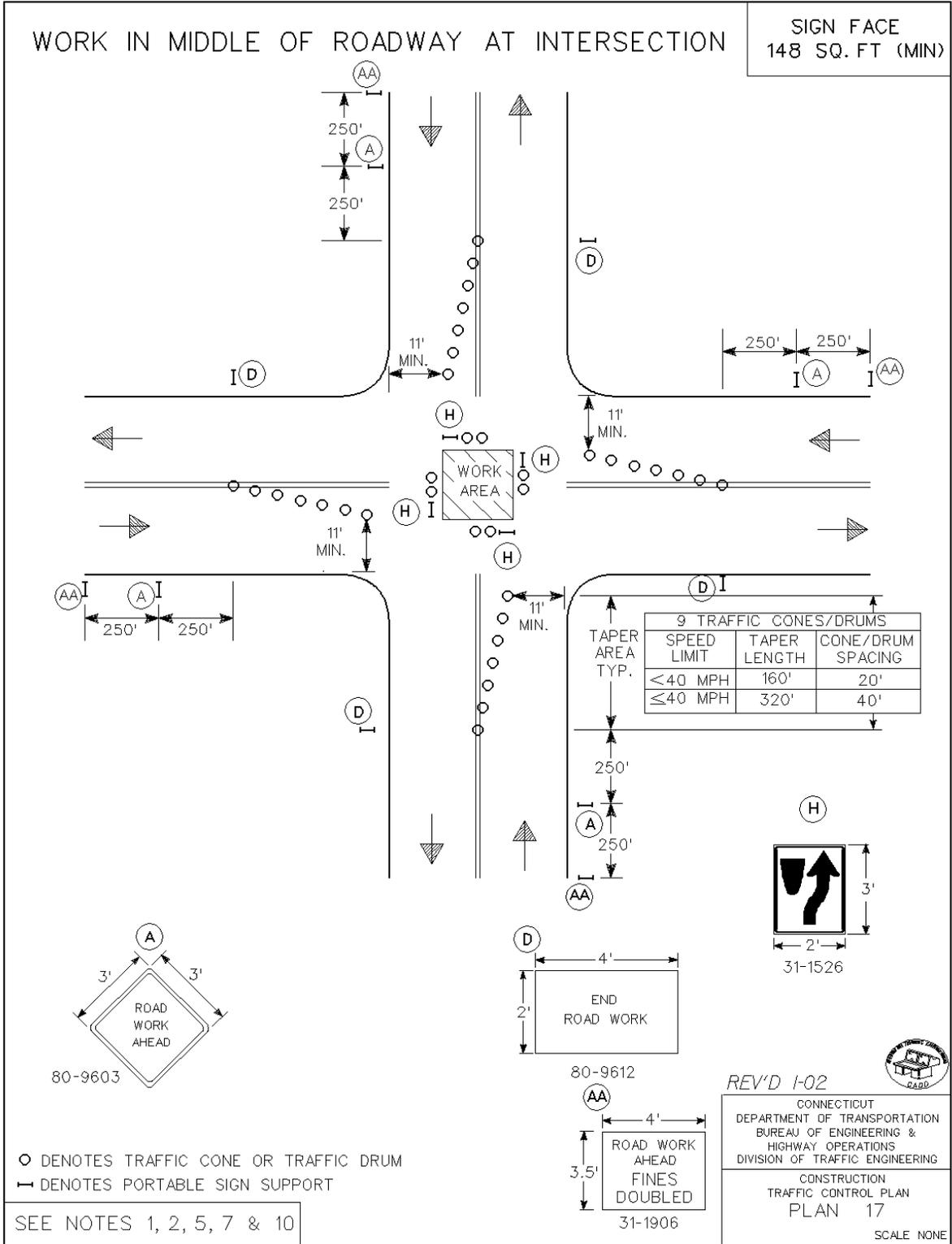
APPROVED J. Carey DATE 1-02
PRINCIPAL ENGINEER



APPROVED J. Carey DATE 1-02
PRINCIPAL ENGINEER

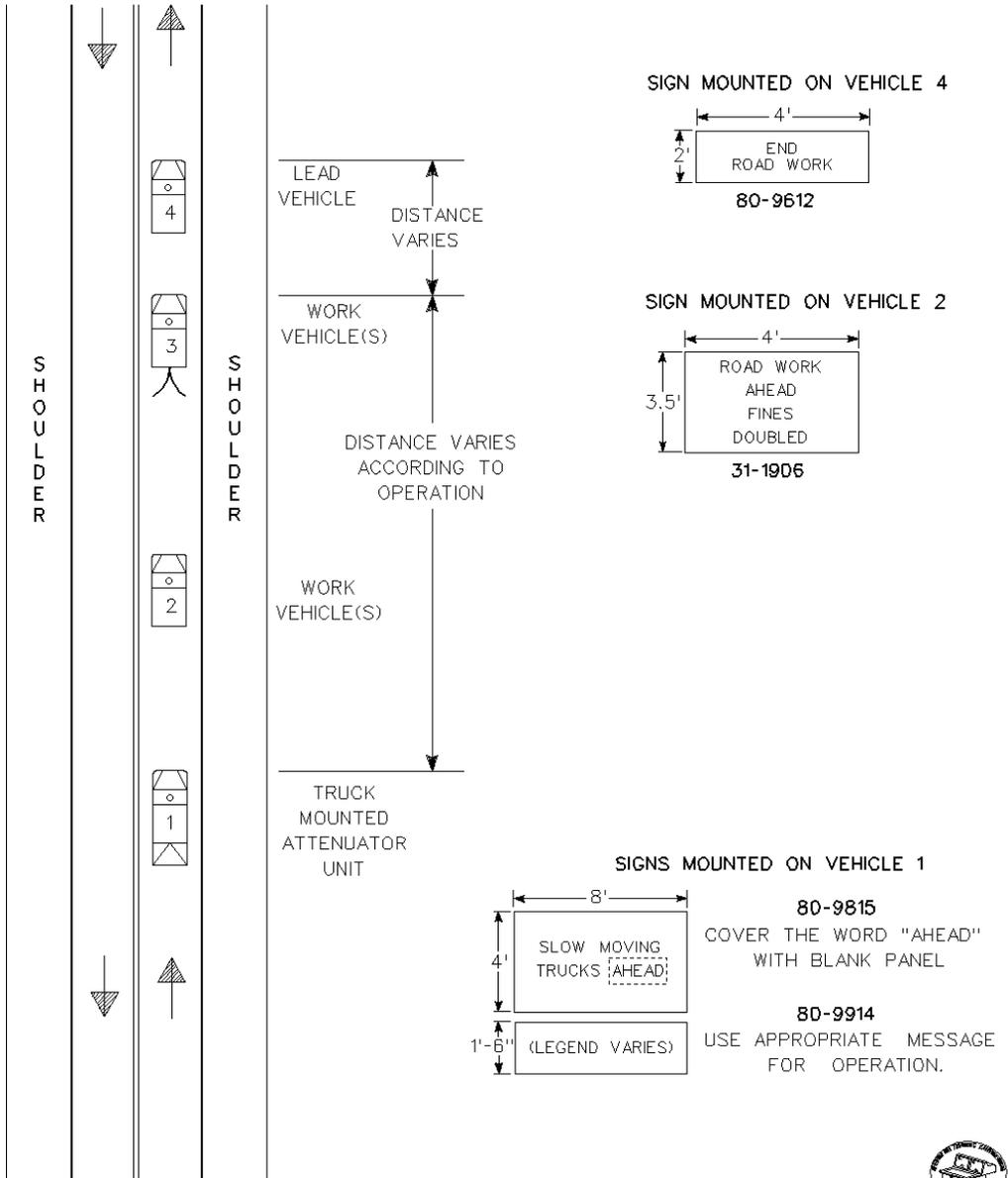


APPROVED J. Carey DATE 1-02
PRINCIPAL ENGINEER



APPROVED J. Carey DATE 1-02
 PRINCIPAL ENGINEER

MOVING OPERATION
TWO LANE HIGHWAY



REV'D 1-02

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

CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 24
SCALE NONE

APPROVED John D. McCall DATE 1-30-02
PRINCIPAL ENGINEER

Article 9.71.05 – Basis of Payment is supplemented by the following:

Furnishing, installing, and removing the material for the temporary traversable slope in those areas where a longitudinal dropdown exists shall be included in "Maintenance and Protection of Traffic".

Temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing and removing temporary sign supports and foundations if necessary during construction of the project shall be included in "Maintenance and Protection of Traffic".

There will be no direct payment for "Maintenance and Protection of Traffic". The price for "Maintenance and Protection of Traffic" and all materials, equipment, tools and labor incidental thereto shall be included in the general cost of all other pay items.

ITEM #1220011A - CONSTRUCTION SIGNS – TYPE III REFLECTIVE SHEETING

There will be no method of measurement or basis of payment for this item. The cost of this item is to be included in the cost of other items. CONSTRUCTION SIGNS – TYPE III REFLECTIVE SHEETING and all materials, equipment, tools and labor incidental thereto shall be included in the general cost of all other pay items.

Article 12.20.01 – Description: The Contractor shall furnish construction signs with Type III reflective sheeting and their required portable supports or metal sign posts that conform to the requirements of NCHRP Report 350 (TL-3) and to the signing requirements stated in Article 9.71 “Maintenance and Protection of Traffic,” as shown on the plans and/or as directed by the Engineer.

Article 12.20.02 – Materials: Prior to using the construction signs and their portable supports, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

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

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

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

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

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

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

Article 12.20.03 – Construction Methods: Ineffective signs, as determined by the Engineer and in accordance with the ATSSA guidelines contained in “Quality Standards for Work Zone Traffic Control Devices”, shall be replaced by the Contractor at no cost to the Town.

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

Article 12.20.04 – Method of Measurement: There will be no direct measurement or payment for Construction Signs - Type III Reflective Sheeting. The cost of this item, including sign supports, shall be included in the unit price for the individual sanitary sewer repair items of the type and depth noted.

Article 12.20.05 – Basis of Payment: There will be no direct payment for Construction Signs – Type III Reflective Sheeting required and used on the project. The cost of this item, including sign supports, maintenance of the signs and all hardware, shall be included in the unit price for the individual sanitary sewer repair items of the type and depth noted.

Inlet Protection

There will be no method of measurement or basis of payment for this item. The cost of this item is to be included in the cost of other items. Maintenance and Protection of Traffic and all materials, equipment, tools and labor incidental thereto shall be included in the general cost of all other pay items.

Description:

This work shall consist of installation of inlet protection at catch basin at the locations and in conformance with the details as shown on the plans or as directed by the Engineer.

Materials:

All materials shall be provided by the Contractor and shall meet the current standards of the affected service.

1. Siltsack ® shall be a manufactured by ACF Environmental, 2831 Cardwell Road, Richmond, VA 23237 or approved equal.

Construction Methods:

The contractor shall install the Siltsack in accordance with the manufacturer's recommendations. The contractor shall maintain and clean the Siltsack when filled or directed. The contractor shall dispose of the material accumulated in the Siltsack in accordance with all applicable regulations.

Method of Measurement and Basis of Payment: The work and materials will not shall be measured for payment.