

Town of Trumbull
The Kennedy Center Parking Lot Reconstruction
Woodside Avenue & Lindeman Drive

TECHNICAL SPECIFICATIONS

Town of Trumbull
The Kennedy Center Parking Lot Reconstruction
Woodside Avenue & Lindeman Drive

Standard DOT Form 816 and Special Provision Pay Items

Base Bid Item	Alt. Bid No.1 Item	Alt. Bid No.2 Item	Alt. Bid No.3 Item	
1	A1-1		A3-1	Cut Bituminous Concrete Pavement, All work under this item shall conform to Section 2.02 of Form 816.
2	A1-2		A3-2	Formation of Subgrade See special provision item 0209001A.
3	A1-3		A3-3	Furnish, Placement and Compaction of Processed Aggregate Base See special provision item 043869A.
4			A3-4	Cold Reclaimed Bituminous Concrete, See special provision item 043869A.
5			A3-5	Silt Fence, All work under this item shall conform to Section 2.19 of Form 816.
6			A3-6	Inlet Protection, See special provision Item 6.
7	A1-7		A3-7	Bituminous Concrete Class 1, All work under this item shall conform to Section 4.06 of Form 816.
8	A1-8		A3-8	Bituminous Concrete Class 2, All work under this item shall conform to Section 4.06 of Form 816.
9	A1-9		A3-9	Material for Tack Coat, All work under this item shall conform to Section 4.06 of Form 816.
10	A1-10		A3-10	Bituminous Concrete Lip Curb, All work under this item shall conform to Section 8.15 of Form 816.
11			A3-11	Type "C-L" Catch Basin Top, See special provision Item 11.
12			A3-12	Reset Catch Basin, See special provision Item 12.
			A3-13	Bituminous Concrete Sidewalk, All work under this item shall conform to Section 9.22 of Form 816.
14	A1-14	A2-14	A3-14	Topsoil, All work under this item shall conform to Section 9.44 of Form 816.
15	A1-15	A2-15	A3-15	Turf Establishment, All work under this item shall conform to Section 9.50 of Form 816.

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16	A1-16		A3-16	Hot-Applied Painted Pavement Markings 4" White, All work under this item shall conform to Section 12.09 of Form 816.
17			A3-17	Hot-Applied Painted Legend, Arrows and Markings, All work under this item shall conform to Section 12.09 of Form 816.
18				Handicap Bollard and Signs, All work under this item shall conform to Section 12.08 of Form 816.
19				Speed Bump, All work under this item shall conform to the plans and details.
		A2-20		Concrete Curbing, All work under this item shall conform to Section 8.11 of Form 816.
	A1-21	A2-21		Concrete Sidewalk, All work under this item shall conform to Section 9.21 of Form 816.
		A2-22		Concrete Sidewalk Ramp, All work under this item shall conform to Section 9.21 of Form 816.
23			A3-23	Project Sign, See special provision Item 23.
	A1-24			Clearing and Grubbing, See special provision Item 0201001A.
	A1-25			Earth Excavation, All work under this item shall conform to Section 2.02 of Form 816.
	A1-26			Rock Excavation, All work under this item shall conform to Section 2.02 of Form 816.
	A1-27			Concrete for Steps and Copings, All work under this item shall conform to Section 5.06 of Form 816.
	A1-28			Metal Handrail, All work under this item shall conform to Section 9.14 of Form 816.
	A1-29			Erosion Control Matting, All work under this item shall conform to Section 9.50 of Form 816.

ITEM 6 – Inlet Protection

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: The work and materials shall be measured for payment at each "Inlet Protection" installed and accepted in place. The Inlet Protection will only be measured once for each location regardless of the number of times it is cleaned and reset.

Basis of Payment: This work will be paid for at the contract unit price per each "Inlet Protection" complete in place, which price shall include, and all materials, equipment, tools and labor incidental thereto.

<u>Item Number</u>	<u>Item Name</u>	<u>Pay Unit</u>
6	Inlet Protection	Each

ITEM 11– TYPE “C-L” CATCH BASIN TOP
ITEM 12 – RESET CATCH BASIN

Catch basins shall be reset in accordance with FORM 816, Article 5.07, supplemented or amended as follows:

Article 5.07.01 - Description: Add the following:

This item shall include the removal and disposal of existing structure tops where proposed catch basins tops, are shown to replace an existing catch basin top.

Article 5.07.03 – Construction Methods: Add the following:

Where proposed catch basin tops are shown to be replaced and reset, the Contractor shall remove and properly dispose of the existing structure prior to installation of the proposed catch basin tops. The Contractor shall take care to protect existing catch basin to remain during the removal of the tops.

All existing catch basins shall be cleaned after substantial completion of the paving operations to remove any debris and/or sediment accumulated during construction activities.

Article 5.07.04 - Method of Measurement: Add the following:

1. Removal of existing catch basins tops will not be measured for payment. All materials, equipment, tools and labor incidental thereto shall be included in the Bid price for Reset Catch Basins, or Catch Basin Tops.
2. Excavation and backfill, including temporary pavement repair and/or restoration, for catch basins tops will not be measured for payment. All materials, equipment, tools and labor incidental thereto shall be included in the Bid price for Reset Catch Basins or Catch Basin Tops.
3. Reset Catch Basins will be measure for payment as units and will include the brick courses.
4. Catch Basin Tops will be measured for payment for each top that is installed and completed in place.

There will be no direct measurement for the cleaning of catch basins, manholes or drop inlets. All materials, equipment, tools and labor incidental thereto shall be included in the Bid price for Reset Catch Basins and Catch Basin Tops.

Article 5.07.05 – Basis of Payment: Delete the following:

"1. Excavation will be paid for as "Trench Excavation" in accordance with the provisions of FORM 816, Article 2.05.05."

And replace with the following:

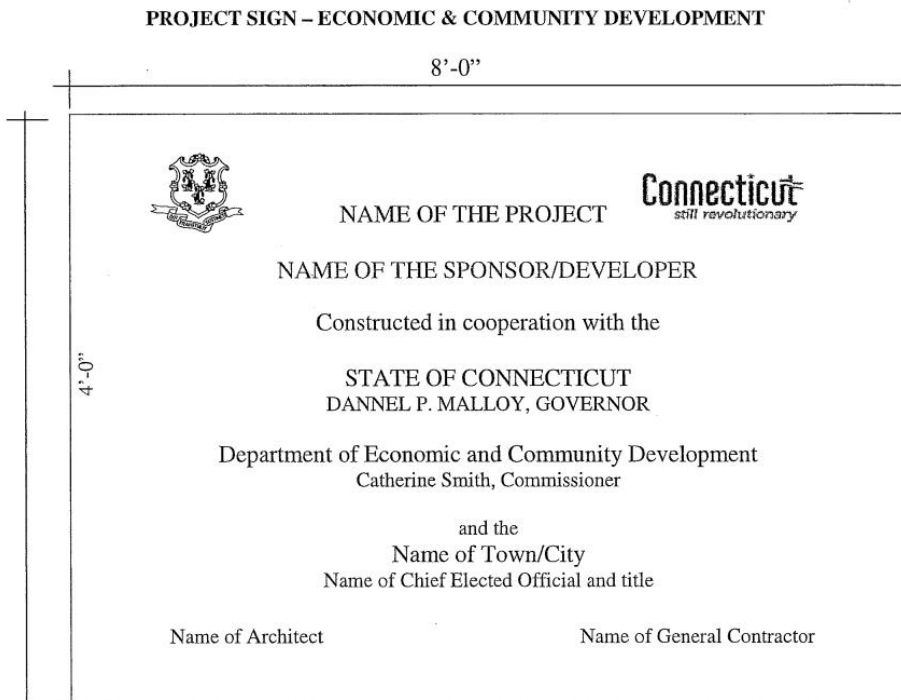
"1. Excavation: There will be no separate payment for excavation and backfill, including temporary pavement repair and/or restoration. All materials, equipment, tools and labor incidental thereto shall be included in the Bid price for Reset Catch Basin and Catch Basin Tops.

There will be no direct payment for the cleaning of catch basins, Catch Basin Sumps and Catch Basin Tops. All materials, equipment, tools and labor incidental thereto shall be included in the Bid price for Reset Catch Basins, and Catch Basin Tops.

<u>Item Number</u>	<u>Item Name</u>	<u>Pay Unit</u>
11	Type "C-L" Catch Basin Top	Each
12	Reset Catch Basin	Each

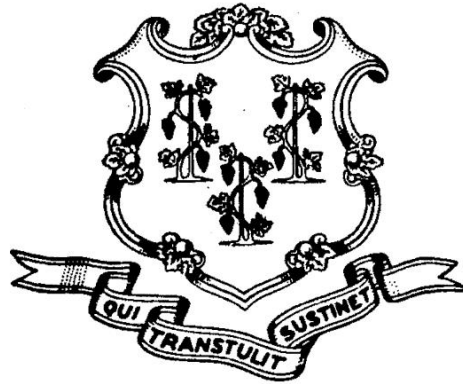
ITEM 23– PROJECT SIGN

Description: This work is to furnish, install and maintain a project sign conforming to the specifications attached at the site of the work to be in compliance with the Connecticut Department of Economic and Community Development.



- SIGN PANEL:** ¾" MDO-EXT-APA PLYWOOD SUPPORTED WITH (2) 4X4 TREATED WOOD COLUMNS AND SECURED 4' INTO GRADE. TOP OF SIGN AT 8'-0" ABOVE GRADE.
- COLORS:** ALL LETTERS AND SYMBOLS ARE TO BE ROYAL BLUE. THE BACKGROUND WILL BE WHITE ENAMEL. BACK OF PLYWOOD AND SUPPORT STRUCTURE SHALL BE PAINTED MATTE BLACK.
- TYPEFACE:** HELVETICA MEDIUM
- LOCATION:** SIGN MUST BE LOCATED TO BE CLEARLY VISIBLE TO THE PUBLIC.
- TIMING:** INSTALL AT THE START OF CONSTRUCTION AND REMOVE AT CONSTRUCTION COMPLETION.
- STATE SEAL & DECD LOGO:** ATTACHED

STATE SEAL



DECD LOGO



Method of Measurement: This item will be measured for payment by the number of project signs installed on the project.

Basis of Payment: This item will be paid for at the contract unit price for "Project Sign" installed under the project, which price shall include all materials, tools, equipment, labor and work incidental thereto including if necessary the relocation of the sign and the removal and disposal of the sign upon the completion of the work.

<u>Item Number</u>	<u>Item Name</u>	<u>Pay Unit</u>
23	Project Sign	Each

ITEM #0201001A – CLEARING AND GRUBBING

The work shall conform to Section 2.01 of the 816, modified as follows:

2.01.01 - Description: Add the following:

This work shall also consist of the removal and disposal or salvage of the existing site lights, conduit, trees and concrete pad in the area to excavated for the extension of the parking lot.

2.01.03 – Construction Methods: Add the following:

If the Town wishes to retain the site lights, the Contractor shall carefully remove and store them on the site. The Contractor shall coordinate delivery of all salvage materials with the Town and provide assistance with loading and off-loading of salvage materials.

The concrete pad shall be removed and disposed of in a satisfactory manner.

2.01.05 - Basis of Payment: Add the following:

All costs incidental to the removal and disposal of concrete and site lights, or the delivery of site lights to be salvaged will be included in the price for “Clearing and Grubbing.”

ITEM #0209001A – FORMATION OF SUBGRADE

The work shall conform to Section 2.09 of the 816, modified as follows:

2.09.01 - Description: Add the following:

Adjust, fine grade and compact pulverized subgrades to establish adequate drainage flow patterns upon placement of the bituminous pavement.

2.09.03 – Construction Methods: Add the following:

Upon completion of pavement pulverization the subgrade will be modified (raised, lowered or supplemented with additional aggregate) to establish grades providing sufficient surface drainage patterns to ensure that ponding will not occur after the placement of the bituminous concrete.

The modifications include, but are not limited to, the excavation and replacement of unsuitable materials, shaping and fine grading the subgrade, removal of the cold reclaimed asphalt pavement subbase, storing cold reclaimed asphalt pavement subbase for later placement or disposal of surplus cold reclaimed asphalt pavement subbase.

In areas where the proposed roadway grade is below the present grade, the existing asphalt shall be reclaimed in-place and then placed in windrows or stockpiled while the additional excavation is performed. When the proposed subgrade elevation is achieved the reclaimed asphalt material will be placed back onto the roadway in lifts no greater than five (5) inches in depth before being compacted. Calcium chloride solution will be placed over the final lift of cold reclaimed asphalt pavement subbase after it is compacted and furrowed as described in Section 4.03.02. The treated surface will be compacted again before traffic is allowed to pass over it.

The subgrade shall be shaped and fine graded and compacted to provide a stable surface for the placement of the bituminous concrete.

Compaction shall be achieved by the use of a vibratory roller having the capability of producing high amplitude and low frequency vibrations. The compaction of each lift of cold reclaimed asphalt pavement subbase shall be a minimum of 95% of the proctor wet density (AASHTO T-180D).

2.09.04 - Method of Measurement: Replace the section with the following:

Payment lines for the formation of subgrade shall be coincident with the outside edges of the parking lot pavement. The area computed for payment shall not include structures or concrete pads within the payment lines.

Additional aggregate, shall be measured under a separate payment item.

2.09.05 - Basis of Payment: Replace the section with the following:

Formation and protection of subgrade, including all work provided herein, will be paid for at the contract unit price per square yard for “Formation of Subgrade”, which price shall include all materials, equipment, tools and labor necessary thereto.

There shall be no specific payment for the work of handling cold reclaimed asphalt pavement subbase, which work includes, but is not limited to transporting, storage and disposal of surplus material.

Pay Item	Pay Unit
Formation of Subgrade	S.Y.

ITEM #0403869A - COLD RECLAIMED ASPHALT PAVEMENT

4.03.01 - Description: Work under this item shall consist of the preparation of a stabilized subbase course composed of a mixture of the existing bituminous concrete pavement the underlying granular material and where required, additional aggregate. The manufacture of the stabilized subbase course shall be done by in-place pulverizing and blending of the existing pavement and underlying granular materials, the introduction of the additive calcium chloride and compaction. The process which results in a stabilized subbase course shall be accomplished in accordance with these specifications and conform to the plans or as directed by the Engineer.

Where necessary, the subgrade will be modified (raised, lowered or modified with additional aggregate) to meet required design specifications. Any modification will be accomplished under separate payment items.

Existing asphalt pavement shall be pulverized to a depth of twelve (12) inches from the top of the existing pavement surface unless otherwise specified.

A 500 foot test strip will be constructed at the beginning of the project at a location approved by the Engineer.

4.03.02 - Materials: Materials for reclaimed asphalt pavements shall consist of existing bituminous pavement and the underlying granular material. When it is necessary to alter the gradation of the cold reclaimed asphalt pavement subbase course or raise the grade line, additional aggregate or subbase material may be added as directed by the Engineer.

Aggregate required to change the grade, supplement the subgrade or used to replace unsuitable material shall conform too Sections 3.05.02 and M.05.01.

If it is necessary to raise or lower any utilities or underdrains, the trench backfill material shall meet Section M.02.05 or have the approval of the Engineer.

Samples of material will be obtained by the Materials Testing Laboratory as often as deemed necessary by the Assistant Manager of Materials Testing.

A liquid calcium chloride solution shall be added to stabilize the surface of the reclaimed asphalt pavement subbase that will carry traffic prior to placement of bituminous concrete. The calcium chloride solution shall be provided by the manufacturer as a true solution and shall not be reconstituted from flake calcium chloride.

The calcium chloride solution shall meet the following material specifications (ASTM D98; AASHTO-M144):

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Calcium Chloride 35% +/-1%	
Alkali Chloride as NaCl	2% max.
Magnesium as MgCl	0.1%

Typical composition (in lbs. per gallon)

Calcium Chloride	5.05
Sodium Chloride	0.2
Magnesium Chloride	0.004
Calcium Sulfate	0.004
Water	<u>6.002</u>
	11.260

Prior to the application of calcium chloride solution the surface of the cold reclaimed asphalt pavement subbase that will carry traffic shall be scuffed or furrowed by a grader to provide grooves approximately two inches in depth spaced approximately one foot apart, or as approved by the Engineer, to allow for sufficient penetration of the calcium chloride. The calcium chloride solution shall be uniformly distributed over the cold reclaimed asphalt pavement subbase at an application rate of 0.4 gallons per square yard or as determined by the Engineer.

The distributor for the calcium chloride solution shall be capable of applying liquid calcium chloride in accurately measured quantities at any rate between 0.1 to 2.0 gallons per square yard of roadway, at any length of spray bar up to twenty feet. The distributor shall be capable of maintaining a uniform rate of distribution of solution regardless of change in grade, width or direction of the road. The distributor shall be equipped with a Digital Volumetric Accumulator capable of measuring gallons applied and distance traveled. The volume and measuring device shall be equipped with a power unit for the pump so that application is by pressure and not gravity. The spray nozzles and pressure system shall provide a sufficient and uniform fan-shaped spray of solution throughout the entire length of the spray bar at all times while operating, and shall be adjustable laterally and vertically.

Application of the calcium chloride solution shall be completed in continuous segments. Each segment must be reclaimed, compacted, stabilized by calcium chloride and compacted again before it is opened to traffic. The calcium chloride solution shall not be applied when it is raining or when rain is forecast within one hour of placement.

4.03.03 - Construction Methods: Prior to the start of the pavement pulverization, all utilities and drainage systems shall be relocated as necessary.

Methods, equipment, tools, and any machinery to be used during construction shall be approved by the Engineer prior to the start of the project. Prior to the actual pulverization of the pavement, drop inlets or catch basins that might be affected shall be sufficiently barricaded so as to prevent silt or runoff from plugging the drainage system.

Sufficient surface drainage must be provided for each stage of construction so that ponding does not occur on the stabilized subbase course prior to the placement of bituminous concrete.

Reclamation shall be accomplished by means of a self-propelled, traveling rotary reclaimer or equivalent machine capable of cutting through existing asphalt to depths of up to twelve (12) inches with one pass. Equipment such as road planers or cold milling machines designed to mill or shred the existing bituminous concrete, rather than crush or fracture it, shall NOT be allowed. Existing bituminous concrete and the underlying granular material must be pulverized and mixed so as to form a homogenous mass of cold reclaimed asphalt pavement subbase material which will bond together when compacted.

Cold reclaimed asphalt pavement subbase shall conform to the grading requirements set forth in Article M.02.06, Grading B.

Additional aggregate shall be placed as indicated on the plans at areas to be pulverized. The need for additional aggregate at other areas will be determined by examining the results of a 500 foot test strip to be performed at the beginning of the project. Additional aggregate, if necessary, shall be added during the pulverization process to ensure that it is thoroughly mixed into the cold reclaimed asphalt pavement subbase. Formation of subgrade shall be performed in conformance with Section 2.09 as supplemented by Item #0209001A. Calcium chloride solution will be placed over the final lift of cold reclaimed asphalt pavement subbase after it is compacted and furrowed as described in Section 4.03.02. The treated surface will be compacted again before traffic is allowed to pass over it.

4.03.04 - Method of Measurement: The cold reclaimed asphalt pavement work shall be measured for payment in square yards. The thickness will be as indicated on the plans, or as described herein, within plus or minus one (1) inch.

Measurement to determine the thickness will be made by the Engineer at intervals of 250 feet or as directed by the Engineer. Areas not within allowable tolerance shall be corrected, as ordered by the Engineer, without additional cost to the State.

Additional aggregate, shall be measured for payment by the number of cubic yards of aggregate delivered and incorporated into the cold reclaimed asphalt pavement subbase.

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Formation of subgrade, shall be measured under a separate payment item.

4.03.05 - Basis of Payment: This work shall be paid for at the contract unit price per square yard for "Cold Reclaimed Asphalt Pavement". This price shall include all pulverizing, preparation, mixing and finishing of the cold reclaimed asphalt pavement subbase as well as the addition of liquid calcium chloride and final compaction after it is applied. The unit price also includes all materials, equipment, tools and labor incidental to the work described above.

Additional aggregate, if required, will be paid for at the contract unit price per cubic yard for "Processed Aggregate Base", this price shall include all materials, delivery, placement, equipment, tools and labor incidental to the work.

Pay Item	Pay Unit
Cold Reclaimed Asphalt Pavement	S.Y.