

Department of Public Works Nassau County, N.Y.

Bid Sheet for Contract: H61139-02G

FOR INFORMATIONAL PURPOSES ONLY- DO NOT USE FOR BIDDING

Item No	Engineers Estimate	Item Description			
201.06	1.00 LS	Clearing and Grubbing	For:	Contingent	
203.02	1,560.00 CY	Unclassified Excavation and Disposal	For:		
203.07	150.00 CY	Select Granular Fill	For:	Contingent	
204.01	6.00 CY	Flowable Fill- Controlled Low Strength Material (CLSM)	For:		
206.0201	3,400.00 CY	Trench and Culvert Excavation	For:		
206.0301 0010	40.00 LF	Conduit Excavation and Backfill - (Restoring Top Surfaces Not Included)	For:		
206.05	60.00 EA	Test Pit Excavation	For:	Contingent	
209.1101 0011	31.00 EA	Temporary Catch Basin Inserts for Drainage Structures - Trash, Sediment and Debris Removal	For:		
304.0001 0018	37,680.00 SF	Fine Grading of Existing Subbase	For:		
304.1011 9917	214.00 CY	Subbase Course, Type 1011-2	For:	Contingent	
404.0000 11	230.00 QU	Plant Production Quality Adjustment to Asphalt Items	For:	\$100.00	
404.0189 01	310.00 TON	Truing & Leveling F9, Asphalt, 80 Series Compaction	For:		
404.0981 01	3,500.00 TON	9.5 F1 Top Course Asphalt, 80 Series Compaction	For:		

Department of Public Works Nassau County, N.Y.

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Item No	Engineers Estimate	Item Description			
404.3789 01	1,859.00 TON	37.5 F9 Base Course Asphalt, 80 Series Compaction	For:		
407.0102	14,740.00 GAL	Diluted Tack Coat	For:		
418.7603	16,180.00 LF	Asphalt Pavement Joint Adhesive	For:		
490.10	25,220.00 SY	Production Cold- Milling of Bituminous Concrete	For:		
490.30	2,103.00 SY	Miscellaneous Cold Milling of Bituminous Concrete	For:		
520.0500 0010	19,520.00 LF	Sawcutting PCC and Composite Pavement	For:		
552.13	1,230.00 SF	Temporary Steel Sheeting	For:		
603.6102	60.00 LF	Reinforced Concrete Pipe Class IV, 15 Inch Diameter	For:		
603.6103	15.00 LF	Reinforced Concrete Pipe Class IV, 18 Inch Diameter	For:		
603.6105	40.00 LF	Reinforced Concrete Pipe Class IV, 24 Inch Diameter	For:		
603.6107	20.00 LF	Reinforced Concrete Pipe Class IV, 30 Inch Diameter	For:		
603.6109	30.00 LF	Reinforced Concrete Pipe Class IV, 36 Inch Diameter	For:		
603.9812	80.00 LF	Smooth Interior Corrugated Polyethylene Culvert and Storm Drain 12 Inch Diameter	For:		
603.9815	540.00 LF	Smooth Interior Corrugated Polyethylene Culvert and Storm Drain 15	For:		

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Item No	Engineers Estimate	Item Description			
		Inch Diameter			
603.9818	800.00 LF	Smooth Interior Corrugated Polyethylene Culvert and Storm Drain 18 Inch Diameter	For:		
604.0710 01	13.00 EA	Altering Drainage Structures, Leaching Basins and Manholes	For:		
604.0720 0110	71.00 EA	SETTING NEW DRAINAGE FRAMES ON EXISTING DRAINAGE STRUCTURES	For:		
604.0726 0011	32.00 EA	Connection to Existing Drainage Structures	For:		
604.5010 06	290.00 LF	Special Drainage Structure (Type B Rectangular Leaching Basin)	For:		
604.5010 11	45.00 LF	Special Drainage Structure (Type C-2 Catch Basin)	For:		
604.5010 12	8.00 LF	Special Drainage Structure (Type A48 Catch Basin)	For:		
604.5010 14	8.00 LF	Special Drainage Structure (Type A72 Catch Basin)	For:		
604.5010 16	84.00 LF	Special Drainage Structure (Type A90 Catch Basin)	For:		
604.5010 22	35.00 LF	Special Drainage Structure (48" Dia Drainage Manhole)	For:		
605.0901	450.00 CY	Underdrain Filter - Type 1	For:		
608.0101	310.00 CY	Concrete Sidewalks and Driveways	For:		
608.0105 0010	440.00 CY	Concrete Sidewalks - Unreinforced (Grading Included)	For:		

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Item No	Engineers Estimate	Item Description			
608.0105 0109	5.00 EA	CURB RAMP CONFIGURATION TYPE 1	For:		
608.0105 0209	1.00 EA	CURB RAMP CONFIGURATION TYPE 2	For:		
608.0105 0309	26.00 EA	Curb Ramp Configuration Type 3	For:		
608.0105 0409	17.00 EA	Curb Ramp Configuration Type 4	For:		
608.0105 1009	2.00 EA	Curb Ramp Configuration Type 10	For:		
608.0201 02	40.00 TON	Hot Mix Asphalt (HMA) Sidewalks, Driveways and Bicycle Paths and Vegetation Control Strips	For:		
608.0300 0001	62.00 SY	Precast Concrete Pavers for Driveways, Sidewalks and Bike Paths	For:		
609.04	2,850.00 LF	Cast-In-Place Concrete Curb (As Detailed)	For:		
609.05	10,620.00 LF	Cast-in-Place Concrete Curb & Gutter (As Detailed)	For:		
609.1510 0010	112.00 LF	Resetting Old Curb - (Belgian Block Driveway)	For:		
610.1402	60.00 CY	Topsoil-Roadside	For:		
610.1403	210.00 CY	Topsoil - Lawns	For:		
610.1601	470.00 SY	Turf Establishment - Roadside	For:		
610.1602	1,880.00 SY	Turf Establishment - Lawns	For:		

Department of Public Works Nassau County, N.Y.

Bid Sheet for Contract: H61139-02G

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Item No	Engineers Estimate	Item Description			
614.060203	1.00 EA	Tree Removal over 6 Inches to 12 Inches Diameter Breast Height - Stumps Cut to Below Grade	For:		
614.060303	8.00 EA	Tree Removal over 12 Inches to 18 Inches Diameter Breast Height - Stumps Cut to Below Grade	For:		
614.060403	6.00 EA	Tree Removal over 18 inches to 24 inches Diameter Breast Height - Stumps Cut to Below Grade	For:		
614.060503	3.00 EA	Tree Removal over 24 Inches to 36 Inches Diameter Breast Height - Stumps Cut to Below Grade	For:		
619.01	1.00 LS	Basic Work Zone Traffic Control	For:		
619.110511	2.00 EA	(PVMS) Standard Size - Full Matrix (LED) No Optional Equipment Specified, No Cellular Communications Required	For:		
619.27	1.00 EA	Mailboxes	For:		
621.03	180.00 LF	Cleaning Closed Drainage Systems	For:		
621.04	24.00 EA	Cleaning Drainage Structures	For:		
624.31000003	417.00 SY	Concrete Valley Gutter	For:		
625.01	1.00 LS	Survey Operations	For:		

Department of Public Works Nassau County, N.Y.

Bid Sheet for Contract: H61139-02G

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Item No	Engineers Estimate	Item Description			
633.11	6,000.00 SY	Cleaning Existing Pavement and/or Shoulders	For:		
633.12	1.00 LS	Cleaning, Sealing and/or Filling Cracks	For:	Contingent	
633.13	1,000.00 LF	Cleaning, Sealing and/or Filling Joints	For:	Contingent	
633.14	100.00 SY	Removal and Repair of Deteriorated HMA Pavement	For:	Contingent	
635.0103	31,000.00 LF	Cleaning and Preperation of Pavement Surfaces - Lines	For:		
635.0203	22.00 EA	Cleaning and Perparing of Pavement Surface- Letters	For:		
635.0303	2.00 EA	Cleaning and Preparation of Pavement Surfaces - Symbols	For:		
645.5201	7.50 SF	Ground-Mounted Sign Panels Without Z-Barshigh-Visibility Sheeting	For:		
645.81	3.00 EA	Type A Sign Posts	For:		
647.31	84.00 EA	Relocate Sign Panel, Sign Panel Assembly Size I (Under 30 Square Feet)	For:		
647.61	2.00 EA	Remove and Dispose Signs, Ground Mounted Type A Sign Supports and Foundations - Size I (Under 30 Square Feet)	For:		
655.0502 0010	50.00 EA	Frames and Covers for Sanitary Sewer Manholes	For:		

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Bid Sheet for Contract: H61139-02G

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Item No	Engineers Estimate	Item Description			
655.0703 0010	58.00 EA	Cast Frame F3, Without Curb Box and with Reticuline Grate G3	For:		
655.0706	9.00 EA	Cast Frame F3, Unmountable Curb Box CU3 and Reticuline Grate G3	For:		
655.1202	78.00 EA	Manhole Frame and Cover	For:		
655.1510 0010	14.00 EA	Furnish and Replace Cast Iron Curb Boxes	For:		
663.0106	105.00 LF	Ductile Iron Cement Lined Water Pipe, 6"	For:		
663.1606 06	14.00 EA	Tapping Sleeve, Valve & Valve Box Assembly, 6" X 6"	For:		
663.30	7.00 EA	Relocate Existing Water Valve and Valve Box	For:	Contingent	
663.33	7.00 EA	Adjust Existing Valve Box Elevation	For:		
663.4106	105.00 LF	Remove and Dispose of Existing Water Main, 6"	For:		
680.5100 0010	20.00 EA	Alter Elevation of Pull Boxes	For:		
680.5111 1010	20.00 EA	Slip Resistant Surface for Cast Iron Pull Box Covers	For:		
680.5201 02	40.00 LF	Conduit Metal Steel, Zinc Coated, 3/4"	For:		
680.54	280.00 LF	Inductance Loop Installation	For:		
680.72	840.00 LF	Inductance Loop Wire	For:		
685.0720 0110	14,400.00 LF	White Epoxy ReflectORIZED Pavement Stripes - 20 mils (Wet	For:		

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Item No	Engineers Estimate	Item Description			
		Night Visibility Spheres)			
685.0720 0210	22.00 EA	White Epoxy ReflectORIZED Pavement Letters - 20 Mils (Wet Night Visibility Spheres)	For:		
685.0720 0310	2.00 EA	White Epoxy ReflectORIZED Pavement Symbols - 20 mils (Wet Night Visibility Spheres)	For:		
685.0720 0410	220.00 LF	White Epoxy ReflectORIZED Pavement Stripes (Cross Hatching) - 20 mils (Wet Night Visibility Spheres)	For:		
685.0720 0510	1,900.00 LF	White Epoxy ReflectORIZED Pavement Stripes (Special Markings) - 20 mils (Wet Night Visibility Spheres)	For:		
685.0720 0610	14,100.00 LF	Yellow Epoxy ReflectORIZED Pavement Stripes - 20 mils (Wet Night Visibility Spheres)	For:		
685.0720 0710	300.00 LF	Yellow Epoxy ReflectORIZED Pavement Stripes (Cross Hatching) - 20 mils (Wet Night Visibility Spheres)	For:		
697.03	1.00 DC	Field Change Payment	For:	\$100,000.00	
699.0400 01	1.00 LS	Mobilization	For:		

ITEM 206.03010010 - CONDUIT EXCAVATION AND BACKFILL - (RESTORING TOP SURFACES NOT INCLUDED)

The provisions of Section 206 pertaining to conduit excavation and backfill shall apply except as noted:

Subsection 206-5.04 shall not apply. The following shall apply; “The unit price bid per linear foot shall include the cost of all labor, materials and equipment necessary to excavate and backfill the trench. The cost of replacing pavement, shoulder and sidewalk courses, subcourses, curbs, drives, lawns and other top surfaces necessary to complete the work will be paid for under their respective items, or under various items of the Contract, as noted in the Contract Documents.”

The cost of any necessary saw cutting will be paid for under specific saw cutting items.

ITEM 209.11XX0011 – TEMPORARY CATCH BASIN INSERTS FOR DRAINAGE STRUCTURES

DESCRIPTION:

The work shall consist of furnishing, installing, maintaining, removing and disposing of catch basin inserts for drainage structures at the locations indicated in and in accordance with the contract documents and as directed by the Engineer.

MATERIALS:

The following sections of the standard specification shall apply:

Geotextiles 737-01

With the following qualifications:

- the geotextile used shall meet the requirements of Table 737-01G.

The temporary catch basin insert shall be a commercially manufactured system that fits inside a drainage structure and traps sediment transported by runoff.

Flexstorm™
as manufactured by
Advanced Drainage Systems
24137 W. 111th Street – Unit A
Napierville, IL 60564
1.866.287.8655
www.inletfilters.com

Inlet Pro™
as manufactured by
Hanes Geo Components
815 Buxton Street
Winston Salem, NC 27101
1.888.239.4539
www.hanesgeo.com

Dandy Sack®
as manufactured by
Dandy Products, Inc.
P.O. Box 1980
Westerville, OH 43086
1.800.591.2284
www.dandyproducts.com

Ultra-Drain Guard®, Reusable Model
as manufactured by
Ultra Tech International, Inc.
11542 Davis Creek Court
Jacksonville, FL 32256
1.800.764.9563
www.spillcontainment.com

or equal as approved by the Engineer.

To be approved for use, each temporary catch basin insert for drainage shall have the following features:

- total suspended solids (TSS) removal rate of at least eighty percent (80%) based on visual inspection,
- allow for stormwater event overflow bypass. No product shall be approved unless it includes an overflow mechanism.

ITEM 209.11XX0011 – TEMPORARY CATCH BASIN INSERTS FOR DRAINAGE STRUCTURES

- inserts must be capable of being re-used (after first maintenance activity) a minimum of one time,
- easy to clean and replace geotextile inserts,
- include handles and fasteners to keep the insert from falling into the inlet during maintenance and removal, and
- Not interfere with all traffic modes.

Submittals:

Submit product information to the Engineer thirty (30) days prior to the planned date of installation for review and approval of the system.

CONSTRUCTION DETAILS

The following section of the standard specifications shall apply:

Soil Erosion and Sediment Control

209-3.01

with the following exceptions:

- Torn or punctured silt fence fabric must be replaced
- Sediment deposition removed from the catch basin insert shall be disposed of in accordance with §107-10 E.

Installation: Install the temporary catch basin inserts according to manufacturer's instructions.

Inspection: Using the most restrictive inspection criteria listed below, the Contractor shall inspect catch basins:

- weekly,
- after a rainfall event of 0.5" or more per twenty four (24) hour period,
- as per manufacturer's instructions, and/or
- as per the conditions of the Stormwater Pollution Prevention Plan (SWPPP) (if any exists).

Maintenance: Maintenance shall include the following:

- Remove all accumulated sediment and debris from the vicinity of the catch basin after each rainfall event of 0.5" or more per twenty four (24) hour period and prior to removal of the insert for maintenance.
- Remove insert according to manufacturer's instructions.
- Empty the unit when the catch basin insert's containment area is more than one third (1/3) full or before the sediment/trash/debris reaches the overflow openings.
- Refer to the manufacturer's instructions for emptying and re-installing the catch basin insert. Removal of trash, sediment and debris from the insert shall be done in a manner that ensures no trash, sediment or debris will enter an unprotected catch basin.
- Disposal of the removed sediment shall occur at an upland location away from all stormwater conveyances.

ITEM 209.11XX0011 – TEMPORARY CATCH BASIN INSERTS FOR DRAINAGE STRUCTURES

- Trash shall be disposed of according to §107-10 E. of the standard specifications.
- If a catch basin insert's fabric or strap is torn, dispose of the sediment and debris contained within the unit according to this specification and replace the entire unit.
- When the servicing of a catch basin insert results in a non-functioning or poorly-functioning unit, the unit shall be replaced.
- Catch basin inserts shall be removed prior to winter shut down. Re-installation of the unit(s) shall occur prior to ground disturbance or first thaw in the following spring, whichever occurs first, and according to manufacturer's instructions.

Catch basin inserts shall be removed according to §209-3.01 and disposed of according to §107-10 E. after all soil disturbance areas have been fully stabilized with an established, permanent and approved vegetative cover at a uniform density of eighty percent (80%).

METHOD OF MEASUREMENT

The work will be measured as the number of each catch basin insert for drainage structures furnished, installed, maintained, removed and disposed of.

BASIS OF PAYMENT

The unit price bid for each catch basin insert for drainage structures furnished, installed, maintained, removed and disposed of shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

Payment will be made under:

Item Number	Description	Unit
209.11010011	Temporary Catch Basin Inserts for Drainage Structures – Trash, Sediment and Debris Removal	EA
209.11020011	Temporary Catch Basin Inserts for Drainage Structures – Oil, Hydrocarbons, Trash, Sediment and Debris Removal	EA
209.11030011	Temporary Catch Basin Inserts for Drainage Structures – Oil and Hydrocarbon Absorbent Pouches	EA

ITEM 304.00010018 - FINE GRADING OF EXISTING SUBBASE

DESCRIPTION. Prepare a fine grade on the existing subbase course to receive new pavement and/or shoulders. Clean, regrade, shape, and compact the subbase surface to the line and grade in the contract documents.

MATERIALS.

Cushion Sand §703-06

CONSTRUCTION DETAILS.

Remove and dispose of sod, permeable base, concrete, and/or other loose, unsuitable or excess material.

Grade the existing surface to a uniform cross slope such that, after compaction, the top surface is at true grade and surface at any location, $\pm \frac{1}{4}$ inch. Remove excess material where the existing subbase is high or has insufficient slope. Build up the existing subbase with cushion sand where the existing subbase is low or has excessive cross slope.

Compact the subbase to the satisfaction of the Engineer using equipment meeting §203-3.03C, Compaction.

Do not allow traffic on the exposed subbase.

METHOD OF MEASUREMENT. The work will be measured for payment as the number of square feet of subbase satisfactorily fine graded, measured to the nearest square foot.

BASIS OF PAYMENT. Include the cost of all labor, material, and equipment necessary to satisfactorily perform the work in the unit price bid for Fine Grading of Existing Subbase. No additional payment will be made for extra work required to repair damage to the adjacent pavement or subbase that occurred during any operation. Additional payment will be made if the original repair area did not completely extend into sound pavement or stable subbase. Pavement and shoulder removal are paid for under separate pay items.

ITEM 304.10119917 - SUBBASE COURSE, TYPE 1011-2

All of the requirements of Section 304 *Subbase Course* shall apply except as herein modified:

MATERIALS

Material shall conform to the requirements of §733-04 *Subbase Course* with the addition of the following requirement:

Natural Material. Natural material obtained from sources located in Richmond, Kings, Queens, Nassau and Suffolk Counties shall conform to the following gradation:

Sieve Size Designation	Percentage Passing by Weight
2 in.	100
1 in.	80-100
¾ in.	50-85
No. 10	30-70
No. 40	15-40
No. 200	6-12

Natural material obtained from sources other than those listed above shall conform to the gradation requirements of Table 733-04A *Subbase Gradation* in §733-04B. *Gradation*.

BASIS OF PAYMENT

Payment will be made under:

Item No.	Item	Pay Unit
304.10119917	Subbase Course, Type 1011-2	Cubic Yard

ITEM 520.05000010 - SAW CUTTING PORTLAND CEMENT CONCRETE AND COMPOSITE PAVEMENTS

DESCRIPTION. This work shall consist of saw cutting existing reinforced or unreinforced portland cement concrete, including portland cement concrete pavement and sidewalk, and composite pavement (asphalt concrete on reinforced or unreinforced portland cement concrete), at the locations indicated on the plans or where directed by the Engineer.

MATERIALS. All equipment proposed for this work shall be subject to approval by the Engineer prior to actual use. Rotary rock saws shall not be used for cuts under this item.

CONSTRUCTION DETAILS. Saw cutting shall be along a neat line as indicated on the plans or where directed by the Engineer. The cuts shall be neat and true with no shatter. Saw cuts shall be made to the depth (s) indicated on the plans and as stated below.

When removing composite pavement the Contractor shall saw cut the existing pavement for the full depth of the concrete pavement. The total saw cut depth will be more, depending on the thickness of the asphalt. At the Contractor's option, the asphalt concrete may first be saw cut and removed before making a second cut through the portland cement concrete.

Any damage to material not indicated for removal, caused by the Contractor's operations, shall be repaired by the Contractor. All repair shall be done in a manner satisfactory to the Engineer.

METHOD OF MEASUREMENT. This work will be measured by the number of linear feet of saw cutting done. No allowance will be made for saw cuts of different depths.

Saw cutting which is done for the Contractor's convenience will not be measured for payment under this item.

BASIS OF PAYMENT. The unit price bid per linear foot of saw cutting shall include the cost of all labor, materials, and equipment necessary to complete the work.

Only one payment will be made for saw cutting when removing composite pavement regardless of the method chosen. The cost of saw cutting the asphalt concrete in the composite pavement is included in this item. No payment will be made for this saw cutting under the item for saw cutting asphalt concrete.

Any repairs made necessary by the Contractor's operations shall be done to the satisfaction of the Engineer at no additional cost to the State

ITEM 604.07200110 - SETTING NEW DRAINAGE FRAMES ON EXISTING DRAINAGE STRUCTURES

DESCRIPTION

This work shall consist of setting new drainage frames, complete with grates or covers, to grade on existing drainage structures and shall include removing, storing, and/or disposing of the existing frames, grates, covers, and appurtenances.

This item shall also include the setting of new drainage frames on existing drainage structures modified under the item, "Rebuilding Top of Existing Drainage Structures."

MATERIALS

The new drainage frames, grates, and covers will be furnished under separate items.

Materials shall meet the requirements of the following subsections of Section 700:

Concrete Repair Material	701-04
Concrete Grouting Material	701-05
Precast Concrete Pavers	704-13

Concrete shall be Class A meeting the requirements of Section 501.

CONSTRUCTION DETAILS.

The existing frames, grates, covers, and appurtenances shall be removed and, as indicated in the plans or directed by the Engineer, stored for pick up by others, used elsewhere on the contract, or disposed of off the work site.

The existing masonry adjustment collar, or a portion of it, shall be removed where necessary for setting of the new frame. The new frames shall be set to the line and grade as indicated in the plans or as directed by the Engineer, using precast concrete pavers and concrete grouting material and/or Class A concrete. The frames shall be set in a concrete grouting bed on the existing structure.

Any asphalt pavement and shoulder courses, subcourses, curbs, sidewalks, lawns and other top surfaces removed or damaged during the work of removing the existing frames and setting the new frames, shall be replaced in kind, unless otherwise directed by the Engineer. This shall include all sawcutting necessary for this removal.

Existing concrete/composite pavement shall be removed and restored as per the details given in the plans.

METHOD OF MEASUREMENT

This work will be measured by the number of new drainage frames complete with grates or covers, set to grade on existing drainage structures or on existing drainage structures modified under the item, "Rebuilding Top of Existing Drainage Structures."

ITEM 604.07200010 - SETTING NEW DRAINAGE FRAMES ON EXISTING DRAINAGE STRUCTURES

BASIS OF PAYMENT

The unit price bid for setting each drainage frame shall include the cost of all labor, materials, and equipment necessary to complete the work including any necessary sawcutting, removal and replacement of pavement and shoulder courses, subcourses, curbs, sidewalks, lawns and other top surfaces, unless otherwise indicated in the plans or proposal. Removal and restoration of concrete/composite pavement will be paid for separately.

New drainage frames, grates, and covers will be paid for under the appropriate items. Any frames, grates, covers or appurtenances broken thru carelessness on the part of the Contractor shall be replaced at the Contractor's expense.

ITEM 604.07260011 – CONNECTION TO EXISTING DRAINAGE FACILITIES

Description:

Under this item, the Contractor shall remove portions of existing drainage facilities and connect new drainage facilities thereto at the locations shown on the plans as ordered by the Engineer.

Materials:

Concrete	Class A Section 501
Concrete Grouting Material	Section 701-05
Bar Reinforcement	Grade 60 Section 709-01

Construction Details:

The work under this item provides for connecting new pipe lines to existing pipe lines or structures. The Contractor shall maintain the existing pipe lines and structures in continuous service as required and/or directed by the Engineer.

The Contractor shall perform all excavation and backfill and dispose of all excess materials as required to complete the work. Backfilling shall be compacted in conformance with Section 203 of the Standard Specifications.

When connecting to the existing pipe line or structures, the existing facility shall be broken into and reinforcement cut back only as needed to accommodate the new pipe as indicated on the plans. The new pipe shall be set to required grade and the existing pipe wall shall be repaired and patched as required to provide a secure and waterproof connection. Ends of the new pipe projecting into the existing drainage facility shall be neatly cut off and trimmed flush with the inside face of the structure.

Method of Measurement:

The quantity to be paid for shall be the actual number of connections made in conformance with the plans and specifications and the orders of the Engineer.

Basis of Payment:

Payment will be made at the unit price bid for each connection which shall include the cost of all materials, labor and equipment necessary to complete the work except excavation and backfill which will be paid under Trench and Culvert Excavation Item 206.02 and the new pipe which shall be paid under the appropriate pipe item.

ITEM 608.01050010 - CONCRETE SIDEWALKS - UNREINFORCED
(GRADING INCLUDED)

DESCRIPTION.

The work shall consist of the construction of portland cement concrete sidewalks and necessary grading as shown on the plans.

MATERIALS.

The following requirements of Sections 203 and 608 shall apply: 203-2.02A, 608-2, and 608-2.01.

CONSTRUCTION DETAILS.

The requirements of Subsection 203-3.12 shall apply to the placement of embankment.

The requirements of Subsection 608-3.01 shall apply except that all references to driveways and wire fabric for reinforcement shall be disregarded. The sidewalk shall be constructed without wire fabric for concrete reinforcement.

The location of the sidewalks shall be properly graded to conform with the sidewalk cross-section and line and grade. The graded area shall be firm and dry before placing the concrete and all organic or unsuitable materials, existing curbs, sidewalks, and driveways shall be removed.

METHOD OF MEASUREMENT.

Concrete sidewalks will be measured by the number of cubic yards of cement concrete computed from payment lines shown on the plans.

BASIS OF PAYMENT.

The unit price bid per cubic yard will include all excavation, embankment, preparation of subgrade, and all other materials, equipment, and labor necessary to complete the work as called for on the plans and to the satisfaction of the Engineer.

No separate payment will be made for excavation or embankment above, below, or within the volume of sidewalk placed.

Payment at the unit bid price will be made after the concrete sidewalks and curing application have been properly placed.

ITEM 608.0105NN09 –CURB RAMP

DESCRIPTION

The work shall consist of constructing curb ramps, turning spaces, and associated curbing in accordance with the applicable Standard Sheets and Specifications, and in accordance with the Contract Documents.

The fifth and sixth number to the right of the decimal place (NN), in the item number, is a serialized number to match the different types of curb ramp configurations depicted in the US Customary Standard Sheets 608-01.

The work shall include demolition, saw cutting, disposal, fill, compaction, construction of the new curb ramps, turning spaces and associated curbing. Also included are detectable warning units (supplied and installed where required), repairs to affected asphalt and concrete (as necessary), topsoil, establishing turf (on disturbed areas), and finish work. All material and labor required to perform these tasks is included. Any required adjustments to utilities shall be performed under the specifications for that work.

MATERIAL

Materials required for this work shall comply with, but are not limited to, the following Sections: 402-2, 502-2, 503-2, 608-2, 609-2, and 610-2.

CONSTRUCTION DETAILS

The work shall be in conformance with the US Customary Standard Sheets 608-01 and 608-03. The work performed shall comply with, but is not limited to, the following Sections of the Standard Specifications: 401-3, 402-3, 502-3, 503-3, 608-3, 609-3, and 610-3.

Any existing utility facilities not indicated to be removed that are damaged by the Contractor's operations performing this work, shall be repaired by the Contractor, to the satisfaction of the Engineer, at no additional cost.

Survey Requirements

The contractor shall be responsible for field verifying all elevations, slopes, and dimensions to ensure that the final layout of sidewalks and curb ramps meet ADA requirements prior to pouring concrete or placing asphalt or pavers. A Contract Control Plan is not necessary for work limited to sidewalks and curb ramps.

METHOD OF MEASUREMENT

Payment will be made at the unit price bid for each type of curb ramp (as shown in the US Customary Standard Sheets 608-01), satisfactorily installed, in accordance with the Contract Documents.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, material, and equipment necessary to satisfactorily complete the work, to the satisfaction of the Engineer. Excavation and disposal under curb ramps and subbase course under curb ramps will be paid for separately. Sidewalk

ITEM 608.0105NN09 –CURB RAMP

beyond the upper grade break or turning space, as shown in the US Customary Standard Sheets 608-01, will be paid for separately. Any required Survey shall be paid for separately under the lump sum price bid for survey operations. Any incidental asphalt and concrete materials shall be included in work and not paid separately.

Payment will be made under:

<u>Item Number</u>	<u>Description</u>	<u>Pay unit</u>
608.01050009	Curb Ramp as shown in project details	Each
608.01050109	Curb Ramp Configuration Type 1	Each
608.01050209	Curb Ramp Configuration Type 2	Each
608.01050309	Curb Ramp Configuration Type 3	Each
608.01050409	Curb Ramp Configuration Type 4	Each
608.01050509	Curb Ramp Configuration Type 5	Each
608.01050609	Curb Ramp Configuration Type 6	Each
608.01050709	Curb Ramp Configuration Type 7	Each
608.01050809	Curb Ramp Configuration Type 8	Each
608.01050909	Curb Ramp Configuration Type 9	Each
608.01051009	Curb Ramp Configuration Type 10	Each
608.01051109	Curb Ramp Configuration Type 11	Each
608.01051209	Curb Ramp Configuration Type 12	Each
608.01051309	Curb Ramp Configuration Type 13	Each
608.01051409	Curb Ramp Configuration Type 14	Each

**ITEM 608.03000001 – PRECAST CONCRETE PAVERS FOR DRIVEWAYS,
SIDEWALKS, AND BIKE PATHS**

DESCRIPTION:

The Contractor shall furnish and install precast concrete pavers for driveways, sidewalks, and bike paths at locations and in configurations as shown on the plans, in accordance with the manufacturer's specifications, and as approved by the Engineer.

MATERIALS:

Precast Concrete Driveway and Sidewalk Pavers – 704-13. Sizes, shapes, and colors shall be as specified in the contract documents. A representative sample of the color blend to be used shall be submitted to the Regional Landscape Architect for approval prior to ordering materials for the job or beginning of work.

Bedding sand shall be manufactured sand meeting the material requirements of 703-07 Concrete Sand.

Polymeric sand shall be used to fill the joints between the pavers. Color shall be as specified in the contract documents.

Paver edge restraint shall be manufactured from PVC or aluminum in a "T" shape design that allows double nailing capacity. Color shall be as specified in the contract documents.

CONSTRUCTION DETAILS:

Precast concrete pavers shall be set on a loose course of bedding sand to the thickness specified on the plans. The Contractor shall establish the proper elevation of subbase material so upon setting pavers on the loose bedding sand the pavers shall project approximately 3/8" above the finished grade prior to compaction. Geotextile fabric shall be placed over the level and properly compacted subbase material prior to the placement of the bedding sand. The geotextile fabric shall be used to separate the dissimilar granular materials, as specified on the plans. Bedding sand shall be uniformly spread over the geotextile fabric and screened to the desired thickness using a depth control guide prior to setting pavers. The pavers shall be laid in patterns indicated in the contract documents by butting tight all edges of the pavers to adjacent pavers or supporting edges. The Contractor shall cut pavers as necessary to fill all spaces with a pneumatic cutter or saw designed for such purpose as recommended by the manufacturer. The Contractor shall set the pavers into the bedding sand by thoroughly tamping the surface area of the pavers with a vibratory plate compactor having a minimum 3,000 lbf of centrifugal force. The pavers shall be protected with cardboard, carpet, or a woven geotextile fabric when using the vibrating plate.

After the pavers have been thoroughly vibratory tamped into the setting bed (as necessary to make the surface of the pavers flush with adjacent curb or sidewalk) polymeric sand shall be swept over the pavers and tamped again with the vibratory plate compactor to completely compact the filled joints.

**ITEM 608.03000001 – PRECAST CONCRETE PAVERS FOR DRIVEWAYS,
SIDEWALKS, AND BIKE PATHS**

The Contractor shall clean all surface areas by sweeping or other approved methods to remove excess polymeric sand and to provide a clean finished surface. Once the pavers have been satisfactorily cleaned, the Contractor shall lightly mist the surface of the pavers three or more sprayings, as per the manufacturer's specifications.

The Contractor shall install a paver edge restraint, as per the manufacturer's specifications, when pavers are adjacent to lawn, planting bed, or crushed stone.

METHOD OF MEASUREMENT:

Precast concrete pavers shall be measured as the number of square yards of acceptably placed concrete pavers measured to the nearest tenth square meter placed in accordance with this specification and to the satisfaction of the Engineer.

BASIS OF PAYMENT:

The unit bid per square yard shall include the cost for all labor, materials, and equipment necessary to furnish and install precast concrete pavers including bedding sand, polymeric sand, paver edge restraint, cutting, tamping and cleaning of all work areas necessary to complete the work. Excavation, placement of geotextile fabric and subbase material and any specified preparation of the area where concrete pavers will be set prior to placement of the bedding sand be completed and paid for under separate pay items in the contract.

ITEM 609.15100010 – RESETTING OLD CURB – (BELGIAN BLOCK DRIVEWAY)

DESCRIPTION

The work shall consist of removing, storing, cleaning and resetting existing Belgian block driveway to the lines and grades shown in the contract documents and as directed by the Engineer.

MATERIAL

The following sections of the standard specifications shall apply:

Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips	608-2
Curb and Curb and Gutter	609-2

Material shall meet applicable requirements of §608-2 and 609-2 unless otherwise specified.

CONSTRUCTION DETAILS

The following sections of the standard specifications shall apply:

Curb and Curb and Gutter	609-3
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The construction requirements of §609-3 shall apply, except as follows:

- All old curb which is in a condition suitable for reuse shall be salvaged.
- The Contractor shall take Care when removing old curb to avoid unnecessary breakage. All curb damaged in removing, hauling or storing, due to the carelessness of the Contractor, shall be replaced with new Belgian block of the same shape, size and color at the Contractor's expense.
- The Contractor shall reset the old curb according to the contract document detail(s). No dry concrete mix will be allowed.
- If directed, all joints and tops shall be re-dressed to obtain a smooth top surface and to obtain joints of the same class as specified for new curb.

METHOD OF MEASUREMENT

The work will be measured as the number of feet of existing Belgian block curb reset. Measurement will be taken along the top front arris line of the Belgian block curb as placed in its final position.

BASIS OF PAYMENT

The unit price bid per foot of existing Belgian block curb reset shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work.

Any additional sub-base material needed as shown in the contract documents to raise the grade of the old curb will be paid for under its appropriate item.

ITEM 624.31000003 - CONCRETE VALLEY GUTTER

Description

This work shall consist of the construction of conventionally formed or machine formed Portland Cement concrete valley gutter in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or established by the Engineer.

Materials

- A. The concrete shall be in accordance with Section 624-2.02 Conventionally Formed Concrete Gutter or Section 624-2.05 Machine Formed Concrete Gutter of the Standard Specifications.
- B. Bar reinforcement shall meet the requirements of Section 709-01 Bar Reinforcement, Grade 420 of the Standard Specifications.
- C. Wire reinforcement shall meet the requirements of Section 709-02 Wire Fabric for Concrete Reinforcement of the Standard Specifications.

Construction Details

Section 624-3.02 Conventionally Formed or Machine Formed Concrete Gutter shall apply.

Method of Measurement

Section 624-4.02 of the Standard Specifications shall apply.

Basis of Payment

Section 624-5.02 of the Standard Specifications shall apply.

**ITEM 655.05020010 – FRAMES AND COVERS FOR SANITARY SEWER
MANHOLES**

DESCRIPTION:

This work shall consist of furnishing and installing frames, covers and appurtenances for sanitary sewer manholes in accordance with these specifications and details shown on the contract plans.

MATERIALS:

Materials shall conform to the following:

Cast iron for manhole frames and covers, and all special cast iron fixture entering into the construction of the work shall be made of tough, close-grained, gray iron without the admixture of any cinder iron or metal of inferior quality. Iron shall conform to ASTM Designation A48, Class 30B.

Manhole frames and covers shall be coated with coal tar epoxy of approved quality applied by the hot-dip process.

The acceptance of the frames and covers for sanitary sewer manholes will be based on the manufacturer's certification of compliance.

All manhole frames, covers and appurtenances shall be similar in detail to those existing in the adjacent area, and all elements shall be interchangeable.

The Contractor shall submit to the Engineer, with such promptness as to cause no delay in the work, or in the work of any other contractor, seven (7) copies of all shop drawings and no work shall be fabricated until the Engineer's approval has been given. All shop drawings, cuts, catalogs or other data requiring approval must be submitted to the Engineer by the Contractor and must bear his stamp of approval evidencing that the data have been checked. Drawings, cuts, catalogs or other data submitted without this stamp of approval will not be considered by the Engineer and will be returned to the Contractor. Likewise, all questions concerning the plans and specifications which require clarification or interpretation shall be submitted in writing to the Engineer through the Contractors.

The Contractor shall make any corrections in the drawings required by the Engineer and shall file with the Engineer (7) corrected copies. Approval by the Engineer of such drawings shall not relieve the Contractor from responsibility for errors of any sort in shop drawings or deviations from plans and specifications unless the Contractor, at the time of submission of said drawings, has given notice to the Engineer of any such deviations.

CONSTRUCTION DETAILS:

Construction details shall conform with the details shown on the plan and shall conform to the requirements of Subsection 655-3 in addition to the following:

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**ITEM 655.05020010 – FRAMES AND COVERS FOR SANITARY SEWER
MANHOLES**

All manholes will be provided with a Type “F” Manhole Frame and Cover (Adjustable Frame). The frame cover, without the use of any filler rings, shall be set to a top frame elevation 1-9/16 inch below finished grade. At the time of final paving, the frame and cover shall be raised to the correct grade by insertion of one 1 inch and one 19/32 inch filler rings. In the event the Engineer, at any time during the Contract Period, directs the removal of either or both filler rings, the Contractor shall remove them and deliver the same to the Engineer.

METHOD OF MEASUREMENT:

The quantity to be measured under this work will be the number of frames, covers and appurtenance materials furnished and placed in accordance with the plans and specifications. The measurement shall be made for the frame containing the cover and appurtenance.

BASIS OF PAYMENT:

The unit prices bid per frame and cover shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including the cost of any field repair work to render the frame and cover non-rocking.

**ITEM 655.07010010 - CAST FRAME F1, WITHOUT CURB BOX AND WITH
RETICULINE GRATE G1**

**ITEM 655.07020010 - CAST FRAME F2, WITHOUT CURB BOX AND WITH
RETICULINE GRATE G2**

**ITEM 655.07030010 - CAST FRAME F3, WITHOUT CURB BOX AND WITH
RETICULINE GRATE G3**

All conditions and requirements of Items 655.0701, 655.0702, and 655.0703 of the Standard Specifications shall apply except for the following modifications:

These shall be cast frame without curb box and with reticuline grate as detailed on the plans.

ITEM 655.15100010 - FURNISH AND REPLACE CAST IRON CURB BOXES

DESCRIPTION

This work shall consist of furnishing and replacing cast iron curb boxes for drainage structures at the locations shown in the plans in accordance with the specifications and where directed by the Engineer.

MATERIALS

All cast iron curb boxes shall conform to the requirements of Subsection 655-2.01.

All steel appurtenant parts shall conform to the requirements of Subsection 655-2.02.

CONSTRUCTION DETAILS

The Contractor shall remove the existing curb box which shall become the property of the Contractor.

The Contractor shall verify in the field the type of curb box and all dimensions shown on the plans and report any discrepancies to the Engineer for correction before fabrication of the new curb piece.

Both mountable and non-mountable curb boxes shall be included in this item

The curb boxes shall be placed true to line and grade.

Any damaged or missing appurtenant parts, such as, nuts and bolts shall be replaced.

METHOD OF MEASUREMENT

This work shall be measured by the number of curb boxes furnished and installed.

BASIS OF PAYMENT

The unit price bid per each curb box shall include the cost of all labor, materials, and equipment necessary to complete the work, including the cost of removal and proper disposal of the curb box and replacement of damaged or missing appurtenant parts.

Any damage to existing facilities caused by the Contractor's operations shall be repaired at the Contractor's own expense.

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ITEM 680.51000010 - ALTER ELEVATION OF PULL BOXES

DESCRIPTION:

Under this item the Contractor shall alter the elevation of existing pull boxes in accordance with this specification, the details included in the contract plans, and the directions of the Engineer.

MATERIALS:

Existing pull box frames and covers shall be reused.

Concrete shall meet the material requirements for Portland Cement Concrete, Class A, as outlined under Section 501 of the Standard Specifications.

CONSTRUCTION DETAILS:

The Contractor shall exercise care in removing and reinstalling pull box frames and covers so as not to damage any part thereof. Any component parts damaged by the Contractor shall be repaired or replaced at the Contractor's expense to the satisfaction of the Engineer.

Pull box walls shall be reconstructed as shown on the contract plans.

METHOD OF MEASUREMENT:

This work will be measured as the number of pull boxes altered in accordance with the plans, specifications, and directions of the Engineer.

BASIS OF PAYMENT:

The unit price bid for this item shall include the cost of all labor, equipment, and materials necessary to complete the work.

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**ITEM 680.51111010 - SLIP RESISTANT SURFACE FOR CAST IRON PULL
BOX COVERS**

DESCRIPTION

This work shall consist of blast cleaning traffic signal pull box (TSPB) covers, coating them with slip resistant material and a bonding agent capable of bonding to cast iron, and reinstalling the TSPB covers in the field as indicated in the table of TSPB covers and where directed by the Engineer.

MATERIALS

Contractor shall provide temporary traffic signal pull box covers to replace any covers removed from site for abrasive blast cleaning and applying a bonding agent. Traffic Signal Pullbox Covers are cast iron and approximately 26 inches long, 18 inches wide, and 1.5 inches deep. See table of TSPB covers for exact measurements.

Material for abrasive blast cleaning may be selected by the Contractor.

The bonding agent shall be an epoxy/amine binder or elastomeric polyurethane with a proven history of adhering to cast iron surfaces. The bonding agent shall be capable of holding a slip resistant material securely to the TSPB cover through repeated freeze/thaw cycles. Key physical properties of the bonding agent as follows:

- Ultimate Tensile Strength per ASTM D412 Rubber 2000 – 2200 psi, or D638 Plastics 2500 psi
- Elongation at break point per ASTM D412 Rubber 150%, or D638 Plastics 30% min 54% max

The Aggregate shall be clean, dry, and free from foreign matter. The Aggregate shall exhibit a Skid Resistance of 2 ½” to 2 ¾” as per ASTM E303-93. Aggregate shall not exceed No. 6 sieve size. Bauxite/ Garnet blends or other materials with a high coefficient of friction are acceptable. Aggregate should be in natural colors of grey and buff. The surface coefficient of friction shall not be significantly reduced by repeated wear, use or weathering over time.

CONSTRUCTION DETAILS

The Contractor shall exercise care in removing and reinstalling TSPB covers so as not to damage any frames, adjoining pavement or components housed therein. Any component parts of the TSPB damaged by the Contractor shall be repaired or replaced at the Contractor's expense. Section 680-3.01 Equipment List and Drawings applies. The cover stamp "NYS TRAFFIC SIGNAL" or other text, shall remain legible. The TSPB shall remain covered at all times and pedestrians shall be protected from unsafe conditions such as gaps or openings. Temporary cover shall not reduce accessibility.

Existing TSPB covers shall be abrasive blast cleaned to bare metal in accordance with SSPCSP6 by the Contractor. If vacuum-shrouded blasting equipment is used on site, measures shall be taken to ensure that no dust or abrasive escapes during operation. Refer to Section 570-3.07 Class B Containment of the Standard Specifications. The Contractor shall remove all dirt, rust and rust scale, mill scale, and other corrosion producing contaminants. All equipment and compressors used in the cleaning operation shall be equipped with all necessary filters and traps

**ITEM 680.51111010 - SLIP RESISTANT SURFACE FOR CAST IRON PULL
BOX COVERS**

to prevent moisture, oil, and other contaminants from being deposited on clean surfaces. The Contractor shall abrasive blast clean no more than 4 hrs prior to slip resistant coating application.

If blast cleaning is completed on-site, all residue generated by the cleaning work shall be removed by vacuuming using HEPA filtered vacuums by the Contractor. The Contractor shall remove all debris associated with this work from the TSPB vault after coating operations are complete. A HEPA filter shall be defined as a filter that is at least 99.97% efficient for particles that are 0.3 μ m in diameter, or larger.

Contractor shall coat TSPB with the bonding agent no more than 4 hrs after abrasive blast cleaning. The bonding agent shall be applied by brush only to the top surface of the cover such that it fits back smoothly in the frame and flush with surrounding pavement. The Contractor shall not coat the sides or bottom of the cover.

The Contractor shall broadcast slip resistant aggregate over the bonding agent immediately after bonding agent application. Coating shall not increase the thickness of the TSPB beyond 3/16" above sidewalk grade. The Contractor shall allow the treatment to cure over 2 hours or according to manufacturer recommendations. Contractor shall remove all excess bonding agent or aggregate on the edges or bottom of the TSPB cover by hand or suction sweeping before installing in the field. The TSPB cover shall fit in the pull box frame as originally manufactured to the satisfaction of the Engineer.

METHOD OF MEASUREMENT

This work will be measured as the number pull box covers satisfactorily coated with a slip resistant surface and reinstalled in the field.

BASIS OF PAYMENT

The unit price bid for each TSPB cover shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. Payment will be made for only those existing TSPB covers designated to be coated. Only one payment for each existing TSPB cover will be made regardless of the number of times it is coated. No separate payments will be made for traffic signal pull boxes or covers damaged by the Contractor's operations.

**ITEM 685.0715XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 15 MILS THICK
(WET NIGHT VISIBILITY SPHERES)**
**ITEM 685.0720XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 20 MILS THICK
(WET NIGHT VISIBILITY SPHERES)**

DESCRIPTION:

Under this work the contractor shall furnish and apply epoxy reflectorized pavement markings in accordance with these specifications, the Contract Documents, the NYSMUTCD, or as ordered by the Engineer. Items for Special Markings include stop bars and crosswalks.

Yield line symbols are isosceles triangles with height equaling 1.5 times the base dimension:

A small yield line symbol shall have a base dimension of one foot.

A large yield line symbol shall have a base dimension of two feet.

Yield line symbols are to be installed with the Apex of the triangle oriented towards oncoming traffic.

The epoxy marking material shall be hot-applied by spray methods onto bituminous and portland cement concrete pavement surfaces at the thickness and width shown on the Contract Documents. Following a simultaneous application of Standard Glass Beads (Type 2) and Wet/Night Visibility Beads (Type 1), the cured epoxy marking shall be an adherent reflectorized stripe that will provide wet night retro-reflectivity.

MATERIALS REQUIREMENTS:

Epoxy Paint	727-03
Glass Beads for Pavement Markings	727-05

Reflective Glass Spheres

Retro-reflective beads shall be a double drop system of glass spheres consisting of Standard Beads (Type 2) and Wet/Night Visibility Beads (Type 1) as defined in §727-05 Glass Beads for Pavement Markings.

EPOXY APPLYING EQUIPMENT

In general, a mobile applicator shall be a truck mounted, self-contained pavement marking machine, specifically designed to apply epoxy resin materials and reflective glass spheres in continuous line patterns. The applying equipment shall be maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. In addition, the truck mounted unit shall be provided with accessories to allow for the marking of cross hatching and other special patterns as directed by the Engineer.

At any time throughout the duration of the project, the Contractor shall provide free access to his epoxy applying equipment for inspection by the Engineer or his authorized representative.

The Engineer may approve the use of a portable applicator in lieu of mobile truck mounted accessories for use in applying special markings only, provided such equipment can demonstrate satisfactory application of reflectorized epoxy markings in accordance with these specifications.

**ITEM 685.0715XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 15 MILS THICK
(WET NIGHT VISIBILITY SPHERES)**
**ITEM 685.0720XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 20 MILS THICK
(WET NIGHT VISIBILITY SPHERES)**

Mobile applying equipment shall be capable of installing up to 19 miles of epoxy reflectorized pavement markings in an eight hour day and shall include the following features:

1. Individual tanks for the storage of Part A and Part B of the epoxy resin.
2. Individual tanks for the storage of Standard (Type 2) and Wet/Night Visibility (Type 1) glass spheres. Each tank shall have a minimum capacity of 3000 lbs.
3. Heating equipment of sufficient capacity to maintain the individual epoxy resin components at the manufacturer's recommended temperature for spray application.
4. Individual dispensers for the simultaneous application of Standard (Type 2) and Wet/Night Visibility (Type 1) glass spheres. Each dispenser shall be capable of applying spheres at a minimum rate of 10 lbs/gal of epoxy resin composition.
5. Metering devices or pressure gauges on the proportioning pumps, positioned to be readily visible to the Engineer.
6. All necessary spray equipment, mixers, compressors, and other appurtenances for the placement of epoxy reflectorized pavement markings in a simultaneous sequence of operations as described in Construction Details, D. Application of Epoxy ReflectORIZED Pavement Markings.

CONSTRUCTION DETAILS

A. General

All pavement markings shall be placed as shown on the Contract Documents and in accordance with the New York State, Manual of Uniform Traffic Control Devices (MUTCD).

Before any pavement marking work is begun, a schedule of operations shall be submitted for the approval of the Engineer.

At least five (5) days prior to starting striping, the Contractor shall provide the Engineer with the epoxy manufacturer's written instructions for use. These instructions shall include, but not be limited to, material mixing ratios and application temperatures.

When pavement markings are applied under traffic, the Contractor shall provide all necessary flags, markers, signs, etc. in accordance with the MUTCD to maintain and protect traffic, and to protect marking operations and the markings until thoroughly set.

The application of pavement markings shall be done in the general direction of traffic. Striping against the direction of traffic flow shall not be allowed.

ITEM 685.0715XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 15 MILS THICK
(WET NIGHT VISIBILITY SPHERES)
ITEM 685.0720XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 20 MILS THICK
(WET NIGHT VISIBILITY SPHERES)

The Contractor shall be responsible for removing, to the satisfaction of the Engineer, all tracking marks, spilled epoxy, and epoxy markings applied in unauthorized areas.

When necessary the Contractor shall establish marking line points at 30 foot intervals throughout the length of the pavement or as directed by the Engineer.

B. Atmospheric Conditions

Epoxy pavement markings shall only be applied during conditions of dry weather and on substantially dry pavement surfaces. At the time of installation the pavement surface temperature shall be a minimum of 50°F and the ambient temperature shall be a minimum of 50°F and rising. The Engineer shall be the sole determiner as to when atmospheric conditions and pavement surface conditions are such to produce satisfactory results.

C. Surface Preparation

The Contractor shall clean the pavement and existing durable markings to the satisfaction of the Engineer.

Surface cleaning and preparation work shall be performed only in the area of the epoxy markings application.

At the time of application all pavement surfaces and existing durable markings shall be free of oil, dirt, dust, grease and similar foreign materials. The cost of cleaning these contaminants shall be included in the bid price of this item.

In addition, concrete curing compounds on new portland cement concrete surfaces and existing painted pavement markings on both concrete and bituminous pavement surfaces shall be cleaned and paid for in accordance with §635 Cleaning and Preparation of Pavement Surfaces for Pavement Markings.

D. Application of Epoxy ReflectORIZED Pavement Markings

Epoxy reflectORIZED pavement markings shall be placed at the width, thickness, and pattern designated in the Contract Documents.

Marking operations shall not begin until applicable surface preparation work is completed and approved by the Engineer, and the atmospheric conditions are acceptable to the Engineer.

Pavement markings shall be applied by the following simultaneous operation:

1. The pavement surface is air-blasted to remove dirt and residues.
2. The epoxy resin, mixed and heated in accordance with the manufacturer's

**ITEM 685.0715XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 15 MILS THICK
(WET NIGHT VISIBILITY SPHERES)**

**ITEM 685.0720XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 20 MILS THICK
(WET NIGHT VISIBILITY SPHERES)**

recommendations, is uniformly hot-sprayed onto the pavement surface at the minimum specified thickness.

3. Standard (Type 2) and Wet/Night Visibility (Type 1) reflective glass spheres are injected into or dropped onto the liquid epoxy marking. Standard beads (Type 2) shall be applied first immediately followed by the application of Wet/Night Visibility beads (Type 1). Each type shall be applied at a minimum rate of 10 lbs/gal of epoxy resin (minimum total application = 20 lbs/gal).

E. Defective Epoxy Pavement Markings

Epoxy reflectorized pavement markings, which after application and curing are determined by the Engineer to be defective and not in conformance with this specification, shall be repaired. Repair of defective markings shall be the responsibility of the Contractor and shall be performed to the satisfaction of the Engineer as follows:

1. Insufficient film thickness and line width; insufficient glass bead coverage or inadequate glass bead retention.

Repair Method. Prepare the surface of the defective epoxy marking by grinding or blast cleaning. No other cleaning methods will be allowed. Surface preparation shall be performed to the extent that a substantial amount of the reflective glass spheres are removed and a roughened epoxy marking surface remains.

Immediately after surface preparation remove loose particles and foreign debris by brooming or blasting with compressed air.

Repair shall be made by restriping over the cleaned surface in accordance with the requirements of this specification and at the full thickness indicated on the Contract Documents.

2. Uncured or discolored epoxy*; insufficient bond (to pavement surface or existing durable marking).

Repair Method. The defective epoxy marking shall be completely removed and cleaned to the underlying pavement surface in accordance with the requirements of Section 635 - Cleaning and Preparation of Pavement Surfaces, at the Contractor's expense.

The extent of removal shall be the defective area plus any adjacent epoxy pavement marking material extending three feet in any direction.

After surface preparation work is complete, repair shall be made by reapplying epoxy over the cleaned pavement surface in accordance with the requirements of this specification.

**ITEM 685.0715XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 15 MILS THICK
(WET NIGHT VISIBILITY SPHERES)**

**ITEM 685.0720XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 20 MILS THICK
(WET NIGHT VISIBILITY SPHERES)**

*Uncured epoxy shall be defined as applied material that fails to cure (dry) in accordance with the requirements of §727-03 Epoxy Paint; or applied material that fails to cure (dry) within a reasonable time period under actual field conditions, as defined by the Engineer.

Discoloration shall be defined as localized areas or patches of brown, grayish or black colored epoxy marking material. These areas often occur in a cyclic pattern and often are not visible until several days or weeks after markings are applied.

Other defects not noted above, but determined by the Engineer to need repair, shall be repaired or replaced as directed by and to the satisfaction of the Engineer.

All work in conjunction with the repair or replacement of defective epoxy reflectorized pavement markings shall be performed by the Contractor at no additional cost to the State.

METHOD OF MEASUREMENT

Pavement striping (regular lines, cross hatching and special markings) will be measured in feet along the centerline of the pavement stripe and will be based on a 4 inch wide stripe. Measurement for striping with a width greater than the basic 4 inches, as shown on the plans or directed by the Engineer, will be made by the following method:

$$\frac{\text{Plan Width of Striping (inches)} \times \text{Feet}}{4 \text{ inches}}$$

BASIS OF PAYMENT

The accepted quantities of markings will be paid for at the contract unit price, which shall include the cost of furnishing all labor, materials and equipment to satisfactorily complete the work. The cost for maintaining and protecting traffic during the marking operations shall be included in the price bid. The cost of removal of concrete curing compounds and existing pavement markings will be paid under separate items and are not included in this item.

No payment will be made for the repair or replacement of defective epoxy reflectorized pavement markings.

<u>PAY ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PAY UNIT</u>
685.07150110	White Epoxy ReflectORIZED Pavement Stripes – 15 mils	Foot

ITEM 685.0715XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 15 MILS THICK
(WET NIGHT VISIBILITY SPHERES)

ITEM 685.0720XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 20 MILS THICK
(WET NIGHT VISIBILITY SPHERES)

685.07150210	(Wet Night Visibility Spheres) White Epoxy ReflectORIZED Pavement Letters - 15 mils	Each
685.07150310	(Wet Night Visibility Spheres) White Epoxy ReflectORIZED Pavement Symbols – 15 mils	Each
685.07150410	(Wet Night Visibility Spheres) White Epoxy ReflectORIZED Cross Hatching -15 mils Thick	Foot
685.07150510	(Wet Night Visibility Spheres) White Epoxy ReflectORIZED Pavement Stripes (Special Markings) 15 mils Thick (Wet Night Visibility Spheres)	Foot
685.07150610	Yellow Epoxy ReflectORIZED Pavement Stripes – 15 mils (Wet Night Visibility Spheres)	Foot
685.07150710	Yellow Epoxy ReflectORIZED Pavement Stripes (Cross Hatching) 15 mils Thick (Wet Night Visibility Spheres)	Foot
685.07150810	White Epoxy ReflectORIZED Pavement Yield Line Symbols - Small - 15 mils (Wet Night Visibility Spheres)	Each
685.07150910	White Epoxy ReflectORIZED Pavement Yield Line Symbols - Large - 15 mils (Wet Night Visibility Spheres)	Each
685.07200110	White Epoxy ReflectORIZED Pavement Stripes – 20 mils (Wet Night Visibility Spheres)	Foot
685.07200210	White Epoxy ReflectORIZED Pavement Letters – 20 mils (Wet Night Visibility Spheres)	Each
685.07200310	White Epoxy ReflectORIZED Pavement Symbols – 20 mils (Wet Night Visibility Spheres)	Each
685.07200410	White Epoxy ReflectORIZED Pavement Stripes (Cross Hatching) 20 mils Thick (Wet Night Visibility Spheres)	Foot
685.07200510	White Epoxy ReflectORIZED Pavement Stripes (Special Markings) 20 mils Thick (Wet Night Visibility Spheres)	Foot

ITEM 685.0715XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 15 MILS THICK
(WET NIGHT VISIBILITY SPHERES)

ITEM 685.0720XX10 - EPOXY REFLECTORIZED PAVEMENT MARKINGS 20 MILS THICK
(WET NIGHT VISIBILITY SPHERES)

685.07200610	Yellow Epoxy ReflectORIZED Pavement Stripes – 20 mils (Wet Night Visibility Spheres)	Foot
685.07200710	Yellow Epoxy ReflectORIZED Pavement Stripes (Cross Hatching) 20 mils Thick (Wet Night Visibility Spheres)	Foot
685.07200810	White Epoxy ReflectORIZED Pavement Yield Line Symbols - Small - 20 mils (Wet Night Visibility Spheres)	Each
685.07200910	White Epoxy ReflectORIZED Pavement Yield Line Symbols - Large - 20 mils (Wet Night Visibility Spheres)	Each

(On Construction firms letterhead)

Date Issued: _____

Dear Resident:

We are sorry to inconvenience you, but in order to proceed with construction for _____ we must close and/or limit your access to your driveway. As work progresses, you will be notified on a daily basis when and how your particular residence will be affected. We assure you that every effort will be made to minimize the impact to you relative to this construction.

Our current schedule calls for the project related work to be performed in your area during the week of _____. A copy of this letter with specific dates and time for this work will be delivered at least twenty-four (24) hours in advance in order that you will have sufficient opportunity to plan for accessibility to your vehicles.

If additional information is necessary, you may contact any of the representatives listed below.

Thank you for your patience.

Contractor	_____	Phone: _____
Inspector	_____	Phone: _____
Project Manager	_____	Phone: _____

(On Construction firms letterhead)

Date Issued: _____

CONSTRUCTION NOTIFICATION
24 HOUR NOTICE

Date & Type of Construction: _____

How will residence be affected: _____

Approximate time of
Construction: _____

Driveway access (will) (will not) be permitted.