TOWN OF YORKTOWN

WESTCHESTER COUNTY, NEW YORK

ROUTE 118 AND UNDERHILL AVENUE INTERSECTION

Capital Improvement Project #24-8

ADDENDUM NO. 3

TO ALL BIDDERS:

This addendum is issued this day in conformance with Part Two, Section 3.4 of the Instruction for Bidders, in the Contract Documents. The information contained in this Addendum supersedes, replaces, or supplements the Contract Documents and is made an integral part of the Contract. This Addendum must be attached to each bidder's contract and submitted along with his bid.

Now, herewith, all bidders shall take the following items into account when preparing their bid:

1. The date of completion for the project is July 3, 2025.
2. There are no provisions for liquidated damages in the bid.
3. Each bid shall be accompanied by a proposal guarantee in the form of a Certified Check of the bidder, payable to the Town of Yorktown, in an amount not less than five (5%) percent of the total amount bid, or an executed Consent of Surety. The AIA bid bond form is acceptable.
4. Bids will be opened at 11:00 AM on December 4th.
5. A revised page 3 that includes the amount column is attached. The revised bid proposal form included in this addendum should be used in the bid submitted.
6. Some work will be performed with the NYSDOT Route 118 ROW; therefore, NYSDOT insurance requirements will supersede the Town's requirements. The project area also includes the Town's Underhill Avenue ROW. Separate proof of insurance documents will be required for the Town and NYSDOT.
7. Addendum 2 is the original plans with no changes.
8. The existing fire hydrant on Underhill Avenue just east of the site access (approximate station P121+65) will be relocated behind the proposed curb in alignment with the existing hydrant location. The relocation of existing fire hydrant on Underhill Avenue just east of NYS Route 118 (approximate station P126+82) will need to be further reviewed in the field prior to or during construction in order to determine a final location for the hydrant, however it is anticipated that the existing valve will be maintained with this hydrant relocation and the final hydrant location will be within approximately 10-15 ft. of its existing location.
9. The description of item 609.04 is "Cast-in-Place Concrete Curb (As Detailed)" This is included in the attached revised proposal item list. Note that this item is used to designate the installation of Town of Yorktown Curb as detailed on Sheet No. DTL-03 and as specified on the Typical Sections on Sheet No. TYP-01. Specific limits of Item 609.04 are called out on Sheets No. LP-01 through LP-03.

10. The correct curb type is CIP Concrete Curb Type VF6. The correct description is provided in the attached revised proposal item list.
11. The item number (209.1101NN24) for inlet protection is a serialized number per occurrence. Item 209.1703 incorrectly called out for the catch basin in the Town Hall Parking lot on Sheet No. ECP-02 and should be called out as item 209.11011124. The details for Item 209.1101NN24 are provided in the attached specification document which was provided as part of the original RFP documents. The revised proposal item list now specifies this item as 209.1101NN24. Note that the quantity for this item remains unchanged. There will be one extra for use as needed.
12. The item numbers shown on Plan Sheet TSP-02 are correct. The item numbers for Items 680.662240 and 680.622250 were incorrectly listed in the proposal sheets and have been corrected See attached revised proposal item list.
13. Item 614.060203 is now included in the attached revised proposal item list.
14. There are no M/W/D/SDVOB requirements for this project.
15. The infiltration system shown on Sheets GD-02 and GD-03 is not included in the scope of this project. . The outlet structures within the NYSDOT starting with the entry pipe into manhole DMH-10 through end section ES-2 are included as shown in the snip below from GD-03.
16. The offset basin a. The outlet structures within the NYSDOT starting with the entry pipe into manhole DMH-10 through end section ES-2 are included as shown in the snip below from GD-03.
17. t Sta: P123+59.95, 18.99R, shown on Sheet No. GD-02, is proposed as an offset basin not due to a utility conflict but rather to allow for the basin to connect to the two (2) 24" RCP pipes behind the curb in this area as well as the existing 18" PL pipe crossing Underhill Avenue in this area while also having the curb box and grate at the curb line. The contractor may decide at their option to propose an alternate basin that would allow for the same configuration of manhole and curb box/grate but with a consistent structure depth if that is a preferred method of installation by the Contractor.
18. Since the Project calls for a Milling and Resurfacing, it is not anticipated that the use of these items will be required and therefore have not been included in the Bid Sheet. However, these items are provided on the plans for reference in the event that the Contractor wishes to modify the work operations and an interim striping condition is required that would require removal of existing striping.
19. It should be assumed that all Binder both on NYS Route 118 and on Underhill Avenue will be Item 404.1979 - 19 F9 Binder Course Asphalt, 70 Series Compaction. Detail No. 16 on Sheet No. DTL-03 as well as the Typical Sections on Sheet No. TYP-01 will be revised accordingly prior to construction.
20. The Bid Sheets have been revised to show item 662.60000108 with a Quantity of 1, a Unit Price of $2,500 and Total Cost of $2,500. All bidders should use this cost for their bid. As specified in the Specification Document, the actual cost for this item will be reimbursed as the direct cost plus 5%.
21. Item 660.65000101 shall apply for the Sewer Manhole located at approximate Sta: P125+43, 4.5' RT. (Southeast Corner of Route 118/Underhill intersection). The plan will be revised to indicate this and reissued prior to construction. In addition, the attached detail for Item 660.65000101 will be added to the plan set as well.

22. For clarity the Special Specifications have been reissued as part of this Addendum, including Item 660.6500NN01 as noted above, and it has been confirmed that each of these special specifications appears in both the plans and the included revised bid sheets.

23. TOWN OF YORKTOWN
Route 118 & Underhill Avenue Intersection Improvements, Bid #24-8

PART ONE

BID PROPOSAL FORM

The Town of Yorktown seeks bids from qualified parties:

BIDDER'S OFFICIAL CORPORATE NAME (required, if bidder is a corporation):

_____

BIDDER'S D/B/A NAME (if any) _____

ITEM	DESCRIPTION	UNIT	EST. QTY	UNIT PRICE	AMOUNT
ROADWORK					
201.06	CLEARING AND GRUBBING	LS	1		
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	CY	1,314		
203.03	EMBANKMENT IN PLACE	CY	324		
203.07	SELECT GRANULAR FILL	CY	224		
206.0201	TRENCH AND CULVERT EXCAVATION	CY	321		
209.100101	MULCH - TEMPORARY	SY	1,000		
209.100102	SEED-TEMPORARY	SY	700		
209.11000001	GEOTEXTILE FABRIC SEDIMENT COLLECTION BAG	EA	1		
209.1101NN24	TEMPORARY CATCH BASIN INSERT TRASH, SEDIMENT AND DEBRIS REM.	EA	12		
209.13	SILT FENCE-TEMPORARY	LF	999		
209.1904	ROLLED EROSION CONTROL PRODUCT, CLASS II TYPE D,INTERMEDIATE	SY	1,002		
304.11000008	SUBBASE COURSE (MODIFIED)	CY	686		
404.0179	TRUING & LEVELING F9, 70 SERIES COMPACTION	TON	40		
404.1271	12.5 F1 TOP COURSE, 70 SERIES COMPACTION	TON	668		
404.1979	19 F9 BINDER COURSE, 70 SERIES COMPACTION	TON	395		
404.3779	37.5 F9 BASE COURSE, 70 SERIES COMPACTION	TON	550		
418.7603	ASPHALT PAVEMENT JOINT ADHESIVE	LF	17,541		
407.0103	STRAIGHT TACK COAT	GAL	503		
490.30	MISCELLANEOUS COLD MILLING OF BITUMINOUS CONCRETE	SY	3,720		
603.7306	REINFORCED CONCRETE PIPE END SECTIONS 27 INCH DIAMETER	EA	1		
603.77	CONCRETE COLLARS	EA	11		
603.9815	SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN 15 INCH DIAMETER	LF	49		

ITEM	DESCRIPTION	UNIT	EST. QTY	UNIT PRICE	AMOUNT
ROADWORK					
603.9824	SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN 24 INCH DIAMETER	LF	157		
604.0708NN	ALTERING DRAINAGE STRUCTURES, LEACHING BASINS AND MANHOLES	EA	1		
604.300632	RECTANGULAR DRAINAGE STRUCTURE TYPE F FOR ROUND MANHOLEFRAME	LF	5		
604.300673	RECTANGULAR DRAINAGE STRUCTURE TYPE F FOR CAST IRON F3 FRAME	LF	3		
604.300873	RECTANGULAR DRAINAGE STRUCTURE TYPE H CAST IRON F3 FRAME	LF	4		
604.301873	RECTANGULAR DRAINAGE STRUCTURE TYPE R FOR CAST IRON F3 FRAME	LF	3		
604.302122	RECTANGULAR DRAINAGE STRUCTURE TYPE U FOR #22 WELDED FRAME	LF	5		
604.5019NN08	OFFSET CATCH BASIN	LF	20		
608.0101	CONCRETE SIDEWALKS AND DRIVEWAYS	CY	40		
608.01050209	CURB RAMP CONFIGURATION TYPE 2	EA	6		
608.01050409	CURB RAMP CONFIGURATION TYPE 4	EA	1		
608.01050909	CURB RAMP CONFIGURATION TYPE 9	EA	2		
608.01051409	CURB RAMP CONFIGURATION TYPE 14	EA	3		
608.02010015	UNCLASSIFIED EXCAVATION AND DISPOSAL FOR SIDEWALKS, CURB RAMPS AND CURBS	CY	35		
608.02020015	OPTIONAL TYPE SUBBASE COURSE FOR SIDEWALKS, CURB RAMPS AND CURBS	CY	21		
609.04	CAST-IN-PLACE CONCRETE CURB (AS DETAILED)	LF	908		
609.0401	CAST-IN-PLACE CONCRETE CURB TYPE VF6	LF	605		
610.1402	TOPSOIL - ROADSIDE	CY	271		

ITEM	DESCRIPTION	UNIT	EST. QTY	UNIT PRICE	AMOUNT
ROADWORK					
610.1601	TURF ESTABLISHMENT - ROADSIDE	SY	2,437		
614.060103	TREE REMOVAL OVER 4 INCHES TO 6 INCHES DIAMETER BREAST HEIGHT - STUMPS CUT TO BELOW GRADE	EA	10		
614.060203	TREE REMOVAL OVER 6 INCHES TO 12 INCHES DIAMETER BREASTHEIGHT - STUMPS CUT TO BELOW GRADE	EA	1		
614.060303	TREE REMOVAL OVER 12 INCHES TO 18 INCHES DIAMETER BREASTHEIGHT - STUMPS CUT TO BELOW GRADE	EA	7		
614.060403	TREE REMOVAL OVER 18 INCHES TO 24 INCHES DIAMETER BREASTHEIGHT - STUMPS CUT TO BELOW GRADE	EA	2		
614.060503	TREE REMOVAL OVER 24 INCHES TO 36 INCHES DIAMETER BREASTHEIGHT - STUMPS CUT TO BELOW GRADE	EA	1		
619.100101	INTERIM PAVEMENT MARKINGS, STRIPES (TRAFFIC PAINT)	LF	8,685		
619.100201	INTERIM PAVEMENT MARKINGS, SYMBOLS (TRAFFIC PAINT)	LF	5		
619.100301	INTERIM PAVEMENT MARKINGS, LETTERS (TRAFFIC PAINT)	LF	12		
619.110512	(PVMS) STANDARD SIZE - FULL MATRIX (LED) NO OPTIONALEQUIPMENT SPECIFIED, CELLULAR COMMUNICATIONS	EA	4		
620.03	STONE FILLING (LIGHT)	CY	3		
620.0802	BEDDING MATERIAL, TYPE 2	CY	1		
625.01	SURVEY OPERATIONS	LS	1		
627.50140008	CUTTING PAVEMENT	LF	2,433		
645.5102	GROUND-MOUNTED SIGN PANELS LESS THAN OR EQUAL TO 30 SF, WITH Z-BARS	SF	169		
645.81	TYPE A SIGN POSTS	EA	18		
645.81000201	RADAR SPEED DISPALY ASSEMBLY (SOLAR)	EA	1		
647.18010108	RELOCATE COMMERCIAL SIGN	EA	1		
647.31	RELOCATE SIGN PANEL, SIGN PANEL ASSEMBLY SIZE I (UNDER 30 SF)	EA	6		
647.61	REMOVE AND DISPOSE SIGNS, GROUND MOUNTED TYPE A SIGN SUPPORTS AND FOUNDATIONS - SIZE I (UNDER 30 SQUARE FEET)	EA	2		
655.0706	CAST FRAME F3, UNMOUNTABLE CURB BOX CU3 & RETICULINEGRATE G3	EA	6		
655.1122	WELDED FRAME AND RETICULINE GRATE 22	EA	1		
655.1202	MANHOLE FRAME AND COVER	EA	3		
660.65000101	ALTERING UTILITY MANHOLES AND VAULTS	EA	1		
663.31	RELOCATE EXISTING HYDRANT	EA	2		
663.33	ADJUST EXISTING VALVE BOX ELEVATION	EA	6		
685.1102	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	LF	6,082		
685.1202	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	LF	3,098		
685.3304	WHITE EPOXY REFLECTORIZED PAVEMENT LETTERS - 20 MILS	EA	12		

ITEM	DESCRIPTION	UNIT	EST. QTY	UNIT PRICE	AMOUNT
TRAFFIC SIGNAL					
206.03	CONDUIT EXCAVATION AND BACKFILL INCLUDING SURFACE RESTORATION	LF	471		
619.1612	MAINTAIN TRAFFIC SIGNAL EQUIPMENT (REQUIREMENT B)	INTM	6		
625.01000108	SURVEY AND STAKEOUT (TRAFFIC SIGNALS)	EA	4		
662.60000108	FURNISHING ELECTRICAL SERVICE	DC	1	$ 2,500	2500
680.05010007	360 DIGITAL CAMERA VIDEO DETECTION SYSTEM	EA	1		
680.05020007	360 DEGREE CAMERA ASSEMBLY	EA	1		
680.5001	POLE EXCAVATION AND CONCRETE FOUNDATION	CY	16		
680.510501	PULLBOX - RECTANGULAR, 26" X 18", REINFORCED CONCRETE	EA	7		
680.520108	CONDUIT, METAL STEEL, ZINC COATED, 3"	LF	439		
680.520110	CONDUIT, METAL STEEL, ZINC COATED, 4"	LF	32		
680.622040	TRAFFIC SIGNAL POLE - MAST ARM, 20 FT. MOUNTING HEIGHT, 40 FT. ARM LENGTH	EA	1		
680.622050	TRAFFIC SIGNAL POLE - MAST ARM, 20 FT. MOUNTING HEIGHT, 50 FT. ARM LENGTH	EA	1		
680.622240	TRAFFIC SIGNAL POLE - MAST ARM, 22 FT. MOUNTING HEIGHT, 40 FT. ARM LENGTH	EA	1		
680.622250	TRAFFIC SIGNAL POLE - MAST ARM, 22 FT. MOUNTING HEIGHT, 50 FT. ARM LENGTH	EA	1		
680.6808	TRAFFIC SIGNAL POLE-BRACKET MOUNT 8 FEET MOUNTING HEIGHT	EA	8		
680.700603	RISER ASSEMBLY, 1" DIAMETER	EA	1		
680.730514	SIGNAL CABLE, 5 CONDUCTORS, 14 AWG	LF	2,830		
680.731014	SIGNAL CABLE, 10 CONDUCTORS, 14 AWG	LF	648		
680.79000005	REMOVE TRAFFIC SIGNAL INSTALLATION	EA	1		
680.80324515	INSTALL MICROCOMPUTER CABINET	EA	1		
680.810101	TRAFFIC SIGNAL MODULE - 12 INCH, RED BALL, LED	EA	8		
680.810102	TRAFFIC SIGNAL MODULE - 12 INCH, RED ARROW, LED	EA	2		
680.810103	TRAFFIC SIGNAL MODULE - 12 INCH, YELLOW BALL, LED	EA	8		
680.810104	TRAFFIC SIGNAL MODULE - 12 INCH, YELLOW ARROW, LED	EA	5		
680.810105	TRAFFIC SIGNAL MODULE - 12 INCH, GREEN BALL, LED	EA	8		
680.810106	TRAFFIC SIGNAL MODULE - 12 INCH, GREEN ARROW, LED	EA	3		
680.810107	TRAFFIC SIGNAL SECTION - TYPE I, 12 INCH	EA	34		
680.81230008	TRAFFIC SIGNAL BRACKET ASSEMBLY - 1 WAY, MAST ARM MOUNT (CABLETYPE)	EA	9		
680.81240008	TRAFFIC SIGNAL BRACKET ASSEMBLY - 2 WAY, MAST ARM MOUNT (CABLETYPE)	EA	1		
680.8151	ACCESSIBLE PEDESTRIAN SIGNAL (APS) W/O POST	EA	8		
680.813103	PEDESTRIAN SIGNAL SECTION - TYPE I, 12 INCH	EA	16		
680.813105	PEDESTRIAN SIGNAL MODULE - 12 INCH BI-MODAL, HAND/MAN SYMBOLS LED	EA	8		
680.8141	PEDESTRIAN SIGNAL BRACKET MOUNT ASSEMBLY	EA	8		
680.815001	PEDESTRIAN SIGNAL MODULE - 12 INCH COUNTDOWN TIMER, LED	EA	8		

ITEM	DESCRIPTION	UNIT	EST. QTY	UNIT PRICE	AMOUNT
TRAFFIC SIGNAL					
680.8199	BACKPLATES FOR TRAFFIC SIGNAL HEADS	EA	10		
680.8207	OVERHEAD SIGN ASSEMBLY, TYPE G	EA	7		
680.8223	BREAKAWAY TRANSFORMER BASE	EA	8		
680.82250608	REMOVE AND DISPOSE PEDESTRIAN POLE AND FOUNDATION	EA	3		
680.82250801	REMOVE TRAFFIC SIGNAL PULLBOXES	EA	7		
680.94000008	TRAFFIC SIGNAL SERVICE ENTRANCE	EA	1		
680.9499	INSTALL ELECTRICAL DISCONNECT/GENERATOR TRANSFER SWITCH	EA	1		
680.950206	ELECTRICAL SERVICE CABLE 2 WIRE 6 GUAGE	LF	14		
680.99040010	REMOVE TRAFFIC SIGNAL POLE	EA	2		
619.01	BASIC WORK ZONE TRAFFIC CONTROL	LS	1		
699.040001	MOBILIZATION	LS	1		

ITEM 209.11XXNN24 – TEMPORARY CATCH BASIN INSERT (CBI)

DESCRIPTION:
The work shall consist of furnishing, installing, maintaining (removing, disposal of debris and resetting), replacing (if needed), and disposing (at end of contract) a temporary catch basin insert at the locations indicated in and according to the contract documents, and as directed by the Engineer.

The work shall also consist of removing and storing an existing temporary catch basin insert prior to a catastrophic storm event (e.g., flooding), and reinstalling it after the event at the locations indicated in and according to the contract documents, and as directed by the Engineer.

Acronyms
CBI – Temporary Catch Basin Insert

Temporary removal, storage and reinstallation of temporary catch basin inserts does not include the cost of a new temporary catch basin insert.

MATERIALS:
The following sections of the standard specification shall apply:

Temporary Catch Basin Insert	713-21

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 geotextile must be replaced (see Maintenance below)
- Sediment deposition removed from the CBI shall be disposed of in accordance with §107-10 E.

Installation: Install the CBI according to manufacturer's instructions.

Inspection: Using the most restrictive inspection criteria listed below, the Contractor shall inspect each CBI:
- daily,
- after a rainfall event of 0.5" or more per twenty-four (24) hour period,
- as per manufacturer's instructions, and
- as per the conditions of the Stormwater Pollution Prevention Plan (SWPPP) (if the contract includes one).

Maintenance: Maintenance shall include the following:
- Removal of all accumulated sediment and debris from the vicinity of the CBI after each rainfall event of 0.5" or more per twenty-four (24) hour period and prior to removal of the insert for maintenance.
- Removal of CBI according to manufacturer's instructions.

ITEM 209.11XXNN24 – TEMPORARY CATCH BASIN INSERT (CBI)

- Emptying the CBI when the CBI's containment area is more than one third (1/3) full or before the sediment/trash/debris reaches the overflow openings. The Contractor shall ensure that the CBI is not so full that removing it causes the geotextile to rip, tear or become non-functioning. CBIs damaged during sediment removal shall be replaced at the Contractor's expense. The Engineer will determine if a damaged CBI warrants replacement. Sediment and/or debris that has been released into the drainage structure shall be removed by the Contractor and disposed of as below.
  - Refer to the manufacturer's instructions for emptying and re-installing the CBI. Removal of trash, sediment and debris from the CBI shall be done in a manner that ensures no trash, sediment or debris will enter an unprotected drainage structure.
- Disposal of the removed sediment shall occur at an upland location away from all stormwater conveyances.
  - Trash shall be disposed of according to §107-10 E. of the standard specifications.
- If a CBI's fabric or strap is torn,
  - dispose of the sediment and debris contained within the unit according to this specification, and
  - replace the entire CBI. A CBI shall be replaced at no additional cost to the state.
- When CBI servicing results in a non-functioning or poorly functioning CBI, the CBI shall be replaced at no additional cost to the state. The Engineer will determine if a CBI is non-functioning or poorly functioning.
- CBIs shall be removed prior to winter shut down. Re-installation of the CBIs shall occur prior to ground disturbance or first thaw in the following spring, whichever occurs first, and according to manufacturer's instructions.

Emergency Removal, Storage and Reinstallation: Emergency removal, storage and reinstallation shall be performed in association with catastrophic events (e.g. storms and flooding) as follows:

- As directed in consideration of forecasted events (e.g. moderate or major flood warnings) in impacted urban or residential locations where flooding is likely to result in hazardous public conditions.
- Removal, storage, and reinstallation as specified and applicable under Maintenance above. This includes replacing any damaged, poorly functioning, or non-functioning CBI.
- CBIs removed for emergency flooding events shall be reinstalled prior to resuming construction.

CBIs shall be removed according to §209-3.01 and disposed of according to §107-01 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

Temporary Catch Basin Insert. The work will be measured as the number of each CBI furnished, installed, maintained, replaced, and disposed.

Temporary Catch Basin Insert Emergency Removal and Reinstallation. The work will be measured as the number of each CBI removed, stored, and reinstalled.

ITEM 209.11XXNN24 – TEMPORARY CATCH BASIN INSERT (CBI)

BASIS OF PAYMENT

Temporary Catch Basin Insert. The unit price bid for each CBI furnished, installed, maintained, replaced, and disposed shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

Temporary Catch Basin Insert Emergency Removal and Reinstallation. The unit price bid for each CBI removed, stored, and reinstalled shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

Progress payments will be made at fifty percent (50%) of the unit price bid upon installation of each CBI. The remaining fifty percent (50%) will be paid after soil disturbance areas have been fully stabilized with an established, permanent, and approved vegetative cover at a uniform density of eighty percent (80%) and the CBI has been removed. No progress payments are offered for the emergency removal and reinstallation of CBI.

Payment will be made under:

Item Number	Description	Unit
209.11010024	Temporary Catch Basin Insert – Trash, Sediment, and Debris Removal	EA
209.11020024	Temporary Catch Basin Insert –Trash, Sediment and Debris Removal, plus Oil and Hydrocarbon Removal	EA
209.11030024	Oil and Hydrocarbon Absorbent Pouches for Temporary Catch Basin Insert	EA
209.11040024	Temporary Removal, Storage and Reinstallation of a Temporary Catch Basin Insert	EA

ITEM 304.11000008 - SUBBASE COURSE (MODIFIED)

DESCRIPTION:

All the provisions of Section 304 pertaining to Subbase Course, Type 1 shall apply. The contractor may at their option substitute Subbase Course, Type 2. If Subbase Course, Type 2 is substituted all the provisions of Section 304 pertaining to Subbase Course, Type 2 shall apply.

ITEM 604.50180010 - OFFSET CATCH BASIN

DESCRIPTION.

This work shall consist of the construction of offset catch basins as shown on the plans or in a manner approved by the Engineer.

MATERIALS.

Subsection 604-2.01 shall apply with the following additions:

Timber sheet piling to be left in place shall conform to the requirements of Subsection 552-2.01.

CONSTRUCTION DETAILS.

Subsections 604-3.01, 3.02, 3.03, 3.05, 3.06, and 3.11 shall apply.

Timber sheet piling to be left in place shall be installed where shown on the plans and in accordance with Subsection 552-3.01.

METHOD OF MEASUREMENT.

Subsection 604-4.01 shall apply.

BASIS OF PAYMENT.

Subsection 604-5.01 shall apply with the following modifications and additions:

1. The unit price bid per foot shall include the cost of all bar reinforcement and timber sheet piling left in place.

2. Select granular fill (when used) and frames, grates, and covers will be paid for under their respective items.

12/05/08E
9/8/89
11/1/90
3/15/96 M

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

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:

Item Number	***Description***	***Pay unit***
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 608.02010015 - Unclassified Excavation and Disposal for Sidewalks, Curb Ramps and Curbs
ITEM 608.02020015 - Optional Type Subbase Course for Sidewalks, Curb Ramps and Curbs

All the provisions of *Unclassified Excavation and Disposal* under Section 203 shall apply.

All the provisions of *Subbase Course, Optional Type* under Section 304 shall apply.

Payment shall be made under:

ITEM NO.	ITEM DESCRIPTION	PAY UNIT
608.02010015	Unclassified Excavation and Disposal for Sidewalks, Curb Ramps and Curbs	Cubic Yards
608.02020015	Optional Type Subbase Course for Sidewalks, Curb Ramps and Curbs	Cubic Yards

ITEM 608.02010015 - Unclassified Excavation and Disposal for Sidewalks, Curb Ramps and Curbs
ITEM 608.02020015 - Optional Type Subbase Course for Sidewalks, Curb Ramps and Curbs

All the provisions of *Unclassified Excavation and Disposal* under Section 203 shall apply.

All the provisions of *Subbase Course, Optional Type* under Section 304 shall apply.

Payment shall be made under:

ITEM NO.	ITEM DESCRIPTION	PAY UNIT
608.02010015	Unclassified Excavation and Disposal for Sidewalks, Curb Ramps and Curbs	Cubic Yards
608.02020015	Optional Type Subbase Course for Sidewalks, Curb Ramps and Curbs	Cubic Yards

ITEM 625.01000108 - SURVEY AND STAKEOUT (TRAFFIC SIGNALS)

DESCRIPTION:

The provisions of Section 625-1 of the Standard Specifications shall apply.

MATERIALS:

The provisions of Section 625-2 of the Standard Specifications shall apply.

CONSTRUCTION DETAILS:

The provisions of Section 625-3 of the Standard Specifications shall apply.

METHOD OF MEASUREMENT:

Payment will be made for each intersection at the price bid for this work. No payment for survey and stakeout will be made for the installation of flashing beacon sign assemblies.

BASIS OF PAYMENT:

The price bid for each intersection shall include the cost of furnishing all labor, instruments, materials and equipment necessary to satisfactorily complete the work.

ITEM 627.50140008 - CUTTING PAVEMENT

DESCRIPTION:

The contractor shall cut existing asphalt pavement, concrete pavement, asphalt surface course, or asphalt concrete overlay on concrete pavement at the locations indicated and detailed on the plans and as directed by the Engineer.

MATERIALS:

None specified.

CONSTRUCTION DETAILS:

Existing pavement and overlay shall be cut perpendicular to the roadway surface along neat lines, and to the depth indicated on the plans and typical sections, using appropriate equipment. After the pavement has been cut through, the Contractor may use pry bars, pneumatic tools or other methods, to pry loose the pavement to be removed from the pavement that is to remain. A pavement breaker may be used to break up the pavement to be removed after the pavement has been completely cut through and completely free from the pavement to remain.

When pavement cutting is called for in the Contract documents, if a neat vertical face with minimal shatter is obtained by performing an adjacent operation (such as milling) which eliminates the need to perform a separate pavement cutting operation, payment will be made for both the pavement cutting item and the item for the adjacent operation.

Any existing pavements and curbs not indicated to be removed that are damaged by the contractor's operations, shall be repaired at no additional cost to the State. Pavement cutting that the contractor chooses to do for his/her own convenience shall not receive any additional payment from the State.

METHOD OF MEASUREMENT:

The quantity to be measured will be the number of linear feet of pavement cutting satisfactorily completed.

BASIS OF PAYMENT:

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

Payment for prying, breaking, removal and disposal of cut pavement shall be made through other appropriate items.

ITEM 645.81000101 – RADAR SPEED DISPLAY ASSEMBLY (120V AC)
ITEM 645.81000201 – RADAR SPEED DISPLAY ASSEMBLY (SOLAR)

DESCRIPTION

This work shall consist of furnishing and installing a Radar Speed Display Assembly in accordance with the contract documents or directions of the Engineer. All material and labor required to provide a complete functioning system are to be included. All provisions of Sections 645 and 680 of the New York State Department of Transportation Standard Specifications shall apply except as modified below:

Assembly in this specification includes:
The scope of this specification includes, but is not limited to, excavation, disposal, concrete foundation, transformer base, traffic signal pole, controller cabinet, control systems, conduit, an all LED ,two digit Radar Speed Feedback display sign, mounting brackets, power service, power disconnect, communications device(s), control systems, work pad, topsoil, and any required adjustments to utilities, incidental components to complete the system, and site restoration.

MATERIALS

All provisions of Sections 709-01, 715, 723, 724 and 730 shall apply to this specification except as modified below:

Radar equipment and host cabinet:
The local equipment controlling the components of the Radar Speed Display shall be contained in a controller cabinet constructed out of aluminum and be as lightweight as possible (the cabinet shall be lockable, watertight, vandal and tamper resistant). The dimensions shall be sufficient to house the controller, communication components, toggle switch, radar gun, and batteries for back-up power supply. All components shall be designed to operate under ambient temperature conditions from -40 degrees Fahrenheit to ≥ +130 degrees Fahrenheit for up to 24 hours per day.

Speed Display:
The driver feedback speed display shall have the capability to display the approaching vehicle speed in increments of 1 MPH. The driver feedback display shall utilize numeric characters, 15 inches in height. The LEDs luminous intensity shall be controlled automatically to optimize lighting intensity for daytime, nighttime, and adverse weather conditions. The speed limit display shall be readable from at least 400 feet away in all lighting conditions. The driver feedback speed display and sign shall conform to the requirements of the MUTCD and provide for the feedback display on the lower portion and shall have “YOUR SPEED” printed in 4 inch high black letters on a yellow background above the display on the sign face.

Controls:
The minimum PC system requirements shall be Windows 7 unless otherwise specified in the Contract Documents. The system shall have the capability to remotely turn the display on and off during the programmed times through the use of a wireless modem. A direct land-line modem shall also be provided when specified in the Contract Documents. The communication option(s) shall be capable of data transfer to include updates.

Emergency shutoff:

ITEM 645.81000101 – RADAR SPEED DISPLAY ASSEMBLY (120V AC)
ITEM 645.81000201 – RADAR SPEED DISPLAY ASSEMBLY (SOLAR)

One toggle-type power switch, for either the AC or solar power source, shall be provided for emergency shutoff at the local cabinet on the pole.

Software:
The controller software shall be programmable and capable of creating and preloading a single computer-controlled schedule of operation for the display for a minimum of one year. The operator must be provided the ability to remotely and independently activate and deactivate the system during the programmed times. The software shall provide a method to remotely upload schedules to the display. In addition, the software shall allow for remotely retrieving information, such as the status of the display and direct control of display functions such as test patterns, lighting controls, and grid voltages (for 120V AC electric power source).

Power Supply:
The power supply shall be either Solar or 120 V AC, meet all applicable codes and be capable of operating the system for 24 hours per day, with 10 days of battery backup for solar power source.

Solar Power (as applicable) shall include the following:

1. One solar (330 watt min) panel array with a bracket for mounting to the top of the pole.

2. Flexible, liquid tight conduit shall be utilized from the solar panel to the weatherhead on the pole or as instructed by the solar panel manufacturer's instructions.

Electrical Power (as applicable) shall include the following:
The system shall operate on a 120 V AC. The AC input terminals shall be equipped with a 210 J (joule) capacity power line surge suppressor and shall have noise blanking capability.

Where required by the utility company, a meter shall be included.

CONSTRUCTION DETAILS
All provisions of Sections 645 and 680 shall apply to this specification except as modified below:

Electrical and communication shall be run in separate conduits.

The Contractor shall submit to the Engineer, at least two weeks before installation, detailed specifications, parts lists, manufacturer's cut sheets, instruction sheets, and wiring diagrams for the equipment to be installed. The Engineer will submit the documents to the Regional Traffic Engineer for review. The Contractor must receive approval from the Engineer, prior to any installation of any of the components of the Radar Speed Display Assembly.

The Contractor shall place and orient the radar speed display assembly and its Radar Speed

ITEM 645.81000101 – RADAR SPEED DISPLAY ASSEMBLY (120V AC)
ITEM 645.81000201 – RADAR SPEED DISPLAY ASSEMBLY (SOLAR)

Feedback display sign in such a manner as to optimize viewing and detection angles using the manufacturer's recommendations and instructions for installation and as approved by the Engineer.

If the Engineer determines that the unit is not functioning properly, the Contractor shall secure the services of the manufacturer's representative for the installation and testing and if necessary, for the orientation of the Radar Speed Display Assembly components, to include orienting the solar panel array for optimum performance.

Where new work is to meet existing materials, the Contractor's methods shall provide for neat lines, being careful not to damage the material to remain. The restoration of disturbed areas shall utilize material and workmanship of like-kind-quality commensurate with preexisting conditions.

METHOD OF MEASUREMENT

This work will be measured as the number of complete functioning Radar Speed Display Assemblies satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, materials, equipment and incidentals necessary to satisfactorily complete the work. Any signs (other than the driver feedback speed display sign) shown in the associated details will be paid for separately.

ITEM 660.6500NN01 - ALTERING UTILITY MANHOLES AND VAULTS

DESCRIPTION:

The work shall consist of the alteration of existing utility manholes and vaults in accordance with the contract plans.

MATERIALS:

Materials used for the alteration of utility manholes and vaults shall meet the requirements of §604-2.01 and shall be as indicated on the contract plans. Structures originally constructed with concrete block, common brick, or concrete brick shall be altered with Precast Concrete Pavers, §704-13, unless indicated otherwise on the contract plans.

CONSTRUCTION DETAILS:

Excavation shall be in conformance with the construction details of Subsection 206-3, Trench Culvert and Structure Excavation.

Reconstruction and adjustment of existing utility manholes and vaults shall be as detailed and specified on the contract plans. Construction with cast-in-place concrete shall conform to the requirements of Section 555, Structural Concrete.

Frames and covers to be reused shall be removed, cleaned, and reset at the required elevations. New frames and manhole covers shall be installed when specified.

No structure shall be backfilled until all the mortar has completely set. The requirements of Subsection 203-3.15, Fill and Backfill at Structures, Culverts, Pipes Conduits, Direct Burial Cable, shall apply.

METHOD OF MEASUREMENT:

Altering utility manholes and vaults will be measured by the number of structures altered.

BASIS OF PAYMENT:

The unit price bid for each shall include the cost of all materials, labor, and equipment necessary to satisfactorily complete the work, including all necessary cleaning, excavation, backfill, and replacement of any pavement, shoulder, and sidewalk courses, subcourses, curbs, drives, lawns, and any other surface. Frames and covers to be reused that are broken by the Contractor's operations shall be replaced in-kind at the Contractor's expense. New frames and covers will be paid for under the appropriate payment items for Frames and Grates in Section 655.

Payment will be made under:

ITEM NO.	ITEM DESCRIPTION	PAY UNIT
660.6500NN01	Altering Utility Manholes and Vaults	Each

NN = Serialized 01 to 99

ITEM 662.6000nn08 – FURNISHING ELECTRICAL SERVICE

DESCRIPTION

Under this item, the Contractor shall pay the Utility, as invoiced by the individual Utility, the amount shown on the invoice in payment for work performed and material installed by the Utility, as specified in the Contract Documents or as ordered by the Engineer to provide electrical service at the location indicated in the Contract documents.

MATERIALS

All materials will be furnished by the Utility.

CONSTRUCTION DETAILS

The Contractor shall notify the Utility when the contract site is ready for the Utility work, shall insure that the site is readily and safely accessible to the Utility's workers and equipment, and shall conduct his operations in such a manner as to allow the Utility's forces to perform their work efficiently.

All labor and equipment necessary to accomplish the work shall be furnished, installed and supervised by the Utility except that if there is a survey and stakeout item in the Contract, the Contractor shall perform any stakeout of the location to which electrical service is to be supplied before the Utility starts work.

METHOD OF MEASUREMENT

The pay item will be measured on a fixed price Dollar Cents pay unit basis.

BASIS OF PAYMENT

The pay item is a 'draw down' item. As payments are made to the Utility, the receipts for the payments shall be submitted to the Engineer. The Contractor will be reimbursed for receipted costs of material, labor and equipment plus 5%. The actual payment for the item will be based upon the billing submitted by the Utility for the work performed, with such billing being subject to approval by the Department.

The total cost shown in the itemized proposal for this pay item will be considered the price bid even though payment will be made only for actual invoices paid plus 5%. The unit price amount is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figure will be disregarded, and the original price will be used to determine the total amount bid for the contract.

Note – nn equals serialized by location

ITEM 680.05010007 – 360 DEGREE CAMERA VIDEO DETECTION SYSTEM
ITEM 680.05020007 – 360 DEGREE CAMERA ASSEMBLY

DESCRIPTION

Under this item the Contractor shall install a complete system or camera assembly that detects vehicles on a roadway via processing of video images from a 360º view camera(s) and provides detector outputs to State standard traffic signal cabinet to interface with State qualified traffic signal controller for the application shown on the contract documents. Contractor shall also be responsible for the providing and installing auxiliary equipment to assure system functionality per the manufacturer's recommendations. The contract documents will state if any of the materials will be supplied by the state. Materials not supplied by the state shall be supplied by the contractor. If no materials list is provided in the contract documents, the Contractor shall furnish and install the complete system shown on the contract documents. The Contractor shall use products off the New York State DOT Approved Products List (APL).

MATERIALS

1.0 GENERAL

1.1 System Hardware

The 360 Degree Camera Video Detection System shall consist of one fixed 360º view video camera where shown on the contract documents, control unit, mounting hardware and all necessary cables.

The 360 Degree Camera Assembly shall consist of one fixed 360º view video camera, mounting hardware and all necessary cables (no control unit). This item may be used at locations where a second video camera is necessary in addition to the 360 Degree Camera Video Detection System or when a replacement camera is necessary.

1.2 System Software

The system shall include either client software for local and remote access of the detection system, or web server for local and remote access of the detection system. This access is for the configuration and monitoring of system parameters. The system shall also send alarm/health emails when enabled.

The system shall detect vehicles, bicycles, and pedestrians in multiple traffic lanes using only the video image. A minimum of 64 detection zones shall be user-definable through interactive graphics by placing lines and/or boxes in an image on a computer monitor. The user shall be able to redefine previously defined detection zones. The system shall calculate traffic parameters in real-time.

2.0 FUNCTIONAL CAPABILITIES

2.1 Real-Time Vehicle Detection

2.1.1 The system shall be capable of simultaneously processing information from the video cameras.

2.1.2 Detection zones shall be programmed via a graphical user interface on a desktop or laptop computer and pointing device. The interface shall facilitate placement of detection zones and setting of zone parameters or to view system parameters.

2.1.3 Different detector types shall be selectable. Detector types shall include stop-line, advance, presence, count, queue and directional presence.

2.1.4 Real-time detection status shall be viewable on a desktop or laptop computer.

2.1.5 Detection system parameters shall be kept in non-volatile memory.

2.1.6 The system shall have the capability of uploading and downloading set-up parameters remotely over the internet or locally over Ethernet.

2.1.7 The system shall provide dynamic zone reconfiguration without impacting zone detection.

3.0 DETECTION ZONES

3.1 The video detection system shall provide flexible detection zone placement anywhere and at any orientation within the combined field of view of the cameras. Zones shall be placed over other zones when necessary without impacting performance of overlapping zones.

3.2 Detection Zone Programming

3.2.1 Placement of detection zones shall be by means of a pointing device and desktop computer or laptop. The video monitor shall show images of the detection zones superimposed on the video image of traffic.

3.2.2 It shall be possible to use a pointing device and desktop computer or laptop to edit previously defined detector configurations to fine-tune the detection zone placement.

3.2.3 It shall be possible to individually adjust sensitivity for each detection zone in the system.

3.2.4 The detection zone shall change in color or intensity in real-time on the video monitor, thereby verifying proper operation of the detection system.

3.2.5 Detection zone outputs shall be configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds.

3.2.6 All detection zones shall be capable to count the number of vehicles detected. The count value shall be internally stored for later retrieval remotely over the internet or locally over Ethernet. The zone shall also have the capability to calculate and store average speed and lane occupancy at bin intervals of 10 seconds, 20 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes and 60 minutes.

3.3 Detection Performance

Overall performance of the video detection system shall be comparable to inductive loops. Using standard camera optics and in the absence of occlusion, the system shall be able to detect vehicle presence with minimum 96% accuracy under normal conditions (day & night) and minimum 93% accuracy under adverse conditions (fog, rain, snow).

4.0 HARDWARE

4.1 Mounting

The 360 Degree Camera Video Detection System and 360 Degree Camera Assembly shall consist of all necessary mounting hardware, brackets, vertical support, etc., as supplied by the manufacturer, to be able to mount the camera on a vertical support pole or horizontal arm.

4.2 Environmental

The system shall be designed to operate reliably in the adverse environment such as the typical roadside traffic signal controller cabinet. Operating temperature shall be from -25 to 165° F at 0 to 95% relative humidity, non-condensing.

4.3 Electrical and Communication

4.3.1 Detection system configuration and data downloads shall be available remotely over the internet or locally over Ethernet connection on a desktop computer or laptop.

4.3.2 The system shall be equipped with a detector interface for at least 64 detector outputs. Output levels and protocols shall be compatible NEMA TS2 and NTCIP.

4.3.3 The detection camera to control unit shall be power over Ethernet (POE).

4.3.4 The system shall be capable of self-diagnostics and respond to faults by placing any faulty detection zones in a constant call mode. The system shall automatically revert to normal detection mode when a fault no longer exists on a channel.

4.3.5 The system shall be capable of automatically detecting low-visibility conditions such as fog and respond by placing all defined detection zones in a constant call mode. The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

4.3.6 The detection system shall communicate with the traffic signal controller through the 2070 controller C12 SDLC connector as required for the application.

5.0 REMOTE CONNECTIVITY

5.1 The system shall allow video and data to be transmitted via the internet or an Ethernet connection to a central location where it can be displayed and/or stored.

5.2 The system shall include either client software or a web server for remote access of the detection system.

5.3 The interface unit shall support streaming video technology to allow the user to monitor video detection imagery.

5.4 Provisions shall be made to accommodate mating cable connectors to utilize jack screws for securing cables.

5.5 Hi-intensity status lights shall be provided on the control unit to facilitate system monitoring. Indicators shall be provided to show the status of the internal processor, video presence and indication of which video input is being monitored.

5.6 An Ethernet port shall be integrated within the control unit. The Ethernet port shall conform to 802.3 Ethernet specifications.

5.7 Control unit(s) maximum dimension shall be no more than 5" w x 11" h x 11" d.

6.0 CAMERA SYSTEM

6.1 The video camera shall consist of a 360º view for real-time vehicle detection. Each camera shall provide have a detection range of at least 180 feet. The camera shall have the dynamic range to function in low-visibility conditions such as snow, rain and fog.

6.2 The camera shall provide virtual pan, tilt, zoom (PTZ) to allow viewing of detection zones.

6.3 The camera and lens assembly shall be housed in an enclosure that is watertight and dust-proof. The camera shall be designed to avoid ice and condensation in cold weather. The camera shall be designed to prevent water droplets from interfering with normal operation. The camera shall be light-colored and shall include a sun shield to minimize solar heating and glare. The camera unit shall have the appropriate grounding to facilitate reliable operation.

6.4 The control unit shall be mounted inside a State standard traffic signal cabinet or State standard auxiliary cabinet. The control unit shall provide a terminal block for power connection, grounding, circuit protection, cable connection connectors, and a transient voltage suppressor to facilitate reliable operation.

6.5 The POE connection between the control unit and the camera shall function with minimal signal degradation up to 300 feet under normal operational conditions.

ITEM 680.05010007 – 360 DEGREE CAMERA VIDEO DETECTION SYSTEM
ITEM 680.05020007 – 360 DEGREE CAMERA ASSEMBLY

7.0 INSTALLATION

7.1 The manufacturer of the video detection system or their representative shall design camera system layout/placement and supervise the installation and testing of the video detection equipment. A factory certified representative from the supplier shall be on-site for a minimum of one day when a complete system is being installed.

7.2 The manufacturer shall provide either one complete set of maintenance manuals for the installed equipment or online copies shall be available on the manufacture's website. These manuals shall have complete setup, maintenance, and troubleshooting procedures presented in an organized format.

8.0 WARRANTY, MAINTENANCE AND SUPPORT

8.1 Materials supplied by the contractor for the video detection system shall be warranted by its supplier for a minimum of one (1) year.

8.2 During the warranty period, technical support by telephone or online shall be provided by the supplier during normal business hours.

8.3 During the warranty period, certified personnel from the supplier shall be on site within seventy-two (72) hours if required.

8.4 Ongoing software support by the supplier shall include updates of the detection system and supervisor software. These updates shall be provided free of charge during the warranty period and at a reasonable charge for the service life of the system.

8.5 The supplier shall maintain a program for technical support and software updates following expiration of the warranty period.

CONSTRUCTION DETAILS

The Contractor shall develop and deliver shop drawings which illustrate in detail mounting and camera(s) connection(s) and other equipment to the traffic signal equipment as shown on the contract documents.

METHOD OF MEASUREMENT

The 360 Degree Camera Video Detection System and 360 Degree Camera Assembly will be measured as the number of units satisfactorily installed in accordance with the contract documents.

BASIS OF PAYMENT

The requirement of Subsection 680-5.01 General, of the Standard Specifications shall apply with additional provisions as follows:

The unit price bid shall include the cost of all installation and materials (including but not limited to hardware, software, mounting bracket, coaxial cable, training, incidentals) as necessary to install the 360 Degree Camera Video Detection System and/or 360 Degree Camera Assembly as shown on the contract

documents in a State standard traffic signal cabinet, and technical support associated with providing the installation and the accepting of the 360 Degree Camera Video Detection System. The cost of all the wire runs from the cameras to the controller shall be included in the item(s). Payment is to be made as follows: 70% of the contract unit price upon installation: the remaining 30% is to be paid upon completing the final acceptance testing. The cost of poles, conduit excavation, conduit, and pull boxes will be paid for under their respective items.

Payment will be made under:

ITEM NO.	ITEM DESCRIPTION	UNIT
680.05010007	360 Degree Camera Video Detection System	Each
680.05020007	360 Degree Camera Assembly	Each

ITEM 680.05010007 – 360 DEGREE CAMERA VIDEO DETECTION SYSTEM
ITEM 680.05020007 – 360 DEGREE CAMERA ASSEMBLY

DESCRIPTION

Under this item the Contractor shall install a complete system or camera assembly that detects vehicles on a roadway via processing of video images from a 360º view camera(s) and provides detector outputs to State standard traffic signal cabinet to interface with State qualified traffic signal controller for the application shown on the contract documents. Contractor shall also be responsible for the providing and installing auxiliary equipment to assure system functionality per the manufacturer's recommendations. The contract documents will state if any of the materials will be supplied by the state. Materials not supplied by the state shall be supplied by the contractor. If no materials list is provided in the contract documents, the Contractor shall furnish and install the complete system shown on the contract documents. The Contractor shall use products off the New York State DOT Approved Products List (APL).

MATERIALS

1.0 GENERAL

1.1 System Hardware

The 360 Degree Camera Video Detection System shall consist of one fixed 360º view video camera where shown on the contract documents, control unit, mounting hardware and all necessary cables.

The 360 Degree Camera Assembly shall consist of one fixed 360º view video camera, mounting hardware and all necessary cables (no control unit). This item may be used at locations where a second video camera is necessary in addition to the 360 Degree Camera Video Detection System or when a replacement camera is necessary.

1.2 System Software

The system shall include either client software for local and remote access of the detection system, or web server for local and remote access of the detection system. This access is for the configuration and monitoring of system parameters. The system shall also send alarm/health emails when enabled.

The system shall detect vehicles, bicycles, and pedestrians in multiple traffic lanes using only the video image. A minimum of 64 detection zones shall be user-definable through interactive graphics by placing lines and/or boxes in an image on a computer monitor. The user shall be able to redefine previously defined detection zones. The system shall calculate traffic parameters in real-time.

2.0 FUNCTIONAL CAPABILITIES

2.1 Real-Time Vehicle Detection

2.1.1 The system shall be capable of simultaneously processing information from the video cameras.

2.1.2 Detection zones shall be programmed via a graphical user interface on a desktop or laptop computer and pointing device. The interface shall facilitate placement of detection zones and setting of zone parameters or to view system parameters.

2.1.3 Different detector types shall be selectable. Detector types shall include stop-line, advance, presence, count, queue and directional presence.

2.1.4 Real-time detection status shall be viewable on a desktop or laptop computer.

2.1.5 Detection system parameters shall be kept in non-volatile memory.

2.1.6 The system shall have the capability of uploading and downloading set-up parameters remotely over the internet or locally over Ethernet.

2.1.7 The system shall provide dynamic zone reconfiguration without impacting zone detection.

3.0 DETECTION ZONES

3.1 The video detection system shall provide flexible detection zone placement anywhere and at any orientation within the combined field of view of the cameras. Zones shall be placed over other zones when necessary without impacting performance of overlapping zones.

3.2 Detection Zone Programming

3.2.1 Placement of detection zones shall be by means of a pointing device and desktop computer or laptop. The video monitor shall show images of the detection zones superimposed on the video image of traffic.

3.2.2 It shall be possible to use a pointing device and desktop computer or laptop to edit previously defined detector configurations to fine-tune the detection zone placement.

3.2.3 It shall be possible to individually adjust sensitivity for each detection zone in the system.

3.2.4 The detection zone shall change in color or intensity in real-time on the video monitor, thereby verifying proper operation of the detection system.

3.2.5 Detection zone outputs shall be configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds.

3.2.6 All detection zones shall be capable to count the number of vehicles detected. The count value shall be internally stored for later retrieval remotely over the internet or locally over Ethernet. The zone shall also have the capability to calculate and store average speed and lane occupancy at bin intervals of 10 seconds, 20 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes and 60 minutes.

3.3 Detection Performance

Overall performance of the video detection system shall be comparable to inductive loops. Using standard camera optics and in the absence of occlusion, the system shall be able to detect vehicle presence with minimum 96% accuracy under normal conditions (day & night) and minimum 93% accuracy under adverse conditions (fog, rain, snow).

4.0 HARDWARE

4.1 Mounting

The 360 Degree Camera Video Detection System and 360 Degree Camera Assembly shall consist of all necessary mounting hardware, brackets, vertical support, etc., as supplied by the manufacturer, to be able to mount the camera on a vertical support pole or horizontal arm.

4.2 Environmental

The system shall be designed to operate reliably in the adverse environment such as the typical roadside traffic signal controller cabinet. Operating temperature shall be from -25 to 165° F at 0 to 95% relative humidity, non-condensing.

4.3 Electrical and Communication

4.3.1 Detection system configuration and data downloads shall be available remotely over the internet or locally over Ethernet connection on a desktop computer or laptop.

4.3.2 The system shall be equipped with a detector interface for at least 64 detector outputs. Output levels and protocols shall be compatible NEMA TS2 and NTCIP.

4.3.3 The detection camera to control unit shall be power over Ethernet (POE).

4.3.4 The system shall be capable of self-diagnostics and respond to faults by placing any faulty detection zones in a constant call mode. The system shall automatically revert to normal detection mode when a fault no longer exists on a channel.

4.3.5 The system shall be capable of automatically detecting low-visibility conditions such as fog and respond by placing all defined detection zones in a constant call mode. The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

4.3.6 The detection system shall communicate with the traffic signal controller through the 2070 controller C12 SDLC connector as required for the application.

5.0 REMOTE CONNECTIVITY

5.1 The system shall allow video and data to be transmitted via the internet or an Ethernet connection to a central location where it can be displayed and/or stored.

5.2 The system shall include either client software or a web server for remote access of the detection system.

5.3 The interface unit shall support streaming video technology to allow the user to monitor video detection imagery.

5.4 Provisions shall be made to accommodate mating cable connectors to utilize jack screws for securing cables.

5.5 Hi-intensity status lights shall be provided on the control unit to facilitate system monitoring. Indicators shall be provided to show the status of the internal processor, video presence and indication of which video input is being monitored.

5.6 An Ethernet port shall be integrated within the control unit. The Ethernet port shall conform to 802.3 Ethernet specifications.

5.7 Control unit(s) maximum dimension shall be no more than 5" w x 11" h x 11" d.

6.0 CAMERA SYSTEM

6.1 The video camera shall consist of a 360º view for real-time vehicle detection. Each camera shall provide have a detection range of at least 180 feet. The camera shall have the dynamic range to function in low-visibility conditions such as snow, rain and fog.

6.2 The camera shall provide virtual pan, tilt, zoom (PTZ) to allow viewing of detection zones.

6.3 The camera and lens assembly shall be housed in an enclosure that is watertight and dust-proof. The camera shall be designed to avoid ice and condensation in cold weather. The camera shall be designed to prevent water droplets from interfering with normal operation. The camera shall be light-colored and shall include a sun shield to minimize solar heating and glare. The camera unit shall have the appropriate grounding to facilitate reliable operation.

6.4 The control unit shall be mounted inside a State standard traffic signal cabinet or State standard auxiliary cabinet. The control unit shall provide a terminal block for power connection, grounding, circuit protection, cable connection connectors, and a transient voltage suppressor to facilitate reliable operation.

6.5 The POE connection between the control unit and the camera shall function with minimal signal degradation up to 300 feet under normal operational conditions.

ITEM 680.05010007 – 360 DEGREE CAMERA VIDEO DETECTION SYSTEM
ITEM 680.05020007 – 360 DEGREE CAMERA ASSEMBLY

7.0 INSTALLATION

7.1 The manufacturer of the video detection system or their representative shall design camera system layout/placement and supervise the installation and testing of the video detection equipment. A factory certified representative from the supplier shall be on-site for a minimum of one day when a complete system is being installed.

7.2 The manufacturer shall provide either one complete set of maintenance manuals for the installed equipment or online copies shall be available on the manufacture's website. These manuals shall have complete setup, maintenance, and troubleshooting procedures presented in an organized format.

8.0 WARRANTY, MAINTENANCE AND SUPPORT

8.1 Materials supplied by the contractor for the video detection system shall be warranted by its supplier for a minimum of one (1) year.

8.2 During the warranty period, technical support by telephone or online shall be provided by the supplier during normal business hours.

8.3 During the warranty period, certified personnel from the supplier shall be on site within seventy-two (72) hours if required.

8.4 Ongoing software support by the supplier shall include updates of the detection system and supervisor software. These updates shall be provided free of charge during the warranty period and at a reasonable charge for the service life of the system.

8.5 The supplier shall maintain a program for technical support and software updates following expiration of the warranty period.

CONSTRUCTION DETAILS

The Contractor shall develop and deliver shop drawings which illustrate in detail mounting and camera(s) connection(s) and other equipment to the traffic signal equipment as shown on the contract documents.

METHOD OF MEASUREMENT

The 360 Degree Camera Video Detection System and 360 Degree Camera Assembly will be measured as the number of units satisfactorily installed in accordance with the contract documents.

BASIS OF PAYMENT

The requirement of Subsection 680-5.01 General, of the Standard Specifications shall apply with additional provisions as follows:

The unit price bid shall include the cost of all installation and materials (including but not limited to hardware, software, mounting bracket, coaxial cable, training, incidentals) as necessary to install the 360 Degree Camera Video Detection System and/or 360 Degree Camera Assembly as shown on the contract

documents in a State standard traffic signal cabinet, and technical support associated with providing the installation and the accepting of the 360 Degree Camera Video Detection System. The cost of all the wire runs from the cameras to the controller shall be included in the item(s). Payment is to be made as follows: 70% of the contract unit price upon installation: the remaining 30% is to be paid upon completing the final acceptance testing. The cost of poles, conduit excavation, conduit, and pull boxes will be paid for under their respective items.

Payment will be made under:

ITEM NO.	ITEM DESCRIPTION	UNIT
680.05010007	360 Degree Camera Video Detection System	Each
680.05020007	360 Degree Camera Assembly	Each

ITEM 680.77XXXX05 - MODIFY TRAFFIC SIGNAL INSTALLATION
ITEM 680.79XXXX05 - REMOVE TRAFFIC SIGNAL INSTALLATION
ITEM 680.50XXXX05 - ALTER ELEVATION OF POLE FOUNDATION
ITEM 680.50500005 - REMOVE POLE FOUNDATION
ITEM 680.51XXXX05 - ALTER ELEVATION OF PULL BOXES
ITEM 680.90000005 - RESET POLE

DESCRIPTION:

This work shall consist of modifying, removing, storing and/or disposing, reinstalling, refurbishing or replacing of elements of a traffic signal system in accordance with the contract documents and/or directions of the Engineer.

Where not specifically covered in the contract documents the work shall be in accordance with the latest national, local and industrial standards or codes which are usually applied to such work and the requirements of the maintaining agency.

MATERIALS:

When an existing system is to be altered, modified or relocated, the existing material shall be reused in the revised system, removed, salvaged or disposed of as shown in the contract documents, as specified in the special provisions or as directed by the Engineer. When new materials must be provided under the modification work they shall conform to the requirements of Standard Specifications Section 680-2, Materials whenever applicable. Materials not specified in Section 680-2 shall match the existing system as nearly as possible and meet the requirements of the owning agency.

CONSTRUCTION DETAILS:

The applicable provisions of Standard Specifications Section 680-3, Construction Details shall be complied with, in addition to the following:

Removing and Salvaging

Care shall be exercised in removing signal and electrical equipment and any appurtenances attached to them so that elements to remain or be salvaged will not be damaged.

The Contractor will be required to replace or repair, to the satisfaction of the Engineer, any equipment damaged, destroyed or lost by the Contractor's operations or negligence as determined by the Engineer.

Existing equipment or material intended to be reused and found to be missing or unsatisfactory, through no fault of the Contractor, shall be properly replaced by the Contractor, using equipment or material supplied by the owning agency or under other items.

All equipment or materials specified for removal but not intended to be incorporated in the work shall be removed and disposed of as specified in the contract documents.

The owners of appurtenances attached to signal equipment (e.g. street lighting) must be given adequate notification to allow sufficient time for them to remove or maintain their work

Alter Elevation of Pole Foundation or Pull Boxes

When adjustments to existing pole foundations and pull boxes are specified, the poles or frames and covers shall be removed and the foundation (anchor bolts, conduits, ground wires, conductor cables, etc.) or walls

reconstructed as required in the contract documents.

Remove Pole Foundations
Support poles are to be removed in their entirety to permit reuse by the owner. Anchor base poles shall be removed from the foundation and the foundation shall be cut one foot below final grade surface or subgrade, whichever is lower, unless the foundation interferes with the construction and will have to be removed in order to complete the work. Embedded poles shall be removed in their entirety (including all foundation materials from around the pole) unless it is determined by the Engineer that such removal will cause damage to existing underground facilities. If the Engineer orders the Contractor in writing to leave an embedded pole foundation in place, the pole and foundation shall be cut one foot below finished grade or subgrade, whichever is lower.

Holes
All holes resulting from this work shall be backfilled with suitable material and if so specified the disturbed areas restored to match the adjacent surface as approved by the Engineer.

METHOD OF MEASUREMENT:

Each
The following items will be measured for payment as the number of each operation completed in accordance with the contract documents to the satisfaction of the Engineer.

680.50XXXX05 - Alter Elevation of Pole Foundation
680.51XXXX05 - Alter Elevation of Pull Boxes
680.90000005 – Reset Pole

Foot
The following item will be measured for payment as the number of feet of pole foundation removed measured (to the nearest one half foot) from the top of anchor bolts, for anchor base poles, and the top of concrete, for embedded poles, to the depth of removal.

680.50500005 - Remove Pole Foundation.

Each Location
The quantity for each location includes all the work described in the contract documents for each serialized pay item. The following items will be measured for payment as the number of locations completed in accordance with the contract documents to the satisfaction of the Engineer.

680.77XXXX05 - Modify Traffic Signal Installation
680.79XXXX05 - Remove Traffic Signal Installation

BASIS OF PAYMENT:

The requirements of Standard Specifications Section 680-5.01, General shall apply with the following

ITEM 680.77XXXX05 - MODIFY TRAFFIC SIGNAL INSTALLATION
ITEM 680.79XXXX05 - REMOVE TRAFFIC SIGNAL INSTALLATION
ITEM 680.50XXXX05 - ALTER ELEVATION OF POLE FOUNDATION
ITEM 680.50500005 - REMOVE POLE FOUNDATION
ITEM 680.51XXXX05 - ALTER ELEVATION OF PULL BOXES
ITEM 680.90000005 - RESET POLE

additional provisions:

Modify Traffic Signal Installation
The unit bid per location shall include all costs for grounding and the repairing or replacing of equipment damaged, destroyed or lost by the Contractor's operations or negligence. Installation of replacement equipment and materials supplied by the owning agency is also included unless provided for under other items.

Progress payments for each location will be made in the following manner:

Sixty-five percent of the bid price of each location modified will be paid after it is completed and ready for testing.

Twenty-five percent of the bid price will be paid after satisfactory completion of all tests required by these specifications, including the function test for ten days of continuous satisfactory operation of the traffic signal system at each location.

The remaining ten percent will be paid when all the traffic signals in the contract are functioning to the satisfaction of the Engineer.

Remove Traffic Signal Installation
The unit price bid for each location removed shall include the cost for removing, storing and/or disposing as indicated in the contract documents.

Progress payments for each location removed will be made in the following manner:

Sixty-five percent will be paid when the elements to be removed are taken down.

Twenty percent will be paid when the elements are disposed of off the job site or salvaged by the owning agency.

The remaining fifteen percent will be paid when the location is restored to the satisfaction of the Engineer.

Alter Elevation of Pull Boxes and Pole Foundations
The unit price bid for each alteration operation as specified in the contract documents shall include all costs for excavation, backfill, removing and/or cutting off concrete, reinforcing or anchor bolts, furnishing and installing concrete, bonding compounds, reinforcing bars, anchor bolt extensions and necessary drilling and grouting, removing, storing or resetting frames and grates and restoration of the site as specified. Removing and resetting poles made necessary by this work shall be paid for under their respective items.

Remove Pole Foundations
The unit price bid per foot of pole foundation removed shall include all costs for excavation and disposal, backfill, removing and/or cutting off reinforcing or anchor bolts and restoring the site if specified in the

ITEM 680.77XXXX05 - MODIFY TRAFFIC SIGNAL INSTALLATION
ITEM 680.79XXXX05 - REMOVE TRAFFIC SIGNAL INSTALLATION
ITEM 680.50XXXX05 - ALTER ELEVATION OF POLE FOUNDATION
ITEM 680.50500005 - REMOVE POLE FOUNDATION
ITEM 680.51XXXX05 - ALTER ELEVATION OF PULL BOXES
ITEM 680.90000005 - RESET POLE

contract documents.

Reset Pole

The unit price bid for each pole reset shall include the cost for refurbishing, handling, erecting (including signs, push buttons, street lighting and other appurtenances if attached), furnishing anchor bolts (installed under another item) if required, field galvanizing, drag wires, conductor cable connection, grounding and incidental connecting hardware as specified. Removing the pole will be paid for under the item for Remove Traffic Signal Installation.

Payment will be made under:

ITEM NO.	ITEM DESCRIPTION	PAY UNIT
680.77XXXX05	**Modify Traffic Signal Installation Location _____**	**Each Location**
680.79XXXX05	**Remove Traffic Signal Installation Location _____**	**Each Location**
680.50000105	**Alter Elevation of Pole Foundations Type 1**	**Each**
680.50000205	**Alter Elevation of Pole Foundations Type 2**	**Each**
680.50000305	**Alter Elevation of Pole Foundations Type 3**	**Each**
680.50500005	**Remove Pole Foundations**	**Foot**
680.51000105	**Alter Elevation of Pull Boxes Type 1**	**Each**
680.51000205	**Alter Elevation of Pull Boxes Type 2**	**Each**
680.51000305	**Alter Elevation of Pull Boxes Type 3**	**Each**
680.90000005	**Reset Pole**	**Each**

ITEM 680.80324515 - INSTALL MICROCOMPUTER CABINET

DESCRIPTION:

Under this item the contractor shall install Microcomputer Cabinets, which are supplied by the State, at locations shown on the plans or where directed by the Engineer. The State will supply and install the microprocessor, peripheral equipment and software.

MATERIALS:

The State will supply the Microcomputer Cabinets to the Contractor to install. The Contractor shall provide conduit nipples, grounding bushing, L. B. fitting and mounting hub for wiring entrance interface panel between the steel pole and the aluminum cabinet base. The wiring entrance interface panel shall be of sufficient size to accommodate a minimum 4" conduit and may be larger if required to accommodate the traffic signal wiring. Cabinet features, dimensions and location of interface panel for field wiring are detailed in the NEW YORK STATE TRANSPORTATION MANAGEMENT EQUIPMENT SPECIFICATIONS.

CONSTRUCTION DETAILS:

The requirements of section 680-3 of the Standard Specification shall apply with the following additions:

1. The Contractor's request for delivery of the Microcomputer Cabinets supplied by the State shall be made, in writing , five weeks in advance, to the Engineer. The Microcomputer Cabinets will be delivered to the Contractor at the Regional Signal Shop. The Engineer will advise the Contractor of the location of the Regional Signal Shop. At least one week in advance of delivery, the Contractor shall make an appointment through the Engineer as to the time and date the Microcomputer Cabinets will be available to the contractor.

2. The Contractor shall mount the Microcomputer Cabinet to the steel signal pole as shown on the contract plans, Standard Sheets or as directed by the Engineer.

3. The Contractor shall enlarge the hole for conduit located in the bottom of the Microcomputer Cabinet, if necessary, to accommodate the traffic signal wiring.

4. In unpaved areas, the Contractor shall install a concrete work pad in front of the cabinet door as specified on the Standard Sheets or the plans. The work pad shall meet the requirements of section 608 of the Standard Specifications for concrete sidewalk, and include concrete, fill or excavation and all grading as necessary.

5. The Contractor shall establish ground as shown on the contract plan and further defined in the N.Y.S. Standard Specifications of Construction and Materials. The Contractor shall run number six copper stranded wire from the ground lug connection at the base of the pole to the EARTH ground bus within the Cabinet. The Contractor shall connect the power line common to the minus AC ground bus.

6. The Contractor shall arrange with the utility company and the Engineer to have the power hooked up to the Microcomputer Cabinet(s).
7. The Contractor shall perform all tests listed under Section 680-3.32, Tests, of the N.Y.S. Standard Specifications for Construction and Materials with the exception of the Functional Test, when all of his

traffic signal installation work on the entire project, has been complete. The State may, at its option, have the Contractor perform the required testing at each individual signal installation location as soon as he completes his signal installation work at that location. The State will assume responsibility for the Functional Test.

8. Within 30 days of the Contractor successfully completing the required testing on his installation work, the State will install the microprocessor, peripheral equipment and software into the Microcomputer Cabinet. The State may, at its option, perform tests on the traffic signal equipment before installing the microprocessor, peripheral equipment and software.

9. Upon completion of the microcomputer installation, the Engineer may, at his option, conduct a functional test of the signal system for a period not to exceed 14 days. During this testing period, the existing signal system may be turned off or on as directed by the Engineer.

METHOD OF MEASUREMENT:

This work will be measured as the number of Microcomputer Cabinets installed in accordance with the plans, specifications and directions of the Engineer.

BASIS OF PAYMENT:

The unit price for each Microcomputer Cabinet installed shall include the cost of all labor, material, testing and equipment necessary to complete the work.

The concrete work pad, if required, and any necessary fill, excavation or grading, is to be paid for under this item.

Payment for connecting all input and output wiring to the interface panel of the Microprocessor Cabinet shall be included in the bid price for each specific cable item.

ITEM 680.81230008 - TRAFFIC SIGNAL BRACKET ASSEMBLY-1 WAY MAST ARM MOUNT (CABLE TYPE)
ITEM 680.81240008 - TRAFFIC SIGNAL BRACKET ASSEMBLY-2 WAY MAST ARM MOUNT (CABLE TYPE)

DESCRIPTION:

This work shall consist of furnishing and installing a 1 way or 2 way traffic signal bracket assembly on traffic signal pole mast arms. The traffic signal bracket assembly shall include a three way adjustment system: up/down, side to side aiming, and tilt aiming.

MATERIALS:

All materials used in this work shall meet the requirements of Section 680-2 of the Standard Specifications. The Contractor shall also submit catalog cuts to the Engineer for approval.

CONSTRUCTION DETAILS:

The appropriate provisions of Section 680-3 of the Standard Specifications shall apply.

METHOD OF MEASUREMENT:

The provisions of Section 680-4.01 of the Standard Specifications shall apply.

BASIS OF PAYMENT:

The provisions of Section 680-5.16 of the Standard Specifications shall apply.

ITEM 680.82250108 - RELOCATE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250208 - REMOVE AND STORE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250308 - REMOVE AND DISPOSE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250408 - RELOCATE PEDESTRIAN POLE
ITEM 680.82250508 - REMOVE AND STORE PEDESTRIAN POLE
ITEM 680.82250608 - REMOVE AND DISPOSE PEDESTRIAN POLE AND FOUNDATION

DESCRIPTION:

This work shall consist of relocating, removing, storing and/or disposing, refurbishing, or replacing of elements of a pedestrian traffic signal system in accordance with the plans, specifications or as directed by the Engineer.

Where not specifically covered in the contract documents, the work shall be in accordance with the latest national, local and industrial standards or codes which are usually applied to such work, and the requirements of the maintaining agency.

MATERIALS:

When an existing system is to be relocated, the existing material shall be reused in the revised system, removed, salvaged, or disposed of as shown on the plans, as specified in the special provisions, or as directed by the Engineer. When new materials must be provided under the modification work, they shall conform to the material requirements of Section 680-2 whenever applicable. Materials not specified in 680-2 shall match the existing system as nearly as possible, and meet the requirements of the owning agency and/or as approved by the Engineer.

CONSTRUCTION DETAILS:

The applicable provisions of Subsection 680-3, Construction Details shall be complied with in addition to the following:

Removing and Salvaging

Care shall be exercised in removing signal and electrical equipment and any appurtenances attached to them so that elements to remain or be salvaged will not be damaged.

The contractor will be required to replace or repair, to the satisfaction of the Engineer, any equipment damaged, destroyed or lost due to the contractor's operations or negligence as determined by the Engineer.

Existing equipment or material intended to be reused and found to be missing or unsatisfactory, through no fault of the contractor, shall be properly replaced by the contractor, using equipment or material supplied by the owning agency or under other items.

ITEM 680.82250108 - RELOCATE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250208 - REMOVE AND STORE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250308 - REMOVE AND DISPOSE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250408 - RELOCATE PEDESTRIAN POLE
ITEM 680.82250508 - REMOVE AND STORE PEDESTRIAN POLE
ITEM 680.82250608 - REMOVE AND DISPOSE PEDESTRIAN POLE AND FOUNDATION

All equipment or materials specified for removal but not intended to be incorporated in the new or modified system shall be removed from the site and disposed of as specified in the contract documents and/or as directed by the Engineer.

Removing Pole Foundations

Pedestrian poles are to be removed in their entirety to permit reuse by the owner. Poles shall be removed from the foundation and the foundation shall be cut 2 ft. below final grade or subgrade, whichever is lower, unless the foundation interferes with the construction and will have to be removed in order to complete the work.

Holes

All holes resulting from this work shall be backfilled with suitable material and if so specified the disturbed areas restored to match the adjacent surface as approved by the Engineer.

METHOD OF MEASUREMENT:

Each Unit

The quantity to be paid for under this item(s) will be the number of pedestrian signal system elements actually relocated, removed, stored and/or disposed of as shown on the plans or in the contract documents.

BASIS OF PAYMENT:

The requirements of Subsection 680-5.01 General shall apply with the following additional provisions:

RELOCATE PEDESTRIAN PUSHBUTTONS AND SIGNS
REMOVE AND STORE PEDESTRIAN PUSHBUTTONS AND SIGNS
REMOVE AND STORE PEDESTRIAN POLE

The unit price bid per each shall include all costs for removal of any conduit riser on wooden poles to nearest pullbox, removal of cable to nearest pullbox or as shown on plans or as directed by the Engineer, and the repairing or replacing of equipment damaged, destroyed, or lost by the Contractor's operations or negligence. Installation of replacement equipment and materials supplied by the owning agency is also included unless noted for payment under other items.

ITEM 680.82250108 - RELOCATE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250208 - REMOVE AND STORE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250308 - REMOVE AND DISPOSE PEDESTRIAN PUSHBUTTONS AND SIGNS
ITEM 680.82250408 - RELOCATE PEDESTRIAN POLE
ITEM 680.82250508 - REMOVE AND STORE PEDESTRIAN POLE
ITEM 680.82250608 - REMOVE AND DISPOSE PEDESTRIAN POLE AND FOUNDATION

RELOCATE PEDESTRIAN POLE

The unit price for each pole reset shall include the cost for removing the pole from the existing foundation, refurbishing, handling, erecting (including signs, push buttons, and other appurtenances if attached), furnishing anchor bolts (installed under another item) if required, field galvanizing, drag wires, conductor cable connection, grounding and incidental connecting hardware as specified. The cost of the new foundation, including excavation shall be paid for under their respective items

REMOVE AND DISPOSE PEDESTRIAN PUSHBUTTONS AND SIGNS
REMOVE AND DISPOSE PEDESTRIAN POLE AND FOUNDATION

The unit price bid per each shall include all costs for removal of any conduit riser on wooden poles to nearest pullbox, removal of cable and conduit to nearest pullbox or as shown on plans or as directed by the Engineer

ITEM 680.82250801 - REMOVE TRAFFIC SIGNAL PULLBOXES

DESCRIPTION:

Under this item, the Contractor shall remove traffic signal pullboxes.

MATERIALS:

Not specified.

CONSTRUCTION DETAILS:

Under this item, the Contractor shall remove traffic signal pullboxes from the locations indicated in the plans, or when ordered by the Engineer. The pullboxes shall become the property of the Contractor and shall be removed from the site.

The Contractor shall remove a pullbox located in the roadway area by sawcutting the pavement 2 ft. form the edge of the existing frame and then excavating around the outside of the pullbox. The existing conduit(s) shall be cut off outside of the pullbox and the entire pullbox shall be removed.

The Contractor shall remove a pullbox located in the sidewalk by sawcutting the sidewalk panel(s) in which it is located at the scorelines and removing the entire flag, then excavating around the outside of the pullbox. The existing conduit(s) shall be cut off outside of the pullbox and the entire pullbox shall be removed.

The Contractor shall backfill the excavation in accordance with section 680-3.09 to the top of the subgrade. Final restoration shall be in accordance with the plans and shall match the surrounding area.

METHOD OF MEASUREMENT:

This work will be measured as the number of pullboxes removed.

BASIS OF PAYMENT:

The unit price bid for each pullbox removed shall cover the cost of all labor, equipment, sawcutting, disposal, excavation, and backfill and surface restoration materials to complete the work.

ITEM 680.94000008 - TRAFFIC SIGNAL SERVICE ENTRANCE

DESCRIPTION

This work shall consist of installing an overhead or underground service entrance conduit to the traffic signal controller cabinet in accordance with the contract documents and as directed by the Engineer.

MATERIALS

Metal Steel Conduit, Zinc Coated	723-20
Galvanized Coatings and Repair Methods	719-01

The electric meter pan, if required, shall be in compliance with the requirements of the utility company providing power service.

CONSTRUCTION DETAILS

All requirements of Section 680-3 CONSTRUCTION DETAILS shall apply including the following:

The contractor shall install traffic signal service conduit for either overhead or underground service connection in accordance with the contract documents and as directed by the Engineer.

Certification for electrical service may require underwriter's inspection.

METHOD OF MEASUREMENT

This work will be measured as the number of TRAFFIC SIGNAL SERVICE ENTRANCES satisfactorily installed.

BASIS OF PAYMENT

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

ITEM 680.99040010 - REMOVE WOODEN TRAFFIC SIGNAL POLE

DESCRIPTION:

Under this item the Contractor shall remove wooden traffic signal poles as ordered by the Engineer.

MATERIALS:

None specified.

CONSTRUCTION DETAILS:

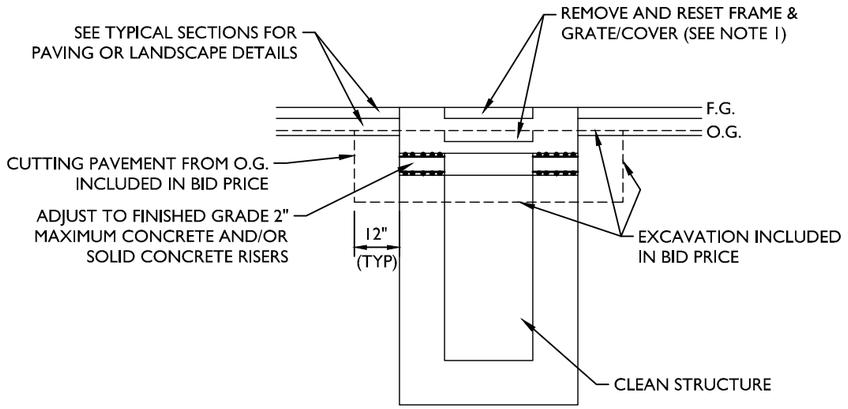
The Contractor shall remove the wooden traffic signal poles in accordance with the specifications, plans, and as ordered by the Engineer. The poles shall be totally removed and the excavation backfilled in accordance with Section 680-3.09. Restoration of the surface area to match existing surrounding conditions is to be performed under other contract items.

METHOD OF MEASUREMENT:

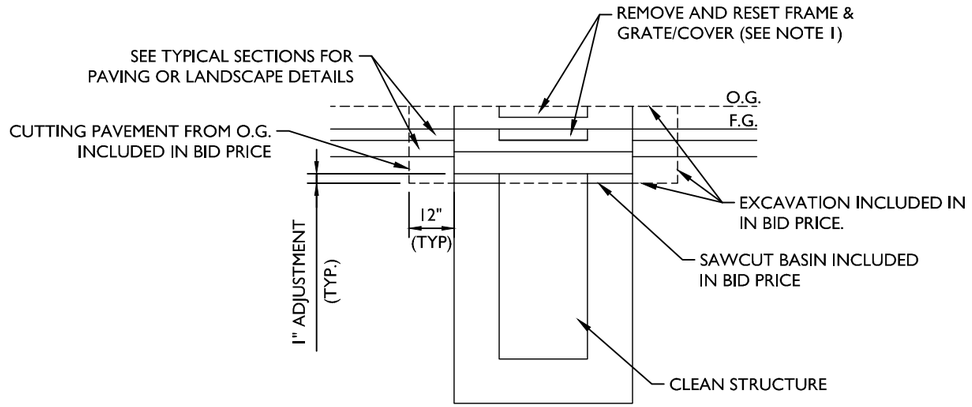
The quantity shall be measured as the number of wooden traffic signal poles removed in accordance with the plans and specifications and orders of the Engineer.

BASIS OF PAYMENT:

The unit price bid for each pole removed shall cover the cost of all excavation, backfill, labor, material and equipment.



ALTERING UTILITY MANHOLE
TO HIGHER ELEVATION
N.T.S



ALTERING UTILITY MANHOLE
TO A LOWER ELEVATION
N.T.S

NOTES:

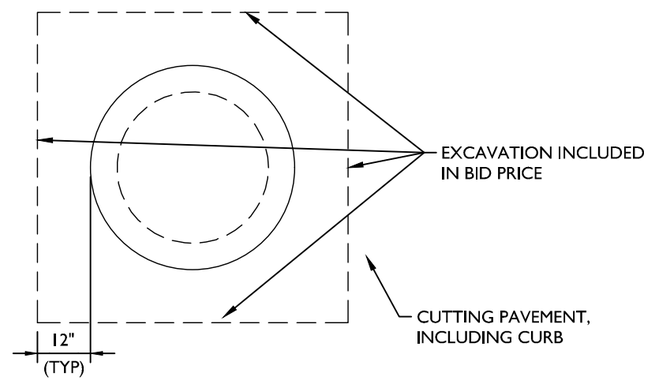
1. THE USE OF UNDAMAGED EXISTING FRAMES & GRATES/COVERS IS REQUIRED, HOWEVER IF IT IS NECESSARY TO REPLACE THE FRAME & GRATE/COVER, SUBSTITUTION SHALL BE MADE AND PAID FOR UNDER THE APPROPRIATE ITEMS FOR NEW FRAMES & GRATES/COVERS.

2. TOP SLAB AND/OR FRAME & GRATE ADJUSTMENT
   A MINIMUM OF HALF INCH OF BEDDING MORTAR FOR CONCRETE SHALL BE PLACED BETWEEN RISER AND PRECAST TOP SLABS WHEN ORDERED BY THE ENGINEER. FOR ALL DRAINAGE STRUCTURES, A MAXIMUM OF 6 INCHES OF PRECAST CONCRETE PAVERS AND MORTAR FOR CONCRETE, OR A MAXIMUM OF 2 INCHES OF MORTAR FOR CONCRETE ALONE, SHALL BE USED FOR TOP SLAB AND/OR FRAME & GRATE/COVER ADJUSTMENT. FOR ADJUSTMENTS OVER 6 INCHES AND NOT TO EXCEED 12 INCHES, CAST IN PLACE CONCRETE OR A PRECAST CONCRETE ADJUSTMENT ELEMENT SHALL BE USED. A MAXIMUM OF 2 INCHES OF MORTAR FOR CONCRETE SHALL BE ALLOWED ON BOTH THE TOP AND BOTTOM OF THE PRECAST DEVICES.

3. FOR DRAINAGE STRUCTURE ADJUSTMENTS OVER 12 INCHES, CAST IN PLACE CONCRETE OR A PRECAST CONCRETE ADJUSTMENT ELEMENT SHALL BE USED. ALTERING METHOD SHALL BE APPROVED BY ENGINEER OR TOWN AND ALL COST SHALL BE INCLUDED.

4. A MINIMUM OF ONE AND HALF INCH OF BEDDING MORTAR FOR CONCRETE SHALL BE REQUIRED BETWEEN THE TOP OF CUT-DOWN RISER AND TOP SLAB FOR CORROSION PROTECTION..

5. THE COST OF MINOR (LESS THAN 25% OF THE INSIDE WALL AREA) REPAIRS AND REPOINTING OF WALLS TO BE RETAINED (AS ORDERED BY THE ENGINEER) SHALL BE INCLUDED IN THE BID PRICE.



ALTERING UTILITY MANHOLE
PLAN VIEW
N.T.S

ALTERING UTILITY MANHOLE - ITEM 660.6500NN01