

City of Torrington

ENGINEERING DEPARTMENT
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ADDENDUM No. 4

DATE ISSUED: February 12, 2020

RE: “RECONSTRUCTION OF VARIOUS ROADS PHASE 2020.1”

BID # RVR-027-021320

All bidders are hereby advised of the following amendments to the Contract Bid Documents, which are hereby made an integral part of the specifications for the subject project, prepared by The City of Torrington, to the same extent as all other documents. All work shall conform to the standards and provisions of same.

Bids submitted shall be deemed to include the Contract Document information as shown in **Addendum No. 4**. General bidders shall notify sub-bidders that may be affected by this addendum as applicable. Bidders shall be required to acknowledge receipt of this Addendum in the space provided on the Bid Proposal Form, Page BP-1. Failure to acknowledge this Addendum by the Bidder may result in the rejection of their bid. Bidders are directed to review changes to all portions of the work as changes to one portion may affect the work of another.

- 1 Replace technical specification Section 2.02 “Roadway excavation, formation of embankment and disposal of surplus material” in its entirety with the attached technical specification Section 2.02 “Earth Excavation” noted as Addendum #4 - Feb 12, 2020.**
- 2 Replace technical specification Section 4.03 “Full-depth reclamation of roadway pavements” in its entirety with the attached technical specification Section 4.03 “Full-depth reclamation of roadway pavements” noted as Addendum #4 - Feb 12, 2020.**
- 3 Replace technical specification Section 6.51 “Storm Sewer Piping” in its entirety with the attached technical specification Section 6.51 “Storm Sewer Piping” noted as Addendum #4 - Feb 12, 2020.**
- 4 Replace “Bid Item List” noted as Addendum #2 Feb 6, 2020 in its entirety with the attached “Bid Item List” noted as Addendum #4 - Feb 12, 2020.**
- 5 For clarification, the following contractor submitted questions are answered below:**

Q1. Per the 6” bituminous concrete curb detail, the item states 6” curb however in actually it is 8” since it is located on the binder. Is the intent to place a 6” curb on the top course or 8” curb on the binder?

A1. As per Detail 1.1 on Drawing SD-1 the depth of proposed bituminous concrete top course shall be 2” compacted thickness. As per Detail 2.12 and 2.13 on Drawing SD-2A the bituminous concrete curb is to be placed on the base binder course with a finished height of 6” as measured from the top of curb to the top of the wearing/top

course. Also refer to Technical Specification for Item 0815001A 6" Bituminous Concrete Curbing Section 8.15.03 – 3.01 paragraph 4.

- Q2. Should we assume that every mailbox is to be reset on the project? What is the specific offset for the mailboxes from the edge of roadway?
- A2. Mailboxes shall be relocated as required to meet the Technical Specification for Item 0201001A Clearing and Grubbing, and **City Standard Detail Section 8.2 Mail Box Installation (Copy attached)**.
- Q3. How will the contractor reclaim the curb without the removal of the topsoil behind the curb without mixing organics into the reclaim? Should there be a separate pay item for the removal of organics prior to the reclaiming.
- A3. Refer to technical specification Section 4.03 Full Depth Reclamation noted as Addendum #4 - Feb 12, 2020 as written with the following extract provided for clarification: *"...Prior to reclaiming operations, all existing bituminous concrete curbing and overlying or adjacent materials such as earth, topsoil, grass, organics or other materials shall be removed within 6" of the edge of existing pavement to ensure the resulting reclaimed material is free of earth or organics...."* and Refer to Section 2.02 "Earth Excavation" noted as Addendum #4 - Feb 12, 2020 section 2.02.04 as written with the following extract provided for clarification: *"...Where roadways are not considered for widening, all materials excavated and removed including existing bituminous concrete curbing, earth, topsoil, grass or organic materials adjacent to or covering existing bituminous concrete asphalt layers will not be measured for payment and shall be considered incidental to work item for Full Depth Reclamation...."*
- Q4. Per the reclaiming specification once the curb is reclaimed and not broken down in to the acceptable graduation, will the removal of the broken curb pieces be paid under earth ex?
- A4. Refer to technical specification Section 4.03 Full Depth Reclamation noted as Addendum #4 - Feb 12, 2020 as written with the following extract provided for clarification: *"...Prior to reclaiming operations, all existing bituminous concrete curbing and overlying or adjacent materials such as earth, topsoil, grass, organics or other materials shall be removed within 6" of the edge of existing pavement to ensure the resulting reclaimed material is free of earth or organics...."* and *"...Existing bituminous concrete curb may be pulverized or reclaimed simultaneously with the roadway pavement provided the resulting material meets the requirement of section 4.03.02. All reclaimed bituminous concrete material not meeting the requirement of section 4.03.02. or mixed with bituminous concrete curb pieces shall be reclaimed a second time or removed and disposed of by other methods...."*
- Q5. Please confirm the roadways that will utilize police vs flaggers?
- A5. Refer to technical specification Section 9.71 Maintenance & Protection of Traffic, Section 9.71.01 – 1.01-D. as written with the following extract provided for clarification: *".....The Engineer will determine the requirements of which type of Traffic Control Person be used either Uniformed Municipal Police Officers or Uniformed Flaggers and direct the Contractor to which type and quantity accordingly....."*
- Q6. Please give a detail for the placement of the detectable warning strips as these should be placed in concrete per the manufacture recommendations.
- A6. Refer to Detail 2.14 Detectable Warning Pad in Bituminous Concrete Sidewalk on Drawing SD-2A.

END OF ADDENDUM No. 4

SECTION 2.02 EARTH EXCAVATION

ITEM 0202000A EARTH EXCAVATION

ITEM 0202529A CUT BITUMINOUS CONCRETE PAVEMENT

2.02.01—Description: Earth excavation shall consist of the removal and satisfactory disposal, in the manner herein required, of all material taken from within the limits of the work contracted for, the removal of which is necessary for the construction of the roadway, subgrade, shoulders, slopes, entrances, retaining walls, gutters, channels and other miscellaneous construction to the dimensions and limits shown on the plans or as ordered.

Earth excavation shall include the formation of embankments, the disposal of excess or unsuitable material, removal of old foundations, concrete or masonry walls, crib walls, bin walls, stone wall fences or farm wall fences and filling of cellar or other holes, and in the absence of such items in the contract, the clearing and grubbing and the shaping and cleaning of slopes and of shoulders.

Earth excavation shall include the reuse of excavated material for backfilling of turf restoration areas requiring filling behind new curbing, filling in low areas and matching into existing grades where turf may or may not be required.

Roadways shall be considered for widening only where the design road width as shown on the contract design plans is greater than the existing width as shown on the contract design plans or as measured on the existing roadway. Widths shall be measured from the front-face-of-curb to the opposite front-face-of-curb or each edge of pavement of the top course of asphalt. Roadways may also be widened as required as directed by the Engineer.

Roadways will not be considered for widening where the design road width is less than or equal to the existing road width, or as directed by the Engineer.

2.01.02—Materials:

- 1) Suitable material for roadway embankments, backfilling behind curbing, sidewalk and driveway subgrade shall be the material encountered during the course of construction as determined by the Engineer. Reclaimed roadway material shall be considered suitable material for use as roadway base and subbase and also for general backfilling.
- 2) Unsuitable material shall include debris, frozen material, organic matter, sod, topsoil, all wet or soft muck, peat, silt, clay or any other material which, as determined by the Engineer, will not provide sufficient support or maintain the completed construction in a stable condition.
- 3) Surplus material shall include reclaimed material removed to achieve design or existing grading and suitable excavated material that is deemed by the Engineer to be useful for reuse elsewhere within the project limits.
- 4) Reclaimed material as removed from the roadway after pulverization meeting the requirements of Section 4.03.02 shall be used as base and subbase material in roadway construction, grading, widening and general backfilling as earth backfill including behind new curbing and formation of embankments.
- 5) Excess material shall be considered all material that cannot be reused within the project limits as base and subbase material in roadway construction, grading, widening and general backfilling including earth backfill including behind new curbing and formation of embankments.

2.02.03—Construction Methods:

1. General

The Contractor shall perform all excavations of every description and of whatever substances encountered, to the widths and depths indicated on the Drawings and as otherwise specified. During excavations, material determined by the Engineer to be suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the stream to avoid overloading and to prevent runoff or slides. All excess excavated materials not required or unsuitable for backfill shall be removed and wasted away from the site. Care shall be taken not to over excavate below the depths indicated on the plans unless authorized by the Engineer. Unauthorized over depth excavations shall be backfilled at the Contractor's expense. If ledge is encountered it is anticipated that this material will not be removed and proposed grades may be adjusted by the Engineer to accommodate the ledge remaining in-place.

Excavation shall be made in conformity with the requirements of the plans and as ordered by the Engineer. The Contractor shall, when necessary in excavation areas, provide and maintain ditches which are adequate to prevent free water from becoming incorporated in material to be used to form embankments, such ditching to be at the sole expense of the Contractor.

2. Unsuitable Excavation

Whenever unstable soil, that is incapable of properly supporting the road structure, is encountered below the proposed subgrade of the roadway, as determined by the Engineer, such soil shall be removed and refilled with crushed stone material as hereinafter specified, placed in minimum 8-inch lifts and thoroughly compacted.

3. Use of Excavated Materials

To the extent they are needed, all suitable materials from the specified excavations shall be used in the construction of required permanent roadway widening, earth fill or boulder/rock fill. The suitability of materials for specific purposes will be determined by the Engineer. The Contractor shall not waste or otherwise dispose of suitable excavated materials.

4. Surplus Materials:

All surplus material shall be used where directed by the Engineer, to uniformly widen embankments, to flatten slopes, to fill low areas in the right of way, to widen roadway with surplus reclaimed material or for such other purposes as the Engineer may direct.

The Contractor shall use all surplus material immediately for backfill or where not operationally possible to do so, stockpile all suitable material for future reuse. When reclaimed roadway material is graded and compacted to the intended design grade or as directed by the Engineer and grading operations are completed, excess reclaimed material from roadways shall be deemed as surplus material and reused on the site.

Surplus material or earth excavation shall be loaded, transported, stockpiled, reloaded and placed for use in other locations within the entire project limits. This item applies to material loaded, and hauled either within the project or hauled and disposed of offsite.

5. Reclaimed Material

Reclaimed material from the roadway deemed as surplus or as directed by the Engineer to be excavated and moved shall first and foremost be reused as needed for road widening, backfill or earth fill.

The contractor shall not dispose of surplus reclaimed material until all backfilling and earth fill requirements are completed and to the satisfaction of the Engineer. If backfill locations are not operationally available or prepared for filling, the contractor shall stockpile the material for future use. If material cannot be

stockpiled within the project limits, the contractor will be required to stockpile the material off site at a location provided by the contractor.

The contractor may temporarily stockpile material on City property at the former landfill site on Vista Drive in Torrington.

6. Placement of Embankment Material:

All excavated material and reclaimed material obtained within the limits of the Project shall be used in the formation of embankments as directed by the Engineer.

All excavated material including reclaimed roadway material or any other excavated material deemed suitable for reuse by the Engineer shall be loaded, transported, and placed for use as fill within the project limits as directed by the Engineer. This material may need to be stockpiled for future use which shall then be reloaded and use as required within the project limits.

When embankments are to be constructed on slopes steeper than 1:3, the slope of the existing ground on which the embankment is to be placed shall be plowed deeply or cut into steps before the filling is begun.

The depth of each layer, before compaction, shall not exceed 12 in except as permitted hereinafter by these specifications, or with the permission of the Engineer.

The embankment shall be crowned or pitched to provide drainage at the close of each day's operations. Where filling in 12-in layers is impracticable, as in the case of filling in water or over slopes too steep for the operation of equipment, the embankment may be constructed in a single layer to the minimum elevation at which equipment can be operated, as determined by the Engineer; and above this elevation, the embankment shall be constructed as specified herein.

Earth slopes with a degree of slope from 2:1 to 5:1 shall be tracked unless the Engineer directs that they shall not be tracked. Tracking shall consist of traversing the slopes with cleated tracks so that the cleat indentations are horizontal. Where topsoil is to be placed on slopes, the tracking shall be done prior to the installation of the topsoil. Tracking is not to be construed to be used for slope compaction. Its sole purpose is to provide indentations in the slope to help reduce soil erosion. Other methods of achieving the desired results may be used, with the permission of the Engineer.

7. Compaction:

The entire area of each layer of the embankment and the subgrade in the excavated areas shall be uniformly compacted to at least the required minimum density by use of compaction equipment consisting of rollers, compactors or a combination thereof. Earth-moving and other equipment not specifically manufactured for compaction purposes will not be considered as compaction equipment.

The dry density after compaction shall not be less than 95% of the dry density for that soil when tested in accordance with AASHTO T 180, Method D. Each layer of the embankment and the subgrade shall be compacted at optimum moisture content. No subsequent layer shall be placed until the specified compaction is obtained for the previous layer

8. Roadway Widening:

Roadways considered for widening shall be excavated to the widths as shown on the contract design plans and Details 2.13 & 2.13 and as described herein.

Reclaimed roadway material adjacent to the excavation shall be used as aggregate base and sub-base material in roadway widening locations. Reclaimed roadway material adjacent to the widening shall be used for and placed in excavated widening area.

Reclaimed material deemed surplus shall be loaded and transported as required within the project limits or as directed by the Engineer and placed in other excavated widening locations.

9. Excavation behind existing curbing or beyond the edge of pavement

Where roadways are not considered for widening, all materials behind the existing curb or in the shoulder of the road or beyond the edge of existing pavement shall be removed prior to reclamation to ensure the resulting reclaimed material is free of earth or organics.

The extent of excavation and removals shall include sufficient width to install the new base course asphalt to the design width plus 2 feet as shown on Details 2.13 & 2.13.

10. Disposal Of Unsuitable Or Excess Material:

All material deemed by the Engineer as unsuitable or as deemed to be in excess of what can be used or placed within the project limits as fill or as roadway widening, shall be disposed of offsite by the contractor.

The City of Torrington does not guarantee nor imply any areas available for disposal of excess or unsuitable excavated material within project limits. The Contractor shall dispose of offsite all excavated material in excess of that which can be reused or placed within permitted project areas.

2.02.04—Method of Measurement:

Earth excavation will be measured as the actual number of cubic yards in place in its original position prior to excavation. Payment limit lines for unsuitable material excavation shall be the area designated by the plans, special provisions or as deemed by the Engineer as unsuitable material below the subgrade in cut sections, below the limits of top soil in fill sections and beyond the bottom of trench as shown depicted on the construction details for trench excavation.

Top soil to be stripped is not considered unsuitable material for purposes of measurement for payment. Removal of topsoil will be considered part of the clearing grubbing and demolition payment item. Stripped top soil shall be stock piled and saved for use on the project or the City's use if requested. Any stockpiling, drying or re-excavation of material on the project shall not be measured for payment.

Excavation for roadway widening will be measured as the number of cubic yards of earth excavation as measured volume of material in place in its original position prior to excavation. The volume in place shall be calculated by measuring the length, widening width and depth in place prior to excavation as follows:

- The length shall be measured along the road gutter line where the design width is greater than the existing width as shown on the contract design plans or as measured in the field or directed by the Engineer.
- The side of road to be widened and the width of widening on each side of the road shall be determined from the proposed and existing widths as shown on the contract design plans or as directed by the Engineer. The width of excavation shall be 6 inches wider than the widening width required for the base lift asphalt.
- The depth of excavation shall be calculated as the average of the depth from the existing grade to the subgrade. The depth measured at the back of curb and depth measured at the back edge of widening shall be averaged.

Reclaimed material as excavated and loaded after the reclaiming process will be measured as recorded by truck load box volume. The volume measurement of each load shall be recorded on individual tickets per truck load as issued and signed daily in the field by authorized field inspectors as designated by the Engineer.

Bituminous concrete pavement, bituminous concrete curb, concrete, granite, rubble, boulders, parts of or whole utility structures shall be separated and not be mixed with loads of excavation that is to be measured for payment as truck load box volume.

The removal, loading, stockpiling (on or off site), transporting (within and to and from the site), reloading, placing, filling behind curbing, filling in low areas, compacting or disposing of excavated material will be measured for payment only once during the initial excavation process.

Any material re-excavated from a stockpile or replacement as roadway base gravel or fill for backfilling behind curbing or in low fill areas or to match into existing slopes as required will not be measured for payment.

The cutting of bituminous concrete pavement will be measured for payment as the number of linear feet of cut made by an approved method to the lines delineated on the plans or as directed by the Engineer. Cuts made necessary by the Contractor's operation, such as, but not limited to, patching, bituminous concrete samples, continuance of previous runs, faulty work or faulty materials will not be measured for payment. Bituminous parking areas are considered as bituminous concrete pavement.

Removal and disposal of existing bituminous concrete curbing will not be measured for payment and shall be considered incidental to associated work items.

The removal and disposal of drainage structures including but not limited to manholes or catch will not be measured for payment and shall be considered incidental to associated work items.

Removal of bituminous concrete pavement in the roadway or bituminous concrete curbing shall be removed by other methods as necessary and will not be measured for payment as "Earth Excavation" and shall be considered incidental to work item for Full Depth Reclamation.

Where roadways are not considered for widening, all materials excavated and removed including existing bituminous concrete curbing, earth, topsoil, grass or organic materials adjacent to or covering existing bituminous concrete asphalt layers will not be measured for payment and shall be considered incidental to work item for Full Depth Reclamation.

Bituminous concrete pavement in driveways will be measured as the actual number of cubic yards in place in its original position prior to excavation and calculated by the measured area of bituminous concrete driveway multiplied by the actual thickness of material in place in its original position prior to excavation.

2.02.05—Basis of Payment:

Excavated materials as described herein will be paid for at the Contract unit price per cubic yard for "Earth Excavation." The price shall include all equipment, tools and labor incidental to the completion of the excavation, loading, transporting, formation and compaction of embankments, reuse of surplus material within the project limits, and the disposal of excess or unsuitable material offsite in accordance with the provisions of the plans and of these specifications.

Unsuitable material excavation will be paid for at the contract unit price per cubic yard for "Earth Excavation", which price shall include all equipment, disposal, trucking, tools, supervision, labor and material incidental thereto.

Excavated material deemed by the Engineer to be unsuitable for use within the project limits and required to be disposed of offsite will be paid for at the Contract unit price per cubic yard for "Earth Excavation" which price shall include all materials, equipment, loading, transporting, tools and labor incidental thereto.

Loading, transporting and disposal of reclaimed material deemed as excess by the Engineer and disposed of offsite outside of the project limits will be paid for at the Contract unit price per cubic yard for “Earth Excavation”.

PAY ITEM

EARTH EXCAVATION

CUT BITUMINOUS CONCRETE PAVEMENT

PAY UNIT

Cubic Yard (C.Y.)

Linear Feet (L.F.)

END OF SECTION

**SECTION 4.03
FULL-DEPTH RECLAMATION OF ROADWAY PAVEMENTS**

ITEM 0403873A FULL DEPTH RECLAMATION

4.03.01—Description

4.03.02—Materials

4.03.03—Construction Methods

4.03.04—Method of Measurement

4.03.05—Basis of Payment

4.03.01—DESCRIPTION

Work under this item shall consist of reclamation and preparation for paving of a reclaimed base course composed of a mixture of the existing bituminous concrete pavement and any underlying granular material. The existing roadway surface shall be reclaimed to a minimum depth of twelve (12) inches from the top of the existing pavement surface, unless otherwise directed by the Engineer. The manufacture of the reclaimed base course shall be done by in-place pulverizing and blending of the existing bituminous concrete pavement material and any underlying granular material, thus creating a homogeneous mixture of reclaimed base material.

Work includes shaping, rough grading, fine or finished surface grading, and compaction of the reclaimed base material. This work shall include grading, excavation, handling, transportation of reclaimed material to and from areas within the project limits where the base course cross slope needs adjustment to meet the following criteria: The typical section requires on average a 2% cross slope.

4.03.02--MATERIALS

The reclaimed base material shall consist of existing bituminous concrete pavement and existing underlying granular material. The resulting reclaimed material shall be a homogenous mixture of a minimum of 50% existing bituminous concrete pavement and minimum 50% existing underlying granular material with no large pieces of material. 100% of the resulting reclaimed materials shall pass through the 2-1/2" sieve.

4.03.03 - CONSTRUCTION METHODS

All equipment shall be maintained in first class working condition, and shall be operated by skilled and experienced operators. Prior to the actual reclaiming of the roadway, catch basins and culverts shall be sufficiently protected to prevent reclaimed material, silt, or runoff from entering the drainage system.

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

Reclamation shall be accomplished by means of a self-propelled, traveling rotary reclaimer capable of cutting through existing bituminous concrete pavement to a minimum depth of twelve (12) inches with one pass. The machine shall be equipped with an adjustable grading blade leaving its path generally smooth. All existing bituminous concrete pavement and any underlying granular material must be pulverized and mixed so as to form a homogenous mass of reclaimed base material, which will bond together when compacted. The Contractor shall without additional cost to the City pick out by hand, load and dispose of offsite any larger pieces of material such as large pieces of asphalt, cobbles and stones that surface during the reclamation or grading operations. If the reclaimed material is not

sufficiently pulverized in accordance with these specifications, the contractor will be required to perform the operation again until it meets the approval of the Engineer without additional cost to the City.

Prior to reclaiming operations, all existing bituminous concrete curbing and overlying or adjacent materials such as earth, topsoil, grass, organics or other materials shall be removed within 6" of the edge of existing pavement to ensure the resulting reclaimed material is free of earth or organics.

Existing bituminous concrete curb may be pulverized or reclaimed simultaneously with the roadway pavement provided the resulting material meets the requirement of section 4.03.02.

All reclaimed bituminous concrete material not meeting the requirement of section 4.03.02. or mixed with bituminous concrete curb pieces shall be reclaimed a second time or removed and disposed of by other methods.

In areas where there is granite curb, or brick pavers, etc., the reclaiming process is to meet flush and neatly without damaging said items. Reasonable care shall also be taken to prevent damage to mailboxes, signs, poles, fences, etc.

The contractor is to have a backhoe or excavator on site at all times to remove existing bituminous concrete pavement from around the edges of all structures, facilities, driveways, intersections, and any obstacles encountered where the reclaimer equipment cannot maneuver. Care shall be taken to prevent damage to these areas.

All material that is deposited into any facility shall be immediately removed from these areas. An adequate work crew must be provided daily to remove all excess material from the structures and all adjacent lawn, driveways (and sidewalk areas if applicable). No windrows of excess material are to be left anywhere on the job site. Care is to be taken to ensure that local traffic can access driveways, parking areas, intersections, etc. at all times.

When reshaping the reclaimed base material compaction shall be achieved by the use of at least one vibratory roller having a compaction width of not less than five (5) feet and a gross weight of not less than ten (10) tons. It shall have the capability of producing high amplitude and low frequency vibrations. Additional rollers and compactors may be used. The compaction of the reclaimed sub-base material shall be a minimum of 95 percent of the proctor wet density (AASHTO T-180D).

It is the intent of this contract to reconstruct all reclaimed roads to match the same existing grades with the modification of correcting and providing a uniform symmetrical cross sectional slopes and providing uniform longitudinal grades meeting AASHTO horizontals and vertical geometric design requirements where possible.

The new finished gutter/edge of pavement grades shall match the original exiting grades, with the crown restored at the geometric center of the road adjusted to meet a typical cross slope of 3%. The new finished gutter/edge of pavement grades shall match into all existing driveways as existing conditions or as per City standard driveway details to prevent gutter water from flowing onto driveways and allowing driveway water to drain onto the street without ponding in the driveway.

The following minimum slopes and grades shall apply to all reclaimed roads:

- Minimum longitudinal center line or gutter/edge of pavement grade: 1%
- Typical symmetrical cross sectional slope: 2% right and 2% left

- Cross sectional slope of both or one side may vary asymmetrically from 1% to 5% as approved by the Engineer to match into existing conditions.

The reclaimed material shall be shaped, fine graded and compacted to base grade such that the finished asphalt grade is the same as the original existing gutter (edge of pavement) grade. Finished design profile grades as shown on profile drawings where provide are for reference information to convey design intent where possible. Grades may be altered to suit existing condition when directed by the Engineer.

Where required or as directed by the Engineer, reclaimed material shall be removed from certain locations and used as base fill material in other locations such as fill in roadways, under sidewalks and driveways throughout the entire project. The contractor will be required to load, transport and place the reclaimed material as needed from one location to another location within the project limits as required or as noted on design plans or as written in these specifications (see Section 1.04 Scope of Work)

Where matching into existing grades of driveways, side streets, earth slopes and drainage structures, the reclaimed material shall be removed by the depth of the new asphalt.

Surplus volume of reclaimed material shall be first and foremost reused within the project limits or stockpiled for future use on the project. Reclaimed material that in the opinion of the Engineer, cannot be used for grading or reused on the project in other locations shall be deemed as excess and shall be disposed of off site as directed by the Engineer firstly on City owned properties throughout the City or secondly off site at a location determined by the contractor. The City may accept or refuse material at any time. Remaining excess material shall be loaded and transported and disposed of off site at locations determined by the contractor.

A motor grader shall be used for shaping, rough grading, fine grading, and finishing the surface of the reclaimed material or any other granular materials placed to form the surface prior to paving. Any surface irregularities, which develop during or after the above-described work, shall be corrected until it is brought to a firm and uniform surface satisfactory to the Engineer. The Contractor shall regrade and recompact any areas impacted by public traffic loading.

4.03.04--METHOD OF MEASUREMENT:

Reclaimed roadways will be measured by square yard as the actual area of existing bituminous concrete roadway surface that has been reclaimed. Any areas not reclaimed outside of the new roadway or new construction will not be measured for payment.

The reclaimed area will be measured by the length in feet of roadway between intersections and average width in feet as measured at 50' intervals. The total area per road section will be calculated by the length in feet multiplied by the average width in feet then divided by a factor of 9 (nine) to result in units of square yards. Intersection shall be measured separately and added to the quantity.

Removal of all existing bituminous concrete curbing will not be measured for payment and shall be considered incidental to the reclaiming work. Existing bituminous concrete that cannot be operationally accessed (ie around utility structure tops and intersections) by the reclaimer equipment and is required to be reclaimed, shall be removed by other methods. No extra or additional area will be measured for this work.

Removal of earth, topsoil, grass or organic materials covering existing bituminous concrete asphalt layers will not be measured for payment and shall be considered incidental to the reclaiming work.

Only when directed by the Engineer with prior written authorization will reclaiming work extending beyond the limits shown on the design plan drawings be permitted.

Any areas reclaimed by the contractor that are outside the limits of the contract and only as directed by the Engineer where not shown on the design drawings, shall be considered to be work performed and measured for payment in square yards under item Full-Depth Reclamation of Street Pavements.

Reclaimed material deemed by the Engineer to be surplus or deemed by the Engineer as necessary for reuse within the project limits shall be measured as specified under ITEM 0202000A EARTH EXCAVATION.

Measurement for the loading, transportation and disposing of surplus reclaimed material off site outside the project limits will be made according to item for "Roadway Excavation". See Section 2.02

4.05.05--BASIS OF PAYMENT

This work shall be paid for at the contract unit price per square yard for "Full-Depth Reclamation of Street Pavements". This price shall include all preparation and reclamation of the existing bituminous concrete roadway and removal of un-reclaimed areas, removal of existing bituminous concrete curbing, the formation of the base and subbase including shaping, rough grading, fine or finished surface grading, and compaction of the reclaimed base material. This price shall also include grading, excavation, handling, transportation of reclaimed material to and from locations within the project limits and all materials, equipment, tools, and labor incidental to the work described above.

There will be no separate payment for removal of un-reclaimed bituminous concrete areas including around utility structure tops and intersections, picking out and disposing of cobbles and stones larger than reclaimed material specification size.

There will be no separate payment for loading and transporting of reclaimed materials as intended for cut to fill operations from one road location to another location within the project limits.

PAY ITEM

FULL-DEPTH RECLAMATION OF STREET PAVEMENTS

PAY UNIT

S.Y

END OF SECTION

**SECTION 6.51
STORM SEWER PIPING**

ITEM No. 0651885A-12" HIGH DENSITY POLYETHYLENE (HDPE) STORM PIPE (SMOOTH INTERIOR)

ITEM No. 0651913A – 6" UNDERDRAIN

ITEM No. 0651914A – 12" PERFORATED UNDERDRAIN

6.51.01—General

6.51.02—Materials

6.51.03—Construction Methods

6.51.04—Method of Measurement

6.51.05—Basis of Payment

6.51.01 - GENERAL

1.01 SCOPE OF THE WORK

- A. Storm drainage system includes, but is not limited to, construction of storm sewers piping, riprap, ditching, backfilling, shoring, and dewatering of trenches for storm sewers as required for safe and workmanlike construction.
- B. Pipe bedding in accordance with the details shown on the Drawings is included.

1.02 QUALITY ASSURANCE

- A. Storm drain pipe may be inspected at the manufacturing source as well as at the job site by City.
- B. Contractor shall notify City for inspection of pipe and drainage structure installation prior to backfilling trenches.

1.03 JOB CONDITIONS

- A. Construction of the drainage system shall proceed as early in the construction program as possible. Maintain adequate drainage of the project area at all times. Prevent flooding of adjacent roads and private properties.
- B. Temporary Drainage: Wherever possible, new storm sewers and inlets to serve the various drainage areas shall be constructed and placed in service. Where this is not possible, temporary drainage facilities shall be provided as required. These may include temporary ditches, slope drains, temporary connections into completed storm sewers, or such other means as the circumstances may require.

6.51.02 - MATERIALS

Materials: The materials to be used in the construction shall be those indicated on the plans or ordered by the Engineer and shall conform to Section M.08 Protective compound material shall conform to Subsection M.03.01-11. Pervious material shall conform to Section M.02.05.

2.01 BEDDING MATERIAL

- A. Bedding material shall comply with Reference Specification M.02 and shall be 2" broken stone – No. 4.

2.02 STORM DRAIN PIPE MATERIALS

- A. Reinforced Concrete Storm Pipe (RCP) shall be, Class 4 smooth interior with bell and spigot, flexible, watertight, rubber-type gasket connections, and conform to reference specification M.08.01.
- B. High Density Polyethylene Storm Pipe (HDPE) shall be smooth interior surface (Type S) with/without perforations, including all related fittings (ex. adapters, collars, and wyes) as called for on the Contract plans, conforming to CDOT Form 817 Standard Specification, Section M.08.01.
- C. Underdrain pipe and all related fittings (ex. - wye's, bends, couplers, caps, cleanout plug, frame and cover) shall be of the size and type of pipe, as called for on the Contract plans, and is to be N-12 ST (soiltight) IB (integral bell) Dual Wall HDPE, installed in stone per the detail in the Contract Plans. The cleanout manhole frame and cover shall be Campbell Foundry #4153, or approved equal.

2.03 APPURTENANCE MATERIAL

- A. Brick:
 - 1. Clay or Shale Brick: Comply with ASTM C32 for sewer brick and manhole brick, grade as selected. Brick dimensions shall be 4" x 8" x 2½" nominal and shall yield the wall thickness as shown on the plans.
 - 2. Concrete Masonry Units: Comply with ASTM C139.
- B. Mortar shall conform to Section M.11.04 and comply with ASTM C270, Type M, for the pipe joints and manhole and inlet brickwork.
- C. Concrete for storm drainage construction shall be in accordance with Section M.03.01 of the Reference Specifications. Strength shall be 4,000 psi at age 28 days.
- D. Reinforcement shall comply with ASTM A615.
- E. Geotextile shall be of a type appearing on the Connecticut Department of Transportation's Approved Products List for Geotextiles, referred to in Subsection M.08.01-26.

6.51.03 - CONSTRUCTION METHODS

3.01 GENERAL

- A. The following Articles shall apply and be considered part of this specification:
 - Article Section 2.05 Trenching, Backfilling, And Compacting For Sewers And Appurtenances
- B. Reference All pipes will be laid in an open trench of dimensions as shown in Details on the Contract Drawings. No projecting pipe conditions will be allowed.
- C. Lengths of storm drain pipe shown on the Drawings are approximate distances inside wall to inside wall of structures. Contractor shall install pipe based on actual field conditions. Slopes of pipe specified on the Drawings shall be verified by field measurement prior to trenching.

Particular care shall be exercised in establishing the relationship of storm drain pipe, drainage structure bases, and final drainage top conditions. Drainage structure tops are required to be located in specific position and orientation. Subsurface construction is to be located to allow drainage structure construction as detailed on the Drawings without modification. In case of misalignment of drainage structure tops and bases, Contractor will be required to correct the construction as directed by the Engineer.

3.02 PIPE LAYING

- A. Pipe laying shall proceed upgrade where practicable. Pipe shall be laid true to line and grade with a straight and uniform invert. Pipe shall not be laid in a wet or muddy trench. Trenches shall be dewatered as required and the bottom shall be firm, smooth, and properly shaped as specified.
- B. Underdrain and all related fittings (ex. - wye's, bends, couplers, caps, cleanout plug, frame and cover) and cleanout assembly of the size and type specified shall be installed as shown on the Contract Drawings, or as directed by the Engineer. The work consists of coring, if necessary, if the underdrain pipe is not incorporated into the masonry work around the storm pipe into and/or out of the catch basin. The cleanout is a complete vertical assembly and begins at the wye consisting of all pipe, fittings, frame and cover to proposed finished grade as shown on the Contract Drawings.

3.03 BACKFILLING

- A. Backfilling above crushed stone bedding shall be done with selected material, free from rocks larger than 5 inches in size and free of debris. Crushed stone shall be carefully placed and tamped around and over the pipe to avoid displacement of the pipe or damage to the joints. All backfill shall be placed in 8-inch lifts and shall meet material and compaction requirements of the Section 02220 of these Specifications.

3.04 APPURTENANCES

- A. All drainage structures are to be constructed as shown on the Drawings. Refer to site plans for location and size.
 - 1. Contractor shall furnish and install drainage structures as shown in detail on the Drawings.
 - ~~2. Drainage structures shall have shaped inverts unless sumps are noted on plans.~~
 - 3. All mortar joints shall be filled full. Joints shall be struck flush inside and out.
 - 4. Joints shall not be less than ¼ inch and not more than 2 inch in thickness. No spalls or bats shall be used except for shaping around irregular openings or when unavoidable at corners.
 - 5. All pipe entering drainage structures shall be cut and ground smooth with the face of the wall. Breaking the pipe will not be acceptable.
 - 6. All joints around pipe and structure walls at the face of the wall shall be packed full with mortar.
 - 7. The bottom of drainage structures shall be clean of all debris and walls shall be wiped clean of mortar as work progresses.
 - ~~8. Catch basin tops shall be cast in place to line and grade and shall slope continuous with gutter.~~
 - 9. Masonry construction is required to be solid. All joints and spaces shall be filled full of mortar as units are laid. Structural masonry construction practice is required. Outside joints are to be filled full or mortar and struck flush. Walls are to be constructed to line and plumb.
 - 10. No backfill shall be placed against any masonry until it is at least 7 days old. During cold weather, the restricted period may be extended as directed by City.
 - 11. Pipes or drainage structures shall not be broken by impact methods. Cutting of pipe with pipe saw or coring of a drainage structure is required.

3.05 CLEANUP

- A. Pipes and structures shall be left clean and free from mud or debris of any kind. When looked through, each line between structures shall show a full circle of light. Otherwise, Contractor shall be required to remove and replace the defective portion of the work.

3.06 WORKMANSHIP

- A. Any pipe which is not in true alignment and grade and properly placed as to the center line of the road or which shows any undue settlement after laying, or is damaged, shall be taken up and re-laid or replaced without extra compensation.

3.07 CONNECTIONS TO EXISTING STORM SEWERS AND STRUCTURES

- A. The CONTRACTOR shall make all connections to the existing facilities as indicated on the Drawings and as herein specified, or as directed.
- B. The CONTRACTOR shall furnish all pipe, fittings and appurtenances. The CONTRACTOR shall do all excavation and backfill as required.
- C. Existing pipelines damaged by the CONTRACTOR shall be replaced by him at his own expense in a manner approved by the ENGINEER.

3.08 INTERFERENCE

- A. The CONTRACTOR shall develop a program for the construction and placing in service of the new works subject to the approval of the ENGINEER. All works involving cutting into and connecting to the existing facilities shall be planned so as to interfere with operation of the existing facilities for the shortest possible time and when the demands on the system best permit such interference even to the extent of working outside of normal working hours to meet these requirements.
- B. The CONTRACTOR shall have all possible preparatory work done and shall provide all labor, tools, material supervision and equipment required to do the work in one continuous operation.
- C. The CONTRACTOR shall have no claim for additional compensation, by reason of delay or inconvenience, for adapting his operations to the needs of the public.

6.51.04 – METHOD OF MEASUREMENT

- 1. Site Drainage will be measured for payment as it appears in the Bid Proposal. Payment will include full compensation for all labor, materials, pipe and structure cutting, coring, equipment, gravel/granular fill bedding, trench excavation and disposal off site of excess material, backfill, compaction, pavement removal and all other items necessary or incidental to the completion of the work under this section in accordance with these Specifications and the Drawings.
- 2. Pipe will be paid for at the unit price bid per linear foot measured from the inside wall of manhole or catch basin to the inside wall of manhole or catch basin. Where a run of pipe begins or ends at an inlet or outlet structure (i.e. flared end, headwall, etc...), the pipe shall be measured from the end of the pipe connecting to the inlet or outlet structure to the inside wall of manhole or catch basin or existing pipe end.
- 3. Underdrain will be measured for payment at the Contract unit price bid per linear foot measured from the inside wall of manhole or catch basin to the inside wall of manhole or catch basin, end cap or clean out, in accordance with the Special Provisions/Technical Specifications, and/or as shown on the Contract Drawings. Where a run of pipe begins or ends at an inlet or outlet structure (i.e. headwall, etc.), the pipe shall be measured from the end of the pipe connecting to the inlet or outlet structure to the inside wall of manhole or catch basin or existing pipe end.

6.51.05 – BASIS OF PAYMENT

5.05—Basis of Payment: These structures will be paid for as follows:

1. Pipe will be paid for at the contract unit price per lineal foot for the type specified, complete in place, which price shall include all materials, excavation, backfilling, equipment, tools and labor incidental thereto.
2. Pipe with under drain will be paid for at the contract unit price lineal foot for the type specified, complete in place, which price shall include all materials including stone under drain and fabric, equipment, tools and labor incidental thereto.
3. Underdrain will be paid for at the Contract unit price per linear foot for the size and type specified, complete in place, which price shall include full compensation for all supervision, labor, equipment, tools, materials, sawcutting and removal of pavement, excavation and disposal, pipe and structure saw cutting, coring, geotextile fabric, foundation stone, gravel/granular/stone backfill material, compaction, and all other items necessary or incidental to the completion of the work under this section in accordance with these Special Provisions/Technical Specifications and the Contract Drawings.
4. Pervious Material and Geotextile Fabric will not be paid for directly, but the cost thereof shall be included in the contract unit price each for the pipe or type of drainage structure where used.
5. The removal of existing manholes, catch basins, junction boxes, including all additional gravel backfill materials, compaction, equipment, tools and labor incidental thereto will be paid for at the contract unit price each for “Remove and Dispose of Catch Basin, Junction Box or Manhole”.

<u>PAY ITEM</u>	<u>PAY UNITS</u>
12” (HDPE) STORM PIPE	L.F.
6” UNDERDRAIN	L.F.
12” PERFORATED UNDERDRAIN	L.F.

END OF SECTION

BID FORM - EXHIBIT "A"

February 12, 2020 - Addendum #4

**Reconstruction of Various
Roads - Group 2020.1**

ITEM NO#	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
0105180A	Utility Conflict Resolution			
	for the price per Each of	8		
	_____ Dollars		_____	_____
	_____ Cents			
0201001A	Clearing and Grubbing			
	for the price per Lump Sum of	1		
	_____ Dollars		_____	_____
	_____ Cents			
0202000A	Earth Excavation			
	for the price per Cubic Yard of	4,541		
	_____ Dollars		_____	_____
	_____ Cents			
0202529A	Cut Bituminous Concrete Pavement			
	for the price per Linear Feet of	4,574		
	_____ Dollars		_____	_____
	_____ Cents			
0212001A	Subbase			
	for the price per Cubic Yard of	300		
	_____ Dollars		_____	_____
	_____ Cents			
0403873A	Full-Depth Reclamation (0-12")			
	for the price per Square Yard of	48,043		
	_____ Dollars		_____	_____
	_____ Cents			
0406236A	Material for Tack Coat			
	for the price per Gallons of	2,883		
	_____ Dollars		_____	_____
	_____ Cents			

ITEM NO#	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
0406442A	Bituminous Concrete (HMA S 0.50) Super Pave for the price per TON of 11,507 _____ Dollars _____ Cents			
0406999A	Asphalt Adjustment Cost for the price per Lump Sum of 1 _____ Dollars _____ Cents		\$10,000.00	\$10,000.00
0507001A	Catch Basin Top (Supply only) for the price per Each of 74 _____ Dollars _____ Cents			
0507002A	Type 1 or Type 2 Double Catch Basin Top (Supply Only) for the price per Each of 1 _____ Dollars _____ Cents			
0507010A	New Catch Basin Structure with Top (0'-10' Deep) for the price per Each of 21 _____ Dollars _____ Cents			
0507701A	Reset Catch Basin, Single Grate for the price per Each of 74 _____ Dollars _____ Cents			
0507702A	Reset Type 1 or Type 2 Catch Basin, Double Grate for the price per Each of 1 _____ Dollars _____ Cents			
0586650A	Reset Manhole (Sanitary Sewer) Frame & Cover for the price per Each of 60 _____ Dollars _____ Cents			

ITEM NO#	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
0586780A	Storm or Sewer Manhole Frame & Cover (Supply Only)			
	for the price per Each of	60		
	_____ Dollars			
	_____ Cents			
0651885A	12" HDPE Storm Sewer Pipe			
	for the price per Linear Feet of	225		
	_____ Dollars			
	_____ Cents			
0651913A	6" Underdrain			
	for the price per Linear Feet of	2,005		
	_____ Dollars			
	_____ Cents			
0651914A	12" Perforated Underdrain			
	for the price per Linear Feet of	100		
	_____ Dollars			
	_____ Cents			
0815001A	6" Bituminous Concrete Curbing			
	for the price per Linear Feet of	20,961		
	_____ Dollars			
	_____ Cents			
0922501A	Bituminous Concrete Driveway			
	for the price per Square Feet of	20,250		
	_____ Dollars			
	_____ Cents			
0950005A	Turf Establishment			
	for the price per Square Yard of	8,795		
	_____ Dollars			
	_____ Cents			
0970006A	Traffic Person (Municipal Police Officer)			
	for the price per Hour of	500		
	_____ Dollars		\$65.00	\$32,500.00
	_____ Cents			

ITEM NO#	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
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0970007A	Traffic Person (Uniformed Flagger)			
	for the price per Hour	of	1,200	
	_____ Dollars			_____
	_____ Cents			_____

0971001A	Maintenance and Protection of Traffic			
	for the price per Lump Sum	of	1	
	_____ Dollars			_____
	_____ Cents			_____

0975001A	Mobilization and Demobilization (Max 5% of total bid price)			
	for the price per Lump Sum	of	1	
	_____ Dollars			_____
	_____ Cents			_____

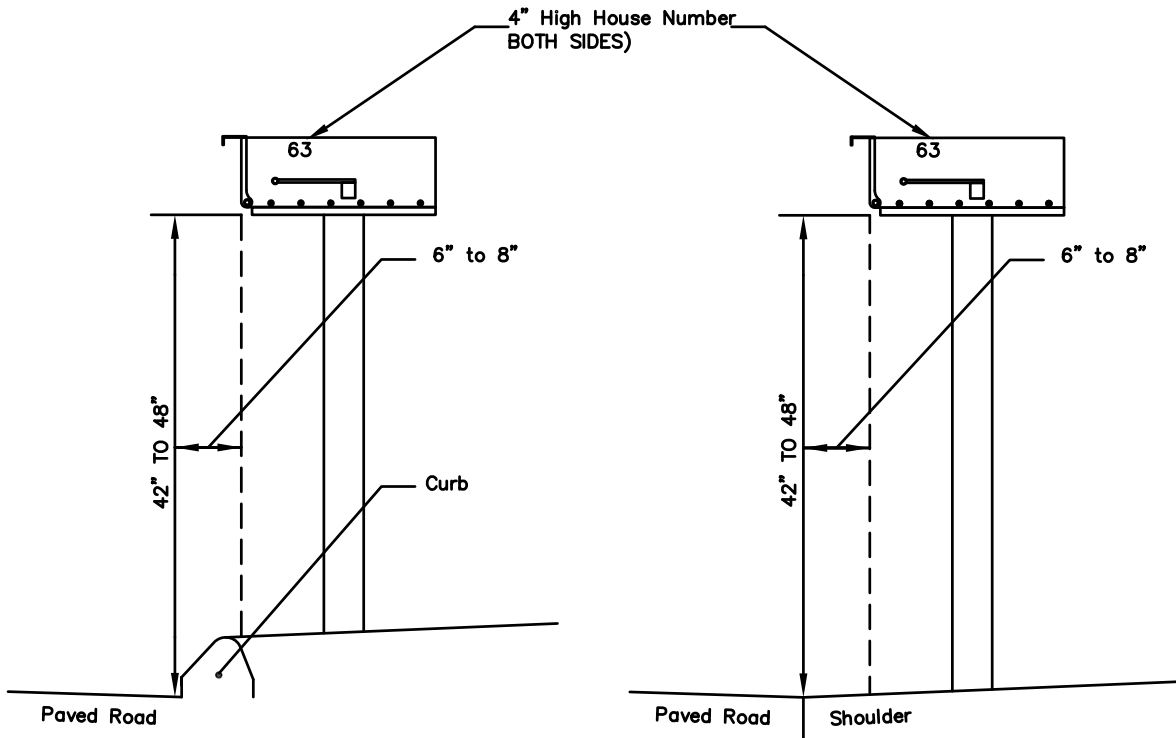
0980001A	Construction Staking			
	for the price per Lump Sum	of	1	
	_____ Dollars			_____
	_____ Cents			_____

1206036A	Existing traffic and parking signs removed and reinstalled			
	for the price per Each	of	25	
	_____ Dollars			_____
	_____ Cents			_____

1209114A	4" White/Yellow Hot Applied Painted Pavement Markings			
	for the price per Linear Feet	of	2,400	
	_____ Dollars			_____
	_____ Cents			_____

1209131A	Hot Applied Markings, Symbols & Legends			
	for the price per Square Feet	of	401	
	_____ Dollars			_____
	_____ Cents			_____

TOTAL BID AMOUNT: \$ _____



NOTE:

1. MAILBOXES NEED TO BE SECURE, PLUMB, NUMBERED AND AT THE HEIGHT OF 42 TO 48 INCHES FROM ROAD SURFACE TO INSIDE FLOOR OF THE MAILBOX OR POINT OF MAIL ENTRY ON LOCKED DESIGNS
2. FRONT OF THE BOX SHOULD BE POSITIONED 6 TO 8 INCHES FROM FACE OF CURB OR ROAD EDGE TO MAILBOX DOOR
3. APPROACH AND EXIT FROM BOX NEEDS CLEARANCE TO ALLOW DRIVE-THROUGH DELIVERY (NO BACKING UP SHOULD BE REQUIRED).
4. SCRATCH HAZARDS SUCH AS BRANCHES, BRUSH, OR ROCKS NEED TO BE REMOVED.
5. TRASH CANS SHOULD BE PLACED CLEAR OF DELIVERY AREA.
6. IN CASES WHERE THE HOUSE NUMBER IS POSTED ON BUILDING AND IS NOT VISIBLE FROM THE STREET BECAUSE OF BRUSH, TREES, ETC, AND THE HOUSE DOES NOT HAVE A ROADSIDE MAILBOX, AN ALTERNATE HOUSE NUMBER SIGN SIMILAR IN HEIGHT AND FONT SIZE SHALL BE ERRECTED ADJACENT TO THE DRIVEWAY ENTRANCE

MAILBOX INSTALLATION

SCALE - NONE

SCALE N.T.S.	<i>CITY OF TORRINGTON Engineering Department</i>
APPROVED	
RV. DATE FEB. 2002	MAIL BOX INSTALLATION
AUG. 2007	
AUG. 2011	