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## **SECTION 01000 – GENERAL REQUIREMENTS**

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(Revised 11/18/14)

### **PART 1 - GENERAL**

#### **1.1 SUMMARY OF WORK**

Work covered by the Contract Documents consists of providing all work indicated on Drawings for each project submitted under the annual contract.

1.2 All references to City Engineer, Utilities Engineer, and City Construction Coordinator within these specifications represent these positions and their designees.

#### **1.3 CONFLICT BETWEEN PLANS AND SPECIFICATIONS**

Any plans drawn by the Engineer to supplement the specifications are intended to be explanatory, but, should any discrepancy appear or any misunderstanding arise as to anything contained in either, the explanation of the Engineer shall be final and binding on the Contractor. Any corrections of errors or omissions in drawings and specifications may be made by the Engineer when such corrections are necessary for the proper fulfillment of their intentions as construed by him. Any adjustment by the Contractor without such a determination shall be at his own risk and expense. Supplemental drawings, if necessary, showing further detail may be made in accordance with the contract and these specifications and such supplemental drawings shall become part of the contract.

#### **1.4 SPECIFICATIONS AND DRAWINGS**

The Contractor shall keep at the work site a copy of the approved drawings and specifications including all authorized change orders and shall at all times give the Engineer access thereto. Plans, field changes, change orders, and handling of unforeseen circumstances shall be designed and constructed in accordance with this manual and its design modules unless otherwise directed by the City Engineer.

#### **1.5 AUTHORITY OF THE ENGINEER**

The Engineer or his representatives shall have free access to the sites at all times for measuring and inspecting materials and work. The Contractor shall afford him all necessary facilities and assistance for doing so. To prevent disputes and litigations, the Engineer shall in all cases determine the amount, quantity, acceptability, and the fitness of the several kinds of work and materials which are to be paid under the contract. He shall decide all questions which may arise as to the interpretation of the Specifications or Plans relating to the work, the fulfillment of this Contract on the part of the Contractor, and the rights of the different Contractors on the project. Such decisions shall be final and conclusive upon the parties of the Contract. The representation, measurement, and inspection by the Engineer shall in no way relieve the Contractor from the responsibility to perform the work in accordance with the Contract. Methods and techniques of construction used by the Contractor and by the Subcontractors and others in performance of their Contract shall not be subject to the control of the Owner or the

Engineer, and neither the Owner nor the Engineer shall be responsible or liable for injury, damage, or loss resulting from such construction methods or techniques.

#### 1.6 **CONSTRUCTION INSPECTION**

The Construction Coordinators employed by the City shall be authorized to inspect all work done and all materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials used. The Construction Coordinators are not authorized to revoke, alter, or waive any requirements of these specifications; however, he shall have authority to reject materials or suspend the work until any questions or issues can be referred to and decided by the Engineer. The presence or absence of a Construction Coordinator shall not lessen the responsibility of the Contractor to properly perform the work.

#### 1.7 **SUPERVISION**

The Contractor shall give his personal supervision to the faithful execution of the work and in case of his absence; he shall at all times have a competent superintendent present on the job. This person must be capable of performing all work specified to the satisfaction of the Engineer. The contractor shall not change superintendents during the course of the job except an extraordinary conditions and only when approved by the Engineer.

#### 1.8 **RESPONSIBILITY OF THE CONTRACTOR**

The Contractor shall take all responsibility for the work and shall bear all risk of damage or loss to the project until final acceptance; and shall take all precautions for preventing injuries to persons and property in or about the work; shall bear all losses resulting to him on account of the amount or character of the work, or because the nature of the land in which or on which the work is done is different from what was estimated or expected or on account of the weather, elements, or other causes including, but not limited to, theft, vandalism, accidents, and natural disasters; and, shall assume the defense of and indemnify and save harmless the City, its employees, and officers and agents from and against any and all claims, liabilities, judgments, costs, causes of actions, damages, and expenses, and shall pay all Attorney's fees, court costs and other costs incurred in defending such claims, which may accrue against, be charged to, be recovered from or sought to be recovered from the City, its employees, officer and agents by reason of the Contractor's work, whether, such claims arise from the labor and materials, furnished for the work; from inventions, patents, and patent rights used in doing the work. The Contractor shall be responsible for any personal injury, death, property damage, expenses, damages, losses and costs of any nature whatsoever, including economic loss to the City, its employees, officers and agents, or any third party may suffer as a result of the negligent or willful acts or omissions of the Contractor's work or the acts or omissions of the Contractor's employees, officials or agents in performing the work or furnishing materials thereto or caused by the acts of any other person regardless of whether or not such persons are subject to the Contractor's control; or in consequence of any improper materials or implements of labor used therein; and, through any act, omission, or neglect of the Contractor and his employees, official and agents. The City, its employees, officers and agents shall not have to give the Contractor any specific type of notice of claims arising out of the Contractor's work.

This section shall not require the Contractor to indemnify and save harmless the City, its employees, officers and agents, for bodily injury to persons, or damage to property caused by or resulting solely from the negligence of the City, its employees, officers and agents.

The Contractor shall at all times enforce strict discipline and good order among his employees; and shall seek to avoid employing on the work any unfit person or anyone not skilled or qualified in the work assigned to him.

#### **1.9 CHARACTER OF WORKMEN AND EQUIPMENT**

The Contractor shall at all times employ sufficient number of workmen for the proper performance of work in the manner and times specified; preference being given to local labor. The Engineer may demand the dismissal of any person or persons employed by the Contractor in, about, or upon the work, who shall misconduct himself or be incompetent or held negligent in the proper performance of his or their duties, or neglects or refuses to comply with the directions given, and such person or persons shall not be employed again without the written consent of the Engineer. Should the Contractor continue to employ or again employ such persons, the Engineer may withhold all estimates that are or may be due, or the Engineer may suspend the work until such orders are complied with.

The Contractor shall furnish such equipment as considered necessary for the proper execution of the work in an acceptable manner and at a satisfactory rate of progress. All equipment, tools, and machinery used for handling materials and executing any part of the work shall be subject to the approval of the Engineer and shall be maintained in a satisfactory working condition. The contract may be terminated if the Contractor refuses to provide adequate equipment for the work.

The Contractor shall have posted in a conspicuous spot with his equipment and on the work site a sign or sticker identifying his equipment as to its owner and an emergency 24-hour phone number.

#### **1.10 COMPLIANCE WITH THE LAW**

The Contractor shall at all times comply with all Federal, State, and Municipal laws, ordinances, and regulations in any manner affecting those engaged or employed in the work or the materials and appliances used in the work. He shall protect the City against any claims or liability arising from or based upon the violation of such laws, ordinances, regulations, orders, or decrees, whether by himself or his employees, and shall be liable for all damages due to his neglect.

### 1.11 APPLICATIONS FOR PAYMENT

- A. The form of each application for payment shall be AIA Document G702 entitled, "Application and Certificate for Payment" accompanied by, "Continuation Sheet," AIA Document G703. Each application for payment by the Contractor, excluding the first, shall be accompanied by a "Contractor's Affidavit of Payment of Debts and Claims," AIA Document G706; "Contractor's Affidavit of Release of Liens," AIA Document G706A; and a DBE Usage Form (to be furnished by Owner). Payment for stored material delivered but not incorporated in the work will be the invoiced amount only. Stored materials drawdown shall be approved by the Owner. Submit applicable invoices with Application for Payment. Monthly partial payment request shall be submitted in **TRIPPLICATE** to \_\_\_\_\_ for approval by the 25th of the month so that the Owner can receive the approved payment request by the first working day of the next month. Partial payments shall be made on a monthly basis on or before the end of the next month for which the work was performed, in accordance with the Contract Documents.
- B. The Owner shall pay to the Contractor 95 percent of the total amount due and the Owner shall retain five (5) percent of the amount due until all work has been performed strictly in accordance with the Contract Documents and until such work has been accepted by the Owner.

### 1.12 EXISTING WORK

- A. Removal and alteration of existing work shall include work necessary to provide final conditions as shown on drawings. Complete such work carefully to minimize disturbance to adjacent areas.
- B. Restore any areas disturbed during construction to their original condition, including patching, painting, etc. to the satisfaction of the City Engineer.
- C. If work is not as anticipated or involves structural considerations, notify City Engineer prior to proceeding.
- D. **Defective and Unauthorized Work:** Any work or materials not in accordance with these specifications will be rejected. All work that has been rejected or condemned shall be repaired or, if it cannot be satisfactorily repaired, shall be removed and replaced at the Contractor's expense. Materials not conforming to the requirements of these specifications shall be removed immediately from the site of the work and replaced with satisfactory material by the Contractor at his own expense.

Upon the failure of the Contractor to repair satisfactorily or to remove and replace, if so directed, rejected, unauthorized, or condemned work or materials immediately after receiving formal notice from the Engineer, the Owner may recover for such defective work or materials on the Contractor's bond or by action in court having proper jurisdiction over such matters, or may employ labor and equipment and satisfactorily repair or remove and replace such work and charge the cost of same to the Contractor, which cost will be deducted from any monies due him.

The approval of material and workmanship by the Construction Engineer, Construction Coordinator, or any employee of the Engineer, does not under any consideration preclude the right of the Engineer to reject all or any part of the same at any time previous to final payment, if found not to be in accordance with these specifications, nor does any inspection of work release the Contractor from any of his obligations to fulfill his Contract as herein specified and defective work and materials shall be made good or rejected notwithstanding such work and materials that may have been previously accepted for payment.

At the request of the Engineer the Contractor shall, at any time before final acceptance of the work, remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore the said portions of the work to the standards required by the Contract Documents. Should the work thus exposed or examined prove acceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed shall be paid for as extra work, but should the work so exposed or examined prove unacceptable, the uncovering or removing and the replacing of the covering or the making good of the parts removed, shall be at the Contractor's expense.

Work done without lines and grades having been given, work done beyond the lines and grades shown on the plans, or as given, except as herein provided, work done without proper inspection, or any extra or unclassified work done without written authority and proper agreement in writing as to prices, will be done at the Contractor's risk and will be considered unauthorized and, at the option of the Engineer, may not be measured and paid for and may be ordered removed and replaced at the Contractor's expense.

- E. **Abandonment and Neglect:** If the work to be done under this contract shall be abandoned, or if this contract or any part thereof shall be sublet without the previous written consent of the City, or the contract or any claim therein shall be assigned by the Contractor, otherwise than as herein specified, or if at any time the Engineer shall be of the opinion and shall so certify, in writing, to the City that the conditions herein specified as to the rate of progress is not being fulfilled, or that the work or any part thereof is unnecessary or unreasonably delayed, or that the Contractor has violated any of the provisions of the Contract, the City may notify the Contractor to discontinue all work or any part thereof, as the City may designate, and the City may thereupon, by Contract or otherwise, as it may designate or determine, complete the work, or such part thereof and charge the entire expense of so completing the work or part thereof to the Contractor; and for such completion the City, for itself, or its Contractors may take possession of and use or cause to be used in the completion of the work, tools, equipment, and appliances of every description as may be found at the location of said work.

All expenses charged under the above article shall be deducted and paid for by the City out of any monies then due or to become due the Contractor under this Contract or any part thereof; and in such accounting the City shall not be held to obtain the lowest figures for the work of completion, but all sums actually paid thereof shall be charged to the Contractor.

In case the expense so charged is less than the sum which would have been payable under this Contract if the same had been completed by the Contractor, the Contractor shall be entitled to receive the difference; in case such expense shall exceed the said sum, the Contractor or his bondsmen shall pay the amount of the excess to the City.

Permitting the Contractor to continue the work or any part of it after the time has expired for its completion, or after the date to which the time for the completion may have been extended, shall in no way operate as a waiver on the part of the City or any of its rights under this contract.

The Contractor shall be expected to commence work and continue such work on a particular job on a time schedule set forth by the Engineer in written "Notice to Proceed" and any executed change orders. Failure to comply with this regulation shall be considered as "Abandonment and Neglect" by the Contractor and the penalties described in this section shall be invoked.

### 1.13 PROJECT MEETINGS

- A. When requested for a project, Contractor shall arrange a Preconstruction Conference within 10 days after the effective date of the Agreement. At a minimum, attendees shall include the Contractor, Construction Coordinator, and Engineer. Items of discussion shall include, but not limited to the following:

- Tentative Construction Schedule
- Work Sequencing
- Designation of Responsible Personnel
- Use of the Premises
- Office, Work and Storage Areas
- Equipment/Material Deliveries and Priorities
- Security and Working Hours
- Housekeeping

- B. **Progress Meetings:** When requested for a project, at regular intervals, to be determined during the Preconstruction Conference, the Contractor shall hold a progress meeting to review progress to date and to resolve questions. Notify the Owner and Engineer at least one week in advance of the meeting to insure suitable date and time. Include meeting agenda with notification. Persons designated by the Contractor to participate in Progress Meetings shall have all required authority to commit the Contractor to decisions agreed upon.
- C. The City Representative shall record all meeting results and distribute copies to everyone in attendance and others affected by decisions made in meetings.

### 1.14 SUBMITTALS

The following submittals shall be submitted to the City Engineer.

- A. **Progress Schedules:** When requested for a project, submit a detailed construction schedule prior to the Preconstruction Conference. Revise the schedule before each progress meeting.

- B. Shop Drawings, Product Data, and Samples:** When requested for a project, within 10 days of Notice to Proceed, prepare a submittal schedule fixing the dates for submission of shop drawings, product data, samples, and the like and update this schedule at each Progress Meeting to reflect the status of each submittal item.
- (1) Submit five copies of all shop drawings.
  - (2) A maximum of three marked copies will be returned to the Contractor.
  - (3) Submit shop drawings, product data, samples, and the like as required by applicable specification sections within 30 days after award of Contract.
  - (4) Shop drawings shall be approved by Contractor and those Subcontractors whose work is associated with the subject equipment as being in accordance with Contract Documents, prior to submission.
  - (5) Where contents of submittal literature from manufacturers include data not pertinent to the submittal, clearly indicate which portion of the contents is not being submitted for review.
  - (6) Consecutively number all submittals. Accompany each submittal with a letter of transmittal showing the transmittal number, date, brief description of submittal, and the company name of the originator of the submittal. On at least the first page of each copy of each submittal, indicate the transmittal number, name of project, and City project number.
  - (7) When material is resubmitted for any reason, transmit under a new letter of transmittal with a new number, indicate by reference to previous submittal that this is a resubmittal. Make any corrections and resubmit the required number of corrected copies of Shop Drawings or new samples.
  - (8) Submit all samples of the exact article/material proposed to be furnished and in the quantity, which is required to be returned plus one which will be retained.
  - (9) Failure to comply with these requirements will result in the submittal being returned unprocessed.
- C. Construction Photographs:** The Contractor shall provide digital photographs or video of all project areas to be disturbed prior to beginning construction and submitted immediately to the City Construction Coordinator. These photographs and/or video shall record the site and surrounding properties, including existing items to remain during construction, from different vantage points. At the end of construction, the Contractor shall provide another set of digital photographs and/or video documenting final restoration.
- (1) Photographs shall adhere to the following specifications:  
Digital images shall be provided with a minimum of 4.0 mega pixels and image resolution of not less than 1024 by 768 pixels. Cell phone photos are prohibited. All photographs shall be taken with a date and time stamp control on and each image filename shall bear the date and time.

- (2) Video shall adhere to the following specifications:  
The video shall be DVD NTSC (National Television System Committee) MPEG2. All video shall be recorded with the date and time feature engaged.

#### 1.15 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

Arrangements for access to the site, workmen's parking locations, sites for storing material, sanitary facilities, utilities during construction, etc., shall be the responsibility of the Contractor.

#### 1.16 PROJECT SIGN

One clear and legible project sign shall be provided on the project by the contractor as soon as he commences work and mobilizes his forces.

A. The sign shall contain the following information and meet the following requirements:

- (1) Sign dimensions and lettering size shall not be less than that shown on **Standard Detail 25.25**.
- (2) The sign shall include the information shown on **Standard Detail 25.25**.
- (3) The sign shall be constructed of a sturdy and durable material.
- (4) Sign shall be placed in such a manner as to be clearly recognizable by the public. The location of the sign shall be as determined by the Owner.
- (5) The project sign shall be approved by the Owner prior to placement.

B. The Contractor shall maintain this sign for the duration of the project and dispose of it after acceptance of the project. If this sign becomes deteriorated and the Owner decides a new sign is warranted, the Contractor shall furnish a replacement sign at no cost to the Owner.

#### 1.17 MATERIALS AND EQUIPMENT

A. **Quality:** Material and Equipment Incorporated into the Work:

- (1) Conform to applicable specifications and standards.
- (2) Comply with size, make, type, and quality selected, or as specifically approved in writing by the City Engineer.
- (3) Do not use material or equipment for any purpose other than that for which it is designed or is specified.
- (4) When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation. Maintain one set of

complete instructions at the job site during installation and until completion. Handle, install, connect, clean, condition, and adjust products in accordance with such instructions and in conformity with specified requirements. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with the City Engineer for further instructions. Do not proceed with work without clear instructions. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

## **B. Transportation and Handling**

- (1) Arrange deliveries of products in accordance with construction schedules. Coordinate to avoid conflict with work and conditions at the site. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.
- (2) Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

## **C. Storage and Protection**

- (1) Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store products subject to damage by the elements in weathertight enclosures. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- (2) **Exterior Storage:** Store fabricated products above the ground, on blocking or skids; prevent soiling or staining; cover products which are subject to deterioration with impervious sheet coverings; and provide adequate ventilation to avoid condensation.
- (3) Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions and free from damage or deterioration.

## **D. Project Substitutions**

- (1) Trade names, brand names and/or manufacturer's information used in these specifications are for the purposes of establishing quality. Bids on products or other qualified manufacturers are acceptable provided request is made in writing not less than ten (10) days prior to scheduled receipt of bids, and, if approved:
  - (a) No major changes in the construction, design intent, or to any services or modifications to other equipment of the project would be required. Changes required to accommodate substituted items or the cost to repair and damage resulting from effecting such changes or

modifications made necessary or caused by substitution shall be made by the Contractor at no additional cost or time delay.

- (b) Features of quality, capacity, construction, performance, appearance, size, arrangement, and general utility including economy of operation of substitutes offered, either parallel or exceed those of specified products.
- (c) The provisions of the General Conditions and any other guarantees, if required by the specification sections, shall apply in full force and effect to the performance of such substitute products, approved for incorporation into the work.

(2) Technical data covering the proposed substitution shall be furnished with the request.

#### 1.18 TESTING

Tests called for by other than public authorities shall be made by approved independent laboratories with the full cooperation of the Contractor. The laboratory charges shall be borne by the Contractor unless otherwise specified. Testing services other than those called for in these contract documents may be called for by the City Engineer to check compliance with specifications, the testing service charges will be borne by the Owner, but when non-compliance with specification is indicated, the testing service charges will be deduced from the Contract Sum.

#### 1.19 PUBLIC CONVENIENCE

The Contractor shall at all times conduct his work as to insure the least possible inconvenience to the general public and the residents in the vicinity of the work. Fire hydrants on or adjacent to the work shall be kept accessible to fire fighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches, which shall not be obstructed except as approved by the City Engineer.

#### 1.20 UTILITIES

- A. Existing utilities shall be located, protected, and rerouted as necessary during construction. All utilities affected by construction shall be relocated or replaced in a workmanlike manner.
- B. The Contractor shall be responsible for anticipating and locating underground utilities and obstructions. When construction appears to be in close proximity to existing utilities, the trench(es) shall be opened a sufficient distance ahead of the work or test pits made to verify the exact locations and inverts of the utility to allow for changes in line and grade.
- C. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.

- D. It is not the intent of these specifications to identify each existing utility, but the responsibility of the Contractor to maintain, repair, or restore all utilities. Contractor shall be responsible for the cost of any damages to utilities caused by the construction.
- E. The Contractor will not be compensated for any additional expenses incurred or delays due to utility conflicts. However, the construction schedule may be adjusted accordingly at the discretion of the City Engineer.
- F. **Coordination:** Phases of the construction which involve the temporary interruption of essential services shall be scheduled in consultation with the Owner or his representative and shall not be of longer duration than essential to accomplish the purpose for such interruptions. Advance notice of at least 48 hours shall be given to the Owner when the Contractor requires interruption of water service.

The City shall open and close all water line valves as needed for construction upon 48-hour notification from the Contractor.

**G. Protection of Utilities**

- (1) Location of any utility shown on the plans is approximate. The Contractor is responsible for the protection of all utilities and shall comply with Title 56, Chapter 10.3 of the Code of Virginia, concerning utilities “Underground Utilities Damage Prevention Act,” or current revisions.

Take necessary precautions to protect existing utilities from damage due to any construction activity. The Contractor shall locate existing utilities, culverts, and structures (above or below ground), before any excavation starts and coordinate work with utility companies. Protect, maintain in service, and prevent damage to utilities not designated to be removed. Omission from or inclusion of located utility items on plans does not constitute non-existent or definite location. Secure and examine local utility surveyor records for available location data including building service lines. Contact underground damage protection services by contacting **MISS UTILITY** at least 48 hours before you dig at 1.800.552.7001, as required.

The Contractor shall protect, maintain in service, and prevent damage to utilities not designated to be removed. When utilities are encountered and are not shown on drawings or when locations differ from those shown on drawings, notify the City Engineer for instruction before proceeding. In the event that a gas line, water line, sewer line, storm line, power cable or conduit, or telephone cable or conduit is broken or damaged, the Contractor shall give immediate notice to the proper authorities and shall be responsible for any damage to persons or property caused by such breaks. If a service pipe to an adjoining house is broken, the Contractor shall repair same at once and at his expense. The City may, at the Contractor’s expense, repair any such service without prior notice to Contractor.

Should it become necessary to move the position of any underground structure, the Contractor may be required to do such work and shall be paid on an extra work basis.

The Contractor shall be responsible for protecting all existing utilities that could be damaged by excavation near the proposed line. Trench boxes may be necessary to prevent sloughing, etc., as well as to protect workmen, the motoring public, and the pavement. Failure to use a box, which subsequently results in damage to an existing line or other public improvements, shall be cause for liability against the Contractor for the repair costs.

Construction may require work on private property. When this occurs, it shall be the responsibility of the Contractor to contact the individual private property owner for exact location of the underground utilities or services prior to any excavation on the property.

Construction may require the relocation of some existing utilities. Contractor shall coordinate any such relocation necessary for the construction with the respective utility owner. City shall be responsible for cost of relocation of utilities if applicable.

Contractor shall be responsible for cost of any damages to utilities caused by the construction, and may be required to perform repairs at the City's request.

- (2) Some work under this contract may involve work in close proximity to overhead high voltage lines, when this is the case, "*The Overhead High Voltage Line Safety Act*," Title 59.1, Chapter 30 of the Code of Virginia will apply. Before any work involving high voltage overhead lines is anticipated or encountered, the Contractor must first request the Power Company to make safety arrangements to protect his workers and the lines. The actual expense incurred by the Power Company in taking these precautionary measures shall be paid by the person responsible for the work. The City will consider these charges and pay them as an add-on to the project.
- (3) Traffic Plate Bridging - The Contractor shall secure approval, in advance, from the City Engineer and/or private utility company authorities for the use of any traffic plate bridges proposed by it for public use.

Transverse or longitudinal cuts in the right-of-way that cannot be properly completed within a workday shall be protected by structural steel plate bridging in such a way as to preserve unobstructed traffic flow. All structural steel plates placed over surface voids, such as trenches and other areas to be protected in the public right-of-way shall conform to the following:

- a. All unrestored voids, trenches, holes, excavations, etc., that are in the pedestrian or traveled way shall be protected through the use of adequately designed barricades and structural steel plates that will support legal vehicle loads. Structural steel plate bridging shall be

designed for HS 20-44 truck loading. Trench Width /Minimum Plate Thickness shall adhere to the table below:

Trench Width	Minimum Plate Thickness
10" (0.25 m)	1/2" (13 mm)
1'-11" (0.58 m)	3/4" (19 mm)
2'-7" (0.80 m)	7/8" (22 mm)
3'-5" (1.04 m)	1" (25 mm)
5'-3" (1.6 m)	1 1/4" (32 mm)

Note: For spans greater than 5'-3" (1.6 m), a structural design shall be prepared by a registered civil engineer and approved by the City Engineer.

- b. Steel plates used for bridging must extend a minimum of 12 inches (300mm) beyond the edges of the trench. All plates shall provide complete coverage to prevent any person, bicycle, motorcycle or motor vehicle from being endangered due to plate movement causing separations or gaps.
- c. Plates shall be installed with the plate laid in reasonably flat plane and all vertical edges transitioned with asphaltic cold-mix or other acceptable ramping device(s) acceptable to the City Engineer. Fine graded asphalt concrete shall be compacted to form ramps with a maximum slope of eight and one-half percent (8.5%) and a minimum of 12-inches (300mm) taper to cover all edges of the steel plates. When steel plates are removed, any damage to the pavement shall be repaired with either graded fines of asphalt concrete mix, asphaltic cold mix, concrete slurry or equivalent slurry satisfactory to the City Engineer. The Contractor shall be responsible for maintenance of the structural steel bridging plates, shoring and asphalt concrete ramps.
- d. Structural steel plates shall have a skid-resistant surface.
- e. The trench shall be adequately shored to support the bridging and traffic loads.
- f. Steel plate bridging shall be secured against movement or displacement by using adjustable cleats, shims, welding, or other devices, and shall be installed to in a manner that will minimize noise.
- g. When steel plates are placed within the public right of way:

The Contractor's name and twenty-four (24) hour phone number shall be visible, legible and permanently affixed on each plate or, The Contractor shall erect sign(s) in the immediate area of the trench plate(s) identifying the Contractor's name with a twenty-four (24) hour phone number.

The minimum height of letters and numbers shall be 2 inches (50 mm).

The Contractor shall immediately mobilize necessary personnel and equipment after being notified by the City Engineer of a repair need. This includes, but is not limited to, plate anchors, cold-mix, asphalt concrete to transition/ramp from the existing roadway or sidewalk to the plate surface and back down. Failure to respond to the emergency request within two hours will be grounds for City repairs that will be invoiced at actual cost including overhead or \$500 per incident, whichever is greater. All Traffic Control Plans currently require prompt repairs of steel plating by the Contractor. Lack of Contractor conformance will be automatic grounds for suspension of their permit/contract.

- h. A Rough Road sign (W33) with black lettering on an orange background may be used in advance of structural steel plate bridging.

#### H. Protection of Surface Features

- (1) Whenever the utility line is to be placed in or near a paved street, the Contractor shall provide pads or take necessary precautions to protect the pavement from damage by the construction equipment. Pavement damaged by cleated or tracked equipment, or by any other means, shall be repaired by the Contractor at his expense.
- (2) Where a utility line is in an existing paved area, the edges of the pavement for the utility line shall be cut in a straight line, parallel to the pipe on each side. A straight and vertical cut shall be made either prior to excavation or after, but before installation of the permanent pavement repair.
- (3) Avoid overloading or surcharge a sufficient distance back from edge of excavation to prevent slides or caving. Maintain and trim excavated materials in such manner to be as little inconvenience as possible to public and adjoining property.
- (4) Provide full access to public and private premises, to fire hydrants, at street crossings, sidewalks and other points as designated by City to prevent serious interruption of travel.
- (5) Protect and maintain bench marks, monuments, or other established points and reference points and if disturbed or destroyed, replace items to full satisfaction of City.

#### I. Procedures for Repairing Damaged Utilities

- (1) If a located or unlocated service is interrupted as a result of work under this Section, immediately notify the governing utility owner of said interruption and await instructions from utility owner. The Contractor is responsible for all costs incurred due to damage of the utility.
- (2) **Service Laterals:** If a water or sewer service pipe is broken, the Contractor shall repair same at once and at his expense. The City may, at the Contractor's expense, repair any such service without prior notice to the Contractor.

- J. **Bracing Trenches:** The Contractor will be required to furnish all trench boxes, shoring, bracing, etc. where necessary and in accordance with generally accepted construction practices. Where adjacent utilities may be damaged, vertical trench walls may be necessary. When so warranted, the Contractor shall furnish, at no additional cost, all bracing, sheeting, shoring, trench boxes, etc. necessary to carry out the intended work. Conform to the requirements of Title 29 Labor, Part 1518 - "Safety and Health Regulations for Construction" and detailed requirements of Subpart P "Excavations, Trenching and Shoring," latest edition regarding trench protection requirements. NO compensation will be made for compliance with OSHA requirements. When OSHA regulations require work in addition to our minimum standards, no compensation will be made.
- K. **Encroachment Permits:** All crossings under VDOT system roads shall be made in accordance with the requirements of the VDOT as outlined in the encroachment permit(s). No extra compensation will be allowed.
- L. **Railroad Permits:** If installation is in Railroad right of way, all permits shall be obtained and Railway Company shall be notified prior to installation.
- M. **Roadway Crossings:** If installation is in a City of Lynchburg right of way, all permits shall be obtained and the City of Lynchburg shall be notified prior to installation.

#### 1.21 SAFETY

Contractor to conform to all OSHA regulations for all construction on City of Lynchburg projects.

#### 1.22 DUST CONTROL

The Contractor shall be required to sprinkle with water or to apply dust allaying materials in the vicinity of dwellings, schools, churches, stores, or other places, where in the opinion of the City Engineer, this is necessary to ensure that dust is held to an absolute minimum. Dust control is considered incidental and shall be carried out at the Contractor's expense.

#### 1.23 PROTECTIVE EQUIPMENT

Use of protective equipment (e.g. safety harnesses, hoists, breathing apparatus) is required when working inside manholes in accordance with current OSHA guidelines.

#### 1.24 TRAFFIC CONTROL

It shall be the sole responsibility of the Contractor to furnish and maintain, until the work has been accepted by the City, any and all signs, lights, barricades, flashing directional arrows, flagmen, etc. necessary for the safety of the general public, including both vehicular and pedestrian traffic.

The Contractor shall furnish, install, and maintain amber warning lights at all locations necessary for the control and protection of vehicular traffic. Warning lights placed at or on warning signs shall be flashing lights. Warning lights used for delineation of traffic and at locations of hazardous construction shall be steady-burn lights. Amber warning

lights shall battery power lights conforming to the Institute of Transportation Engineers (ITE) Standard for Flashing and Steady-Burn Barricade Warning Lights.

When working within any City right of way, traffic control shall conform to the Federal Highway Administration's Manual on Uniform Traffic Control Devices, latest revision (MUTCD) as well as the Virginia Work Area Protection Manual (VWAPM), latest revision.

Traffic Maintenance shall comply with the latest revision of the VDOT *Road and Bridge Specifications*, Section 512 – *Maintaining Traffic*, and Section 701 – *Traffic signs*, as well as other applicable sections, latest revision. All costs for maintenance of traffic shall be included in other bid items of the contract.

A copy of the MUTCD and VWAPM Manuals is available for the Contractor's review in the Office of the City Engineer, City Hall, during normal hours. It shall be the responsibility of the Contractor to be familiar with the manual and its application to his projects.

The contractor shall provide a detour/maintenance of traffic (MOT) plan for any road closures to the City Traffic Engineer a minimum of 2 weeks prior to implementation.

While working in street rights-of-way, traffic is to be maintained in such a manner as to provide safe passage of the public through the construction project at all times. Flagging should only be employed when required to control traffic or when all other methods of traffic control are inadequate to warn and direct drivers. Flaggers must be certified as having taken the VDOT Flagging Course and have the certification card with them while flagging. At least one lane of traffic shall be maintained at all times. While work is not in progress, traffic is to be returned to the normal fashion. When two-way traffic is required, the Contractor shall construct within the right of way suitable detours around the work.

When traffic signals or their appurtenances are likely to be damaged or interfere as a result of the construction, coordinate temporary operation with the City of Lynchburg Traffic Engineer unless otherwise approved by City of Lynchburg Traffic Engineer. Provide 7 days notice prior to anticipated disturbance or interruption.

Whenever it becomes necessary to leave a section of trench open after completion of the days work, the Contractor shall provide barricades and lights to protect the public. Operate warning lights during hours from dusk to dawn each day and as otherwise required for inclement weather and visibility. Approval from City Engineer shall be acquired prior to leaving trench open.

The Contractor shall promptly remove any excavated material or other debris that may be spilled or tracked onto the traveled pavement during the conduct of his work.

Upon all road closings and detours, the Contractor shall be responsible for notifying LynCom (847-1602) and City of Lynchburg Hotline (856-CITY) on a daily basis until such time the road is returned to normal operation.

The Contractor shall provide and place no parking signs on streets that are to be overlaid. These signs shall be placed not more than 36 hours in advance of resurfacing work and no less than 24 hours prior to work. Cost for placing these signs shall be

included in other bid items, there will be no payment for the labor or equipment required to place these signs.

When roadwork is scheduled for major thoroughfares or expressways, the Contractor cannot obstruct the roadway before 8:30 a.m. or after 3:30 p.m.

#### 1.25 **SNOW REMOVAL**

During the months of November, December, January, February, and March, the contractor shall be responsible for monitoring the weather and preparing the area for snow removal operations prior to an inclement weather event. The contractor shall bear all costs associated with damages resulting from failure to comply with any and all requirements set forth in this procedure.

#### 1.26 **CONSTRUCTION STAKING**

All property pins or corners shown on plan or identified by property owners shall be referenced prior to start of construction and otherwise protected and any property corner removed shall be replaced by a Virginia Licensed Professional Land Surveyor at not additional cost. The Construction Coordinator shall be furnished a copy of each property corner reference. The Contractor shall protect and preserve all reference points and offset stakes and replace it at no additional cost if they are destroyed. Failure to reference property pins or destroying references will not relieve the Contractor of the responsibility of restoring the property corners.

The City will provide construction stakeout on all projects designed by the City. For projects designed by consultants on behalf of the City, construction stakeout will be provided by the consultant.

Upon completion of consultant-designed projects, the consultant shall provide the City Engineer with copies of all-original field notes, electronic field book files, worksheets, layouts, and computations in a standard notebook, or on disk.

#### 1.27 **ROCK EXCAVATION**

Rock excavation shall consist of the removal and satisfactory disposal of all materials, which in the opinion of the Engineer, cannot be excavated except by drilling, blasting, wedging, "jack hammering or hoe ramming." It shall consist of undecomposed stone, hard enough to ring under hammer. All boulders containing a volume of more than one-half cubic yard will be classified as rock. When rock is encountered in the trench, the inspector or engineer must be notified before any rock has been blasted or removed. The engineer or his representative will measure the rock, after which, the rock shall be excavated to the depth required. Rock shall be removed from the construction site unless otherwise approved by the City Engineer.

#### 1.28 **BLASTING**

A. General Liability Insurance Certificate naming the City of Lynchburg, its officers, and employees as "additional insured." Certificate to include coverage for underground damage protection and collapse and be in the amount required by the blasting permit conditions as determined by the City Fire Marshall.

- B. Qualifications, proposed procedures, proposed storage locations, and schedule shall be submitted at least 2 weeks prior to commencing any blasting operations. Submittals shall be made to City Engineer and Lynchburg Fire Marshall.
- C. Blasters shall, at all times, have their license and blasting permits on the job site, and shall allow examination of same by any official that may have jurisdiction.
- D. If required by the City Engineer, submit seismic survey agency report for record purposes.

**E. General**

- (1) Blasting procedures shall conform to all applicable local, state, and federal laws and ordinances. Prior to any blasting, a blasting permit from the Lynchburg Fire Marshall shall be obtained. The approval of the City Engineer shall be obtained before any blasting takes place and the City Engineer may fix the hours of blasting if he/she deems it to be necessary. The Lynchburg Fire Marshall, Emergency Operations Center, and Construction Coordinator shall be notified a minimum of 48 hours in advance of any blasting per the approved blasting plan.
- (2) The minimum insurance coverage for blasting shall be as annotated in Section 00815, Supplementary Conditions. The coverage shall include explosion and collapse. If blasting occurs within 200 feet of any underground structure, underground coverage will be required.
- (3) **Storage:** Store explosives in accordance with the Occupational Safety and Health Act and with other Federal, State and Local ordinances and regulations. The Contractor shall keep explosive materials that are on the job site in special constructed boxes provided with locks. These boxes shall be plainly identified as to their contents. Failure to comply with this specification shall be grounds for suspension of blasting operations until full compliance is made. No blasting shall be allowed unless a galvanometer is employed to check cap circuits.
- (4) The City of Lynchburg may prohibit blasting when the method of detonation or the means of protection provided is inadequate. Blasting conducted with or without direct supervision of the City of Lynchburg will not relieve the Contractor of the responsibilities stipulated herein.
- (5) Blasters shall not explode or attempt to explode blasting powder or high explosives unless it is performed with a suitable electric blasting machine. Electric current from batteries, telephone, or power lines shall not be used for detonation.
- (6) A minimum of 3 minutes prior to the detonation, the blaster shall inform competent flagmen, equipped with red flags, stationed at reasonable distances from the blast area at every avenue of approach, to warn all persons.
- (7) Immediately after the loading and tamping of the drill hole and before fixing the blast, the material to be blasted shall be covered on all exposed sides

with blasting mats, or other approved protective material. After the protection has been applied, the blast shall be fired without unnecessary delay.

#### **F. Minimum Blasting Procedures Required**

- (1) The Contractor shall provide a blast warning signal system. The blast warning signal system shall consist of one or more air horns located at the blast site. The air horn(s) shall be audible a minimum of 1 mile from the blast site. The signals shall be one long horn 5 minutes prior to the blast, one short horn 1 minute prior to the blast, and one long horn after the blast to signal all clear. The Contractor shall erect two clear and legible blast warning signal signs at locations determined by the City Engineer. The signs shall list the blast warning signal system, the Contractor Superintendent's name and telephone number, and the City Construction Coordinator's name and telephone number.
- (2) The blasting shall be performed by a licensed blaster.
- (3) The Contractor shall notify in writing all property Owners within 250 feet of the proposed blast at least 1 week prior to the proposed blast and verbally on the day of the scheduled blast.
- (4) Blasting shall be limited to mid-morning hours on days of clear-to-partly cloudy skies with increasing surface temperature and light wind. The Contractor shall provide monitoring equipment to monitor all blasting. A copy of monitor record shall be given to the City Construction Coordinator daily.
- (5) The use of unconfined explosives shall be prohibited.
- (6) The maximum allowable peak particle velocity shall be 1.25 inches per second. For all structures located 0 to 300 feet from the blasting site, the maximum allowable peak particle velocity shall be 1.00 inch per second for all structures located 301 to 5,000 feet from the blasting site. The maximum allowable peak particle velocity shall be 0.75 inch per second for all structures located 5,001 feet and beyond from the blasting site.
- (7) To minimize vibration, minimum scaled distance (SD) of 50 shall be used to determine maximum explosive weight per delay. A test blast shall be conducted to verify the scaled distance. The maximum explosive weight per delay shall not exceed the distance from the blast to the nearest structure divided by 50 squared. Maximum explosive weight per delay may be revised pending outcome of test blast. Test blast monitoring shall be at the expense of the Owner. The recommendations indicated for blasting criteria in no way relieves the Contractor of his liability.
- (8) The peak overpressure of air blast shall not exceed 0.015 pound per square inch or 138 decibels.
- (9) Preblast meetings may be scheduled by the Engineer to document hole depths and spacing, charge weight per delay, shot scheduling, and weather conditions. The Contractor shall obtain accurate measured distances from

structures to center of blast area prior to determining the safe maximum charge-weight per delay and loading blast holes.

- (10) Preblast and post blast surveys will be performed by the independent Contractor designated or approved by the City. The Contractor may review this data and supplement it as he sees fit or conduct separate survey after written permission is obtained from the property Owners. In this event, the written permission shall be submitted to the Engineer prior to entering upon private property. The preblast and post blast surveys will include all occupied buildings within 250 feet of blasting areas. The Contractor is strongly encouraged to have a representative present during these surveys. The preblast and post blast surveys performed by the Owner in no way relieve the Contractor of his liability. A copy of the surveys shall be furnished to the City Engineer.

- (11) The City reserves the right to monitor production blasting.

- (12) A seismograph reading shall be taken during each blast. Seismograph shall be equipped with a recorder.

#### 1.29 **DITCH REGRADING**

When construction is at or near roadside ditches, the Contractor shall re-grade the shoulder and ditches to a condition equal to or exceeding the pre-construction condition.

#### 1.30 **PROTECTION OF UNFORESEEN UNIDENTIFIED ARCHEOLOGICAL OR CULTURAL RESOURCES**

If previously unidentified archeological or cultural resources are encountered during structural or trench excavation, the contractor shall stop work in that area immediately and notify the engineer and the owner's representative. Archeological resources will generally include but not be limited to significant cultural layers containing concentrations of bones, artifacts, wooden or masonry structures all in consolidated soils. If the unidentified resources are deemed significant and require stoppage of work at the location for more than 4 hours, the contractor will be paid for equipment and personnel that must remain idle. The owner will make every effort to allow the contractor to move to another location on the project and continue work until this issue is resolved.

#### 1.31 **PROTECTION AND RESTORATION OF PROPERTY**

The Contractor shall not enter upon private property for any purpose without first obtaining permission from the property owner. He shall use every precaution necessary to prevent damage or injury to any public or private property, trees, fences, monuments, and underground structures, etc., on and adjacent to the site of the work. He shall protect carefully from disturbance or damage all land monuments and property markers until an authorized agent has witnessed or otherwise referenced their locations and shall not remove them until directed.

The Contractor shall be responsible for all damage or injury to property of any character resulting from any act, omission, neglect, or misconduct in his manner or method or executing said work, from his nonexecution of work, or from defective work or materials,

and he shall not be released from said responsibility until the work shall have been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, he shall restore such property, at his own expense, to a condition equal to or better than that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring to the approval of the property owner and City Engineer.

### 1.32 **CLEANUP AND RESTORATION OF SITE**

Maintain the site in a neat and orderly condition at all times. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this work. Provide adequate storage for all items waiting removal from the site.

At all times, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site; and shall keep the site free of mud and dust to the satisfaction of the City Engineer. It is important that cleanup and restoration of the site follow the work closely. The Contractor shall dispose of surplus material and clean the street at the end of each day for the portion of work completed that day. After all work is completed, the Contractor shall remove all tools and other equipment, leaving the site free, clean, and in good condition.

### 1.33 **SEEDING AND GROUND COVER, EROSION AND SEDIMENT CONTROL**

- A. Landscaping Materials shall comply with Sections 204, 244, and 245 – *Roadside Development Materials* of the Virginia Department of Transportation, *Road and Bridge Specifications*.
- B. Rip rap materials and application shall comply with Sections 204 and 414 of the Virginia Department of Transportation, *Road and Bridge Specifications*.
- C. Preparation and application of seeding and ground cover shall comply with Sections 602 through 608 of the Virginia Department of Transportation, *Road and Bridge Specifications*, which covers topsoil, seeding, sodding, planting, soil retention coverings, and Herbicide spraying.
- D. Permanent Seeding (seeding and fine grading pay item and seeding and grading) and temporary seeding (fall and winter) shall comply with the requirements of the Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, *Virginia Erosion and Sedimentation Control Handbook*, latest edition. A specialized lawn mix shall be substituted for use on restoration of maintained lawn areas at the direction of the City Engineer.

### 1.34 **EROSION AND SEDIMENT CONTROL**

Erosion control design, procedures, and application of measures shall comply with the requirements of the Virginia Department of Environmental Quality and Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, *Virginia Erosion and Sedimentation Control Handbook*, latest edition. Any off-site

location that is used as a source of borrow soil materials or receives waste soil materials from this site must be approved by the Erosion & Sediment Control Administrator of the jurisdiction in which that off-site area is located.

### 1.35 USE OF COMPLETED PORTIONS

The Owner shall have the right to use, occupy, or place into operation any portion of the work that has been completed sufficiently to permit safe use, occupancy, or operation, as determined by the Engineer. Such use or occupancy shall not be construed to be an acceptance of the work.

### 1.36 CONTRACT CLOSEOUT

Contract Closeout shall include the following items prior to submission of final Application for Payment by the Contractor:

- A. Correct all punch list items within 30 days of final inspection.
- B. Schedule a final cleaning as approved by the Engineer to enable the Owner to accept a completely clean project. Clean up all debris; remove stains, spots, marks, and dirt; remove paint spots and smears from all surfaces; and clean fixtures. Remove all machinery, equipment, and surplus material.
- C. **As-Built Survey and Record Drawings:** An As-Built Survey and Record Drawings submittal are required to be submitted within 45 days of issuance of initial project punch list prior to final inspection and acceptance. All addenda items, bulletin drawings, change order items, field changes, and items changed during project meetings and construction shall be included. These records are a specific Contract requirement, and final payment will not be made until these drawings and project manual have been submitted in an acceptable form.
  - 1) **As-Built Survey Requirements:** Project completion as-built survey and calculations shall be performed and sealed by a Virginia licensed surveyor and tied into the city's current coordinate system (Virginia State Plane, NAD83(2011) and NGVD 88 and:
    - a. Shall record the northing and easting coordinates of all installed or rehabilitated storm and sanitary manholes, storm structures, the riser/control structure of stormwater best management practice(s) (BMPs), storm culvert inlets and outlets, cleanouts and service connections, including location of existing network structures connected immediately up or downstream of project work. All northing and easting survey shots shall be taken at the center of the respective lid casting. Cleanouts and service connections coordinates shall be shown in a call out box next to the specific item.
    - b. Shall record the rim and invert elevations of all installed or rehabilitated structures, including elevations and diameters of all pipes in and out of manholes, drop inlets, endwalls, storm culvert inlets and outlets, ponds, and other water quality devices.

- c. Shall record final grade of any earthen fill material, embankment, excavation or size of any installed stormwater BMP and/or drainage channel.
- d. Shall use electronic data to calculate storm and sanitary manhole-to-manhole, or structure-to-structure, lengths and slopes for all newly installed pipes and provide deflection angles to all structures connected to installed or rehabilitated storm and sanitary manholes/structures.
- e. Shall record the northing and easting coordinates of all newly installed and existing water valves, air release valves, blowoffs, pressure reducing valves, curb stops, water meter boxes and hydrants within the project area. Coordinates shall be shown in a call out box next to each appurtenance.
- f. Perimeter of water quality BMP and surface area of any material of a water quality BMP, including drainage channels if used as such.
- g. Submittal Requirements:
  - 1) All infrastructure, listed above, shall be submitted in the following formats:
    - i) Digital file(s) as a .pdf
    - ii) Digital file(s) using .dwg Autocad 2012 format compatible with ESRI GIS products. Bind or insert all files that are x-referenced into one .dwg file. Plot style table .stb or .ctb shall be included. The City should be able to open one .dwg file that includes all data and be able to plot a complete engineering drawing in the proper colors as required.
    - iii) A hardcopy printout of the as-built survey and calculated information, in tabular format, including the surveyor's feature code legend
  - 2) Submittal Style Format Requirements include the following:
    - i) Each utility shall be submitted on a separate drawing, e.g. water, sewer, and storm.
    - ii) Tabular data shall include specific reference for each structure surveyed to enable it to be directly linked to a location on the project plans.
    - iii) All as-built information shall appear in red on the drawing.
    - iv) All external drawing references shall be included in the digital file.
    - v) All required coordinates shall be shown in a "call-out" box directly adjacent to the referenced structure. See detail in *Appendix C - Procedures* module for an example.

- 3) The following list details the responsible party for the work contingent upon the situation.
- i) New City-owned infrastructure installed by the City's annual contractor and designed by a private consultant: The private consultant is responsible for the as-built submittals. This information is a specific contract requirement, and final payment will not be made to the consultant until this information has been submitted in an acceptable form.
  - ii) New City-owned infrastructure installed by the City's annual contractor and designed by city forces: City design personnel are responsible for the as-built submittal.
- 2) **Record Drawings:** The Contractor/Developer, at the close of the project, shall provide one complete set of record drawing information recording all changes to the work providing an accurate record of actual installed conditions. Said record drawings shall then be given to the Surveyor as a basis for the surveyed as-built information. Changes from drawing information and new installation information shall be noted in **legible red letters at least 1/8-inch high**. This set of record drawings ("red line" markup of the construction drawings) will be used as a basis for pay requests and reimbursement payments and shall include:

**The following is required for only for items changed, added, or deleted from the original construction drawings:**

- a. Manhole-to-manhole or structure-to-structure pipe lengths;
- b. Restraints used;
- c. Locations of all structures and cleanouts;
- d. Pipe deflections;
- e. Type and size of all installed pipe, (including short stub connections to existing lines- which shall note connection methods, pipe size, and type of existing lines);
- f. Notations of all deletions or changes.

**The following is required for all items on the original construction drawings as well as any changed or added items:**

- g. An annotation of the associated structure/lot address for each cleanout; any anomalies should be shown on the plans concerning laterals and services;

- h. The vertical height of each cleanout and the size of the lateral;
- i. An annotation as to the associated structure/lot address of each water meter box;
- j. The elevation of subgrade, media (stone, soil, engineered media, etc.) or under drain of a stormwater BMP including type and size of any surface or subsurface material and location of under drain on plan view as applicable;
- k. Location, dimension and material of stormwater structural elements including but not limited to gabions, geotextile rolls, fascines, etc.;
- l. Name of manufacturer, model, model number or specification of installed proprietary stormwater BMPs.

**Responsible Parties for submittals are as follows:**

m. Submittal Requirements:

- 1) New City-owned infrastructure installed by the City's annual contractor and designed by a private consultant:  
The Contractor is responsible for performing this work. The City's Construction Coordinator is responsible for obtaining the record drawings from the contractor.
- 2) New City-owned infrastructure installed by the City's annual contractor and designed by city forces:  
The Contractor is responsible for performing this work. The City's Construction Coordinator is responsible for obtaining the record drawings from the contractor.

D. **Guarantees, Warranties, and Bonds:** Submit all required guarantees, warranties, and bonds.

E. Statement of payment of taxes.

F. Affidavit of Release of Liens.

1.37 **GUARANTEE**

The Contractor shall guarantee all work under this contract against defective materials, defective workmanship, or failure to perform any work shown or stated within the plans or specifications for a period of 12 months after the completion and acceptance of all, or any part of the project, by the City. The surety underwriting the contract bond shall include such guarantee as a part of the contract bond.

**PART 2 - MATERIALS**

Not Applicable

**PART 3 - EXECUTION**

Not Applicable

**END OF SECTION 01000**

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