

## **TECHNICAL SPECIFICATIONS**

These Technical Specifications amend and/or supplement the Standard General Conditions of the Construction Contract and other provisions of the Bid and Contract Documents to the extent any technical specifications herein are inconsistent with the Standard General Conditions of the Construction Contract and other provisions of the Bid/Contract Documents. All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Technical Specifications have the meanings stated in the General Conditions. Additional terms used in these Technical Specifications have the meanings stated herein, which are applicable to both the singular and plural thereof.

The construction of the project shall be in accordance with the following standards:

- Uniform Standard Specifications and Details for Public Works Construction, 2023 Revision to the 2020 Edition, Maricopa Association of Governments (MAG).
- Arizona Department of Transportation, Standard Specifications for Road and Bridge Construction, 2008 Edition, latest revision.
- Manual on Uniform Traffic Control Devices (MUTCD), latest revision.
- Arizona Supplement to the MUTCD, ADOT, latest revision.
- Maricopa County Traffic Control Manual, September 2015, latest revision.
- Maricopa County Pavement Marking Manual, April 28, 2020, latest revision.

These Technical Specifications provide supplemental information regarding the bid/construction line items for the project and shall be used in conjunction with the Bid Schedule. These technical specifications shall govern and control anywhere they may deviate or conflict with the MAG Standard Specifications.

### **GEOTECHNICAL EVALUATION & REPORT**

No geotechnical investigation or evaluation was conducted for this project. Bidders/contractors shall satisfy themselves as to the local site conditions through close and careful site reconnaissance and performing any testing needed to prepare the bid and for construction of the project.

### **COMPLIANCE WITH NOISE ORDINANCE**

Construction work shall be scheduled to comply with the City's Noise Ordinance and other applicable ordinances, rules, and regulations pertaining to construction activities.

### **CONTRACT/BID ITEMS**

The various bid items (construction contract pay items) set forth in the Bid Schedule are hereby described and defined starting on the next page. The measurement and payment for each bid item are governed as provided for herein.

**17. REMOVE & REPLACE ASPHALT PAVEMENT, 3" AC ON 12" ABC**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 301, Section 310, Section 321, Section 336, Section 601, Section 702, Section 710, Details No. 200-1, 200-2, 200-3, and other related sections and details.

*Description:* The Contractor shall place and compact the required thickness of aggregate base course (12") and asphalt concrete pavement surface course (3") per the T-Top Trench Repair Detail (Modified MAG Standard Detail 200-1) shown on the plans and in accordance with MAG Section 336.2.4 for Permanent Pavement Replacement.

Aggregate base material shall meet the requirements for Aggregate Base Course per MAG Section 702. The aggregate base material shall be moisture conditioned and compacted to 100% of the maximum dry density for the material and within the range of plus or minus 2% of the optimum moisture content per ASTM D698C.

The asphalt pavement shall be ½" asphalt concrete mix designation, Marshall mix design (for high traffic areas), per MAG Specification Section 710, Asphalt Concrete. The Contractor shall submit the asphalt mix design to the City of Globe for approval prior to placement of any asphalt on this project.

The areas of asphalt pavement removal and replacement are shown on the project plans, and generally include where the new water main is installed within and across asphalt paved streets and where excavations need to occur to disconnect and abandon the old water mains that are being replaced by the new water main. Asphalt pavement removal shall be made by sawcut for the full pavement depth to facilitate its removal. The sawcut edges shall present a neat, trim, and vertical line. Adjacent sections of asphalt pavement shall be protected in place, and any sections outside the designated removal areas that may be damaged by the Contractor's actions shall be removed and replaced at the Contractor's sole expense. Removed asphalt and base materials shall be transported and properly disposed of at a landfill or other legal site that accepts those materials.

The work shall include all materials, equipment, and labor costs to furnish, place, compact, and construct the aggregate base course and the asphalt pavement surface course over the backfilled and compacted trenches for the installed water main and service lines per the plans and the specifications.

As part of this bid item, if any existing pavement markings are removed or obliterated during the water main installation process, the Contractor shall replace in kind any pavement markings (striping and/or symbols) that are removed or obliterated as part of the pavement removal and replacement process. The pavement markings (striping and/or symbols) shall match the size and materials of the existing markings and shall comply with all applicable the requirements of the Manual on Uniform Traffic Control Devices (MUTCD) and the ADOT Standard Specifications. This construction work shall not be measured or paid for separately but shall be considered subsidiary and incidental to this bid item to construct new asphalt pavement on the water line trenches.

*Measurement & Payment:* **Refer to Attachment 6**

## 18. REMOVE METER BOX & RELOCATE WATER METER

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 350, Section 601, Section 610, Section 631, and other related sections and details.

*Description:* Once the new water line has been tested, disinfected, accepted, and placed into service, and after the new water services lines have been installed on private property between the new meter box and the existing private water system at or near the its point of entry to the residential structure, the Contractor shall perform the following items of work to complete the reconnection of the public water supply to the dwelling unit.

- a. Contact the City Water Services Facilities Manager (Vince Maricscal at 928-200-3480) to coordinate and schedule the shutdown of the existing water line located along the rear (west) side of the associated property. A representative of the City Water Services Division must be present on-site while the work is being completed for the relocation of the existing water meter.
- b. Close the existing curb stop valve and disconnect the public water service line from the existing water meter.
- c. Cut the existing water service line pipe on the private property side of the water meter and install a cap on the end of the exposed pipe.
- d. Connect the new Type K copper private water service line installed from the new water meter box at the front of the property in Daybreak Drive to the existing water service line at or near the point where the existing water service line enters the residential structure. The new water service line is measured and paid for under a separate bid item. The connection shall use the appropriate fittings needed to make the connection complete and watertight.

At the point of connection, the existing water service line running to rear of the property can be capped to abandon the old water service line in place as long as no other water supply connections exist on the property from the segment of the existing water service line to be abandoned.

If the existing water service supplies water to an outbuilding, yard hydrant, or other facility, the connection of the new water service line can be made using a tee fitting to keep the entire length of the existing water line in service from the front to the rear of the property.

- e. Remove the existing water meter, transport it, and install the meter in the new water meter box located at the front of the property in Daybreak Drive. The new water meter box is measured and paid for under a separate bid item.

The water meter associated with a specific property shall be reinstalled for that same property.

- f. Remove the existing water meter box at the rear of the property and properly dispose of it at a landfill.
- g. When the private water service line installation is complete and the water meter is in place, and upon approval by the City of Globe on-site representative, the water supply can be turned on the residence to restore water service.

The work associated with this bid item shall include all labor, materials, and equipment needed to fully complete the work as describe herein to the satisfaction of the City Inspector.

*Measurement & Payment:* **Refer to Attachment 6**

**19. CONNECT TO EXISTING WATER LINE, 6" DIA**

*Specifications:* Maricopa Association of Governments, Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 610, and other related sections and details.

*Description:* Connect to Existing Water Line, 6" Dia. includes all costs associated with:

- a. Locate the existing 6" diameter water line pipe (likely ACP) where it crosses the proposed alignment of the new 8" diameter C900 PVC pipe to be installed under this contract.
- b. Excavate to the water line, expose it, and verify the pipe size, material type, and elevation.
- c. Remove a section of the existing water line pipe sufficient in length to accommodate and facilitate the connection of the new 8" dia. C900 PVC water line pipe as shown on the plans.
- d. Furnish and install an 8" x 6" reducer, 8" bend or 8" x 8" tee fitting, and any other required materials, couplings, and supplies need to complete the connection of the new water line to the existing water line.

Gate valves that are part of the overall connection are measured and paid for under a separate bid item.

Capping and abandoning in place one end of the existing water line is measured and paid for under a separate bid item.

- e. Backfill and compact the excavated area as part of the overall water line installation.
- f. Restore the surfacing of the connection excavation area to match the existing surfacing that existed prior to the excavation.

Furnish and spread crushed rock to restore granular surfaced roadways.

Furnish and spread decomposed granite or other material to match the surfacing in landscaped areas.

Under existing pavement, restoration of the asphalt pavement and aggregate base shall be measured and paid for under a separate bid item to remove and replace asphalt pavement.

- g. Connection to be completed after the new 8" diameter water line has been constructed, tested, and disinfected. Contact the City Water Services Facilities Manager (Vince Maricscal at 928-200-3480) to coordinate and schedule the shutdown of the existing water line to make and complete the connection.

Provide a minimum of 24-hours advance notice to the residents affected by the water shutdown with an estimated time and duration of the shutdown period. The Contractor shall minimize the time frame needed to complete the work so the length of time the water line is shut down is minimized.

The cost of all labor, equipment, tools, and materials necessary for executing and completing the work under this bid item and as shown on the plans, whether specifically stated herein or not, shall be included in the bid unit price for this item of work.

*Measurement and Payment:* **Refer to Attachment 6**

## 20. CONNECT TO EXISTING WATER LINE, 2" DIA

*Specifications:* Maricopa Association of Governments, Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 610, and other related sections and details.

*Description:* Connect to Existing Water Line, 2" Dia. includes all costs associated with:

- a. Locate the existing 2" diameter water line pipe (likely PVC) where it crosses the proposed alignment of the new 8" diameter C900 PVC pipe to be installed under this contract.
- b. Excavate to the water line, expose it, and verify the pipe size, material type, and elevation.
- c. Remove a section of the existing water line pipe sufficient in length to accommodate and facilitate the connection of the new 2" dia. Type K copper water line pipe as shown on the plans.
- d. Furnish and install a 2" bend and any other required materials, fittings, couplings, and supplies need to complete the connection of the new 2" copper water line to the existing 2" PVC water line.

Capping and abandoning in place one end of the existing water line is measured and paid for under a separate bid item.

- e. Backfill and compact the excavated area as part of the overall water line installation.
- f. Restore the surfacing of the connection excavation area to match the existing surfacing that existed prior to the excavation.

Furnish and spread crushed rock to restore granular surfaced roadways.

Furnish and spread decomposed granite or other material to match the surfacing in landscaped areas.

Under existing pavement, restoration of the asphalt pavement and aggregate base shall be measured and paid for under a separate bid item to remove and replace asphalt pavement.

- g. Connection to be completed after the new 8" diameter and the new 2" diameter water lines have been constructed, tested, and disinfected. Contact the City Water Services Facilities Manager (Vince Maricscal at 928-200-3480) to coordinate and schedule the shutdown of the existing water line to make and complete the connection.

Provide a minimum of 24-hours advance notice to the residents affected by the water shutdown with an estimated time and duration of the shutdown period. The Contractor shall minimize the time frame needed to complete the work so the length of time the water line is shut down is minimized.

The cost of all labor, equipment, tools, and materials necessary for executing and completing the work under this bid item and as shown on the plans, whether specifically stated herein or not, shall be included in the bid unit price for this item of work.

*Measurement and Payment:* **Refer to Attachment 6**

**21. INSTALL WATER LINE, PVC C900 PIPE, 4" DIA**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 604, Section 610, Section 611, Section 630, Section 631, Section 702; and other related sections, specifications, and details.

*Description:* The Contractor shall furnish and install 4-inch diameter PVC water line pipe (C900, DR 18, 235 PSI PVC Pipe per AWWA C900-07) at all locations shown on the plans and in accordance with MAG Standard Specification Sections 601 and 610.

The finished installation includes the cost of all labor, materials, loading, hauling, fittings, and equipment necessary for removal of obstructions; excavation and trenching including dewatering; legal disposal of excavated material; placing, bedding, and shading of the pipe line to grade; construction of concrete thrust blocks or pipe restraints as required; placement of tracer wire and warning tape; installation of bonding straps; and backfilling and compacting the excavation with approved material.

This bid and construction item includes pressure testing, disinfecting, and flushing of the water lines, and all materials necessary to complete the installation so that it is fully functional for the purpose intended.

In asphalt pavement areas, the trench bedding, haunching, initial backfill, and final backfill beneath asphalt pavement surfacing shall be aggregate base course material brought to the bottom surface of the asphalt pavement section per MAG Section 601; Section 702; Detail 200-1, 'T-Top' Trench Repair; and Detail 200-2. At the Contractor's option, trench backfill may be made with controlled low strength material (CLSM), 1/2 sack cement mix, per MAG Section 604 and Section 728, at no additional cost to the project. Placing and compacting the asphalt pavement section (3" AC over 12" ABC) on top of the final backfill is measured and paid for under a separate bid item.

In granular/rock surfaced roads and driveway areas, the trench bedding, haunching, initial backfill, and final backfill beneath granular roads and driveways shall be aggregate base course material brought to the roadway or driveway surface of the existing adjacent road or drive surface per MAG Section 601; Section 702; Detail 200-1, Type 'E' Trench Repair; and Detail 200-2. Native and/or excavated trench material backfill is not allowed in granular road and driveway surfaced areas. At the Contractor's option, trench backfill may be made with controlled low strength material (CLSM), 1/2 sack cement mix, per MAG Section 604 and 728, with 2" depth of aggregate base course material placed and compacted on top of the CLSM surface, at no additional cost to the project.

In natural earth surfaced and landscaped areas, the trench bedding, haunching, and initial backfill shall be aggregate base course material per MAG Section 702 and Detail 200-1, Type 'E' Trench Repair. Approved final backfill material in landscaped or natural earth surfaced areas shall be the excavated trench material and/or native earth material provided it is free of rocks greater than 2" diameter, vegetation, and other deleterious materials. The ground surface shall be fine graded and provided and restored with a 2" deep layer of aggregate/granular material surfacing (e.g. decomposed granite) that may have existed prior to the water line installation. Restoring the site surfacing with salvaged and/or new decomposed granite, or other landscaping materials, is considered subsidiary and incidental to this bid item and shall not be measured or paid for separately.

The Contractor shall remove, stockpile, and replace any landscaping or site features / items (e.g. signs, mailboxes, boulders, etc.) that will be or are disturbed by the water line installation. Landscape or site features/items removal and replacement shall be considered incidental and subsidiary to this bid item and will not be measured or paid for separately.

*Measurement and Payment:* **Refer to Attachment 6**

**22. INSTALL WATER LINE, PVC C900 PIPE, 8" DIA**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 604, Section 610, Section 611, Section 630, Section 631, Section 702; and other related sections, specifications, and details.

*Description:* The Contractor shall furnish and install 8-inch diameter PVC water line pipe (C900, DR 18, 235 PSI PVC Pipe per AWWA C900-07) at all locations shown on the plans and in accordance with MAG Standard Specification Sections 601 and 610.

The finished installation includes the cost of all labor, materials, loading, hauling, fittings, and equipment necessary for removal of obstructions; excavation and trenching including dewatering; legal disposal of excavated material; placing, bedding, and shading of the pipe line to grade; construction of concrete thrust blocks or pipe restraints as required; placement of tracer wire and warning tape; installation of bonding straps; and backfilling and compacting the excavation with approved material.

This bid and construction item includes pressure testing, disinfecting, and flushing of the water lines, and all materials necessary to complete the installation so that it is fully functional for the purpose intended.

In asphalt pavement areas, the trench bedding, haunching, initial backfill, and final backfill beneath asphalt pavement surfacing shall be aggregate base course material brought to the bottom surface of the asphalt pavement section per MAG Section 601; Section 702; Detail 200-1, 'T-Top' Trench Repair; and Detail 200-2. At the Contractor's option, trench backfill may be made with controlled low strength material (CLSM), 1/2 sack cement mix, per MAG Section 604 and Section 728, at no additional cost to the project. Placing and compacting the asphalt pavement section (3" AC over 12" ABC) on top of the final backfill is measured and paid for under a separate bid item.

In granular/rock surfaced roads and driveway areas, the trench bedding, haunching, initial backfill, and final backfill beneath granular roads and driveways shall be aggregate base course material brought to the roadway or driveway surface of the existing adjacent road or drive surface per MAG Section 601; Section 702; Detail 200-1, Type 'E' Trench Repair; and Detail 200-2. Native and/or excavated trench material backfill is not allowed in granular road and driveway surfaced areas. At the Contractor's option, trench backfill may be made with controlled low strength material (CLSM), 1/2 sack cement mix, per MAG Section 604 and 728, with 2" depth of aggregate base course material placed and compacted on top of the CLSM surface, at no additional cost to the project.

In natural earth surfaced and landscaped areas, the trench bedding, haunching, and initial backfill shall be aggregate base course material per MAG Section 702 and Detail 200-1, Type 'E' Trench Repair. Approved final backfill material in landscaped or natural earth surfaced areas shall be the excavated trench material and/or native earth material provided it is free of rocks greater than 2" diameter, vegetation, and other deleterious materials. The ground surface shall be fine graded and provided and restored with a 2" deep layer of aggregate/granular material surfacing (e.g. decomposed granite) that may have existed prior to the water line installation. Restoring the site surfacing with salvaged and/or new decomposed granite, or other landscaping materials, is considered subsidiary and incidental to this bid item and shall not be measured or paid for separately.

The Contractor shall remove, stockpile, and replace any landscaping or site features / items (e.g. signs, mailboxes, boulders, etc.) that will be or are disturbed by the water line installation. Landscape or site features/items removal and replacement shall be considered incidental and subsidiary to this bid item and will not be measured or paid for separately.



*Measurement and Payment:* **Refer to Attachment 6**

**23. INSTALL WATER SERVICE SADDLE, 4" X 3/4"**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Part 600, Section 601, Section 610, Section 611, Section 630, Section 631, Detail No. 200-1, Detail No. 200-2, Detail No. 200-3 and other related sections and details.

*Description:* The Contractor shall furnish and install a service saddle and corporation stop on the new 4" diameter PVC C900 water main at all service line connection points shown on the plans.

- a. The 8" x 3/4" service saddle shall be a Ford Style S202B double strap brass saddle, or approved equivalent, compatible for use with PVC C900 water line pipe and Type K copper water service line pipe.
- b. The corporation stop shall be a Ford Corporation Stop, MNPT x CTS Compression, 3/4", or approved equivalent, compatible for use with Type K copper water service pipe.

*Measurement & Payment:* **Refer to Attachment 6**

**24. INSTALL WATER SERVICE SADDLE, 8" X 3/4"**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Part 600, Section 601, Section 610, Section 611, Section 630, Section 631, Detail No. 200-1, Detail No. 200-2, Detail No. 200-3 and other related sections and details.

*Description:* The Contractor shall furnish and install a service saddle and corporation stop on the new 8" diameter PVC C900 water main at all service line connection points shown on the plans.

- c. The 8" x 3/4" service saddle shall be a Ford Style S202B double strap brass saddle, or approved equivalent, compatible for use with PVC C900 water line pipe and Type K copper water service line pipe.
- d. The corporation stop shall be a Ford Corporation Stop, MNPT x CTS Compression, 3/4", or approved equivalent, compatible for use with Type K copper water service pipe.

*Measurement & Payment:* **Refer to Attachment 6**

**25. INSTALL WATER SERVICE SADDLE, 8" X 1"**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Part 600, Section 601, Section 610, Section 611, Section 630, Section 631, Detail No. 200-1, Detail No. 200-2, Detail No. 200-3 and other related sections and details.

*Description:* The Contractor shall furnish and install a service saddle and corporation stop on the new 8" diameter PVC C900 water main at all service line connection points shown on the plans.

- e. The 8" x 1" service saddle shall be a Ford Style S202B double strap brass saddle, or approved equivalent, compatible for use with PVC C900 water line pipe and Type K copper water service line pipe.
- f. The corporation stop shall be a Ford Corporation Stop, MNPT x CTS Compression, 1", or approved equivalent, compatible for use with Type K copper water service pipe.

*Measurement & Payment:* **Refer to Attachment 6**

## 26. INSTALL WATER SERVICE LINE, TYPE K COPPER, 3/4" DIA

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 610, Section 611, Section 631, Section 754; and other related sections and details.

*Description:* Furnish and install new 3/4" diameter TYPE K COPPER water service pipe per MAG Specification Section 754 from the newly installed 8" PVC C900 water line at the following locations as shown on the plans:

- a. To the existing water meters to reconnect the existing water meters to the new water source.
- b. To the new water meter boxes installed to house the relocated water meters.
- c. On private property from the relocated water meters at the front of the properties to the point of connection to the existing private water service line at or near its point of connection to the residential structure.

The new water service line installation (public and private) shall replace the existing service line that shall be capped or plugged on each end and abandoned in place. The new service line shall be installed at the locations shown on the plans and as may be directed by the City's Water System Manager and/or City Inspector.

The new tap on the water main line pipe, service saddle, and corporation stop shall be measured and paid for under a separate bid item for this construction contract.

This construction item includes all materials, equipment, and labor needed to reconnect the existing water meters to the newly installed water line. This work includes installation of a new ball valve corporation stop (straight stop not an angle stop) on the public water service side of the water meter. The ball valve shall be a 3/4" Ford Ballcorp corporation stop compatible with Type K copper pipe on each end.

This work shall also include installation of tracer wire, locator tape, connecting sleeve and/or fittings as needed, associated excavation, trenching, backfill, compaction of backfill, and any other component of work needed to complete the water service line installation that is fully functional; all completed in accordance with MAG Specification Sections 610, 611, and 631. Placing and compacting the asphalt pavement section (3" AC over 12" ABC), where applicable, on top of the final backfill is measured and paid for under a separate bid item.

The water service line installation shall also include all materials, labor, and equipment costs to properly cap or plug each end of the existing water service line to abandon the existing water service line in place.

All new water service line piping with less than 24 inches of cover shall be provided with 1" minimum thickness pipe insulation rated for direct bury installation to prevent the pipe from freezing during cold winter weather. Insulation of the new water service line is considered incidental and subsidiary to this bid item and will not be measured or paid for separately.

The existing water service lines shall remain in place and in operation until the newly installed water line has been installed, tested, and disinfected, and placed in operation. The new water service lines shall be disinfected along with the new water main line prior to connection to the water meter. The connection of the new water service lines to the water meters can only be made after the new water line has been placed in operation to minimize the length of time that the associated dwelling unit or facility is out of water service.

*Measurement & Payment:* **Refer to Attachment 6**

## **27. INSTALL WATER SERVICE LINE, TYPE K COPPER, 1" DIA**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 610, Section 611, Section 631, Section 754; and other related sections and details.

*Description:* Furnish and install new 1" diameter TYPE K COPPER water service pipe per MAG Specification Section 754 from the newly installed 8" PVC C900 water line to a point near two water meters in close proximity to each other to provide water service to both meters. The 1" water line installation will terminate with a 1" x 3/4" tee or wye fitting. At that point new 3/4" TYPE K COPPER services lines will be installed from the splitter fitting to connect to the two meters under a separate pay item.

The new water service line installation shall replace the existing service line that shall be capped or plugged on each end and abandoned in place. The new service line shall be installed at the locations shown on the plans and as may be directed by the City's Water System Manager and/or City Inspector.

The new tap on the water main line pipe, service saddle, and corporation stop shall be measured and paid for under a separate bid item for this construction contract.

This work shall include installation of tracer wire, locator tape, connecting sleeve and/or fittings as needed, associated excavation, trenching, backfill, compaction of backfill, and any other component of work needed to complete the water service line installation that is fully functional; all completed in accordance with MAG Specification Sections 610, 611, and 631. Placing and compacting the asphalt pavement section (3" AC over 12" ABC), where applicable, on top of the final backfill is measured and paid for under a separate bid item.

The water service line installation shall also include all materials, labor, and equipment costs to properly cap or plug each end of the existing water service line to abandon the existing water service line in place.

All new water service line piping with less than 24 inches of cover shall be provided with 1" minimum thickness pipe insulation rated for direct bury installation to prevent the pipe from freezing during cold winter weather. Insulation of the new water service line is considered incidental and subsidiary to this bid item and will not be measured or paid for separately.

The existing water service lines shall remain in place and in operation until the newly installed water line has been installed, tested, and disinfected, and placed in operation. The new water service lines shall be disinfected along with the new water main line prior to connection to the water meter. The connection of the new water service lines to the water meters can only be made after the new water line has been placed in operation to minimize the length of time that the associated dwelling unit or facility is out of water service.

*Measurement & Payment:* **Refer to Attachment 6**

## **28. INSTALL GATE VALVE, 4" DIA**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 610, Section 630, Detail No. 391-1 (Type A), Detail 391-2, and other related sections and details.

*Description:* The Contractor shall furnish and install new 4" water line gate valves, complete with valve boxes and covers, at all locations shown on the plans and in accordance with MAG Standard Specification Section 610, Section 630, Standard Detail 391-1, Type A, and Standard Detail 391-2.

The 4" gate valves shall be resilient wedge Non-Rising Stem (NRS) gate valves with mechanical joint ends and standard 2" square operation nuts.

The finished installation includes all costs associated with furnishing and installing the gate valve with a valve box and cover; loading and hauling; labor, materials, and equipment necessary for excavation and trenching; legal disposal of excess materials; dewatering; construction of thrust blocks; placement of bedding material; assembly of the valve; installation and adjustment of the valve box and cover to grade together with placement of 1/4-yard washed rock around base of valve boxes; adjusting valve boxes as required to the final grade; and installation of concrete diamond or circular aprons at all locations.

This bid item shall include backfill with aggregate base material (or 1/2 sack CLSM at the Contractor's option) and compaction of the ABC backfill for the excavation up to and flush with the bottom of the concrete apron and replacement asphalt pavement. Backfill for areas outside street pavement and the required concrete apron shall be to an elevation 12" below the existing ground surface, covered with 12" of topsoil, with repair and restoration of all existing landscaping to preconstruction conditions.

*Measurement & Payment:* **Refer to Attachment 6**

## **29. INSTALL GATE VALVE, 8" DIA**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 610, Section 630, Detail No. 391-1 (Type A), Detail 391-2, and other related sections and details.

*Description:* The Contractor shall furnish and install new 8" water line gate valves, complete with valve boxes and covers, at all locations shown on the plans and in accordance with MAG Standard Specification Section 610, Section 630, Standard Detail 391-1, Type A, and Standard Detail 391-2.

The 8" gate valves shall be resilient wedge Non-Rising Stem (NRS) gate valves with mechanical joint ends and standard 2" square operation nuts.

The finished installation includes all costs associated with furnishing and installing the gate valve with a valve box and cover; loading and hauling; labor, materials, and equipment necessary for excavation and trenching; legal disposal of excess materials; dewatering; construction of thrust blocks; placement of bedding material; assembly of the valve; installation and adjustment of the valve box and cover to grade together with placement of 1/4-yard washed rock around base of valve boxes; adjusting valve boxes as required to the final grade; and installation of concrete diamond or circular aprons at all locations.

This bid item shall include backfill with aggregate base material (or 1/2 sack CLSM at the Contractor's option) and compaction of the ABC backfill for the excavation up to and flush with the bottom of the concrete apron and replacement asphalt pavement. Backfill for areas outside street pavement and the required concrete apron shall be to an elevation 12" below the existing ground surface, covered with 12" of topsoil, with repair and restoration of all existing landscaping to preconstruction conditions.

*Measurement & Payment:* **Refer to Attachment 6**

**30. INSTALL METER BOX, MAG DTL 319 BOX NO 1324**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Part 600, Section 601, Section 610, Section 631, Detail 319, and other related sections and details.

*Description:* Furnish and install a traffic rated meter box with cover at the locations shown on the plans.

The meter box and cover shall be per MAG Standard Detail Number 319, Traffic Rated Box and Cover, Box Number 1324. The traffic rated meter box cover shall have the marking "WATER".

This construction item includes all materials, equipment, and labor needed to complete the installation of the traffic rated meter box/cover installation. Installation of the relocated water meter shall be measured and paid for under a separate bid item.

The contractor shall confirm with the City Water Services Facilities Manager (Vince Maricscal at 928-200-3480) if the diamond plate steel meter box cover shall be equipped with a 1" or other size round hole for an antenna for remote reading of the water meter.

*Measurement & Payment:* **Refer to Attachment 6**



### **31. INSTALL AIR RELEASE VALVE**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 601, Section 610, Section 611, Section 630, Section 631, Section 750, and other related sections, specifications, and details.

*Description:* The Contractor shall furnish and install an air release valve (1" size) assembly for the new water main at high points in the system where shown on the plans. Installation of the air release valve shall be in accordance with the manufacturer's instructions and the detail shown on the plans.

The air release valve shall be an A.R.I. Automatic Air Release Valve "Segev", S-050 Series, or approved equal.

- a. Inlet shut off valve shall be a 1/4 turn 2-inch NPT X NPT brass, blowout proof, ball valve.
- b. The 8" x 1" tapping service saddle shall be a Ford Style S202B double strap brass saddle, or approved equivalent, compatible for use with PVC C900 water line pipe and Type K copper water service line pipe.
- c. ARV cover shall be a traffic rated box and cover, Box Number 1730, per MAG Detail No. 319.

The finished work includes all labor, materials, equipment, supplies, tools, and other costs to complete the installation of the ARV and related improvements as shown on the project plans that is fully functional for its intended purpose.

*Shop Drawing Submittal:* The Contractor shall submit a shop drawing for the combination air release valve, piping, and box/cover for approval prior to procurement.

*Measurement & Payment:* **Refer to Attachment 6**

### **32. INSTALL CURB STOP WITH FLUSHING PIPE**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Section 345, Section 610, Section 631, Detail 270, Detail 310/315, Detail 319/320, Detail 390, and other related sections and details.

*Description:* The Contractor shall furnish and install a curb stop with flushing pipe including a meter box and cover per the details shown on the plans. The installation shall be in accordance with MAG Detail 390, Curb Stop with Flushing Pipe, Type 'B'.

The water meter box and cover shall be:

- a. Traffic rated per MAG STD DET 319 (Box and Cover Number 1324) if the meter box is located within 5 feet of the street pavement edge.
- b. Non-traffic rated per MAG STD DET 320 (Box and Cover Number 2) if the meter box is located more than 5 feet from the street pavement edge.

The flushing pipe shall be 2 inch Type K copper pipe.

The Contractor shall adjust the new water meter box frame and cover to match and be flush with the existing ground surface as shown on the plans and in accordance with MAG Standard Specifications Section 345 and Standard Details 270 and 390 as applicable, and to the lines, grades, and elevations matching the abutting and surrounding surfaces.

The work shall include all materials, equipment, supplies, and labor costs to install the 2 inch tapped plug or cap, 2" bronze curb stop valve, cost iron valve box and cover, 2" copper pipe and bronze fittings, and water meter box and cover (traffic rated if required) adjusted to grade as required, and all other work and materials needed to make for a complete and fully functional installation.

*Measurement and Payment:* **Refer to Attachment 6**

### **33. CAP & ABANDON EXISTING WATER LINE, 6" DIA**

*Specifications:* Maricopa Association of Governments, Uniform Standard Specifications and Details for Public Works Construction, Section 350, Section 601, Section 610, and other related sections and details.

*Description:* Cap and abandon an existing water line, 6" diameter, includes locating the existing water main at the point of abandonment on each end where shown on the plans, cutting or otherwise disconnecting the pipe where needed, and capping or plugging the exposed pipe end or fitting end to completely seal off the pipe that is being abandoned in place. The existing water line material is asbestos cement pipe.

Capping and abandonment of the existing 6" water line cannot occur until the new water line has been installed, tested, disinfected, and placed in operation.

The cost of all labor, equipment, and materials necessary for executing the work; verification of existing pipe type and size at the abandonment location; cutting the pipe; removal and disposal of any obstructions such as thrust blocks; providing and installing caps, plugs, or other fittings as required to enable the pipe section to be removed from service; backfilling the excavation with aggregate base course material, and compacting the backfill material as specified (100% ASTM D698 Standard Proctor Density). The surface of the ABC backfill shall be finished as follows:

- a. Up to the subgrade of the new pavement.
- b. To an elevation 6" lower than the natural ground surface and then covering the ABC with native soil to the surface of the adjacent grade.
- c. Clean-up of the construction area.

All work needed to complete the abandonment of the existing water line on each end should be included in the cost of this work item.

The Contractor shall provide a minimum of 24-hours advance notice to the residents affected by water service outage with an estimated time and duration of the shutdown period. The Contractor shall minimize the time frame needed to complete the work so the length of time the water line is shut down is minimized to the greatest extent possible. This item of work shall be coordinated closely with the City of Globe, Vince Mariscal, Water Facilities Manager, 928-200-3480.

*Measurement & Payment:* **Refer to Attachment 6**

### **34. CAP & ABANDON EXISTING WATER LINE, 2" DIA**

*Specifications:* Maricopa Association of Governments, Uniform Standard Specifications and Details for Public Works Construction, Section 350, Section 601, Section 610, and other related sections and details.

*Description:* Cap and abandon an existing water line, 2" diameter, includes locating the existing water main at the point of abandonment on each end where shown on the plans, cutting or otherwise disconnecting the pipe where needed, and capping or plugging the exposed pipe end or fitting end to completely seal off the pipe that is being abandoned in place. The existing water line is believed to be PVC pipe.

Capping and abandonment of the existing 2" water line cannot occur until the new water line has been installed, tested, disinfected, and placed in operation.

The cost of all labor, equipment, and materials necessary for executing the work; verification of existing pipe type and size at the abandonment location; cutting the pipe; removal and disposal of any obstructions such as thrust blocks; providing and installing caps, plugs, or other fittings as required to enable the pipe section to be removed from service; backfilling the excavation with aggregate base course material, and compacting the backfill material as specified (100% ASTM D698 Standard Proctor Density). The surface of the ABC backfill shall be finished as follows:

- a. Up to the subgrade of the new pavement.
- b. To an elevation 6" lower than the natural ground surface and then covering the ABC with native soil to the surface of the adjacent grade.
- c. Clean-up of the construction area.

All work needed to complete the abandonment of the existing water line on each end should be included in the cost of this work item.

The Contractor shall provide a minimum of 24-hours advance notice to the residents affected by water service outage with an estimated time and duration of the shutdown period. The Contractor shall minimize the time frame needed to complete the work so the length of time the water line is shut down is minimized to the greatest extent possible. This item of work shall be coordinated closely with the City of Globe, Vince Mariscal, Water Facilities Manager, 928-200-3480.

*Measurement & Payment:* **Refer to Attachment 6**

### 35. TRAFFIC CONTROL

*Specifications:* **City of Globe requirements**, Maricopa County Department of Transportation, Arizona Department of Transportation, and the Manual on Uniform Traffic Control Devices specifications and requirements for traffic control and work zone safety.

*Description:* Effective and safe traffic control is critically important for this project. The Contractor shall coordinate closely with City officials throughout the duration of the project to ensure safe passage of pedestrian, bicycle, and vehicular traffic (as may be permitted) within and around the construction zone.

This construction/bid item includes any and all traffic control supervisors, flaggers, barrels, cones, barricades, lights, signage, directional pedestrian routing, signing of detour routes, pilot cars, and development and implementation of an approved traffic control plan. This bid/construction item also includes the routine and daily maintenance of all traffic control devices to safeguard all travelers for the full duration of the project construction, including during nighttime hours.

Traffic control shall meet all requirements of the **City of Globe**, Maricopa County Department of Transportation, the Arizona Department of Transportation, and the Manual on Uniform Traffic Control Devices.

Vehicular traffic passing through the construction zone shall be routed over a uniform durable driving surface at all times with no drop offs adjacent to traffic travel lanes greater than 2" at any time.

At least one traffic lane shall be provided through the construction area with appropriate flagging and traffic control for safe passage of vehicles, pedestrians, and bicyclists through the work zone.

Access to adjacent dwelling units must be maintained to the greatest extent possible at all times unless a minimum of 3 calendar days written notification is given to owners and residents including an estimated length of time for the entire duration of the planned closure, and all closures must be pre-approved by the City. The Contractor shall be responsible for individual notification to property owners and residents within the construction area whenever they are impacted by access restrictions, road closures, and construction activities impacting their residence and property. The Contractor shall construct temporary driveway access ramps of aggregate base course material and maintain the driveway access ramps as long as needed to allow reasonable and continuous access to the properties to the greatest extent possible.

*Traffic Control Plan:* Prior to the start of work, the contractor shall submit a detailed "Traffic Control Plan" to the City for approval. The plan will address and include:

- a. A schedule for shutting down and reopening of streets/roads, site driveways, and/or sidewalk access with planned durations.
- b. Proposed signage indicating any applicable street, driveway, and sidewalk closures and/or detour routes.
- c. Signage and lighting layout and design in compliance with the MUTCD and other standards/specifications.
- d. Overall total length (distance and duration) of street, driveway, and/or sidewalk access closures due to construction activities at any point in time during the overall project schedule.
- e. Construction staging and phasing to limit total length of traffic closures at any time.

*Measurement & Payment:* **Refer to Attachment 6**

**(36) MOBILIZATION; (37) BONDING; (38) TAXES**

*Specifications:* Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, Part 100, Section 109, and other related sections.

*Description:* The work under this item shall consist of preparatory work and operations, including but not limited to, the movement of personnel, equipment, materials, supplies, and incidentals to the project site; the establishment and on-going maintenance of restroom facilities; establishment and on-going maintenance of storage/staging facilities necessary for the prosecution of the work; project site restoration; and for all other work and operations that must be performed and costs incurred prior to beginning work and during the course of construction of the various items of work at the project site. The mobilization work shall also include demobilization, including the movement of personnel, equipment, materials, supplies, tools, and other items from the site following completion of construction activities and restoration and clean-up of the overall project site and the Contractor storage and staging yard.

**Project Site Restoration and Clean-up:** Fine grading of disturbed surfaces; replacing in kind any landscape vegetation (trees, bushes, shrubs, succulents, flowers, etc.) damaged or removed during the construction of the project and related work; spreading new decomposed granite on disturbed surfaces where it existed prior to construction; returning all project areas and surrounding disturbed areas to their original condition (or better), and including reseeding, if necessary.

Trees and shrubbery within the project right of way that conflict with the proposed improvements shall not be removed without prior approval from the City.

Prior to final approval and acceptance of the work, the Contractor shall clean, and repair nearby off-project roadways or facilities used or damaged during the course of construction for this project. The Contractor shall clean up and re-open individual project areas as soon as practical following construction.

**Contractor Storage and Staging Yard:** The Contractor is solely responsible for securing the location for a storage and staging yard for construction activities. The Contractor shall obtain approval of the property owner(s) and the City when using vacant private property to park and service equipment, and/or to store materials for use on this project.

The following conditions apply:

- a. The **CITY OF GLOBE** does not allow storage and staging areas on residential properties.
- b. The Contractor shall notify adjacent property owners/residents of this proposed use.
- c. Any use of vacant property adjacent to or near the project for parking or servicing equipment and/or storing of material will require the Contractor to obtain written approval from the property owner. This approval shall contain any requirements which are a condition of this approval.
- d. A copy of the property owner's approval shall be submitted along with the Contractor's request to the City for approval for the use of the storage, staging, and marshaling yard in connection with the project. An appropriate distance from adjacent properties will be set by the City on a case-by-case basis based on the size and type of equipment to be used on the project.
- e. The yard shall be fenced and adequately dust-proofed in a manner such as to preclude dirt and dust blowing off the site and tracking of mud onto paved or unpaved streets.
- f. Work in the yard shall be scheduled so as to comply with the City's Noise Ordinance and other applicable ordinances, rules, and regulations pertaining to construction activities.

- g. Equipment, materials, supplies, etc., shall be located so as to minimize impact on adjacent properties. A sound barrier may be required if deemed necessary by the City.
- h. The Contractor shall clean up the property promptly upon completion of use and shall provide a signed property release as a condition of final acceptance.

The Contractor's request for approval of the storage and staging yard shall specify in detail how the Contractor proposes to comply with requirements set forth above.

Storage and staging areas shall be provided with security fencing and a scrubber pad to keep from tracking dirt/mud onto street surfaces. The Contractor shall provide frequent housekeeping cleanup and complete restoration of the site to a condition as good if not better than found prior to construction. Storage and staging yard clean-up shall include fine grading of disturbed surfaces; spreading new decomposed granite on disturbed surfaces where it existed prior to construction; returning storage/staging areas and surrounding disturbed areas to their original condition (or better), and including reseeding, if necessary.

**Dust and Pollution Control:** This work item includes all costs associated with routine street sweeping as necessary to eliminate tracked dirt, mud, and debris from the project sites onto paved surfaces via construction vehicle traffic and domestic traffic as a storm water management, pollution, and sediment control mitigation measure. Sweeping and dust control should be monitored and performed daily as needed and as may be directed by the City Inspector. Dust control measures (including spraying water and/or dust palliatives on disturbed ground surfaces) are to be employed as needed to minimize fugitive dust from project activities.

*Measurement & Payment:* **Refer to Attachment 6**

## **INCIDENTAL ITEMS**

Any and all items of work to be provided by the Contractor that are not specifically listed in the Bid Schedule will NOT be measured or paid for separately as they are considered “incidental” and “subsidiary” to the overall project. The cost associated with each incidental item of work shall be applied to its associated bid schedule line item or across all applicable bid schedule line items as most appropriate in the judgment of the Contractor.

The following is a list of some, but not all, construction items that are considered “incidental” to the construction project that shall be provided, but will not be paid for separately as a bid item:

- **Water Used by the Contractor for Construction Purposes**

The **CITY OF GLOBE** will provide water to the Contractor as needed for construction activities at no cost to the project. The City will designate a water hydrant as the source of water for the project. Contact Vince Mariscal, Water Facilities Manager, at 928-200-3480 to coordinate this activity.

- **Construction Surveying and Staking for all Improvements**

The total cost for all labor, materials, and equipment associated with construction surveying and staking including, but not limited to, elevations and the staking of the improvements, fixtures, and appurtenances, utilities, removals, new paving, signage, striping/markings, and other associated improvements for construction purposes. Any survey monuments that are disturbed during construction activities shall be replaced by a registered land surveyor at the Contractor’s expense.

- **Quality Control Testing**

The Contractor is responsible for quality control testing. The Contractor shall provide the testing and inspection services required by the Contract Documents and other such test necessary to assure the quality of the work.

Contractor shall provide all pre-construction, during-construction, and post-construction testing required by the MAG standards, ADOT testing guidelines, and the project’s contract documents.

When not specifically called out in the MAG Standard Specifications, testing frequency minimums are governed by the Arizona Department of Transportation Materials Quality Assurance Program manual, Appendix C, Sampling Guide Schedule, latest edition (June 19, 2019).

The Contractor shall provide all test results to the City, the Engineer of Record, and the City Inspector within 48 hours of completion of the testing.

Be advised the City may provide quality assurance testing as needed to verify the quality of the work and to satisfy themselves that the work has been constructed in compliance with the plans, specifications, and bid/contract documents.

- **Record Drawings**

Accurate red-lined “as-built” drawings of all pavements, street reconstruction, sidewalks, driveway construction, installed and constructed water lines, fixtures (including valves, meter boxes, and fittings), appurtenances, signs, markings, utilities, services, other improvements, and any encountered existing utility, whether shown on the plans or not, shall be provided to the City and the Engineer of Record upon completion of the construction.



The location of all installed features shall be dimensioned, with the location based on identifiable surface features. Two weeks prior to final contract settlement, full record (as-built) drawings and data will be required.

▪ **Other Items**

There may be other items of work shown and called for on the plans. Some of these items may specifically be called out as a “No Pay Item” or “Incidental”.

*End of Technical Specifications Section*

