

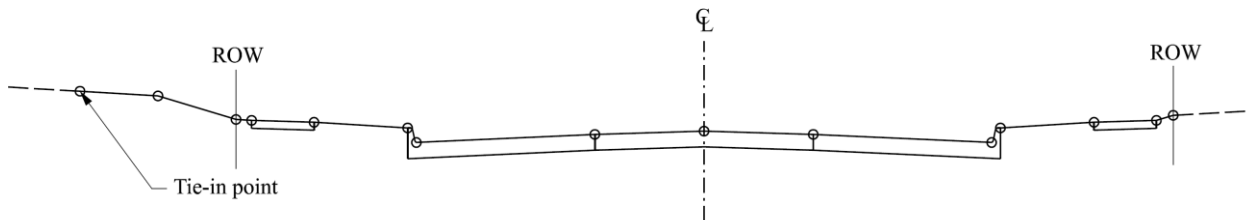
# Detailed Plans for Construction of Public Improvements

## A. Public Improvement Plan Sheet Requirements

Detailed reproducible plans, certified by a licensed professional engineer in the State of Iowa, should be filed with the Jurisdiction for all work involved in Public Improvement Contracts and/or agreements.

When providing Computer Aided Design (CAD) files, ensure they contain all break lines used to develop a 3-D file showing coordinates (x,y,z) needed to accurately represent the paper design plans. Break lines should be shown according to the cross-section below. In addition, break lines within the 3-D file should indicate all locations within the project limits where there is a change of slope.

The 3-D file should be available to potential bidders at the same time that the paper plans are available to the bidders and filed with the Contracting Authority. A disclaimer statement should also be included that indicates the paper copy on file with the agency is the official copy and the contractors are responsible for constructing the project to those plans.



Detailed plans should comply with the following general requirements.

- 1. Plan Organization:** It is important, if for no other reason than uniformity for contractors, that the plan sheets are arranged consistently from one plan set to another. In general, the sheets should be arranged in the following order, which is consistent with Iowa DOT plans, where possible.

| Page Number   | Description   |
|---|---|
| A.01  | Title sheet   |
| A.02  | Legend sheet  |
| A.03, A.04, ...   | Map sheets (if needed)  |
| A.0*, ...<br>(*whatever number follows the previous A sheets) | Revision sheets (if needed)   |
| B.01, B.02, ...   | Typical cross-sections  |
| C.01, C.02, ...   | Estimate of quantities, general information, and erosion control and SWPPP sheets |
| D.01, D.02, ...   | Plan and profile sheets - mainline  |
| E.01, E.02, ...   | Plan and profile sheets - side road and channel change                            |
| F.01, F.02, ...   | Plan and profile sheets - detour  |
| G.01, G.02, ...   | Reference ties and bench marks  |
| H.01, H.02, ...   | Right-of-way sheets (urban)   |
| J.01, J.02, ...   | Staging and traffic control sheets  |
| K.01, K.02, ...   | Interchange geometric staking, jointing, and edge profiles                        |
| L.01, L.02, ...   | Intersection geometric staking, jointing, and edge profiles                       |
| M.01, M.02, ...   | Storm sewer sheets  |
| MIT.1, MIT.2, ...   | Wetland sheets  |
| MSA.1, MSA.2, ...   | Sanitary sewer sheets   |
| MWM.1, MWM.2, ...   | Water main sheets   |
| N.01, N.02, ...   | Traffic signal, permanent pavement markings, and permanent signage sheets         |
| P.01, P.02, ...   | Lighting layout sheets  |
| Q.01, Q.02, ...   | Soils and soils stabilities sheets  |
| R.01, R.02, ...   | Removal sheets  |
| S.01, S.02, ...   | Sidewalk sheets   |
| T.01, T.02, ...   | Tabulation of earthwork quantities  |
| U.01, U.02, ...   | 500 series, modified standards, and special details                               |
| V.01, V.02, ...   | Bridge and culvert situation plans  |
| W.01, W.02, ...   | Cross-sections - mainline   |
| X.01, X.02, ...   | Cross-sections - side roads and channel change                                    |
| Y.01, Y.02, ...   | Cross sections - ramps and loops  |
| Z.01, Z.02, ...   | Cross sections - borrows  |

All of the above mentioned sheets will not necessarily occur in every plan, but those that do should remain in the same relative order and use the letter designation listed above.

2. **Plan Sheet Material:** Plans filed with the Jurisdiction should be on media designated by the Jurisdiction.
3. **Plan Sheet Size:** Check with the Jurisdiction for appropriate plan sheet sizes.
4. **Title Sheet:** The following information should be shown when applicable.
  - a. Project name title and location.
  - b. Jurisdiction's name.
  - c. Small scale vicinity map showing project location.

- d. Index (a complete sheet index is to be shown).
- e. File number/project number (to be filled in by the Jurisdiction).
- f. Engineer's firm name and address.
- g. Signature line for Jurisdiction Authority.

Sample:

REVIEWED:

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| Jurisdiction Authority | Title | Date |
|------------------------|-------|------|
|------------------------|-------|------|

- h. Sheet number and total number of sheets.
- i. Project Engineer's certification, registration number, and date certified. All official plans should be certified according to the requirements set forth by the Iowa Engineering and Land Surveying Examining Board.

A professional engineer or other licensed professional must certify every sheet in a plan. This is done by indicating on the signature block which sheet numbers are covered by the licensee's seal. The engineer's signature and date must be handwritten in ink that contrasts in color with the plan's print.

Parts of the plan that are designed under the direction of other licensed professionals should have separate signature blocks that related to their part of the project. These signature blocks should be placed on the first plan sheet that is covered by their seal.

Each signature block should list the sheet numbers that are covered by the licensed professional's seal. Plan information prepared under the direction of separate licensees should not be placed on the same sheet. In other words, two licensed professionals should not be responsible for the same plan sheet.

In addition to the separate signature blocks, an index of seals should be tabulated on the title sheet if parts of the plan are being certified by other licensed professionals. The tabulation would identify the sheet number where any other signature blocks are located, as well as the licensee's name and area of design.

- j. Note that projects should be constructed according to the SUDAS Standard Specifications.
- k. Listing of standards (if applicable).
- l. Owner/developer.
- m. Legend (see Figure 1D-1.01 for sample legend).

The Jurisdictional Engineer may require different legends depending on the designated design software package. The Project Engineer should ensure that the completed design plan complies with the Jurisdiction's requirements for symbols and the design information to be placed on specific layers within the software program.

Figure 1D-1.01: Sample Legend

|                                | Existing | Proposed |                                   | Existing | Proposed |
|--------------------------------|----------|----------|-----------------------------------|----------|----------|
| Contour w/ Elevation           |          |          | Telephone Junction Box            |          |          |
| Board Fence                    |          |          | Gas Valve                         |          |          |
| Chain Link Fence               |          |          | Cable TV Junction Box             |          |          |
| Barbed Wire Fence              |          |          | Fence Post or Guard Post          |          |          |
| Woven Fence                    |          |          | Underground Storage Tank          |          |          |
| Barbed Wire and Woven Fence    |          |          | Above Ground Storage Tank         |          |          |
| Tree Line                      |          |          | Satellite Dish                    |          |          |
| Tree Stump                     |          |          | Interstate Highway Symbol         |          |          |
| Deciduous Tree                 |          |          | U.S. Highway Symbol               |          |          |
| Coniferous Tree                |          |          | State Highway Symbol              |          |          |
| Tree To Be Removed             |          |          | County Road Highway Symbol        |          |          |
| Shrub                          |          |          | Benchmark                         |          |          |
| Soil Boring                    |          |          | Concrete Monument                 |          |          |
| Underground Telephone          |          |          | Terrace                           |          |          |
| Overhead Telephone             |          |          | Earth Dam or Dike                 |          |          |
| Fiber Optic Telephone          |          |          | Edge of Water                     |          |          |
| Underground Electric           |          |          | Existing Drainage Channel         |          |          |
| Overhead Electric              |          |          | Well                              |          |          |
| Underground Television         |          |          | Traffic Signal Pedestal           |          |          |
| Overhead Television            |          |          | Traffic Signal with Mast Arm      |          |          |
| Gas Main with Size             |          |          | Traffic Signal Cabinet Controller |          |          |
| High Pressure Gas Main w/ Size |          |          | Flared End Section                |          |          |
| Water Main with Size           |          |          | Guy Anchor                        |          |          |
| Sanitary Sewer with Size       |          |          | Mailbox                           |          |          |
| Septic Tank                    |          |          | Speed Limit Sign                  |          |          |
| Storm Sewer with Size          |          |          | Mile Marker Post                  |          |          |
| Manhole                        |          |          | Electric Box                      |          |          |
| Storm Sewer Intake             |          |          | Rail Road Signal Control Box      |          |          |
| Beehive Intake                 |          |          | Top of Embankment                 |          |          |
| Fire Hydrant                   |          |          | Drainage Course                   |          |          |
| Water Main Valve               |          |          | Rip Rap                           |          |          |
| Water Service Valve            |          |          | Gabion                            |          |          |
| Utility Pole                   |          |          | Concrete Surface                  |          |          |
| Street Light                   |          |          | Granular Surface                  |          |          |
| Traffic Sign                   |          |          | Concrete Wall                     |          |          |
| Traffic Signal Cable           |          |          | Timber Wall                       |          |          |
|                                |          |          | Railroad Track                    |          |          |

5. **Title Block:** A title block listing the following information.
  - a. The name of the project.
  - b. Owner and Project Engineer along with sheet title (including address and phone number).
  - c. Date.
  - d. Sheet number and total number of sheets.
  - e. Space that denotes revisions.
  - f. Place in lower right corner or right edge of each sheet so it can be read from the bottom or right side. Check with the Jurisdiction involved for correct location.
  - g. Insert page numbers in the lower right-hand corner.
  - h. All persons designing, detailing, and checking plans should legibly place their names in the title block on the title sheet in a space provided for this purpose.
  
6. **Plan Scale:**      Vertical scale: 1" = 5'  
                              Minimum horizontal scale: 1" = 50'

or 1" = 20' or larger if details for sanitary sewer, storm sewer, paving, and/or sidewalk are on same plans.

Changes to above scale to be approved by the Jurisdictional Engineer.

A bar scale is required on each drawing.

Prepare drawings and lettering of such a scale as to be reproducible to 1/2 scale.

## **B. General Information to be Shown on the Construction Plans**

1. Beginning (B.O.P.) and ending (E.O.P.) of project.
2. Street names.
3. Right-of-way widths and legal descriptions as required.
4. Legend as part of title sheet requirements.
5. Adequate witnesses and horizontal and vertical controls so surveyor can lay out project plans. Show all controls at actual locations on the plans. Benchmarks and ties.
6. Lot numbers, subdivision names, and project numbers, as applicable.
7. Lot dimensions (along right-of-way or easements).
8. North arrow up or to the right, when applicable.
9. Existing and proposed utilities, including type, size, and location.

10. Proposed improvement locations, dimensions, and stations.
11. Station Bar (all improvements shall be referenced to same stationing). Stationing from left to right or bottom to top.
12. Existing trees, fences, walks, drainage structures, ditches, pavements, buildings, and other obstacles or improvements that could reasonably affect the work area.
13. Survey line or reference line shown on plan view with stations increasing from west to east or south to north, when practical.
14. Quantity estimate - separate sanitary sewer, storm sewer, and paving quantities shown if they are detailed on same plan. Include estimate reference information listing any special requirements for each bid item.
15. Easements, both temporary and permanent.
16. Cross-sections - for subdivisions, existing and proposed finished contours may also be used.
17. Special details and special notes when required.
18. Plan view and profile. Profile should line up with plan stations whenever possible.
19. Plans for development work should contain a general note to construct the project according to the SUDAS Standard Specifications.
20. Symbols and abbreviations used on plans if different from those shown in Standard Specifications.
21. Make reference to soils report.
22. Traffic control signs and markings will follow the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). When it is required by the Jurisdiction to maintain traffic during construction, show stage construction and special requirements on the plans. If required, show signing, street closures, and/or detours on traffic control sheet.
23. Permanent signing.
24. Stormwater pollution prevention plan; temporary and permanent erosion control measures proposed.
25. Other information deemed necessary by the Engineer certifying the plans.

## **C. Detailed Sanitary and Storm Sewer Plans**

1. Stationing, location, and type of all manholes, intakes, or other structures.
  - a. Show structure designation on the plans.
  - b. Show location on the plans and reference survey line or centerline.
  - c. Comply with the SUDAS Standard Specifications for the type of structure required.
2. Details should be shown for all structures that are not standard in the SUDAS Standard Specifications.
3. Plan and profiles of all sewer lines and ground line above sewer.
4. Size, length, and grade of sewers in profile.
5. Type of pipe materials and strengths, if different from SUDAS Standard Specifications, or if specific materials are required.
6. Invert elevations at all intakes, manholes, and other structures in profile.
7. Location, size, and type of all sewer stubs, wyes, or tees. Reference stub locations to lot corners. When risers are to be installed, show riser location and size.
8. Estimates should include all length of pipe stubbed out from structures.
9. Rim elevations of manholes.
10. Ensure all castings comply with the Jurisdictional requirements on sewers to be maintained by the Jurisdiction.
11. Manholes should be identified with a numbering system on plan and profile. Structure sizes and casting sizes to be included by schedule or note on the plans.
12. Class of pipe bedding.
13. Existing utilities or other underground features that could reasonably affect the construction and maintenance of the sewer.
14. Storm sewer design calculations need to be submitted showing drainage area, flow patterns, and flows for design storms. (Hydraulic grade line data).

## **D. Detailed Drainage Ditch and Drainageway Plans**

1. Stationing and flow line elevation at beginning and end of ditch construction.
2. Plan and profile of drainage ditch.
3. Size, type, length, and grade of ditch and alignment.
4. Typical sections showing ditch dimensions, backslopes, and invert and slope treatment.
5. Invert elevations at all structures.
6. All special structures detailed on plans.
7. Criteria for hydraulic design data and elevations.
8. Cross-sections and contour map showing existing ground and finished grade.
9. Permanent and temporary erosion controls.

## **E. Detailed Paving Plans**

1. Minimum 100 feet station intervals and profile elevations at a minimum of 50 feet intervals on tangents and 25 feet intervals at curves. Show station of the centerline of all intersecting streets.
2. Show street profiles and existing ground elevations in the profile view and the curb line in the plan view. The profile should show top of curb tangent grades, vertical curve data, and break grade data.
3. Pavement width (back-to-back).
4. All radii at returns (may be specified in general note if all radii are same).
5. Expansion joint locations, if applicable, on plan view.
6. Horizontal curve data should include centerline PC, PT, PI, delta angle, arc length, degree of curve, tangent length, and radius.
7. Typical cross-section showing referenced profile, subgrade treatment, pavement thickness, jointing, sidewalk, parking slope, foreslopes, backslopes, cross-slopes, any break in ground line or grade, right-of-way line, and dimension of the location of the roadway with the right-of-way line.
8. Vertical curve data should include station and elevation of PI, PC, PT, K-value, low point, and length of curve. Elevations should be given on curves at 25 foot spacings.
9. Break grade - station and elevation.
10. Intersection details showing drainage and typical joint patterns, if applicable.
11. Location and type of standard sidewalk ramps.
12. Special subgrade or pavement treatment.



13. Location of existing pavement, including elevation and grades.

## **F. Grading Plans/Erosion Control Plans**

1. Survey control data.
2. Cross-sections and/or existing and proposed contours, as required.
3. Bar scale (north arrow).
4. Storm sewer/detention appurtenances.
5. Vicinity map showing haul routes with dates, if any, and borrow areas.
6. Total site area (disturbed area) with construction staging to minimize the area disturbed at any one time.
7. Stationing as it relates to paving plans, sewer, or drainageway plans.
8. Geometric dimensions.
9. Soils data and soil boring location when applicable.
10. Erosion control information and location of any special erosion control measures such as silt fences, silt traps and basins, rip rap or gabions, vegetation and trees to remain, stockpile areas, terraces, contour furrows, temporary diversions, grading phases, etc. See Chapter 7 for a detailed listing of the required contents of Iowa DNR Stormwater Pollution Prevention Plan. Also include the name and 24 hour telephone number of the individual responsible for maintaining erosion control measures.
11. Top soil stockpile and stabilization measures and vegetation areas to be preserved.

## **G. Water Main Plans**

The plans for water mains and appurtenances should show all appropriate physical features adjacent to the proposed water mains along with horizontal and vertical controls and hydrant coverage. Other utilities such as sanitary and storm sewers, manholes, etc. should be shown on the plans with horizontal and vertical separation distances. Design details for other utilities that do not affect the water main will not be shown on water main plans.

1. Stationing, location, and type of all fittings, valves, and fire hydrants.
2. Details should be shown for all items that are not standard in the SUDAS Standard Specifications.
3. Plan and profiles of all water lines and the ground line above the water main.
4. Size, length, and grade of water mains in profile.
5. Type of pipe materials and strengths if different from the SUDAS Standard Specifications or if specific materials and fire hydrants are required.

6. Elevations at all structures in profile.
7. Location, size, and type of all water service stubs. Stub locations should be referenced to lot corners.
8. Estimates should include length of pipe stubbed out from valves.
9. Fire hydrants should be identified with numbering system on plan and profile.
10. Class of pipe bedding if different than the SUDAS Standard Specifications.
11. Existing utilities or other underground features that could reasonably affect the construction and maintenance of the water main.

## **H. Railroad Crossings**

If a railroad crossing is within the project limits, the Project Engineer should notify the railroad with a copy of the plans and specifications a minimum of 4 months prior to the project letting. If the project limits contain construction of railroad facilities that will be performed by the railroad's forces, the Project Engineer will state this in the contract documents. The contract documents will state the Contractor's limits of responsibility and allow sufficient time in the schedule for the work to be accomplished by the railroad; and that the Contractor must coordinate its activities with the railroad. The Contractor must be made aware of any permit requirements imposed by the railroad.

The Project Engineer should notify the railroad of the following, immediately after awarding the contract:

1. Federal Railroad Administration (FRA) crossing number\*
2. LPA project number
3. Contractor's name, mailing information, and phone number
4. Contractor's contact person
5. Anticipated start date
6. Number of working days
7. Number of days it is believed the Contractor will impact the railroad.
8. Date of preconstruction meeting

\* For help in identifying the FRA number, see Iowa DOT Office of Rail Transportation's [Highway-Railroad Crossing Identifiers](#) webpage.

## I. Items to be Specified on Plans or in Contract Documents

The SUDAS Standard Specifications specify many items and methods that can be used for the construction of improvements. Following is a list of items in the SUDAS Standard Specifications that are to be noted on the construction drawings and/or in the special provisions whenever there is to be a deviation from the standard requirements of the specifications. This information may include specifying pipe sizes and materials, who is responsible for providing compaction testing, as well as many others.

The Project Engineer should review the following list and the SUDAS Standard Specifications to make sure all items that are necessary to construct the project are specified on the plans and/or in the special provisions. Please note - this list is not all-inclusive.

### Section 2010 - Earthwork, Subgrade, and Subbase

|                         |  |
|-------------------------|--|
| 2010, 1.08 D, 1, a      | Specify whenever the depth of cut for stripping and salvaging topsoil is other than 8 inches.  |
| 2010, 1.08, E           | Specify the class of excavation as Class 10, Class 12, or Class 13.  |
| 2010, 1.08, E, 1, b, 2) | When the truck count method is to be used for measuring Class 10 or Class 13 excavation, specify if the shrinkage factor is other than 1.35.                             |
| 2010, 1.08, E, 4        | Specify whenever stripping, salvaging, and spreading 8 inches of topsoil is NOT a pay item and is included in the payment of Class 10, Class 12, or Class 13 Excavation. |
| 2010, 1.08, F, 1        | Specify whenever below grade excavation (core out) will NOT be measured and paid as extra work.  |
| 2010, 1.08, J, 3        | Specify whenever removal of pipe and conduits will include capping.  |
| 2010, 1.08, L           | Specify when the Contractor is responsible for compaction testing.   |
| 2010, 2.01              | Specify use of compost-amended or off-site topsoil if on-site topsoil is NOT to be used.   |
| 2010, 2.02, C, 3        | Specify the limits of Class 13 excavation.   |
| 2010, 2.04, C, 5        | Specify whenever Type 2 geogrid is to be used in lieu of Type 1.   |
| 2010, 3.03, F, 1        | Specify the desired depth for removal of unsuitable or unstable materials.   |
| 2010, 3.04, D           | Specify whenever Type A compaction is to be used in lieu of compaction with moisture and density control.  |
| 2010, 3.05              | Specify whenever and where unsuitable soils will be allowed in the right-of-way.   |
| 2010, 3.06, A           | Specify if granular stabilization materials or subgrade treatment is to be used in lieu of select subgrade materials.  |

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                  |   |
|------------------|---|
| 2010, 3.07       | Specify the type of subgrade treatment (lime, cement, fly ash, asphalt, geogrid, or geotextiles) to be used.        |
| 2010, 3.07, A, 1 | Specify the depth and rate of incorporation of the subgrade treatment material (lime, cement, fly ash, or asphalt). |
| 2010, 3.07, A, 2 | Specify the areas requiring subgrade treatment.   |
| 2010, 3.08, B    | Specify the type and depth of subbase.  |
| 2010, 3.09, A    | Specify when the Contractor is responsible for compaction testing.  |
| Figure 2010.102  | Specify whenever Type A compaction is desired in lieu of compaction with moisture and density control.              |

**Section 3010 - Trench Excavation and Backfill**

|                     |   |
|---------------------|---|
| 3010, 1.08, F       | Specify when the Contractor is responsible for trench compaction testing.   |
| 3010, 2.03, B       | Specify whenever Class V material can be used as other than topsoil.  |
| 3010, 2.06, D       | Specify if foamed cellular concrete may be substituted for flowable mortar.   |
| 3010, 3.05, A, 6    | Specify if concrete, flowable mortar, CLSM, or foamed cellular concrete is to be used in lieu of other bedding materials. |
| 3010, 3.05, B, 1, a | Specify if granular bedding material is to be used for pressure pipes.  |
| Figure 3010.101     | Specify when over-excavation and foundation stone will be required.   |
| Figure 3010.105     | Specify when and where to install a waterstop.  |

**Section 3020 - Trenchless Construction**

|                             |   |
|-----------------------------|---|
| 3020, 2.02, A               | Specify the wall thickness of casing pipe. See Section 9C-1.  |
| 3020, 2.02, C               | Specify inside diameter of casing pipe.   |
| 3020, 2.05, B               | Specify where special fill materials will be used.  |
| 3020, 3.04, A, 2, b         | Specify the installation deviation tolerances of casing pipe if different than those included.                                      |
| 3020, 3.04, A, 2, b, 2), b) | Specify the minimum depth of pressurized pipe.  |
| 3020, 3.04, D               | Specify when to fill the annular space between the carrier and casing pipe with flowable mortar, CLSM, or foamed cellular concrete. |

**I. Items to be Specified on Plans or in Contract Documents (Continued)****Section 4010 - Sanitary Sewers**

- 4010, 1.08, E Specify the distance beyond the right-of-way line that the sanitary sewer service stub is to extend, if other than 10 feet.
- 4010, 1.08, H, 3 For removal of sanitary sewer, specify if capping is required.
- 4010, 2.01, A, 1 For solid wall PVC pipe, 8 inch to 15 inch, specify if SDR 35 may be used.
- 4010, 2.01, C, 2, a For corrugated PVC, 8 inch to 10 inch, specify if a minimum pipe stiffness of 46 psi may be used.
- 4010, 2.02, A Specify when joint restraints for ductile iron pipe force mains are required.
- 4010, 2.02, B Specify when restrained joints are required for PVC force mains.
- 4010, 2.02, E, 2 Specify the color of plastic post used for tracer wire station.
- 4010, 3.02, B, 7 Specify the location for installation of wye or tee service fitting.
- 4010, 3.05, B, 2 Specify the location for any installation of a tracer wire station in addition to each end of the force main.
- 4010, 3.06, A Specify the locations for installation of sanitary sewer service stub.
- 4010, 3.06, C Specify the distance beyond the right-of-way line that the sanitary sewer service stub is to extend, if other than 10 feet.
- 4010, 3.06, C, 3 Specify the depth of sanitary sewer service stub at its termination, if other than 10 to 12 feet.
- 4010, 3.06, C, 5 Specify method of marking the end of the sanitary sewer service line.
- 4010, 3.08, B, 2 Specify when to fill an abandoned sanitary sewer with flowable mortar, foamed cellular concrete, or CLSM.
- 4010, 3.10 Specify where to provide sanitary sewer cleanouts.

**Section 4020 - Storm Sewers**

- 4020, 1.08, D, 3 Specify if capping is required for removal of storm sewer.
- 4020, 2.01, A, 3 Specify when to use a rubber O-ring or profile gasket in lieu of a tongue and groove joint wrapped with engineering fabric.
- 4020, 2.01, B, 3 Specify when to use a rubber O-ring or profile gasket in lieu of a tongue and groove joint wrapped with engineering fabric.

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                     |   |
|---------------------|---|
| 4020, 2.01, C, 3    | Specify when to use a rubber O-ring or profile gasket in lieu of a tongue and groove joint wrapped with engineering fabric. |
| 4020, 2.01, G, 1, d | Specify gage of corrugated metal pipe, if other than Iowa DOT Standard Road Plan DR-104.                                    |
| 4020, 2.01, I, 2    | Specify gage of coated corrugated metal pipe, if other than Iowa DOT Standard Road Plan DR-104.                             |
| 4020, 3.04, A       | Specify any special linear trench drain installation requirements.  |
| 4020, 3.05, B, 2    | Specify the use of a rubber O-ring or profile gasket.   |
| 4020, 3.06          | Specify where to install pipe aprons, apron footings, and apron guards.   |
| 4020, 3.09, B, 2    | Specify when to fill a line to be abandoned with flowable mortar, foamed cellular concrete, or CLSM.                        |

**Section 4030 - Pipe Culverts**

|                  |  |
|------------------|--|
| 4030, 2.01, C, 5 | Specify gage of the structural plate culverts, if other than Iowa DOT Standard Road Plan DR-104. |
| 4030, 3.02, A    | Specify the locations to install pipe aprons.  |
| 4030, 3.02, B    | Specify the locations to install apron footings.   |
| 4030, 3.02, E    | Specify the locations to install apron guards.   |
| Figure 4030.225  | Specify when to extend the bottom cross bar through the apron.                                   |

**Section 4040 - Subdrains and Footing Drains**

|                  |   |
|------------------|---|
| 4040, 1.08, A, 3 | Specify the use of engineering fabric.  |
| 4040, 1.08, E    | Specify the distance beyond the right-of-way that the storm sewer service stub is to extend, if other than 10 feet.   |
| 4040, 3.01, A, 1 | Excavate trench and provide pipe bedding and backfill as shown on the figures. Install engineering fabric if specified in the contract documents.   |
| 4040, 3.02, B    | Specify the use of engineering fabric.  |
| 4040, 3.03, A    | Specify the locations to install footing drain service stubs.   |
| 4040, 3.03, C    | Specify the distance beyond the right-of-way that the footing drain service stub is to extend, if other than 10 feet.   |
| Figure 4040.231  | For Type 1 subdrains, specify Case A, B, or C. For Type 2 subdrains, specify Case D or E and the pipe diameter. When using Case A or Case D, specify the distance from back of curb. For both types, specify when engineering fabric is to be used. |
| Figure 4040.232  | Specify the type of subdrain cleanout to be used.   |

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|   |  |
|---|--|
| Figure 4040.233                           | Specify when to use a CMP outlet.  |
| <b>Section 4050 - Pipe Rehabilitation</b> |  |
| 4050, 1.07, B                             | Specify if water will not be provided for cleaning and installation of cured-in-place pipe by the Jurisdiction at no cost.   |
| 4050, 1.08                                | Specify if bypass pumping is not included in the measurement and payment of other bid items. <i>Applies to C, 1, c; D, 3; E, 1, c; E, 2, c; F, 1, c; F, 2, c; F, 3, c; and F, 4, c.</i> {Note - 1.08, G is the bid item for bypass pumping}. |
| 4050, 1.08, A, 1, c                       | Specify if unit price will include disposal and associated costs for all debris removed from sewer.  |
| 4050, 1.08, E, 2, a                       | Specify the length of service pipe to line.  |
| 4050, 2.01, C, 2                          | Specify if the CIPP structural requirements are not fully deteriorated conditions.   |
| 4050, 2.01, Table 4050.01                 | Specify the ovality reduction factor and height of soil above pipe.  |
| 4050, 2.02, B                             | Specify the CIPP point repair liner length.  |
| 4050, 2.02, C                             | Specify if the ovality is a value other than 2%.   |
| 4050, 2.03, A, 1                          | Specify the distance the tube should extend from the sewer main into the service.  |
| 4050, 2.03, B, 2                          | Specify the service liner length.  |
| 4050, 2.03, E, 1                          | Specify if the cured-in-place service liner should be designed following different assumptions than those described in Table 4050.02.  |
| 4050, 2.03, Table 4050.02                 | Specify the depth of cover for each service repair location.   |
| 4050, 2.04, C                             | Specify when to provide a root deterrent chemical to control root regrowth.  |
| 4050, 2.07, B                             | Specify the materials to use for pipe replacement.   |
| 4050, 3.01, A, 6                          | Specify if the Contractor is to pay for disposal fees.   |
| 4050, 3.05, B, 1                          | Specify the length of the CIPP service repair.   |
| 4050, 3.06, B, 2                          | Specify if the length of the service line grouting plug should be a length other than 18 inches.   |
| 4050, 3.07, C, 1                          | Specify the materials to use for the replacement pipe.   |

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

**Section 4060 - Cleaning, Inspection, and Testing of Sewers**

- 4060, 2.01, B, 3 Specify the type of recording media that will be used to record the inspection.
- 4060, 3.03, A, 1 Specify whenever video inspection of storm sewers is not desired.

**Section 5010 - Pipe and Fittings**

- 5010, 1.08, C Specify whether measurement of fittings will be made by count or by weight.
- 5010, 2.01, A, 1, b Specify the minimum wall thickness for PVC pipe sizes over 24 inches.
- 5010, 2.01, A, 2 Specify joint type for PVC pipe if other than push-on.
- 5010, 2.01, B, 1, b Specify the minimum wall thickness for DIP sizes over 24 inches.
- 5010, 2.01, B, 4 Specify joint type for DIP if other than push-on.
- 5010, 2.04, C Specify when thrust blocks will be used for pipe sizes greater than 16 inches in diameter.
- 5010, 2.07, B Specify the materials to use for water service pipe and appurtenances.
- 5010, 3.01, A, 3 Specify the lines and grades to install pipe with fittings.
- 5010, 3.01, A, 8 For pipes larger than 16 inches, specify when concrete thrust blocks are required in addition to restrained joints.
- 5010, 3.06, E Specify the locations to install ground rods if other than adjacent to connections to existing piping.
- 5010, 3.07, B Specify where to construct utility line supports.
- 5010, 3.08 Specify when the change of piping material is to be on the inside of the structure wall.
- Figure 5010.101 Specify when to use the alternate method of thrust blocks at dead ends.

**Section 5020 - Valves, Fire Hydrants, and Appurtenances**

- 5020, 1.08, I, 3 Specify if the fire hydrant assembly is to be delivered to the Contracting Authority.
- 5020, 1.08, J, 3 Specify if the valve is to be delivered to the Contracting Authority.
- 5020, 1.08, K, 3 Specify if the valve box is to be delivered to the Contracting Authority.
- 5020, 2.01, A, 2 Specify whenever the opening direction for valves is clockwise.



**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                  |   |
|------------------|---|
| 5020, 2.01, D, 7 | Specify the locations to use tapping valve assemblies.  |
| 5020, 2.02, B    | Specify allowable manufacturer(s) of fire hydrant assemblies.   |
| 5020, 2.02, C, 5 | Specify whenever the opening direction for fire hydrant assemblies is clockwise.  |
| 5020, 2.02, C, 6 | For fire hydrant assemblies, specify the operating nut, pumper nozzle, nozzle threads, and main valve nominal opening sizes.    |
| 5020, 2.03, A    | Specify the type of flushing device (blowoff) to be used.   |
| 5020, 2.03, B, 2 | Specify the allowable manufacturer(s) for valve boxes.  |
| 5020, 3.02       | Specify where to install and how to construct flushing device (blowoff).  |
| 5020, 3.04, D    | Specify if exterior of a new fire hydrant barrel section will be painted a color other than matching the existing fire hydrant. |

**Section 6010 - Structures for Sanitary and Storm Sewers**

|                     |   |
|---------------------|---|
| 6010, 2.05, B, 2, b | Specify the use of engineering fabric.  |
| 6010, 2.06, B       | Specify when to use a concentric cone on sanitary sewer manholes.   |
| 6010, 2.11, B, 1    | Specify if sanitary sewer manhole exterior is to be coated.   |
| 6010, 2.11, B, 2    | Specify whenever sanitary sewer manhole lining is required.   |
| 6010, 2.13, A       | Specify if steps are to be provided in manholes or intakes.   |
| 6010, 3.01, D       | Specify if intake lids are NOT to be set to match the longitudinal slope of the adjacent street.  |
| 6010, 3.01, J       | Specify the type of casting to use for manholes and intakes, except for intakes that have a specific casting type identified on the figures.<br>Specify if casting frame is to be attached to the structure with bolts. |
| 6010, 3.02, B, 2    | Specify if reinforcing steel is to lap other than 36 diameters.   |
| 6010, 3.04, A, 1    | Specify when to install casting extension rings.  |
| 6010, 3.04, B, 3    | Specify when existing casting may be reinstalled for minor adjustment of existing manhole or intake.  |
| 6010, 3.04, C, 4    | Specify when existing casting may be reinstalled for major adjustment of existing manhole or intake.  |
| 6010, 3.05, C, 1, a | Specify whenever a knockout opening is allowed in lieu of a cored opening.  |

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                     |  |
|---------------------|--|
| 6010, 3.05, C, 1, b | Specify if sanitary sewer service is NOT required to be maintained at all times when connecting a sanitary sewer to existing manhole or intake.                    |
| 6010, 3.05, C, 3    | Specify whenever a knockout opening is allowed in lieu of a cored opening.   |
| 6010, 3.06, A       | Specify if removal of manhole or intake is other than to a minimum of 10 feet below top of subgrade in paved areas or 10 feet below finished grade in other areas. |
| 6010, 3.06, B, 3    | Specify when to fill abandoned pipe line with flowable mortar or controlled low strength material.   |
| Figure 6010.501     | Specify when Type Q grate is to be used in lieu of Type R.   |
| Figure 6010.502     | Specify when Type Q grate is to be used in lieu of Type R.   |
| Figure 6010.603     | Specify when Type Q grate is to be used in lieu of Type R.   |

**Section 6020 - Rehabilitation of Existing Manholes**

|                  |   |
|------------------|---|
| 6020, 2.02, A    | Specify the thickness of the in-situ manhole replacement wall.  |
| 6020, 2.02, C    | Specify whenever the Contractor is required to provide a PVC or PE plastic liner for in-situ manhole replacement. |
| 6020, 3.01, C    | Specify when the use of a urethane chimney seal is allowed.   |
| 6020, 3.02, B, 3 | Specify whenever a plastic liner is to be installed in an in-situ manhole replacement.                            |

**Section 6030 - Cleaning, Inspection, and Testing of Structures**

|                  |  |
|------------------|--|
| 6030, 3.04, A, 1 | Specify when exfiltration testing is required for sanitary sewer manholes in lieu of vacuum testing. |
|------------------|--|

**Section 7010 - Portland Cement Concrete Pavement**

|                     |   |
|---------------------|---|
| 7010, 2.01, E       | Specify the use of an intermediate aggregate for concrete.  |
| 7010, 2.01, L, 2    | Specify the type of performed expansion jointing filler or sealer to use if NOT using a resilient filler. |
| 7010, 2.02, A, 1    | Specify the type of Class C or Class M mix to use.  |
| 7010, 2.02, C, 2    | Specify the type and amount of supplementary cementitious material in the mix.                            |
| 7010, 3.01, C, 1, c | Specify the use of stringless paving.   |

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                          |   |
|--------------------------|---|
| 7010, 3.02, H, 5, a      | Specify when a textured finished surface other than an artificial turf or burlap drag is desired (i.e. surface tining). |
| 7010, 3.02, H, 5, b      | Specify when surface tining is required. <i>Note - longitudinal tining is listed as the default.</i>                    |
| 7010, 3.02, I, 1, a      | Specify when the use of a linseed oil solution is required.   |
| 7010, 3.02, J, 1, a      | Specify the type and locations for construction of joints.  |
| 7010, 3.02, J, 2, i      | Specify when to use wet sawing for dust control.  |
| 7010, 3.02, J, 3, a      | Specify the location of longitudinal and transverse construction joints.  |
| 7010, 3.02, J, 4, a      | Specify the location of expansion joints.   |
| 7010, 3.07, C, 2, a      | Specify when the use of a profilograph for pavement smoothness is required.   |
| Figure 7010.101, sheet 4 | Specify when to use Detail D-1, D-2, or D-3.  |

**Section 7011 - Portland Cement Concrete Overlays**

|                     |  |
|---------------------|--|
| 7011, 2.01, L, 1    | Specify the mass per unit area.                                      |
| 7011, 3.02, E, 3, a | Specify the high spots in the existing asphalt surface to be milled. |

**Section 7020 - Hot Mix Asphalt Pavement**

|                     |   |
|---------------------|---|
| 7020, 1.08, A & B   | Specify if measurement of HMA pavement is by ton or square yard.          |
| 7020, 1.08, C & D   | Specify if measurement of HMA base widening is by ton or square yard.     |
| 7020, 3.05, B, 1    | Specify when the use of profilograph for pavement smoothness is required. |
| 7020, Table 7020.05 | Specify if the field laboratory air voids target value is other than 4%.  |

**Section 7021 - Hot Mix Asphalt Overlays**

|               |   |
|---------------|---|
| 7021, 2.04, A | Specify the asphalt binder grade.                     |
| 7021, 3.01, A | Specify the milling depth, cross-section, or profile. |

**Section 7030 - Sidewalks, Shared Use Paths, and Driveways**

|                  |   |
|------------------|---|
| 7030, 1.08, H, 2 | Specify whether granular surfacing for driveways will be computed in square yards or tons.                  |
| 7030, 1.08, I, 1 | Specify whenever the Contractor will be responsible for concrete compression or HMA density testing.        |
| 7030, 2.03, A    | Specify color and surface texture of clay brick pavers, or select from samples submitted by the Contractor. |

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|   |   |
|---|---|
| 7030, 2.03, B                                 | If concrete pavers are to be used, specify the material requirements.   |
| 7030, 2.04, B                                 | Specify the use of a pre-mixed high performance cold mix in lieu of an HMA setting bed.   |
| 7030, 2.06                                    | Specify the use of colored cement for brick/paver joint filler.   |
| 7030, 3.01, A-C                               | Specify removal limits of sidewalks, shared use paths, driveways, bricks, and curbs.  |
| 7030, 3.01, E                                 | Specify the locations to grind or saw existing curbs to install sidewalks, shared use paths, and driveways.   |
| 7030, 3.04, D                                 | Specify when curing is required.  |
| 7030, 3.04, F, 2, a, 1)                       | Specify the spacing for transverse joints in shared use paths, if other than equal to the width of the shared use paths.  |
| 7030, 3.06, A, 2                              | Specify the cross-section and patterns to use for brick sidewalks with a concrete base.   |
| 7030, 3.11, A                                 | Specify when testing will be the Contractor's responsibility.   |
| Figure 7030.101                               | Specify the radius for commercial and industrial driveways. Specify when a 'B' joint is to be provided at the back of curb. Specify the driveway width. Specify when a 5 foot sidewalk is to be constructed through the driveway. |
| Figure 7030.102                               | Specify the radius for commercial and industrial driveways. Specify the driveway width. Specify when a 5 foot sidewalk is to be constructed through the driveway.   |
| Figure 7030.104                               | Specify parking grading slope and property slope if different than 4:1.   |
| Figure 7030.201                               | If a special grade is required for parking slopes, specify the grade. Specify the width of the sidewalk.  |
| Figure 7030.202                               | Specify one of the curb details for Class A sidewalk.   |
| Figure 7030.203                               | Specify the brick sidewalk pattern. Specify the jointing of the concrete base.  |
| Figure 7030.205                               | Specify the use of a BT-3, KT-2, or expansion joint.  |
| <b>Section 7040 - Pavement Rehabilitation</b> |   |
| 7040, 2.01, A, 1                              | Specify if patches are <u>not</u> constructed as standard patches.  |
| 7040, 2.01, A, 2                              | Specify the use of calcium chloride in high early strength patching.  |

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                  |   |
|------------------|---|
| 7040, 2.01, B    | Specify if an HMA mixture other than a minimum Low Traffic (LT) mixture is desired.                                     |
| 7040, 2.01, C, 5 | Specify the use of soil sterilant for crack and joint filler material.  |
| 7040, 2.01, G    | Specify if a subbase material other than modified subbase is desired.   |
| 7040, 2.01, K    | Specify the length and diameter of epoxy coated dowel bars.   |
| 7040, 3.01, C    | Specify the dimensions of full depth and partial depth patches.   |
| 7040, 3.01, F    | Specify seeding or sodding the area outside the pavement.   |
| 7040, 3.02, A, 1 | Specify when a second saw cut is required.  |
| 7040, 3.02, C, 6 | Specify the locations of joints.  |
| 7040, 3.03, B, 2 | Specify when to tool the joint.   |
| 7040, 3.04, J    | Specify when pavement smoothness testing is required.   |
| 7040, 3.05, B    | Specify the depth to mill the pavement area.  |
| 7040, 3.05, D    | Specify if materials removed are <u>not</u> the property of the Contractor.   |
| 7040, 3.06, B, 3 | Specify when to clean wet sawn joints.  |
| 7040, 3.06, C, 2 | Specify the level to heat, handle, and apply joint filler material.   |
| 7040, 3.07, A, 3 | Specify when to apply soil sterilant.   |
| 7040, 3.07, B, 2 | For cracks wider than 1 inch, specify when to utilize additional methods to clean cracks of old crack filler.           |
| 7040, 3.07, C, 2 | For cracks 1/4 inch to 1 inch in width, specify when to utilize additional methods to clean cracks of old crack filler. |
| Figure 7040.102  | Specify the use of a 'CD' joint.  |
| Figure 7040.105  | Specify the use of filter fabric. Specify the type of subbase.  |

**Section 7050 - Asphalt Stabilization**

|               |   |
|---------------|---|
| 7050, 1.02    | Specify the crown of the pavement.  |
| 7050, 2.01, B | Specify the type of aggregate required.   |
| 7050, 3.03, A | Specify the depth of existing roadway surface to reclaim, if other than 4 inches. |
| 7050, 3.07    | Specify the type of surface treatment to apply.                                   |

**I. Items to be Specified on Plans or in Contract Documents (Continued)****Section 7060 - Bituminous Seal Coat**

|                  |   |
|------------------|---|
| 7060, 1.08 A & B | Specify measurement of bituminous seal coat is in area or units.                                    |
| 7060, 2.01, A    | Specify the cover aggregate size.   |
| 7060, 2.01, B    | Specify bituminous material if different than CRS-2P.   |
| 7060, 3.02, A, 1 | Specify when to patch and joint fill hard surfaced streets.   |
| 7060, 3.04, B    | Specify the application rate for spreading binder bitumen, if other than shown in the table.        |
| 7060, 3.04, D    | Specify the application rate for spreading cover aggregate, if other than shown in the table.       |
| 7060, 3.06, B, 2 | Specify the rate for spreading binder bitumen for two course seal coats.                            |
| 7060, 3.06, B, 3 | Specify the size of aggregate and the rate for spreading cover aggregate for two course seal coats. |
| 7060, 3.07       | Specify if sweeping of rural pavements is <u>not</u> necessary.                                     |

**Section 7070 - Emulsified Asphalt Slurry Seal**

|                     |  |
|---------------------|--|
| 7070, 1.02, B       | Specify the application of fine or coarse slurry mixtures.   |
| 7070, 2.01, B       | Specify when to use crushed aggregates.  |
| 7070, 2.02, A       | Specify the amount of asphalt emulsion to blend with the aggregate.  |
| 7070, 3.01, B, 1, b | Specify the width of slurry mixture application.   |
| 7070, 3.02, A       | Specify when to complete pavement patches and joint or crack filling for surface preparation.  |
| 7070, 3.02, C       | Specify if water flushing for surface preparation is <u>not</u> allowed.   |
| 7070, 3.03, C       | Specify the rate of applying the slurry seal, if other than 10 to 18 pounds per square yard for fine aggregate and 15 to 22 pounds per square yard for coarse aggregate. |
| 7070, 3.03, F       | Specify when to apply a burlap drag.   |
| 7070, 3.05, E       | Specify if strip slurry treatment is to be placed in two separate operations.  |

**I. Items to be Specified on Plans or in Contract Documents (Continued)****Section 7080 - Permeable Interlocking Pavers**

- 7080, 2.02, A Specify either slotted or perforated underdrain pipes.
- 7080, 2.02, B Specify the size of collector pipe if other than 6 inch diameter is desired.
- 7080, 2.03, C Specify the size of lateral pipe if other than 4 inch diameter is desired.
- 7080, 3.02, A Specify the elevation and grade for the excavation area.
- 7080, 3.02, B Specify the use and location of underdrains.
- 7080, 3.03, A Specify the use of engineering fabric over completed subgrade.
- 7080, 3.04, A, 5 Specify cleanout locations.
- 7080, 3.04, A, 7 Specify the use of underdrain cleanout pipes and observation wells.
- 7080, 3.04, B, 1 Specify underdrain lateral pipe locations.
- 7080, 3.05, A Specify the thickness of storage aggregate.
- 7080, 3.05, C Specify the storage aggregate elevation.
- 7080, 3.09 Specify the installation pattern of the pavers.

**Section 7090 - Cold-in-Place Pavement Recycling**

- 7090, 2.02 Specify the required strength of the recycled pavement section.
- 7090, 3.01, B, 1 Specify the width and depth to mill the existing pavement material.
- 7090, 3.01, B, 2 Specify the use of an asphalt foaming system.
- 7090, 3.08, C Specify if the compacted recycled roadway does not have to be within 6 inches of the established centerline.

**Section 7091 - Full Depth Reclamation**

- 7091, 2.02 Specify the required strength of the reclaimed pavement section as specified in the contract documents.
- 7091, 3.01, B, 1 Specify the width and depth to reclaim.
- 7091, 3.01, B, 2 Specify the use of an asphalt foaming system.
- 7091, 3.05, A Specify if multiple passes are required.
- 7091, 3.09, C Specify if the compacted, reclaimed roadway does not have to be within 6 inches of the established centerline.
- 7091, 3.11 Specify when to complete microcracking.
- 7091, 3.12 Specify the use of an HMA interlayer.

**I. Items to be Specified on Plans or in Contract Documents (Continued)****Section 8010 - Traffic Signals**

|                         |   |
|-------------------------|---|
| 8010, 1.08, B, 3        | Specify if pedestrian equipment is required with temporary traffic signal.  |
| 8010, 2.01, A, 1, c     | Specify if a message besides “TRAFFIC SIGNAL” will be required on the handhole cover.   |
| 8010, 2.01, B, 3, a, 2) | Specify solvent welded, socket type fittings for use other than PVC conduit and fittings.   |
| 8010, 2.01, C, 6, a     | Specify the mode type, size, and number of fibers for fiber optic cable required.   |
| 8010, 2.01, C, 6, p     | Specify the type of fiber distribution panel if a panel other than one capable of terminating a minimum of 24 fibers is desired.  |
| 8010, 2.01, C, 6, t     | Specify the use of fusion splice continuous fiber runs or branch circuit connections in splice enclosures.  |
| 8010, 2.02, B, 2, c     | Specify the voice message to be used for accessible pedestrian signal push button stations.   |
| 8010, 2.02, D, 9        | Specify the type of mounting for microwave vehicle detectors.   |
| 8010, 2.03, A           | Specify the use of traffic monitoring systems.  |
| 8010, 2.03, B           | Specify the use of fiber optic hub cabinet.   |
| 8010, 2.03, C, 2, b     | Specify the location to mount the antenna for a wireless interconnect network, if other than near the top of the signal pole nearest the controller cabinet.                  |
| 8010, 2.04, A, 2, b     | Specify dimensions and type of aluminum cabinet riser to be used.   |
| 8010, 2.04, A, 2, g     | Specify accommodations of phasing and expansibility of cabinet back panel positions.  |
| 8010, 2.04, C           | Specify the use of emergency vehicle preemption system.   |
| 8010, 2.05, A, 1, a     | Specify the color of vehicle traffic signal head assembly housing.  |
| 8010, 2.05, B, 1, a     | Specify the color of pedestrian traffic signal head assembly housing.   |
| 8010, 2.05, C, 1, a     | Specify the mast arm length and vertical pole height.   |
| 8010, 2.05, C, 1, f     | Specify where to use a combination street lighting/signal pole. Specify if the luminaire arm is to be mounted somewhere other than the same vertical plane as the signal arm. |



**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                     |   |
|---------------------|---|
| 8010, 2.05, D, 1, a | Specify the vertical pole height of the traffic signal pedestal pole.   |
| 8010, 2.05, F, 3    | Specify the street name sign dimensions, letter height and font, and sheeting.  |
| 8010, 3.01, B, 3, c | Specify if boring pits are allowed to be closer than 2 feet to the back of curb.  |
| 8010, 3.01, C, 9, c | Specify if the conduit cables could be pulled through intermediate junction boxes, handholes, pull boxes, pole bases, or any conduit opening. |
| 8010, 3.01, C, 9, g | Specify how much cable slack to provide in each handhole, junction box, and cabinet.  |
| 8010, 3.01, C, 9, h | Specify installation of fiber optic accessories.  |
| 8010, 3.01, D, 1    | Specify the foundation excavation size, shape, and depth.   |
| 8010, 3.02, C       | Specify the installation of video detection camera system.  |
| 8010, 3.03, A       | Specify the installation of traffic monitoring system.  |
| 8010, 3.03, B       | Specify the installation of fiber optic hub cabinet.  |
| 8010, 3.04, A, 1    | Specify the installation of controller cabinet and auxiliary equipment.   |
| 8010, 3.04, B       | Specify the installation of controller.   |
| 8010, 3.04, C       | Specify the installation of UPS battery backup system.  |
| 8010, 3.04, D       | Specify the installation of emergency vehicle preemption system.  |
| 8010, 3.06          | Specify construction of temporary traffic signal.   |
| Figure 8010.104     | Specify the length of rectangular detector loop.  |
| Figure 8010.105     | Specify the number of signals, signs, and spacing.  |

**Section 8020 - Pavement Markings**

|                     |  |
|---------------------|--|
| 8020, 3.02, A, 3, c | Specify lane widths.   |
| 8020, 3.02, B, 2    | Specify if pavement surface will not be cleaned with a rotary broom or street sweeper. |
| 8020, 3.02, D       | Specify if pavement is to be grooved prior to placing marking tape.                    |
| 8020, 3.02, G, 2    | Specify when to place pavement markings in a groove cut into the pavement surface.     |

## I. Items to be Specified on Plans or in Contract Documents (Continued)

### Section 8030 - Temporary Traffic Control

- 8030, 1.08, A, 3      Specify when to include portable dynamic message signs, temporary barrier rail, temporary flood lighting, and pilot cars in the traffic control lump sum bid item.
- 8030, 2.04, B      Specify if something other than precast concrete units are to be used for temporary barrier rail.
- 8030, 3.01, C      Specify the locations to place temporary barrier rail.
- Figure 8030.117      Specify the use of auxiliary lighting or audible information devices.
- Figure 8030.118      Specify the use of a crash cushion to separate the temporary sidewalk from vehicular traffic.
- Figure 8030.119      Specify the use of auxiliary lighting or audible information devices.

### Section 9010 - Seeding

- 9010, 2.01, B      Specify PLS, which shall not be less than the accumulated total.
- 9010, 2.02      Specify seed mixture in the contract documents.
- 9010, 2.03, A, 2      Specify if fertilizer is not to be applied for temporary conventional seeding.
- 9010, 3.01, A      Specify when aerial application of seed and fertilizer is desired.
- 9010, 3.01, M      Specify the use of a no-till attachment if desired.
- 9010, 3.04, E, 4, a      Specify if winter dormant seeding is required.
- 9010, 3.10, B      Specify when a warranty for seeding is required.

### Section 9020 - Sodding

- 9020, 2.04      Specify when contractor is not to provide water and watering equipment.

### Section 9030 - Plant Material and Planting

- 9030, 1.03, E      Specify when the contractor is to submit a schedule of unit prices for each size and variety of tree, shrub, and ground cover plant.
- 9030, 2.01, A, 4      Specify whenever plants in rows do not need to be matched in form or size.
- 9030, 2.01, E, 1      Specify where to use bare root plants.
- 9030, 3.05      Specify when tree drainage wells are needed.
- 9030, 3.08, A      Specify when tree wrapping is required.

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

- 9030, 3.12, B Specify when a warranty for plants is required.
- Figure 9030.102 Specify when tree wrapping is required.

**Section 9040 - Erosion and Sediment Control**

- 9040, 1.08, A, 1 Specify if the Contractor will be responsible for the SWPPP preparation.
- 9040, 1.08, A, 2 Specify if the Contractor will be responsible for the SWPPP management.
- 9040, 1.08, B Specify thickness for compost blankets.
- 9040, 1.08, E, 1 Specify the width of temporary RECP.
- 9040, 1.08, I Specify if level spreaders are not to be removed.
- 9040, 1.08, L, 1, c Specify the use of anti-seep collars.
- 9040, 1.08, O Specify measurement for stabilized construction entrance in square yards or tons.
- 9040, 2.02, B Specify the use of filter berms or compost blankets.
- 9040, 2.03 Specify the use of filter material in areas other than filter socks and filter berms.
- 9040, 2.06, A Specify diameter for open weave, degradable netting if other than 9 inches is required.
- 9040, 2.07, A, 2 Specify if using RECP for permeable check dam.
- 9040, 2.08, A Specify length of pressure-treated timber for level spreaders.
- 9040, 2.11, A Specify class of concrete if not Class C.
- 9040, 2.11, B Specify riser diameter for sediment basin outlet structures.
- 9040, 2.11, C, 1 Specify the number, diameter, and elevation of the holes in the riser of the dewatering device in sediment basin outlet structures.
- 9040, 2.11, D Specify barrel diameter of the sediment basin outlet structures.
- 9040, 2.11, E Specify riser diameter for anti-vortex device.
- 9040, 3.02, D Specify if weekly erosion and sediment control site inspections are not required as a part of SWPPP management.
- 9040, 3.05, B Specify depth of compost blankets.
- 9040, 3.06, A Specify when the filter berm is not to be installed along the contour.

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                  |  |
|------------------|--|
| 9040, 3.06, C    | Specify when a vegetated berm is required.   |
| 9040, 3.07, A, 1 | Specify the size and length of filter sock.  |
| 9040, 3.07, A, 3 | Specify when the filter sock is <u>not</u> to be installed along the contour.  |
| 9040, 3.07, B    | Specify when to remove the filter sock.  |
| 9040, 3.08, A, 2 | Specify if placement of seed and fertilizer is to be accomplished before installation of temporary rolled erosion control products.                                  |
| 9040, 3.08, A, 3 | Specify if placement of seed and fertilizer is to be accomplished on the anchor trench.  |
| 9040, 3.08, B, 1 | Specify if placement of seed and fertilizer is to be accomplished before installation of temporary rolled erosion control products.                                  |
| 9040, 3.09, B    | Specify when to remove the wattle.   |
| 9040, 3.10, A, 2 | Specify when to provide an RECP under the check dam.   |
| 9040, 3.10, D    | Specify when to remove check dams.   |
| 9040, 3.12, C    | Specify the excavated depth behind the level spreader.   |
| 9040, 3.12, E    | Specify the minimum depth of depression before accumulated sediment is removed.  |
| 9040, 3.15, B, 1 | Specify the number, diameter, and configuration of holes in the riser section of sediment basin outlet structures.   |
| 9040, 3.17       | Specify the size and elevations of sediment traps.   |
| 9040, 3.18, A, 1 | Specify when the silt fence material is <u>not</u> to be installed along the contour.  |
| 9040, 3.19, E    | Specify when to install subgrade stabilization fabric prior to placing crushed stone.  |
| 9040, 3.19, F    | Specify the thickness and dimensions of crushed stone for stabilized construction entrance.  |
| Figure 9040.101  | Specify if compost blankets are vegetated or unvegetated.  |
| Figure 9040.102  | Specify size of berm if slope is steeper than 3:1. Specify berm placement locations in uncompacted windrow perpendicular to the slope. Specify filter sock diameter. |
| Figure 9040.105  | Specify diameter of wattle. Specify space between wattles.   |
| Figure 9040.107  | Specify height between engineering fabric and crest on the rock check dam.   |

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

|                 |  |
|-----------------|--|
| Figure 9040.108 | Specify total height of diversion.   |
| Figure 9040.109 | Specify excavated depression depth.  |
| Figure 9040.110 | Specify the rock thickness (T), width (W), and length (L) for rip rap apron for pipe outlet onto flat ground.  |
| Figure 9040.111 | Specify the rock thickness (T), width (W), and length (L) for rip rap apron for pipe outlet into channel.  |
| Figure 9040.112 | Specify diameter of pipe for temporary pipe slope drain. Specify A, B, and C anchoring options.  |
| Figure 9040.113 | Specify barrel length and diameter for sediment basin without emergency spillway. Specify when anti-seep collars are required.                         |
| Figure 9040.114 | Specify barrel length and diameter for sediment basin with emergency spillway. Specify when anti-seep collars are required.                            |
| Figure 9040.115 | Specify elevations and dimensions for sediment basin dewatering device. Specify perforation configurations. Specify diameter of discharge pipe barrel. |
| Figure 9040.116 | Specify riser diameter for anti-vortex device.   |
| Figure 9040.117 | Specify when anti-seep collars are required.   |
| Figure 9040.118 | Specify width of sediment trap.  |
| Figure 9040.119 | Specify spacing of post installation for silt fence.   |

**Section 9050 - Gabions and Revet Mattresses**

|                  |  |
|------------------|--|
| 9050, 1.08, A, 3 | Specify PVC coating for gabions.   |
| 9050, 1.08, B, 3 | Specify PVC coating for revet mattresses.  |
| 9050, 2.01       | Specify when double twisted wire baskets are <u>not</u> required.  |
| 9050, 2.02       | Specify when to use welded wire baskets.   |
| 9050, 2.05       | Specify when to use anchor stakes. Specify the length of anchor stakes.  |
| 9050, 3.01, A    | Specify when to cut and reshape the area behind a proposed gabion wall to allow for placement of the wall.   |
| 9050, 3.01, E    | Specify the placement, compaction, and dimensions of granular subbase materials.   |
| 9050, 3.04, A    | Specify special details of gabion wall installation including height, slope of wall, gabion setback, special backfill materials, and tieback requirements. |

**I. Items to be Specified on Plans or in Contract Documents (Continued)****Section 9060 - Chain Link Fence**

|                     |  |
|---------------------|--|
| 9060, 1.08, A, 3    | Specify PVC coating for chain link fence.  |
| 9060, 1.08, B, 3    | Specify the use of barbed wire for gates.  |
| 9060, 1.08, C, 3    | Specify the type of barbed wire supporting arm.  |
| 9060, 2.01, D, 2    | Specify the PVC coating color.   |
| 9060, 2.02, A, 2    | Specify the nominal diameter of fence height for post use, if other than shown in the table.   |
| 9060, 2.05, A       | Specify the type of arm configuration for barbed wire supporting arms.   |
| 9060, 2.07, A       | Specify the type, height, and width of gates.  |
| 9060, 3.01, A       | Specify fence location and height.   |
| 9060, 3.01, B, 2, a | Specify post holes dimensions.   |
| 9060, 3.01, B, 2, e | Specify the required brace-post assembly.  |
| 9060, 3.01, G       | Specify when to use barbed wire.   |
| 9060, 3.01, G, 1    | Specify the installation of barbed wire, if other than 3 parallel wires on each barbed wire supporting arm on the outside of the area being secured. |
| 9060, 3.01, H       | Specify the installation requirements for gates.   |
| 9060, 3.01, I, 1    | Specify the installation of electrical grounds.  |
| 9060, 3.02          | Specify when all fences, including posts and footings, are <u>not</u> to be removed from within work areas.  |
| 9060, 3.03, A       | Specify the height of temporary fence.   |
| Figure 9060.101     | Specify the fence fabric width. Specify when to install fence on the roadway side of the right-of-way.   |
| Figure 9060.103     | Specify the length of the sidewalk.  |

**Section 9070 - Landscape Retaining Walls**

|               |   |
|---------------|---|
| 9070, 2.01, B | Specify the depth of limestone slabs, if other than 8 inches. |
| 9070, 3.01, B | Specify the excavation line and grade.                        |

## I. Items to be Specified on Plans or in Contract Documents (Continued)

### Section 9071 - Segmental Block Retaining Walls

- 9071, 3.01, B                      Specify the excavation line and grade.
- 9071, 3.02, B                      Specify leveling pad materials.
- 9071, 3.02, C                      Specify the elevation and orientation.
- 9071, 3.02, D, 1                    Specify the use of subdrains.

### Section 9072 - Combined Concrete Sidewalk and Retaining Wall

- 9072, 2.01, A, 3                    Specify the type of expansion joint, if resilient filler is not desired.
- 9072, 3.01, B                      Specify the excavation line and grade.
- 9072, 3.04                          Specify the formation of rustications.

### Section 9080 - Concrete Steps, Handrails, and Safety Rail

- 9080, 2.04, B                      Specify when to galvanize handrail and safety rail.
- 9080, 2.04, C                      Specify when to apply powder coat to steel, galvanized steel, or aluminum handrail and safety rail.
- 9080, 3.02, A, 1                    Specify the length of rail.
- Figure 9080.103                    Specify the field painting of safety rail.

### Section 10,010 - Demolition

- 10,010, 1.07, A                    Specify when the use of explosives is allowed.
- 10,010, 3.08, D                    Specify when the removal and disposal of all brush, shrubs, trees, logs, downed timber, and other yard waste on the site is not desired.
- 10,010, 3.08, E                    Specify when the removal of all retaining walls is not desired.
- 10,010, 3.11                        Specify what materials are required to be recycled from the demolition site.

### Section 11,010 - Construction Survey

- 11,010, 1.02                        Specify any additional items to be included in construction survey work.
- 11,010, 3.02, D                    Specify if property limits are to be marked.
- 11,010, 3.04                        Specify which land corners, property corners, permanent reference markers, and benchmarks are to be replaced.

**I. Items to be Specified on Plans or in Contract Documents (Continued)**

**Section 11,040 - Temporary Sidewalk Access**

- |                   |   |
|-------------------|---|
| 11,040, 3.02, A   | Specify locations to construct temporary granular sidewalks.  |
| 11,040, 3.03, B   | Specify locations to locate temporary longitudinal channelizing devices.  |
| Figure 11,040.102 | Specify when to install orange construction safety fence between the top of the bottom rail and the bottom of the top rail. |



## J. Incidental or Included Items

Items that are necessary to properly complete construction, including work and materials, and are not pay items. The following is a list of items in the SUDAS Standard Specifications that are considered incidental to other work unless specified as a pay item on the plans or in the contract documents. Please note - this list is not all-inclusive.

### Section 2010 - Earthwork, Subgrade, and Subbase

|                         |   |
|-------------------------|---|
| 2010, 1.08, A, 3        | <u>Clearing and Grubbing (by units)</u><br>Placement of backfill in area where roots have been removed, and removal and disposal of all materials.  |
| 2010, 1.08, B, 3        | <u>Clearing and Grubbing (by area)</u><br>Removal and disposal of all materials and placement of backfill in area where roots have been removed.  |
| 2010, 1.08, D, 2, c     | <u>Topsoil, Compost-amended</u><br>Furnishing and incorporating compost.  |
| 2010, 1.08, E, 3        | <u>Excavation, Class 10, Class 12, or Class 13</u> <ol style="list-style-type: none"><li>Site preparation for, and the construction of, embankment, fills, shoulder backfill, and backfill behind curbs.</li><li>Overhaul.</li><li>Finishing the soil surface, including roadways, shoulders, behind curbs, side ditches, slopes, and borrow pits.</li><li>Repair or replacement of any fences that have been unnecessarily damaged or removed.</li></ol> |
| 2010, 1.08, F, 3        | <u>Below Grade Excavation (Core Out)</u><br>Equipment, tools, labor, disposal of unsuitable materials, dewatering, drying, furnishing, and placement of foundation materials as required by the Engineer, compaction and finishing of the excavated area, and all incidental work as may be required.   |
| 2010, 1.08, G, 3        | <u>Subgrade Preparation</u><br>Excavating, manipulating, replacing, compacting, and trimming to the proper grade.   |
| 2010, 1.08, H, 3        | <u>Subgrade Treatment</u><br>Furnishing, placing, and incorporating the subgrade treatment material (cement, asphalt, fly ash, lime, geogrid, or geotextiles).  |
| 2010, 1.08, I, 3        | <u>Subbase</u><br>Furnishing, placing, compacting, and trimming to the proper grade.  |
| 2010, 1.08, J, 1, c     | <u>Removal of Structures</u><br>Removal and disposal of structures.   |
| 2010, 1.08, J, 2, a, 3) | <u>Removal of Known Box Culverts</u><br>Removal and disposal of known box culverts.   |

## J. Incidental or Included Items (Continued)

- 2010, 1.08, J, 2, c, 3)      Removal of Known Pipe Culverts  
Removal and disposal of known pipe culverts.
- 2010, 1.08, J, 3, a, 3)      Removal of Known Pipes and Conduits  
Removal, disposal, and plugging, if specified, of pipes and conduits.

### Section 3010 - Trench Excavation and Backfill

- 3010, 1.08, A      General
1. Standard trench excavation.
  2. Removal and disposal of unsuitable backfill material encountered during standard trench excavation.
  3. Removal of abandoned private utilities encountered during trench excavation.
  4. Furnishing and placing granular bedding material.
  5. Placing and compacting backfill material.
  6. Dewatering including, but not limited to, all equipment such as generators, pumps, rock for sump pits, discharge piping, and any extra excavation needed to facilitate dewatering according to stormwater regulations, as applicable.
  7. Sheet piling, shoring, and bracing.
  8. Adjusting the moisture content of excavated backfill material to the range specified for placement and compaction.
- 3010, 1.08, C, 3      Trench Foundation  
Removal and disposal of over-excavated material required to stabilize trench foundation; and furnishing, hauling, and placing stabilization material.
- 3010, 1.08, D, 3      Replacement of Unsuitable Backfill Material  
Furnishing, hauling, and placing backfill material.
- 3010, 1.08, E, 3      Special Pipe Embedment or Encasement  
Furnishing and placing all required special pipe embedment or encasement materials.

### Section 3020 - Trenchless Construction

- 3020, 1.08      All items of work contained in this section are incidental to the underground utility pipe being installed and will not be paid for separately.

### Section 4010 - Sanitary Sewers

- 4010, 1.08, A, 1, c      Sanitary Sewer Gravity Main, Trenched  
Trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; wyes and other fittings; pipe joints; pipe connections; testing; and inspection.

**J. Incidental or Included Items (Continued)**

- 4010, 1.08, A, 2, c      Sanitary Sewer Gravity Main, Trenchless  
Furnishing and installing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; pipe connections; testing; and inspection.
- 4010, 1.08, B, 1, c      Sanitary Sewer Gravity Main with Casing Pipe, Trenched  
Furnishing and installing both carrier pipe and casing pipe, trench excavation, dewatering, furnishing bedding material, placing bedding and backfill material, furnishing and installing annular space fill material, casing spacers, pipe connections, testing, and inspection.
- 4010, 1.08, B, 2, c      Sanitary Sewer Gravity Main with Casing Pipe, Trenchless  
Furnishing and installing both carrier pipe and casing pipe; trenchless installation materials and equipment; pit excavation; dewatering; and placing and compacting backfill material; casing spacers; furnishing and installing annular space fill material; pipe connections; testing; and inspection.
- 4010, 1.08, C, 1, c      Sanitary Sewer Force Main, Trenched  
Trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill; wyes and other fittings; pipe joints; testing; and inspection.
- 4010, 1.08, C, 2, c      Sanitary Sewer Force Main, Trenchless  
Furnishing and installing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; pipe connections; testing; and inspection.
- 4010, 1.08, D, 1, c      Sanitary Sewer Force Main with Casing Pipe, Trenched  
Furnishing and installing both carrier pipe and casing pipe; trench excavation; dewatering; furnishing, placing, and compacting bedding and backfill material; furnishing and installing annular space fill material; casing spacers; pipe connections; testing; and inspection.
- 4010, 1.08, D, 2, c      Sanitary Sewer Force Main with Casing Pipe, Trenchless  
Furnishing and installing both carrier pipe and casing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; casing spacers; furnishing and installing annular space fill material; pipe connections; testing; and inspection.
- 4010, 1.08, E, 3      Sanitary Sewer Service Stub  
Trench excavation; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; tap; fittings; testing; and inspection.
- 4010, 1.08, F, 3      Sanitary Sewer Service Relocation  
Removal of existing pipe, trench excavation, furnishing new pipe and bedding material, placing and compacting bedding and backfill material, connection back to existing service, compaction, testing, and inspection.

**J. Incidental or Included Items (Continued)**

- 4010, 1.08, G, 3                    Sewage Air Release Valve and Pit  
Excavation; furnishing, placing, and compacting bedding and backfill material; and testing.
- 4010, 1.08, H, 3                    Removal of Sanitary Sewer  
Removal, disposal, and capping (if specified) of pipe; and furnishing, placing, and compacting backfill material.
- 4010, 1.08, I, 3                    Sanitary Sewer Cleanout  
Plug at the end of the main, fittings, riser pipe, cap with screw plug, casting, and concrete casting encasement.
- 4010, 1.08, K, 3                    Sanitary Sewer Abandonment, Plug  
Trench excavation (if necessary), cutting pipe (if required), furnishing and placing plug materials, and placing and compacting backfill material.
- 4010, 1.08, L, 3                    Sanitary Sewer Abandonment, Fill and Plug  
Trench excavation (if necessary), cutting pipe (if required), furnishing and placing pipe fill material, furnishing and placing plug materials, and placing and compacting backfill material.

**Section 4020 - Storm Sewers**

- 4020, 1.08, A, 1, c                Storm Sewer, Trenched  
Trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; joint wrapping; wyes and other fittings; pipe joints; pipe connections; testing; and inspection.
- 4020, 1.08, A, 2, c                Storm Sewer, Trenchless  
Furnishing and installing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; pipe connections; testing; and inspection.
- 4020, 1.08, B, 1, c                Storm Sewer with Casing Pipe, Trenched  
Furnishing and installing both carrier pipe and casing pipe; trench excavation; dewatering; furnishing, placing, and compacting bedding and backfill material; furnishing and installing annular space fill material; casing spacers; pipe connections; testing; and inspection.
- 4020, 1.08, B, 2, c                Storm Sewer with Casing Pipe, Trenchless  
Furnishing and installing both carrier pipe and casing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; casing spacers; furnishing and installing annular space fill material; pipe connections; testing; and inspection.

**J. Incidental or Included Items (Continued)**

- 4020, 1.08, C, 3                    Linear Trench Drain  
Furnishing and installing the linear trench drain including all appurtenances; furnishing and placement of PCC transition; furnishing, excavation, and backfill of discharge pipe; connection to manhole or intake, if required; installation of apron, if required.
- 4020, 1.08, D, 3                    Removal of Storm Sewer  
Removal, disposal, and capping (if specified) of pipe; and furnishing, placing, and compacting backfill material.
- 4020, 1.08, F, 3                    Storm Sewer Abandonment, Plug  
Trench excavation (if necessary), cutting pipe (if required), furnishing and placing plug materials, and placing and compacting backfill material.
- 4020, 1.08, G, 3                    Storm Sewer Abandonment, Fill and Plug  
Trench excavation (if necessary), cutting pipe (if required), furnishing and placing pipe fill material, furnishing and placing plug materials, and placing and compacting backfill material.

**Section 4030 - Pipe Culverts**

- 4030, 1.08, A, 1, c                Pipe Culvert, Trenched  
Trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; connectors; testing; and inspection.
- 4030, 1.08, A, 2, c                Pipe Culvert, Trenchless  
Furnishing and installing pipe; trenchless installation materials and equipment; pit excavation, dewatering, and placing and compacting backfill material; pipe connections; testing; and inspection.
- 4030, 1.08, B, 3                    Pipe Apron  
Trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; connectors; and other appurtenances.
- 4030, 1.08, C, 3                    Footings for Concrete Pipe Aprons  
Excavation; dewatering; reinforcing steel; concrete; furnishing and installing apron; furnishing, placing and compacting bedding and backfill material.

**Section 4040 - Subdrains and Footing Drain Collectors**

- 4040, 1.08, A, 3                    Subdrain  
Trench excavation, furnishing and placing bedding and backfill material, engineering fabric (when specified), connectors, and elbows and tees. The length of elbows and tees of the pipes installed will be included in the length of pipe measured.

**J. Incidental or Included Items (Continued)**

- 4040, 1.08, B, 3                    Footing Drain Collector  
Trench excavation, pipe, wyes, tap, fittings, and furnishing and placing bedding and backfill material.
- 4040, 1.08, D, 3                    Subdrain or Footing Drain Outlets and Connections  
Pipe, non-shrink grout, coupling bands, and rodent guards for pipes 6 inches or smaller.
- 4040, 1.08, E, 3                    Storm Sewer Service Stub  
Trench excavation, furnishing bedding material, placing bedding and backfill material, tap, fittings, and plugs.

**Section 4050 - Pipe Rehabilitation**

- 4050, 1.08, A, 1, c                Pre-Rehabilitation Cleaning and Inspection  
Pre-cleaning CCTV inspection, light sewer cleaning, debris removal and transport, post cleaning CCTV inspection for Engineer review, and identification and logging of active service taps. If specified in the contract documents, unit price also includes disposal and associated costs for all debris removed from sewer.
- 4050, 1.08, A, 2, c                Additional Sewer Cleaning  
Heavy sewer cleaning; root cutting; deposit cutting; and removing, transporting, disposing, paying associated costs for all debris removed from sewer, and post cleaning CCTV inspection for Engineer review.
- 4050, 1.08, B, 3                    Remove Protruding Service Connections  
Removal of protruding service connections and debris removal.
- 4050, 1.08, C, 1, c                CIPP Main Lining  
Furnishing and installing the liner and appurtenances, CCTV inspection immediately prior to lining, bypass pumping unless otherwise specified, sliding foil, post-lining CCTV inspection, and all costs associated with the public information and notification program.
- 4050, 1.08, C, 2, c                Building Sanitary Sewer Service Reinstatement  
Reinstating sanitary sewer service connections, removal of debris, and coordination with service owners.
- 4050, 1.08, C, 3, c                CIPP End Seal  
End seal and installation.
- 4050, 1.08, D, 3                    CIPP Point Repair  
Furnishing and placing point repair liner, bypass pumping unless otherwise specified, sewer cleaning, removal of obstructions, debris removal, pipe preparation, and pre and post repair CCTV inspection.
- 4050, 1.08, E, 1, c                CIPP Service Pipe, Connection  
Furnishing and placing service connection liner, bypass pumping unless otherwise specified, documentation, and all costs associated with the public information and notification program.

## J. Incidental or Included Items (Continued)

- 4050, 1.08, E, 2, c      CIPP Service Repair, Partial Pipe  
Furnishing and installing service repair liner, bypass pumping unless otherwise specified, documentation, and all costs associated with the public information and notification program.
- 4050, 1.08, F, 1, c      Pressure Testing of Mainline Sewer Joints  
Bypass pumping unless otherwise specified, control testing, and documentation.
- 4050, 1.08, F, 2, c      Injection Grouting of Mainline Sewer Joints  
Bypass pumping unless otherwise specified, material testing, pressure testing after grouting, re-grouting of failed joints, and documentation. Unit price does not include the quantity of chemical grout used.
- 4050, 1.08, F, 3, c      Pressure Testing of Service Connections  
Bypass pumping unless otherwise specified, and documentation.
- 4050, 1.08, F, 4, c      Injection Grouting of Service Connections  
Bypass pumping unless otherwise specified, material testing, pressure testing after grouting, and documentation. Unit price does not include the quantity of chemical grout used.
- 4050, 1.08, F, 5, c      Chemical Grout  
Grout additives; root inhibitor; and supplying, mixing, and measurement of chemical grout.
- 4050, 1.08, G, 3      Bypass Pumping  
Development and submittal of the bypassing plan, all staffing, equipment, and appurtenances necessary to accomplish the approved bypassing plan, including reserve equipment.
- 4050, 1.08, H, 1, c      Spot Repairs (by Pipe Replacement)  
Uncovering and removing existing pipe and furnishing and placing bedding and backfill material for replacement pipe.
- 4050, 1.08, H, 2, c      Spot Repairs (by Linear Foot)  
Furnishing and installing replacement pipe and connections.

### 4060 - Cleaning, Inspection, and Testing of Sewers

- 4060, 1.08      Cleaning, inspecting, and testing sanitary sewers, storm sewers, pipe culverts, and rehabilitated pipes (including video inspection) are incidental to other project costs and will not be paid for separately.

### Section 5010 - Pipe and Fittings

- 5010, 1.08, A, 1, c      Water Main, Trenched  
Trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; tracer system; testing; disinfection; and polyethylene wrap for ductile iron pipe and for fittings.

**J. Incidental or Included Items (Continued)**

- 5010, 1.08, A, 2, c      Water Main, Trenchless  
Furnishing and installing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; tracer system; testing; and disinfection.
- 5010, 1.08, B, 1, c      Water Main with Casing Pipe, Trenched  
Furnishing and installing both carrier pipe and casing pipe; trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; casing spacers; furnishing and installing annular space fill material; tracer system; testing; and disinfection.
- 5010, 1.08, B, 2, c      Water Main with Casing Pipe, Trenchless  
Furnishing and installing both carrier pipe and casing pipe; trenchless installation materials and equipment; pit excavation; dewatering; placing and compacting backfill material; casing spacers; furnishing and installing annular space fill material; tracer system; testing; and disinfection.
- 5010, 1.08, C, 1, c      Fitting (by count)  
Restrained joints and thrust blocks.
- 5010, 1.08, C, 2, c      Fitting (by weight)  
Restrained joints and thrust blocks.
- 5010, 1.08, D, 3      Water Service Stub (by each)  
Water service corporation; service pipe; curb stop; stop box; trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; and installation of tracer wire system for non-metallic service pipe.
- 5010, 1.08, E, 1, c      Water Service Stub (by length), Water Service Pipe  
Trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; and installation of tracer wire system for non-metallic service pipe.

**Section 5020 - Valves, Fire Hydrants, and Appurtenances**

- 5020, 1.08, A, 3      Valve (Butterfly or Gate)  
All components attached to the valve or required for its complete installation, including underground or above ground operator, square valve operating nut, valve box and cover, valve box extension, and valve stem extension.
- 5020, 1.08, B, 3      Tapping Valve Assembly  
Tapping sleeve, tapping valve, the tap, valve box and cover, valve box extension, and valve stem extension.



**J. Incidental or Included Items (Continued)**

- 5020, 1.08, C, 3                    Fire Hydrant Assembly  
The fire hydrant, barrel extensions sufficient to achieve proper bury depth of anchoring pipe and height of fire hydrant above finished grade, and components to connect the fire hydrant to the water main, including anchoring pipe, fittings, thrust blocks, pea gravel or porous backfill material, and fire hydrant gate valve and appurtenances, except tapping valve assembly if used.
- 5020, 1.08, E                        Measurement and payment for minor adjustment of an existing valve box by raising or lowering the adjustable valve box is incidental.
- 5020, 1.08, G, 3                    Valve Box Replacement  
Removal of existing valve box; excavation; furnishing and installing new valve box; backfill; compaction; and all other necessary appurtenances.
- 5020, 1.08, H, 3                    Fire Hydrant Adjustment  
Removal and reinstallation of the existing fire hydrant; furnishing and installing the extension barrel section and stem; and all other necessary appurtenances.
- 5020, 1.08, I, 3                    Fire Hydrant Assembly Removal  
Excavation, removal of the fire hydrant, hydrant valve, thrust block, delivery of the fire hydrant assembly to the Contracting Authority (if specified), capping of the pipe, backfill, compaction, and surface restoration to match the surrounding area.
- 5020, 1.08, J, 3                    Valve Removal  
Excavation, removal of each valve, replacing the removed valve with pipe and connections if required or capping the former valve connection, delivery of the valve to the Contracting Authority (if specified), backfill, compaction, and surface restoration to match the surrounding area.
- 5020, 1.08, K, 3                    Valve Box Removal  
Excavation, removal of each valve box, delivery of the valve box to the Contracting Authority (if specified), backfill, compaction, and surface restoration to match the surrounding area.

**Section 5030 - Testing and Disinfection**

- 5030, 1.08                        Testing and disinfection of water systems is incidental to the construction of pipe and fittings.

**Section 6010 - Structures for Sanitary and Storm Sewers**

- 6010, 1.08, A, 3                    Manhole  
Excavation; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; base; structural concrete; reinforcing steel; precast units (if used); concrete fillets; pipe connections; infiltration barriers (sanitary sewer manholes only); castings; and adjustment rings.

**J. Incidental or Included Items (Continued)**

- 6010, 1.08, B, 3                    Intake  
Excavation; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; base; structural concrete; reinforcing steel; precast units (if used); concrete fillets; pipe connections; castings; and adjustment rings.
- 6010, 1.08, C, 1, c                Internal Drop Connection  
Cutting the hole and installing a flexible watertight connector, providing and installing the receiving bowl, flexible coupler between the bowl and the drop pipe, the PVC drop pipe, pipe brackets and bolts, the bottom elbow, repair of fillet if required, and a splash guard if required.
- 6010, 1.08, C, 2, c                External Drop Connection  
The connection to the manhole and all pipe; fittings; concrete encasement; and furnishing, placing, and compacting bedding and backfill material.
- 6010, 1.08, E, 3                    Manhole or Intake Adjustment, Minor  
Removing existing casting and existing adjustment rings, furnishing and installing adjustment rings, furnishing and installing new casting, and installing new infiltration barrier (sanitary sewer manholes only).
- 6010, 1.08, F, 3                    Manhole or Intake Adjustment, Major  
Removal of existing casting, adjustment rings, top sections, and risers; excavation; concrete and reinforcing steel or precast sections; furnishing and installing new casting; installing new infiltration barrier (sanitary sewer manholes only); placing backfill material; and compaction.
- 6010, 1.08, G, 3                    Connection to Existing Manhole or Intake  
Coring or cutting into the existing manhole or intake, pipe connectors, grout, and waterstop (when required).
- 6010, 1.08, H, 3                    Remove Manhole or Intake  
Removal of casting, concrete, and reinforcement; plugging pipes; filling remaining structure with flowable mortar; and placing compacted fill over structure to finished grade.

**Section 6020 - Rehabilitation of Existing Manholes**

- 6020, 1.08, A, 1, c                Infiltration Barrier, Rubber Chimney Seal  
All necessary compression or expansion bands and extension sleeves as necessary to complete chimney seal.
- 6020, 1.08, A, 2, c                Infiltration Barrier, Molded Shield Sealant  
Sealant.
- 6020, 1.08, B, 3                    In-situ Manhole Replacement, Cast-in-place Concrete  
Handling of sewer flows as required to properly complete the installation, invert overlay as recommended by the manufacturer, replacement of existing casting with a new casting, and testing the manhole upon completion.

**J. Incidental or Included Items (Continued)**

6020, 1.08, C, 3                    In-situ Manhole Replacement, Cast-in-place Concrete with Plastic Liner  
Handling of sewer flows as required to properly complete the installation, invert overlay as recommended by the manufacturer, replacement of existing casting with a new casting, sealing at the frame and cover, sealing pipe penetrations as recommended by the manufacturer, and testing the manhole upon completion.

6020, 1.08, D, 3                    Manhole Lining with Centrifugally Cast Cementitious Mortar Liner with Epoxy Seal  
Handling of sewer flows during lining operations as required to properly complete the installation, and replacement of the existing casting with a new casting.

**Section 6030 - Cleaning, Inspection, and Testing of Structures**

6030, 1.08                            Cleaning, inspection, and testing of structures are incidental to construction of structures and will not be paid for separately.

**Section 7010 - Portland Cement Concrete Pavement**

7010, 1.08, A, 3                    Pavement, PCC  
Final trimming of subgrade or subbase, integral curb, bars and reinforcement, joints and sealing, surface curing and pavement protection, safety fencing, concrete for rigid headers, boxouts for fixtures, and pavement smoothness testing.

7010, 1.08, E, 3                    Curb and Gutter  
Final subgrade/subbase preparation, bars and reinforcement, joints and sealing, surface curing and pavement protection, and boxouts for fixtures.

7010, 1.08, F, 3                    Beam Curb  
Final subgrade/subbase preparation, bars and reinforcement, joints and sealing, surface curing and pavement protection, and boxouts for fixtures.

7010, 1.08, G, 3                    Concrete Median  
Final subgrade/subbase preparation, bars and reinforcement, joints and sealing, surface curing and pavement protection, and boxouts for fixtures.

7010, 1.08, H, 3                    PCC Railroad Crossing Approach  
Excavation for modified subbase and subdrain, furnishing and installing subdrain, furnishing and installing subdrain outlet or connection to storm sewer, furnishing and installing porous backfill material, furnishing and installing fiber board barrier, furnishing and placing modified subbase material, furnishing and installing reinforcing steel and tie bars, furnishing and placing concrete, furnishing, placing, and compacting HMA.

7010, 1.08, I, 3                    PCC Pavement Samples and Testing  
Certified plant inspection, pavement thickness cores, profilograph pavement smoothness measurement (when required by the contract documents), and maturity testing.

## J. Incidental or Included Items (Continued)

7010, 1.08, K, 3 PCC Pavement Widening  
Final subgrade/subbase preparation, integral curb, bars and reinforcement, joints and sealing, surface curing and pavement protection, safety fencing, concrete for rigid headers, boxouts for fixtures, and pavement smoothness.

### Section 7011 - Portland Cement Concrete Overlays

7011, 1.08, A, 1, c PCC Overlay, Furnish Only  
Furnishing the concrete mixture and delivery to the project site.

7011, 1.08, A, 2, c PCC Overlay, Place Only  
Integral curb, bars and reinforcement, joints and sealing, finishing and texturing, surface curing and pavement protection, safety fencing, concrete for rigid headers, boxouts for fixtures, and pavement smoothness testing.

7011, 1.08, A, 3, c Surface Preparation for Bonded PCC Overlay  
Sandblasting, shot blasting, scarification, and surface cleaning.

7011, 1.08, A, 4, c Surface Preparation for Unbonded PCC Overlay  
Scarification and surface cleaning.

7011, 1.08, A, 5, c HMA Separation Layer for Unbonded PCC Overlay  
HMA mix, including asphalt binder.

7011, 1.08, A, 6, c Geotextile Fabric Separation Layer for Unbonded PCC Overlay  
Cleaning surface and furnishing, placing, and securing the geotextile fabric separation layer.

### Section 7020 - Hot Mix Asphalt Pavement

7020, 1.08, A, 3 Pavement, HMA (by ton)  
Asphalt mix with asphalt binder, tack coats between layers, construction zone protection, and quality control.

7020, 1.08, B, 3 Pavement, HMA (by square yard)  
Asphalt mix with asphalt binder, tack coats between layers, construction zone protection, and quality control.

7020, 1.08, C, 3 HMA Base Widening (by ton)  
Asphalt mix with asphalt binder, tack coats between layers, construction zone protection, and quality control.

7020, 1.08, D, 3 HMA Base Widening (by square yard)  
Asphalt mix with asphalt binder, tack coats between layers, construction zone protection, and quality control.

**J. Incidental or Included Items (Continued)**

7020, 1.08, E, 3                    HMA Railroad Crossing Approach  
Excavation for modified subbase and subdrain, furnishing and installing subdrain, furnishing and installing subdrain outlet, furnishing and installing porous backfill material, furnishing and installing fiber board barrier, furnishing and placing modified subbase material, furnishing and applying tack coat, furnishing, placing, and compacting HMA.

7020, 1.08, I, 3                    HMA Pavement Samples and Testing  
Certified plant inspection, pavement thickness cores, density analysis, profilograph pavement smoothness measurement (when required by the contract documents), and air void testing.

**Section 7021 - Hot Mix Asphalt Overlays**

7021, 1.08, A, 3                    HMA Overlay (by ton)  
Asphalt mix with asphalt binder, tack coats between layers, construction zone protection, and quality control.

7021, 1.08, B, 3                    HMA Overlay (by square yard)  
Asphalt mix with asphalt binder, tack coat, construction zone protection, and quality control.

**Section 7030 - Sidewalks, Shared Use Paths, and Driveways**

7030, 1.08, A, 3                    Removal of Sidewalk, Shared Use Path, or Driveway  
Sawing, hauling, and disposal of materials removed.

7030, 1.08, B, 3                    Removal of Curb  
Hauling and disposal of materials removed.

7030, 1.08, C, 3                    Shared Use Paths  
Subgrade preparation, jointing, sampling, smoothness testing and correction, and testing.

7030, 1.08, D, 3                    Special Subgrade Preparation for Shared Use Paths  
Water required to bring subgrade moisture content to within the required limits.

7030, 1.08, E, 3                    Sidewalk, PCC  
Minor grade adjustments at driveways and other intersections, subgrade preparation, formwork, additional thickness at thickened edges, jointing, sampling, smoothness testing and correction, and testing.

7030, 1.08, F, 3                    Brick/Paver Sidewalk with Pavement Base  
Subgrade preparation, pavement base, setting bed, neoprene asphalt adhesive for asphalt setting bed, setting the bricks/pavers, installing weep holes and associated materials, and sand/cement joint filler.

7030, 1.08, G, 3                    Detectable Warning  
Steel bar supports and manufactured detectable warning panels.

## J. Incidental or Included Items (Continued)

7030, 1.08, H, 1, c      Driveway, Paved  
Excavation, subgrade preparation, jointing, sampling, and testing.

7030, 1.08, H, 2, c      Driveway, Granular  
Excavation and preparation of subgrade.

### Section 7040 - Pavement Rehabilitation

7040, 1.08, A, 3      Full Depth Patches  
Sawing, removing, and disposing of existing pavement and reinforcing; restoring the subgrade; furnishing and installing tie bars and dowel bars; furnishing and placing the patch material, including the asphalt binder and tack coat; forming and constructing integral curb; surface curing and pavement protection; joint sawing and filling; and placing backfill and restoring disturbed surfaces.

7040, 1.08, B, 3      Subbase Over-excavation  
Removal of existing subbase or subgrade, disposal of materials removed, furnishing and placing subbase material, and any additional excavation required for subbase placement.

7040, 1.08, C, 3      Partial Depth Patches  
Sawing, removing, and disposing of existing pavement; furnishing tack coat or bonding agent; furnishing and placing the patch material; curing; joint filling (PCC patches only); placing backfill; and restoring disturbed surfaces.

7040, 1.08, D, 3      Crack and Joint Cleaning and Filling, Hot Pour  
Furnishing crack and joint filler material and routing, sawing, cleaning, and filling joints or cracks.

7040, 1.08, E, 1, c      Crack Cleaning and Filling, Emulsion  
Furnishing emulsified crack filler material, cleaning cracks, placing soil sterilant, and filling cracks.

7040, 1.08, E, 2, c      Hot Mix Asphalt for Crack Filling  
Cleaning, applying tack coat, and furnishing and placing HMA for crack filling.

7040, 1.08, F, 3      Diamond Grinding  
Diamond grinding pavement, testing for smoothness according to the contract documents, and removal of slurry and residue from the project site.

7040, 1.08, G, 3      Milling  
Milling pavement; furnishing water; and salvaging, stockpiling, and removing cuttings and debris.

7040, 1.08, H, 3      Pavement Removal  
Sawing, breaking, removing, and disposing of existing pavement and reinforcing steel.

## J. Incidental or Included Items (Continued)

- 7040, 1.08, I, 3      Curb and Gutter Removal  
Sawing, breaking, removing, and disposing of existing curb and gutter.
- 7040, 1.08, J, 3      Dowel Bar Retrofit  
Cutting the slots, preparing the slots, placing and grouting the bars, and curing the surface.
- 7040, 1.08, K      Required sampling and testing for pavement repair and rehabilitation work is incidental to other project costs and will not be paid for separately.

### Section 7050 - Asphalt Stabilization

- 7050, 1.08, A, 3      Asphalt Stabilization  
Furnishing and spreading imported material, applying and incorporating asphalt stabilization, blending of the materials, grading and compacting the blended materials, and final clean up.

### Section 7060 - Bituminous Seal Coat

- 7060, 1.08, A, 3      Bituminous Seal Coat (by area)  
Surface preparation including protection of street fixtures; furnishing and placing of materials, including fillets at intersecting streets, driveways, and turnouts; and final clean up.
- 7060, 1.08, B, 1, c      Bituminous Seal Coat (by units), Cover Aggregate  
Surface preparation including protection of street fixtures; furnishing and placing of materials, including fillets at intersecting streets, driveways, and turnouts; and final clean up.
- 7060, 1.08, B, 2, c      Bituminous Seal Coat (by units), Binder Bitumen  
Furnishing and placing of materials, including fillets at intersecting streets, driveways, and turnouts; and final clean up.

### Section 7070 - Emulsified Asphalt Slurry Seal

- 7070, 1.08, A, 3      Emulsified Asphalt Slurry Seal (by area)  
Surface preparation and furnishing and placing of materials, including fillets at intersecting streets, driveways, and turnouts.
- 7070, 1.08, B, 1, c      Emulsified Asphalt Slurry Seal (by units), Aggregate  
Surface preparation and furnishing and placing of materials, including fillets at intersecting streets, driveways, and turnouts.
- 7070, 1.08, B, 2, c      Emulsified Asphalt Slurry Seal (by units), Asphalt Emulsion  
Surface preparation and furnishing and placing of materials, including fillets at intersecting streets, driveways, and turnouts.

## J. Incidental or Included Items (Continued)

### Section 7080 - Permeable Interlocking Pavers

- 7080, 1.08, B, 3      Engineering Fabric  
Placing and securing filter fabric and any overlapped areas.
- 7080, 1.08, C, 3      Underdrain  
Furnishing and placing pipe, cleanouts, observation wells, and pipe fittings.
- 7080, 1.08, D, 3      Storage Aggregate  
Furnishing, hauling, placing, and compacting storage aggregate.
- 7080, 1.08, E, 3      Filter Aggregate  
Furnishing, hauling, placing filter, and compacting aggregate.
- 7080, 1.08, F, 3      Permeable Interlocking Pavers  
Testing, furnishing and placing bedding course, furnishing and installing permeable interlocking pavers, furnishing and placing joint/opening fill material, refilling joint after 6 months, and pavement protection.
- 7080, 1.08, G, 3      PCC Edge Restraint  
Final trimming of subgrade or subbase, bars and reinforcement, joints and sealing, surface curing and pavement protection, safety fencing, and boxouts for fixtures.

### Section 7090 - Cold-in-Place Pavement Recycling

- 7090, 1.08, A, 3      Cold-in-Place Recycling  
Milling and sizing of existing asphalt layers; protecting street fixtures; development of a job mix formula; adding and mixing recycling agents and additives, if required; supplying and incorporating water; compacting the reclaimed mix; shaping of the mix; completing secondary compaction, if required; removing any loose or excess material; and final clean up.
- 7090, 1.08, B, 3      Bituminous Recycling Agents  
Furnishing and placing of materials and mixing the agent into the recycled mix.
- 7090, 1.08, C, 3      Chemical Recycling Additives  
Furnishing and placing of materials and mixing the agent into the recycled mix.

### Section 7091 - Full Depth Reclamation

- 7091, 1.08, A, 3      Full Depth Reclamation  
Pulverizing and sizing of existing asphalt layers; incorporating and mixing of existing underlying materials; protecting street fixtures; development of a job mix formula; adding and mixing stabilizing agents and additives, if required; compacting the reclaimed mix; shaping of the mix; removing any loose or excess material; curing; and final clean up.



## J. Incidental or Included Items (Continued)

- 7091, 1.08, B, 3      Mechanical Stabilization Agents  
Furnishing and placing of aggregate and blending of the aggregates.
- 7091, 1.08, C, 3      Bituminous Stabilization Agents  
Furnishing and placing of materials and mixing the agent into the reclaimed mix.
- 7091, 1.08, D, 3      Chemical Stabilization Agents  
Furnishing and placing of materials and mixing the agent into the reclaimed mix.
- 7091, 1.08, F, 3      Interlayer for Cement Stabilized Base  
Surface cleaning, furnishing, and placing of the specified interlayer.

### Section 8010 - Traffic Signals

- 8010, 1.08, B, 3      Temporary Traffic Signal  
Furnishing, installing, maintaining, and removing poles; wiring; traffic signal control equipment including pedestrian equipment if specified; all modifications of signal timing due to changes in construction staging; relocation of trailer mounted temporary traffic signal systems; placement in another physical location to address changes in construction staging; and all appurtenances.

### Section 8020 - Pavement Markings

- 8020, 1.08, B, 3      Painted Pavement Markings, Solvent/Waterborne  
Reflectorizing spheres, layout, surface preparation, and application of marking paint.
- 8020, 1.08, C, 3      Painted Pavement Markings, Durable  
Layout, surface preparation, and application of marking paint.
- 8020, 1.08, D, 3      Painted Pavement Markings, High-Build  
Layout, surface preparation, and application of marking paint.
- 8020, 1.08, E, 3      Permanent Tape Markings  
Layout, surface preparation, and application of marking tape.
- 8020, 1.08, F, 3      Wet, Retroreflective Removable Tape Markings  
Layout, surface preparation, application, and removal.
- 8020, 1.08, G, 3      Painted Symbols and Legends  
Layout, surface preparation, and application of each symbol and legend.
- 8020, 1.08, H, 3      Precut Symbols and Legends  
Layout, surface preparation, and application of each symbol and legend.
- 8020, 1.08, I, 3      Temporary Delineators  
Installation and removal of delineators.

## **J. Incidental or Included Items (Continued)**

- 8020, 1.08, J, 3      Raised Pavement Markers  
Installation and removal of pavement markers.
- 8020, 1.08, K, 3      Pavement Markings Removed  
Pavement marking removal and waste material collection, removal, and disposal.
- 8020, 1.08, L, 3      Symbols and Legends Removed  
Symbol and legend marking removal and waste material collection, removal, and disposal.
- 8020, 1.08, M, 3      Grooves Cut for Pavement Markings  
Layout, cutting grooves, collection and disposal of removed material, and additional groove width and transition length beyond the pavement marking dimensions.
- 8020, 1.08, N, 3      Grooves Cut for Symbols and Legends  
Layout, cutting grooves, and collection and disposal of removed material.

### **Section 8030 - Temporary Traffic Control**

- 8030, 1.08, A, 3      Temporary Traffic Control  
Installation, maintenance, and removal of temporary traffic control; total roadway closures with installation and removal of detour signing as shown in the contract documents; removal and reinstallation or covering of permanent traffic control devices that conflict with the temporary traffic control plan; monitoring and documenting traffic control conditions; and flaggers. When required in the contract documents, the following are also included in traffic control unless a separate bid item is provided: portable dynamic message signs, temporary barrier rail, temporary flood lighting, and pilot cars.

### **Section 9010 - Seeding**

- 9010, 1.08, A, 1, c      Conventional Seeding, Seeding  
Removal of rock and other debris from the area; repairing rills and washes; preparing the seedbed; furnishing and placing seed, including any treatment required; furnishing and placing fertilizer and mulch; and furnishing water and other care during the care period, unless these items are bid separately.
- 9010, 1.08, B, 3      Hydraulic Seeding, Seeding, Fertilizing, and Mulching  
Removal of rock and other debris from the area; repairing rills and washes; preparing the seedbed; furnishing and placing seed, including any treatment required; furnishing and placing fertilizer and mulch; and furnishing water and other care during the care period, unless these items are bid separately.

## J. Incidental or Included Items (Continued)

9010, 1.08, C, 3      Pneumatic Seeding , Seeding, Fertilizing, and Mulching  
Removal of rock and other debris from the area; repairing rills and washes; preparing the seedbed; furnishing and placing seed, including any treatment required; furnishing and placing fertilizer and mulch; and furnishing water and other care during the care period, unless these items are bid separately.

9010, 1.08, E, 3      Warranty  
All work required to correct any defects in the original placement of the seeding for the period of time designated.

### Section 9020 - Sodding

9020, 1.08, A, 3      Sod  
Preparation of sod and sodbed, stakes, fertilizing, watering, maintenance, and clean-up. Also includes any necessary sod replacements during maintenance period.

### Section 9030 - Plant Material and Planting

9030, 1.08, A, 3      Plants (by count)  
Delivery, excavation, installation, watering, placing backfill material, mulching, wrapping, staking or guying, herbicide, maintenance during the establishment period, and replacements.

9030, 1.08, B, 3      Plants (by count), With Warranty  
Delivery, excavation, installation, watering, placing backfill material, mulching, wrapping, staking or guying, herbicide, maintenance during the establishment and warranty periods, and replacements.

9030, 1.08, C, 3      Plants (by lump sum)  
Delivery, excavation, installation, watering, placing backfill material, mulching, wrapping, staking or guying, herbicide, maintenance during the establishment period, and replacements.

9030, 1.08, D, 3      Plants (by lump sum), With Warranty  
Delivery, excavation, installation, watering, placing backfill material, mulching, wrapping, staking or guying, herbicide, maintenance during the establishment and warranty period, and replacements.

9030, 1.08, E, 3      Tree Drainage Wells  
Excavation, furnishing and placing rock, engineering fabric, and placing backfill material.

### Section 9040 - Erosion and Sediment Control

9040, 1.07, C      When applicable, conduct all operations in compliance with the Iowa DNR NPDES General Permit No. 2. Labor, equipment, or materials not included as a bid item, but necessary to prevent stormwater contamination from construction related sources, are considered incidental. Incidental work related to compliance with the permit may include, but is not limited to: hazardous materials protection, fuel containment, waste disposal, and providing employee sanitary facilities.

**J. Incidental or Included Items (Continued)**

- 9040, 1.08, A, 1, c      SWPPP Preparation  
Development of a SWPPP by the Contractor meeting local and state agency requirements, filing the required public notices, filing a Notice of Intent for coverage of the project under the Iowa DNR NPDES General Permit No. 2, and payment of associated NPDES permit fees.
- 9040, 1.08, A, 2, c      SWPPP Management  
All work required to comply with the administrative provisions of the Iowa DNR NPDES General Permit No. 2; including record keeping, documentation, updating the SWPPP, filing the Notice of Discontinuation, etc. Item also includes weekly inspections required to satisfy the provisions of General Permit No. 2, unless otherwise specified in the contract documents.
- 9040, 1.08, D, 1, c      Filter Socks, Installation  
Anchoring stakes.
- 9040, 1.08, D, 2, c      Filter Socks, Removal  
Restoration of the area to finished grade and off-site disposal of filter socks and accumulated sediment.
- 9040, 1.08, E, 3      Temporary RECP  
Excavation, staples, anchoring devices, and material for anchoring slots.
- 9040, 1.08, F, 1, c      Wattles, Installation  
Anchoring stakes.
- 9040, 1.08, F, 2, c      Wattles, Removal  
Restoration of the area to finished grade and off-site disposal of wattle and accumulated sediment.
- 9040, 1.08, G, 1, c      Check Dams, Rock  
Engineering fabric.
- 9040, 1.08, G, 2, a, 3)      Check Dams, Manufactured, Installation  
Anchoring stakes.
- 9040, 1.08, G, 2, b, 3)      Check Dams, Manufactured, Removal  
Restoration of the area to finished grade and off-site disposal of manufactured check dam and accumulated sediment.
- 9040, 1.08, H, 3      Temporary Earth Diversion Structures  
Removal of the structure upon completion of the project.
- 9040, 1.08, I, 3      Level Spreaders  
Maintaining the spreader during the period of construction and removal upon completion of the project, unless otherwise specified in the contract documents.
- 9040, 1.08, J, 3      Rip Rap  
Engineering fabric.

**J. Incidental or Included Items (Continued)**

|                     |  |
|---------------------|--|
| 9040, 1.08, K, 3    | <u>Temporary Pipe Slope Drains</u><br>Excavation, furnishing and installing pipe and pipe aprons, grading, and removal of the slope drain upon completion of the project.    |
| 9040, 1.08, L, 1, c | <u>Sediment Basin, Outlet Structure</u><br>Concrete base, dewatering device, anti-vortex device, outlet pipe, and anti-seep collars (if specified).                          |
| 9040, 1.08, L, 2, c | <u>Sediment Basin, Removal of Sediment</u><br>Dewatering and removal and off-site disposal of accumulated sediment.  |
| 9040, 1.08, L, 3, c | <u>Sediment Basin, Removal of Outlet Structure</u><br>Dewatering and off-site disposal of the outlet structure, concrete base, emergency spillway, and accumulated sediment. |
| 9040, 1.08, M, 1, c | <u>Sediment Trap Outlet, Installation</u><br>Engineering fabric.   |
| 9040, 1.08, M, 2, c | <u>Sediment Trap Outlet, Removal of Sediment</u><br>Dewatering and removal and off-site disposal of accumulated sediment.  |
| 9040, 1.08, M, 3, c | <u>Sediment Trap Outlet, Removal of Device</u><br>Dewatering and off-site disposal of sediment trap outlet and accumulated sediment.   |
| 9040, 1.08, N, 1, c | <u>Silt Fence or Silt Fence Ditch Check, Installation</u><br>Anchoring posts.  |
| 9040, 1.08, N, 2, c | <u>Silt Fence or Silt Fence Ditch Check, Removal of Sediment</u><br>Anchoring posts.   |
| 9040, 1.08, N, 3, c | <u>Silt Fence or Silt Fence Ditch Check, Removal of Device</u><br>Restoration of the area to finished grade and off-site disposal of fence, posts, and accumulated sediment. |
| 9040, 1.08, O, 1, c | <u>Stabilized Construction Entrance (by Square Yard)</u><br>Subgrade stabilization fabric.   |
| 9040, 1.08, O, 2, c | <u>Stabilized Construction Entrance (by Ton)</u><br>Subgrade stabilization fabric.   |
| 9040, 1.08, P, 1, c | <u>Dust Control, Water</u><br>Furnishing, transporting, and distributing water to the haul road.   |
| 9040, 1.08, R, 3    | <u>Turf Reinforcement Mats (TRM)</u><br>Excavation, staples, anchoring devices, and material for anchoring slots.  |
| 9040, 1.08, T, 1, c | <u>Inlet Protection Device, Installation</u><br>Removal of the device upon completion of the project.  |
| 9040, 1.08, T, 2, c | <u>Inlet Protection Device, Maintenance</u><br>Removal and off-site disposal of accumulated sediment.  |

## J. Incidental or Included Items (Continued)

9040, 1.08, U, 3      Flow Transition Mat  
Anchoring devices.

### Section 9050 - Gabions and Revet Mattresses

9050, 1.08, A, 3      Gabions  
Furnishing and assembling wire mesh baskets, PVC coating (if specified in the contract documents), fasteners, furnishing and placing gabion stone, engineering fabric, and anchor stakes.

9050, 1.08, B, 3      Revet Mattresses  
Furnishing and assembling wire mesh baskets, PVC coating (if specified in the contract documents), fasteners, furnishing and placing mattress stone, engineering fabric, and anchor stakes.

### Section 9060 - Chain Link Fence

9060, 1.08, A, 3      Chain Link Fence  
Posts, fabric, rails, braces, truss rods, ties, tension wire, tension bands, tension bars, grounds, fittings, PVC coating (if specified in the contract documents), excavation of post holes, and concrete encasement of posts.

9060, 1.08, B, 3      Gates  
Gate rails, fabric, stretcher bars, braces, vertical stay, hinges, latches, keepers, drop bar lock, center gate stop, and barbed wire (if specified).

9060, 1.08, C, 3      Barbed Wire  
Furnishing and installing all necessary strands of barbed wire, anchors, and barbed wire supporting arms.

9060, 1.08, D, 3      Removal and Reinstallation of Existing Fence  
Removing vegetation; removing all fence fabric, appurtenances, posts, and gates; removal of concrete encasement from posts; storage of the removed fencing materials to prevent damage; reinstallation of the posts, gates, and fabric, including all appurtenances; and replacement of any fence parts that are not able to be salvaged and reinstalled. Replace items damaged from Contractor's operations with new materials, at no additional cost to the Contracting Authority.

9060, 1.08, E, 3      Removal of Fence  
Off-site disposal of fence (including posts, concrete encasement of posts, gates, grounds, and barbed wire) and placing and compacting backfill material in post holes.

9060, 1.08, F, 3      Temporary Fence  
Furnishing, installing, and removing posts, fabric, ties, and fittings.

## J. Incidental or Included Items (Continued)

### Section 9070 - Landscape Retaining Walls

- 9070, 1.08, A, 3      Modular Block Retaining Wall  
Excavation, foundation preparation, furnishing and placing wall units, geogrid (if necessary), leveling pad, subdrain, porous backfill material for subdrain, engineering fabric for subdrain, granular backfill material, suitable backfill material, and shoring as necessary.
- 9070, 1.08, B, 3      Limestone Retaining Wall  
Excavation, foundation preparation, furnishing and placing leveling pad, limestone, subdrain, porous backfill material for subdrain, engineering fabric for subdrain, suitable backfill material, and shoring as necessary.
- 9070, 1.08, C, 3      Landscape Timbers  
Excavation, foundation preparation, furnishing and placing leveling pad, landscape timbers, spikes, reinforcing bar, subdrain, porous backfill material for subdrain, engineering fabric for subdrain, suitable backfill material, and shoring as necessary.

### Section 9071 - Segmental Block Retaining Walls

- 9071, 1.08, A, 3      Segmented Block Retaining Wall  
Design by a Licensed Professional Engineer in the State of Iowa, excavation, foundation preparation, furnishing and placing wall units, geogrid, leveling pad, subdrain, porous backfill material for subdrain, engineering fabric for subdrain, suitable backfill material, and shoring as necessary.
- 9071, 1.08, C, 3      Granular Backfill Material  
Furnishing, transporting, placing, and compacting material.

### Section 9072 - Combined Concrete Sidewalk and Retaining Walls

- 9072, 1.08, A, 3      Combined Concrete Sidewalk and Retaining Wall  
Excavation; foundation preparation; furnishing and placing concrete and reinforcing steel; joint material; subdrain; porous backfill material; suitable backfill material; finishing disturbed areas; and shoring as necessary.

### Section 9080 - Concrete Steps, Handrails, and Safety Rail

- 9080, 1.08, A, 3      Concrete Steps  
Reinforcement, expansion joint material, and preparation of subgrade.
- 9080, 1.08, B, 3      Handrail  
Posts, mounting hardware or concrete grout, and finishing (painted, galvanized, or powder coated).

## J. Incidental or Included Items (Continued)

9080, 1.08, C, 3                    Safety Rail  
Posts, pickets, mounting hardware, epoxy grout, and finishing (painted, galvanized, or powder coated).

### Section 10,010 - Demolition

10,010, 1.08, A, 3                Demolition Work  
Removal of trees, brush, vegetation, buildings, building materials, contents of buildings, appliances, trash, rubbish, basement walls, foundations, sidewalks, steps, and driveways from the site; disconnection of utilities; furnishing and compaction of backfill material; furnishing and placing topsoil; finish grading of disturbed areas; placing and removing safety fencing; removal of fuel and septic tanks and cisterns; seeding; and payment of any permit or disposal fees.

10,010, 1.08, B, 3                Plug or Abandon Well  
Obtaining all permits; plug or abandon private wells according to local, state, and federal regulations.

### Section 11,010 - Construction Survey

11,010, 1.08, A, 3                Construction Survey  
The costs of resetting project control points, re-staking, and any additional staking requested beyond the requirements of this section.

11,010, 1.08, B, 3                Monument Preservation and Replacement  
Property research and documentation, locating monuments prior to construction, replacement of disturbed monuments, and preparation and filing of the monument preservation certificate.

### Section 11,020 - Mobilization

11,020, 1.07, B                    When the proposal form does not include a bid item for mobilization, all costs incurred by the contractor for mobilization are incidental to other work and no separate payment will be made.

11,020, 1.08, A, 3                Mobilization  
The movement of personnel, equipment, and supplies to the project site; the establishment of offices, buildings, and other facilities necessary for the project; and bonding, permits, and other expenses incurred prior to construction.

### Section 11,040 - Temporary Sidewalk Access

11,040, 1.08, A, 3                Temporary Pedestrian Residential Access  
Supplying and placing granular material, continuous maintenance of granular surface, removal of temporary granular sidewalk, and restoring disturbed surfaces to a condition equal to that which existed prior to construction.



**J. Incidental or Included Items (Continued)**

11,040, 1.08, B, 3      Temporary Granular Sidewalk  
Excavation, grading, timber edging, supplying and placing granular material, continuous maintenance of granular surface, removal of temporary granular sidewalk, and restoring disturbed surfaces to a condition equal to that which existed prior to construction.

11,040, 1.08, C, 3      Temporary Longitudinal Channelizing Device  
Construction, placement, maintenance, and removal of the device.

**Section 11,050 - Concrete Washout**

11,050, 1.08, A, 3      Concrete Washout  
Providing concrete washwater containment, collection, and disposal.

## K. Bid Items

The following is a list of standard bid items listed in the SUDAS Standard Specifications. The following are suggested bid items. This list may not be all-inclusive. The Engineer may make modifications as necessary.

| Item Number  | Bid Item   | Unit |
|--|--|------|
| <b>Section 2010 - Earthwork, Subgrade, and Subbase</b> |  |      |
| 2010-108-A-0   | Clearing and Grubbing  | UNIT |
| 2010-108-B-0   | Clearing and Grubbing  | AC   |
| 2010-108-C-0   | Clearing and Grubbing  | LS   |
| 2010-108-D-1   | Topsoil, On-site   | CY   |
| 2010-108-D-2   | Topsoil, Compost-amended   | CY   |
| 2010-108-D-3   | Topsoil, Off-site  | CY   |
| 2010-108-E-0   | Excavation, Class 10, Class 12, or Class 13  | CY   |
| 2010-108-G-0   | Subgrade Preparation   | SY   |
| 2010-108-H-0   | Subgrade Treatment, ____ (Type)  | SY   |
| 2010-108-I-0   | Subbase, ____ (Type)   | SY   |
| 2010-108-J-1   | Removal of Structure, ____ (Type)  | EA   |
| 2010-108-J-2-a   | Removal of Known Box Culvert, ____ (Type), ____ (Size)                                     | LF   |
| 2010-108-J-2-c   | Removal of Known Pipe Culvert, ____ (Type), ____ (Size)                                    | LF   |
| 2010-108-J-3-a   | Removal of Known Pipe and Conduit, ____ (Type), ____ (Size)                                | LF   |
| 2010-108-K-1   | Filling and Plugging of Known Pipe Culverts, Pipes, and Conduits, ____ (Type), ____ (Size) | LF   |
| 2010-108-L-0   | Compaction Testing   | LS   |
| <b>Section 3010 - Trench Excavation and Backfill</b>   |  |      |
| 3010-108-B-0   | Rock Excavation  | CY   |
| 3010-108-C-0   | Trench Foundation  | TON  |
| 3010-108-D-0   | Replacement of Unsuitable Backfill Material  | CY   |
| 3010-108-E-0   | Special Pipe Embedment or Encasement   | LF   |
| 3010-108-F-0   | Trench Compaction Testing  | LS   |
| <b>Section 4010 - Sanitary Sewers</b>                  |  |      |
| 4010-108-A-1   | Sanitary Sewer Gravity Main, Trenched, ____ (Type), ____ (Size)                            | LF   |
| 4010-108-A-2   | Sanitary Sewer Gravity Main, Trenchless, ____ (Type), ____ (Size)                          | LF   |
| 4010-108-B-1   | Sanitary Sewer Gravity Main with Casing Pipe, Trenched, ____ (Type), ____ (Size)           | LF   |
| 4010-108-B-2   | Sanitary Sewer Gravity Main with Casing Pipe, Trenchless, ____ (Type), ____ (Size)         | LF   |
| 4010-108-C-1   | Sanitary Sewer Force Main, Trenched, ____ (Type), ____ (Size)                              | LF   |
| 4010-108-C-2   | Sanitary Sewer Force Main, Trenchless, ____ (Type), ____ (Size)                            | LF   |
| 4010-108-D-1   | Sanitary Sewer Force Main with Casing Pipe, Trenched, ____ (Type), ____ (Size)             | LF   |
| 4010-108-D-2   | Sanitary Sewer Force Main with Casing Pipe, Trenchless, ____ (Type), ____ (Size)           | LF   |

**K. Bid Items (Continued)**

| Item Number  | Bid Item   | Unit |
|--------------|--|------|
| 4010-108-E-0 | Sanitary Sewer Service Stub, ____ (Type), ____ (Size)              | LF   |
| 4010-108-F-0 | Sanitary Sewer Service Relocation                                  | EA   |
| 4010-108-G-0 | Sewage Air Release Valve and Pit                                   | EA   |
| 4010-108-H-0 | Removal of Sanitary Sewer, ____ (Type), ____ (Size)                | LF   |
| 4010-108-I-0 | Sanitary Sewer Cleanout  | EA   |
| 4010-108-K-0 | Sanitary Sewer Abandonment, Plug                                   | EA   |
| 4010-108-L-0 | Sanitary Sewer Abandonment, Fill and Plug                          | LF   |
|              |  |      |
|              | <b>Section 4020 - Storm Sewers</b>                                 |      |
| 4020-108-A-1 | Storm Sewer, Trenched, ____ (Type), ____ (Size)                    | LF   |
| 4020-108-A-2 | Storm Sewer, Trenchless, ____ (Type), ____ (Size)                  | LF   |
| 4020-108-B-1 | Storm Sewer with Casing Pipe, Trenched, ____ (Type), ____ (Size)   | LF   |
| 4020-108-B-2 | Storm Sewer with Casing Pipe, Trenchless, ____ (Type), ____ (Size) | LF   |
| 4020-108-C-0 | Linear Trench Drain  | LF   |
| 4020-108-D-0 | Removal of Storm Sewer, ____ (Type), ____ (Size)                   | LF   |
| 4020-108-F-0 | Storm Sewer Abandonment, Plug                                      | EA   |
| 4020-108-G-0 | Storm Sewer Abandonment, Fill and Plug                             | LF   |
|              |  |      |
|              | <b>Section 4030 - Pipe Culverts</b>                                |      |
| 4030-108-A-1 | Pipe Culvert, Trenched, ____ (Type), ____ (Size)                   | LF   |
| 4030-108-A-2 | Pipe Culvert, Trenchless, ____ (Type), ____ (Size)                 | LF   |
| 4030-108-B-0 | Pipe Apron, ____ (Type), ____ (Size)                               | EA   |
| 4030-108-C-0 | Footing for Concrete Pipe Apron, ____ (Type), ____ (Size)          | EA   |
| 4030-108-D-0 | Pipe Apron Guard   | EA   |
|              |  |      |
|              | <b>Section 4040 - Subdrains and Footing Drain Collectors</b>       |      |
| 4040-108-A-0 | Subdrain, ____ (Type), ____ (Size)                                 | LF   |
| 4040-108-B-0 | Footing Drain Collector, ____ (Type), ____ (Size)                  | LF   |
| 4040-108-C-0 | Subdrain Cleanout, ____ (Type), ____ (Size)                        | EA   |
| 4040-108-C-0 | Footing Drain Cleanout, ____ (Type), ____ (Size)                   | EA   |
| 4040-108-D-0 | Subdrain Outlets and Connections, ____ (Type), ____ (Size)         | EA   |
| 4040-108-D-0 | Footing Drain Outlets and Connections, ____ (Type), ____ (Size)    | EA   |
| 4040-108-E-0 | Storm Sewer Service Stub, ____ (Type), ____ (Size)                 | LF   |
|              |  |      |
|              | <b>Section 4050 - Pipe Rehabilitation</b>                          |      |
| 4050-108-A-1 | Pre-Rehabilitation Cleaning and Inspection, ____ (Size)            | LF   |
| 4050-108-A-2 | Additional Sewer Cleaning  | HOUR |
| 4050-108-B-0 | Remove Protruding Service Connections                              | EA   |
| 4050-108-C-1 | CIPP Main Lining   | LF   |
| 4050-108-C-2 | Building Sanitary Sewer Service Reinstatement                      | EA   |
| 4050-108-C-3 | CIPP End Seal  | EA   |
| 4050-108-D-0 | CIPP Point Repair, ____ (Size)                                     | EA   |

**K. Bid Items (Continued)**

| <b>Item Number</b> | <b>Bid Item</b>   | <b>Unit</b> |
|--------------------|---|-------------|
| 4050-108-E-1       | CIPP Service Pipe, Connection, ____ (Size)                        | EA          |
| 4050-108-E-2       | CIPP Service Repair, Partial Pipe, ____ (Size)                    | EA          |
| 4050-108-F-1       | Pressure Testing of Mainline Sewer Joints, ____ (Size)            | EA          |
| 4050-108-F-2       | Injection Grouting of Mainline Sewer Joints, ____ (Size)          | EA          |
| 4050-108-F-3       | Pressure Testing of Service Connections, ____ (Size)              | EA          |
| 4050-108-F-4       | Injection Grouting of Service Connections, ____ (Size)            | EA          |
| 4050-108-F-5       | Chemical Grout  | EA          |
| 4050-108-G-3       | Bypass Pumping  | LS          |
| 4050-108-H-1       | Spot Repairs by Pipe Replacement                                  | EA          |
| 4050-108-H-2       | Spot Repairs by Pipe Replacement                                  | LF          |
|                    |   |             |
|                    | <b>Section 5010 - Pipe and Fittings</b>                           |             |
| 5010-108-A-1       | Water Main, Trenched, ____ (Type), ____ (Size)                    | LF          |
| 5010-108-A-2       | Water Main, Trenchless, ____ (Type), ____ (Size)                  | LF          |
| 5010-108-B-1       | Water Main with Casing Pipe, Trenched, ____ (Type), ____ (Size)   | LF          |
| 5010-108-B-2       | Water Main with Casing Pipe, Trenchless, ____ (Type), ____ (Size) | LF          |
| 5010-108-C-1       | Fitting, ____ (Type), ____ (Size)                                 | EA          |
| 5010-108-C-2       | Fitting, ____ (Type), ____ (Size)                                 | LB          |
| 5010-108-D-0       | Water Service Stub, ____ (Type), ____ (Size)                      | EA          |
| 5010-108-E-1       | Water Service Pipe, ____ (Type), ____ (Size)                      | LF          |
| 5010-108-E-2       | Water Service Corporation, ____ (Type), ____ (Size)               | EA          |
| 5010-108-E-3       | Water Service Curb Stop and Box, ____ (Type), ____ (Size)         | EA          |
|                    |   |             |
|                    | <b>Section 5020 - Valves, Fire Hydrants, and Appurtenances</b>    |             |
| 5020-108-A-0       | Valve, ____ (Type), ____ (Size)                                   | EA          |
| 5020-108-B-0       | Tapping Valve Assembly, ____ (Size)                               | EA          |
| 5020-108-C-0       | Fire Hydrant Assembly   | EA          |
| 5020-108-D-0       | Flushing Device (Blowoff), ____ (Size)                            | EA          |
| 5020-108-F-0       | Valve Box Extension   | EA          |
| 5020-108-G-0       | Valve Box Replacement   | EA          |
| 5020-108-H-0       | Fire Hydrant Adjustment   | EA          |
| 5020-108-I-0       | Fire Hydrant Assembly Removal                                     | EA          |
| 5020-108-J-0       | Valve Removal   | EA          |
| 5020-108-K-0       | Valve Box Removal   | EA          |
|                    |   |             |
|                    | <b>Section 6010 - Structures for Sanitary and Storm Sewers</b>    |             |
| 6010-108-A-0       | Manhole, ____ (Type), ____ (Size)                                 | EA          |
| 6010-108-B-0       | Intake, ____ (Type), ____ (Size)                                  | EA          |
| 6010-108-C-1       | Internal Drop Connection  | EA          |
| 6010-108-C-2       | External Drop Connection  | EA          |
| 6010-108-D-0       | Casting Extension Ring  | EA          |
| 6010-108-E-0       | Manhole Adjustment, Minor   | EA          |
| 6010-108-E-0       | Intake Adjustment, Minor  | EA          |

**K. Bid Items (Continued)**

| <b>Item Number</b> | <b>Bid Item</b>  | <b>Unit</b> |
|--------------------|--|-------------|
| 6010-108-F-0       | Manhole Adjustment, Major  | EA          |
| 6010-108-F-0       | Intake Adjustment, Major   | EA          |
| 6010-108-G-0       | Connection to Existing Manhole   | EA          |
| 6010-108-G-0       | Connection to Existing Intake  | EA          |
| 6010-108-H-0       | Remove Manhole   | EA          |
| 6010-108-H-0       | Remove Intake  | EA          |
|                    |  |             |
|                    | <b>Section 6020 - Rehabilitation of Existing Manholes</b>                        |             |
| 6020-108-A-0       | Infiltration Barrier, ____ (Type)  | EA          |
| 6020-108-B-0       | In-situ Manhole Replacement, Cast-in-place Concrete                              | VF          |
| 6020-108-C-0       | In-situ Manhole Replacement, Cast-in-place Concrete with Plastic Liner           | VF          |
| 6020-108-D-0       | Manhole Lining with Centrifugally Cast Cementitious Mortar Liner with Epoxy Seal | VF          |
|                    |  |             |
|                    | <b>Section 7010 - Portland Cement Concrete Pavement</b>                          |             |
| 7010-108-A-0       | Pavement, PCC, ____ (Thickness)  | SY          |
| 7010-108-E-0       | Curb and Gutter, ____ (Width), ____ (Thickness)                                  | LF          |
| 7010-108-F-0       | Beam Curb  | LF          |
| 7010-108-G-0       | Concrete Median  | SY          |
| 7010-108-H-0       | PCC Railroad Crossing Approach   | SY          |
| 7010-108-I-0       | PCC Pavement Samples and Testing   | LS          |
| 7010-108-K-0       | PCC Pavement Widening, ____ (Thickness)  | SY          |
|                    |  |             |
|                    | <b>Section 7011 - Portland Cement Concrete Overlays</b>                          |             |
| 7011-108-A-1       | PCC Overlay, Furnish Only  | CY          |
| 7011-108-A-2       | PCC Overlay, Place Only  | SY          |
| 7011-108-A-3       | Surface Preparation for Bonded PCC Overlay                                       | SY          |
| 7011-108-A-4       | Surface Preparation for Unbonded PCC Overlay                                     | SY          |
| 7011-108-A-5       | HMA Separation Layer for Unbonded PCC Overlay                                    | SY          |
| 7011-108-A-6       | Geotextile Fabric Separation Layer for Unbonded PCC Overlay                      | SY          |
|                    |  |             |
|                    | <b>Section 7020 - Hot Mix Asphalt Pavement</b>                                   |             |
| 7020-108-A-0       | Pavement, HMA  | TON         |
| 7020-108-B-0       | Pavement, HMA, ____ (Thickness)  | SY          |
| 7020-108-C-0       | HMA Base Widening  | TON         |
| 7020-108-D-0       | HMA Base Widening, ____ (Thickness)  | SY          |
| 7020-108-E-0       | HMA Railroad Crossing Approach   | SY          |
| 7020-108-I-0       | HMA Pavement Samples and Testing   | LS          |
|                    |  |             |
|                    | <b>Section 7021 - Hot Mix Asphalt Overlays</b>                                   |             |
| 7021-108-A-0       | HMA Overlay  | TON         |
| 7021-108-B-0       | HMA Overlay, ____ (Thickness)  | SY          |

**K. Bid Items (Continued)**

| Item Number  | Bid Item   | Unit      |
|--|--|-----------|
| <b>Section 7030 - Sidewalks, Shared Use Paths, and Driveways</b> |  |           |
| 7030-108-A-0   | Removal of Sidewalk                              | SY        |
| 7030-108-A-0   | Removal of Shared Use Path                       | SY        |
| 7030-108-A-0   | Removal of Driveway                              | SY        |
| 7030-108-B-0   | Removal of Curb                                  | LF        |
| 7030-108-C-0   | Shared Use Path, ____ (Type), ____ (Thickness)   | SY        |
| 7030-108-D-0   | Special Subgrade Preparation for Shared Use Path | SY        |
| 7030-108-E-0   | Sidewalk, PCC, ____ (Thickness)                  | SY        |
| 7030-108-F-0   | Brick/Paver Sidewalk with Pavement Base          | SY        |
| 7030-108-G-0   | Detectable Warnings                              | SF        |
| 7030-108-H-1   | Driveway, Paved, ____ (Type), ____ (Thickness)   | SY        |
| 7030-108-H-2   | Driveway, Granular                               | SY or TON |
| 7030-108-I-0   | Sidewalk Assurance Testing                       | LS        |
| 7030-108-I-0   | Shared Use Path Assurance Testing                | LS        |
| 7030-108-I-0   | Driveway Assurance Testing                       | LS        |
| <b>Section 7040 - Pavement Rehabilitation</b>                    |  |           |
| 7040-108-A-0   | Full Depth Patches                               | SY        |
| 7040-108-B-0   | Subbase Over-excavation                          | TON       |
| 7040-108-C-0   | Partial Depth Patches                            | SF        |
| 7040-108-D-0   | Crack and Joint Cleaning and Filling, Hot Pour   | LF        |
| 7040-108-E-1   | Crack Cleaning and Filling, Emulsion             | LF        |
| 7040-108-E-2   | Hot Mix Asphalt for Crack Filling                | TON       |
| 7040-108-F-0   | Diamond Grinding                                 | SY        |
| 7040-108-G-0   | Milling  | SY        |
| 7040-108-H-0   | Pavement Removal                                 | SY        |
| 7040-108-I-0   | Curb and Gutter Removal                          | LF        |
| 7040-108-J-0   | Dowel Bar Retrofit                               | EA        |
| <b>Section 7050 - Asphalt Stabilization</b>                      |  |           |
| 7050-108-A-0   | Asphalt Stabilization                            | SY        |
| <b>Section 7060 - Bituminous Seal Coat</b>                       |  |           |
| 7060-108-A-0   | Bituminous Seal Coat                             | SY        |
| 7060-108-B-1   | Cover Aggregate, ____ (Size)                     | TON       |
| 7060-108-B-2   | Binder Bitumen                                   | GAL       |
| <b>Section 7070 - Emulsified Asphalt Slurry Seal</b>             |  |           |
| 7070-108-A-0   | Emulsified Asphalt Slurry Seal                   | SY        |
| 7070-108-B-1   | Aggregate, ____ (Size)                           | TON       |
| 7070-108-B-2   | Asphalt Emulsion                                 | GAL       |

**K. Bid Items (Continued)**

| Item Number  | Bid Item   | Unit |
|--|--|------|
| <b>Section 7080 - Permeable Interlocking Pavers</b>    |  |      |
| 7080-108-B-0   | Engineering Fabric   | SY   |
| 7080-108-C-0   | Underdrain, ____ (Type), ____ (Size)                                 | LF   |
| 7080-108-D-0   | Storage Aggregate  | TON  |
| 7080-108-E-0   | Filter Aggregate   | TON  |
| 7080-108-F-0   | Permeable Interlocking Pavers, ____ (Type)                           | SY   |
| 7080-108-G-0   | PCC Edge Restraint, ____ (Type), ____ (Size)                         | LF   |
| <b>Section 7090 - Cold-in-Place Pavement Recycling</b> |  |      |
| 7090-108-A-0   | Cold-in-Place Recycling  | SY   |
| 7090-108-B-0   | Bituminous Recycling Agents  | GAL  |
| 7090-108-C-0   | Chemical Recycling Additives   | TON  |
| <b>Section 7091 - Full Depth Reclamation</b>           |  |      |
| 7091-108-A-0   | Full Depth Reclamation   | SY   |
| 7091-108-B-0   | Mechanical Stabilization Agents                                      | TON  |
| 7091-108-C-0   | Bituminous Stabilization Agents                                      | GAL  |
| 7091-108-D-0   | Chemical Stabilization Agents  | TON  |
| 7091-108-E-0   | Microcracking  | SY   |
| 7091-108-F-0   | Interlayer for Cement Stabilized Base, ____ (Type), ____ (Thickness) | SY   |
| <b>Section 8010 - Traffic Control</b>                  |  |      |
| 8010-108-A-0   | Traffic Signal   | LS   |
| 8010-108-B-0   | Temporary Traffic Signal   | LS   |
| <b>Section 8020 - Pavement Markings</b>                |  |      |
| 8020-108-B-0   | Painted Pavement Markings, Solvent/Waterborne                        | STA  |
| 8020-108-C-0   | Painted Pavement Markings, Durable                                   | STA  |
| 8020-108-D-0   | Painted Pavement Markings, High-Build                                | STA  |
| 8020-108-E-0   | Permanent Tape Markings  | STA  |
| 8020-108-F-0   | Wet, Retroreflective Removable Tape Markings                         | STA  |
| 8020-108-G-0   | Painted Symbols and Legends  | EA   |
| 8020-108-H-0   | Precut Symbols and Legends   | EA   |
| 8020-108-I-0   | Temporary Delineators  | EA   |
| 8020-108-J-0   | Raised Pavement Markers  | EA   |
| 8020-108-K-0   | Pavement Markings Removed  | STA  |
| 8020-108-L-0   | Symbols and Legends Removed  | EA   |
| 8020-108-M-0   | Grooves Cut for Pavement Markings                                    | STA  |
| 8020-108-N-0   | Grooves Cut for Symbols and Legends                                  | EA   |
| <b>Section 8030 - Temporary Traffic Control</b>        |  |      |
| 8030-108-A-0   | Temporary Traffic Control  | LS   |

**K. Bid Items (Continued)**

| Item Number    | Bid Item  | Unit |
|----------------|---|------|
|                | <b>Section 9010 - Seeding</b>                                 |      |
| 9010-108-A-0   | Conventional Seeding, Seeding, Fertilizing, and Mulching      | AC   |
| 9010-108-B-0   | Hydraulic Seeding, Seeding, Fertilizing, and Mulching         | AC   |
| 9010-108-C-0   | Pneumatic Seeding, Seeding, Fertilizing, and Mulching         | AC   |
| 9010-108-D-0   | Watering  | MGAL |
| 9010-108-E-0   | Warranty  | LS   |
|                | <b>Section 9020 - Sodding</b>                                 |      |
| 9020-108-A-0   | Sod   | SQ   |
|                | <b>Section 9030 - Plant Material and Planting</b>             |      |
| 9030-108-A-0   | Plants, ____ (Type)   | EA   |
| 9030-108-B-0   | Plants with Warranty, ____ (Type)                             | EA   |
| 9030-108-C-0   | Plants  | LS   |
| 9030-108-D-0   | Plants with Warranty  | LS   |
| 9030-108-E-0   | Tree Drainage Wells   | EA   |
|                | <b>Section 9040 - Erosion and Sediment Control</b>            |      |
| 9040-108-A-1   | SWPPP Preparation   | LS   |
| 9040-108-A-2   | SWPPP Management  | LS   |
| 9040-108-B-0   | Compost Blanket, ____ (Thickness)                             | SF   |
| 9040-108-C-0   | Filter Berm, ____ (Size)                                      | LF   |
| 9040-108-D-1   | Filter Sock, ____ (Size)                                      | LF   |
| 9040-108-D-2   | Filter Sock, Removal  | LF   |
| 9040-108-E-0   | Temporary RECP, ____ (Type)                                   | SY   |
| 9040-108-F-1   | Wattle, ____ (Type), ____ (Size)                              | LF   |
| 9040-108-F-2   | Wattle, Removal   | LF   |
| 9040-108-G-1   | Check Dam, Rock   | TON  |
| 9040-108-G-2-a | Check Dam, Manufactured, ____ (Type), ____ (Size)             | LF   |
| 9040-108-G-2-b | Check Dam, Manufactured, Removal, ____ (Type)                 | LF   |
| 9040-108-H-0   | Temporary Earth Diversion Structure, ____ (Type), ____ (Size) | LF   |
| 9040-108-I-0   | Level Spreader  | LF   |
| 9040-108-J-0   | Rip Rap, ____ (Type)  | TON  |
| 9040-108-K-0   | Temporary Pipe Slope Drain, ____ (Type), ____ (Size)          | LF   |
| 9040-108-L-1   | Sediment Basin, Outlet Structure, ____ (Size)                 | EA   |
| 9040-108-L-2   | Sediment Basin, Removal of Sediment                           | EA   |
| 9040-108-L-3   | Sediment Basin, Removal of Outlet Structure                   | EA   |
| 9040-108-M-1   | Sediment Trap Outlet  | TON  |
| 9040-108-M-2   | Sediment Trap Outlet, Removal of Sediment                     | EA   |
| 9040-108-M-3   | Sediment Trap Outlet, Removal of Device                       | EA   |
| 9040-108-N-1   | Silt Fence or Silt Fence Ditch Check                          | LF   |
| 9040-108-N-2   | Silt Fence or Silt Fence Ditch Check, Removal of Sediment     | LF   |
| 9040-108-N-3   | Silt Fence or Silt Fence Ditch Check, Removal of Device       | LF   |



**K. Bid Items (Continued)**

| Item Number  | Bid Item   | Unit |
|--------------|--|------|
| 9040-108-O-1 | Stabilized Construction Entrance                                       | SY   |
| 9040-108-O-2 | Stabilized Construction Entrance                                       | TON  |
| 9040-108-P-1 | Dust Control, Water  | MGAL |
| 9040-108-P-2 | Dust Control, Product  | SY   |
| 9040-108-Q-1 | Erosion Control Mulching, Conventional                                 | AC   |
| 9040-108-Q-2 | Erosion Control Mulching, Hydromulching                                | AC   |
| 9040-108-R-0 | Turf Reinforcement Mats, ____ (Type)                                   | SQ   |
| 9040-108-S-0 | Surface Roughening   | SF   |
| 9040-108-T-1 | Inlet Protection Device, ____ (Type)                                   | EA   |
| 9040-108-T-2 | Inlet Protection Device, Maintenance                                   | EA   |
| 9040-108-U-0 | Flow Transition Mat  | SF   |
|              |  |      |
|              | <b>Section 9050 - Gabions and Revet Mattresses</b>                     |      |
| 9050-108-A-0 | Gabions, ____ (Type)   | CY   |
| 9050-108-B-0 | Revet Mattresses, ____ (Type)  | CY   |
|              |  |      |
|              | <b>Section 9060 - Chain Link Fence</b>                                 |      |
| 9060-108-A-0 | Chain Link Fence, ____ (Type), ____ (Size)                             | LF   |
| 9060-108-B-0 | Gates, ____ (Type), ____ (Size)  | EA   |
| 9060-108-C-0 | Barbed Wire, ____ (Type of Supporting Arm)                             | LF   |
| 9060-108-D-0 | Removal and Reinstallation of Existing Fence, ____ (Type), ____ (Size) | LF   |
| 9060-108-E-0 | Removal of Fence   | LF   |
| 9060-108-F-0 | Temporary Fence, ____ (Type), ____ (Size)                              | LF   |
|              |  |      |
|              | <b>Section 9070 - Landscape Retaining Walls</b>                        |      |
| 9070-108-A-0 | Modular Block Retaining Wall   | SF   |
| 9070-108-B-0 | Limestone Retaining Wall   | SF   |
| 9070-108-C-0 | Landscape Timbers  | SF   |
|              |  |      |
|              | <b>Section 9071 - Segmental Block Retaining Walls</b>                  |      |
| 9071-108-A-0 | Segmental Block Retaining Wall   | SF   |
| 9071-108-C-0 | Granular Backfill Material   | TON  |
|              |  |      |
|              | <b>Section 9072 - Combined Concrete Sidewalk and Retaining Wall</b>    |      |
| 9072-108-A-0 | Combined Concrete Sidewalk and Retaining Wall                          | CY   |
|              |  |      |
|              | <b>Section 9080 - Concrete Steps, Handrails, and Safety Rail</b>       |      |
| 9080-108-A-0 | Concrete Steps, ____ (Type)  | SF   |
| 9080-108-B-0 | Handrail, ____ (Type)  | LF   |
| 9080-108-C-0 | Safety Rail  | LF   |

**K. Bid Items (Continued)**

| <b>Item Number</b> | <b>Bid Item</b>  | <b>Unit</b> |
|--------------------|--|-------------|
|                    | <b>Section 10,010 - Demolition</b>                             |             |
| 10,010-108-A       | Demolition Work  | LS          |
| 10,010-108-B       | Plug or Abandon Well   | EA          |
|                    |  |             |
|                    | <b>Section 11,010 - Construction Survey</b>                    |             |
| 11,010-108-A       | Construction Survey  | LS          |
| 11,010-108-B       | Monument Preservation and Replacement                          | LS          |
|                    |  |             |
|                    | <b>Section 11,020 - Mobilization</b>                           |             |
| 11,020-108-A       | Mobilization   | LS          |
|                    |  |             |
|                    | <b>Section 11,030 - Temporary Services During Construction</b> |             |
| 11,030-108-A-0     | Maintenance of Postal Service                                  | LS          |
| 11,030-108-B-0     | Maintenance of Solid Waste Collection                          | LS          |
|                    |  |             |
|                    | <b>Section 11,040 - Temporary Sidewalk Access</b>              |             |
| 11,040-108-A-0     | Temporary Pedestrian Residential Access                        | SY          |
| 11,040-108-B-0     | Temporary Granular Sidewalk                                    | SY          |
| 11,040-108-C-0     | Temporary Longitudinal Channelizing Device                     | LF          |
|                    |  |             |
|                    | <b>Section 11,050 - Concrete Washout</b>                       |             |
| 11,050-108-A-0     | Concrete Washout   | LS          |