

**Chapter 15.10**  
**DESIGN AND CONSTRUCTION STANDARDS**  
**AND**  
**SPECIFICATIONS FOR PUBLIC WORKS IMPROVEMENTS**

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**15.10.010 PART 1 - GENERAL**

**1. ENACTING AUTHORITY**

These Design and Construction Standards are enacted by the City of Zillah, in accordance with state law, to protect and preserve the public health, safety, and general welfare.

**2. PURPOSE**

The purpose of these Design and Construction Standards is to provide consistent requirements, standards, and specifications for the design and construction of public works infrastructure improvements by the City and by private developers.

**3. STATE ENVIRONMENT POLICY ACT (SEPA)**

These Standards will not affect any considerations involving issues under the State Environmental Policy Act (SEPA). The City's responsible official will continue to make all necessary SEPA decisions when individual proposals are submitted.<sup>1</sup>

**4. CONFLICTING PROVISIONS**

The standards, procedures, and requirements of these Standards are the minimum necessary to promote the health, safety, and welfare of the residents of the City of Zillah. The City may adopt more rigorous or different standards, procedures, and requirements whenever necessary. If the provisions of these Standards conflict with one another, or if a provision of these Standards conflicts with the provision of the City Code or another Ordinance of the City, the most restrictive provision or the provision imposing the highest standard shall prevail.

**5. SEVERANCE**

If any provision of these Standards or its application to any person or circumstance is for any reason held to be invalid, the remainder of these Standards or the application of the provisions is not affected.

**6. PROCESS**

**a. Design Phase**

Any person, firm, or corporation (the "Developer") who intends to plat land in accordance with the City of Zillah Code and construct a public works improvement shall apply to the City Director of Public Works. The request by

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<sup>1</sup> Zillah Municipal Code 17.06.010(E) and 17.08



the Developer shall include a map showing the area to be served; the number and type of proposed units, or the type and size of the proposed facility and a general layout of the development.

Upon receipt of the design requirements from the Director of Public Works, the Developer shall employ a Consulting Engineer to prepare plans and specifications for the public works improvements in accordance with these Construction Standards and the Zillah Municipal Code. The Developer or its Consulting Engineer shall submit three (3) paper sets of plans and specifications for review by the City and/or the City's engineer.

The City shall review the initial submittal and indicate corrections or additions or request additional information and return one "red lined" set to the Developer. The Developer shall make the required corrections and resubmit two (2) paper sets and one electronic copy of revised plans and specifications to the City Public Works Department.

When it has been determined the plans and specifications indicate compliance with City of Zillah standards, the Developer shall submit the original plan tracings and specifications for final approval to the City. The cover sheet of the original plans shall contain an "APPROVED FOR CONSTRUCTION BY THE CITY OF ZILLAH" signature block. The City's responsible official will sign the plans. Such approved plans and specifications shall not be changed, modified, or altered without authorization from the City Public Works Director. The Developer shall provide the City with a minimum of three (3) copies of the approved plan set and specifications for use by City Inspectors and City Departments as required.

Upon receipt by the Director of Public Works of the plan review fee, as discussed in 15.10.010 Part 1, Section 8, the approved original plans and specifications will be returned to the Developer.

**b. Construction Phase**

Before the Developer's Contractor commences any work, he shall be required to attend a Preconstruction Conference with the City Public Works Department, the City's Engineer, and utility companies as determined by the City of Zillah. The Contractor will submit his insurance and construction schedule at this meeting.

All construction shall be inspected by the City of Zillah or its authorized agent. The Contractor shall give a minimum of ten (10) days prior notice to the Director of Public Works before the start of any construction activities.

After cleanup by the Contractor and final inspection by the City, the City will calculate the inspection fees and submit them to the Developer. The

Developer will pay the inspection fee, as discussed in Section 8, to the Public Works Department.

**7. ENGINEERING DESIGN PLAN REQUIREMENTS**

All plans, specifications, engineering calculations, diagrams, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington (Consultant), in accordance with 15.10.020 Part 2 - General Plan Requirements.

**8. PLAN REVIEW AND INSPECTION FEE**

Plan review and inspection fees are hereby established to defray the administrative expense of plan review and inspection costs incurred by the City of Zillah.

The plan review and inspection fee shall be the total actual costs incurred by the City of Zillah, its agents, employees, and elected or appointed officials, for review and approval of the plans and specifications and for inspection of construction of the public works improvements. The fee shall include, but not be limited to, initial plan review, subsequent meetings with the Developer, explanations to the Developer's engineering consultant, reviews of revised plans, construction inspection, re-inspections, and a final inspection prior to the expiration of the maintenance period.

The plan review fee shall be tabulated and sent to the Developer and paid by the Developer in full prior to the City releasing the approved original plans and specifications for construction or the issuance of a Building Permit.

The construction inspection fee shall be tabulated and sent to the Developer and paid by the Developer in full prior to the City issuing a Certificate of Occupancy or final acceptance of the public works improvements.

**9. RECORD DRAWINGS**

The Developer's Consulting Engineer shall maintain a neatly marked, full-sized print set of record drawings showing the final location and layout of all new construction of the public facilities. Prior to final acceptance by the City of Zillah, one (1) set of reproducible Record Drawings and two (2) sets of prints prepared by the Developer's engineer and clearly marked "Record Drawings" shall be delivered to the Director of Public Works for review and approval.

**10. TRANSFER OF OWNERSHIP**

The Developer shall complete a Transfer of Ownership Form upon completion of the construction of the public works improvements and pending acceptance by the City. This form may be found in Appendix A. Appendix A is available at Zillah City Hall or on the City web site at [www.cityofzillah.us](http://www.cityofzillah.us).

## **11. EASEMENTS**

Public utility easements shall be established for the location of new and future public improvements serving new land divisions and land developments. Easements shall also be granted across the front of new lots and existing lots to provide future utility access as required.

All easements required shall be prepared by the Developer on the proper form and format for recording at the Yakima County Auditor's Office. The easement legal description shall be prepared by a land surveyor licensed in the State of Washington. The executed and notarized easement document shall be submitted to the Director of Public Works for recording.

Ten (10) foot wide utility easements shall be dedicated along the front of each lot in subdivisions and short subdivisions. Easements for new and/or future utility lines shall be a minimum of sixteen (16) feet wide, provided the width of the easements for buried utilities will be at least twice the depth of the planned excavation.

Utility easements shall be continuous and aligned from block to block within a subdivision and with easements in adjoining subdivisions to facilitate the extension and future extension of public utilities.

## **15.10.020 PART 2 - GENERAL PLAN REQUIREMENTS**

All plans, specifications, engineering calculations, diagrams, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington.

### **I. GENERAL PLAN FORMAT**

1. **Plan sheets and profile sheets or combined plan and profile sheets and detail sheets shall be on a sheet size of 24" x 36" or 22" x 34".**
2. **Each sheet shall contain the following project information:**
  - a. *Project title and City project number, work order number, or LID number, if appropriate.*
  - b. *Quarter section, Section - Township - Range*
  - c. *Sheet title.*
  - d. *Page (of page) numbering.*

- e. *Revision block.*
- f. *Subdivision or short plat name*

3. **The Cover sheet shall contain the following:**

- a. *Name, address, and phone number of the owner/developer;*
  - b. *Name, address, and phone number and stamp of the Civil Engineer preparing the plans (Consultant);*
  - c. *"APPROVED FOR CONSTRUCTION BY THE CITY OF ZILLAH" signature block for City final approval of the plans;*
  - d. *"APPROVED FOR CONSTRUCTION BY THE CITY OF ZILLAH FIRE CHIEF" signature block*
  - e. *Vicinity map showing the project site location;*
  - f. *An overall site plan with contours;*
  - g. *Table of Contents;*
  - h. *Applicable project information; and*
  - i. *Utility Locator Call # 1-800-424-5555.*
4. All plan sheets must have a NORTH arrow preferably pointing to the top of the sheet or to the left, and must indicate the drawing scale. All engineering plans must be drawn to an appropriate engineer's scale. For profiles, the vertical scale shall be 1"=2', 1"=5', or 1"=10'. The horizontal scale shall be the same for both plan and profile and shall normally be 1" = 20'. Plan and profile stationing shall generally read left to right.
5. The Vertical Datum for all plan submittals must be based on the City of Zillah Datum. The benchmark used shall be referenced on the plans. An assumed datum will not be accepted.
6. Existing features and topography within the project construction limits must be shown on the plans. This shall include existing road width and surfacing, utility poles, existing underground utilities and surface appurtenances, significant trees, landscaping, and other elements that may affect design/construction.
7. Plan sheets shall indicate all adjacent property lines, right of way lines, and easements.
8. Plan sheets shall show all horizontal survey control as required to properly locate and tie the improvements in horizontal location.

## **II. SANITARY SEWER SYSTEM PLAN REQUIREMENTS**

1. Show all existing and proposed sanitary sewer system features including, but not limited to, the following:

- a. *Sewer lines, gravity and force mains*
  - b. *Side service, proposed locations*
  - c. *Manholes*
  - d. *Clean outs*
  - e. *Pump stations.*
2. Indicate all easements required for the sanitary sewer line extensions and laterals.
3. Provide an overall site plan of development with contours, to show that all lots/parcels will be served by the proposed sewer system at design depth for all new development.
4. Show the sanitary sewer system and water system on the same plan and profile for verification of minimum separation requirements. The design information for each may be on individual drawings for that system.
5. Slope, length, size, and pipe type shall be indicated for all lines and side sewers. Pipe length shall be measured from centerline of manholes. The minimum sewer line size allowed will be eight (8) inch diameter.
6. Provide a profile for each sanitary sewer line extension. Clearly indicate the vertical and horizontal scale. Show the profile on the same sheet with, and aligned underneath, the plan view as practical.
7. The plan and profile must show the location of all existing and proposed gas, water, irrigation, storm drain, and other utility crossings.
8. Generally show all vertical data in the profile view and all horizontal data in the plan view. It is not desirable to repeat the vertical data in the plan view unless it does not show in a profile.
9. Each manhole shall be uniquely numbered and shall be stationed off of a referenced centerline. Indicate rim and invert elevations in and out at all manholes. Indicate the length of each side sewer stub, the centerline stationing for each side sewer, and the size.

### III. WATER SYSTEM PLAN REQUIREMENTS

1. Show all existing and proposed water system features if known, including but not limited to:
  - a. *Water mains*
  - b. *Water valves*
  - c. *Water meters*
  - d. *Fire hydrants*

- e. *Blow offs*
  - f. *Air and vacuum release valve assemblies*
  - g. *Pressure reducing valves*
  - h. *Fire sprinkler system lines*
  - i. *Double check valves*
  - j. *Post indicator valves*
  - k. *Thrust blocking*
- 2. Indicate all easements required for the water main extensions and future extensions.
  - 3. Show the water system and the sanitary sewer system on the same plan and profile view for verification of minimum separation requirements. The design information for each system may be on individual drawings for that system.
  - 4. Show the length, size, and pipe type for all main extensions, fire sprinkler system services, and domestic services where applicable.
  - 5. Identify all joint connections; provide detail of all non-standard joints.
  - 6. Show by station or dimension the location of all fire hydrants, tees, crosses, and services relative to centerlines or property lines.
  - 7. A profile view shall be shown for all City water main extensions, aligned if practical with the plan view. Clearly indicate the horizontal and vertical scales.
  - 8. Show the minimum cover and minimum separation on each sheet.
  - 9. In the profile view, show all utilities crossing the proposed water main.

#### **IV. STORMWATER SYSTEM PLAN REQUIREMENTS**

- 1. Show all existing features if known and all proposed storm sewer (drain) system features, including but not limited to:
  - a. *Storm drain mains and lines*
  - b. *Catch basins*
  - c. *Inlets*
  - d. *Infiltration trenches*
  - e. *Retention systems*
  - f. *Biofiltration swales*
  - g. *Culverts*
  - h. *Streams*

- I. Ditches*
- j. Natural drainage swales*
- k. Headwalls*
- l. Oil/water separator assembly*
- m. Other requirements of the Department of Ecology  
Stormwater Manual for Eastern Washington*

- 2. Indicate all easements required for the storm drainage system.
- 3. The plan shall clearly indicate the location of the storm drainage items stationed from a referenced centerline.
- 4. Show all horizontal measurements and control in the plan view.
- 5. Show slope, length, size, and pipe material for all storm drain mains and lines.
- 6. All catch basins and inlets shall be uniquely numbered and shall be clearly labeled. Stationing and offsets shall be indicated from referenced centerline. Show all proposed storm drain features within the right of way in a profile.
- 7. Indicate all grate, rim, and invert elevations in the profile view.
- 8. Provide stormwater runoff and drainage facilities sizing calculations as described in 15.10.060 Part 6.

## V. STREET PLAN REQUIREMENTS

- 1. Show all existing and proposed roadway improvements, including but not limited to:
  - a. Pavement*
  - b. Concrete curb and gutter*
  - c. Edge of pavement*
  - d. Sidewalk(s)*
  - e. Utilities (manholes, power poles, pedestals, valves, water meters, etc.)*
  - f. Sidewalk ramps*
  - g. Signs and Barricades*
  - h. Driveways*
  - I. Rockery or retaining walls*
  - j. Mailboxes*
  - k. Monuments*
  - l. Streetlights, J-boxes and conduit runs*
  - m. Compliance with ADA requirements*



2. Show all Right of Way (R/W) lines, centerlines, and roadway widths for all rights of way.
3. Clearly differentiate between areas of existing pavement, areas of new pavement, and areas to be overlaid.
4. Provide a cross section or typical section of all rights of way indicating right of way width, centerline, pavement width, sidewalk, curb and gutter, pavement, and base thickness of proposed section.
5. Provide a Plan and Profile of all new public roadways or extensions of existing roadways. Provide topography within the R/W including utilities. Indicate all horizontal and vertical curve data, percent of grade, bearings, centerline stationing every 50 feet, finish grade elevations, and existing ground line. The profile of the existing centerline ground should extend a minimum of 100 feet before the beginning and at the end of the proposed improvements to show the gradient blend.
6. Align the profile view with the plan view, if practical. Clearly indicate the horizontal and the vertical scale.
7. Clearly label all profiles with respective street names and plan sheet reference numbers if drawn on separate sheets.
8. For developments where road work is required on an existing street, development plans are required to include cross section of the existing street and spot elevations at proposed intersections and appurtenances to the project.

#### **15.10.030 PART 3 - GENERAL REQUIREMENTS FOR ALL PROJECTS**

##### **1. FORWARD**

The City of Zillah has adopted the latest edition of the *Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the *Washington State Department of Transportation* (WSDOT), and the *American Public Works Association* (APWA) *General Special Provisions* (GSP's) for Division One General Requirements as the standard specifications governing all design and construction of public works improvements by the City and by private developers.<sup>2</sup>

All references hereinafter made to the "Standard Specifications" shall refer to the latest edition of the Standard Specifications described above. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard Specifications shall

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<sup>2</sup> Chapter 15.20.050



be considered as much a part of these requirements as if they were actually set forth herein.

The Standard Specifications, General and Project Special Provisions, and City Standard Plans and Details contained in this **City Design and Construction Standards** shall apply in their entirety to all City of Zillah public works projects. These Standards have been prepared to form a compiled document intended to assist and inform developers, consultants, and contractors of the construction requirements to be used on proposed public works improvements.

The Standard Specifications, General and Project Special Provisions, and City Standard Plans and Details shall periodically be revised and updated. It shall be the responsibility of each user of this information to verify that he has the latest revisions prior to submitting any work covered by these specifications and details.

Developers and contractors are encouraged to contact the City of Zillah Public Works Department to obtain a copy of these standards.

## **2. GENERAL**

All work shall be done in accordance with the approved Plans, the Standard Specifications for Road, Bridge, and Municipal Construction prepared by the Washington State Department of Transportation, latest edition, amendments, referenced codes and organizations, and these Special Provisions.

Note: The American Public Works Association (APWA) General Special Provisions (G.S.P.'s) to Division One of the WSDOT Standard Specifications amend Division One of the "Standard Specifications for Road, Bridge, and Municipal Construction." These GSP's are available at [www.wsdot.wa.gov/partners/apwa](http://www.wsdot.wa.gov/partners/apwa).

All materials incorporated into a proposed public works improvements project shall meet the requirements of Division Nine of the Standard Specifications or City of Zillah Standards as shown in the Standard Plans and Details and Special Provisions.

Any Public Works facility improvements or components that are not specifically addressed in these Construction Standards shall be designed by a professional engineer and provided to the City for review by the City Engineer and City approval.

## **3. 1-01 DEFINITIONS AND TERMS**

### **1-01.3 Definitions**

The terms defined in Section 1-01.3 of Division One of the Standard Specifications and the APWA GSP's shall be further described by the following:

*This Section is supplemented with the following:*

*All references in the Standard Specifications to the terms "State", "Department of Transportation", "Washington State Transportation Commission", "Commission", "Secretary of Transportation", "Secretary", "Headquarters", and "State Treasurer" shall be revised to read "Contracting Agency".*

*All references to "State Materials Laboratory" shall be revised to read "Contracting Agency designated location".*

*The venue of all causes of action arising from the advertisement, award, execution, and performance of the contract shall be in the Superior Court of the County where the Contracting Agency's headquarters are located.*

*Additive:* A supplemental unit of work or group of bid items, identified separately in the proposal, which may, at the discretion of the Contracting Agency, be awarded in addition to the base bid.

*Alternate:* One of two or more units of work or groups of bid items, identified separately in the proposal, from which the Contracting Agency may make a choice between different methods or material of construction for performing the same work.

*City:* Means the City of Zillah, a municipal corporation, as represented by its authorized officials, employees or agents.

*Consultant:* Means an engineer licensed in the State of Washington, employed by the Developer to design the improvement and prepare plans and specifications, perform construction staking, or similar services.

*Contract Documents:* Means the plans and specifications prepared by the Developer's Consultant for the public works improvements contemplated and approved by the City.

*Contractor:* Means the person or firm employed by the Developer or under Contract with the City to do the construction of the public works improvements.

*Contract Time:* The period of time established by the terms and conditions of the contract within which the work must be physically completed.

*Dates:*

- a. Bid Opening Date: The date on which the Contracting Agency publicly opens and reads the bids.*
- b. Award Date: The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive bidder for the work.*

- c. *Contract Execution Date: The date the Contracting Agency officially binds the agency to the contract.*
- d. *Notice to Proceed Date: The date stated in the Notice to Proceed on which the contract time begins.*
- e. *Substantial Completion Date: The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, and only minor incidental work, replacement of temporary substitute facilities, or correction or repair remains for the physical completion of the total contract.*
- f. *Physical Completion Date: The day all of the work is physically completed on the project. All documentation required by the contract and required by law does not necessarily need to be furnished by the Contractor by this date.*
- g. *Completion Date: The day all the work specified in the contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the contract and required by law must be furnished by the Contractor before establishment of this date.*
- h. *Final Acceptance Date: The date on which the Contracting Agency accepts the work as complete.*

*Developer:* Means the person or firm constructing the development and engaging the services of and employing consultants, and/or contractors and paying for the design and construction of the public works improvements to be transferred to the City.

*Drawings:* Means the construction plans prepared by the Developer's Consultant for the public works improvements contemplated. The terms "Contract Documents," "Plans," "Engineer's Plans," "Engineer's Drawings," "Working Drawings," and "Project Manual" are synonymous.

*Engineer:* Means the appointed City Engineer for the City of Zillah or his/her duly authorized agent or representative.

*Notice of Award:* The written notice from the Contracting Agency to the successful bidder signifying the Contracting Agency's acceptance of the bid.

*Notice to Proceed:* The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the work and establishing the date on which the contract time begins.

*Owner:* Means the City of Zillah acting through its legally established officials, boards, commissions, etc., as represented by its authorized officers, employees, or agents.

*Public Works Director:* Means an appointed planning official for the City per 17.06.010 (E).

*Standard Plans and Details:* Means specific drawings adopted by the City of Zillah and revised from time to time which show frequently recurring components of work which have been standardized for use.

*Standard Specifications:* The Standard Specifications for Road, Bridge, and Municipal Construction prepared by the Washington State Department of Transportation, and amendments, and the APWA GSP's for Division One that are, by this reference, made part of the Contract Documents. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard Specifications shall be considered as much a part of these Contract Documents as if they were actually set forth herein.

*Special Provisions:* The Special Provisions supersede any conflicting provisions of the Standard Specifications for Road, Bridge, and Municipal Construction and the appended amendments to the Standard Specifications and are made a part of a Contract Document.

*Traffic:* Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and equestrian traffic.

Should any conflicts be encountered, the following inter-relationships shall govern: The Special Provisions shall supersede the APWA GSP's, which shall supersede the WSDOT Amendments, which shall supersede the Standard Specifications.

#### **4. 1-04 SCOPE OF THE WORK**

##### **a. 1-04.4 Changes**

The provisions of Section 1-04.4 of the Standard Specifications shall be modified as follows:

No changes in the work covered by the approved Contract Documents shall be made without having prior written approval of the Developer and the City.

##### **b. 1-04.4(1) Minor Changes**

The first sentence in the first paragraph is revised to read:

Payments or credits for changes amounting to \$15,000 or less may be made under the bid item "Minor Change."

##### **c. 1-04.11 Final Cleanup**

The Contractor shall perform final cleanup as provided in this section to the Developer's and City's satisfaction. The date of completion will not be established until this is done. The material sites and all ground the Contractor occupied to do the work shall be left neat and presentable. The Contractor shall:

1. Remove all rubbish, surplus materials, discarded materials, false work, temporary structures, equipment, and debris, and
2. Deposit in embankments, or remove from the project, all unneeded, over-sized rock left from grading, surfacing, or paving.

Partial cleanup shall be done by the Contractor when he feels it is necessary or when, in the opinion of the City or Developer, partial clean-up should be done prior to either major cleanup or final inspection.

**d. 1-04.12 Waste Site (New Section)**

The following new section shall be added to the Standard Specifications:

Where there is additional waste excavation in excess of that needed for the project and in excess of that needed for compliance with requests of the Developer or City, the Contractor shall secure and operate his own waste site at his own expense. The Contractor shall also be required to secure and operate his own waste site at his own expense for the disposal of all unsuitable material, asphalt, concrete, debris, waste material, and any other objectionable material which is directed to waste.

The Contractor shall comply with the State of Washington's regulations regarding disposal of waste material as outlined in WAC 173-304- 461.

**5. 1-05 CONTROL OF WORK**

**a. 1-05.1 Authority of the Engineer**

**This section is supplemented with the following:**

Unless otherwise expressly provided in the Contract Drawings, Specifications and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Consultant and the City's right to reject the means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the approved Contract. Documented Approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Contract Documents; nor shall the exercise of such right to reject create a cause for action for damages.

**b. 1-05.3(1) Project Record Drawings (New Section)**

**The following new section shall be added to the Standard Specifications:**

The Contractor shall maintain a neatly marked, full-size set of as-built drawings showing the final location and layout of all new construction. Drawings shall be kept current weekly, with all field instruction, change orders, and construction adjustment.

Drawings shall be subject to the inspection of the Developer and the City at all times. Prior to acceptance of the work, the Contractor shall deliver to the Developer one set of neatly marked as-built drawings showing the information required above. The Developer shall have prepared and delivered to the City of Zillah the neatly marked Record Drawings in accordance with Section 9 of 15.10.010 Part 1 - General.

**c. 1-05.5 Construction Staking (New Section)**

**The following new section shall be added to the Standard Specifications:**

The Consultant retained by the Developer will establish the line and grade of proposed construction by offset stakes. The Consultant will establish the centerline for minor structures and establish bench marks at convenient locations for use by the Contractor.

The Contractor shall establish grades from the Consultant's stakes at suitable intervals in accordance with good practice and acceptable to the City. Where new construction adjoins existing construction, the Contractor shall make such adjustments in grade as are necessary.

**d. 1-05.6(1) Testing (New Section)**

**The following new section shall be added to the Standard Specifications:**

The Contractor/Developer shall be responsible for scheduling and paying for all material and compaction testing required by these Construction Standards for new public works improvements. All testing services shall be performed by an independent, certified testing firm and/or laboratory meeting the approval of the Engineer or City. The Contractor shall submit information relating to the qualifications of the proposed testing firm to the Engineer or City for review and approval prior to the preconstruction conference. The testing service shall provide copies of all test results to the Engineer or City immediately after completion. The testing frequencies listed below may be modified to assure compliance with the Specifications.

**Trench Backfill**

Copies of moisture-density curves for each type of material encountered and copies of all test results shall be provided to the Engineer or City as construction progresses.

Compaction tests shall be taken at a frequency and at depths sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for



each 100 linear feet of mainline pipeline trench and one (1) test for each street crossing. At alternating 100-foot locations along the main trench line, tests shall be taken at 1-foot, 2-foot, and 3-foot depths below finish grade.

The Engineer or City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required trench backfill densities.

All trenches shall be backfilled and compacted to at least 95 percent of maximum density as determined by ASTM D 698 (Standard Proctor).

#### **Roadway Subgrade (Embankment and Excavation Sections)**

Copies of the moisture density curves for each type of material encountered and copies of all test results shall be provided to the Engineer or City as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of subgrade.

The Engineer or City may request additional tests be performed at the Contractor's expense, if test results do not meet the required subgrade densities. Subgrade compaction shall be as specified for Roadway Embankment in Section 2-03.3(14) Method "C."

#### **Ballast and Crushed Surfacing**

Copies of the moisture density curves and gradation for each type of material incorporated into the project and copies of all test results shall be provided to the Engineer or City as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of ballast or crushed surfacing.

The Engineer or City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of ballast and crushed surfacing shall be as specified in SECTION 4-04.3(5).

#### **Asphalt Paving**

Copies of the reference maximum density test for each class of Hot Mix Asphalt pavement and copies of all test results shall be provided to the Engineer or City as construction progresses.

Density tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of asphalt concrete pavement.

The Engineer or City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of Hot Mix Asphalt pavement shall be as specified in SECTION 5-04.3(10) B.

#### **Cement Concrete Curb, Gutter, and Sidewalk**

A copy of the cement concrete design mix or certification from the concrete supplier that the concrete provided has been prepared to the strength requirement as specified elsewhere in these specifications.

Concrete strength cylinders shall be taken and tested for each truck load of concrete delivered to the job. All testing procedures shall be conducted in accordance with applicable Sections of Division 6-02 of the Standard Specifications.

Copies of all test results shall be provided to the Engineer or City as construction progresses.

#### **e. 1-05.10 Guarantees (APWA)**

**The following new section shall be added to the APWA G.S.P.:**

If, within two years (2) after the date of Final Acceptance of the Work, defective and unauthorized materials or work is discovered, the Developer/Contractor shall promptly, upon written request, return and in accordance with the instructions either correct such work, or if such work has been rejected, remove it from the Project Site and replace it with non-defective and authorized work, all without cost to the City. If the Contractor does not promptly comply with the written request to correct defective and unauthorized work, or if an emergency exists, the City reserves the right to have defective and unauthorized work corrected or rejected, removed, and replaced pursuant to the provisions of Section 1-05.7 of the APWA Division I GSP's of the Standard Specifications.

The Developer/Contractor agrees the above two-year limitation shall not exclude nor diminish any rights under any law to obtain damages and recover costs resulting from defective and unauthorized work discovered after two years.

The Developer shall post a bond for the successful operation and condition of all public improvements for a period of two (2) years following final inspection and acceptance in accordance with the Zillah Municipal Code. (17.26.090)

#### **f. 1-05.16 Water and Power (APWA)**

Water shall be furnished and applied in accordance with the provisions of Sections 1-05.16 of the APWA Division One GSP's and 2-07 of the Standard Specifications modified as follows:



Water Supply: Water for use on the projects may be obtained/purchased from the City of Zillah and the Contractor shall arrange for and convey the water from the nearest convenient hydrant or other source at his own expense. The hydrants shall be used in accordance with the City of Zillah Water Department regulations.

The City reserves the right to deny the use of fire hydrants where deemed inappropriate by the City.

**6. 1-07 LEGAL RELATION AND RESPONSIBILITIES TO THE PUBLIC**

**a. 1-07.1 Laws to be Observed**

Amend the second sentence of the first paragraph to read:

The Contractor/Developer shall indemnify and save harmless the City of Zillah (including any agents, officers, employees, and representatives) against any claims that may arise because the Contractor (or any employee of the Contractor or subcontractor or material man) violated a legal requirement.

**b. 1-07.5(3) State Department of Ecology**

This Section is supplemented with the following:

Comply with the requirements and special general conditions of the "General Permit for Storm Water Discharge Associated with Construction Activities" issued by the Washington State Department of Ecology to the Developer/Contractor for this project.

**c. 1-07.5(4) Air Quality**

In addition to the requirements of Section 1-07.5 (4), the Contractor shall comply with the environmental provisions of local air pollution authorities, Yakima Regional Clean Air Authority.

A method of dust control during construction shall be submitted to, and approved by, the Yakima Regional Clean Air Authority. A written copy of their approval shall be submitted to the Public Works Director prior to commencement of construction. The Contractor/Developer shall designate a project coordinator for contact during construction regarding alleged air quality violations and other complaints.

**d. 1-07.13 Contractor's Responsibility for Work**

The following shall be added to this section of the Standard Specifications:

The Contractor is responsible for constructing and completing all work included in the Contract Documents and any other work directed by the Developer in a professional manner with first-class workmanship.

The Contractor shall keep the City of Zillah, the Developer, and the Consultant informed in writing of the address to which official correspondence is to be directed, the address and phone number of the person in charge of his field personnel, and the address and telephone number of the Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of traffic control and safety devices.

**e. 1-07.17 Utilities and Similar Facilities**

**Section 1-07.17 is supplemented by the following:**

It shall be the Contractor's responsibility to investigate and verify the presence and location of all utilities prior to construction.

The Contractor/Developer shall call for field location, not less than two nor more than ten business days before the scheduled date for commencement of excavation which may affect underground utility facilities, unless otherwise agreed upon by the parties involved. A business day is defined as any day other than Saturday, Sunday, or a legal local, state, or federal holiday. The phone number for the Northwest Utility Notification Center for Zillah is 1-800-424-5555. If no one-number locator service is available, notice shall be provided individually by the Contractor to those owners known to or suspected of having underground facilities within the area of proposed excavation.

The Contractor/Developer is alerted to the existence of RCW Chapter 19.122, a law relating to underground utilities. Any cost to the Contractor/Developer incurred as a result of this law shall be at the Contractor's/Developer's expense.

No excavation shall begin until all known facilities, in the vicinity of the excavation area, have been located and marked.

**f. 1-07.18 Public Liability and Property Damage Insurance**

The Contractor shall obtain and maintain in full force and effect during the duration of this Contract public liability and property damage insurance in accordance with Section 1-07.18 of the APWA Division One GSP's and as modified herein.

Prior to start of construction, the Contractor/Developer shall furnish the City of Zillah a Certificate of Insurance and the additional insured endorsements as evidence of compliance with these requirements. This certificate shall name the City of Zillah, its employees, agents, elected and appointed officials, engineering consultant, and all subcontractors as "additional insured" and shall stipulate that the policies named thereon cannot be canceled unless at least forty-five (45) days written notice has been given to the City of Zillah. The certificate shall not contain the following or similar wording regarding cancellation notification: "Failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents, or representatives."

**g. 1-07.23 Public Convenience and Safety**

**The provisions of Section 1-07.23 of the Standard Specifications are supplemented as follows:**

At entrances to business properties and other private roads, driveways, bridges, or other such means as to provide access shall be provided by the Contractor. The Contractor shall maintain vehicular and pedestrian access to businesses at all times that businesses are open for business.

Upon failure of the Contractor to provide immediately and maintain adequate suitable access, when ordered to do so, the City shall be at liberty, without further notice to the Contractor or the Surety, to provide the same and request payment for providing proper access, and the City assumes no liability connected therewith.

Any traffic restriction must have prior approval of the City of Zillah. Appropriate traffic control measures and signing are required during such temporary road closures.

It shall be the responsibility of the Contractor to secure the approval of and notify the Developer, City of Zillah, and the Police and Fire Departments at least 72 hours prior to closing any street, in addition to correlating the proposed closures with the City of Zillah to ensure proper detouring of traffic. When the street is re-opened, it shall again be the responsibility of the Contractor to notify the above named departments and persons.

**h. 1-07.23(3) Notifying Property Owners (New Section)**

**The following new section shall be added to the Standard Specifications:**

When construction activities will affect ingress and egress to a property along the project alignment, the Contractor shall be responsible for notifying the occupant/occupants of the property 24 hours prior to the construction activity beginning. If personal contact with the occupant is not possible, the Contractor shall leave written notification.

**i. 1-07.29 Safety Standards (New Section)**

**The following new section shall be added to the Standard Specifications:**

All work shall be performed in accordance with all applicable local, state, and federal health and safety codes, standards, regulations, and/or accepted industry standards. It shall be the responsibility of the Contractor to ensure that his work force and the public are adequately protected against any hazards.

The City of Zillah or Developer shall have the authority at all times to issue a stop work order at no penalty if, in their opinion, working conditions present an undue hazard to the public, property, or the work force. Such authority shall not, however, relieve the Contractor of responsibility for the maintenance of safe working conditions or assess any responsibility to the City or Developer for the identification of any or all unsafe conditions.

**7. 1-08 PROSECUTION AND PROGRESS**

**a. 1-08.3 Progress Schedule**

The provisions of SECTION 1-08.3 of the Standard Specifications, Division One shall be supplemented with the following:

Prior to the commencement of any work, a preconstruction conference shall be held. The Contractor or Developer shall contact the City of Zillah and set a date and time for the meeting. It shall be the responsibility of the Contractor/Developer to notify and invite all parties having an interest in the project to the meeting.

At this conference all points of the approved Plans and Specifications will be open to discussion including scope, order and coordination of work, equipment lead time required means and methods of construction, inspection and reporting procedures, etc. The Contractor should satisfy himself that all provisions and intentions of the work are fully understood.

The Contractor shall prepare and submit to the City and Developer at the Preconstruction Conference a Construction Progress and Completion Schedule using a bar graph format. Items in the Schedule shall be arranged in the order and sequence in which they will be performed. The schedule shall be drawn to a time scale, shown along the base of the diagram, using an appropriate measurement per day with weekends and holidays indicated. The Construction Progress Schedule shall be continuously updated and, if necessary, redrawn upon the first working day of each month or upon issuance of any Change Order which substantially affects the scheduling. Copies (2 prints or 1 reproducible) of newly updated Schedules shall be forwarded to the City and Engineer, as directed, immediately upon preparation.

**8. 1-10 TEMPORARY TRAFFIC CONTROL**

**This section is supplemented with the following:**

The provisions of the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways and amendments thereto published by the U.S. Department of Transportation, Federal Highway Administration, and WSDOT by this reference are made a part of these Documents.

**a. 1-10.2(2) Traffic Control Plans**

**Delete the entire section and replace with the following:**

The Contractor shall prepare a signing plan showing the necessary Class A and B construction signing, barricades, and traffic control devices required for the project and submit it to the Consultant and City for review no later than the preconstruction conference date. When the Class B signing for a particular area will be provided as detailed on one or more of the figures included in the MUTCD without modification, the Contractor may reference the applicable

MUTCD figure at the appropriate location on the Plan. When this procedure is used, variable distances such as minimum length of taper must be specified by the Contractor.

The signing plan prepared by the Contractor shall provide for adequate warning within the limits of the project and on all streets, alleys, and driveways entering the project so that approaching traffic may turn left or right onto existing undisturbed streets before reaching the project. The Plan shall be prepared to create a minimum of inconvenience for pedestrian and vehicle traffic.

All modifications to the accepted signing plans shall be reviewed by the City.

**b. 1-10.3(3)A Construction Signs**

The first sentence of the first paragraph is revised to read:

All signs, barricades, flashers, cones, traffic safety drums, barricades, and other traffic control devices required by the approved traffic control plan(s), as well as any other appropriate signs prescribed by the City or County, shall be furnished and maintained by the Contractor.

Open trenches shall be provided with proper barricades and at night they shall be distinctly indicated by adequately spaced lights.

**15.10.040 PART 4 - WATER SYSTEM IMPROVEMENTS**

**1. GENERAL REQUIREMENTS FOR WATER SYSTEM IMPROVEMENTS**

All extensions and additions to the City of Zillah's domestic water system shall conform to the design and construction standards of the City of Zillah and the Washington State Department of Health (WSDOH) as follows:

All new lots and developments shall be served by a public water supply line to be maintained by the City of Zillah and located adjacent to the lot or development site. The water supply line shall be capable of providing sufficient flow and pressure to satisfy the fire flow and domestic service requirements of the proposed lots and development requirements.

Water lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted Water Comprehensive Plan.

All new public domestic water mains shall be a minimum diameter of 8-inch. Fire hydrant runs less than 50 feet from the water main to the fire hydrant shall be a minimum of 6-inch.

New water mains shall be located in existing or proposed streets and shall be offset from the street centerline and not located within a vehicle wheel path.



Larger public water mains may be required depending upon fire flow requirements as determined by the City of Zillah's Public Works Director, Fire Chief, and/or City Engineer.

Water main over sizing, above that required for the particular development being submitted, may be required by the City of Zillah to be installed for future extension. The cost of the materials only for the over sizing shall be reimbursed to the Developer by the City. The Developer shall submit actual material invoices showing the actual cost of the materials furnished and the cost of the same materials of the size required for the development.

All domestic water mains shall be looped, where possible. Temporary dead-end mains over 500 feet in length will only be allowed where future water main looping via public right of way will be assured. No permanent dead-end water mains over 500 feet in length will be allowed to be part of the City of Zillah's domestic water system.

Maximum valve spacing in public water mains will be 750 linear feet. Valves will be furnished and installed on all legs of new water main intersections.

All water service lines, meter box and meter setters shall be installed by the Developer/Contractor.

All new water meters shall be a minimum of 3/4-inch and shall be furnished and installed by the City of Zillah and paid for by Developer.

Only one water service meter shall be served from each main tap. All taps shall be made under the supervision of the Public Works Director or his designee.

Fire hydrants shall be spaced at least every 300' in all zones. Additional hydrants may be required to protect structures as determined by the Fire Chief and Public Works Director. Additional fire hydrants required on a site may require a looped, on-site fire hydrant main. Easements will be provided for all on-site, public, looped water mains, in accordance with 15.10.010 Part 1, Section 11.

Water and sewer mains shall be separated in accordance with Section C1-9.1 of the Criteria for Sewage Works Design, August 2008, by the Washington State Department of Ecology.

The design of water mains and appurtenances is subject to review and approval by the City of Zillah Director of Public Works. The Director of Public Works may, at his discretion, adjust these Standards as necessary to facilitate installation of water lines and appurtenances for the health, safety, and protection of the general public.

## **2. Irrigation Systems**

The proposed development shall be served by a separate irrigation water distribution system with an individual service for each lot. The irrigation system shall be designed by a professional and constructed in accordance with Sunnyside Valley Irrigation District, the Zillah Irrigation District, and City of Zillah Construction Standards. All irrigation pipelines under roadways shall meet

the requirements of Section 9-30.1(5) A (AWWA C900 or C905). Pipe not under the roadway may meet the requirements of Section 9-05.12 (PVC solid wall ASTM D 3034 SDR35) or 9-15.1(2) (ASTM D1784, 200 psi, SDR21). All irrigation pipes shall be installed with a minimum cover of 30 inches pipe zone bedding and backfill per Standard Detail 55-5, and with a 3-inch wide magnetic marking tape 8 inches above the pipe.

### **3. SPECIAL PROVISIONS FOR WATER SYSTEM IMPROVEMENTS**

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to public works improvements within the City of Zillah.

#### **A. 7-09 WATER MAINS**

##### **a. 7-09.2 Materials**

Section 7-09.2 of the Standard Specifications shall be revised as follows:

Water Main pipe shall be either:

Ductile Iron, conforming to the requirements of Section 9-30.1(1) of the Standard Specifications, except that it shall be Standard Thickness Class 52. Joints shall be rubber gasket, push-on type (Tyton Joint). Fittings shall be mechanical joint or flanged, as shown on the Plans, and shall conform to Section 9-30.2(1) of the Standard Specifications.

#### **Or**

Polyvinyl Chloride (PVC) Pipe conforming to the requirements of Section 9-30.1(5) A (AWWA C900 or C905). Fittings shall be the same as specified for Ductile Iron pipe. PVC pipe must be installed with size 12 Blue plastic coated solid copper tracer wire on the top of the pipe. Delete entire Aggregates Sub-Section and replace with the following:

Bedding Materials (Flexible Pipes) 9-03.9(3) Crushed Surfacing Top Course  
Bedding Materials (Rigid Pipes) 9-03.12(3) Gravel Backfill for Pipe Zone Bedding  
Imported Select Backfill 9-03.9(3) Crushed Surfacing Base Course

##### **b. 7-09.3(5) Grade and Alignment**

The first sentence of the third paragraph is replaced with the following:

The depth of trenching for water mains shall be such to provide a minimum cover of 4 feet and a maximum cover of 6 feet, unless otherwise approved by the Director of Public Works.

##### **c. 7-09.3(9) Bedding the Pipe**

Add the following:

Imported pipe zone bedding for rigid pipe shall be Crushed Surfacing Top Course or Gravel Backfill, placed and compacted in layers per the Standard Specifications. Use as directed by the Engineer.

Imported pipe zone bedding for flexible pipe shall be Crushed Surfacing Top Course, placed and compacted per the Standard Specifications. Bedding shall be placed under all flexible pipes.

**d. 7-09.3(10) Backfilling Trenches**

Add the following:

Street crossing trenches and other locations where directed shall have the trench backfilled full depth with Imported Select Backfill. The Director of Public Works may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in 15.10.070 Part 7, Section 8-30 of these Special Provisions.

Mechanical compaction to 95% of maximum density is required for all trenches. The Developer/Contractor shall be responsible for scheduling and paying for all testing required.

**B. 7-12 VALVES FOR WATER MAINS**

**1. 7-12.2 Materials**

Add the following:

All valves sizes 3-inch through 10-inch shall be gate valves and shall conform to the latest revision of AWWA Resilient Seated Gate Valves Standard C509 and AWWA C104.

All gate valves shall have non-rising stems, open counterclockwise, and shall be provided with a 2-inch square AWWA operating nut. Gate valves 4-inch and larger shall have mechanical joint connections.

All valves sizes 12 inches and larger shall be butterfly valves suitable for direct burial and shall be rubber seated and conform to the latest revision of AWWA Standard C504 Class 150B and C104.

Valve operators shall be worm gear type, sealed, gasketed, and lubricated for underground service. All valves shall open counterclockwise and shall be provided with a 2-inch square AWWA operating nut.

Valve Boxes shall be two piece adjustable. The top section shall be similar to Olympic Foundry Model 940-B, or equal, 18-inches high. The bottom section shall be an Olympic Foundry Model



R-36, or equal, 36-inches high. Extension sections shall be Olympic Foundry Model 044, or equal, 12-inches high.

**C. 7-14 FIRE HYDRANTS**

**a. 7-14.2 Materials**

Replace the entire Section with the following:

The City of Zillah accepts fire hydrants of the following manufacturers, providing the hydrants conform to the City's technical specifications for fire hydrants:

Mueller Centurion  
M & H 929 Reliant

All hydrants shall have a Main Valve Opening (MVO) of 5-1/4" and one port with a 5" Storz Quick Coupling and two (2) 2-1/2" diameter ports. Threads on all ports shall be National Standard Thread.

**b. 7-14.3(1) Setting Hydrants**

Add the following:

The hydrant shall be set to the correct elevation on a concrete block base measuring 12" x 12" x 6" thick, which has been placed on undisturbed earth. Around the base of the hydrant, the Contractor shall place 0.35 cubic yards of "Gravel Backfill for Drywells" per Section 9-03.12(5) to allow free drainage of the hydrant.

The hydrants will be painted a color approved by the City.

**c. 7-14.3(2) Hydrant Connections**

Add the following:

Hydrant runs of less than 50 feet shall be connected to the main with 6-inch minimum diameter water main. Each hydrant lateral shall include an auxiliary gate valve and valve box.

**d. 7-14.3(2)A Hydrant Restraint**

Add the following:

The Contractor shall securely connect the hydrant to the water main as indicated on the Standard Detail.

**e. 7-14.3(2)C Hydrant Guard Posts**

The Director of Public Works may determine that four (4) 6-inch diameter Sch. 40 steel guard posts be installed at a hydrant location. The posts will be painted the same color as the hydrants.

**D. 7-15 SERVICE CONNECTIONS**

**a. 7-15.1 General**

This work consists of the relocation of existing water meters, meter setters, and water meter boxes, where necessary, and the installation of new saddles, corp stops, service pipe, water meter boxes and meter stops and setters as shown on the Plans.

**b. 7-15.2 Materials**

SECTION 7-15.2 of the Standard Specifications shall be revised as follows:

Saddle: New service tapping saddles shall be ROMAC D. I. service saddle with double stainless steel straps or approved equal.

Corporation Stop: New corp stops shall be Ford type 1001 or approved equal.

Service Line: New service pipe shall be Cross linked Polyethylene (PEX) Tubing meeting ASTM F876/F877 specifications and ANSI/NSF Standard 14/61.

Meter Box: Mueller/McCullough Coil Type Setter, style 15, with 2" insulation pad and non-locking lid.

Pipe Bedding and Select Backfill: The imported pipe bedding and select backfill to be utilized for trench backfill as directed by the Engineer or Public Works Director shall be in accordance with SECTION 7-09 of these Special Provisions.

**c. 7-15.3 Construction Details**

Add the following:

The Contractor shall set the meter box to the finished grade of the area. The Contractor will be required to reset the meter box if it is not at finished grade at the completion of the project. The completed water service shall be tested at system operating pressure by the Contractor and must show no signs of leakage.

Future water services shall be marked with an 18" long section of #4 rebar buried vertically with the top of the rebar set 6" below the finish surface.

**15.10.050 PART 5 - SANITARY SEWER SYSTEM IMPROVEMENTS**

1.

## **GENERAL REQUIREMENTS FOR SANITARY SEWER LINES**

All extensions to the City's sanitary sewer system shall conform to the design standards of the City of Zillah, the Washington State Department of Ecology, and be designed by a licensed professional Engineer as follows:

All new lots and developments shall be served by a public sanitary sewer line adjacent to the lot or development site.

Sewer lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted Sewer Comprehensive Plan.

Sewer lines shall be located in streets to serve abutting properties. When necessary, sewer lines may be located within public easements. Lines located in streets will be offset from the street centerline and not located within a vehicle wheel path. Sewer lines located in easements shall generally be located in the center of the easement, but may, with the approval of the Director of Public Works, be offset to accommodate the installation of other utilities or to satisfy special circumstances.

The minimum size for public sewer lines is eight (8) inches in diameter. The developer's sewer system must provide capacity for the proposed development, but must also provide capacity for future extensions.

Sewer lines shall be terminated with a manhole. In special circumstances, a flush-end (cleanout) may be installed on the end of a sewer main extension, provided the end is no further than 150 feet from the last manhole and the sewer main line and grade will permit further extension.

Manholes shall be installed at intervals of no greater than 350 feet and at all vertical and horizontal angle points in the sewer main.

Each building containing sanitary sewer facilities shall be served by a separate private side sewer line. Branched side sewers serving multiple buildings and properties shall not be permitted. Side sewers serving multi-unit buildings are permitted.

Side sewers shall be installed in accordance with the Uniform Plumbing Code (UPC) and subject to review and approval by the City of Zillah Building Inspector. Water and sewer lines shall not be laid in the same trench, except as provided in Section 1008 of the UPC and with written approval of the City of Zillah Building Inspector.

Sewer lines shall be designed for gravity flow operation. Lift stations and force mains shall be limited to those locations and circumstances where they are consistent with the Comprehensive

Sewer Plan and are the only viable solution to serve the proposed development and other properties in the vicinity. Lift stations and force mains shall be designed by a Professional Civil Engineer licensed in the State of Washington.

The design of sewer lines and appurtenances is subject to review and approval by the City of Zillah Director of Public Works. The Director of Public Works may, at his discretion, adjust these Standards as necessary to facilitate installation of sewer lines and appurtenances for the health, safety, and protection of the general public.

## **2. SPECIAL PROVISIONS FOR SANITARY SEWER SYSTEM IMPROVEMENTS**

All construction work shall be performed in accordance with the Standard Specifications and these sections that have been amended or supplemented as described below.

### **3. 7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS**

#### **1. 7-05.2 Materials**

Add the following:

Sanitary Sewer Manholes shall be gasketed and constructed of 48-inch diameter reinforced precast concrete manhole sections in conformance with the requirements of Section 9-12.4. The base and first barrel section shall be precast monolithically with preformed channels.

Joints in the manhole sections shall be watertight and shall be a rubber ring compression joint complying with ASTM C443, a flexible, plastic gasket, or approved equal.

Manhole frames and covers shall be manufactured in the United States and be cast iron with a combined weight of not less than 400 pounds and have a clear opening of 24 inches. The frames and covers shall be the manufacturer's stock pattern capable of withstanding, with appropriate margin of safety, an H20 loading. Covers shall have a 1-inch hole only, unless otherwise noted, and the top shall be flat with a non-skid pattern and marked "SEWER." The contact surfaces of the frames and covers shall be machine finished to a common plane or have other adequate provision to prevent rocking.

#### **2. 7-05.3 Construction Requirements**

Add the following:

The design and construction of all manholes shall provide for a 0.10 foot vertical drop through the manhole.

Manhole coupling adaptors may be precast in the manhole to accept PVC pipe, provided diameters match. No field grouting of pipe into manholes will be allowed. Pipe connections at

manholes must be gasketed and must be flexible. "A-Lok" gasket system or approved equal may be used as an alternate to the manhole coupling adapter.

**a. 7-05.3(1) Adjusting Manholes and Catch Basins to Grade**

Delete and replace with the following:

Manholes, valve boxes and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, at which time the center of each structure shall be relocated from references previously established by the Contractor.

The asphalt pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus 2 feet. The frame shall be placed on cement concrete blocks or adjustment rings and wedged up to the desired grade. The base materials shall be removed and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 1½ inches below the finished pavement surface.

On the following day, the concrete, the edges of the asphalt pavement, and the outer edge of the casting shall be painted with hot liquid asphalt. Class 3/8" HMA shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be painted with hot liquid asphalt or asphalt emulsion and shall be immediately covered with dry paving sand before the HMA solidifies.

**b. 7-05.3(2) Abandon Existing Manholes**

Replace the entire section with the following:

Where shown on the Plans, existing sanitary sewer manholes shall be abandoned in place after the new sanitary sewer collection system is in place and all side sewers have been transferred to the new sanitary sewer pipeline. The following new section shall be added to the Standard Specifications:

At least the top 3 feet of each manhole, or the top conical section in precast concrete manholes, shall be removed, including the cast iron ring and cover and concrete pad, if any. Debris resulting from breaking of the upper portion of the manhole may be mixed with backfill subject to the approval of the Engineer. Ring and cover will become property of the Contractor and all other surplus material shall be disposed of.

The existing pipe openings shall be plugged watertight with Class 3000 concrete and the manhole bottom slabs shall be broken to promote drainage. The remaining manhole structure shall be backfilled with granular material conforming to SECTION 9-03.9(3) CRUSHED SURFACING BASE COURSE. Place backfill in uniform layers and compact to 95% maximum dry density, as determined by ASTM D 1557 (Modified Proctor).

Excavations resulting from manhole abandonment shall be backfilled with suitable, job-excavated material to top of subgrade. Compact shall be to 95% maximum dry density as determined by ASTM D 698 (Standard Proctor). Restore surface to the condition existing prior to excavation with native material, gravel surfacing, or asphalt concrete pavement, as shown for trench repair on the Plans.

**4. 7-08 GENERAL PIPE INSTALLATION REQUIREMENTS**

**A. 7-08.1 General**

Add the following:

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 1-800-424-5555.

All construction work shall be inspected by the City of Zillah prior to backfilling. At least 48 hours notice shall be given to the City Public Works Department prior to backfilling.

**1. 7-08.3(1)C Bedding the Pipe**

Add the following:

The imported pipe zone bedding to be utilized for the trench backfill shall be Crushed Surfacing Top Course in conformance with Section 9-03.9(3), placed and compacted in layers as designated by the Public Works Director.

**2. 7-08.3(2)B Pipe Laying - General**

Add the following:

All sewer pipes shall be installed with 3-inch wide magnetic marking tape as detailed in Standard Detail SS-5 and Section 9-15.18.

**3. 7-08.3(3) Backfilling**

Add the following:

Street crossing trenches and other locations, where directed, shall be backfilled for the full depth of the trench with Imported Select Backfill conforming to Section 9-03.9(3) Crushed Surfacing Base Course. The Director of Public Works may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in Part 7, Section 8-30 of these Special Provisions.

Mechanical compaction shall be required for all trenches. The density of the compacted materials shall be at least 95% of the maximum density as determined by ASTM D 698 Test (Standard Proctor). The Developer/Contractor shall be responsible for scheduling and paying for all testing required.

**5. 7-17 SANITARY SEWERS**

**a. 7-17.2 Materials**

Sanitary Sewer Pipe approved for the City of Zillah shall be:

PVC Sewer Pipe (Gravity): Polyvinyl Chloride Pipe with flexible gasketed joints shall conform to the requirements of Section 9-05.12 of the Standard Specifications (ASTM D3034, SDR 35). Pipe joint type for restrained gasket.

PVC fittings for PVC sewer pipe such as tees, wyes, elbows, plugs, caps, etc., shall be flexible gasket joint fittings acceptable for use and connection to PVC sewer pipe.

**6. 7-18 SIDE SEWERS**

**A.7-18.3 CONSTRUCTION REQUIREMENTS**

**1. 7-18.3(1) General**

Add the following:

Side sewer connections shall be constructed in accordance with the City's Standard Detail with a minimum of 36 inches of cover. This provision may be waived by the Director of Public Works under special circumstances; however, under no circumstances shall the side sewer be laid with less than 18 inches of cover.

Side sewers shall be a minimum of 4-inches in diameter. Larger sizes, if required, will be approved by the Director of Public Works on a case by case basis.

**15.10.060 PART 6 - STORMWATER IMPROVEMENTS**

**1. GENERAL REQUIREMENTS FOR STORMWATER IMPROVEMENTS**

All extensions and additions to the City of Zillah's storm sewer (storm drain) system shall conform to the following design standards and requirements of the City.

All new storm drainage facilities, public or private, shall be designed by a Professional Civil Engineer licensed in the State of Washington in accordance with the Department of Ecology



Eastern Washington Stormwater Management Manual. Complete stormwater runoff and drainage facilities sizing calculations shall be submitted to the City of Zillah for review and comment. Storm sewer facilities and pipelines shall be designed to meet a minimum 25-year storm criterion, and both the long duration storm and short duration storm shall be considered in the design.

Storm runoff occurring on all new lots and developments (private property) shall be retained and disposed of on-site. No storm runoff from private property will be allowed to enter public property or public storm drainage system.

Storm runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.

All storm sewer designs for new public streets shall be based upon an engineering analysis which takes into account total drainage areas, runoff rates, pipe and inlet capacities, and any other factors pertinent to the design

All stormwater facilities shall have oil and silt separation.

Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Part 5. Generally, inlet spacing shall not exceed 300 feet. There shall be installed a manhole or Type II Catch Basin at the intersection of two collector storm sewers. A collector storm sewer is a system servicing more than one catch basin.

## **2. SPECIAL PROVISIONS FOR STORM SEWERS AND DRAINAGE**

The following Sections of the Standard Specifications have been amended or supplemented as described below:

### **A. 7-02 CULVERTS**

#### **1. 7-02.4 Materials**

Add the following:

Culvert pipe approved for use on this project shall be as follows:

Corrugated Aluminum Alloy Culvert Pipe meeting the requirements of SECTION 9-05.5 of the Standard Specifications.

**OR**

Aluminized Corrugated Steel Culvert Pipe meeting the requirements of SECTION 9-05.4 of the Standard Specifications.



**B.**                      **7-04 STORM SEWERS**

**1.**                      **7-04.2 Materials**

Add the following:

The storm sewer (drain) pipe approved for use on this project shall be as follows:

**15-INCH THROUGH 36-INCH PIPE**

**Corrugated Aluminum Alloy Storm Sewer Pipe:** All corrugated aluminum alloy storm sewer pipe shall comply with the requirements specified in SECTION 9-05.11 of the Standard Specifications and shall be 15 gauge with helical corrugations. A protective coating shall not be required. All corrugated metal pipe joints shall be flexible using rubber gasket joints. Gaskets shall be made of 3/8-inch thick by 12-inch minimum width closed cell synthetic sponge rubber, per ASTM D 1056, Grade SCE-43, fabricated in the form of a cylinder with a diameter of approximately 10 percent less than the nominal pipe size. The gasket shall be centered under the band and lapped an equal distance on the ends of the adjoining pipe sections. Coupling bands shall be used and shall conform to the provisions of SECTION 9-05.11 (1) of the Standard Specifications. Coupling bands shall be made by the same manufacturer as the pipe and shall be made of the same base material as the pipe which it connects.

**PE Pipe:** Corrugated High Density Polyethylene (CPEP) pipe, couplings, and fittings shall comply with the requirements of SECTION 9-05.20 of the Standard Specifications.

**12-INCH AND SMALLER PIPE**

**PVC Pipe:** Polyvinyl chloride (PVC) pipe shall conform with requirements specified in SECTION 9-05.12 of the Standard Specifications (ASTM D 3034, SDR 35). The pipe joint type shall be restrained gasket.

**OR**

**PE Pipe:** Corrugated High Density Polyethylene (CPEP) pipe, couplings, and fittings shall comply with all the requirements of Section 9-05.20. Joints shall be water-tight.

Pipe shall be as manufactured by Hancor, Advanced Drainage Systems, Inc., or approved equal.

The perforated underdrain pipe for infiltration trenches approved for use shall be as follows:

**PE Pipe:** Perforated Corrugated High Density Polyethylene (CPEP) underdrain pipe, couplings, and fittings shall comply with all the requirements of SECTION 9-05.2(8) of the Standard Specifications.

**DRAIN ROCK:** Drain rock for use as backfill for the perforated underdrain pipe in infiltration trenches shall be clean coarse aggregate conforming to the requirements for "Gravel Backfill for Drywells" as specified in SECTION 9-03.12(5) of the Standard Specifications.

A. 7-04.3(1) Cleaning and Testing

1. 7-04.3(1) A General

No infiltration or exfiltration test will be required for the storm drain pipe.

C. **7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS**

1. 7-05.2 Materials

Section 7-05.2 of the Standard Specifications shall be revised as follows:

**Gravel Backfill for Drywells:** Gravel backfill for drywells shall be as specified in Section 9-03.12(5) of the Standard Specifications.

**Manhole Metal Castings:** All cast iron frames and covers shall be manufactured in the United States and as specified in SECTION 9-05.15 (1) of the Standard Specifications. All cast iron frames and covers to be used on this project shall be of the type, weight, and size approved by the City of Zillah, and shall be furnished by the Contractor. Covers for sanitary sewer shall be stamped "SEWER." Covers for storm drain shall be stamped "STORM."

**Precast Concrete Catch Basin:** Catch basins shall be WSDOT Type I, IL or 2 and constructed as shown on the City Standard Details.

**Catch Basin Metal Castings:** All frames and grates shall be capable of withstanding, with a reasonable margin of safety, a concentrated load of 20,000 pounds and shall be as specified in SECTION 9-05.15(2) of the Standard Specifications and Standard Plans B-30.10, B-30.30, B-30.40, and B-30.50. The contact surfaces of the frame and grate shall be machine finished to a common plane and shall be so cast as to prevent rocking.

15.10.070 PART 7 - STREET IMPROVEMENTS

1. GENERAL REQUIREMENTS FOR STREET IMPROVEMENTS

All new street design and construction must conform to the design standards of the City of Zillah and 17.22.070 (A)(B)(C) of the Zillah Municipal Code and the latest edition of the Standard Specifications.

Traffic Studies

In order to provide sufficient information to assess a development's impact on the transportation system and level of service, the Director of Public Works may require a traffic study to be completed by the Developer at the Developer's expense. This decision will be based upon the size of the proposed development, existing roadway condition, existing and expected, traffic volumes, accident history, expressed community concern, and other factors relating to transportation. Traffic studies shall be conducted under the direction of a traffic engineer or civil engineer licensed in the State of Washington and possessing special training and experience in traffic engineering. The level of detail and scope of the traffic study may vary with the size, complexity, and location of the proposed development. A traffic study shall, at a minimum, be a thorough review of the immediate and long-range effects of the proposed development on the City's transportation system. Guidelines for the traffic study shall be reviewed by the Director of Public Works on a project basis. However, the ADT for the development shall be estimated using the trip generators found in the latest edition of the Trip Generation Manual published by ITE.

### **Street DESIGN Requirements**

**Major Collector** arterial streets serve as the high volume corridors that connect the major traffic generators and shall be designed with a seventy (70) foot wide Right of Way and forty-six (46) foot wide roadway surface face of curb to face of curb. Face of Curb Radius shall be a minimum of 50 feet and the street centerline radius shall be designed to a minimum 40 mph design speed or as approved by the Director of Public Works.

**Minor Collector** arterial streets shall be designed with a sixty (60) foot wide Right of Way and a forty (40) foot wide roadway surface curb to curb. Face of Curb Radius shall be a minimum of forty (40) feet and the street centerline radius shall be designed to a minimum 35 mph design speed or as approved by the Director of Public Works.

**Local Access (*Residential*)** streets shall be designed with a minimum fifty (50) foot wide Right of Way and thirty-two (32) foot wide roadway surface curb to curb when on-street parking is prohibited, and a thirty-seven (37) foot wide roadway surface curb to curb when on-street parking is permitted. Face of Curb Radius shall be a minimum of twenty-five (25) feet and street centerline radius shall be designed to a minimum of 30 mph design speed or as approved by the Director of Public Works.

The maximum length of a cul-de-sac street shall be 500 feet measured along the street centerline from the nearest street intersection to the throat of the cul-de-sac. Where it is not feasible to construct a cul-de-sac turnaround, the City may allow the use of an "L" or "Tee" turnaround upon approval.

Street jogs with centerline offsets of less than one hundred twenty-five (125) feet shall be avoided. Collector arterials centerline angle point deflections of more than ten (10) degrees shall require the design of a curve. A tangent at least 200 feet long shall be introduced between reverse curves on Collector arterials.

Street grades shall be kept to a maximum of six (6) percent for Major Collectors, eight (8) percent for Minor Collectors and twelve (12) percent for Local Access streets. The minimum grade for all streets shall be three-tenths (0.3) percent.

Cement concrete traffic curb and gutter and sidewalks along both sides shall be installed along all new streets unless otherwise approved by the City of Zillah. Mountable curb is allowable for local access streets in subdivisions, except for the curb return and 20 feet beyond at an intersection radius where the curb shall be full height.

Driveways shall be located on the lowest classification of roadway abutting the development. Driveways accessing onto Collectors are discouraged and shall be limited. Driveway widths and locations are limited to one per lot as approved by the Director of Public Works. "Corner" lots shall have the driveway located as far from the street intersection as possible.

A street light shall be installed at each street intersection, at mid-block, no more than one hundred seventy-five (175) feet apart, and at ends of culs-de-sac. Street lights shall meet the design and placement requirements of these Standards and the City Public Works Director and the local electric utility.<sup>3</sup>

Installation of a monument case cover and monument caps at the centerline of street intersects angle point and points of curves and at other locations as directed by the Director of Public Works is required in new developments.

Traffic control signs, posts and post sleeves shall be provided and installed by the developer in accordance with the MUTCD and City Standards.

## **2. SPECIAL PROVISIONS FOR STREET IMPROVEMENTS**

The following sections of the Standard Specifications have been amended or supplemented as described below.

### **A. 2-03 ROADWAY EXCAVATION AND EMBANKMENT**

#### **1. 2-03.3(14)C Compacting Earth Embankments**

All embankment construction shall be compacted by Method "C" as specified in the above section.

#### **2. 2-03.3(14)D Compacting and Moisture Control Tests**

The contractor shall notify the City and Consultant when the subgrade is ready for in-place density tests and the materials testing firm will be on the site. Placement of aggregate courses

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<sup>3</sup> ZMC 17.22.030

shall not proceed until density requirements are met. The Developer/Contractor shall be responsible for scheduling and paying for all testing.

**B. 2-07 WATERING**

**1. 2-07.1 Description**

The Contractor shall be solely responsible for dust control on the Developer's project and shall protect the adjacent property, homes and businesses, orchards, crops and school yards from dust by whatever means necessary. The Contractor shall be responsible for any claims for damage or dust impacts and shall protect the City and the Developer from all such claims.

When directed by the City, the Contractor shall provide and apply water within two hours of such an order, including on weekends and holidays.

**C. 5-04 HOT MIX ASPHALT**

**1. 5-04.2 Materials**

This section is supplemented with the following:

The Class of Hot Mix Asphalt used for asphalt pavement shall be HMA Class 1/2" with grade PG 64-28 asphalt binder.

**2. 5-04.3(3) HMA Pavers**

This section is supplemented with the following:

The asphalt paver that is utilized on the Developer built streets shall be capable of spreading and finishing courses of HMA plant mix in a width from center line of the roadway to the edge of the gutter in one single pass.

**3. 5-04.3(7)A Mix Design**

**a. General**

This section is supplemented with the following:

The Contractor may submit for acceptance an approved WSDOT mix design for the class of HMA specified in the contract if the mix design has been approved within the previous twelve month period using aggregate and asphalt binder from the same sources. The Contractor shall provide the mix design to the City at least fifteen (15) working days prior to any paving.

Delete Paragraph 1 in Part 2. Statistical or Nonstatistical Evaluation. The Contractor shall be responsible for the verification of the mix design.

**4. 5-04.3(8)A Acceptance Sampling And Testing – HMA Mixture**

Subsection 1 is deleted and replaced with the following:

**a. General. Acceptance of HMA shall be as provided under Nonstatistical or Commercial evaluation.**

Commercial evaluation will be used for Commercial HMA and for other classes of HMA in the following applications: sidewalks, road approaches, ditches, slopes, paths, trails, gores and other nonstructural applications as approved by the Engineer. Sampling and testing of HMA accepted by commercial evaluation will be at the option of the Engineer. The proposal quantity of HMA that is accepted by commercial evaluation will be excluded from the quantities used in the determination of Nonstatistical evaluation.

Commercial HMA can be used for patching utility or conduit trenches less than 24 inches in width.

**b. Test Results.**

Paragraph 1 is deleted and replaced with the following:

HMA not meeting the quality and density requirements of the Specifications shall be rejected.

**5. 5-04.3(9) Spreading And Finishing**

Section 5-04.3(9) of the Standard Specifications is revised with the following:

Unless otherwise approved by the Engineer, the nominal compacted depth of any layer of HMA Cl. 1/2-inch and Cl. 3/4-inch shall not exceed 0.25 feet.

**6. 5-04.3(10) Compaction**

**a. 5-04.3(10)B Control**

Section 5-04.3(10) B of the Standard Specifications is deleted and replaced with the following:

HMA used in traffic lanes, including lanes for ramps, truck climbing, weaving, and speed change, and having specified compacted course thickness greater than 0.10 foot, shall be compacted to a specified level relative density. The specified level of relative density shall be a minimum of 91.0 percent of the reference maximum density as determined by WSDOT for AASHTO T 209. The reference maximum density shall be determined as the moving average of the most recent five determinations for the lot of HMA being placed. The specified level of density attained will be determined by five nuclear gauge tests taken in accordance with WAQTC FOP TM8 and WSDOT SOPT 729 on the day the mix is placed (after completion of the finish rolling) at locations determined by the stratified random sampling procedure conforming to WSDOT Test Method 715 within each density lot. The quantity represented by each density lot will be no greater than a single day's production or approximately 400 tons, whichever is less. The Engineer will furnish the Contractor with a copy of the results of all acceptable testing performed in the field within one working day.



In addition to the randomly selected locations for tests of density, the Engineer may also isolate from a normal lot any area that is suspected of being defective in relative density. Such isolated material will not include an original sample location. A minimum of 5 randomly located density tests will be taken.

Control lots not meeting the minimum density standard shall be removed and replaced with satisfactory material.

HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the Project Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

**7. 5-04.3(11) Reject HMA**

This section is supplemented with the following:

Delete all references to Combined Pay Factor (CPF). HMA not meeting the quality and density requirements of the Specifications shall be rejected.

**8. 5-04.3(13) Surface Smoothness**

This section is supplemented with the following:

Where directed by the Engineer, the Contractor shall feather the HMA pavement in a manner to produce a smooth-riding connection to the existing pavement.

HMA Cl. 3/8-inch shall be utilized in the construction of the feathered connections to existing pavement.

All utility appurtenances such as manhole covers, catch basins, and valve boxes shall be adjusted to finished grade in accordance with the procedure in Section 7-05.3(1) in 15.10.050 Part 5.

**9. 5-04.3(19) Sealing Of Pavement Surfaces**

This section is supplemented with the following:

Revise the first sentence to read: "The Contractor shall apply a fog seal to all travel lanes and allow it to cure prior to opening the lane to traffic, when the wearing course is placed after October 1 and before April 1."

**D. 8-04 CURBS, GUTTERS, AND SPILLWAYS**

**1. 8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways**

This section is supplemented with the following:



Cement concrete traffic curb and gutter shall be as shown on the City's Standard Plans. Full Height or "Barrier" cement concrete traffic curb and gutter as shown shall be used on the roadway as shown on the Plans. Depressed or "Driveway" cement concrete traffic curb and gutter as shown shall be used at all driveway entrances and sidewalk ramp locations as shown on the Plans and as directed in the field by the Engineer. Mountable or "Rolled" curb shall be used on the roadway as shown on the Plans. Cement concrete curb and gutter which does not comply with the City's details shall be removed and replaced at the Contractor's expense.

A template shall be required to be placed at the back of curb for construction of driveway transitions from Barrier to Driveway or Rolled curb and gutter. The template shall extend from the bottom of curb to the top of the curb, and shall have a minimum length of 8 feet, with the 6-foot long transition centered in the template. The Contractor shall also be required to use a template at the back of Driveway/Depressed curb and gutter to ensure a straight and uniform back of curb in conformance with the Standard Plan.

The new concrete curb and gutter shall be cured in accordance with SECTION 5-05.3(13) B of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations.

First-class workmanship and finish will be required on all portions of concrete curb and gutter work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the Engineer. The Contractor shall be required to construct a minimum 20 linear foot section of curb and gutter which demonstrates quality which is acceptable by the Owner and Engineer. This "model" section will be referenced during construction for comparison to newly poured curb. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional curb and gutter shall be placed. Cement concrete curb and gutter which does not comply with the section details on the Plans, or in the Engineer's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce curb and gutter meeting the requirements of the Details and Specifications, no further curb and gutter construction will be allowed until corrections have been made to said equipment or methods.

**E.                    8-06 CEMENT CONCRETE DRIVEWAY ENTRANCES**

**1.                    8-06.3 Construction Requirements**

This section is supplemented with the following:

The concrete driveway entrance/sidewalk shall be six (6) inches in thickness.

**F.                    8-14 CEMENT CONCRETE SIDEWALKS**

**1.                    8-14.3(3) Placing And Finishing Concrete**

This section is supplemented with the following:

All sidewalks not located in driveway entrance areas shall be four (4) inches in thickness. All sidewalks and concrete driveway entrances located behind a depressed curb and gutter section or Rolled Curb section shall be six (6) inches in thickness.

Sidewalks shall be marked across the entire width every five (5) feet and with preformed asphalt impregnated joint fillers 3/8-inch thick every twenty (20) feet. Concrete sidewalk shall be cured in accordance with SECTION 5-05.3(13) A of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations. Failure to properly secure or seal the cement concrete sidewalk will require the Contractor to remove and replace the sidewalk section at his expense.

Sidewalk ramps shall be constructed at all intersections as shown on the Detail Sheet and at a width shown on the plans.

First-class workmanship and finish will be required on all portions of cement concrete sidewalk work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the Engineer. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional sidewalk shall be placed. Cement concrete sidewalk which does not comply with the section details on the Plans, or in the Engineer's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce sidewalk meeting the requirements of the Details and Specifications, no further sidewalk construction will be allowed until corrections have been made to said equipment.

## **G. 8-21 PERMANENT SIGNING**

### **1. 8-21.2 MATERIALS**

This section is supplemented with the following:

Sign posts for permanent signing within an approved development shall be Unistrut Telespar 2"x2" 12-gage steel tubing. Socket sleeves for the Sign Post shall be Unistrut Telespar 2-1/4"x 2-1/4"x30" 12-gage steel tubing.

Reflective background sheeting material shall be Type III for regulatory signs and Type 1 for all other signs.

### **2. 8-21.3 CONSTRUCTION REQUIREMENTS**

This section is supplemented with the following:

Socket sleeves for sign posts shall be set in 12" diameter x 12" deep base of class 3000 concrete at finish grade so that erected signs will be plumb. The Contractor shall correct any misaligned socket sleeves at his own expense.

**H. 8-30 CONTROLLED DENSITY FILL (NEW SECTION)**

The following new section shall be added to the Standard Specifications:

**1) 8-30.1 General**

Controlled Density Fill (CDF) may be required for street crossings by the Public Works Director. It shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures proportioned to provide a non-segregating, self-consolidating, free-flowing material which will result in a hardened, dense, non-settling fill.

**2) 8-30.2 Materials**

Materials shall meet the requirements of the following Sections of the Standard Specifications:

Portland Cement	9-01 Type II
Fly Ash	Class F or C
Aggregates	9-03.1
Water	9-25
Admixtures	9-23.6

**3) 8-30.3 Construction Requirements**

**1. 8-30.3(1) Construction Materials**

The CDF shall be a mixture of Portland cement, fly ash, aggregate, water, and admixtures which has been batched and mixed in accordance with Section 6-02.3 of the Standard Specifications.

The following table provides a guideline for proportioning the Controlled Density Fill for this project. The final mix provided by the Contractor shall result in a material which is excavatable by machine with a maximum unconfined compressive strength of 300 psi.

Water	50 gals per cubic yard
Cement	50 lbs per cubic yard
Fly Ash	250 lbs per cubic yard
Aggregate	3,200 lbs per cubic yard

The above table provides a guideline for the CDF mixture. The weights shown are only an estimate of the amount to be used per cubic yard of CDF. Actual amounts may vary from those shown as approved by the Engineer or approved mix data from similar projects which provided proper strength, workability, consistency, and density.

**8-30.3(7) Placing Controlled Density Fill**

The floatable CDF shall be placed in the trench area where directed by the Engineer or Inspector for smaller jobs and brought up uniformly to the elevation directed. In the cases where existing concrete slabs have been undermined by excavation, the Contractor shall ensure that the CDF is flowed completely under the slab.

Mixing and placing may be started if weather conditions are favorable, when the temperature is at least 34 F and rising. At the time of placement, CDF must have a temperature of at least 40° F. Mixing and placing shall stop when the temperature is 38 F and falling. Each filling stage shall be as continuous an operation as practicable. CDF shall not be placed on frozen ground.

The trench section to be filled with CDF shall be contained at either end of trench section by bulkhead or earth fill.