

SECTION - 100

GENERAL DESIGN

And

CONSTRUCTION GUIDELINES

100 – GENERAL DESIGN and CONSTRUCTION GUIDELINES

100.00.00 – Scope

This section describes the general design and construction requirements for public works projects. Detailed requirements for each phase of public works design and construction are found within the applicable section. For example, the design requirements for street construction or water systems construction are found in Section 320.00.00 and Section 620.00.00 respectively. Construction requirements for storm sewers would be found in Section 440.00.00 of Storm Sewer Systems.

These Design and Construction Guidelines are hereby published, in conjunction with the 'STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION' in the City of CAVE JUNCTION, OREGON' including the "UNIFORM STANDARD DETAILS", as an aid to Engineers in designing public works facilities and improvements such as streets, water systems and storm systems, which are intended for acceptance by the City for maintenance by the Public Works Department. The form has been kept brief and no attempt has been made to cover all possible situations or to provide lengthy explanations. They are intended as supplements to the City of Cave Junction Municipal Code and are applicable to all Public Works construction/improvements in the City.

Unless otherwise stated or referenced herein, or shown on the approved drawings, these standards and specifications shall govern and apply to all public works design and construction within the City of Cave Junction and, in or on any City owned or administered facilities, easements, or right-of-ways outside the City limits. If not stated referenced or shown herein, or on the approved drawings, the Oregon Standard Specifications for Construction and Oregon Standard Drawings, latest edition, shall apply. Any design changes or substituted specifications shall be submitted in writing to the Public Works Department for approval prior to construction.

The Standards set forth for design, materials and construction shall constitute the minimum standards to be accepted by the City; however, in any case, the Public Works Department shall have discretion to require a higher or different standard of materials and/or design when in his judgment it is in the best interest of the public's health, safety and welfare, considering all the circumstances of the particular project.

An Engineer may submit requests for alternative or innovative designs or materials and will be expected to submit complete data in the form of study or test results to support his request. The City may or may not allow the changes.

Where a, Subdivision, Local Improvement District, or other Project will create or improve intersections with County Roads, or the State Highways, it shall be the responsibility of the Engineer to coordinate his design and the construction work with the appropriate agency, and to meet the requirements of the agency having jurisdiction.

It is anticipated that revisions to the design standards will be made from time to time. The date appearing on the title page is the date of the latest revision. Supplemental pages,

issued at the time they are approved by the Public Works Department, will make minor revisions or new sections added to this document. The next complete publication of these standards and specifications will be made at such time as required, if in the view of the Public Works Department, major technological changes occur or a large volume of additional changes or sections are added which dictate a major revision.

110.00.00 – General

110.10.01 – References

References to standards and specifications of these and other agencies, associations, institutions, or municipalities are also located at the beginning of each section of these Standard Specifications.

AASHTO	American Association of State Highway Officials.
ACI	American Concrete Institute.
ACOE	U.S. Army Corps of Engineers
AI	Asphalt Institute
ANSI	American National Standards Institute.
APWA	American Public Works Association.
AWWA	American Water Works Association
ADPI	American Ductile Pipe Institute
CJ	Cave Junction
CJMP	Cave Junction Municipal Code
DEQ	Oregon Department of Environmental Quality.
DFW	Oregon Department of Fish and Wildlife.
DSL	Oregon Division of State Lands.
FEMA	Federal Emergency Management Agency.
JCRP	Josephine County Roads and Parks
MUTCD	Manual of Uniform Traffic Devices as published by U.S. Department of Transportation.
ODOT	Oregon Department of Transportation.
ODHS	Oregon Department of Health Services
OMUTCD	Oregon Manual of Uniform Traffic Control Devices
OR-OSHA	Oregon Occupational Safety and Health Division, of Dept. of Insurance and Finance
OSHA	Occupational Safety and Health Administration, US Department of Labor
OSHD	Oregon State Highway Division
OUNC	Oregon Utility Notification Center
PWD	Public Works Department for the City of Cave Junction.

110.10.02 – Definitions

Alley A street or road primarily intended to provide secondary access to the road or side of lots or buildings and not intended for normal vehicular traffic.

<u>Approve</u>	The words "approved", "approve", "approval" or words of like import shall mean to give in writing, limited, conditional or qualified permission to use material equipment or methods, such conditions being in strict compliance with the Standard Specifications. Such approval will be by The Public Works Department or his authorized representatives.
<u>Applicant</u>	The person or firm applying for a Public Works Department Construction Permit. (Usually, the same entity making application to develop a commercial or residential project)
<u>As Built</u>	Mylar Drawings, which provide "red-line" changes to final approved constructions plans, which identify the location and elevations of actual installed items. Includes electronic or AutoCAD drawings on disk media.
<u>As Approved</u>	The words "As Approved" unless otherwise qualified, shall mean, "Approved by the Public Works Department"
<u>Agreement</u>	An agreement between the City and the Developer that defers the construction of specified improvements until a specified date.
<u>As Shown</u>	The term "As Shown" shall be understood to be followed by the words "on the plans."
<u>Best Management Practices (BMPs)</u>	<p>A collection of techniques, processes, activities, or structures used to reduce the pollutant content of a stormwater discharge.</p> <p>Structural BMPs: Mitigation strategies to reduce the impact from either past or future development. These structural practices include but not limited to:</p> <ul style="list-style-type: none"> • Infiltration Rain Gardens • Infiltration Stormwater Planters • Runoff Area Disconnection – Vegetated Filter Strips • Porous Pavement • Rainwater Harvesting Systems • Green Roofs • Stormwater Conveyance without a Pipe <p>Non-Structural BMPs: Restoration and protection practices often employed during the early planning phase but may appear during other project phases. These include but are not limited to:</p> <ul style="list-style-type: none"> • Impervious Area Reduction • Runoff Area Disconnection - Contained Planter Over Impervious Area • Tree Preservation & Planting • Native Plant Installation
<u>CCR 's</u>	Conditions, Convents and Restrictions.

City City of Cave Junction, Oregon.

City Council The governing body of the City of Cave Junction, Oregon.

Citation Authority The authority granted to the Cave Junction Police Department or other departments and personnel to issue citations for violation of City ordinances, rules, laws, regulations or other City or State requirements administered by the City of Cave Junction.

Comp. Plan Comprehensive Plan, City of Cave Junction.

Contract A binding agreement between a contractor and the owner/developer, covering the performance of the work, the furnishing of labor and materials for the construction of public facilities.

Contractor The person or persons, firm, co-partnership, corporation, or joint venture who have entered into a contract with the owner/developer (or the City of Cave Junction) to perform work. The word "Contractor", although used herein as describing an individual shall be taken to mean a Contractor, his agents, employees, of official subcontractors, or anyone connected with the work herein set forth on behalf of the Contractor. Contractor and individuals performing the work must be qualified and meet state licensing and insurance requirements.

Council City Council of Cave Junction, Oregon.

County County of Josephine, Oregon.

County Road A public road incorporated into the County roadway system by formal action of the Board of County Commissioners. These roads are assigned numbers and the County assumes maintenance responsibility.

Critical Root Zone (CRZ) Portion of the root system that is the minimum necessary to maintain vitality or stability of the tree. Encroachment or damage to the critical root zone will put the tree at risk of failure. For measurement purposes, the City utilizes the International Society of Arboriculture's definition, which establishes the CRZ as an area equal to a 1' radius from the base of the tree's trunk for each 1" of the tree's diameter at 4-1/2' above grade (referred to as diameter at breast height (DBH)). See table below.

<i>Diameter at Breast Height</i>	<i>Critical Root Zone Radius</i>
2 inches	2 feet
6 inches	6 feet
20 inches	20 feet
46 inches	46 feet

<u>CSMP</u>	Construction Site Management Plan. Part of the requirements for Section 800, Erosion and Sedimentation Control.
<u>City Easement</u>	Shall mean an easement dedicated to the City of Cave Junction. Such easement may exclusive (limited) or non-exclusive and may be used for such purposes as pedestrians, city utilities, vehicles, city signs, etc. Normally the easement may be designated for a specific purpose such as a storm drain; however, it may be designated for multiple purposes or facilities.
<u>DCH</u>	Diameter of tree measured at chest height
<u>Deferred Improvement Agreement</u>	An agreement between the City and the Developer or Applicant that defers the construction of required improvements to a future specified date.
<u>Designated Authority</u>	The term "Designated Authority" as used in these specifications shall be taken to designate the party or parties authorized or employed by the owner to observe, test or review quality and sufficiency of the work performed, materials used, and determine compliance with the plans and specifications. The Designated Authority for the City of Cave Junction is the Public Works Department or one of his authorized representatives.
<u>Developer</u>	An individual or firm who undertakes construction of a public works facility within the corporate limits of the City.
<u>Directed, Required, etc.</u>	Wherever in these specifications the words "directed" "required", "permitted", "ordered", designated" or words of like import are used, they shall be understood to mean the direction, requirement, permission order, or designation of the Publics Works Department.
<u>Department</u>	Public Works Department for the City of Cave Junction and is referred to throughout these as if masculine in gender.
<u>Developer</u>	Individual, partnership, firm, or corporation proposing construction of public works improvements to be accepted by the City.
<u>Easement</u>	A right in the owner of one parcel of land, by reason of such ownership, to use the land of another for a special purpose not inconsistent with a general property in the owner.
<u>Engineer</u>	Consulting engineer for the Applicant or Developer. A consulting engineer selected by the Public Works Department to perform engineering and design functions for the City.
<u>ESCM</u>	Applicants Erosion and Sedimentation Control Manager

EBC "Equivalent Base Course" equates a 1" thickness of crushed ¾"-0 base aggregate to a 2" thickness of pit run basalt or a ½" thickness of compacted 4"-0 crushed rock. EBC shall be in excess of the required minimum thickness of base course material required in these Standard Specifications and is normally used to determine and provide additional reinforcement to the street section sub-base.

Inclement Weather For the purposes of these Standard Specifications, inclement weather shall be taken to mean any weather conditions so extraordinary that previous climatic conditions in the locality of the work afford no reasonable warning of the worsened condition or the ability to pursue work with the expectation of meeting the standards and specifications set forth herein. Under formal Public Works Contracts, the PWD will make the determination of inclement weather for payment or contract extension purposes.

Inspector The authorized representative of the City, designated to determine compliance with the plans and specifications of public works projects.

Inter-section Refers to the junction of two or more intersecting streets. For design purposes, naming two approaches of a continuous street at a curve or some other point with different street names does not form an intersection.

Low Impact Development A stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design. Low Impact Development Approaches (LIDA) can include a combination of structural and non-structural best management practices (BMPs).

Planning Commission The Planning commission makes recommendations to the City council regarding the City's Comprehensive Plan, Facilities, Plans, Capital Improvements Program (C.I.P.), and Zoning Ordinances.

Or Equal The words "or equal," "or approved equal," or words of like import shall mean to possess the same performance qualities and characteristics and fulfill the same function without any decrease in quality, durability, or longevity and shall meet with the approval of the Designated Authority. No inference is intended that items must be identical in all respects if above conditions are satisfied.

Plans The plans, profiles, and detailed drawings which show the locations, character, dimensions, and details of the work to be done, and which are intended to be and are hereby made a part hereof.

Product Data Complete catalog data for the manufactured items of equipment and all component parts, including specific performance data, material description and source, rating, capacity, working pressure, material gage thickness, brand name, catalog numbers, and other necessary information. Where not called for on the approved plans the Contractor shall be required to submit "submittals to PWD for approval before installation.

Public Works
Facility

Any facility or improvement constructed upon public property, right-of-way or public easement, which is immediately, or eventually to be taken over by the City for maintenance and operation. These facilities include, but are not limited to, streets, sidewalks, curbs parking lots, driveways, drainage facilities, water system works, buildings, bicycle paths, pedestrian paths and parks.

PUE

A Public Utility Easement. A dedicated strip of land on private property for the construction and maintenance of utilities by companies franchised or licensed by the City of Cave Junction to install and operate a utility within the city limits and are further registered as a public utility in the State of Oregon. These companies include but are not limited to companies that provide underground and overhead electric power, natural gas, communications, and television services and shall hereinafter be referred to as the "Utility". These do not normally include City utilities such as water, sewer and traffic appurtenances except by crossing.

Private
Easement

A strip of private land whereby certain rights have been given to another private party or parties, to construct, maintain or provide access across said land, or to limit certain activities such as visual obstructions or noise. Easements can be either exclusive (limited) or non-exclusive.

Right-of-Way That portion of ground provided or required by the City for use in constructing and maintaining public facilities. The City of Cave Junction usually owns such right-of-way in fee simple.

Street or
Road

That portion of right-of-way used for vehicular traffic, and including any appurtenance thereto, storm draining system, sidewalks, traffic control devices, etc.

Shop
Drawings

All diagrams drawings, illustration brochures, schedules, and all other data submittals required by the contract to be furnished by the Contractor illustrating fabrication, installation, dimensions, and other aspects of the work.

Specifications The directions, requirements, explanations, terms and provisions contained herein as supplemented by such special conditions as may be necessary, pertaining to the various features of the work to be done, the manner and method of performance, and the manner and method of measurement and payment. The specifications include such directions, requirements and explanations as appear in the plans.

- Standard Specification Codes, rules and regulations set forth in the City of Cave Junction, Public Works Standards and Specifications as adopted by the City Council and considered to be the latest issue with all amendments as of the date of these specifications or supplemental specifications as may be issued periodically.
- Standards Shall mean those Standard Specifications for Public Works Construction as adopted for use in the City of Cave Junction, Oregon.
- Standard Details Shall mean those standard drawings included in these Standard Specifications or any supplemental standard details as may be issued by the Public Works Department.
- Subcontractor Any individual firm or corporation having a contract with the Contractor or with any other subcontractor or for the performance of a part of the work
- Shown, etc The words "indicated", "noted", "shown", "called for", or words of like import shall mean, indicated, noted, shown, or called for on the plans for the work referred to.
- State State of Oregon.
- Stormwater Management Facility A technique used to treat, detain, and/or retain stormwater to preserve or mimic the natural hydrologic cycle on a development site. See also "Best Management Practice, Structural BMP."
- Surveyor A professional surveyor licensed in the State of Oregon. Usually the Surveyor for the Applicant or Developer.

Tree
Protection
Zone (TPZ):

The area equal to twice the radius of the critical root zone (CRZ) including the trunk of the tree being protected from development activities. The table below illustrates how the TPZ is calculated. Disturbance to the tree roots, trunk and crown within this area shall be avoided or minimized to the greatest extent possible to maintain the vitality and stability of the tree.

<i>Diameter at Breast Height</i>	<i>Critical Root Zone Radius</i>	<i>Tree Protection Zone Diameter, including Trunk.</i>
2 inches	2 feet	4+ feet
6 inches	6 feet	13.5 feet
20 inches	20 feet	42 feet
46 inches	46 feet	96 feet

UBC Uniform Building Code.

120.00.00 – Design

120.00.01 – Providing for Future Development

All public improvements shall be designed as a logical part of the development of the surrounding area. Storm sewers and sanitary sewers all are sized to accommodate the entire drainage basin, which they will ultimately serve. Utilities and street improvements will be extended to the boundaries of the development for future extensions to the adjoining areas. The Public Works Department may require over sizing of utility lines to accommodate future growth of the City.

Where existing City utility lines do not adjoin the proposed development, the developer will be required to extend the lines to the development as necessary. Where existing roadway improvements do not extend to the proposed development, the developer may be required to improve the roadway to the development.

120.00.02 – Violations

The City of Cave Junction and other designated personnel and departments shall have authority to issue citations for violation of City ordinances, regulations, rules and laws including those of the State of Oregon that may be administered by the City. Some examples pertaining to construction activities are: Tracking out of dirt and mud onto a street; Stockpiling of materials in the street; Improper or inadequate control of traffic in a construction zone; Violation of construction zone signing and speed requirements; Performance of any construction within a City Right of Way without a Public Works Permit.

120.10.02 – Plan Review

Review of public improvement plans is initiated by the submittal of 3 sets of plans that are at least 95% complete. The plans shall include those of other agencies such as DEQ, OHA, Local Fire Marshal or JCRP. Following review, the plans will be returned “approved” or with comments and a staff report.

In order to be entitled to further review, the applicant's engineer must respond to each comment of the prior review (except that request may be made that requirements as to form of the submittal, such as drafting, not necessary to further review of the plans, be delayed until issues of design are resolved). All submittals and responses to comments must appear throughout the plans to be a bona fide attempt to result in complete plan approval. Upon approval, the Applicant's Engineer shall submit 4 copies of the plans to the Department of Public Works.

In general, the submittal shall include plan and profile for streets, water, storm drainage and sanitary sewers, storm drainage calculations, storm drainage basin map, stormwater management calculations and plans, sanitary sewer basin map, erosion control plan, including total square footage of project area, and utility and outside agency notifications and approvals. The plan and may also include applicable traffic studies, legal descriptions and a traffic control plan.

120.10.03 – Plan Format

- a) The plans shall be submitted on “D” size, 24" x 36" Sheets, or other acceptable size as determined by the PWD.
- b) Vicinity Maps shall be located on the first sheet of all plans and shall show the location of the project in respect to the nearest major street intersection.
- c) A north arrow shall be shown on each plan view sheet of the plans. Adjacent plans on the same sheet shall have separate north arrow orientation.
- d) The scale shall be as noted below in Section 120.20.00, Drawings except for structural drawings. The scale of corresponding sheets shall be the same throughout the project.
- e) Letter size shall not be smaller than 0.10 of an inch high.
- f) All detail drawings, including Standard Details, shall be included in the drawings. Table 600-2 shall be included with detail drawings when waterline is part of the project.
- g) The location and elevation of a Federal Emergency Management Agency (FEMA), National Geodetic Survey, United States Geological Survey, State Highway, Josephine County, or City of Cave Junction benchmarks shall be shown. Temporary benchmarks shall be shown or referenced on the plans.

- h) Vertical datum plane NAVD88 must be used.

120.10.04 – Protection of Existing Facilities

The locations of existing facilities shall be shown on all applicable construction drawings for public works projects as follows:

1. The exact locations of underground facilities shall be verified in advance of any public works construction, in cooperation with the public or private utilities involved.
2. All existing underground and surface facilities shall be protected from damage during construction of public works projects.
3. Any existing facilities not specifically designated for alteration or removals, which are damaged during construction, shall be restored or replaced to a “same as” or better than condition, at the expense of the Contractor. This shall include all pavement markings damaged or removed during construction, including striping, stop bars, symbols, etc.
4. Suitable notice shall be given to all public and private utility companies in advance of construction for the purpose of protecting or relocating existing facilities.

120.20.00 – Drawings

General Requirements –

- a) Stationing – Stationing shall normally begin with 0+00 centerline located at the intersection of an existing street centerline and continue to the end of the project or to the intersection with another street centerline whichever occurs first. Continuous stationing from one street to another is not acceptable.
- b) Where one street or other facility intersects with another, the stationing shall be equated. For example: Street “B” at station 0+00.00 equals Street “A” at station 20+06.08
- c) Stationing of water, storm sewer and other facilities shall normally be referenced to the street centerline stationing unless it is a separate facility outside of the street right-of-way or cannot be referenced in such a manner due to disparity in length or deviation from street centerline.

120.20.01 – Required Drawings

The following drawings will be required before Plans will be approved for construction.

PROJECT PLAN / GRADING PLAN / EROSION CONTROL PLAN/STORMWATER MANAGEMENT.

- a) A scale not smaller than 1” = 100’ horizontal

- b) Plat Information, including all Lot Lines, Right-of-Way Lines, and Easements, and the locations of all natural drainage channels.
- c) Locations and the approximate extent of all existing and proposed cuts and fills.
- d) Grading and Drainage Plan, including existing grades and finish grades at all lot corners, and directions of storm run-off.
- e) Utility Plan, showing the locations and routes of all existing and proposed utility lines, including power, telephone, gas, and cable T.V shall be the responsibility of the Engineer to coordinate all Utility Companies' service lines, and to present a completed Plan showing all utility locations. In addition, the Plan shall contain signatures of acceptance from each Utility Company.
- f) Soil boring or test hole logs and test locations, where such investigation has been made to request or defend design variances.
- g) Erosion Control Management Plan, showing locations of all erosion control structures. Coordinate with grading plan. See Section 800, Erosion and Sediment Control for detailed requirements.
- h) Ground Water Control Plan. Submit this only if ground water is present and it is determined by a hydro-geologist that such plan is required. See Section 420.10.02.

STREET PLANS and PROFILES:

At a scale not smaller than 1" = 50' for the Plan, and not smaller than 1" = 50' horizontal and 1" = 5' vertical for the Profile. As part of the Street Plans and Profiles, CURB RETURN PROFILES will be required at a scale not smaller than 1" = 10' horizontal and 1" = 1' vertical.

Details of valley gutters, at a scale not smaller than 1" = 20' will be required, with finish concrete elevations noted at the gutter flow lines at ends of curb returns and at the bottom of the curb at the center of the curb returns; at the four corners of the valley horizontal and 1" = 5' vertical for the Profile. As a part of the Street Plans and Profiles, CURB RETURN PROFILES will be required at a scale not smaller than 1" = 10' horizontal and 1" = 1' vertical for gutter; at the flow lines at each end of the valley gutter; and at the edges of the valley gutter and the flow-line at the centerline of the street.

STORM SEWER PLANS and PROFILES:

At a scale not smaller than 1" = 50' horizontal and 1" = 5' vertical for the Profile. The Plan shall include pipe locations and manhole locations (station and offset) with invert elevations in and out. The Plan shall show the locations of catch basins; curb inlets and leader pipe, and shall include elevations of inlets and pipe inverts. Profiles shall indicate the manhole locations and pipe invert information, as well as the pipe types, sizes, and grades.

Where storm sewers discharge into natural channels within the limits of the project, details of the discharge, including streambed and stream bank protection shall be included.

WATER PLAN and PROFILE:

At a scale not smaller than 1" = 50' for the Plan and not smaller than 1" = 50' horizontal and 1" = 5' vertical for the Profile. The Plan shall include pipe locations, and shall locate by station and off-set, all valves, fire hydrant assemblies, tees, crosses, ells, sewer line crossings, air relief valves, pressure relief valves, service connections, and blow-off assemblies. Profiles shall show grades, special crossings, and sewer and storm sewer crossings. Special Details will be required for Sewer Line avoidance and for ditch or creek crossings.

Where appropriate, and where clarity will not suffer, two or more of the above-required Plans and Profiles may be combined, such as Street and Storm Sewer Plan and Profile combined, or the Sewer and Water Plan and Profile combined. In some cases it may be possible to combine all four, where confusion will not result or where one or more of the facilities will not occur in a given street.

SPECIAL FACILITIES:

Where special facilities are required, such as a head wall for introduction of natural drainage into pipe, bridges or box culverts, sewage pump stations, detainment basins, or special valve boxes, where special items have been designed for slope support, or where other appurtenances are required that are not included in the Uniform Standard Details, such items shall be clearly detailed and measured. These Special Details may be included on other required sheets of drawings, or may be introduced on separate sheets.

AS-BUILT DRAWINGS:

After all construction work has been completed, inspected, and approved by the Public Works Department, the Engineer shall make all required corrections and revisions to the Plans as necessary to complete "As-Built" drawings, and shall submit to the City the revised "As-Built" Plans in the form of 11" X 17" or 24" X 36" plans, matching the construction drawing plan size. In addition, the Engineer shall submit an electronic copy of the "As-Built" drawings in pdf format. The City will not accept a project for maintenance by the Public Works Department, nor provide services to the Commercial Development, Subdivision or Local Improvement District until such approved plan set and electronic copy of the "As-Built" drawings have been submitted.

120.20.02 – Easements and Right-of-Ways

Identify easement and right-of-way dedications and widths on the Final Plat and applicable Construction Drawings. If the number and location of easements and right-of-ways are complex or give rise to confusion, a separate plate may be required.

1. Easements for City infrastructure (i.e. sanitary sewer, water and storm drain) should be a minimum of 15' wide, and should not split lot lines. Easements for public utilities should be designated as Public Utility Easement (P.U.E.). City maintained or owned facilities such as storm drainage, sanitary sewer, and water line easements should be dedicated to the City. Privately maintained or owned facilities over adjacent private property also require easements. Centerline of buried infrastructure shall be aligned a minimum of 5' from the edge of the easement. If two or more City owned utilities are located within an easement, then a minimum of 20' width shall be required. Easement dedications in final deeds or in CC&R's need a statement, which clearly states that easements must be maintained for suitable, drivable access, as determined and approved by the City PWD.
2. Public streetlights, fire hydrants, waterlines, storm drains, etc. shall not be placed within PUE's but shall be placed within a dedicated City right-of-way.
3. It is the sole responsibility of the permit holder to provide for proper right-of-entry and/or easements prior to starting work on private property. Proof of right-of-entry or properly executed easements, shall be provided to the City. The City shall in no way be construed to be liable for the permit holder's failure to obtain or provide for proof of right-of-entry or easements.

120.20.10 – General Design Criteria

1. Field verify all existing infrastructure elevations and locations (i.e. pipe inverts, curb elevations, etc.), to which the proposed development will connect into existing improvements, prior to final construction plan design.
2. The current City standards and specifications, as adopted by ordinance, are the physical standards for the design and construction of sanitary sewers and storms drains. However, trenching and backfill must conform to City standards as presented in these standards.
3. A Minimum of 6" of clear separation between infrastructure facilities (i.e. pipes, valves, etc.). Sewer Mains and laterals shall maintain a minimum separation of 10' when parallel and crossings shall follow OHA rules and regulations if applicable.
4. If the proposed development places structures within Special Flood Hazard Area (SFHA), also commonly referred to as the 100-year and the high risk floodplain, the Developer's engineer will be required to conduct a floodplain encroachment impact analysis that evaluates the cumulative impacts of the placement of these structures on the flood-hazard area, including:
 - a. Cumulative effects of the proposed placement of structures on the base flood elevation (100-year flood elevation);
 - b. Cumulative effects of the proposed placement of structures on the flood zone boundaries;
 - c. Impacts to flood velocity during the base flood;

- d. Impacts that the identified modifications to the base flood elevation and the flood zone boundary and velocity have on the existing facilities and properties surrounding the proposed development.
5. All work shall be performed in accordance with the requirements of the City's Municipal Code; in particular, the chapter pertaining to Flood Damage Prevention and Hazard Mitigation.
6. All elevations used on the construction plans, on temporary benchmarks, and on the permanent benchmarks shall be tied into an established City vertical and horizontal datum, and shall be noted on the construction plans. The City shall determine how many permanent benchmarks shall be established by, and at the expense of the developer within the proposed subdivision. The City PWD and the Developer's surveyor shall jointly determine the locations of the benchmarks.
7. Infiltration testing of soils in project area shall be conducted, at Developer expense, to determine storm water management needs. Additionally, corrosive soils testing shall be performed in conjunction with infiltration testing, when water line installation is a part of the project.
8. All other work not covered by these standards shall conform to the Oregon Standard Specifications for Construction, latest edition and Oregon Standard Drawings for Design and Construction.
9. The Developer's engineer or surveyor shall provide to the Public Works Department a drawing of the recorded Final Plat map reproduced on Mylar and in an acceptable electronic form in AutoCAD format. The Final Plat shall be tied to a legal Government corner and the State Plane Coordinate System(NAVD88).

120.20.11 – Public Improvements

- 1 Applicant shall submit to the City's Public Works Department (City's PWD) for review and approval, plans and specifications for all improvements proposed for construction or modifications within the City rights-of-way and easements.
- 2 Public improvements, where applicable, include, but are not limited to, streets, alleys, bicycle and pedestrian paths, sidewalks, curbs and gutters, cluster mailbox pads with ADA compliant turning spaces, storm drainage and sanitary sewer collection and conveyance systems, stormwater management, water distribution system (up to the water meter and including fire protection), street lighting, and traffic control devices, and street signs and delineation. Note that the public sanitary sewer system is owned and administered by The City of Cave Junction.
- 3 These standards shall apply to all City improvements on city property, and within the existing and proposed right-of-way and easements, which are to be maintained by the City, and to all improvements for which the Development Code requires approval by the City. The Public Works Department shall have discretion to require higher or different standards for materials or design when in his/her judgment it is in the best

interest of the public's health, safety and welfare when considering all aspects and circumstances of the project.

4. Requests for variances to these standards shall be based on topography, right-of-way geography or existing physical conditions, which impose an economic hardship on the applicant. Requests must show that the variance will not compromise safety or cause an increase in maintenance.

120.20.12 – Submittals

1. All design, construction plans and specifications, and as-built drawings shall be prepared to acceptable professional standards as applicable, the Developer shall provide copies of any permits, variances, approvals, and conditions as may be required by other agencies, including, but not limited to Oregon Department of Fish and Wildlife (DFW), Oregon Department of Environmental Quality (DEQ), Oregon Division of State Lands (DSL), Oregon Department of Transportation (ODOT) approval for storm drain connections and easement, landscape berms, U.S. Army Corps of Engineers (ACOE), affected irrigation districts, and Josephine County Road and Park Services Department (JC Roads), and DSL and ACOE, as applicable (wetland mitigation).
2. Local Fire District must approve all streets and water improvement plans in writing prior to final review by City Engineer and the PWD.
3. The Developer's engineer shall provide suitable engineering certification and justification (i.e. calculations, analyses, plots, etc.) that all connections to existing infrastructure (i.e. street; water, sanitary sewer, storm drain systems; natural drainage systems; etc.) will not interfere with the effective level of service or operation of the infrastructure facilities, and that the existing or improved infrastructure facilities have adequate capacities to accommodate the flows and/or demands imposed on the existing infrastructure as the result of the connection of the proposed development's infrastructure.
4. During construction, any changes proposed by the Developer shall be submitted in writing by the Developer's engineer to the City PWD for approval prior to installation or ordering of any materials.
5. The Developer shall submit verification of stormwater facility plant survival 2-years following installation.
6. Prior to approval and acceptance of the project, the Developer's engineer or surveyor shall provide the Public Works Department as-built drawings. As-built drawings shall provide "red-line" changes to final approved construction plans which identify the locations and elevations (as appropriate) of actual installed items, including, but not limited to, invert, inlet, and rim elevations; spot elevations identified on drawings; road alignment; water lines, valve's, and fire hydrants; water and sewer lateral stationing; modifications to street section; manhole and curb inlet locations; street light locations; other below grade utility line locations and depths;

etc. Provide a "red-line" hard copy (on Mylar), or an approved alternative format, of construction drawings, and an acceptable AutoCAD compatible drawing electronic file to the City at completion of construction.

120.20.13 – Costs

Fee Schedule:

For any development requiring an engineering review, the City of Cave Junction by means of City Council sets rates for payment based on an estimated staff time to complete the project. The fee schedule is set each June and is available at the Public Works office at City Hall. The rates differ depending on whether its a partition, subdivision or commercial building. Should the initial funds deposited become exhausted it will be the developer's responsibility to replenish the funds necessary to complete any reviews or inspections for the related project.

120.30.00 – Quality Assurance

The quality assurance requirements are repeated in greater detail within each section contained in these Standard Specifications.

120.30.01 – Construction Staking

The Engineer will establish marked centerline stakes, and stakes 7' behind curb faces at minimum 50' intervals along tangents (25' on curves) for sub-grade excavation and embankments. After sub-grade excavation the Engineer will establish stakes 3' behind the face of curbs at 25' intervals for construction of sewer lines and water lines and for construction of curbs. In addition the points of curve radius (pcr), vertical curve points shall be staked. "Blue-top" grade hubs will be set at the centerline of the street at minimum of 25' intervals for placing the base course and leveling course for the street. Paving grade hubs or "red tops" may also be established in addition to controls at the top elevation of the concrete lip of gutter. All grade hubs shall be removed during the paving operation and voids filled. After stakes or hubs are set, protection of the all staking shall be the Contractor's responsibility. If stakes are disturbed or removed in any way, either during construction operations or after working hours, they shall be reset by the developers surveyor, as he deems necessary, at the Contractor's expense.

120.30.02 – Inspections

The Public Works Department inspector is the authorized representative of the Public Works Department whose instructions and decisions shall be limited to the particular duties and responsibilities delegated to him. These delegated responsibilities include performing all necessary inspections to assure that project construction is in conformance with the approved plans, specifications and materials for any Public Works project or work, which will be accepted into the City system. All work shall be inspected in accordance with the City of Cave Junction, Public Works Standards and Specifications, including the requirements of other referenced organizations noted herein or as may otherwise be directed by the Public Works Department.

Inspections shall be conducted by Public Works Department personnel during normal business hours of 8:00 AM to 5:00 PM. Inspections must be requested by the Contractor 24 hours in advance of the required inspection. Requests for Public Works inspection may be made through contacting City staff at (541) 592-2156. Arrangements for inspections during weekends and holidays must be made at least 48 hours in advance.

120.30.03 – Sampling and Testing

All testing of materials to be installed by the applicant, contractor, or franchisee shall be conducted by a testing laboratory approved by the Public Works Department, and currently certified by the State of Oregon or other government authority conduct the required tests.

Unless otherwise directed, tests shall be sampled and conducted in accordance with the agency or institutes standards and specifications for each type of test noted herein. The required tests shall normally be as stated in the City of Cave Junction Standard Specifications and Details, or as described in the approved plans or contract specifications for a specified material. All bridge work shall be performed in accordance with ODOT specifications and standards and certified by an Oregon Licensed Structural Engineer.

The Public Works Department has sole discretion to require additional sampling and tests to confirm or supplement previous tests, identify faulty material or methods of installation.

All field testing and sampling of materials shall be conducted in the presence of the Inspector unless otherwise authorized by the Public Works Department. It shall be the responsibility of the applicant, contractor, or franchisee to schedule the type of test and times the tests will be conducted. The inspector or Public Works Department shall be notified 24 hours in advance of field-testing.

All costs of testing and re-testing shall be borne by the applicant, contractor or franchisee unless previously approved in writing by the Public Works Department or his designee.

120.30.04 – Design Changes

Minor field adjustments in the location of certain construction or materials may be authorized by the inspector on site within the limits of his delegated authority.

Design changes, which may materially impact the engineering design, design life, cost, safety, future development, etc., shall be submitted in writing to the Public Works Department for approval. Submission of materials for review shall include all revised drawings, proposed materials, submittals and any proposed specifications, which clearly illustrate the design change.

Preliminary approval of design change may be made at the discretion of the Public Works Department in cases of emergency or safety. It is understood however, that the applicant, contractor or franchisee is solely responsible for any increased work or cost incurred pending final approval of the design change.

130.00.00 – Materials

Reference to materials in these Standard Specifications is contained in the appropriate section of these Standard Specifications where materials are specific to that section. Materials that are generally common to all phases of construction are described in Section 900, Materials.

140.00.00 – Construction

140.00.01 – General

Each section of these Standard Specifications describes in greater detail the requirements for Public Works infrastructure construction requirements.

140.00.02 – Prequalified Contractors List

All contractors working in City Right of Way, easements, property or infrastructure must be on the Approved Contractors List for the City of Cave Junction or Josephine County, or ODOT.

140.00.03 – Public Works Permit Required

Prior to beginning any work in or on City property, existing or proposed City Right-of-Way or Easement, the Applicant, Franchisee, Contractor or Developer shall have in his or her possession, a Public Works Construction Permit. A copy of the permit and all attachments, and approved construction plans and all amendments shall be available at the work area.

140.00.04 – Public Works Permit Issuance

When all requirements as stipulated hereinbefore have been met and construction plans have been signed by the City Engineer / Public Works Department, a public works permit can be issued after payment of appropriate fee(s). Privately funded projects shall be required to provide a warranty bond made out to the City of Cave Junction. The amount of the bond shall be provided when the permit is requested.

140.10.00 – Requirements

140.10.01 – General

No construction shall commence until the City Engineer and the PWD has reviewed, approved a professionally prepared set of engineered construction plans and specifications for the public improvements or connection to the public improvements (stamped by an Oregon registered professional engineer), and the City PWD has issued a Public Works permit for the proposed improvements.

All contractors working in City Right of Way, easements, property or infrastructure must be on the Approved Contractors List for the City of Cave Junction, Josephine County or ODOT.

140.10.02 – Procedural

During the construction period, the City will maintain one set of approved plans and specifications, and the permit holder or contractor, whoever the case may be, shall retain one set of approved, stamped, and signed plans and specifications at the construction site at all times. Any modification to the approved plans shall be first stamped and signed by the Developer's Engineer and approved by the Public Works Department. The Contractor will be expected to update his plans to reflect all changes or deviations from the approved plans. The inspector shall have access to the Contractors plans so as to record any changes he deems necessary.

A Pre-Construction Conference with the Applicant, Developer, Contractor, Project Engineer, Utilities, and other parties requested to attend or having interest to said project shall meet to discuss the project prior to beginning any construction. The Pre-Construction Conference will discuss the roll of the City's Inspection team and their relation to the Contractor-Developer.

Inspection criteria checklist may be provided to the Contractor outlining necessary inspections, if requested. However, in most cases the normal inspections are:

1. All underground utilities, water, sewer, and storm sewers.
2. All sub-grade preparation, sub-base courses, base courses, leveling courses, base treatments and pavement surfacing courses including surface treatments.
3. All concrete pours, such as curbs, sidewalks, catch basins, manholes and clean-outs.

The Contractor shall give the City a minimum of twenty-four (24) hours advance notice before a required inspection. It is the responsibility of the Developer or Contractor, whichever the case may be, to obtain inspections, schedule materials and field tests and obtain approvals for all work installed.

Failure to give notice for inspection, receive adequate inspections and violation of other regulations, Ordinances, Resolutions, rules and City Codes, as outline herein can result in one or more of the following, as determined by the City of Cave Junction.

- a) Stoppage of work until problem is resolved.
- b) Suspension of future inspections.
- c) Not certifying project complete or acceptance of the project or work, in order to begin the warranty period and eventual City acceptance for maintenance and operation.
- d) Issuance of a Citation for violation of the City of Cave Junction Municipal Code and penalties and provision as therein.

140.10.03 – Construction Requirements

All site preparation, erosion control and construction or re-construction shall be accomplished in accordance with the applicable sections contained in these Standard Specifications and as follows:

1. All existing concrete, pipe building materials, structures, clear and grub materials, and other deleterious materials shall be removed from the site and either recycled or properly disposed of in accordance Section 200, Site Preparation and any applicable requirements of the Oregon Department of Environmental Quality.
2. All fill placed in any development project shall be engineered fill that is suitably placed and compacted in accordance with City PWD standards
3. Maintenance of the work area and approach roads is the responsibility of the permit holder. The work area and approach roads shall be maintained in a clean condition, free from obstructions and hazards. A copy of the permit holders Certificate of Insurance shall be available at the work area.
4. The spreading of mud or debris or storage of materials or equipment of any kind upon any public roadway is strictly prohibited and violation shall be cause for citation and/or immediate cancellation of the permit. The City may at any time order immediate clean up and stoppage of work to accomplish clean up.
5. Effective erosion control is required. Erosion control devices must be installed and maintained according to Section 800, Erosion Control and any applicable D.E.Q., DSL or ACOE requirements. The City may at any time order corrective action and stoppage of work to accomplish effective erosion control.
6. Property disturbed by construction activity shall be seeded with a standard grass mix; shrubs, flowers, bark dust, existing signs, pavement markings, mailboxes, etc. shall be reestablished, reinstalled or replaced, with like kind and material.
7. Jump plates and/or temporary hard-surface patch (Hot Mix base paving) shall be placed on trenches within roadways at the end of each day's work. Plate locks shall be placed around all edges of jump plates in order to keep them in place. No trench, on site or off-site, shall be left at any time in an unsafe condition. The permit holder is responsible for and is liable for hazards or damage resulting from the prosecution of the work.
8. Effective drainage control is required. Drainage shall be controlled within the work site and shall be so routed that adjacent private property, public property and the receiving system is not adversely impacted. The City may at any time order corrective action and stoppage of work to accomplish effective drainage control.
9. Provide adequately maintained accommodations at all times for public traffic through and within projects, as determined by the Project Engineer, City Engineer, and/or

Public Works Department. Surfaces used by public traffic, shall be kept free of all dirt, mud, or other debris.

140.20.00 – Utilities

140.20.01 – Requirements

The permit holder is responsible for the coordination with the various utilities and agencies during design and construction. The City will require letters of transmittal or other written verification that the appropriate utilities or agencies have been provided with plans and has had an opportunity to comment upon the proposed improvements.

1. Overhead power lines - If applicable, coordinate efforts with Pacific Power and Light, US West, and Cable companies, to convert any overhead electrical power, telephone, or cable facilities within the proposed development to underground facilities, prior to the acceptance by the City PWD of the public improvements associated with the proposed development. All agreements and costs associated with conversion of these facilities from overhead to underground facilities shall be borne by and between the utility owners and the Developer.
2. All other utility improvements, including telephone, electrical power and lighting, gas, and cable TV, shall meet the current standards of the appropriate agency or company as well as City standards.

140.30.00 – Traffic Control

140.30.01 – Requirements

Traffic Control Devices shall meet the standards of the current Manual Of Uniform Traffic Control Devices, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402 as supplemented by the Oregon MUTCD and where applicable, the publication entitled "Oregon Temporary Traffic Control Handbook For Operations of 3 Days or Less", latest edition.

1. Traffic control shall be provided for by the contractor in accordance with the City's standard specification and, also, in accordance with a City (job specific) approved Traffic Control Plan. TCP shall be submitted by the contractor at least 1 week prior to work starting to allow for alteration and review. TCP must be approved prior to commencement of work. A copy of the approved traffic control plan shall be available at the work area.
2. Public roadway shall not be closed to traffic, at any time, without having first obtained written approval from the Public Works Department. The permit holder is responsible for provision of timely notification of traffic flow disruptions to area wide Emergency Services Center (Cave Junction Police Dept., Fire District No. 3) and Cave Junction School District.

3. Advance warning of imminent traffic disruption shall be provided to the general motoring public by placement of an advance notification sign at each end of the construction area 72 hours (minimum) before initiation of construction work.
4. Access to existing properties shall be maintained at all times, including normal delivery service and mail service and if not, shall be cause for work stoppage until effective access is established.
5. Traffic control devices, flag-persons, etc., shall be in place prior to initiation of construction work and shall be effectively maintained. No work will be permitted during the hours of darkness, nor between 6 p.m. to 7 a.m., Monday through Friday or between 6 p.m. to 7 a.m. Sundays or holidays.
6. Minimum vehicle travel lane width shall be 12'. Effective pedestrian travel shall also be provided.
7. The City reserves the right to add to or modify traffic control requirements as may be necessary to effectively control traffic and to assure public safety.

140.40.00 – Other Requirements

140.40.01 – Required Conditions

1. Before initiating any construction activity, the permit holder shall contact the City, (541-592-4529) to establish a place, time, and date for a pre-construction meeting.
2. The permit holder or his contractor shall notify the City Public Works Inspector at (541-592-4529) 24 hours prior to commencing work, and 24 hours prior to any required inspection (see attached listing) and after completing work covered by the permit.
3. A copy of the permit and all attachments (OUNC Locate Ticket) and a copy of the approved construction plan and all amendments shall be available at the work area. All work shall conform to the permit terms, conditions and provisions and to the City approved permit plans, and approved plan amendments and to the City's standards and specifications and to these General Conditions. The City, in advance of work performance, must approve changes to any of the aforesaid.
4. All contractors working in City Right of Way, easements, or City Property or City owned infrastructure must be on the City Approved Contractors List, Josephine County, or ODOT
5. Excavator(s) must comply with OAR 952-001-0050; excavator(s) shall notify the Oregon Utility Notification Center for utility locations 2 business days, but not more than 10 business days prior to start of work. Damage to utilities shall be corrected at the permit holder's expense.
6. The permit holder shall cause his contractor to provide to the City Inspector, in writing, the name and 24-hour emergency telephone number of a designated

"Competent Person" responsible for construction safety as per OROSHA, Chap. 437, Div. 3 Construction, Subdivision P - Excavations. The contractor shall notify the City Inspector of any/all assignment changes.

7. The Contractor must comply with all applicable OSHA safety standards and MUTCD traffic control requirements for the construction site.
8. Contractor must verify all existing utilities for both vertical elevation and horizontal location prior to start of work (pothole before digging if necessary). Should conflicts arise and redesign or relocation of facilities is necessary, it shall be done at the permit holder's expense. The City in advance of work performance must approve changes. Contractor shall coordinate the work with affected utility agencies.
9. Work provided for under the permit shall include repair of existing facilities (roads, ditches, etc.) as may be necessary, in the City Inspectors opinion, to overcome deterioration or damage which occurred in conjunction with the work authorized by the permit. Corrective work shall be done at the permit holder's expense.
10. One as-built plan set drawing and electronic copy in pdf format, showing all new public improvements, including any revision made to the previously approved construction plans and, also, any improvement which may impact an existing public system or facility, shall be provided to the City by a registered civil engineer along with an engineer's certification of installation compliance (form attached).
11. The City's Inspectors may, at their discretion, require provision of tests and or reports from the permit holder; permit holders engineer or contractor to validate claims of material or construction adequacy/compliance. Such tests/reports shall be provided at the permit holders' expense.
12. The permit holder shall provide a copy of a properly executed Release and Waiver document to the City for each ownership disturbed by construction activity, as evidence of disturbance resolution and owner satisfaction.
13. Existing monuments, property corners, and survey markers shall be protected. Replacement shall be at the permit holder's expense.
14. The permit holder shall provide to the City inspector, in writing, the names and 24 hour emergency telephone number of 2 persons who have authority to resolve problems, take corrective action and, in general, will be responsible in case of any emergency. The permit holder shall notify the City Inspector, in writing, of any/all assignment changes.
15. Before placement of the final lift of asphalt, the permit holder shall clean and have The City of Cave Junction complete a pre-acceptance video inspection of all new sewer lines. The permit holder shall provide The City inspector with 30 days of notice for the video inspection. Any deficiencies shall be repaired before placement of final lift.