CITY OF LA PINE, OREGON
2016 STANDARDS AND SPECIFICATIONS
DEVELOPMENT PROVISIONS

01 INTRODUCTION

01.1.00 General

The following provisions are minimum development and construction standards for the City of La Pine and are intended as a supplement to the Oregon Standard Specifications for Construction. Where the term Design Engineer occurs in this document, it shall mean a professional engineering firm retained by the City or Developer/Owner to provide design, construction management, or some other service necessary for the construction of the proposed public facility or site drainage facility. This document shall apply to both private development and publicly bid contracts where applicable.

01.2.00 Public Work Improvements

This document is intended to set minimum standards for public work improvements within the Urban Growth Boundary of the City of La Pine.

The City of La Pine Public Works Standards and Specifications will be incorporated in and made a part of any contract for the design and construction of a municipal project. The portions of this specification relating to design, easements, materials, and workmanship shall be adhered to for private developments where improvements will become part of municipally owned and operated systems. These Standards and Specifications will be updated periodically and, as such, all persons should assure they are working with the most current set of Standards and Specifications.

Minimum general standards shall be as set forth in the current ***City of La Pine Public Works Standards and Specifications for Construction***. The Public Works Manager shall have authority over design elements for all City of La Pine public works infrastructure.

02 RULES

No project or construction work that requires City Engineering or Public Works inspection shall commence until the appropriate agreements have been signed and performance bonds submitted, final construction plans approved, preconstruction meeting held, all associated fees and deposits have been paid and 'Notice to Proceed' issued.

The Owner/Developer, or agent, will be responsible for any faulty material and workmanship for one year from the date of the formal acceptance of the sewer, street, water, storm drainage or other public facility installation. Final Acceptance of a project, or any portion of a project, shall be in writing from the City Engineer, and shall state any special conditions required for acceptance by the City.

The Owner/Developer, or agent, shall comply with all terms and conditions of applicable governmental rules and regulations pertaining to the work.

The design and construction of all proposed facilities shall be in conformance with the City of La Pine Public Works Standards and Specifications, and all standards and specifications referenced therein.

Workmanship and materials not conforming to these Standards and Specifications will be

deemed a violation of City code and any associated agreement, and may result in an immediate suspension of the Contractor's activities. When an authorized representative of the City Engineer suspends the Contractor's activities, all work shall cease on the subject project until the violation is corrected to the satisfaction of the City Engineer.

03 PUBLIC FACILITY REQUIREMENT

To provide for orderly and efficient urban development and extension of public facilities, public streets, alleys and public utilities shall be extended along public right-of-way or City easements for the full length of all portions of property frontage being developed or as otherwise determined through the land use approval process. Public facilities shall be extended from the point of connection "to and through" to the far boundary of subject property. All public facility extensions and/or improvements shall conform to the City of La Pine Public Works Standards and Specifications, and all applicable Master Plans, Public Facility Plans, and System Plans. All new service or fire hydrant connections to City water and/or sewer systems shall require a public water and/or sewer main line to be located or extended in public right- of-way or City easements along property frontage where applicable. This "to and through" public facility requirement shall be fulfilled except where it is not practical to extend a street or utility because of topography or by boundary and/or land use restrictions prohibiting development (e.g. UGB, public lands, etc.) as determined by the City.

04 PLANS & SPECIFICATIONS

04.1.00 General

Plans and specifications for public streets, alleys, storm drainage, sewer, or water facilities must be submitted by the person or firm proposing the work to the City Engineer for approval before construction is started. The Contractor shall not start work until he/she has plans signed and approved by the City Engineer and Public Works Manager, and the project security/performance bond is submitted. A copy of any construction requirements or development conditions levied by any public agency, such as City of La Pine Community Development Department Staff Reports, shall be attached to plans submitted for review. Support documentation such as fire flow analysis and storm drainage calculations/reports shall be submitted as well. Without the above document submittal, the City Engineer will be unable to adequately review the plans, and will return the plans without review.

Final plans addressing review comments are to be submitted by the Owner, or the Design Engineer, to the City Engineer for approval. The final design shall be prepared, sealed, and signed by a Registered Professional Engineer licensed in the State of Oregon, in accordance with state law.

04.2.00 Review Plan

Two copies of the design plans showing the proposed facilities shall be submitted to the City Engineer for review. One 'redline' copy of the preliminary plan will be returned indicating any modifications required.

Any final design plans for facilities requiring postal delivery service shall have on the cover sheet the signature of an appropriate official of the United States Postal Service indicating that

the design is approved by the United States Postal Service. A copy of the negotiated and signed Mode of Postal Delivery form shall be attached to the final plan.

Any final design plans having fire hydrants or facilities for the suppression of fires, shall have on the cover sheet the signature of an authorized official of the La Pine Rural Fire Protection District indicating that the design is approved by La Pine Rural Fire Protection District. Plans requiring approved fire flows as determined by La Pine Rural Fire Protection District action will not be accepted for review unless documentation in the form of a fire flow analysis verifying compliance is attached to the submittal. The fire flow analysis shall be stamped and signed by a Registered Professional Engineer, licensed in the State of Oregon.

Any final design plans having storm drainage facilities will not be accepted for review unless a storm drainage report stamped and signed by a Registered Professional Engineer, licensed in the State of Oregon is attached to the submittal.

The final design plans shall have on the cover sheet the signature of an authorized representative of all affected agencies, utilities, fiber optic and/or service providers including but not limited to; Midstate Electric Cooperative, CenturyLink, Crestview Cable, Bend Broadband, Cascade Natural Gas, and Lightspeed Networks indicating design review and approval. When required, the developer will be responsible to submit drawings and required fees to the Oregon Department of Environmental Quality (for UIC storm drainage facilities) for review and approval.

Upon request of the Design Engineer, a meeting to review City 'redline' comments will be scheduled. Re-submitted plans shall be accompanied by any and all Department comments including the 'redline' copy to facilitate further review.

04.3.00 Final Plan

After all revisions have been made to the reviewed plans, and the corrected plans have been approved by the City Engineer, then two sets of the final plan set shall be submitted on reproducible media for signatures. The final plan sets shall be stamped and signed by a registered professional engineer employed or retained by the Design Engineer. Documentation of any required State Health Department or Department of Environmental Quality agency submittal and approval must accompany final plan submittal. No changes will be made by the City to the reproducible copies sealed and signed by the Design Engineer. The City Engineer's signature will indicate that the design is approved. Other affected agencies/persons, such as the United States Postal Service, La Pine Rural Fire Protection District, ODOT, etc., will indicate their approval by signature. The final signatory is the Public Works Manager, which will indicate that all Engineering fees have been paid. The Owner or the Design Engineer shall provide the City with four complete signed sets of printed or photocopied drawings. Cloudy, dark, or otherwise illegible drawings are not acceptable. The information shall also be submitted to the City in AutoCAD format (compatible with version 2004 or later) on a CD, DVD or transmitted by email as appropriate. All fonts, shape files, external references, images and other items necessary for a complete drawing shall be packaged with the electronic file.

Final plan approval is effective for the duration of the associated land use approval period

and/or improvement agreement schedule of work. Extension of final plan approval may be granted at the discretion of the City Engineer and will be subject to fee retainage and adherence to the most current City of La Pine Standards and Specifications and Fee Schedule. However, unless an extension is granted the final plan approval shall be declared void, and the final plans must be resubmitted to the City for review and approval if either of the following occur:

1) Construction has not been initiated within eighteen (18) months of the final plan approval date.
2) The inspection portion of the Engineering fee is refunded back to the Owner/Developer prior to project acceptance.
3) Land use approval and/or improvement agreement expire prior to construction completion or City acceptance.

04.4.00 Engineering Fees

Engineering fees for City inspection and plan review of public improvements are required as established by the City of La Pine Fee Schedule and must be paid before the construction plans can be approved and signed by the Public Works Manager. The plan review portion of this fee is for services already provided and is non-refundable. The inspection portion of this fee is based on project valuation and is non-refundable. A cost estimate shall be submitted by the Design Engineer for review by the City Engineer to determine project valuation.

04.5.00 Pre-Construction Meeting

A pre-construction meeting will be held after Engineering fees are paid, the plans have been approved and signed, and before construction can begin. The pre-construction meeting shall be held at the City of La Pine public works office or at City Hall. Items to be covered are outlined in Section 12 of these Development Provisions. Following the pre-construction meeting, the City Engineer will issue a 'Notice to Proceed'. The 'Notice to Proceed' is the document which authorizes construction to begin, and inspection services to commence.

04.6.00 Plan Revisions

No design changes or revisions to final plans signed by the City Engineer and Public Works Manager will be considered effective without the following:

1) The City Engineer shall verify and approve any changes, modifications, or revisions. For design changes affecting the scope of work, additional Engineering 'Change Order' review fees established by the City of La Pine Fee Schedule must be paid before the approved revised plans can be signed by the City Engineer Each revised plan sheet shall have a 'Change Order' approval signature block added and shall be approved and signed by the City Engineer. For minor revisions that do not affect the design content, such as changing the location of water or sewer services revisions can be approved by the Inspector in the field and noted on the As-Built drawings. Revising the location of a fire hydrant, line valve, vault, manhole, catch basin, or similar structure changes the design content, and such change must be submitted for review and approval to the City Engineer.

2) Within two working days after City Engineer approval, four copies of the revised plans sheets and two copies of the new original Mylar drawings sheets sealed by the Design Engineer with the revisions noted in the Revision Box shall be submitted to the City Engineer for distribution.

3) Upon completion of the project, the Design Engineer shall submit AutoCAD change order drawings with design changes that required new or substantially altered drawings for approved design changes, with the revisions noted in the Revision Box. These AutoCAD change order drawings shall reflect as-built conditions known to the Design Engineer.

04.7.00 Final Plat

A final subdivision or partition plat showing complete information shall be submitted to the City Planner for routing. Prior to plat signature by the Public Works Manager, the following conditions must be met: the County Surveyor has signed the plat; required improvements to public facilities have been constructed, accepted, bonded, or guaranteed per the Development Code and any associated land use approval; cash contributions for public improvements in lieu of construction have been paid; warranty agreement and warranty bond provided for completed public improvements; documentation submitted to verify the abandonment of any private water and sewer systems per County and/or State requirements; certification of all earth fill areas located outside of public right-of-way/easement by a license professional engineer; public or City easements dedicated on the plat are consistent with current City easement agreement template provisions; all related public or City easements conveyed separate from the plat have been signed and recorded; All other conditions of land use approval that relate to Public Works or City Engineers have been met; and any fees or assessments associated with the plat and required by the land-use process, reimbursement/improvement districts, or cost sharing agreements have been paid. The final plat (or easements and/or right-of-way dedication in lieu of) shall be recorded upon completion and City acceptance of any associated required public improvements where in the determination of the City Engineer said final plat left unrecorded may adversely impact existing and/or active public infrastructure or traveled way or constructed City master plan public facility.

05 AGREEMENTS

Improvement agreements are required by the City for public improvements not completed but bonded/secured for plat approval or for public improvements to be constructed within existing public right-of-way or upon existing public facilities. All agreements shall be signed and related performance bond/surety received by the City, prior to commencing construction on the associated facility. These agreements are generally prepared by the City Planner and will specify improvement cost and construction completion date. It is the responsibility of the Owner, or her/his agent, to coordinate with the City offices to assure all agreements and bonds/sureties have been completed and executed prior to start of construction.

06 INSURANCE

The person or firm doing the work (Contractor) shall maintain Construction Public Liability Insurance during the life of the Project. The coverage shall be maintained in the amount of the City's tort liability limits set by the Oregon Legislature (ORS 30.270) for bodily injury liability

and property damage applying to her/his own work and that of any subcontractor performing work under the Agreement.

All contractors performing work on public improvements must be registered with the Construction Contractors Board or licensed with the State Landscape Contractor Board.

All contractors and subcontractors working on a public works project with a value over $100,000 must file a $30,000 "public works bond" with the Construction Contractor's Board. General Contractors must verify that subcontractors have filed a public works bond before permitting a subcontractor to start work on a project.

The City of La Pine shall be indemnified and held harmless from any liability of any kind resulting from or in connection with activities associated with the project. The City of La Pine shall be named as an additional insured, and a certificate of insurance with ten day cancellation notice shall be filed with the City of La Pine Recorder's office prior to start of construction.

07 EASEMENTS AND PERMITS

When portions of a public facility, utility or structure will be located on private property, permanent easements for location, maintenance, and operation shall be provided. Easements shall provide for the use of property for construction purposes to the extent indicated on the easements. Current City easement agreement templates shall be used unless otherwise authorized by the City Attorney, Public Works Manager and City Engineer.

All City Easements conveyed separately from the final plat shall require the following to be submitted to the City Engineer:

1) Exhibit 'A' - property/parcel legal description.
2) Exhibit 'B' - easement map.
3) Exhibit 'C' - easement legal description.
4) Current property title report or equivalent ownership verification.
5) City recording fee as required by the City of La Pine Planning Fee Schedule.

All exhibits shall be letter size (8.5x11) and stamped by a registered professional engineer (PE) or land surveyor (PLS) if prepared by the PE or PLS. Copies of these easements (including a copy of the easement in relation to the site plan) will be made available to the City for review prior to construction. Easements shall be recorded prior to City Engineer's acceptance of the public facility. Easements that impact property located beyond an established or approved development boundary, plat or site plan shall be recorded prior to construction. Easements for public facilities identified in City Transportation, Water or Wastewater System Plans shall be recorded prior to construction unless otherwise approved by the City Engineer. The City accepts no liability for actions of the Contractor not in conformance with written easements.

08 PERFORMANCE AND PAYMENT BOND

Public Contracts: ORS 279C.380 If the contract is for a publicly bid improvement, the successful bidder shall execute and deliver to the City of La Pine a good and sufficient bond, to

be approved by the City, in a sum equal to the contract amount for the faithful performance of the contract. In lieu of a surety bond, the City may permit the Contractor to submit a cashier's check or certified check payable to the City of La Pine in an amount equal to one hundred (100) percent of the contract amount.

Private Contracts: A performance bond or surety, cash deposit or other approved security shall be provided by the Developer as project security for all work proposed in existing public right-of-way, or upon existing City facilities. The approved project security shall be in the amount of one hundred twenty (120) percent of the estimated public improvement cost. The performance bond/surety shall be submitted with the current City approved performance bond form. A City approved improvement agreement that specifies construction schedule and completion date shall accompany said performance bond.

09 WARRANTY

Upon acceptance of the construction by the City Engineer, a minimum one (1) year warranty agreement on materials and workmanship shall be initiated between the City of La Pine and the Owner/Developer within thirty (30) days from date of acceptance. The warranty agreement shall include a bond, cash deposit or other approved security, with a minimum value of ten (10) percent of the Developer's final public improvement construction costs. The warranty agreement and security shall guarantee replacement and repair of any defective materials or workmanship which become apparent during the warranty period. The warranty agreement will be held by the City for the duration of the warranty period or until all warranty issues have been resolved. A final warranty inspection of the project will be conducted by the City during the last month of the warranty period. Upon expiration of the warranty period and resolution of all warranty issues, the warranty agreement and security will be released and returned to the Owner/Developer. Facilities which have been required to be repaired or replaced during the warranty period shall be guaranteed or warrantied for an additional year beginning from the date of inspection.

10 PUBLIC NOTIFICATION

Any construction activity that impedes or interrupts any existing public service shall require that the public be notified of that interruption at least 24 hours prior to such impediment or interruption. Public notification shall be made by direct contact with owners/residents or door hangers/flyers distributed to properties adjacent to impact. Notice to City to be posted on City website, newspaper, radio public service messages and/or variable message sign placement. Notification shall also include, but not be limited to, emergency services, local school district, post office, garbage collection, and any other affected public agency. Each notification shall be the responsibility of the Contractor performing the work and shall be coordinated with the City Engineer to assure adequate notification. Failure to adequately notify the public will result in an immediate suspension of the Contractor's construction activities.

11 INTERGOVERNMENTAL JURISDICTION

Public improvements often times fall within the jurisdiction of several governmental agencies, i.e., Deschutes County, Oregon Department of Transportation, Oregon Department of Environmental Quality, etc. When multiple jurisdictions are involved, it is the responsibility of the Owner, Developer, or agent, to coordinate with and gain the appropriate approval from

the governmental agency having jurisdiction over that portion of the work.

It shall be the responsibility of the construction Contractor to verify approvals and/or permits with agencies prior to commencing work. Failure to verify approval will result in project work being suspended until approval and/or permit is obtained.

12 PRE-CONSTRUCTION MEETING

A pre-construction meeting shall be held following approval of final plans and prior to issuance of the 'Notice to Proceed' for construction. Before the meeting can be held, agreements must be signed, project security/performance bonds submitted and the City Engineer must have one original Mylar reproducible drawings set and four complete photocopied drawing sets of the signed construction plans. Items to be discussed at the meeting include, but are not limited to:

1) Initiating construction
2) Contractor's work schedule in writing
3) Inspector assignment
4) Traffic Control/Public Notification
5) Subcontractors and suppliers
6) Materials furnished (i.e. type, brand, submittal requirements, etc.)
7) Safety requirements
8) Sampling and testing program
9) Regulatory agency requirements and approvals
10) Easement and right-of-way requirements.
11) Project Closeout and City acceptance
12) Warranty requirements and inspection

All contractors working within the City of La Pine shall have a valid City Business License prior to beginning work.

For projects including work that will impede or affect vehicular traffic on established streets, the Contractor shall submit a construction schedule and Traffic Control Plan (TCP) specifically for that work for review by the City Engineer. Work which impedes traffic flow shall not proceed until the schedule and TCP is approved by the City.

No inspections shall be performed until a pre-construction meeting has been held with the City Engineer. At the meeting, the Inspector will be designated to the project and **all** communications, changes, and field decisions will be coordinated through the Inspector. If the Inspector is not informed of a change or field decision, and the change has not been approved by the appropriate authority, then the change is not allowed and the facility must be constructed as shown on the approved plans.

13 UTILITIES

The construction drawings shall show the location of all existing and proposed utilities (i.e. electric, phone, cable, fiber optic, gas, etc.). The Owner/Developer shall provide and have constructed all City maintained facilities associated with the proposed development, including but not limited to, sewer and water systems, storm drainage, streets, street and traffic control signs, street lights, bikeways, pathways and appurtenant facilities. The Owner is responsible for the coordination of this work with any other agencies, individuals, and utility companies including, but limited to, Midstate Electric Cooperative, CenturyLink, Crestview Cable, Cascade Natural Gas, Lightspeed Networks or other utility providers or agencies that may be affected by the construction.

14 INSPECTIONS

Authorized Representatives of the City Engineer will be appointed as inspectors for all phases of the work. Inspections will be performed at the expense of the Owner or Developer for whom the work is being constructed, to assure that the public facilities installation or street construction conform to City Standards and Specifications. Engineering services shall be provided by the Owner/Developer. Contractors may call for the Inspector, or Engineering Representative, to inspect the work when deemed necessary.

The inspections listed below in 14.2.00 through 14.5.00 will be established at the Pre-Construction Conference based on the project requirements. Inspections requiring 24 or 72 hour advanced notice and approvals to be obtained before proceeding with dependent work will be outlined. Listed below the numbered inspections are general performance standards that the Inspector will observe.

14.1.00 ADVANCED NOTIFICATION FOR INSPECTION

The City will provide periodic, ongoing inspections on an as-needed basis. The Contractor shall be responsible for notifying the City Engineer's office at least 24 hours in advance of required inspections. The City will not be responsible for performing inspections without sufficient notice, nor will the City be responsible for any cost incurred for delay caused by insufficient notification.

No inspections will be performed without the associated 24 or 72 hour notification. Any work performed without a required inspection will be subject to removal and inspection, or acceptance, at the Inspector's discretion.

14.2.00 STREET INSPECTION

14.2.01 Traffic Control

a. Temporary signs, barricades, delineators, and cones are in accordance with the approved Traffic Control Plan and MUTCD.

14.2.02 Excavation

a. Construction staking meets requirements.
b. Construction area cleared and grubbed to mineral soil.
c. Fill construction and material meets standards and specifications.
d. Erosion control in place, stormwater facilities protected.

14.2.03 Subgrade

a. All underground utility work is complete, inspected, and approved.
b. All fill and backfill compacted to 95% of maximum density, and tested.
c. Subgrade is graded uniform and free of irregularities and within tolerances.

14.2.04 Curb

a. Construction staking meets requirements.
b. Subgrade has been approved.
c. Drop curb areas have been located.
d. Driveways, alleyways, access approaches, ADA ramps are staked and graded.

14.2.05 Curb Backfill

a. Construction staking is in place.
b. Finished curb matches staking.
c. Curb backfill material meets specification.
d. Finished surface is level, uniform, and free from irregularities.

14.2.06 Sidewalks

a. Curb backfill is in place and compacted.
b. Water meter & meter boxes set to grade per City Specifications.
c. Fire hydrants set to grade.

14.2.07 Drainage Structures

a. Inlets are set as designated on the plans or at low point staked in field.
b. Inlet grate frame is set to appropriate street grade and slope.
c. In addition to mechanical compaction, pipe and catch basins backfill shall be proved by water jetting.
d. Drain cross pipes are inspected per pipe construction and grouting requirements.
e. Storm drainage facilities constructed per approved design (location, geometry, slope, soil depth, filtering, surfacing, etc.).
f. Storm drainage facility performance tests in accordance with City Standards and Specifications.
g. Storm sewer systems inspected according to City specifications.
h. Sedimentation manholes are installed with correct fittings in accordance with City standards and specifications.

14.2.08 Base

a. Base material meets specifications prior to placement (submit gradation, proctors)
b. Subgrade is fine bladed to meet specified crown and curb exposure.
c. Water valve boxes have been set to subgrade and can be raised to grade.
d. All water compaction has been completed at least 48 hours previously.

14.2.09 Paving and AC Patching Preparation

a. Base rock is tight, not segregated and free from raveling or areas prone to raveling.
b. Base rock is watered, uniform to grade and slope, and free of irregularities.
c. Water valves boxes are set to the top of the base.
d. All manholes have been set and grouted to grade for at least 24 hours.
e. Base has not been contaminated by dirt or other substances.
f. Asphalt areas to be matched are cut square, straight, and uniform for AC patching.
g. Tack coat applied to concrete and asphalt surfaces to be matched or overlayed.

14.2.10 Paving Operation

a. Paving operation to be closely monitored by City Representatives.
b. Water valve boxes are set to finish grade.
c. All joints are raked and coarse stone removed from the pavement surface.
d. The uncompacted A.C. shall be set 1/2" - 3/4" above drainage and manhole structures so that the roller will bridge such structure and no dimpling of the finished mat adjacent to the structure will occur.
e. A roll pattern shall be established in coordination with the Inspector based on testing results. Every roll pattern shall include a minimum of at least four (4) passes of the breakdown roller to achieve proper compaction of the mat.
f. Finish rolling shall continue until no roller marks remain.

14.2.11 Striping Layout

a. The Inspector to review and approve layout of striping prior to authorization to stripe.
b. Pavement is clean, dry and air/surface temperatures are appropriate for striping

14.3.00 SANITARY & STORM SEWER INSPECTION

14.3.01 Before Construction

a. Inspection of materials and storage area.
b. Protection of existing systems.
c. Assurance of proper traffic control.
d. Utilities located and marked.
e. Construction staking meets requirements.
f. Bypass pumping equipment in place and installed according to approved plan.

14.3.02 Subgrade

a. Subgrade of proposed road established.

14.3.03 Pipe Trench and Bedding

a. Inspection immediately prior to pipe installation.
b. No rock points in pipe zone.
c. Bedding material is in conformance with specification.

14.3.04 Pipe Installation

a. Services provided to each lot as shown on plans and cleanout or sampling manhole along with locate wire provided at property line.
b. Pipe alignment is true.
c. Compaction under pipe haunches.
d. Compaction of materials around clean-outs and water valves.
e. Fittings tight.
f. Water grade pipe and couplers installed where required.

14.3.05 Pipe Backfill

a. Compaction inspection and soil testing will be required during backfill operation. Backfill material shall be Class B placed in accordance with APWA Section 00405.46 except for the following options:

1) For trenches deeper than 6 feet from top of pipe to subgrade (except for water lines), the backfill material may be Class A backfill 24 inches above the pipe zone to subgrade.

2) For trenches deeper than 9 feet from top of pipe to subgrade (except for water lines) and outside of the street right of way, the backfill material may be Class D backfill 36 inches above the pipe zone to subgrade.

The material shall be carefully and thoroughly tamped in layers to achieve 95% of maximum density as determined by AASHTO T-99. Methods of testing materials in the field may include nuclear densometer, sandcone, WA densometer, or other methods approved by the Engineer.

14.3.06 Manhole and Cleanout Invert

a. Distance between manholes matches distance on construction plans.
b. Inspection during base construction to assure compact subbase.
c. Required fall between incoming and outflow pipe inverts.
d. Rough channel has appropriate shape. Sidewalls come to top of uppermost pipe.

14.3.07 Completed Manholes and Cleanouts

a. Contractor shall demonstrate designed fall between manholes or clean-outs before proceeding with subsequent construction.
b. In addition to standard compaction methods, backfill around manhole shall be proved by water jetting.
c. Barrel not cracked or spalled.
d. Barrel joint and pipe connections grouted.
e. Concrete encasement of external drop manhole.
f. Invert channel grouted to smooth finish.
g. Frame in place set to finish grade and grouted.
h. Pipe zone surrounding clean-outs shall be compacted using means necessary to match typical pipe zone requirements.
i. Turning plug at top of cleanout pipe shall be set so that it does not conflict with the cleanout cover. Contractor shall ensure that distance is sufficient to eliminate conflicts.

14.3.08 Sewer Testing

a. Sewer is clear of all debris.
b. All backfill is completed.
c. Observation during air test.
d. Observation during deflection test at 92% of i.d. required for both rigid and flexible pipe.
e. Maximum allowable sag causing ponding of water is specified State regulations OAR 340-52 or ½ inch, whichever is more stringent.
f. Tracing wire to be tested after other required testing is completed.

14.3.09 Connection to Live Facilities

a. Inspection during connection.
b. No obstructions in line.
c. Fittings tight.

14.4.00 WATER INSPECTION

14.4.01 Before Construction

a. Inspection of material and storage area. Unless otherwise specified, all pipe shall be PVC pipe, Class 150, DR 18, conforming to all requirements of AWWA C900,

polyvinyl chloride pressure pipe, and conforming to cast iron pipe outside diameters.
b. Protection of existing systems.
c. Proper traffic control in place.
d. Utilities located and marked out and potholed as necessary to determine conflicts.
e. Construction staking meets requirements.

14.4.02 Subgrade

a. Subgrade of proposed road established with adequate control.

14.4.03 Pipe Trench and Bedding

a. Inspection immediately prior to pipe installation.
b. No rock points in pipe zone.
c. Bedding material is in conformance with specifications.

14.4.04 Pipe Installation

a. Pipe alignment is true.
b. Fittings tight.
c. Ductile iron Class 52 Tyton joints, mechanical joints, or approved equal.
d. Fittings tight.
e. Water grade pipe and couplers installed where required.

14.4.05 Service Installation

a. Services complete, continuous copper pipe, proper size, and provided to each lot.
b. Services set to finish grade per City Water Service and Installation Manual specifications.
c. Power, telephone, gas, and cable lines require a minimum five (5) foot separation from water and sewer services.

14.4.06 Fitting Location and Installation

a. Fittings installed and torqued to specification.
b. Fittings witnessed for As-Builts before being covered
c. Joint restraints in place where required

14.4.07 Preparation and Pouring of Thrust Blocks

a. Inspection of excavation and forms before pouring.
b. Forms placed at appropriate positions so blocks will be against undisturbed earth.
c. Reinforcement in place and secured when needed (deadmen)
d. Pipe and fittings wrapped with plastic as required.

14.4.08 Pipe Backfill

a. Compaction inspection and testing will be required during backfill operation.
b. Backfill placed in maximum 8" (loose) lifts

14.4.09 Connection to Live Facilities

a. Inspection and Water Division staff present during hot tap.
b. No obstructions in line.
c. Fittings and taps are tight and set plumb.

14.4.10 Setting of Valve Boxes

a. Plumb, centered over nut, and bottom flange not resting on pipe.

14.4.11 Pressure Testing

a. Testing completed according to Division IV Water Facilities, Leakage/Hydrostatic Testing & Disinfection Procedures
b. Thrust blocks have cured for five days minimum

14.4.12 Chlorination Testing and Flushing

a. Completed according to Division IV, Water Facilities Disinfection Procedures
b. All services flushed to angle stop at meter connection
c. Tracing wire to be tested after pressure testing and chlorination flushing completed.

14.4.13 Flow Testing

a. Services checked, flow measured and noted.
b. Hydrants checked, flow measured and static and residual pressures noted.

14.5.00 STRUCTURES

14.5.01 Before Construction

a. Inspection of material and storage area.
b. Protection of existing systems.
c. Proper traffic control in place.
d. Utilities located and marked.
e. Construction staking meets requirements.

14.5.02 Excavation

a. Excavation sufficient for structure.
b. Bedding as specified for thickness, material, and compacted.

14.5.03 Foundation

a. Reinforcing steel placed in accordance with approved shop drawings, plans and specifications.
b. Form work in accordance with approved details, plans and specifications.

14.5.04 Form Work & Reinforcement

a. Reinforcing steel placed in accordance with approved shop drawings, plans and specifications. Reinforcing steel supported as necessary to stay in position during pouring and finishing.
b. Form work in accordance with approved details, plans and specifications.

14.5.05 Concrete Placement

a. Air and soil temperature requirements within specified range.
b. Concrete placed within 90 minutes of mixing.
c. Interval between batches not to exceed 20 minutes.
d. Concrete testing and sample cylinders prepared as required.
e. Continuous placement, or cold joints, as shown on plans or as specified.
f. Mechanical vibration of concrete.
g. Laitance removed.
h. Cure applied to exposed surfaces.
i. Work protected from elements.

14.5.06 Form Removal & Concrete Finish

a. Forms remain in place for required time.
b. Wire and snap ties removed as per specifications.
c. Open or honeycombed areas cut out and grouted.

d. Surface finished per specifications.

14.5.07 Backfill

a. Compaction inspection and testing will be required during backfill operation.

14.6.00 SUBDIVISION SITE GRADING

14.6.01 Grading

a. Site graded to maintain or contain run off within development boundary and per approved plan.
b. Subgrade staked and constructed per approved design.
c. All earth fill areas located outside of public right-of-way require certification by a licensed Registered Professional Engineer.
d. Measures in place to prevent soil from washing off site, into storm facilities

14.6.02 Drainage Facilities

a. Inlets, grates, and drain pipes are set to appropriate grade and slope as designated on the plans or at low points staked in field.
b. Sedimentation manholes are installed with correct fittings in accordance with City and DEQ standards and specifications.
c. Storm drainage facilities constructed per approved design (location, geometry, slope, soil depth, filtering, surfacing, etc.).
d. Storm drainage facility performance tests in accordance with City Standards and Specifications.
e. Drain pipes crossing public right-of-way are inspected per City Standards and Specifications for material, construction and grouting.

15 SURVEYING AND CONSTRUCTION STAKING

The purpose of this section is to define the responsibilities for surveying and construction staking. All survey work shall be conducted under the supervision of a Registered Professional Land Surveyor, licensed in the State of Oregon. The Contractor will be responsible for providing all construction staking as required to complete the work. On Public Works Projects the City will provide bench marks, control points, and reference points as shown on the plans or as required by the Contractor to establish control for construction staking. The Contractor will be responsible for establishing centerline location and elevations. For private development projects the contractor shall establish appropriate bench marks, control points, and reference points to complete the work.

Construction stakes and stakes which are reference points for construction work will be conspicuously marked. It shall be the responsibility of the Contractor to inform his/her employees and her/his subcontractors of their importance and the necessity for their preservation.

The Contractor will provide vertical and horizontal construction staking in the proximity of the work. Construction staking will be provided at 50' intervals on tangent and 25' intervals on curve. The grade stakes at a minimum should contain the following information: Engineer's station, Offset from line, and Cut or fill to grade.

16 MATERIALS

Materials shall conform to the City of La Pine Standards and Specifications, or other specifications as set forth in the Contract Documents.

17 WATERING

Watering shall be performed at any hour of the day and on any day of the week that the City Engineer may determine necessary for proper performance or protection of the work, and for adequate alleviation of dust nuisance. The Contractor is responsible for the cost of watering. If the Contractor is unable or unwilling to water as directed, the City will water and charge the Owner or Developer.

17.1.00 DESCRIPTION

This work consists of furnishing and applying water, or combinations of water and additives for compacting and preparing excavations, embankments, backfills, subgrades, subbases, surfacings or for dust control, clean-up, or other purposes as determined by the Engineer. Excluded from this section is water used in Portland cement concrete construction and water used for testing purposes.

17.2.00 MATERIAL

17.2.01 WATER

Water used in the work shall be free of silts and hazardous or deleterious substances. The Contractor shall maintain an adequate supply of water at the job to conduct operations in a timely manner. The City may provide water for a fee to the Contractor from a fire hydrant or similar source. The Contractor must make application to the City Public Works Department for such service. Only City furnished and approved metering and backflow prevention devices connected to designated fire hydrants may be used to obtain water from the City water distribution system.

17.2.02 CONSTRUCTION

The Contractor shall apply water by means which result in uniform and controlled application.

If the Contractor has not provided water as ordered by the Engineer, the Owner may provide water and charge any applicable costs to the Contractor.

17.3.00 TEMPORARY WATER

Water is available from hydrants via combination meter and backflow devices rented from City of La Pine Public Works. Contractor shall make arrangements and pay all costs for obtaining and transporting the water from the hydrants to the area of usage for the construction and testing of the facilities.

18 WORKMANSHIP

18.1.00 GENERAL

The work shall be done by responsible and qualified workers. Should the Inspector find any worker to be unqualified or unfit to perform assigned work on the project, or if the worker is repeatedly performing work not in conformance with the specifications, the Contractor will be notified and directed to reassign the worker to tasks for which he is qualified or dismiss him for cause as determined by the Inspector.

18.2.00 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES

The Contractor shall notify the public and local service organizations, i.e. Police, Fire District, hospital emergency services, school bus dispatchers, 24 hours in advance of any construction activity that may impede their daily activities and functions. For work in areas that will impede or obstruct traffic flow on established streets, the Contractor shall adhere to the construction schedule submitted at the Pre-Construction Meeting, or as subsequently revised. Paved surfaces of streets removed or damaged by trenching or other activities to an extent affecting the driving surface shall be restored with a hard, smooth surface within 48 hours of pavement removal or damage. Should the Contractor neglect to prosecute the work properly or in accordance with the approved schedule, in the opinion of the City Engineer, then the City of La Pine will notify the Contractor's Surety of the conditions, and after ten (10) days written notice, or without notice in the case of an emergency or imminent danger to the public, and without prejudice to any other right which the City of La Pine may have, take over that portion of the work which has been improperly executed and make good the deficiencies and assess the costs of such work to the Contractor.

Temporary pavement surfacing and patching due to adverse weather must be approved by the City and then must be maintained at the cost of the owner/developer until permanent pavement surfacing can be constructed.

At locations where the Contractor's operations could potentially cause damage resulting in considerable expense, loss, and inconvenience to the City or public utility, and when adjacent to or near railway, telegraph, telephone, television, power, oil, gas, water irrigation systems, or other private or municipal systems, the Contractor's working operations shall be suspended until all arrangements necessary for the protection thereof have been made by the Contractor.

The Contractor shall notify by the one call number **1-800-332-2344,** at least 48 hours in advance, all utility offices affected by the construction operations. The Contractor shall not expose any marked out underground utility without first notifying the affected agency and being granted permission to do so. The Contractor is responsible for locating and exposing, if necessary, all existing underground utilities in advance of the trenching operation.

The Contractor is responsible for protecting all power and telephone poles and overhead cables from damage. If interfering power poles, telephone poles, guy wires, or anchors are encountered, the Contractor shall notify the utility owner at least 48 hours in advance of construction operations to permit the necessary arrangements with the affected utility company for protection or relocation of the interfering structure. The Contractor shall be solely and directly responsible to the owner and operators of such utilities/properties for any damage, injury, expense, loss or inconvenience, delay, suits, actions, or claims of any kind brought because of injuries or damage which result from performing the contract work. The Contractor

shall immediately notify the proper authority in the event of interruption to domestic water, sanitary sewer, storm sewer or other utility service resulting from accidental breakage, or as a result of being exposed or unsupported. All repair or replacement of existing water or sewer pipe must conform to City's Standards and Specifications. If an existing water or sewer pipe is damaged to any extent, the City's Water and/or Wastewater Divisions must be immediately notified. The damaged pipe must remain exposed until inspected by a City representative. Repairs will be made upon approval by the Inspector. All repairs or replacements will be inspected by an Inspector prior to backfill. The Contractor shall cooperate with the affected agency to restore services as promptly as possible, and shall bear all costs of repair for the utility. In no case shall interruption of any water, sanitary sewer or utility service be allowed outside normal working hours unless prior approval is granted by the City Engineer or City Public Works Manager.

Neither the City, the utility owner, nor its officers or agents, shall be responsible to the Contractor for damages resulting from the location of any underground utilities being other than that shown on the plans, or for the existence of underground utilities not shown on the plans or properly marked out on the site.

Should the Contractor encounter any utility service lines that interfere with trenching or conflict with the proposed work, the Contractor may obtain prior approval of the utility owner and governing authority to cut the service, dig through, and cause the service to be restored or relocated with similar and equal materials at the Contractor's expense.

18.3.00 FIELD RELOCATIONS

During the progress of construction, it is expected that minor relocations of the proposed work may be necessary. Such relocations shall be made only by direction of the Design Engineer, or representative, with the approval of the City Engineer. Unforeseen obstructions encountered as a result of such relocations will not be cause for claiming additional compensation by the Contractor to any greater extent than would have been the case had the obstructions been encountered at the original location.

18.4.00 BARRICADES, GUARDS, AND SAFETY PROVISIONS

Adequate barricades, construction signs, warning lights, and guards, as required, shall be placed and maintained during the progress of the work to protect persons and vehicles from injury and to avoid property damage until the area is determined safe for normal public use.

Rules and regulations of the local, State, and Federal authorities regarding safety provisions shall be adhered to. The Contractor shall be solely responsible for directing and implementing all safety provisions on the Project site, and for all accidents caused by inadequate or insufficient safety provisions. The City of La Pine, City Engineer, Inspectors, or other agents of the City, shall not be held responsible for directing, implementing, or enforcing any safety regulations.

18.5.00 PAVEMENT REMOVAL AND REPLACEMENT

All bituminous and concrete pavements shall be cut with a saw or other approved device prior to asphalt patching or concrete replacement, such that the patching material abuts a smooth,

uniform, vertical face of at least twice the depth of the maximum particle size in the patching medium. Uneven pavement edges shall be trimmed smooth before patching the pavement.

The width of the pavement cut for trenching shall be at least 12" wider on either side than the width of the finished backfilled trench at the ground surface. Pavement materials removed during excavation shall be kept separate from native backfill material and removed from the site. Pavement shall not be used for backfill or embankment material.

Where existing paved roadways are cut, trench backfill shall be as defined in the City of La Pine Standards and Specifications, and shall be placed as specified. The pavement section will be replaced to a standard equal to or better than the existing street section, except that in no case shall it be less than the current standard for that classification of street. Base material must meet current City of La Pine Standard and Specifications.

Temporary pavement surfacing and patching due to adverse weather must be approved by the City and then must be maintained at the cost of the owner/developer until permanent pavement surfacing can be constructed.

18.6.00 OBSTRUCTIONS

Obstructions to the construction such as tree roots, stumps, abandoned pilings and concrete structures, logs, rubbish, and debris of all types are to be removed from the project site as part of clearing and grubbing operations, or as incidental work, and no additional compensation will be made for the amount or type of clearing required.

The City Engineer may, if requested, approve minor changes in the alignment or location of facilities to avoid major obstructions if such alignment changes can be made within the permanent easement or right-of-way, and without adversely affecting the intended function of the facility.

18.7.00 INTERFERING STRUCTURES, ROADWAYS OR DRIVEWAYS

The Contractor shall replace and/or repair any damage done by the Contractor's forces during construction to landscaping, fences, buildings, billboards, irrigation lines, roadways, cultivated fields, drainage crossings, driveways and any other private or public properties at Contractor's own expense and without additional compensation from the Owner. The Contractor shall replace or repair these structures to a condition as good as or better than their pre-construction condition. Pre-construction videotapes or photographs taken by the City will be used to determine the pre-construction conditions of properties adjacent to the work. In the absence of pre-construction photographs, the property shall be restored to original, like new conditions.

18.8.00 BLASTING

Where rock material is encountered which requires systematic drilling and blasting for removal, the Contractor shall furnish all necessary approved blasting certifications and licenses, tools, equipment, and materials required to perform the work. The Contractor shall comply with all Federal, State, and local laws that apply to the storage, handling, placement, and firing of all explosives.

The Contractor shall furnish additional insurance coverage as required by the City or any agency in addition to the basic coverage required by these specifications.

No blasting shall be permitted adjacent to any portion of exposed work or structures unless proper precautions are taken to assure that damage to adjacent property will not occur. All blasting shall be covered with blasting mats or other approved type of protective cover to prevent the scattering of rock fragments or other material to outside the excavation area and limits of the construction. The Contractor shall be responsible for any and all damage or injury resulting from the use or handling of explosives, and accidental or premature explosion that may occur in connection with Contractors' use of explosives.

Proper notification and ample warning shall be provided to all persons within the danger zone. Contractor's personnel shall be stationed at strategic locations a safe distance from the blasting zone to prevent persons and vehicles from entering the blasting area. Electrical blasting caps shall not be connected to the electrical source until the area is cleared of all personnel and the proper warning signals have been sounded.

Where blasting is proposed in the proximity of private property or residences that may be affected by vibrations, shaking, or seismic shocks, the Contractor shall be responsible to perform pre-blast surveys of all structures to determine the condition of walls, ceilings, floor slabs, or other surfaces in which cracking or movement may be induced by the blasting operations. All existing conditions shall be thoroughly documented and recorded by means of photographs and/or video recordings to establish pre-blast conditions and existing damage. Following the blasting operations, the Contractor shall perform a follow up survey of those affected properties to determine if any shifting, cracking, settlement, or other damage was induced by the blasting. Contractor shall promptly repair or replace any damaged structures to a condition equal to or better than that found in the pre-blast survey. The City will be indemnified and held harmless from any liability for damage or injury caused by the Contractor's blasting operations.

Public utilities (utilities) located within the blast area must be identified and notified 72 hours prior to blasting. Contractor shall perform pre-blast survey and inspections of identified utilities. Utilities damaged from blasting activities shall be repaired and/or restored at the expense of the Contractor.

18.9.00 SHORING AND SHEATHING

The Contractor shall be solely responsible to determine the means necessary to maintain safe working conditions and protect adjacent property and structure from damages during excavation operations. The Contractor shall comply with all Federal, State, and local laws, rules, and regulations governing shoring, sheathing, structure support, and support of excavations.

18.10.00 LOCATION OF EXCAVATED MATERIALS

The Contractor shall stockpile excavated material so as not to block any public streets, traveled roadways or paths, public or private. Roadways shall be kept open to two way traffic unless otherwise approved by the City Engineer and the City of La Pine Public Works Department.

The Contractor shall store or dispose of excavated materials only in designated areas as approved by the Engineer. Utmost care shall be taken to prevent erosion, spillage or damage to property adjacent to the project. Contractor shall implement erosion control measures and shall immediately clean up any spilled or spoiled material on streets or paved roadways, and contain storm water runoff from stockpiles to prevent silt and dirt from entering catch basins, storm drains, drywells, or other drainage structures. Refer to Central Oregon Stormwater Manual, Chapter 9, for erosion control measures.

18.11.00 SITE RESTORATION AND CLEANUP

At all times during the work, the premises of the site shall be kept clean and orderly, and upon completion of the work the project shall be free of debris, rubbish or excess materials of any kind.

18.12.00 STREET CLEANING

Clean all dirt, gravel, debris, or other material generated by the construction operations from all streets, alleys and roads at the conclusion of each day's operation. Contractor shall not stockpile construction materials in streets, sidewalks, alleyways, nor on other paved areas, except during working hours when operations are being conducted in the immediate area. If Contractor fails to provide cleanup within 24 hours of being so directed by the Inspector, the City, or an agent retained by the City, may complete the cleanup and the cost plus 10% shall be billed to the Contractor to be paid prior to project acceptance by the City.

18.13.00 EROSION and SEDIMENT CONTROL

Contractor shall take measures to prevent erosion or sediment run off from work site as required by the Central Oregon Stormwater Manual.

19 TESTING

Testing shall conform to the City of La Pine Standards and Specifications, and shall be performed by a certified/independent testing laboratory approved by the City Engineer.

Testing criteria shall meet the requirements as established in each Division of these Standards. Gravity sanitary or storm sewer mains shall be air tested or hydrostatically tested pursuant to A.P.W.A Standards by the Contractor and in accordance with City of La Pine Standards and Specifications. Pressure sewer lines shall be hydrostatically tested pursuant to A.P.W.A Standards by the Contractor and in accordance with City of La Pine Standards and Specifications. Storm drainage facility tests shall be performed in accordance with City Standards as set forth in the Central Oregon Stormwater Manual. Waterlines shall be hydrostatically tested pursuant to A.W.W.A. Standards and in accordance with City of La Pine Standards and Specifications. Street compaction and asphalt testing shall be in accordance with these Standards and current Oregon Department of Transportation Standard Specifications.

The City Engineer may require additional testing of any portion of the work performed. When additional testing is required by City Engineer, the City shall pay all costs for initial tests demonstrating satisfactory performance. Non-passing tests and subsequent re- testing shall be paid for by the Contractor.

Prior to final acceptance for maintenance, the Owner/Developer may be required to provide verification testing of any facility that shows evidence of being stressed beyond design limits or capacity.

20 SANITARY and STORM SEWER CLEAN-UP

Final Sewer Cleaning: During construction, take all measures to prevent debris from entering sewer system. Prior to final acceptance of the sanitary and storm sewer system by the Engineer, pressure and gravity sewers must be clean. Remove all accumulated construction debris, rocks, gravel, sand, silt, and other foreign material from the sewer system at or near the closest downstream manhole or port.

Upon the Engineer's final manhole-to-manhole or cleanout-to-cleanout inspection of the sewer system, if any foreign matter is still present in the system, the pipe must be re-cleaned at the expense of the Contractor.

21 AS BUILT DRAWINGS

All final record 'As Built' drawings shall be prepared by the Design Engineer. Any change which would appear on 'As Built' drawings should be immediately brought to the attention of the Inspector at the time the Contractor or Design Engineer discovers such discrepancy. The Contractor shall provide the City with a detailed set of 'As Built' drawings upon completion of construction to include, but not limited to, the following;

All street improvements shall require detailed witnesses of all property corners and 'As- Built' conditions of all underground utilities.

All sewer facilities shall require detailed 'As-Builts' of all sewer mains, manholes, service laterals, cleanouts and pressure system.

All water facilities shall require detailed witnesses of all valves, tees, crosses, bends, couplings, fittings, hydrants, and 'As-Builts' of waterline alignment and profile.

All storm drainage facilities shall require detailed 'As Builts' of all storm sewer pipes, fittings, structures, manholes, drywells, swales, etc.

The Owner/Developer shall prepare final as built drawings which are stamped as-built. The owner/developer shall deliver 2 hardcopy full size plans, 1 PDF, and 1 AutoCAD file (version 2004 or later).

22 FINAL ACCEPTANCE

Final acceptance shall be determined as the date on which the City Engineer formally accepts, in writing, the constructed public improvements for ownership and maintenance by the City of La Pine.

Final acceptance will follow the City Engineer's final inspection and approval of construction and will involve the completion of the following items (as applicable):

1. Release of Liens or claims.

2. Easement Dedication.
3. Right-of-way Dedication.
4. Recorded Plat or Partition.
5. Warranty agreement for materials and workmanship, including warranty bond.
6. Verification Performance Tests (if required).
7. Resolution of material and workmanship issues, i.e. final punch list.
8. Contractor's As-Built plans.
9. Electronic copies of approved design changes from Design Engineer.
10. Street light and postal box installed or provider contract paid.
11. Curb ramp and hydrant pads installed.
12. Sidewalks adjacent to existing developed lots (existing residence, etc.).
13. Private water, sewer and storm drainage system abandonment documentation (water wells, underground injection facilities, drill holes, septic tanks, etc.).
14. Certification of all fill areas located outside of public right-of-way/easement by a license professional engineer.
15. Survey monument and/or property corner restoration and documentation as required by ORS 209.

23 SITE GRADING and DRAINAGE

23.1.00 General

This document is intended to set minimum standards for site grading and drainage on private property within the Urban Growth Boundary of the City of La Pine.

All storm drainage from private property (site) shall be maintained and/or contained on site and shall not drain onto public streets, alleys, or neighboring properties. Storm water runoff from private property shall not impact public right-of-way or public drainage systems unless otherwise approved by the Public Works Manager, City Engineer or as determined through the land use approval process. All earth fill areas located outside of public right-of-way require certification by a licensed Registered Professional Engineer.

23.2.00 Plans and Specifications

A comprehensive site grading and drainage plan prepared by a licensed Registered Professional Engineer shall be required for development of private property that proposes five thousand (5,000) or more square feet of new roof, pavement, compacted gravel, concrete or other impervious surface improvements, disturbs more than one acre in total, or proposes an underground injection control (UIC) facility. For flow control design parameters and drawing requirements, see the Central Oregon Stormwater Manual, Chapters 5 and 7. The following minimum information shall be required on the plans:

1) Existing and total impervious area on the site.

2) Parking and driveway approach finish grades and slopes.
3) Roof drain conveyance.
4) Sizing and testing data for underground injection or infiltration systems.
5) Swale cross sections with 3:1 max. slope, topsoil/sand layer, geotextile filtering layer and surface treatment.
6) 100 year/24 hour storm event containment and outfall.

Where less than 5,000 s.f. of new impervious surface areas are proposed, a site plan shall be required that demonstrates on-site drainage will be maintained on site, any proposed retention area or storm drainage facility has design capacity for the required 25 year/24 hour storm event runoff volume (2.6 inch rainfall), and any necessary erosion control measures which will be taken.

Underground Injection Control Devices (drywells, etc.) shall be Rule Authorized or permitted by Oregon Dept. of Environmental Quality (DEQ) and a copy of DEQ approval shall be submitted to the City prior to construction.

Review plan sets shall be submitted to the City of La Pine Community Development Department as part of a building permit application for review.

The City Engineer will indicate plan approval with 'City of La Pine Engineering Approval' stamp on the appropriate site grading and drainage plan sheets.

23.3.00 Subdivision Site Grading

Mass site grading and drainage plans required as part of subdivision land use approval shall be reviewed, approved, constructed, inspected and accepted through the public improvement construction process. Design parameters and drawings requirements are as described in Section 23.2.00 above.

23.4.00 Grading Fees

Engineering fees for City inspection and plan review of site grading and drainage improvements are required as established by the City of La Pine Fee Schedule and must be paid before the City can issue the associated building permit and before grading construction can begin.

23.5.00 Grading Inspection

The City Engineering Inspector shall be notified twenty four (24) hours prior to start of grading construction. Any work performed without a required inspection will be subject to removal and inspection at the Inspector's discretion.

23.5.01 Grading

a. Site graded to maintain or contain run off on site or as approved.
b. Subgrade and curb staked and constructed per approved design.
c. Driveway approach constructed per approved plans and City standards.

23.5.02 Drainage Facilities

a. Inlets, grates, and drain pipes are set to appropriate grade and slope as designated on

the plans or at low points staked in field.

b. Sedimentation manholes are installed with correct fittings in accordance with City and DEQ standards and specifications.
c. Storm drainage facilities constructed per approved design (location, geometry, slope, soil depth, filtering, surfacing, etc.).
d. Storm drainage facility performance tests in accordance with Central Oregon Stormwater Manual requirements.

23.6.00 Final Grading Acceptance

The City Engineer will indicate acceptance of site grading and drainage improvements with engineering approval of the associated final building occupancy permit. All necessary private drainage easements shall be recorded prior to acceptance.