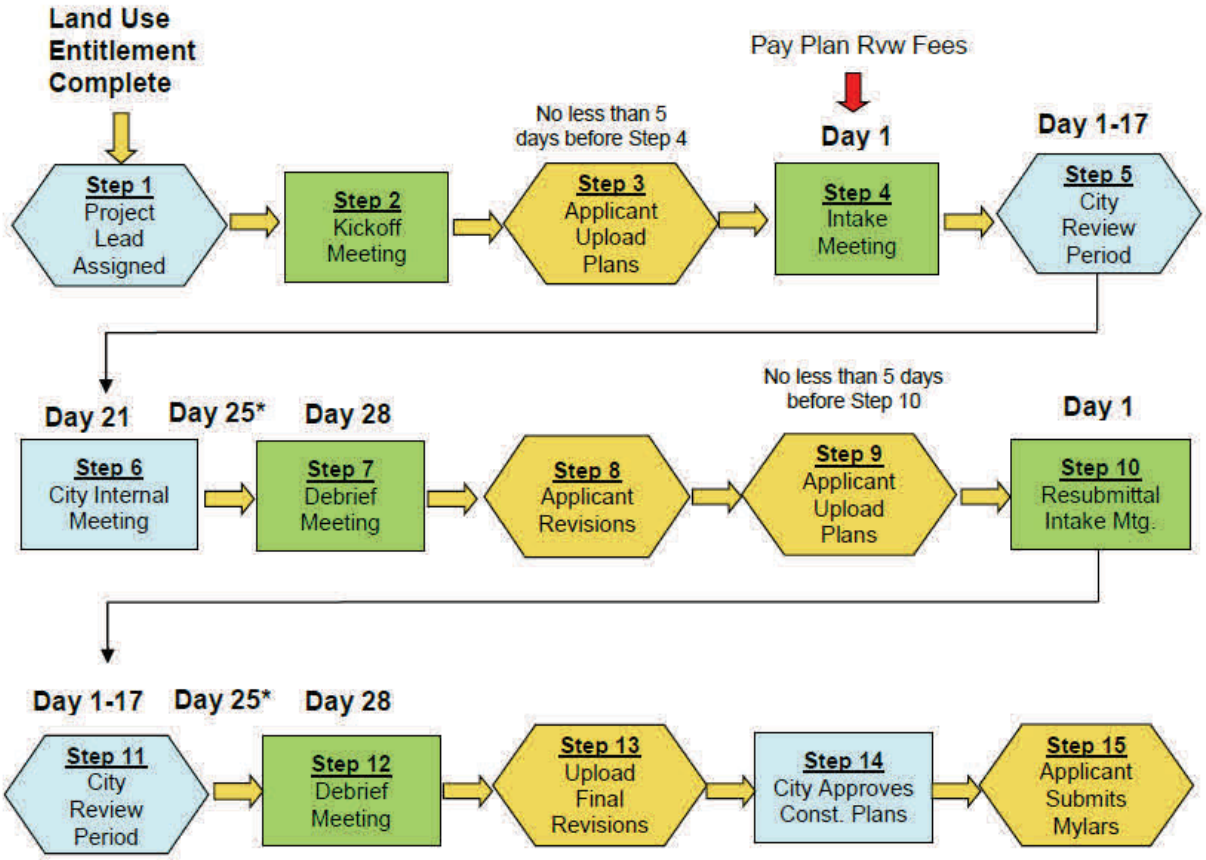
CONSTRUCTION PLAN REVIEW PROCESS
COORDINATED CIVIL REVIEW (CCR) PROCESS

CityofRedmond
WASHINGTON



*Markups made available to Applicant by Day 25

Completion within two review cycles is dependent on the applicant's responsiveness to City review comments

The objectives of the "Coordinated Civils" review process are:

a. Approve compliant civil drawings that satisfy conditions of project approval.

b. Ensure that you, the applicant, have a clear understanding of the City's expectations for civil drawings in general and specific approval conditions.

c. Provide an opportunity for you to reach agreement with the City on key layout features ahead of formal intake.

d. Reduce the number of review cycles needed to reach civil drawing approval to two.

e. Provide a predictable review schedule.

f. Reduce conflicts/redundancy of review comments from various city divisions.

STEP 1: PROJECT LEAD

An Engineer from the City's Development Engineering Division is assigned as the City's lead engineer (Project Lead) for coordinating your construction plan review across City departments. When you are ready to begin preparation of your civil drawings, please contact the Development Engineering Manager (425) 556-2861 to have a Project Lead assigned.

STEP 2: KICK-OFF MEETING

The Project Lead will contact you (the applicant) to arrange a kickoff meeting for civil drawing review. This one-hour kickoff meeting includes you (applicant and applicant's design team) and the City's team that will be reviewing your plans (utilities, stormwater, fire, transportation, construction inspection, and planning). At the meeting we will discuss conditions of approval for your project and we will explain the City's civil drawing intake checklist and how you upload electronic plans for review. Your team is encouraged to ask clarifying questions at this time and present any design concepts that you would like City feedback on. After the meeting, you are encouraged to contact attendees for clarifying information while preparing for submittal. An expectation is set that our goal is two review cycles.

Any anticipated requests for deviations from regulations and the intake checklist, which have not been addressed during the Land Use approval process, should be identified at this time or prior to uploading plans. Unresolved design issues or compliance with regulations will jeopardize the success of the intake meeting.

The following information should be submitted at this time so that staff can establish review fees prior to the intake meet:

Number of Lots (needed for plats, S.P. & BSP)	_____
Land Area Cleared/Disturbed (sq. ft.)	_____ (s.f.)
Amount of Material Moved (cubic yds.)	_____ (c.y.)
Amount of New Impervious Surface (sq. ft.)	_____ (s.f.)
Amount of Replaced Impervious Surface (sq. ft.)	_____ (s.f.)
Amount of New Pollution Generating Surface (sq. ft.)	_____ (s.f.)
Water Main Length	_____ (l.f.)
Sewer Main Length	_____ (l.f.)
Estimate of Utility Special Appurtenances	$_____

STEP 3: APPLICANT UPLOADS PLANS

At least **5 working days before** the scheduled intake meeting the applicant must upload plans to the E-Review Portal. Please refer to the attached Intake Checklist for required submittal items. **Note:** You should contact appropriate City staff, **prior to submission,** if there are any questions regarding submittal requirements. Marking a checklist item as "Not Applicable" or "N/A" without first speaking with staff **will likely result in the submittal being rejected**. Also, the intake **meeting will be rescheduled** for a later date if the plans are not uploaded 5 days prior to the meeting.

The process for uploading plans is as follows:

- Log into E-Review Portal http://land.redmond.gov/ereviewportal and click on the folder next to the plan case number that you want to upload plans to.
- With all submittal items named according to the submittal checklist browse for the files and open one or many files, click the box creating a check mark next to submittal documents and submit.
- When all the correct files are listed under selected files and you have no additional changes click upload then click submit for review.

STEP 4: INTAKE MEETING

At the intake meeting, your City reviewers use the checklist to confirm that all required plan depictions and supporting documents are provided. Staff is encouraged to ask you clarifying questions during the intake to facilitate their review. *First review* has begun. You will return for a one-hour debriefing meeting not more than 28 calendar days after a successful intake.

Note:

- Plan review fees (and peer review fees if applicable) **are to be paid prior to the City commencing the intake meeting**. Please work with your Project Lead to determine your plan review fees.
- Changes during the design review may result in adjustments to the review fees.

If your submittal omits any checklist items or project specific conditions identified in the SPE/approval letter, the City will document and explain the deficiencies to you. You will need to correct the deficiencies and contact your Project Lead to arrange another intake when you are ready. The City will either convene all of your reviewers as before or just those noting deficiencies will participate, at the City's discretion.

STEP 5: CITY STAFF REVIEW

Once the checklist is satisfied, your City reviewers will evaluate your plans for compliance with development standards and satisfaction of SPE/approval conditions. Each reviewer will redline any compliance issues on their set of plans and document comments in a spreadsheet. The marked up plans and spreadsheet will be delivered to your Project Lead by Day 17.

STEP 6: CITY INTERNAL MEETING

Your Project Lead reviews all the comments made and check for potential conflicts between reviewers. If conflicts are noted, an internal staff meeting is held to resolve them. At this point, you will be able to access the plans with comments through the E-Review portal. Your ability to access the plans will occur no later than Day 25, thus allowing you time to consider the comments and formulate any questions or proposed solutions.

STEP 7: DEBRIEF MEETING

At Day 28, the debriefing meeting is held between your design team and City reviewers. City team members provide a brief overview of their comments, noting the items of most significance, and respond to your questions or ideas. Any resolutions to comments you reach with your reviewers are documented on the applicable marked-up plans. Later, at second cycle intake, you must demonstrate you have responded to each comment indicated with an R (for required). Staff may also include optional markups indicated with a P (preference) or C (consider); such comments are advisory in nature for your consideration and are <u>not</u> required changes for plan approval.

STEP 8: APPLICANT REVISIONS

You then revise your plans as required, responding in full to all required (R) comments. Indicate in the consolidated spreadsheet how you responded to each comment. You may contact any of your reviewers if you have any questions or want feedback on an approach. Once you have addressed all required comments, contact your Project Lead to arrange for your second-cycle (resubmittal) intake meeting.

STEP 9-12: RESUBMITTAL CYCLE

The second cycle intake will be identical to first-cycle intake, with the same personnel. However, instead of using the construction plan intake checklist, the comments made by the City to verify you have responded to all required (R) comments. If staff believes you have fully responded to the initial review comments then the *second cycle* begins. If any comments are not addressed, omissions will be documented and explained to you. You will need to correct the deficiencies and contact your Project Lead to arrange another intake when you are ready.

Your City reviewers repeat Steps 4 and 5, providing you with any remaining comments and markups by Day 25, as before.

You and your City reviewers attend a second-cycle debriefing at Day 28. If non-compliance remains in your plans that can only be rectified *with a third cycle* review, these comments will be noted and explained as in Step 7. You will revise the plans as in Step 8 and resubmit as in Step 9 & 10. The City will review and comment as in Steps 11 & 12. The City may ask you to participate in a diagnosis meeting to determine why extra cycles were necessary to help improve the process or the checklist.

Step 13: Bond, Final Fees & Mylars:

Following the last full review cycle there will likely be some minor review comments for you to address with staff. Once ready, you may coordinate with your Project Lead to upload your final plans for City approval.

Step 14: City approval of construction plans

The City will place an approval seal and watermark on the final construction plan files and other documents, such as reports and traffic control plans.

Step 1: Plan sets and set preconstruction conference date

Once the construction plan files have been approved, you may download them from the E-Review Portal and reproduce the construction plans on mylar media. At this time you should also have any associated easements/dedications executed. Once the mylars and executed easements are received by the City, the review process is complete. **Before you commence any work associated with the approved plans, you must apply for, and be issued, a PW Construction Permit.** Please coordinate with your assigned Project Lead when you are ready to obtain your construction permit.

COORDINATED CIVIL DRAWING INTAKE CHECKLIST

City of Redmond
WASHINGTON

Project Name: _____

City Project Lead: _____ Phone: _____

Email: _____

Design Engineer: _____ Phone: _____

Email: _____

Note: Applicant should contact appropriate City staff, **prior to submission**, if there are any questions regarding submittal requirements. Marking an item as "Not Applicable" or "N/A" without first checking with staff **will likely result in the submittal being rejected**.

5 working days before the scheduled intake meeting the applicant must upload the following plans and documents to the E-Review Portal.

ELECTRONIC PLAN REVIEW SUBMITTAL STANDARDS

Electronic plans that do not meet the requirements below will fail and result in the application being deemed incomplete and will not be reviewed until complete.

A. File Naming Standards:

Indicate the naming convention in which the particular submittal must be named. For example, the Civil Plans must be named **Civil Plans** and Drainage Report must be named **Drainage Report.** Any additional documents such as **easement and right-of-way, reports, calculations, photos** and other supporting documents should also be named according to their content.

C. Acceptable File Types:

Plans: Plans must be submitted in a PDF format.

Documents: Calculations, reports and other supporting documents (non-drawing files) must be uploaded as a PDF

B**. Plan Sheet Standards:**

All plans must be drawn to scale, as specifically identified in the checklist, and each sheet shall state the scale.

D. Plan Orientation:

All plans must be uploaded in "landscape" format in the horizontal position.

SPECIAL NOTE:

The Checklist requirements may change periodically. These checklist requirements are dated Oct. 2012

- Complete set of the civil drawings & landscape plans
- One copy of complete drainage computations
- One copy of the SWPPP
- One copy of any other specific studies or calculations
- One copy of this checklist with your (the applicant's) annotations
- One copy of the City's approval letter
- One copy of Project Construction Cost Estimate separated between:

  □ Work in the right of way and/or an existing city easement(s)

  □ Work on the project site

- One composite AutoCad or Microstation copy of the preliminary site plan (this is a single composite file properly geo-referenced in NAD 83 (91-HARN). (This item must be on a CD or DVD.)

One draft of each required easement and/or right of way dedication, which shall include (Note: this **does NOT apply** to plats, short plats or BSPs):

□ Index Cover Sheet

□ Conveyance Document (contact reviewer for appropriate template)

□ Signature Page

□ Legal Description (Exhibit A)

□ Map (Exhibit B)

□ Easements and Dedications Process Overview

Review Notes: [ ] = Reference: Redmond Zoning Code

GENERAL DRAWING FORMAT AND CONTENT

Point of Contact: Pat Lyga (425-556-2747)

_____Civil Drawing Size (applies to Civil, Fire and Landscape plans) - 22" x 34".

_____Cover Sheet

□ Vicinity Map - showing the general location of the project.

□ Tax Parcel/Plat Number

□ Legal Description

_____Title Block/Drawing Title

□ Issue or Revision Date

□ Section, Township and Range.

□ Project Name

□ Engineer Information - Company name, address, phone, contact name and contact email.

□ Owner Information - name, address, phone and contact.

_____City Approval Block - must be on every sheet at lower right hand corner.

_____Each sheet contains: THIS DEVELOPMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE *XXXX* (edition in affect in the year the project was vested) CITY OF REDMOND STANDARD SPECIFICATIONS AND DETAILS.

_____Horizontal Scale (applies to Civil, Fire and Landscape plans) - 1"= 20'.

_____Vertical Scale - 1"= 5'.

_____Vertical Datum (NAVD 88) – tie to minimum of two (2) C.O.R. benchmarks.

_____Horizontal Control – tie to minimum of two (2) C.O.R. horizontal control monuments

_____Horizontal coordinates (NAD 83-91) on at least two (2) exterior lot/boundary corners must be shown. Note: Electronic files must also be tied to Redmond's coordinate system.

_____North Arrow & Scale Bar – North should be oriented to top or right side of sheets.

_____Drawing Layout - shall be laid out to afford the maximum understanding possible.

_____Engineer Stamp, signed and dated, consistently with issued or revised date.

_____Legend - identify line types and symbols used.

_____Property Data - parcel numbers, lot numbers, plat names, and street names.

_____Phased Project Drawings - depict all construction necessary to complete the phase (each phase shall be independently approved).

GENERAL SITE PLAN (All Proposed Info. must be distinguished from Existing Info.)

_____Property Lines - including bearings and distances.

_____Right of Way centerline - including bearings and distances.

_____Lot Numbers.

_____Site Area - shown in square feet and acres.

_____Streets - edge of pavement or curb and sidewalk, centerline, and name shown.

_____Contours - (dashed lines for existing and solid lines for proposed) 1 or 2 foot interval (slopes 40% or greater may be shown with 5 foot contours).

_____Onsite Features - easements, buffers, +40% slopes, etc., including all critical areas and their associated buffers

_____Offsite Information - all features within offsite areas that drain onsite, and all information within 20 feet of all property lines.

_____Utilities (water, sewer, telephone, cable television, gas, power, etc.) shown on the plan.

_____All Utility Easements shown with dimensions labeled.

_____Setbacks and Buffers

Building

From Sensitive Areas as defined in RZC (in accordance with geo-technical recommendations).

_____Parcel Information – Area (s.f.), existing, proposed, and total onsite impervious area, and water quality and quantity design storms and facilities proposed for quantity and quality control.

_____ Landscape Plan to be consistent with Civil Site Plan.

_____Garbage and recycling receptacle enclosure details and locations shall be approved by Waste Management Company prior to the issuance construction approval. Show proposed location on plans.

ENGINEERING / TRANSPORTATION

POINT OF CONTACT: ASSIGNED ENGINEER (425) 556-2881

FRONTAGE IMPROVEMENTS [RZC 21.17, 21.52, RMC 12.12]

_____Easements

□ Sidewalk

□ Utility

□ Other

_____Right of Way Dedication

_____Profile information of streets and all utilities. Extend information at least 150 feet beyond frontage but further as necessary to demonstrate adequate stopping sight distance and transitions.

_____Plan View Information - shall indicate and identify all existing and proposed features, utilities, street improvements and paving, channelization and any features that will affect the design and construction of the site grading and the drainage system. Information shall include both sides of a frontage street(s) and extend at least 150' beyond the site's frontage(s).

_____Curb, Gutter, Planter Strip and Sidewalk.

_____Monumentation (PC, PT, Intx, etc.)

_____Underground conversion required of all existing aerial utility systems. [RZC 21.17]

_____Install spare conduit for future use.

_____Street Lights: Provide location, wattage, fixture type and mounting height of existing & proposed.

□ Submit lighting calculation analysis for existing and proposed

□ Luminaire Pole [COR Std. 420, 430, 430B]

□ "J" Series Light Pole [COR Std. 425]

PAVING REQUIREMENTS

_____Surfacing Requirements – half or full street grind & overlay may be required for more than one cut in the street [Appendix 2, COR Std 202]

_____Street Pavement typical cross section(s) with paving depths [Appendix 2, Tech ltr]

CHANNELIZATION & SIGNING [City Standard Details]

_____Crosswalk and Stop Bar .

_____Raised Pavement Markers.

_____Painted Pavement Markers.

_____Lane Use Pavement Markings.

_____Signing

_____Taper/Transition

_____Superelevations

_____Proposed Channelization Match into Existing Channelization.

PUBLIC/PRIVATE STREETS

_____Profile information of streets and all utilities.

_____Plan View Information - shall indicate and identify all existing and proposed features, utilities, street improvements and paving, channelization and any features that will affect the design and construction of the site grading and the drainage system.

Street Name: _____Street Classification: [TMP, Appendix 2] _____

Terrain: (Flat ≤8%, Rolling >8% to 15%, Mountainous > 15%) [Appendix 2]

_____Right-of-Way & Easements Required [Appendix 2; Tech. Ltr].

_____Typical sections provided [Appendix 2, Tech Ltr].

_____Vertical Curb Required [Appendix 2; Tech. Ltr].

_____Correct Street Width [Appendix 2; Tech. Ltr].

_____Bicycle Lanes Required [TMP, Appendix 2; Tech. Ltr].

_____Safety rails by sidewalks when height >30 inches, slope >3:1[Appendix 2, COR Std 321].

_____Mailbox locations shown; documented approval from by Postal Official [Appendix 2].

_____Vertical Clearance 16.5 ft min. above street and 8 ft min. above walkway [Appendix 2].

_____Maximum grade permitted [Appendix 2] (Emergency vehicle access roads shall not exceed 10% unless approved by Fire Dept.).

_____Curve Standards [Appendix 2].

□ Minimum Horizontal Curve radius provided [Appendix 2].

□ Minimum tangent btwn horizontal curves (100' local, 200' arterials) [Appendix 2].

□ Vertical curve data, include actual SSD using AASHTO 1990 [Appendix 2].

□ Stopping Sight Distance Minimums Attained?

_____Guard Rails per WSDOT requirements chapter 710 [Appendix 2].

_____Clear Zone 2 ft min. behind curb [Appendix 2, WSDOT Chpt 700].

_____Handicap Ramp [COR Std. 310, 310A] Provide spot elevations at back and front corners of the ramps. Ramp grades and cross slopes must meet ADA regulations.

_____Existing ground shown to 15 ft beyond right-of-way line.

_____Existing and Proposed Utilities Shown in Plan and Profile.

_____Profile - Scale, VC Data, elevations labeled every 50 ft, street name, existing/proposed grade.

INTERSECTIONS AND CUL-DE-SACS/DEAD ENDS [Appendix 2].

_____Sight Distance Triangles (both directions on intersecting streets)

_____Horizontal Alignment - 80° to 90°

_____Min. 150 ft offset (curb-to-curb) with adjacent intersections

_____Approach Landings – 2' in 30' for Arterials; 2'in 20' for Local Access

_____Required curb radius (25' local, 30' arterial)

_____Curb return table(s) with radius, angle, length, and 4 spot elevations. Grade between PC and PT shall not exceed 10%.

_____Cul-de-sac maximum length of 600 ft

_____Cul-de-sac dimensions

DRIVEWAYS [RZC Appendix 2]

Classification: (Residential, Commercial, Industrial)

Driveway Type: (Call out on plan Type "1", Type "2", etc.)

_____Minimum/Maximum width allowed

_____Driveway to Driveway Spacing at Min. 150 ft

_____Existing driveways (either side) shown within 150 ft. of proposed driveway(s).

_____Driveways intersect streets at Min. 45° Angle.

PARKING LOTS [RZC 21.40, Tech. Ltr.].

_____Parking stall dimensions

_____Travel aisle width

_____Check for "Trapped" Stalls.

_____Poured in place curbing, or precast wheel stops shall be installed around all parking areas

GENERAL NOTES

_____Confirm the following notes are included in within the plan set [Appendix 2]:

- □ Safety Railings – "Safety railings shall be required when the bottom of a rock wall, retaining wall, or slope is 30 inches or more below the finished elevation of a sidewalk or other pedestrian facility."
- □ WSDOT Guardrail – "WSDOT approved guardrails shall be required as directed by the City Inspector, subject to approval by the City Transportation Engineer."
- □ Channelization/Signage – "The contractor is responsible for installing all signs and channelization per City of Redmond standards. Contractor shall lay out all signs and channelization, and then contact Deby Alm, Senior Transportation Technician, at (425)556-2752, 48-hours in advance of installation to verify layout."
- □ Signs/On-site Markings – "All necessary signs and markings on-site, along property frontage, and at specifically designated off-site locations shall be provided by the applicant as required by the Traffic Operations Division whether or not these are indicated on the civil construction drawings."
- □ Pavement Verification – "When requested by the City Inspector, the geotechnical engineer employed by the developer shall verify and subsequently advise the City of Redmond that the installation of the paving section (s) conforms to his/her design. The project will not be accepted until the written documentation is submitted."

CLEARING, GRADING & STORMWATER MANAGEMENT

POINT OF CONTACT: ASSIGNED ENGINEER (425) 556-2890 OR 2758

REDMOND ZONING CODE

Plans shall conform to Title 15 of the Redmond Municipal Code. The general headings listed below must be addressed.

- Erosion and Sediment Control, including SWPPP
- Drainage Facilities
- Water Quality Control
- Water Quantity Control
- Stabilization of Disturbed Areas
- Protection of Adjacent Properties
- Maintenance
- Identification of Critical Areas and Associated Buffers, required Native Growth Protection Areas, and their ease ment/maintenance conditions.
- Identification of Easements
- Accurate Description of Work Area
- Control of Pollutants other than Sediment on Construction Sites
- Source Control of Pollution
- Controlling Off-Site Erosion
- Other BMPs
- Separate Public and Private Drainage
- Limited Topographic Change
- Tree Preservation Plan
- Standard Notes found in Appendix I of Stormwater Technical Notebook

_____Easements

Storm Drainage

Utility (combined)

Other

MINIMUM DESIGN REQUIREMENTS, CLEARING, GRADING & TESC

Plans shall conform to the **Minimum Design Requirements** identified in the Stormwater Technical Notebook.

_____Project Construction Stormwater Pollution Prevention Plan, a required component of the Storm Water Site Plan

_____Fully Identify Work - clearing and grading limits shown, with stockpile/staging areas and sequence of construction

_____Disturbed Area - in acres must be shown on the clearing and grading plans

_____Limits of Clearing - fenced with 42" orange safety fence or approved filter fence

_____Trees to Remain - shall be shown with the dripline designated (must have protective fencing at five feet (5') beyond the dripline if adjacent to cleared areas) - no grading or filling permitted within the dripline. Show pertinent information within 50' of clearing.

_____Show all clearing and grading required for critical areas mitigation

_____Buffer of Critical Areas

_____Steep Slope Setback

_____Grades - show existing and proposed contours

_____Cut/Fill - shall not exceed 8'

_____Stabilization of Disturbed Areas

_____Stockpile location and ground slopes

_____Estimate of Earthwork Quantities

_____Timing and Stabilization of Sediment Trapping Measures

_____ Filter Fabric Fence [COR Std 502] (no straw bale permitted - must use silt fence)

_____Construction Entrance [COR Std 503 or 503A]

_____pH sampling for projects including over 40 cubic yards of poured or recycled concrete.

_____pH mitigation BMP as required

_____Clean Water Diversion - areas onsite and offsite that are not disturbed must be diverted away from disturbed areas.

_____Dewatering Construction Sites – show sediment removal BMP.

_____Stabilization of Temporary Conveyance Channels and Outlets – no erosion for 10-year/24-hour storm, or for continuous models. 10-year, 1 hour peak with 1.6 factor of safety per SWPPP element #8.

_____Storm Drain Inlet Protection – inlet protection must be provided for all storm drain inlets within the construction vicinity

_____Temporary Swales and/or Trenches - show shape, dimensions, spot elevations every 50', drainage area, channel stabilization treatment type and computations of flow and velocity (cannot exceed 4 fps without rip-rap lining) [COR Std 504].

_____Check Dams - show detail, dimensions and quantity of rock protection. No straw bales allowed.

_____Temporary Culverts - show drainage area, 1' minimum cover, type of pipe, length and diameter, and slope.

_____Temporary Sediment Pond(s) - show size, bottom elevation, top elevation, cleanout elevation, outlet protection, drainage area, volume required, volume provided, cross-section through the dam, profile through the pond and spillway. Not allowed near future infiltration sites.

_____Rip-rap Outlet Protection - show size of stone, quantity and stabilization fabric under stone [COR Std 620].

_____Maximum open trench length = 300'

_____TESC performance bond posted

_____Construction Access Routes

_____Note concerning Removal of Temporary BMPs upon completion of project

_____Preservation of Natural Drainage Systems

_____Sequence of Construction - describe how construction will proceed in order to limit erosion, include phasing if appropriate.

STORMWATER MANAGEMENT REPORT

Hydrologic Calculations

_____ Pre-develop Condition

_____ Outwash Soil Area _____

_____ Till Soil Area _____

_____ Saturated Soil Area _____

_____ Impervious Area _____

_____ Post-develop Condition

_____ Outwash Soil Area _____

_____ Till Soil Area _____

_____ Saturated Soil Area _____

_____ Impervious Area _____

Quantity Control

_____ Discharge Durations: Match developed condition discharge durations to predeveloped condition discharge durations for the range of discharge rates from one half of the 2-year peak flow up to the 50-year peak flow.

_____ Storage Volume Required _____

_____ Storage Volume Provided _____

_____ Control Structure(s)

_____ Quantity Control Facilities

QUALITY CONTROL

Water Quality Design Storm Volume

_____ Rainfall Intensity

_____ 6-month/24-hour storm unit hydrograph or 91st percentile/24-hour run-off volume using WWHM3

_____ Pervious Area _____

_____ Impervious Area _____

_____ Water Quality Volume Required (6-month/24 hour) _____

_____ Treatment Volume Provided _____

_____ Control Structure(s)

_____ Quality Control Facilities

Water Quality Design Flow Rate

When Preceding Detention

_____ Flow rate that results in treatment of 91% of runoff volume per continuous runoff model

When Downstream of Detention

_____2-year release rate

CONVEYANCE SYSTEM

_____Storm Drain Computations - rational method may be used for pipe sizing. Include: "C" factor determination, time of concentration determination and flow calculations.

_____Design Slope - 0.25% minimum and 20% maximum

_____Hydraulic Grade Line Computations – hgl for 10 year must be 1' below overflow condition (allowances may be made near detention system or large bodies of water surcharge).

_____Downstream Analysis - provide storm drain computations and hydraulic grade line computations for existing storm drainage systems which are being revised by changes to the drainage area or system expansion.

_____Safe 100-Year Flow Conveyance - the provision of the 100-year storm flow shall not impact any buildings.

_____All CMP pipe must be specified as corrugated aluminum pipe.

_____Information presented in the calculations is consistent with plan.

_____Concrete inlets may be installed only where downstream catch basins are available to collect sediment. They should be used where sump maintenance would be difficult.

_____Maintenance access to all catch basins and drainage structures has been provided. Extreme cases may be waived by the Stormwater Engineer.

_____Roof drain stubs should cross sidewalk at close to a 90 degree angle.

_____A maximum of three (3) single family houses may share a common roof drain stub.

STORMWATER MANAGEMENT PLAN

_____Minimum Pipe Size - 8" minimum for public storm drain systems and 6" minimum for private systems.

_____Pipe Data - pipe size, length, slope, and material labeled

_____Horizontal Clearance - 5' from all other utilities and structures, and 8' from trees (street trees may be 3' minimum with root barrier).

_____Vertical Clearance - 1' from other utilities - 18" for sewer with storm above sewer

_____Rockeries/Retaining Walls - shall not cross or be near storm drain pipes. Exceptions shall only be approved where no alternatives exist. Any crossing of a wall shall be perpendicular to the wall and special construction techniques including steel casings may be required. No rockeries allowed over roof or footing drains

_____Structure Data - structure number, structure type and/or size, type of cover, rim elevation, and all pipe inverts labeled

_____Structure Spacing - 350' preferred (400' may be allowed)

_____Easements – shown with dimensions labeled - 20' minimum width - no obstructions allowed in easements

_____Drains Behind Sidewalk - required in all cut situations and at the base of slopes

_____Cleanouts Spacing - to be at bends, end of lines and at 100' o.c. (required in all cut situations and at the base of slopes)

_____Cleanouts Specifications - shall be specified with Carson boxes or equal with ungasketted caps in soft area and traffic bearing in paved areas [COR Std 621].

_____Footing/Foundation Drains - including pipe size, material, and cleanouts shall be connected to the storm drain system (shown as stubbed to lots only for plats).

_____Roof Drains - including pipe size, material, and cleanouts shall be connected to the stormdrain system (shown as stubbed to lots only for plats) 6" minimum

_____Footing/Foundation Drains and Roof Drains - shall be connected at a structure only (private onsite structure or at the street).

_____3' Paved Area - around roof drain cleanout or catch basin Type 1A required

_____Tracer Wire – must be shown on roof drains from the building to the property line.

_____Outfall Protection - sized for 10-year storm (unless otherwise specified by Development Services Division); provide: type, size dimensions and quantity of stone. Stone must be laid on approved filter fabric. Maximum allowable discharge velocity to rock outlet is 10 fps without special design [COR Std 620].

PROFILES (Required for Public System)

_____Profile - pipes and structures

_____Other Utilities - labeled and designate size and type

_____Profile grades - show and label existing and proposed grades

_____Pipe Cover - 18" minimum

_____Pipe Profile Information - show invert and top of pipe, pipe size, pipe material, and design slope.

_____Drop structures only allowed per approval of Stormwater Engineer

_____Grates: - through-curb inlets at sag curves, possible bypass points and every third inlet; Vaned Grates on Slopes > 5%; Herringbone otherwise.

_____Utility Crossings - all crossings must be shown, label utility type, line size, invert of utility and storm lines and clearance between pipes (1' minimum vertical clearance and 30 degrees minimum crossing angle).

_____Structure Profile Information - label type of structure, structure number, size, and pipe inverts

_____Berm Section - in accordance with geotechnical recommendation for open ponds

_____Public Storm Structure – with 5' or greater from the top to the invert must be Type II catch basin - 5' for private structure - see Standard detail Plan B-5.20-00.

_____Type III catch basin required for structures with bottoms between 12' and 25'. See Standard Detail Plan B-15.60 -00.

STORMWATER MANAGEMENT FACILITIES

Underground Detention

_____Runoff Determination - per 2005 Ecology Manual, for the design storms as established by the Technical Committee review.

_____Area draining to SWM System, Bypass and Compensation Areas

_____Offsite Areas Draining on Site - generally do not need to be controlled but, must be safely conveyed

_____Detention Volume Computation - show volume required and volume provided - stage/storage curve must match proposed facility

_____Controlling Orifice Computation - plans and computation must match

_____Control Structure - designed and detailed (plan view and cross section required) shall conform to COR Std 610 or equivalent.

_____Profile of Detention Pipe or Vault

_____Structural Details and Vault Calculations (separate building division review and permit required)

_____Inverts - show for all pipes entering and leaving control structure or vault

_____Vent - minimum 2" diameter for pipe detention systems

_____Maintenance Vehicle Access - required to both ends of detention pipes and two (2) accesses to vaults (one near control structure)

_____Maximum Distance between Detention System Access Points - 100' and ladder access must be provided at all ends.

_____Easement - 5' minimum around all public detention systems (20' minimum width)

_____Fire Hydrant - within 100 feet of detention pipe systems 4' in diameter or larger, and for all vault systems over 1000 cubic feet of total volume may be required.

_____Detention Pipe Note - "Detention pipes may be air tested before final acceptance".

INFILTRATION

_____Soil Permeability Tests or Gradation per DOE - two (2) tests minimum or one (1) for every 5000 s.f. of infiltration system bottom area. Test must end up being not more than 20' from the final location of the infiltration system. Note on plans - to be verified by field observation.

_____Soil Test - must be taken at the proposed bottom of infiltration system.

_____Excavation or Boring - is required in the trench area to a minimum depth of 4' below the proposed bottom of the trench. Infiltration not feasible if evidence of ground water or bedrock/hard pan.

_____Infiltration Bed - all infiltration system should be a minimum of 3' above the seasonal high water mark, bedrock, hardpan and impermeable layer.

_____Setbacks

- _____Minimum 200' from drinking water wells and springs, septic tanks and drain fields
- _____Minimum 20' down slope and 100' up slope of building foundations
- _____Minimum 10' from and NGPE and property line

_____Down Spout Infiltration System - shall be designed with overall project for typical lot with individual homes.

_____Maximum Drainage Area

- _____Down Spout Infiltration Systems - 5000 s.f.
- _____Infiltration Basin - 50 acres

_____Infiltration Trench - 15 acres_____Infiltration System Location - may not be located in an area previously used as a sediment trap.

_____Inflow to an Infiltration System - must first pass through a pre-settling BMP or a biofilter. Disturbed areas shall not drain to the infiltration system.

_____Add the following note to the plan: "The contractor shall construct infiltration systems only after the entire area draining to it has been stabilized".

_____Filter fabric is required on all sides, top and bottom of infiltration trenches.

_____Maximum Trench Length - 100'

_____Observation Well - one is required per trench

_____Provisions for the 100-year overflow path required.

_____Maximum Ponding - in an open infiltration basins is 3' for the maximum storm entering the basin (not to exceed the 100 year - this includes headwater to pass storm flow out any overflow) 1' of freeboard is required to the top of the structure.

_____Basins Side Slopes - shall not exceed 3:1

_____Infiltration Basin Berm - must use impervious material for berm and the berm must be 2' wide at the top for each foot in height as measured from the ponding area bottom.

BIOFILTRATION (See DOE Chapter III-6)

_____Required Length - 200' minimum (may be reduced to 150' for redevelopment projects only).

_____Designed Storm - 6-month/24-hour storm, high flow bypass required unless otherwise designated.

_____Maximum Velocity - 1.5 fps for the design storm.

_____Swale Slope - 6% maximum - for slope less than 2%, biofilter must be lined with underdrain. For slope greater than 4%, check dams must be provided.

_____Setbacks - no buildings or trees within 10' of the normal high water.

_____Maintenance Access – A backhoe must be able to access at least one side of each biofiltration swale.

_____Easement - public systems shall be in tracts, or easements, unless approved during site review.

_____Cross Section - show dimensions, design flow depth and 1' minimum freeboard

_____Vegetation Specifications - shall provide for water tolerant plants and shall address shading of vegetation. Bio-filter planting shall be shown on the civil drawings and subject to approval from the Construction Division.

_____Swales/Trenches - including, grading, slope, spot elevations (a minimum of every 50' and at both ends), bottom width, side slopes, and lining.

_____Biofiltration swales lined or over impermeable soil

_____Setback from biofiltration swale top of bank to property line shall be a minimum of 5'.

_____Filter strips allowed provided their minimum length is 200'.

WET POND/DETENTION FACILITIES

_____Setbacks - 10' minimum away from structure and ROW, and 50' minimum away from steep slope (15% or greater)

_____Length/Width Ratio - minimum of 3.0 (preferred)

_____Interior Slope - maximum of 3H:1V. A 2:1 slope below permanent pool water surface OK.

_____Pond fencing is required where walls or slopes steeper than 3:1 are designed.

_____Permanent Pool - minimum of 6-month/24-hour basin runoff volume.

_____Berm Embankment - maximum of 6' high (preferred)

_____Wet pond permanent pool depth under 8'

_____Multi-Celled - minimum of 2 cell (preferred)

_____Emergency Overflow - for open pond, shall be completely separated from pond outlet.

_____5' wide safety bench set at or 1' below the permanent water surface elevation around perimeter of pond. Plant bench with wetland planting.

_____Trees must be setback from the 100-year storm stage. Maintenance access to the pond must be unhindered by trees.

_____Natural shape preferred

_____Maintenance access - a Vactor truck shall be able to access the control structure, a backhoe shall be able to access the pond bank and bottom.

_____Inflow pipes to the pond discharge at or above the control elevation. (Stormwater Engineer may approve submerged inflow).

ADDITIONAL COMMENTS

_____

_____

_____

WATER AND SANITARY SEWER

POINT OF CONTACT: ASSIGNED ENGINEER (425) 556-2844 OR 2758

_____Easements

- □ Utility (combined)
- □ Waterline
- □ Sewer
- □ Utility Access
- □ Sump Pump
- □ Other

WATER

_____Does this project need water service for potable or fire use? If no skip to sanitary questions.

_____Are existing and proposed waterlines shown?

_____Is the size and material of the waterlines delineated?

_____Are valves shown on new tees?

_____Are there water meters shown?

_____Is the water meter in a soft area?

_____Is the size of the water meter and service line called out?

_____Is the new waterline shown on the correct side of the street, in a drive aisle, not under a curb, not under a parking stall, not under a wall and in a City of Redmond easement?

_____Are fire hydrants shown?

_____Is the fire hydrant in soft area?

_____Are FDC's shown?

_____Are PIV's shown?

_____Are waterline profiles provided?

_____Are Air/vac assemblies shown at high points?

_____Are blowoffs or fire hydrants shown at low points?

_____Are existing and proposed easements , including bump-outs around fire hydrants, shown? If existing include recording number.

_____**SANITARY SEWERS**

_____Does this project need sanitary sewer service?

_____Are existing and proposed sanitary sewers shown?

_____Are the size, slope and material of the sanitary sewer delineated?

_____Are manholes shown with invert elevations for all runs identified and is the rim elevation provided?

_____Is the new sanitary sewer shown on the correct side of the street, in a drive aisle, not under a curb, not under a parking stall, not under a wall and in a City of Redmond easement?

_____Is the side sewer shown from the building to the main with invert elevations called out at the property line?

_____Is the size and slope shown for the side sewer?

_____Is 10-foot separation provided between all water and sanitary pipelines?

_____Are sanitary sewer profiles provided?

_____Are existing and proposed easements shown? If existing include recording number.

STANDARD WATER/WASTEWATER NOTES

GENERAL

1. Any deviations regarding the water and sewer improvements shall be submitted to the City of Redmond Development Engineering & Construction Division for approval prior to implementation in the field.
2. All work and materials shall conform to the Standard Specifications and Details of the City of Redmond. Water and Sewer Specifications and Details shall be the specifications and details in effect on the date of approval of these construction drawings.
3. The contractor shall be responsible for locating all existing underground utilities. Call underground locate service, 1-800-424-5555 for utility marking.
4. No work shall commence prior to a pre-construction conference at the City of Redmond.
5. Coordinate with landscaping improvements. No trees shall be planted within eight (8) feet of water or sewer improvements.

WATER

1. All fire hydrants shall be covered with a burlap sack until the water system has been placed into service.
2. Fire hydrants shall be equipped with Storz connectors.

SEWER

1. Side sewers shall have a minimum slope of 2%.
2. New sanitary sewer mains shall be plugged and not put into service until lines have been cleaned, flushed and tested.

PLANNING DEPARTMENT

POINT OF CONTACT: ASSIGNED PLANNER (425) 556-2494

LANDSCAPE PLANS

_____Certification of plan preparer; registered WA Landscape Architect or certified Nurseryman.

_____Complete plant schedule with legend listing scientific and common names, quantities, spacing, and size of plants to be installed.

_____Minimum Plant size at installation: Street trees 2-1/2" caliper; Decidious trees 2" caliper; Vine Maples and other multi-stemmed trees 7'- 8' height; Medium and tall shrubs 24" – 30"; ground cover 4" pots (18" o.c.); Replacement trees for significant trees being removed must be 2 ½ " caliper for deciduous trees and 6'-8' tall for evergreen trees.

_____Identify which trees are designated as replacement trees, saved trees, and new planting.

_____Note the area in square feet and the percent of the total site devoted to the following type of landscaping: perimeter, interior parking lot, building foundation, and courtyard/patio/plaza.

_____Minimum planting area: 100 square feet with minimum width of 5 feet.

_____Parking area trees shall be at least 4 feet from pavement edges.

_____Parking lot trees shall be provided at a ratio of 1 tree per 4 parking stalls.

_____Ground cover: Non-vegetative material such as bark, mulch, and gravel is not a substitute for, or should not appear dominant over, plant material.

_____Show location of trees in relation to water lines and meters, and storm drainage lines and sewer lines. Underground utility lines shall be 8 feet away from trees, except may be within 4 feet where root barriers are feasible. Shrubs may be planted no closer than 4 feet of all fire hydrants/connections.

_____Show construction fencing around significant trees to be saved. Fencing to be no less than 5 feet out side of the dripline of the subject trees.

_____Blank walls, ground mounted mechanical equipment, and outdoor parking stalls shall be screened with appropriate landscaping.

_____Irrigation plan

CRITICAL AREAS

(For sites with regulated Critical Areas):

_____Final Critical Areas Report per RZC Appendix if required as a condition of preliminary approval.

_____Regulated critical area and its associated buffer must be placed in a separate tract where development is prohibited. Proof of recording must be submitted to the City prior it issuance of Civil Plan Approval (for proposals not associated with a plat or short plat).

_____Show the location of required critical area fencing and signage and include construction details for each.

_____All required enhancement and mitigation must be shown on the construction drawing plans, including grading plans including landscaping plans or specific enhancement/mitigation plans. This includes any required planting, signage, fencing, stream/wetland enhancement, etc. that is required in the report, if required as a condition of preliminary approval.

_____Critical Areas Monitoring Plan. A Critical Areas Monitoring Plan shall be submitted and approved prior to approval of Civil Drawings.

_____Critical Areas Contingency Plan. A Critical Areas Contingency Plan must be established for indemnity on the event that the critical area mitigation project is inadequate or fails, if required as a condition of preliminary approval.

_____Critical Areas Mitigation Plan. (if required as a condition of preliminary approval)

TREE PRESERVATION PLAN

_____Certification of plan preparer; registered WA Landscape Architect or certified Nurseryman.

_____Show location, species, size of trees designated for retention.

_____List total percentage of trees to be retained.

_____Identify size and species of replacement trees.

_____Show all tree protection measures.

_____Do not include landscape plans with your building permit application.

LANDSCAPE AND CRITICAL AREAS BONDS (Must be submitted prior to Civil Plan approval)

_____Landscape Bond Calculation Worksheet.

_____Tree Replacement Bond Calculation Worksheet.

_____Tree Preservation Bond Calculation Worksheet.

_____Critical Areas Mitigation Bond. (if required as a condition of preliminary approval)

MISCELLANEOUS

_____Copies of studies required as a condition of preliminary entitlement approval (i.e noise study, lighting plans and cut sheets, etc.)

_____Include site amenities (i.e. site furniture, pavement treatment, site lighting, etc.) as required by the Design Review Board on the site plan. Also include construction details.

_____Transportation Management Plan (TMP): Required for all commercial and industrial projects that generate 30 or more new trips and have at least 25 employees must be reviewed and approved prior to building permit issuance.

FIRE DEPARTMENT CHECKLIST

1. **Checklist.** The following checklist is integral to Entitlement Approval. Requirements shall be complied with in Civil Drawings, Building Permit Submittals, Fire Code Permit Submittal, and/or other applicable processes. If you do not believe the item applies to your project mark N/A. Check if applicable and it has been shown or provided. *Point of Contact: Todd Short (425-556-2242)*

2. **General Conditions.** A project is subject to all general criteria of the Redmond Zoning Code and Redmond Municipal Code. Please refer to the items below for a checklist of general Fire Department requirements. The checklist does not substitute for the code; it is intended to be used as a guide in preparing your submittal. Refer to the Redmond Zoning Code and Redmond Municipal Code for detailed information.

3. **Unique Criteria**. Some criteria below apply primarily to commercial and multi-family residential, 3 units or more (**COM**), or single family residential projects, one or two units (**RES**).

Guidance. Some paragraphs are primarily for information and are so designated (**INFO**).

General Fire Department Approval Conditions

Emergency Vehicle Access Roadway Requirements

_____ **INFO:** Emergency vehicle access roadways are the approved combination of public streets, private streets, private access tracts, and site access roads, lanes, alleys, and designated structures which provide access to Fire Department personnel, vehicles, and equipment for the purpose of providing emergency firefighting, physical and health hazard response, certain systems responses, and emergency medical response to buildings and commercial and residential facilities under all circumstances. This section will provide a guideline to general emergency vehicle access roadway requirements. An emergency vehicle access roadway may be designated as a fire lane for marking purposes.

_____Minimum unobstructed surface width shall be 20 feet.

_____Minimum unobstructed height shall be 13’6”.

_____Minimum interior turning radii shall be 25 feet, and exterior radii shall be 45 feet.

_____ Portions of some turnaround designs shall have a minimum 28-foot interior radius. See CDG Appendix 2 for illustrations.

_____**RES:** Where access exceeding 50 feet is needed to one or two dwelling units, a reduction to an unobstructed width of 14 feet is allowed if an approved 20' x 50' emergency vehicle operations area (EVOA) is provided. The EVOA design shall be an approved extension of the emergency vehicle access road.

_____The minimum load bearing surface of an access roadway shall meet the compaction and load bearing requirements of the **Engineering Department** for a 77,000 pound vehicle and adequate point loading characteristics for both wheel systems and outrigger systems (45,000 lbs over 24”x24” pad).

_____The surface shall be an approved all weather driving surface, typically asphalt or concrete. (See City Standard Specifications.) Alternate surfaces must have the approval of the **Engineering Department** and the Fire Department.

_____The access surfaces shall be in place and able to support the weight of Fire Department vehicles prior to the delivery, use, or storage of combustible building materials to, or at the site except small amounts used for concrete forms.

_____Roadways shall be within 150 feet of all portions of the exterior walls of a structure or a facility. Courtyards may be required to provide access when designated by the Fire Marshal.

_____Roadways shall be within 50 feet of 25 % of the exterior.

_____**COM:** Dead ends shall be no longer than 150 feet or provide a turnaround per City of Redmond standards.

_____**RES:** Whenever two dwelling units are served by dead end access longer than 300' there shall be provided a turnaround per City of Redmond standards.

_____Fire lanes must be marked per Redmond Fire Department standards.

_____Fire lanes identified through site plan review shall be included on civil drawings.

_____Additional fire lanes or marking may be required anytime during the life of the development upon evaluation by and direction of the Fire Marshal.

_____The emergency vehicle access roadway shall have a maximum grade of 10%. If off site access grades or on site grades are 10.0% or more, a design (plan and profile) of the proposed roadways must be submitted for review showing the extent and degree of overage in order to determine if mitigation is possible, and if so, what may be required. If approved, mitigation shall include at a minimum that all structures shall be fire sprinklered. Additional mitigation may also be necessary.

_____**COM:** Loading and unloading areas shall not occur in fire lanes. Indicate on your submittal the location of loading, unloading and/or delivery areas.

_____**RES:** Where more than 50 units are designed in a residential development, either single family, multifamily, retirement or similar, there shall be a minimum of two access points to the street system. Such access points shall be so located so as to provide for general circulation, alternate emergency vehicle access routes, through access and general area transportation design considerations. One of these access points may be for emergency vehicle use only where the number of units does not exceed 100.

_____Design of an "emergency vehicle use only" access must be approved by the Fire Department.

_____**RES:** Where a gate is desired for an emergency vehicle access roadway they shall be strobe activated electric gates with key and manual overrides, and must have the approval of the Redmond Fire Marshal and the Technical Committee.

_____**COM:** Obstruction of fire lanes for security or other reasons must be approved by the Fire Marshal. Only gate or post systems and locks approved by the Fire Marshal may be used.

_____All portions of an emergency vehicle access roadway not in a public Right Of Way, including turnarounds and Emergency Vehicle Operations Areas, shall be maintained in an approved and recorded Emergency Vehicle Access Easement.

Addressing & Street-Naming Convention

_____**INFO:** Approved Address numbers and street names are essential for rapid emergency response. Approved names, numbers, and signage shall be provided for all structures and facilities. (Includes suite and unit designation.)

_____One or more signs are required for all buildings and facilities.

_____Suite and unit numbers shall be compatible with the E-911 system and shall include interior and exterior directories as needed to direct response.

_____The building shall have the building address numerals (i.e. 15001) located on the upper 25% of the building face (this may be modified in downtown areas where streets are close to buildings or similar situations) and situated so as to be clearly visible and easily legible from the street fronting the property.

_____Numerals shall contrast to the background color.

_____Numeral size shall be:

_____Setback from Street < 50':

_____Multi-Family: 6”-12” high

_____Small Commercial: 6”-12” high

_____Large Commercial: 12”-14” high

_____Monument Sign: 6” high

_____**Setback from Street > 50':**

_____Multi Family: 12”-18” high

_____Small Commercial: 12”-18” high

_____Large Commercial: 18”-24” high

_____Monument Sign: NA

_____Directory signs may be required when deemed necessary by the Fire Department to clarify access.

_____**COM:** Building units or suites shall be clearly differentiated in an ordered and sequential manner per RFD Standards and identified per floor where applicable.

_____E-911 compliance is required. Approval is required for building and unit addressing. A plan with dimensions must be submitted for approval.

_____**COM:** Multi-story residential unit addresses must be "stacked" to the side of the applicable stairwell.

_____Temporary signs shall be used at the job site as soon as construction begins. Numerals shall be high contrast in color, face the street fronting the property, be clearly readable, and be a minimum 6" high. Site access roadways shall be clearly marked to identify drivable surfaces.

_____Both public and/or private streets, avenues and portions thereof shall have appropriate number designations. Name designations shall not be used. Numbers shall be assigned by the Fire Marshal.

City-Approved Fire Protection Systems

_____An approved fire alarm system will be required for one or more of the following reasons:

_____1. An approved alarm panel and means of transmission is required for monitoring of the sprinkler system.

_____2. New buildings 3000 gross square feet or more (unless R-3 single family) require an approved fire alarm system.

_____3. Existing buildings 6000 gross square feet or more (unless existing R-1) require an approved fire alarm system.

_____4. Special hazards, occupancies, or situations may also require an approved fire alarm system.

_____5. Hood and duct extinguishing systems shall be supervised and monitored as a separate zone by the alarm system.

_____6. Duct detectors shall be supervised on a separate <u>supervisory</u> zone.

_____7. An alarm system may be required, in concert with other fire protection systems, by the Fire Marshal as mitigation for substandard conditions.

_____8. Single station smoke detection is required in all residential occupancies.

_____Three copies of plans, specifications, calculations, and a completed permit application form shall be submitted to the Redmond Fire Marshal for permit and approval. The permit must be obtained prior to work beginning.

_____**COM:** Monitoring of Fire Alarm systems and Fire sprinkler systems shall meet the standards for Central Station Service including third party verification. Valid contracts with a listed “Prime Contractor” are required. The site will be required to be certificated (UL) or Labeled (FM).

_____An approved automatic fire sprinkler system will be required for one or more of the following reasons:

_____**COM:** 1. Buildings with gross square footage of 3,000 square feet or more require an approved fire

_____2. All residential occupancies built under the IBC require an approved fire sprinkler system.

_____3. Any building with a calculated occupant load over 200 with an assembly occupancy requires an approved fire sprinkler system throughout.

_____4. Access grades 10.0% or greater to or within a project site may require mitigation that will include a requirement for an approved fire sprinkler system in every building.

_____5. Where calculated fire flow demand for a non sprinklered building exceeds the available water or exceeds 3500 gpm. an approved fire sprinkler system is required.

_____6. Certain hazardous occupancies and/or storage situations require an approved fire sprinkler system.

_____**COM**: 7. Commercial additions where the structure after the addition exceeds 5,000 gross square feet require an approved fire sprinkler system.

_____Three copies of plans, specifications, calculations, and a completed permit application form shall be submitted to the Redmond Fire Marshal for permit and approval. The permit must be obtained prior to work beginning. Fire Sprinkler System Design shall include:

_____All underground sprinkler supply piping, water mains, and hydrants shall be included on civil drawings and shall be approved by the water supplier and the Redmond Fire Department.

_____DOH approved back flow prevention is required. Indicate on submittal whether this will be installed inside the building or outside the building in a vault. A certified backflow assembly tester shall test this assembly. After a satisfactory test is completed, backflow assembly test form shall be submitted to the City of Redmond prior to acceptance of the related job.

_____**COM:** A dedicated riser room (min. 6'x6') with direct exterior access shall be provided in an approved location. The proposed location of this room and the access door shall be indicated on your submittal.

_____**COM:** F.D.C.s shall terminate in a vault or riser room. The check valve must be accessible.

_____One or more "Knox" key boxes or switches may be required with any project.

_____**COM:** All buildings which have a fire sprinkler or fire alarm system shall have an approved emergency key box. Both recessed and surface mount boxes are available.

_____A "Knox" padlock is required for certain gates and other approved access applications.

_____A "Knox" key switch is required for use with approved, strobe-activated, electric gates, certain mechanical equipment, and/or some electrical systems

_____**COM:** Grand Master keying and labeling is required.

_____The fire inspector or fire plan reviewer shall identify the type, number, and location of boxes or locks.

_____Fire Extinguishers shall be installed per RFD Standards and in conformance with NFPA 10 and in relation to the hazards being protected.

_____Fire extinguishers rated 2A 10 BC shall be located a minimum of one per 3000 square feet. Travel distance from any location to an extinguisher shall in no case exceed 75 feet.

_____Fire extinguishers shall be wall mounted so that the top of the extinguisher is no higher than 54" A.F.F.

_____**COM:** One or more K rated, fire extinguisher(s) shall be installed in (an) approved location(s) in the kitchen area. Travel distances shall not exceed 30 feet from any location in the kitchen area to an extinguisher.

_____Fire extinguishers shall be maintained per R.F.D. Standards and shall be easily visible and readily accessible by any occupant at all times.

_____Proposed locations should be near exits or exit corridors, or along main aisles.

_____**COM:** Standpipes shall be installed as directed through Fire Department Plan Review and in conformance with RFD Standards.

_____**COM:** Interior standpipes are required per the U.B.C., in large buildings, in buildings of 3 stories or more, as part of mitigation for a deficiency in other required fire protection, or as directed by a Fire Department Plan Reviewer.

_____Exterior standpipes may be required when vehicle access is impossible or inadvisable in the opinion of the fire department representative and an exterior supply is needed.

City-Approved Water Supply and Hydrants

_____Water System improvements shall be consistent with the City of Redmond Water plan.

_____**RES:** Residential areas shall be master planned to provide a minimum of 1500 gpm.

_____**COM:** Most Commercial areas shall be master planned to provide a minimum 3500 gpm

_____Hydrants must be capable of providing sufficient fire flow to meet the required flow of the project as calculated by the Fire Marshal.

_____Any one hydrant shall be capable of providing a minimum of 1500 gpm and any two or three hydrants (depending on the demand) flowing simultaneously shall be capable of providing the demand flow.

_____A fire flow report may be required. This report may consist of:

_____Results of a functional flow test performed by a fire protection consultant.

_____The test shall record pitot gauge readings for all ports opened, flow calculations for each port flowed, static and residual pressure readings, location of the test (identify specific hydrants used and what each was used for), calculated flow at 20 psi residual, and a flow graph.

_____A hydraulically modeled fire flow estimate from the City of Redmond Water Utility. This flow estimate shall be the gallons per minute available at 20 psi residual for the maximum instantaneous peak.

_____The water pressure zone(s) shall be identified. Any peculiarities of the water supply system at the location should also be noted.

_____Hydrants shall be located in relation to the building or area they serve.

_____**COM:** The Fire Marshal may consider existing hydrants within 150 feet of a proposed commercial building as providing some portion or coverage.

_____**RES:** The Fire Marshal may consider existing hydrants within 300 feet of a single-family residential project as providing some portion of coverage.

_____**COM:** Maximum hydrant spacing is 300 feet on center for commercial, multi-family, or single family residential 6,000 sq. ft. or more.

_____**RES:** Maximum hydrant spacing is 600 feet on center for surface parking lots, and single-family residential (less than 6,000 square feet per building).

_____**COM:** Where structures on a dead end access are over 150 feet from a hydrant, an additional hydrant may be required within 150 feet and placed in relation to the overall development and existing hydrant layout.

_____**RES:** Where structures on a dead end access are over 300 feet from a hydrant, an additional hydrant may be required within 150 feet and placed in relation to the overall development and existing hydrant layout.

_____Final hydrant and F.D.C. locations and water mains must be shown on the civil drawings and approved by the water purveyor and Fire Marshal.

_____Hydrants must be in place and serviceable prior to the delivery, use, or storage of combustible building materials.

_____**COM:** Commercial underground sprinkler supply shall not be less than 6" D.I. pipe. F.D.C. lines shall be the same pipe size as the sprinkler supply (to facilitate testing) and of a size hydraulically proven to supply the system demands at normal fire engine working pressure.

_____**COM:** Three- and four-plexes shall have a minimum 4" D.I. pipe supply.

_____**RES:** Residential underground supply shall be a minimum 2" high molecular poly pipe or approved alternate

_____Proposed hydrant and F.D.C. locations and existing hydrant locations shall be shown on Technical Committee plan submittal. Hydrant locations must be coordinated with and approved by both the water supplier and the Redmond Fire Department.

_____Hydrants shall be no closer than 12'0" to a carport, garage, building, or dumpster. Planter islands or peninsulas for hydrants require a minimum diameter of 8 feet. Four feet is to be maintained between face of curbs and fire protection equipment and if applicable, between hydrants, F.D.C.s, and P.I.V.s. If closer to the curb, approved protective posts are required.

_____Hydrants, F.D.C.s and P.I.V.s should be a minimum of 40 feet from other structures and on the opposite side of the access from the building they serve, unless approved otherwise.

_____F.D.C.s and P.I.V.s shall be located adjacent to a hydrant, unless approved otherwise.

_____A 5", locking, Storz adapter is required for steamer ports on all hydrants.

_____A 5”, locking, Storz adapter is required for existing hydrants considered important by Redmond Fire Department in relation to a proposal.

_____**COM:** If stock is over 12 feet (or even 6 feet in some cases) then Chapter 23 of the International Fire Code applies. Possible interior and/or exterior storage areas and proposed heights must be indicated on the site plan or a separate submittal.

_____**COM:** High rise is as defined by the International Building Code.

_____**COM:** A Type I hood and an approved, tested, and maintained fixed fire protection system (UL 300 or equivalent) is required when commercial cooking equipment is used or in any commercial occupancy where cooking produces grease laden vapors.

_____**COM:** Activation of the hood and duct system shall be supervised and transmitted as a separate zone on the building alarm system (where applicable).

_____Bollards are required around natural gas meters if the driving surface is within 20 feet. Placement shall be per Redmond Fire Department standards.

_____**COM:** Permits are required for storage, handling, processing, or use of any hazardous processes or materials regulated by the Uniform Fire Code. Contact Mike Trabue, Redmond Fire Department, 556-2231.

_____**COM:** If some C.O.s are desired prior to others, submit a separate phasing plan to Technical Committee for approval. This plan must indicate limits of construction/occupancy, types and location of barriers, traffic patterns, parking, and phasing of utilities, as well as a plan for maintaining uninterrupted service and access. Phasing is not possible on some projects. In these situations no occupancy will be allowed until all certificates of occupancy are signed.

_____**COM:** Commercial dumpsters and containers with an individual capacity of 1.5 cubic yards or greater shall not be stored or placed within five feet of combustible walls, openings, or combustible roof eaves line. EXCEPTION: Areas containing dumpsters or containers protected by an approved automatic sprinkler system.

_____**COM:** At least one designated elevator compartment shall have a minimum 4' by 7' clear interior for emergency medical service, patient transport equipment when directed by the Fire Department Plan Reviewer.

_____Provide the number and size of exits per Redmond Building Code. Exits shall be continuous and unobstructed to a public way.

Fire Protection Plan

_____In order to assist in the review of Fire Department requirements and to create a source of information of importance to inspections and emergency response, the following features of the proposed development, as applicable, shall be shown together on a minimal number of plan sheets.

_____For consistent identification please label these sheet(s) as "**Fire Protection Plan"** or use **FP-1**, etc.

_____This plan shall also be included with the Civil Drawing set submitted to the City for final review. A minimal amount of other information shall be shown on this sheet (or sheets).

_____**General site layout** (1:20 to 1:40 scale or as otherwise allowed), showing:

- _____property lines
- _____adjacent Rights Of Way (ROW)
- _____the exterior walls of buildings
- _____buildings or structures to remain
- _____labeled location of entry and egress points
- _____access roadways
- _____surface parking areas
- _____loading/unloading/delivery zones
- _____the location of fire lane signs and markings
- _____gate systems if applicable
- _____finished topography at 2-foot intervals
- _____designated fire lanes (exclude parking—allow 8' for parking width)
- _____turnarounds and overhang areas
- _____EVOAs (Emergency Vehicle/Operation Areas: 20' x 50' extension of access)

_____Radii shall be labeled and the driving area of the emergency vehicle access shall be shown in a half tone or similarly. (This will coincide with the Emergency Vehicle Access Easement where other than in the ROW.)

_____A scaleable vicinity map showing the involved parcel(s) and their relation to adjoining parcels, and nearest Rights Of Way, overlaid with the accurate location of the King County Street grid in one block increments (i.e., 104th Ave. NE, 105th Ave. NE; NE 85th St., NE 86th St.).

_____Water supply and Fire Protection features including all fire hydrant locations, Fire Department Connections (F.D.C.s) labeled for the building served, Post Indicator Valves (PIVs) labeled for the building served, Standpipe Connections (STPCs) labeled with the approximate location of their discharge, and Standpipe Discharges (STPDs). Note: any dry line shall be footnoted with the approximate gallonage required to fill it.

_____**COM:** If a building is fire sprinklered, note the location of the direct exterior access door to the Fire Sprinkler Riser Room.

_____Indicate the location, size, and material for all underground fire sprinkler system supply piping.

_____**COM:** If a building has a fire alarm system, note the location of the Fire Alarm Panel, as being in the risen room, and any remote annunciators.

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_____Indicate the location, size, and material for all underground fire sprinkler system supply piping.

_____**COM:** If a building has a fire alarm system, note the location of the Fire Alarm Panel, as being in the risen room, and any remote annunciators.

_____The location of exterior gas meters and notation as to protection.

_____**COM:** The approximate location of elevators and stairways in the building and a notation if they do not serve all floors and if they provide access to the roof.

_____**COM:** A table showing the gross square footage per floor and total per building.

_____**COM:** A table indicating all Building Code Uses, and Construction Types per building

_____Provide a detail of proposed address signage.

Building Code Summary

_____Provide footprint of the proposed building on a Site Plan with the following items shown;

_____1. Type of Construction

_____2. Occupancy

_____3. IBC 503 Area/Height Calculations

_____4. Egress (total travel distance, path of travel to public way, accessibility)

_____5. Location of Generator (if one provided)