CHAPTER 4 – REQUIREMENTS FOR PLAN SUBMITTAL

Chapter Organization

List of Appendices

4.1 INTRODUCTION

The Applicant is required to submit a complete plan set for all proposed public and private improvements. This chapter provides the minimum plan elements for a complete submittal. To be accepted for review, plans shall be clear, concise and easy to read with all lettering and lines legible. Hand drawn plans are not acceptable. Incomplete plan sets shall not be reviewed and will be returned to the Applicant. State law requires that engineering work be performed by or under the direction of a professional engineer currently licensed in the State of Washington.

4.2 GENERAL REQUIREMENTS

4.2.1 PLAN COMPLETENESS

All plan submittals are assumed to be the final plan set and so all plan sheets for every submittal shall be signed by the Applicant's Engineer pursuant to Section 4.2.4. The Applicant's Engineer shall verify that all minimum requirements specified in the Street Standards and the *Spokane Regional Stormwater Manual* are met and are incorporated in the plan set.

Each submittal of revised plans and supporting documents shall be accompanied by a letter that indicates how each review comment was addressed and provide a brief description of any changes made that were not in direct response to a review comment.

4.2.2 FONTS

Lettering shall be legible to be easily read and understood by the reviewer. Lettering shall be of sufficient size and scale to produce clear, readable images when scanned digitally by an optical scanner.

4.2.3 SHEET SIZE / PLAN MEDIUM

All plan sets shall be plotted or copied on standard drafting paper with dark ink. When the plans or plats are accepted, the City will specify the media type required in the acceptance letter.

All plan sheets shall be 24 inches by 36 inches (D size).

4.2.4 ENGINEER SIGNATURE AND STAMP

All sheets shall include the engineer's signature, stamp, and date of signature pursuant to the regulations established by the State of Washington Board of Registration of Professional Engineers.

4.2.5 SCALE

The scale for all plan and profile sheets shall be:

a. Horizontal: 1 inch = 20, 30, 40, or 50 feet (scales greater than 1 inch = 50 feet shall not be accepted)

b. Vertical: 1 inch = 5 or 10 feet

c. Overall plan: 1 inch = 100 feet, maximum

d. Cross sections: vertical exaggeration ratio shall be 5:1

4.2.6 NORTH ARROW

All design sheets shall have a north arrow oriented toward the top or right side of applicable sheets.

4.2.7 VERTICAL AND HORIZONTAL DATUM

The City of Spokane Valley vertical datum shall be based on the North American Vertical datum (NAVD 1988). The horizontal datum is a coordinate system based on 1983(91) State Plane Coordinates.

4.2.8 UTILITY LOCATE NOTE

All utilities shall be located prior to construction. All sheets shall have the following message:

CALL TWO BUSINESS DAYS BEFORE YOU DIG

811

4.2.9 TITLE BLOCK

A title block is required on every sheet. The title block shall be located in the extreme lower right hand corner, the right side margin, or along the bottom edge of the sheet. The following information shall appear in the title block:

a. Project name and number (including permit number, Short subdivision, Subdivision or Binding Site Plan numbers) provided by the City;

b. The type and location of improvement. (For profile sheets, the title block shall have the name of the street and beginning/end stations);

c. Engineer's name, address, including zip code, telephone number, and fax number;

d. Date and brief description of all revisions;

e. Sheet number and total number of sheets; and,

4.2.10 REQUIRED CIVIL PLAN SHEETS

Civil plan sets are reviewed by Engineering. The civil plan set shall include the following, as applicable:

a. Cover sheet (see Section 4.4);

b. Clearing and grading plan (see Section 4.5);

c. Street improvement plan (see Section 4.6);

d. Onsite improvement plan (see Section 4.7);

e. Drainage plan (see Section 4.8);

f. Temporary erosion and sediment control plan (see Section 4.9); and,

g. Detail sheets, as needed.

4.2.11 REQUIRED TRAFFIC PLAN SHEETS

Traffic plan sets are reviewed by the Traffic Division of the Public Works Department. The traffic plan set shall include the following, as applicable:

a. Permanent traffic control plan (see Section 4.11);

b. Detail sheets, as needed.

4.2.12 OTHER REQUIRED PLAN SHEETS

The site plan of record is reviewed by Engineering and the Planning Division. See Section 4.12 for the requirements from Engineering.

4.3 SPECIFIC REQUIREMENTS FOR PLAN SHEETS

This section incorporates sections 4.4 to 4.12, which outline the minimum required information to be included on specific sheets of the plan set. The sheets are listed in the order they should appear in the plan set. Some sections of the plan set may have more than one sheet, but should be labeled alike.

4.4 Cover Sheet

4.5 Clearing and Grading Plan

4.6 Street Improvements Plan

4.7 On-site improvement Plan

4.8 Drainage Plan

4.9 Temporary Erosion and Sediment Control Plan

4.10 Temporary Traffic Control Plan

4.11 Permanent Traffic Control Plan

4.12 Site Plan of Record

4.4 COVER SHEET

4.4.1 APPLICABILITY

All plan sets shall include a cover sheet.

4.4.2 MINIMUM ELEMENTS

The following shall be included on the cover sheet:

a. The project name and the number (including permit number, Short Subdivision, Subdivision or Binding Site Plan numbers) shown in the top center of the page;

b. A legible vicinity map, approximately 8-½ inches by 11 inches, showing the location and name of all arterial roadways within one mile of the proposed construction, and all other roadways within 1/2 mile of the proposed construction. The project area shall be indicated by shading;

c. An index of all sheets within the plan set;

d. Impervious area quantities for all commercial projects. Quantities shall include the existing, proposed and total rooftop area, pavement area and gravel area, and the overall, total impervious area;

e. Type of roofing material for all commercial projects;

f. Section, Township, and Range;

g. Legend of line types and symbols for all appurtenances related to each type of facility;

h. General construction notes as provided in Appendix 4A;

i. Applicant's signature;

j. The datum used and all benchmarks, which must refer to the established control when available;

k. Private Improvements Statement. The note below shall appear on the cover sheet of the construction plans that include private streets and :

> *The City of Spokane Valley will not be responsible for the maintenance of street and appurtenant improvements, including storm drainage structures and pipes, for the following private streets: (list street names).*

l. Name of owner and Applicant.

4.5 CLEARING AND GRADING PLAN

4.5.1 APPLICABILITY

Clearing and grading sheets are required for projects applying for:

a. A clearing and grubbing permit;

b. A grading only permit;

c. A building permit for all new non-residential development and for residential construction of four or more units per lot;

d. Short subdivisions;

e. Long subdivisions; or

f. Binding Site Plans.

4.5.2 MINIMUM PLAN ELEMENTS

Clearing and grading sheets shall clearly convey design and construction intent and shall depict only the work to be done with the requested permit. Clearing and grading sheets shall include, as applicable:

a. Property limits and accurate contours of existing ground elevations. For existing topography, one-foot contour intervals are preferred unless the City determines that available five-foot contour mapping is adequate and detailed enough to describe current landforms;

b. The extent of clearing and/or grading areas, delineated and labeled "excavation" or "fill";

c. Finish contours to be achieved by the grading and related construction. The contour interval for proposed topography shall be no more than 1- foot, unless the slope is greater than 10%, in which case, the City may accept five-foot contour intervals. Periodically call out the proposed slope. One-foot contours may still be necessary to show certain features such as swales;

d. Existing and proposed surface and subsurface drainage facilities;

e. Footprint of onsite buildings or structures and the location of adjacent buildings or structures located within 15 feet of the property or which may be affected by the proposed grading operations;

f. Cross-section along the proposed and/or existing street, spaced every 50 feet, when required by the City. The cross-sections shall show proposed and existing topography along the street, at tie in points and property boundaries;

g. Information covering construction and material requirements including, but not limited to, specification of the soil compaction to be achieved in any areas of fill placement;

h. Estimated amount and vertical dimensions of cut and fill;

i. Delineation of sensitive areas, floodplains, and critical areas pursuant to SVMC Title 21;

j. The approximate location of all trees eight-inches diameter breast height (dbh) and larger, and a description of the tree protection standards to be implemented during construction;

k. Delineation of any areas to be preserved.

4.6 STREET IMPROVEMENTS PLAN

4.6.1 APPLICABILITY

Street improvements sheets are required for projects:

a. Proposing new or revisions to public or private street or street extensions;

b. Proposing private engineered driveways; or,

c. Required to provide frontage improvements.

4.6.2 MINIMUM PLAN VIEW ELEMENTS

The plan view shall include, at a minimum, the following:

a. Survey lines and stationing lines. Lines shall normally be based on centerline of street. Other profiles may be included but shall be referenced to centerline stationing. Stationing in cul-de-sacs shall be on the centerline to the center of the bulb, with dimensioned slopes along the flowlines within the bulb;

b. Property limits and accurate contours of existing ground elevations. For existing topography, one-foot contour intervals are preferred unless the City determines that available five-foot contour mapping is adequate and detailed enough to describe current landforms;

c. Finish contours to be achieved by the grading and related construction. The contour interval for proposed topography must be no more than one- foot, unless the slope is greater than 10%, in which case, the City may accept five-foot contour intervals. Periodically call out the proposed slope. One-foot contours may still be necessary to show certain features such as swales;

d. Lot lines, lot numbers and block numbers;

e. Proposed and adjoining subdivision names;

f. Existing and proposed street names;

g. Section, Township, and Range;

h. Existing and proposed property and/or right-of-way lines, easements, and/or tracts. All of them shall be labeled and dimensioned;

i. Road alignments with 100-foot stationing, reading from left to right, and stationing at points of curve, tangent, and intersections, with appropriate ties to existing road surveys and stationing, section corners, quarter corners, and

the County GPS control net. Stations shall increase from west to east and from south to north;

~~j.~~ Match lines and stations;

k. Bearings on the road centerline, keyed to an associated plat map;

l. Station and elevation of all horizontal curves including PI, PC's, PT's, etc.; existing and proposed, centerline bearings, distances, and complete curve data;

m. Curve data including radius, delta, arc length and semi-tangent length on all street centerlines and curb returns;

n. Stations and elevations of all curb returns; including beginning, mid-point, and ending elevations of curb returns;

o. Location of all proposed and existing approaches;

p. All existing utilities;

q. All proposed utilities that will be designed and constructed. The plan sheet shall show the extent of the pavement cut for connections;

r. Proposed drainage features including station and type of all structures, direction of flow, size and kind of each drainage channel, ditch or pipe and any other requirements as specified in the *Spokane Regional Stormwater Manual,* as adopted or amended;

s. A thorough search for all survey monuments shall be conducted. Any survey monuments shall be shown;

t. Fire hydrant locations;

u. No Parking signs and locations;

v. Turnaround locations;

w. Fire emergency access easements;

x. Traffic elements such as conduit, junction boxes, signal cabinets, electrical service, signal poles, push-button poles, and loops;

y. Storm drainage flow direction arrows, particularly at intersections and all high and low points; and,

z. Station and critical elevation (flowline, invert of pipe, etc.) of all existing and proposed utility or drainage structures. Location of utilities shall be identified with horizontal and vertical dimensions as measured from roadway centerline profile grade.

4.6.3 MINIMUM PROFILE VIEW ELEMENTS

The profile view shall include, at a minimum, the following:

a. Stationing, shown the same as in the horizontal plan, reading from left to right. It shall include stationing of points of curve, tangent, length, and point of intersection of vertical curves, with elevations to 0.01 feet;

b. Original ground line at 100-foot stations and at significant ground breaks and topographic features, based on field measurement and accurate within 0.1 feet on unpaved surface and 0.01 feet on paved surface;

c. Profiles for curbed streets shall show and label the tops of both curbs and the centerline. Profiles for shouldered streets may show the centerline only. The centerline, top of curb, and existing ground lines of all streets (except cul-de-sacs) shall be continued for 100 feet beyond the proposed construction;

d. High and low point and PI of all vertical curves;

e. Ditch and swale flowlines and drainage structures;

f. A continuous profile for both existing and proposed improvements, shown on a grid of numbered lines;

g. Elevation of vertical grade breaks, K values, grade and length of vertical curves;

h. Storm drainage flow direction arrows, particularly at intersections and all high and low points; and,

i. Station and critical elevation (flowline, invert of pipe, etc.) of all existing and proposed utility or drainage structures. Location of utilities shall be identified with horizontal and vertical dimensions as measured from roadway centerline profile grade.

4.6.4 MINIMUM TYPICAL CROSS SECTION ELEMENTS

A typical street section shall include, at a minimum, the following:

a. A separate full-width, typical section required for each street or portion of the street that differs significantly. The typical section shall be drawn looking in the direction of increasing stations;

b. Station limits;

c. The dimensions of traffic lanes, shoulders, gutters, sidewalks, swales, depths, planting strips, easements, rights-of-way, etc.;

d. The cross slope of elements such as pavement, ditches, sidewalks, etc.;

e. Type of curb;

f. Dimensions and type of structural section material layers; and,

g. Retaining walls, as applicable.

4.7 ONSITE IMPROVEMENT PLAN

4.7.1 APPLICABILITY

Onsite improvement plans are required for projects proposing:

a. New commercial developments;

b. Residential construction of three or more units per lot;

c. Drywells;

d. A project site that will have both of the following:

   i. Any addition or replacement of impervious surface and

   ii. 5000 or more total square feet of impervious surface.

   If both of these criteria are met then the runoff from the new and/or replaced PGIS surfaces and areas hydraulically connected to them will need to be treated prior to disposal. The site includes all of the parcels involved in the project whether or not they are contiguous. Impervious surface includes roofs, paved areas, gravel travel ways, etc. Full build-out includes all the project's phases even if -

   1. The different phases will be constructed under separate contract and/or by separate owners, and/or,

   2. The project is phased over multiple years, but the phases are still under a consistent plan for long term development; and,

e. Increases impervious areas to 5,000 square feet or more;

   i. Alters site access requirements, including adding or removing driveways; or,

   ii. Connects to and impacts City streets and utilities.

4.7.2 MINIMUM ELEMENTS FOR ONSITE IMPROVEMENT PLAN

The onsite improvement plan shall include, at a minimum, the following:

a. Property limits and accurate contours of existing ground elevations. For existing topography, one-foot contour intervals are preferred unless the City determines that available five-foot contour mapping is adequate and detailed enough to describe current landforms;

b. Finish contours or spot elevations to be achieved by the grading and related construction. The contour interval for proposed topography must be no more than 1-foot, unless the slope is greater than 10%, in which case, the City may accept five-foot contour intervals. Periodically call out the proposed slope. One-foot contours may still be necessary to show certain features such as swales;

c. Lot lines, lot numbers and block numbers;

d. Existing street names;

e. Section, Township, and Range;

f. Existing and proposed property and/or right-of-way lines, easements, and/or tracts. Type and dimension of easement or tract shall be clearly labeled. Dimensions of property and right-of-way lines shall be marked.

g. Location of all proposed and existing driveways;

h. All existing utilities;

i. All proposed utilities that will be designed and constructed. The plan shall show the extent of pavement cut(s) for connections;

j. Proposed drainage features including, structure type, locating information, direction of flow, size and kind of each drainage channel, ditch or pipe and any other requirements as specified in the *Spokane Regional Stormwater Manual*, as adopted or amended;

k. Fire hydrant locations;

l. No Parking signs and locations;

m. Turnaround locations;

n. Storm drainage flow direction arrows, particularly at intersections and all high and low points; and,

o. Station and critical elevation (flowline, invert of pipe, etc.) of all existing and proposed utility or drainage structures. Location of utilities shall be identified with horizontal and vertical dimensions as measured from roadway centerline profile grade.

4.8 DRAINAGE PLAN

A drainage plan, showing the location of drainage facilities intended to provide flow control, treatment, and conveyance shall be submitted with the construction plans and shall conform to Section 3.5.2 of the *Spokane Regional Stormwater Manual* (SRSM), as adopted or amended. For small projects, the drainage plan may be included in the Onsite Improvement Plan.

4.9 TEMPORARY EROSION AND SEDIMENT CONTROL PLAN

A Temporary erosion and sediment control (TESC) plan shall be submitted for all projects pursuant to Section 5.3.1, Section 5.3, and the SRSM, as amended. For small projects, the temporary erosion and sediment control plan may be included in the clearing and grading plan.

4.10 TEMPORARY TRAFFIC CONTROL PLAN

A temporary traffic control plan shall be included with the right-of-way permit. The plan shall be in detail appropriate to the complexity of the project pursuant to MUTCD Chapter 6 B.

4.11 PERMANENT TRAFFIC CONTROL PLAN

When required, permanent traffic control plan sheets shall include the components outlined below. Permanent signage and striping shall be complete and in place prior to the acceptance of the certification package.

4.11.1 AREA MAP

Separate signage and striping plans shall consist of an overall area map noting all specific use areas, such as schools, parks, recreation centers, library, commercial, industrial, etc.

4.11.2 ROAD SEGMENT PAGES

The pages following the area map shall be broken down into street segments, for notation of signage and striping details.

4.11.3 SIGNING PLAN

The permanent signing plan shall:

a. Show the longitudinal location of each sign (horizontal offset and station);

b. Specify the sign legend and sign type (from MUTCD and International Fire Code);

c. Specify the sign size and applicable standard plan;

d. Refer to Standard Plan R-140 for post and base dimensions and installation plan;

e. Specify the blank gauge of the sign; and,

f. Note the reflectorization provided.

4.11.4 STRIPING PLAN

The striping plan shall show:

a. Color and type;

b. Lane widths, taper lengths, storage lengths, etc.;

c. Striping/skip interval;

d. Any construction or application notes, (e.g., application temperatures, surface cleaning methods to be used prior to application, etc.);

e. Typical treatments for acceleration/deceleration lanes, turning lanes, and crosswalks;

f. Type of material (epoxy, latex, thermoplastic, etc.); and,

g. Station and offset or dimensions to all angle points, symbol locations, and line terminations.

4.11.5 TRAFFIC SIGNAL PLAN

Traffic signal installation and equipment shall be coordinated with and approved by the Community and Public Works Department. The applicable MUTCD signal warrants shall be met.

4.12 SITE PLAN OF RECORD

The following items shall be included:

a. The footprint of drainage facilities including swales, ponds, channels, detention/retention basins, inlets, drywells, etc.

b. A table providing the following areas in square feet:

   i. total rooftop areas,

   ii. total pavement area,

   iii. total gravel area, and

   iv. total impervious area.

APPENDIX 4-A-GENERAL CONSTRUCTION NOTES

a. All work and materials shall be pursuant to the latest edition of the City of Spokane Valley Street Standards, *Spokane Regional Stormwater Manual* and all other governing agency's standards.

b. Prior to site construction, the Contractor shall be responsible for locating underground utilities. Call the underground utility location service at 811 before you dig.

c. Locations of existing utilities shown in the plans are approximate. The Contractor shall be responsible for locating all underground utilities. Any conflicting utilities shall be relocated prior to construction of road and drainage facilities.

d. The Contractor shall have a complete set of the accepted street and drainage plans on the job site whenever construction is in progress.

e. If the Contractor discovers any discrepancies between the plans and existing conditions encountered, the Contractor shall immediately notify the Applicant's engineer and Onsite Inspector.

f. The Contractor shall take appropriate precautions to protect the infiltration capacity of stormwater facilities (e.g., line the facility with filter fabric, over-excavate upon completion of the infrastructure, etc.)

g. Where directed by the City, the Contractor shall place traffic control devices, the placement and type of which shall be pursuant to the MUTCD.

h. It shall be the Contractor's responsibility to coordinate with and contact all appropriate utilities involved prior to construction.

i. All pavement cuts to connect utilities shall be repaired pursuant to the Regional Pavement Cut Policy.

j. All survey monuments shall be protected during construction by or under the direction of a Licensed Surveyor pursuant to state law.

k. Contractor shall be responsible for scheduling and acquiring electrical inspections required by the State.

l. Contractor shall be responsible for verifying that all required permits have been obtained prior to initiating construction.

m. The Contractor and all subcontractors shall have a current City business registration.

n. The Contractor and all subcontractors shall be licensed by the State of Washington and bonded to do work in the public right-of-way.

o. No work on this project shall commence until a City right-of-way permit has been issued.

p. The Contractor shall protect adjacent properties, public or private, at all times during construction.

q. Contractors shall control dust pursuant to applicable law.

r. Contractor shall remove all construction-related debris to an approved waste disposal site.

s. Fire hydrants shall be installed and functioning prior to the construction of any structures.

t. Contractor shall maintain fire apparatus access to streets during construction.

u. The Contractor shall notify the On-site Inspector one business day before any construction or product placement takes place that requires testing or observation (Refer to Appendix 9A- Minimum Material Testing Frequencies). The On-site Inspector shall determine the time required to satisfactorily achieve the necessary testing, observation and documentation. The On-site Inspector shall be on site 100% of the time during HMA placement, drywell placement, and trench work.

v. Supplemental notes used when applicable:

    i. For any curb grades less than 1.0% (0.01 ft./ft.), a Surveyor shall verify that the curb forms are at the grades noted on the accepted plans, prior to placement of concrete. The Contractor shall arrange and coordinate work with the Surveyor.

    ii. The Contractor shall employ Surveyor to verify that the cross-gutter forms are at the correct plane grade prior to concrete placement.

    iii. Concrete aprons are required at the inlet into any swale or pond. The finish grade of the swale/pond side slope, where the concrete inlet apron ends, shall be a minimum of two inches below the finished elevation of the concrete curb apron extension. This is to allow stormwater runoff to enter the swale/pond unobstructed, without backing up into the street and gutter due to sod overgrowth at the inlet.

    iv. Unlined pond and bio-infiltration swale bottoms are expected to infiltrate via the pond floor, and therefore, shall not be heavily compacted; equipment traffic shall be minimized on the pond bottoms. The facility sub-grade shall be a medium- to well- draining material, with a minimum thickness of 48 inches and a minimum infiltration rate of 0.15 in/hr. The facility shall drain within 72 hours of a storm event. If the pond also serves as a water quality treatment facility, the treatment zone (sod and six inches of treatment soil) shall be a medium- to well-draining material, with a minimum infiltration rate of 0.25-0.50 in/hr. Scarify the finish grade of the pond bottom prior to hydroseeding/sodding. Testing that verifies subgrade minimum infiltration rate may be required by the City prior to construction certification to ensure adequate drainage. Infiltrative testing of the treatment zone is only required if soils other than silty loam or loamy soils are proposed.

    v. If, during final inspection, it is found that the constructed pond or swale does not conform to the accepted design, the system shall be reconstructed so that it does comply. Refer to Appendix 9A of the *Spokane Regional Stormwater Manual* for Erosion and Sediment Control Standard Notes.

vi. Pursuant to Spokane Regional Stormwater Manual methods, a qualified licensed engineer shall evaluate, classify and document the soils in the excavated drywell infiltration zone prior to installation of the filter fabric, drainage rock or drywell barrel and shall determine if the soil's conditions are suitable and capable of infiltrating storm water at the design flow rate. Applicant's Engineer shall submit a copy of the documentation detailing the observations, the conclusions and the basis for the conclusions to the City Engineering Department. If the Applicant's engineer determines that the soils do not meet the design's requirements or that a condition exists preventing the drywell from functioning as designed, the design engineer shall be notified and the design revised to meet existing conditions. Any revisions to the design shall be submitted to the City for review and acceptance.

vii. Construction of every drywell, including fabric and drainrock, shall be observed by the On-site Inspector to confirm that it meets the design details and specifications. Drywells that have not been observed shall have their performance verified by a full-scale drywell test.

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