



CITY OF SEDRO-WOOLLEY PUBLIC WORKS DEPARTMENT STANDARDS

Current as of 4/24/06

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CITY OF SEDRO-WOOLLEY PUBLIC WORKS DEPARTMENT

SEDRO-WOOLLEY PUBLIC WORKS DEPARTMENT STANDARDS (SWPWDS)

INTRODUCTION

This Public Works Standards Manual is established pursuant to City of Sedro-Woolley Ordinances, Resolutions, and the Sedro-Woolley Municipal Code (SWMC), (including SWMC 15.40.080 and 15.40.090) which authorize the Public Works Director / City Engineer to promulgate and adopt administrative standards and specifications to implement and enforce code requirements applicable to surface water drainage facilities, utilities, and right-of-way improvements within the City of Sedro-Woolley. Accordingly, the guidelines, standards, and specifications contained in this manual apply to the engineering and construction of all streets and utilities established and/or improved within the City.

The Public Works Director / City Engineer or his/her designee is responsible for all interpretations and/or revisions to the manual as may be required for its implementation. The standards contained in this manual will be considered as reasonable minimum requirements, and will not be modified, except as may be permitted by the Public Works Director / City Engineer pursuant to a requested modification, adjustment, or variance, and subject to all applicable decision criteria.

Periodic updates to the manual are anticipated in order to address typographical errors, clarify standards as necessary, or to implement future revisions to the SWMC. Should the reader find errors or have suggested corrections, please bring them to our attention at the following address:

City of Sedro-Woolley
Public Works Department
Attn: Director of Public Works
720 Murdock Street
Sedro-Woolley, WA 98284

This document may be downloaded from <http://www.ci.sedro-woolley.wa.us>.

Updates will be made available to the public as they are incorporated into the City Standards. It will be the responsibility of the applicant and/or their representatives to obtain updated revisions of this manual.

This manual is established and distributed as a public service, and may contain items or references to items which are not yet complete. Every effort is made to provide the best and most thorough information possible.

CHAPTER 1 ADMINISTRATION

1.1 GENERAL

These are general conditions and requirements for all improvement or extensions of the City of Sedro-Woolley's street or utility systems. The conditions as herein stated apply to all improvements made by private developers.

1.1.1 Deviation from Standards

Deviation from these standards may be granted through the modification procedure per section 1.3.10 or by the variance procedure in SWMC 16.12.060, as applied in section 1.3.10 (D).

1.2 DEFINITIONS

Access – The safe, adequate, and usable ingress/egress (entrance/exit) to a property or use.

Average Daily Traffic (ADT) – The total number of vehicles traveling past a particular point in an average 24-hour period. Typically used in quantifying the combined number of vehicles traveling either direction on a particular roadway.

Alley – A public or private way, at the rear or side of property, permanently reserved as a means of vehicular or pedestrian access to a property.

Applicant – The person, partnership, joint venture, firm, or corporation who has applied for a Development Permit or approval.

As-Built Certification – Certification specified in the Appendix of these Construction Standards.

As-Built Drawing – Stamped and Signed Engineering plans that have been revised to reflect all changes to the plans that have occurred during construction, including changes in materials, distances, lengths, location, elevations, volumes, etc., and which has an As-built Certification.

Best Management Practice (BMP) – One of those practices described in the Stormwater Management Manual for Western Washington prepared by Washington State Department of Ecology.

Bike Lane – A travel lane, located within the paved area of a roadway, which is provided for the exclusive use of non-motorized vehicles (bicycles).

Bikeway – A paved roadway provided for the exclusive use of non-motorized transportation (bicycles, pedestrians, etc.)

Biofiltration – The process of reducing pollutant concentrations in water by filtering the polluted water through vegetation.

Bioretention – The process of reducing pollutant concentrations in water by filtering the polluted water through vegetation planted in a planting soil mix, and retaining it in a depression to infiltrate into the underlying soils.

City – The City of Sedro-Woolley, acting through its legally constituted elected officials, employees, or agents.

City of Sedro-Woolley Datum – The City of Sedro-Woolley City Datum. The horizontal datum is currently NAD-83/91. The vertical datum is currently NAVD-88. Until October 2003, all vertical work was done using assumed datums or NGVD-29. A City-wide Datum with Monumentation is planned for 2004. Check with the Public Works / Engineering Department for status.

Clearing (Clearing and Grubbing) – The removal of vegetation from a site by physical, mechanical, chemical, or other means. This does not mean landscape maintenance or pruning consistent with accepted horticultural practices that do not impair the health or survival of trees and vegetation.

Comprehensive Plan – A plan adopted by the City Council to guide the physical growth and improvement of the City and urban growth management area, including any future amendments and revisions.

Contiguous ownership – A group of adjacent parcels with one or more owners in common.

Conveyance System – The drainage facilities, both natural and man-made, which collect, contain, and provide for the flow of surface, stormwater, and sanitary sewage from the highest points on the land down to the receiving waters or receiving treatment facility. The natural elements of storm water conveyance systems include swales and small drainage courses, streams, creeks, rivers, lakes, and wetlands. The man-made elements of conveyance systems include gutters, ditches, pipes, channels, and retention/detention facilities.

Cul-de-Sac – A type of roadway design used to provide a place for vehicles to turn around at the end of a “dead-end” street. This is the preferred method for providing an emergency vehicle turnaround on road stubs and driveways greater than 150-feet in length.

Dedication – Shall mean the deliberate appropriation of land by its owner for public use or purpose, reserving no other rights than those that are compatible with the full exercise and enjoyment of the public uses or purpose to which the property has been devoted. The intent to dedicate will be evidenced by the owner by the presentment for filing of a final plat, short plat, binding site plan or statutory warranty deed that shows the dedication thereon. Acceptance by the public will be evidenced by written approval issued by the City of such document for filing with the County Auditor.

Development Activity – Any work, condition, or activity that requires a permit or approval.

Development Permit – Any permit or approval by the City or the City’s Building Department that must be obtained before initiating a use or development activity.

Director – The City of Sedro-Woolley Public Works Director, including such assistants as are authorized to represent him/her.

Downstream Analysis – Report that assesses potential offsite drainage impacts associated with development of the project site and appropriate mitigation of these impacts in accordance with the requirements of the *DOE Stormwater Manual*.

Engineer – Any Washington State licensed professional engineer who represents the

developer.

Engineering Permit – Any of several City of Sedro-Woolley Permits issued by the Engineering and/or Building Department. These include Right-of-way permits, Fill and Grade permits, Clearing permits, etc.

Engineering Plan – A plan prepared, stamped, and signed by a professional civil engineer. An engineering plan may be supplemented with detailed drainage calculations, structural calculations, or other supporting documents needed to assess the total plan.

Engineering Review – An evaluation by the Public Works Department of a proposed project's compliance with the Development Standards and other applicable City, State, and Federal regulations, ordinances, and policies.

Frontage Improvements – All of the street pavement, curb, gutter, sidewalk, transit, bus shelters, bus pullouts, storm drainage, power and communications cable undergrounding, street trees and street lighting, as specified by these Standards, located within any public right-of-way abutting the property boundary of the development.

Grading – Any excavating or filling of earth materials or any combination thereof.

Half Street – Street constructed along an edge of development utilizing at least half the regular width of the right-of-way and permitted as an interim facility pending construction of the other half of the street by the adjacent owner. A minimum pavement width of twenty feet (20') is required.

Hammerhead Turnaround – A type of roadway design used to provide a place for vehicles to turn around at the end of a “dead-end” street. The turnaround is shaped like a hammer or the letter “T.” The hammerhead is an excellent option for providing interim emergency vehicle access. A cul-de-sac (bulb) type turnaround is preferred as a permanent fixture.

Impervious Surface – A hard surface that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development, and/or a hard surface area that causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to: roof tops; walkways; patios; driveways; parking lots or storage areas; concrete or asphalt paving; gravel roads; packed earthen materials; and oiled, macadam, or other surfaces that similarly impede the natural infiltration of surface and storm-water runoff.

Improvements – Any act that improves the value of public, real, and personal property, or that is necessary as a condition of development, including but not limited to: streets and roads complying with the development standards and specifications adopted by the City; public utility and pedestrian facilities; streetlights; landscape features; sewer and water lines; bridge structures; storm drainage facilities; and traffic control devices as are required to be installed as a part of subdivision, short subdivision, large lot subdivision, binding site plan, or commercial development.

Ingress/Egress – Points of access to and from a property or parcel.

Inspector – The City's authorized representative assigned to make all necessary inspections of work performed or of materials furnished or being furnished by the Contractor.

Modification (Variance) – The Public Works Director / City Engineer may modify, defer, or waive the requirements for right-of-way improvement after consideration of a written request for the reasons outlined.

Performance Guarantee – A financial guarantee in a form acceptable to the City Attorney, to ensure that all improvements, facilities, or work required by this ordinance will be completed in compliance with this ordinance, regulations, and approved plans and specifications.

Plan Reviewer – The engineering plan reviewer of the Public Works Department.

Plans – The plans, profiles, cross sections, elevations, details, and supplementary specifications, sign by a licensed professional engineer and approved by the Public Works Director / City Engineer, that show the location, character, dimensions, and details of the work to be performed.

Pre-construction Meeting – Meeting between Public Works Construction Inspector, Engineer Plans Reviewer, and the applicant’s contractor prior to beginning any construction activity on the site.

Project – General term encompassing all phases of work to be performed and is synonymous to the term “improvement” or “work.”

Public Street – Publicly owned and maintained street.

Right-of-way – (1) A strip of land acquired by reservation, dedication, forced dedication, prescription, or condemnation and intended to be occupied by a road, crosswalk, railroad, electric transmission lines, oil or gas pipeline, water line, sanitary storm sewer, and other similar public accesses or public uses; and (2) Generally, the right of one to pass over the property of another.

Sedro-Woolley Public Works Department Standards (SWPWDS) – Guidelines and standards as set forth in this manual.

Site Plan – The development plan for one or more lots on which is shown the existing and proposed conditions of the lot, including topography, vegetation, drainage, flood plains, walkways, means of ingress and egress, circulation, utility services, structures and buildings, signs and lighting, berms, buffers, and screening devices, surrounding development, and any other information that reasonably may be required in order that an informed decision can be made by the reviewing authority.

Standard Details – Those Standard Details contained in the City of Sedro-Woolley Public Works Department Standards (SWPWDS).

Standard Specifications – The Standard Specifications for Road, Bridge, and Municipal Public Works Construction prepared by the Washington State Chapter, American Public Works Association (APWA), and Washington State Department of Transportation (WSDOT); latest edition with revisions, hereinafter referred to as the WSDOT/APWA Standard Specifications Latest Edition hereinafter referred to as Standard Specifications.

Stopping Sight Distance – The sight distance required for an average passenger vehicle, moving at some speed, to identify a situation which required them to stop, decide to stop their

vehicle, and bring a vehicle in average working condition to a stop.

SWCP – Sedro-Woolley Comprehensive Plan

SWMC – Sedro-Woolley Municipal Code

Throat Length – The length of a driveway as measured from the edge of the nearest traveled lane to the point of curvature or intersection with a connecting traffic path. It is the connection depth of the driveway, or the amount of space allowed for vehicles to stack before they begin backing into the main roadway. Insufficient throat length can conflict with flow of off-site traffic and cause on-site circulation problems.

Transportation Impact Study (T.I.S.)– A comprehensive, supplemental report that compares conditions with and without the proposed development for the purpose of identifying transportation improvements necessary to mitigate capacity and safety deficiencies created and/or exacerbated by the proposed development consistent with SWPWDS.

Stormwater and Design Report (S.D.R.)– A comprehensive supplemental report containing all calculations, conceptual design analysis, reports, and studies required to construct a complete site improvement plan based on sound engineering practice and careful geotechnical and hydrological design.

Utility – A company providing public service, including, but not limited to, gas, oil, electric power, street lighting, telephone, telegraph, water, sanitary sewer, storm drainage, solid waste, or cable television, whether or not such company is privately owned or owned by a governmental entity.

1.3 REQUIREMENTS

1.3.1 Frontage Improvements in General

Unless modified or exempt as provided for in these Standards, any activity that requires a Development Permit will require that the developer construct or install frontage improvements in accordance with these Standards.

The development will be exempt from this frontage improvement requirement:

- A. If the land action is not a subdivision of land, and proposed improvements in any 12-month period do not exceed twenty-five percent (25%) of the assessed or appraised value (based on an MAI appraisal provided by the applicant) of all structures on the subject property, whichever is greater.
- B. If within the immediately preceding four (4) years, public improvements were installed as part of any subdivision or discretionary land use approval under this or any prior zoning code.

1.3.2 Streets

- A. General. Streets will be designed and constructed in conformance with the provisions of Sedro-Woolley Public Works Department Standards (SWPWDS); the minimum requirements established by the current editions of the 1.) SWMC; 2.) Sedro-Woolley Road Standards (SWRS); 3.) WSDOT Design

Manual; 4.) American Association of State Highway and Transportation Officials (AASHTO) (A Policy on Geometric Design of Highways and Streets); and as identified by the Planned Street Section Map, Appendix 3-1.

- B. Access to Developments. A development will abut a public right-of-way and have public right-of-way frontage with site access to one or more streets improved to comply with the standards as set forth in the SWPWDS.
- C. Alignment and Location. Proposed streets and other primary accesses will be aligned with existing street. Street alignments will relate where practical to natural topography and will be selected so as to minimize grading and avoid excessive runoff. Alignment and connections of newly constructed public streets will be provided in accordance with the following conditions, unless otherwise prohibited:
 - 1. Street connection will be provided to any existing public street or right-of-way “stub” abutting the proposed development.
 - 2. Pedestrian and emergency access will be provided to any abutting public school, public building, public park, trail, bikeways or transit stop.
 - 3. Streets will be located for the development of adjoining land.
 - 4. Block perimeters should be no longer than 1,320 feet (1/4 mile) for non-motorized access and 2,640 (1/2 mile) feet for streets.
 - 5. More than one connection to the existing public street system will be provided for any development, or part thereof, of four acres or more, or generating more than two-hundred fifty (250) trips per day or more (twenty five (25) single-family lots). If not otherwise infeasible, each connection will be to a different street.
- D. Rights-of-way, Easements, and Improvements. The developer will dedicate right-of-way, grant easements, clear and grade the area required to comply with the SWPWDS, and install all necessary improvements in conformance with the standards prescribed.
- E. Horizontal or Vertical Curves, Sight Distance, Grades, and Tangents. Horizontal or vertical street curves, sight distance, grades, and tangents will be based on the current edition of AASHTO standards. A design proposal that differs from the AASHTO standard may be approved by the Public Works Director / City Engineer upon the review of a modification request, if the deviation is justified to minimize grading, avoid excessive run-off or topographic conditions attending the development site, or to implement traffic calming techniques when warranted.
- F. Street Intersections
 - 1. Primary points of access or street intersections with centerline offsets of less than one hundred sixty-five feet (165') will not be allowed unless the Public Works Director / City Engineer finds special conditions requiring a reduction.

2. Unless required by street spacing standards, intersections on curves will be avoided.
 3. Turning lanes and acceleration/deceleration lanes will be provided as required by the Public Works Director / City Engineer. Guidelines include the following: the *WSDOT Design Manual*, *Highway Research Record 211*, and *Guidelines for Right-Turn Treatment at Signalized Intersections*.
- G. Cul-de-sacs and Dead-end Streets. No street or combination of streets shall function as a cul-de-sac or dead-end longer than three hundred feet (300').
 - H. Half Streets. The construction of half streets must be approved by the Public Works Director / City Engineer, and will be permitted only along the boundaries of a development. Pavement, at least twenty feet (20') in width or as required for that street classification (measured from gutter line), will be provided, and an adequate right-of-way width will be dedicated.
 - I. Limited Access to Arterial. Vehicular access to an arterial or arterial collector may be permitted consistent with the requirements in Chapter 3, SWPWDS.
 - J. Private Streets. Only if approved by the Public Works Director / City Engineer. (Per the City policy on private streets adopted by ordinance in 2003.) Any street that is intended for private use may be used in short sub-divisions and cluster subdivisions only, must be located within a private tract. The tract must abut five (5) or more dwelling units and be more than one hundred fifty feet (150') in length. Accesses serving four (4) or less dwelling units and less than 150' in length are considered shared driveways off of the main street.
 - K. Street Names. The Planning Department will assign all street names.
 - L. Street Lights. The developer will provide streetlights on all improved rights-of-way, public or private, per SWPWDS.
 - M. Street Barricades. The developer will construct and install approved barricades where required by the Public Works Director / City Engineer.
 - N. Turning and Acceleration/Deceleration Lanes. When required by the Public Works Director / City Engineer, the developer will construct turning and acceleration/ deceleration lanes and traffic channelization devices along all development frontages and/or off-site as indicated in a Traffic Impact Analysis.
 - O. Relocation of Utilities. The developer will provide for the relocation of any utilities that must be relocated to accommodate street or other required improvements. If overhead utility lines to be relocated affect three (3) or more spans and/or five hundred lineal feet (500 LF), all utilities shall be undergrounded.
 - P. Street Signs. All traffic control devices including street name signs within a subdivision or short subdivision shall be provided by the developer. See the street sign standard plans in the Appendix. The City is able to provide signs for the following fees based on actual costs:
 1. Stop Sign Only - \$150

2. Street Name Signs Only (2 signs and cross bracket) - \$175
3. Combination Stop Sign with Street Names - \$200
4. Address Signs - \$18 each

1.3.3 Franchise Utilities

All franchise utilities within the limits of the City of Sedro-Woolley are required to perform “locates” within two (2) business days of notification by the City of Sedro-Woolley, the person(s) performing the work, or the ‘One-Call’ (1800-424-5555) center. This requirement applies to in-ground work **and** ‘design’ locates.

All franchise utilities are required to pay all applicable permit fees, including but not limited to right-of-way and initiation fees.

All franchise utilities are required to follow all applicable City standards.

Undergrounding of Overhead Utilities. All required utilities shall be installed underground as rights-of-way are constructed. If the City determines that undergrounding is not feasible at the time the right-of-way is constructed, the applicant must sign a concomitant agreement to pay the subject property’s fair share of undergrounding the utilities at some future date when undergrounding is feasible. This concomitant agreement shall be recorded with the County at the expense of the applicant and shall run with the property.

Underground requirements may be waived or modified by the Public Works Department and approved by the Public Works Director / City Engineer. The applicant must demonstrate that it would be undue hardship to construct the facilities underground. “Undue hardship” means either:

- a. The installation would be technologically unfeasible; or
- b. The cost of the underground construction outweighs the general welfare consideration in requiring underground construction.

A. Underground requirements - New facilities.

1. All major additions of new facilities (three or more spans and/or five hundred feet (500’) or more) shall be underground.
2. Minor additions of new facilities may be constructed aerially where existing facilities are aerial.
3. A permit from the City Public Works department shall be required.

B. Underground requirements - Rebuilds, replacements, and additions.

1. A relocation necessitated by a public works project including, but not limited to, road realignment, widening, or sewer and water main projects; a major rebuild; or replacement of existing aerial facilities (three (3) or more spans and/or five hundred feet (500’) or more) shall be underground, and a permit from the City Public Works Department shall be required; except: undergrounding shall not be required in those cases where the Public Works Director / City Engineer finds that undergrounding will not be in the best interest of the public.

2. A minor rebuild, replacement, or relocation of existing aerial facilities may be constructed aerially. No permit shall be required.
3. When there is casualty damage to an overhead service system or other major service outage, the facilities may be restored aerially. No permit shall be required.
4. An addition of three phase conductors or reconductoring, which does not constitute a major rebuilding, will be allowed on existing aerial facilities. No permit shall be required.
5. The provisions of this section shall not apply when constructing single-family homes in areas zoned for single-family residences, or in other zones if 75 percent of the affected parcels within the perimeters of the specific project are made up of single-family residences.

C. Underground requirements - Service connections.

Service connections are facilities extending from a distribution system and terminating on private property to serve a customer or subscriber. Service connections shall be underground, unless the distribution system serving the customer or subscriber is aerial, and the building, structure or an addition, alteration, or repair thereto is under \$20,000.00 in value.

D. Underground requirements - Connections and disconnections of affected service.

Owners of real property abutting an underground project shall be responsible, at their expense, for converting to underground service and disconnecting their aerial services within ninety (90) days following notice in writing of availability of such underground service. Time in consummating such connection and disconnection is of the essence, and such notice to the property owner, customer, or subscriber may be mailed, postage prepaid, or delivered in person. In the event that such conversion and disconnection is not accomplished within ninety (90) days of receipt of notice, the City may order the work done, and the actual cost shall constitute a lien against the real property subject to enforcement as provided by law.

E. Underground Requirements - Location.

Underground franchise utility runs shall be located within City rights-of-way, unless specifically granted modification from Director of Public Works / City Engineer. See the Utility Location Cross Section in the Appendix for individual utility preferred locations. It is generally in the best interest of the public that utilities be placed in public rights-of-way in generally consistent locations within the rights-of-way, unless mitigating circumstances exist.

1.3.4 Bikeways and Walkways

- A. Easements. Where needed for purposes of traffic safety or access to schools, playgrounds, public parks, trails, shopping facilities, or other community facilities, public right-of-way for bikeways or walkways, not less than twenty

(20) feet in width, shall be dedicated and installed per the Comprehensive Plan. Such easements may be located within the outer fifty feet (50') of a Protected Critical Area buffer.

- B. Improvement Standards. Bikeways and walkways will be surfaced with asphalt concrete and designed to the standards in Chapter 3, SWPWDS. Bikeways and walkways will be illuminated in accordance with the specifications set forth in this standard and SWMC. Bollards or other facilities designed to prohibit the passage of motor vehicles through pedestrian easements will be installed to the specifications of the SWPWDS.
- C. Pedestrian and bicycle access shall be provided to develop a non-motorized network with a block perimeter of no greater than 1,320 feet (1/4 mile), as measured on center lines. This requirement may be modified if connections cannot be made due to:
 - 1. Topographical constraints
 - 2. Environmentally sensitive areas
 - 3. Adjacent development not being conducive

1.3.5 Sidewalks, Planting Strips, and Medians

Sidewalks, planting strips and/or medians will be constructed within all new developments and on the development sides of any streets abutting the exterior of all developments. Said construction will be subject to the conditions and regulations set forth in Chapter 3 of the SWPWDS. Sidewalk widths may be required above the minimum in areas where special design standards have been added.

Medians are required on arterial streets to improve traffic circulation and enhance right-of-way appearance as set forth in Chapter 3 of these standards. In phased arterial development situations, the median may be deferred in lieu of a 14' wide two-way left turn lane (TWLTL) with approval from the Director of Public Works / City Engineer.

1.3.6 Sewer and Water

The developer must contact the Sedro-Woolley Sanitary Sewer Department and obtain a Certificate of Sewer Availability to be submitted with a Building Permit or Development Application.

The developer must contact Skagit Public Utility District (P.U.D.) No. 1 for water requirements. A Certificate of Water Availability must be submitted with a Building Permit or Development Application.

Sedro-Woolley Sanitary Sewer Department
401 Alexander Street
Sedro-Woolley, WA 98284
360-856-1100

Skagit P.U.D. No. 1
PO Box 1436
1415 Freeway Drive
Mount Vernon, WA 98273
360-424-7104

1.3.7 Stormwater Drainage

The developer will provide for the treatment, storage, and disposal of surface drainage through a storm drainage system designed to the current City requirements, and Chapter 4, of the SWPWDS.

1.3.8 Solid Waste and Recycling

Solid waste and recycling requirements are outlined in the Appendix. It is recommended that you contact the City Solid Waste Department and the franchised recycling hauler to discuss design.

Sedro-Woolley Solid Waste Department

315 Sterling Street
Sedro-Woolley, WA 98284
360-855-1884

Waste Management

PO Box 546
15878 Petersen Road
Burlington, WA 98233
360-757-9380

1.3.9 Modification

Purpose. Any applicant may seek modification to Public Works standards by the Public Works Director / City Engineer after consideration of the four criteria in 1.3.10-B.

1.3.10 Frontage Improvement Modification

- A. Purpose. In certain circumstances it may not be appropriate to require installation of frontage improvements at the time a development occurs. In such situations, the Public Works Director / City Engineer is authorized to modify, defer, or waive installation of such improvements to a later date under the provisions of this section.
- B. Criteria for deferral. The Public Works Director / City Engineer may modify, defer, or waive any or all required improvements as defined by these Standards, provided one or more of the following criteria are met:
1. The improvement as required would not be harmonious with existing street improvements, would not be advantageous to the neighborhood or City as a whole.
 2. Unusual topographic or physical conditions preclude the construction of the improvements as required.
 3. Proper vertical or horizontal alignments cannot be determined because the existing streets do not have alignments meeting current standards.
 4. The required improvement is part of a larger project that has been scheduled for construction in the City's Transportation Improvement Program.
- C. Security for modification. Any deferred frontage improvement will be secured for installation at a later date by one of the following methods selected by the Public Works Director / City Engineer.
1. Commitment to participate in a local improvement district (L.I.D.). The property owner will execute a covenant document that ensures the

participation of the subject property owner(s) in any local improvement district formed for the construction of such frontage improvements. Said document will be in a form provided by the City of Sedro-Woolley and will be effective for a period of ten years from the date of recording.

2. Payment in Lieu of Installation. The property owner will pay to the City an amount equal to the estimated value of the required frontage improvements as determined by the Public Works Director / City Engineer. Such amount will be deposited into a municipal fund account reserved for the financing of such or similar improvements in the immediate vicinity, with benefit to the development under application. Such payment will be refunded in full, plus interest to the property owner should the City not commence with the project to install the required frontage improvements or if the funds are not encumbered within six (6) years from the date such payment is made.

D. Appeal of decision. Written modification requests which are denied by the Public Works Director / City Engineer may be appealed by variance request per SWMC 16.12.060. Failure to first pursue a deviation from standards by written modification request to the Public Works Director / City Engineer will result in invalidation of the variance request. Written modification shall be pursued prior to using the variance procedure.

1.3.11 Reimbursement Areas

Reimbursement for Installation of Public Improvements. Whenever any party, including the City, a developer and/or a local improvement district funds the installation of street, sidewalk, curb, gutter, storm drainage, street lighting, traffic signs and signals, street trees, underground communications and power facilities that benefit non-participating properties the party may make application to the Public Works Director / City Engineer for the establishment by contract of an assessment reimbursement area (latecomers agreement).

1.4 PERMITS AND APPROVALS

1.4.1 General

The purpose of this section is to advise property owners, developers, builders, contractors, and other interested persons of the pre-development, design, construction, and permit requirements of the City of Sedro-Woolley Public Works Department.

1.4.2 Development Permits and Approvals

Prior to the initiation of any construction activity within public rights-of-way or easements, or work on private property as herein described, all permits, licenses, and approvals shall be secured by the owner or authorized agent. The permittee shall be responsible for compliance with all conditions, requirements, or special instructions specified or implied by the approved permit.

The following are the permits or approvals that may be required for construction within the City of Sedro-Woolley.

A. Preapplication Conference and Design Review Committee Approval

- B. Environmental (SEPA) Process
 - C. Land Use Permits
 - a. Administrative
 - b. Planning Commission
 - c. City Council
 - D. Excavation and Grading Permits
 - E. Land Surface Modification
 - F. Building Permits
 - G. Subdivision, Boundary Line Adjustment, Binding Site Plan, Lot Line Elimination
 - H. Right-of-way Permits
 - I. Pre-construction Meeting
 - a. Requests for Inspections
 - i. TESC –
 - 1. Clearing Limits
 - 2. Construction Entrance
 - 3. Washdown Area
 - 4. Significant Tree Protection
 - 5. Trap/Pond Approval
 - 6. Misc. TESC Measures
 - ii. Clearing and Grubbing Approval
 - iii. Stripping & Stockpiling Complete
 - iv. Utilities
 - 1. Bedding
 - 2. Compacted Backfill
 - 3. Dewatering (if necessary)
 - 4. Structure Placement
 - v. Subgrade
 - vi. Compacted Base
 - vii. Each Surfacing Lift
 - viii.
- K. Project Finalization
 - a. Request for Final Punchlist
 - b. Bonding & Security
 - c. As-builts
 - d. Monumentation
- K. Assessment Reimbursement Area (Latecomer's Agreement)

1.4.3 Environmental Approvals

The City of Sedro-Woolley Planning Staff, prior to the issuance of any development or construction permits, may require an Environmental Checklist. If required, a Determination of Non-Significance (DNS), Mitigated Determination of Non-Significance (MDNS), or an Environmental Impact Statement (EIS) may be required prior to proceeding with the project.

1.4.4 Land Use Permits

The City of Sedro-Woolley Zoning Code requires that a Land Use Approval shall be issued for all excavating and grading permits; building permits for new construction, alteration, repair, or house moves; and for use of vacant lands or land use changes within any zoning district. The Land Use Permit certifies that the proposed land use is consistent with the City of Sedro-Woolley Zoning Code.

1.4.5 Excavation and Grading Permits

An Engineering Approval is required for clearing, excavation, filling, grading, and temporary erosion control construction. The Public Works Department shall administer the approval. An Engineering Permit will not be issued prior to plan approval of engineering or building plans related to the entire project.

- A. No fill work is permitted in the floodway of the Skagit River, or any of the waters of the State within the city limits of Sedro-Woolley. No materials or constrictions shall be added within a floodway. See SWMC 17.66 for additional floodplain management regulations.
- B. Within the floodplain, but outside of the floodway, of the Skagit River and any other waters of the State within the city limits of Sedro-Woolley, the Public Works Department has a 'no net fill' policy. If materials are to be added within the floodplain, an equal volume of material shall be removed from the floodplain. This policy is based on a 'good neighbor' policy, and for protection of the Sedro-Woolley Wastewater Treatment Plant (WWTP). Fills within the floodplain could tend to shift floodwaters onto neighboring properties or could add to the 'backwater' effect during a flood, and could raise the flood level at the WWTP. See SWMC 17.66 for additional floodplain management regulations.

1.4.6 Building Permits

Chapter 1 of the Uniform Building Code, as adopted by City Ordinance, specifies that:

“No building or structure regulated by this code shall be erected, constructed, enlarged, altered, repaired, moved, improved, removed, converted, or demolished within the City, or cause the same to be done, without first obtaining a separate building permit for each such building or structure from the Building Official.”

- A. At the time of Permit Application, the developer shall submit working drawings plus additional copies of the plans as specified by the Building, Fire, Planning and Public Works Departments to the Building Official along with a completed application for a Building Permit and the following submittals as applicable:

1. Structural Calculations
 2. Storm Drainage Detention Calculations
 3. Soils Analysis
 4. Energy Code Calculations
 5. Landscape Plan
 6. Site Plan
 7. Utilities, Storm, Road, and Onsite Grading Plan, and streetlighting
 8. Temporary Erosion Sedimentation Control Plan
 9. State Flood Zone Control Permit (if required)
 10. Contractors Registration Number and Expiration Date
 11. Five Complete Sets of Blueprints
 12. Building and Topographical Survey Information
 13. Payment of Building Department Plan Check Fee
 14. Other Submittals as Specifically Requested at the Development Review Committee Meeting.
 15. Project Cost Estimate
 16. Bond Quantities Worksheet
 17. Legal Descriptions for Required Easements or Right-of-way Dedication
- B. The City will review plans and calculations for conformance with City development requirements, standards, codes, policies, rules and regulations. Red-line drawings and plan review comments will be returned to the applicant or the designated contact person for corrections. Plans shall be revised by the applicant's engineer to address all red-line comments and plan review checklist requirements.

Prior to approval of the respective design plans by Building, Public Works, Planning Departments, and Sedro-Woolley Fire, submittal of necessary easements, mitigation agreements, and any other documents as specifically required by the above departments shall be completed. The Building Official will issue an approved Building Permit subsequent to submittal of necessary bonds, liability insurance, fees, required documents in the Developer Extension packet and other requirements of the Community Development Department.

- C. Prior to the issuance of the Building Permit all outstanding fees must be paid. This may include:
1. Building Permit Fee

2. Right-of-way Permit and Cash Bond, if required. (See Section 1.4.8).
3. Public Works Engineering Department Plan Review and Inspection Fees
4. Environmental Mitigation Fees
5. Impact Fees

1.4.7 Subdivisions

The regulations and procedures for the subdivision of land are found in the Sedro-Woolley Subdivision Code. Construction plans for approved preliminary plats are submitted to the Community Development Department for review and approval by the Public Works Director / City Engineer.

As a minimum it is necessary to submit six (6) sets of construction plans consistent with the requirements of the construction standards herein, along with two sets of storm water calculations, and any other documents required by the Director.

To begin plan review, it is necessary to pay the Plan Review Fee. Prior to construction, it will be necessary to obtain an Engineering Permit and any other permits deemed necessary by the Public Works Department. Once plans are approved, bonding is complete, and plan review fees have been paid, a Pre-construction conference may be scheduled.

Approval signature lines shall be placed on the appropriate sheets within the construction plan package:

- City Engineer (All sheets)
- City Planner (Landscaping)
- City Fire Chief (Signage & Striping and Water)
- Postmaster (Signage & Striping – mailbox locations)
- Skagit Area Transit (SKAT) (Roadway plans & bus pullout details)
- Skagit PUD #1 (Water)

1.4.8 Right-of-way Permits

City right-of-way shall not be privately improved or used for access or other purposes, and no development approval shall be issued that requires use of privately maintained City right-of-way unless a permit has been issued pursuant to this article, except for utility construction work otherwise authorized. This section shall not apply to driveway connections from private property to City right-of-way.

Review of Application Procedures:

- A. Upon receipt of an application for any Right-of-way Use Permit the City shall determine whether the proposed activity is within the City-owned right-of-way.
- B. The Public Works Director / City Engineer shall review applications for compliance with applicable City plans, policies, regulations, and standards. Prior to issuing a Right-of-way Use Permit, the City shall determine and secure an appropriate bond as described in this article.

Detailed engineering and restoration plans and/or drainage plans may be required

when considered necessary by the Public Works Director / City Engineer. Costs for the development of such plans and conduct of required studies shall be borne by the permit applicant.

1.4.9 Pre-construction Meeting

Upon completion of items and conditions as described, the Pre-construction Meeting will be scheduled with the Engineering Plans Reviewer. At the Pre-construction Meeting, construction schedules, performance testing, and construction details will be confirmed, and the authorization to proceed is given.

1.4.10 Project Finalization

Following completion of the construction and testing, the owner is required to provide P.L.S. or P.E. Certified photo mylar copies of the field-surveyed as-built plans for the project. After submittal of the as-built plans, final S.D.R., and volume confirmation, a final walk-through field inspection of the completed public improvements is scheduled with the City's Engineering Field Inspector, and contractor. A minimum of two (2) working days' notice is required for this inspection.

At walk-through, a punch list of construction deficiencies is generated and prepared. Upon completion of this punch list, the contractor must notify the inspector for final acceptance of the constructed improvements.

Upon acceptance by the Public Works Department, a seventy percent (70%) release of performance bonds and administrative deposits will be authorized. The remainder will be held as a maintenance bond and will remain in effect for two (2) years from the date of final acceptance.

1.4.11 Reimbursement Areas (Latecomer's Agreements)

Reimbursement for Installation of Public Improvements. Whenever any party, including the City, a developer and/or a local improvement district funds the installation of street, sidewalk, curb, gutter, storm drainage, street lighting, traffic signs and signals, street trees, underground communications and power facilities that benefit non-participating properties the party may make application to the Public Works Director / City Engineer for the establishment by contract of an assessment reimbursement area.

1.5 HOURS OF CONSTRUCTION

Monday through Friday, 7:00 a.m. – 8:00 p.m., Saturday 9:00 a.m. to 8:00 p.m. The Planning Director / Director of Public Works / City Engineer must grant written permission for work outside these hours.

1.6 CONSTRUCTION SEASON

The normal construction season is the period between May 1st and September 30th. Work scheduled outside of this construction season will be subject to additional limitations in order to assure compliance with NPDES Phase II regulations.

Cleared areas must be hydroseeded and/or mulched with straw by September 30th. Cleared Work areas are limited to two (2) acres between October 1st and April 30th. Bare soils must be covered in areas where work is not planned to occur for 7 days From May 1st to September 30th and 48 hours between October 1st and April 30th.

CHAPTER 2 GENERAL PUBLIC WORKS REQUIREMENTS

2.1 RESPONSIBILITY OF OWNER/DEVELOPER

The Owner/Developer is responsible for completing all work and improvements in full compliance with the approved plans and specifications. The developer shall furnish all labor, materials, tools, equipment, transportation, necessary supplies and incidentals required to make each and every item complete as documented by said plans and specifications. The Design Engineer and/or Director must approve any deviation from these requirements in writing.

2.1.1 Standard Specifications

Design detail, workmanship, and materials will be in accordance with the current edition of the “Standard Specifications for Road, Bridge and Municipal Construction,” the “APWA Supplement to Division One,” and the “Standard Plans for Road, Bridge and Municipal Construction,” all written and promulgated by the Washington State Chapter of the APWA and WSDOT, except where these standards provide otherwise.

The following referred materials will be applicable when pertinent, when specifically cited in the standards, or when required by an outside funding authority.

- A. Rules and regulations as adopted in the SWMC.
- B. 1992 Department of Ecology Stormwater Management Manual for the Puget Sound Basin as amended by the City of Sedro-Woolley.
- C. Sedro-Woolley Road Standards (SWRS). (under construction)
- D. 2001 Department of Ecology Stormwater Management Manual for Western Washington.
- E. City of Sedro-Woolley Comprehensive Plan.
- F. Conditions and standards as set forth in the WSDOT Design Manual as amended and approved by WSDOT.
- G. U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD), as amended and approved by WSDOT.
- H. Conditions and standards as set forth by the State of Washington, Department of Labor and Industries.
- I. Design criteria of federal agencies including Department of Housing and Urban Development and the Federal Housing Administration.
- J. Other specifications not listed above as may apply when required by the City of Sedro-Woolley.

2.1.2 Shortened Designation

The City of Sedro-Woolley Public Works Department Standards will be cited routinely in the text as the “Standards”.

2.1.3 Applicability

These standards will govern all new construction and upgrading of facilities both in the right-of-way and on-site for transportation and transportation related facilities; storm drainage facilities; and park, recreation, and open-space facilities.

2.1.4 Design Standards

- A. Detailed plans, prepared by a professional engineer licensed in the state of Washington, must be submitted to the City for plan review and approval prior to the commencement of any construction. All plans must be signed and stamped by the applicant's engineer prior to submittal for plan review. The Public Works Director / City Engineer, prior to the start of construction, will approve final plans.
- B. Materials proposed for use in construction of publicly owned or publicly maintained facilities must be in conformance to approved material standards in place at the time of submittal. Unapproved materials cannot be adequately evaluated within the plan review period.
- C. Plans as required by the Standards are required to be submitted along with a completed Building Permit Application Form. All drawings will be on 22" x 34" sheet size. Approved plan sheets will be good quality reproducible ink on mylar, and shall bear a title showing the name of the project, the name of the owner, the name, address, seal, date, and signature of the design engineer. The cover sheet and all plan sheets shall include the same general title block including consecutive sheet numbers. An approval block shall generally be located in the lower right hand corner of the drawing. Sedro-Woolley standard notes (as contained in this chapter), applicable details (as contained in these standards), vicinity map and legend of symbols shall also be included in the plan set.
- D. Profile drawings shall have a horizontal scale of not more than fifty feet (50') to the inch or a vertical scale of not more than ten feet (10') to the inch. Plan views shall be of a corresponding horizontal scale.
- E. Specifications will be required and submitted with the plans if General Notes do not adequately cover the project requirements.

2.1.5 Minimum Plan Elements

See the Engineering Review Checklist and others included in the Appendix.

The following items must be incorporated into all engineering plans:

Plan View (Horizontal) Plans

- A. Roadway or proposed utility alignments, reading from left to right, showing stationing of points of curvature, tangency, intersection angle points, and with ties to existing monuments, including all necessary curvature data.
- B. Bearings on roadway centerline or utility centerline, referenced to the *City of Sedro-Woolley Datum* as well as location, description, and elevation of the

nearest City benchmark. Verify current Datum with the Public Works / Engineering Department prior to plan submittal. All projects must be submitted utilizing the correct and current datum(s).

- C. Right-of-way and easement lines for existing and proposed improvements, including identification of all roadways, easements (including auditors file numbers), adjacent lot and tax lot numbers, and subdivision identifications.
- D. All topographic features within and adjacent to proposed improvements and within sufficient area (usually 100') to assess impacts of slopes, drainage, access, future extensions, availability of service connections, etc.
- E. Proposed contours for entire site if grading is involved. Finish grade contours on the roadway only is not acceptable. All building sites should have a finish floor elevation to the nearest tenth of a foot shown on the plan.
- F. All existing and proposed (if known) public and private utilities, including telephone, electrical power, cable television, natural gas, water and/or sewer districts and any other known utilities that may affect the proposed construction.
- G. Existing and proposed drainage facilities, including culverts, catch basins, ditches, etc., indicating direction of flow, size, type of pipe, invert and rim elevations.
- H. Identification of adjacent roads, subdivisions, building addresses, or any other information to facilitate locations and future reference.
- I. Curb return elevations shall be shown at 'quarter delta' points at all intersections at a minimum (larger radii should have more points), to verify drainage and a smooth transition.

Profile Plans

- A. Profile drawings shall be prepared with all storm drain and street design plans, and with any other plans where vertical control is deemed to be important.
- B. In general, the existing centerline profile shall be plotted, denoting grade breaks, topographic features, and any other information important to the design.
- C. The finish grade roadway and/or utility profile shall be shown with the same stationing as the horizontal plan.
- D. Roadway profiles shall include existing and proposed centerline elevations at least at fifty foot (50') stations; centerline grades and vertical curves, including station and elevations at PVC's, PVI's, PVT's, top of crest vertical curve, bottom of sag curve, flow grade of 0.50% within fifty feet (50') of the level point for a sag vertical curve.
- E. Storm drain profiles shall include pipe slopes, diameters, lengths, rim and invert elevations, manhole and/or catch basin locations, type and numbers, and any other information relevant to the design.

Detail Plans

- A. Where special construction procedures or structures are required, special detail drawings are required. Standard details can be referenced to the Standard Specifications or the Standard Details as contained in the Appendix.
- B. Special Detail Drawings shall contain adequate dimensions, sections, views, notes, and call outs to construct the structure, or permit preparation of detailed shop drawings by the fabricator when necessary.

2.1.6 Drafting Standards

- A. All plans submitted for either design approval or permanent record will be free of photographs, stick-ons, or pen/pencil shading. Hatching may be acceptable if the pattern is not excessively dense.
- B. Design drawings will be submitted on clean, legible blue or black format.
- C. As-built drawings shall be submitted on static free 4-mil mylar with permanent image, and two sets of blue-line copies. Sheet sizes will be 22" x 34" for engineering drawings and 18" x 24" for survey drawings. No sepia will be accepted.
- D. Plans will be prepared with the understanding that each will be microfilmed. Minimum text height will be at least 0.08 times the scale factor (i.e., 1" = 20' scale minimum text will be $20 (0.08) = 1.6$ units). Minimum nominal text size will be 1/8".
- E. No engineering plans will be accepted with architect's scale.
- F. Plans will show all existing and proposed monuments. All Monumentation will be described using current City of Sedro-Woolley Datum coordinates. Centerline of roadways, easements (with type and dimensions), and other pertinent data will be referenced to existing monuments.
- G. All existing features (pipes, curbs, power poles, etc.) are to be produced with a small pen or half tones. Proposed features will be distinguished by a larger or bolder line weight.

2.1.7 Plan Review

All plans and reports are to be submitted to the Public Works Department. Any necessary easements, dedications, contracts, agreements, bonds, or variance requests will be submitted for review along with the plans. City staff will make a completeness check of the plans against the Engineering Review Checklist in the Appendix. If the plans meet the minimum checklist requirements as to context, they will be routed to the appropriate City staff, and the plan review process begins.

Applications for which no permit is issued within one hundred eighty (180) days following the date of application will expire by limitation, and plans and other data

submitted for review may thereafter be returned to the applicant or destroyed by the Development Services Manager. The Building Official may extend the time for action by the applicant for a period not exceeding one hundred eighty (180) days upon request of the applicant showing circumstances beyond the control of the applicant have prevented action from being taken. No application will be extended more than once. In order to renew action on an application after expiration, the applicant will resubmit plans and pay a new Plan Review Fee.

2.1.8 Pre-construction Meeting

Once the plans have been approved, bonding is in place, and applicable fees have been paid, the developer, contractor, or their agents must schedule a Pre-construction Meeting with the Public Works Inspector. The owner, general contractor, engineer, architect, and subcontractor should attend. No work shall commence prior to the Pre-construction Meeting.

2.1.9 Construction Control

Work performed for the construction or improvement of City roads and utilities whether by or for a private developer will be done to the satisfaction of the City and in accordance with approved plans. No work will be started until plans are approved. The City will approve any revision to such plans before being implemented. Failure to receive the City's approval can result in removal or modification of construction improvements at the contractor or developer's expense to bring it into conformance with the approved plans.

2.1.10 Inspection

All work performed within the public right-of-way or easements, or as described in these standards, whether by or for a private developer, will be done to the satisfaction of the City and in accordance with the WSDOT/APWA Standard Specifications, any approved plans and these standards. The City must approve any revision to construction plans before being implemented.

The City will have authority to enforce these standards as well as other referenced or pertinent specifications. The City will appoint project engineers, assistants, and inspectors as necessary to inspect the work and they will exercise such approved authority as the City may delegate.

All specific inspections, test measurements or actions required of all work and materials are set forth in their respective chapters herein. Tests will be performed at the developer or contractor's expense.

Failure to comply with the provisions of these standards may result in stop work orders, removal of work accomplished, or other penalties as established by ordinance.

A project is considered final when as-built drawings, easements, bonds, and maintenance agreements have been submitted to and approved by the City, and the City issues a letter of acceptance to the party responsible for the project.

The contractor will pay for work beyond the normal working hours of the inspector at time and one half according to the overtime rates determined by the City.

2.1.11 Protection of Public and Private Utilities

The contractor shall be responsible under RCW for locating all existing underground utilities and protecting the same against damage whether shown on the plans or not. The contractor shall support and protect all pipes, curbs, conduits, poles, wires or other apparatus which may be in any way affected by the work, and do everything to support, sustain, and protect the same, under, over, along, or across said work. In case any of said public or private utilities should be damaged, they shall be repaired by the contractor whenever feasible on the private/public utility having control of same, and the expense of such repairs, shall be the responsibility of the developer or contractor.

The contractor shall further be responsible for any damage done to any street or other public property, or to any private property by reason of the breaking of any water pipe, sewer, or gas pipe, electric conduit or other utility by or through his/her negligence.

2.1.12 Damage to Private Property and Improvements

The developer's work shall be confined to the job site premises and necessary off-site easements and they shall not enter upon or place materials on other private premises except by written consent of the individual owners, and shall hold harmless the City from all suits and actions of every kind that might result from the use of private property.

The contractor shall take adequate precautions to protect existing lawns, trees and shrubs outside public right-of-way, sidewalks, curbs, pavements, utilities, adjoining property, structures, and to avoid damage thereto, and shall at their own expense completely repair any damage thereto caused by their operations to the satisfaction of the Director. All impacted property owners must be notified in advance of said work.

2.1.13 Final Inspection

Following acceptance of all public improvements, the developer shall be held responsible to guarantee materials and workmanship for a period of two (2) years of satisfactory performance and operation. Any defects that appear during this period shall be corrected by the developer at no cost to the City under the terms of the maintenance bond.

The inspector will not make the final inspection until the work required by the contract, including final cleanup has been completed.

The contractor shall, at any time requested, submit to the Director properly authenticated documents or other satisfactory proofs as to their compliance with the contract requirements.

If the examination of the above documents reveals any defects in the work, such defects should be repaired or replaced as the Director may direct before final

acceptance. The cost of all such repairs and replacements shall be borne by the developer.

The City's right to conduct inspections is to determine if acceptable construction practices are followed, the inspection process does not make the City an insurer or guarantor of contractor compliance or competence. Responsibility for any failures to follow these standards rests solely with the developer and its agents.

2.1.14 Final Acceptance

Final acceptance of improvements requires the following:

- A. The correction of all defects as noted on the final punchlist.
- B. As-Built Plans - the original construction drawings or a photo mylar copy shall be revised to reflect actual constructed improvements. See As-Built Checklist for specific requirements on as-built procedures and documents. A professional land surveyor or engineer registered in the State of Washington shall certify the field surveyed as-built plans as actual field construction.
- C. Statutory Warranty Deed - The developer shall submit a completed statutory warranty deed for all rights-of-way and other lands to be dedicated to the public.

2.1.15 Maintenance of Work After Acceptance

The developer shall be responsible for the entire improvement and maintain said improvements until the City has accepted it. The City reserves the right to utilize any portion of the improvements prior to final acceptance and in such event the City will assume responsibility for its use in case of damage caused by normal use.

2.1.16 Samples and Tests

At the direction of the Director, the developer shall direct a certified testing laboratory to conduct necessary field and/or lab tests of materials or methods.

All testing shall be in accordance with commonly recognized standards of the appropriate national organizations, WSDOT or common industry standards.

The field tests of materials shall be made as deemed necessary by the Director at no cost to the City. In general, tests shall be made at the frequency as outlined by the applicable sections of the Standard Specifications.

The developer shall furnish, without charge, samples of all materials as requested by the Director. Materials shall not be used until approved. The Director shall be furnished certified copies of the complete test reports direct from the testing lab.

Materials shall be delivered on the work in advance in such quantities as to afford the Director an opportunity to make tests before the materials are to be used.

2.2 FEES

Fees, charges or bonding requirements will be as established by the City Council adopting a fee, charge, and bonding requirement schedule except where specifically set forth in the SWMC.

The basic plan check fee for ten (10) hours of review time is due when plans are submitted for review. Supplemental Plan Review Fees will be charged on an hourly basis for reviews in excess of ten (10) hours. These fees will be due prior to Building Permit issuance.

All inspection deposit fees are due prior to Pre-construction Meeting.

2.3 BONDING

Bonds or other allowable securities will be required by the City to guarantee the performance or maintenance of required civil-related work. The type and amount of security will be per SWPWDS. Types of securities include, but are not limited to, binding a surety or an assigned savings account.

- A. Performance bonds will be valid for one (1) year.
- B. Maintenance bonds will be valid for two (2) years following completion of work and/or acceptance, whichever is later.
- C. Bond Quantities Worksheets are available in the Appendix.

2.4 EASEMENTS

Where public utilities and/or their conveyance systems cross private lands, an easement must be granted to the City. The Public Works Engineering Department will generally process, record, and file all easements. If the property is platted, the easement may be conveyed when the short plat or final plat is filed. An attorney, licensed land surveyor, or engineering firm capable of performing such work must prepare all easements not shown on a plat.

Easement widths will be centered on the utility and be a minimum of twenty feet (20') wide, unless adjacent to public right-of-way, when a minimum of ten feet (10') is adequate. The reason for minimum twenty foot (20') easements is that current City Code does not have setbacks from easements. Temporary and/or permanent construction and/or slope easements will be required when appropriate, with widths as necessary to encompass work area. When trench depths dictate, or where pipe diameter or vault widths exceed four feet (4'), a wider easement may be required by the Public Works Director / City Engineer. For stormwater conveyance systems and facilities, easement widths and building setbacks shall be as established by the DOE Manual.

Easements are required to be submitted in draft, unsigned form for review and approval prior to plan approval. Any change in design that places an amenity (i.e. water, sewer, sidewalk, etc.) outside of the easement may necessitate stopping construction until plans and easements can be resubmitted and approved. The City, upon satisfactory completion of the work, will file easements.

The building setback requirement from an easement is five feet (5') or the width of eaves or other building overhang, (roof line) whichever is greater.

2.5 TRAFFIC CONTROL

The developer/contractor will be responsible for interim traffic control during construction on or along traveled roadways. Traffic control will follow the guidelines of the WSDOT/APWA Standard Specifications. All barricades, signs, coning, and flagging will conform to the requirements of the MUTCD. The Traffic Control Plan will be submitted to and approved by the City prior to the start of construction.

Signs must be legible and visible, and will be removed at the end of each work day if not applicable after construction hours.

All necessary and/or required traffic control devices will be in place prior to the beginning of the project construction, or on a daily basis during project construction.

When road closures and detours cannot be avoided, the contractor/developer will notify the Department of Public Works Construction Inspectors within a minimum of 48 hours (2 working days). The City will require a detour plan to be prepared, submitted, and approved prior to closing any portion of a City roadway.

Work can occur in the right-of-way generally between the hours of 7:00 a.m. to 6:00 p.m. except on Cook Road and State Routes 9 and 20, which shall have work hours of 8:30 a.m. to 3:00 p.m. Monday through Friday, except holidays. The Public Works Director / City Engineer may grant exceptions to these work hours on a case-by-case basis.

A Right-of-way Permit will be required before work in the right-of-way can commence.

2.6 CALL BEFORE YOU DIG

All developers/contractors are responsible for timely notification of all utilities in advance of any construction in right-of-way or utility easements. The utilities one-call Underground Location Center phone number is 1-800-424-5555; the Public Works Storm Drainage Locate number is 360-856-0151. A minimum of two (2) working days advanced notice is required.

2.7 EMERGENCY WORK POLICY FOR PRIVATE UTILITIES

Should the work of a developer/contractor result in an emergency street or utility shutdown during non-working hours, the direct overtime costs of responding City personnel, including call-out, will be billed to the responsible party. The Sedro-Woolley Public Works 24-hour emergency telephone number is 9-1-1.

CHAPTER 3 TRANSPORTATION

3.1 GENERAL CONSIDERATIONS

The overall goal of this chapter is to encourage the uniform development of an integrated, fully accessible public transportation system that will facilitate present and future travel demand with minimal environmental impact to the community as a whole.

This chapter provides minimum infrastructure development standards.

- A. For traffic impact studies (TIS), see the Sedro-Woolley Traffic Impact Study Guidelines.
- B. Classification of streets by RCW 35.78.010

Major arterials, which are defined as transportation arteries which connect the focal points of traffic interest within a city; arteries which provide communications with other communities and the outlying areas; or arteries which have relatively high traffic volume compared with other streets within the city;

Minor Arterials, which are defined as routes which serve lesser points of traffic interest within a city; provide communication with outlying districts in the same degree or serve to collect and distribute traffic from the major arterials to the local streets;

[Local] Access streets, which are defined as land service streets and are generally limited to providing access to abutting property. They are tributary to the major and secondary thoroughfares and generally discourage through traffic.

- C. Collectors, although not defined by RCW 35.78.010, are defined as streets which collect and distribute traffic from Principal Arterials, Secondary Arterials, and Collector Arterials to the local streets.

3.2 STREETS

3.2.1 General

Street design must provide for the maximum loading conditions anticipated. The width and grade of the pavement must conform to specific standards set forth herein for safety and uniformity.

3.2.2 Design Standards

The design of streets and roads will depend upon their type and usage. The design elements of City streets will conform to City standards as set forth herein, (See Minimum Street Design Standards, Table 1, in the Appendix.) and the current edition of Sedro-Woolley Road Standards (SWRS) **once it is developed**. Where there are conflicts, the SWMC shall supercede the SWRS, unless directed otherwise by the Public Works Director / City Engineer. Please bring conflicts to the attention of the Public Works Director / City Engineer. Standard design street sections are shown on details in the Appendix.

The layout of streets will provide for the connectivity of existing streets in adjoining subdivisions or of their proper projection when adjoining property is not subdivided. (See Minimum Street Design Standards, Table 1, in the Appendix.)

- A. Alignment. Alignment of Principal Arterials, Secondary Arterials and Collector Arterials will conform as nearly as possible with that shown in the Comprehensive Plan and any sub-area plans.
- B. Grade. Street grade should conform closely to the natural contour of the land. In some cases the Public Works Director / City Engineer may require a different grade. The minimum allowable grade will be 0.5 percent. The maximum allowable grade will be as listed in Table 1 of the Appendix, depending upon the street classification, or 10% max for any classification.
- C. Cross Slope. The standard cross slope is two percent (2%) for bituminous roadways. Modifications to roadways with non-standard cross slopes shall include bringing the roadway cross section into compliance with the current standards.

Table 1. Roadway Design Minimum Standards

	Notes	Principal Arterial	Secondary Arterial	Collector Arterial	Minor Collector	Local Access
Design Speed (mph)	All	45*	45*	45*	35*	25
Maximum Grade (%)	Flat	6	6	6	6	6
	Rolling	7	8	8	8	8
	Mountainous	8	10	10	10**	10**
Sidewalk Width (ft.)	CBD	11.5	11.5	11.5	11.5	11.5
	Other	8 ⁺	8 ⁺	8/5*** ⁺	8/5*** ⁺	5 ⁺
Landscape Strip Width (ft.)	CBD	5 x 5 pit every 50'	5 x 5 pit every 50'	5 x 5 pit every 50'	5 x 5 pit every 50'	5 x 5 pit every 50'
	Other	10/5 ⁺⁺	10/5 ⁺⁺	10/5 ⁺⁺	10/5 ⁺⁺	10/5 ⁺⁺
Curb/Ditch	All	Curb ⁺⁺⁺	Curb ⁺⁺⁺	Curb ⁺⁺⁺	Curb ⁺⁺⁺	Curb ⁺⁺⁺
Filter Strip (ft.)	(As Applicable)	10	10	10	10	10
Bike Lane (ft.)	(As Applicable, See Map)	6 ⁺	6 ⁺	6 ⁺	5 ⁺	5 ⁺
Lane Width (ft.)	All	12	12	11	11	11
Two-Way Lt. Turn Lane Width (ft.)		13	13	13	N/A	N/A
Parking Lane Width (ft.)	CBD	N/A	N/A	8/15 [#]	8/15 [#]	8/15 [#]
	(As Applicable)	N/A	N/A	8	8	8
Min. Right-of-Way Width (ft.)	CBD	100	80	80	80	--
	Other ^{###}	100	100/80	80/66	80/66	60
Cross-section(s)	See Appendix					

* = Max. Posted Speed + 10 mph, except school zones.

** = Grades of up to 12% may be allowed by modification, and approval from the Fire Chief (IFC D103.2).

*** = 5' if sidewalk is not placed immediately adjacent to curb (landscape strip)

+ = 11' if combined sidewalk / bike path separated from roadway

++ = 10' unless outside 8' sidewalk, then 5' min.

+++ = Unless alternative design, such as filter strip w/ swale

= 15' (13' painted width in CBD) if 55-degree diagonal parking (allowed in CBD)

= Minimum based on 0.5' behind back of walk. Phase 1 Arterial requires 80'. Phase 2 Collector Arterial = Phase 1 Secondary Arterial. (42' curb-to-curb)

- D. Width. The pavement and right-of-way width depend upon the street classification. The minimum widths allowed are shown in the Appendix.

Street widths will be measured from face of curb to face of curb on streets with Portland Cement Concrete curb, and edge of pavement to edge of pavement in ditch section streets.

- E. The General Notes in the Appendix will be included on any plans dealing with street design in addition to all applicable requirements.

Provisions for Utility Service:

- F. Existing Utilities - It is the responsibility of the developer to verify the location

of all existing and proposed underground and aerial utilities prior to design. The developer shall coordinate the design and installation with the respective utility companies.

- G. Utility Service - All properties adjacent to a new street shall be provided with water, sewer (sanitary sewer), storm drainage, electricity, telephone, cable TV, and natural gas, if available, in such a manner as to avoid future street excavation and the associated disruptions to traffic. The number and location of service “stub outs” to be installed shall be based upon the lot configuration of the properties adjacent to the proposed street improvements. Utilities shall be provided underground.

3.2.3 Naming and Numbering

Streets and roads will be named according to specific criteria. “Street” and/or “Avenue” indicates that the roadway is within the City limits, and “Road” indicates that the roadway is within or partially outside of the City limits. “Lane” or “Court” indicates short, private driveways or roadways. “Place” indicates a public cul-de-sac. “Boulevard” indicates SR-20 or a roadway with a “boulevard” road section. “Circle” or “Loop” indicates a roadway which travels in more than two cardinal directions, (N-S-E-W) and does or tends to connect to the same roadway at either end. “Way” indicates a roadway which is not in alignment with or travels contrary to the cardinal directions. (N-S-E-W) “Drive” indicates a publicly owned non-standard street.

The City of Sedro-Woolley is divided into four sections by the BNSF Railroad Right-of-Way and SR-20:

North of SR-20: “Avenues” run east-west. “Streets” run north-south. Street signs should indicate “North” or “N” preceding the street name and a suffix according to the standard. See signing below.

South of SR-20 : “Avenues” run east-west. “Streets” run north-south. Street signs should indicate “South” or “S” preceding the street name and a suffix according to the standard. See signing below.

West of BNSF Railroad: “Avenues” run east-west. “Streets” run north-south. Street signs should indicate “West” or “W” preceding the street name and a suffix according to the standard. See signing below.

East of BNSF Railroad: “Avenues” run east-west. “Streets” run north-south. Street signs should indicate “East” or “E” preceding the street name and a suffix according to the standard. See signing below.

Numbered streets are south of State Avenue.

Short, private, dead-end streets will end in “Lane.” When possible, lanes will be named so that the sound of the first syllable matches the sound of the first syllable of the main abutting street to simplify finding small private roadways. If no syllable can be matched, the first letter may be used. (i.e. Murray Lane on Murdock)

Address numbers increase away from the dividing lines cited above. Odd numbered addresses are on the south and east sides of streets. This is contrary to the County addressing system, which has odd numbers on the north and east. An address number will be assigned to all new buildings at the time the Building Permit is issued. It is then the owner’s responsibility to see that the numbers are placed clearly and visibly at the main entrance to the property or at the principal place of ingress.

The developer must check with the Planning and Engineering Departments regarding the naming of streets. This should be done at the time the preliminary plat is

submitted and again upon approval of the final plat. The Planning and Engineering Departments will ensure that the name assigned to a new street is consistent with policies of the City.

3.2.4 Signing and Striping

- A. Street signs are defined as any regulatory, warning, or guide signs. The developer is responsible for providing all street signs. Developers may contact the Sedro-Woolley Street Department for assistance, and may have the City Street Department acquire the signs at the developer's expense. Street signs will comply with the latest editions of these standards, the **SWRS (under development)**, WSDOT Standards, and the U.S. Department of Transportation MUTCD.
- B. In general, 30-inch regulatory signs shall be used.
- C. The developer will provide pavement markings and street signs, including poles and hardware, under the City's direction to establish uniformity.
- D. New Crosswalks, turn arrows, and pavement legend installations shall be 3M "Stamark 420" pavement marking tape or equivalent, applied while the mat is still warm, and before traffic is allowed onto the new surfacing. MMA or 3M "Stamark 420 and/or 380" pavement marking tapes applied with 3M "P-50 Stamark Surface Preparation Adhesive" shall be used on roadways subjected to traffic for more than 3 days. Centerlines shall be "Stamark 380" or profiled MMA ("Durastripe") and shall include Type-2 raised pavement markers. Minor Collector streets shall be marked with stripes and Type-2 raised pavement markers per Standard Plans 3-17 & 3-18. Local streets need only crosswalks marked at intersections with arterial streets.
- E. Paint shall not be used for new street pavement markings. Thermoplastic shall only be used with prior approval of the Director of Public Works / City Engineer.
- F. Storm Drainage Markings shall be placed and maintained on roadway pavements where curb & gutter does not exist which represent locations of culverts, catch basins, and pipe intersections with pipe direction(s) indicated.
- G. Street name signs will display street names and orientation designation. Public Streets will be indicated by green signs with white lettering. Private Streets will be indicated by yellow signs with black lettering, and the letters "PVT" in the lower right-hand corner of the street sign. Street name signs shall be eight inches (8") tall with six inch (6") lettering, and minimum thirty inches (30") long, but sized to match the street name. See the street name sign detail in the appendix.
- H. Fire lane signage and markings shall be consistent with the 2003 International Fire Code, section D103.6. Fire lanes shall be posted "No Parking – Fire Lane" and "Tow Away Zone." Curbing shall be painted red for vertical curb applications, and/or a four-inch (4") continuous red stripe shall delineate the limits of the fire lane and the no parking zone.
- I. Signage and Striping plans shall show the locations of all mailboxes to be located/relocated, as well as bus stop signage and markings.
- J. Signage and Striping plans shall contain a signature block for the Postmaster, Skagit Area Transit (SKAT) and the Fire Chief.

3.2.5 Right-of-way

Right-of-way width is determined by the functional classification of a street, but shall

not be less than sixty feet (60') unless otherwise approved by the Public Works Director / City Engineer. See Minimum Street Design Standards Table 1. *See street section details for specific widths.*

Right-of-way requirements may be increased if additional lanes, pockets, transit lanes, bus loading zones, operational speed, bike lanes, utilities, etc. are required as determined by the Public Works Director / City Engineer.

Right-of-way will be conveyed to the City on a recorded plat or through a statutory warranty deed.

Landscaping shall provide headlight screening when needed as determined by the Public Works Director / City Engineer, and shall comply with SWMC Chapter 17.50.

Dedication Requirements:

If the right-of-way abutting the subject property has inadequate width based on classification and the current roadway standards or as determined by the Public Works Director / City Engineer, the applicant shall dedicate a portion of the subject property parallel to the right-of-way and equal in width to the difference between the present and required right-of-way width. The Public Works Director / City Engineer may waive dedication or permit dedication of a lesser amount if:

- A. It is likely that, within the near future, the private property across the right-of-way will be required to dedicate property for public right-of-way; or
- B. The reduction in the required right-of-way width will nonetheless provide adequate room for all improvements, infrastructure, and functions within the right-of-way.

For the purpose of determining rough proportionality of right-of-way dedication to the development's impacts, the City may require up to three hundred square feet (300 sq.ft.) of right-of-way dedication per average daily trip generated by the development.

3.2.6 Private Streets

Acceptance as Public Streets. Acceptance of existing private streets as public streets will be considered only if the streets meet all applicable public street standards, including right-of-way widths.

New private streets may be allowed at the Public Works Director / City Engineer's discretion. All private roads shall, at a minimum, meet City of Sedro-Woolley Public Works Standards for street, sidewalk and planter strip. Street lighting is required at the intersection of the private street with the public right-of-way, as well as within the privately owned, but publicly accessed portion of the project. Rights and responsibilities (Conditions, Covenants, and Restrictions) of each served property must be established by written document approved by the City Attorney and recorded in the County.

3.2.7 Street Frontage Improvements

- A. All new commercial and residential (including multi-family) development, plats, and short plats will install street frontage improvements at the time of construction as required by the Public Works Department. Such improvements

may include street widening, curb, gutter, sidewalk, handicap ramps, storm drainage, street lighting, planter strips, street trees, utility relocation or undergrounding, transit facilities, and traffic signal modification or installation. Plans will be prepared and signed by a licensed civil engineer registered in the State of Washington.

- B. Frontage improvements must be installed along the entire frontage and width of each right-of-way that abuts or traverses the subject property (SWMC). Tapers and transitions beyond the project frontage are required as deemed necessary for safety purposes. The taper rate shall be [Design Speed in MPH] : 1 (e.g. 35:1 on streets with a 35 mph design speed). The requirement may be reduced to half-street frontage improvements (centerline to right-of-way line) at the discretion of the Public Works Director / City Engineer, but in no case will less than a twenty foot (20') traveled way be provided.
- C. A remodel or redevelopment of existing structures or improvements will be required to install frontage improvements, provided that:
 - 1) Within any twelve (12) month period, the value of new improvements will exceed twenty-five percent (25%) of the assessed or appraised value (whichever is greater) of all existing structures on the property, and
 - 2) Public improvements have not been installed as part of any other Land Use Permit within the immediately preceding four (4) years.
- D. Sidewalks shall be installed along the frontage of properties subject to all land-use actions and/or building permits where the value of the improvement is \$20,000 or greater.
- E. Waiver, deferral, or modification of required frontage improvements may be requested. The criteria under which the request will be reviewed are:
 - 1. The improvement as required would not be harmonious with existing street improvements, would not function properly or safely or would not be advantageous to the neighborhood or City as a whole.
 - 2. Unusual topographic or physical conditions preclude the construction of improvements as required.
 - 3. Proper vertical or horizontal alignments cannot be determined because the existing streets do not have correct alignments.
 - 4. The required improvement is part of a larger project that has been scheduled for construction in the City's Capital Improvements Program.

Requests must be made in writing to the Deputy Public Works Director / City Engineer. A written response will be provided to the request. For single-family homes, there is a processing fee. If a deferral is granted, it is commonly accompanied by a condition that the applicant sign and notarize a Local Improvement District No-Protest Waiver Agreement. Recording Fees are the responsibility of the applicant.

- F. When street widening along the ROW frontage is required. Roadway reconstruction and/or pavement overlay to centerline will also be required for any of the following reasons, or when deemed necessary by the Public Works Director / City Engineer:
1. When adding to dissimilar pavement materials.
 2. If widening is less than two (2) feet.
 3. If any open cuts are required within the existing road surface.
 4. If a uniform two percent (2%) crown slope cannot be maintained.

3.2.8 Half Street

A half street is an otherwise acceptable roadway section modified to conform to limited right-of-way on the boundary of property subject to development. See definition in Section 1.

A half street may be permitted subject to approval by the Public Works Department when:

- A. There is reasonable assurance of obtaining the prescribed additional right-of-way from the adjoining property suitable for completion of a full-section roadway; and
- B. Such alignment is consistent with, or will establish, a reasonable circulation pattern; and
- C. The right-of-way width of the half street will equal at least thirty feet (30'), or fifty percent (50%) of the required right-of-way, whichever is greater; and
- D. The traveled way will be surfaced the same as the designated street classification to a width not less than twenty feet (20'); and
- E. The half street will be graded consistent with the centerline of the ultimate roadway section; and
- F. Property line edge of street will be finished with permanent concrete curb to insure proper drainage, bank stability, and traffic safety.

3.2.9 Medians

Medians ('boulevard' cross-section) may be required to improve traffic circulation and enhance right-of-way appearance. Medians shall be required if either of the following conditions are met:

- A. There are more than two (2) through traffic lanes in either direction.
- B. The roadway segment has a crash rate greater than ten (10) crashes per million vehicle miles as determined by the Public Works Director / City Engineer.

A median will be in addition to, not part of, the specified roadway width. Medians will be designed so as not to limit turning radius or sight distance at intersections. (Medians will be a minimum of four feet (4') wide.) Landscaping and irrigation are required. (See Appendix for approved plant list.) Water quality median swales are

encouraged. Edges shall be vertical barrier curb.

3.2.10 Intersections / Access

- A. Intersections and access locations shall be permitted only at locations where safe ingress / egress is proven.
- B. Only one access shall be allowed for any parcel or parcels under contiguous ownership or associated with a single project without explicit written consent from the Public Works Director / City Engineer. Exceptions are not likely unless access spacing is greater than 330' (1/16-mile).
- C. Accesses which force vehicles to back out onto a highway, principal arterial, secondary arterial, or collector arterial are prohibited. In these cases, vehicles shall be able to turn around clear of the right-of-way line.
- D. All access locations and new intersection locations shall be permitted through the City of Sedro-Woolley access permitting process.
- E. Traffic control will be as specified in the current edition of the MUTCD or as modified by the Public Works Director / City Engineer as a result of appropriate traffic engineering studies.
- F. Street intersections will be laid out so as to intersect as nearly as possible at right angles. Sharp angled intersections will be avoided. For safe design, the following types of intersection features should be avoided:
 - 1. Intersections with more than four (4) intersecting streets;
 - 2. "Y" type intersections where streets meet at acute angles;
 - 3. Intersections adjacent to bridges and other sight obstructions;
 - 4. The preferred angle of intersection is ninety (90) degrees. Deviations from ninety (90) degrees of more than ± 5 degrees will not be allowed without written modification request from the Public Works Director / City Engineer. In no case will the angle of intersection be less than seventy-five (75) degrees nor greater than one hundred-five (105) degrees.
 - 5. Offset intersections shall be avoided.
 - 6. For intersection of two local streets, the minimum allowable curb radius shall be thirty feet (30'), which is to be measured from the radius point to the face of curb. For the intersection of a local street with any collector or arterial, the minimum radius shall be thirty-five feet (35').

On all other street intersections, the minimum allowable radii shall be thirty-five feet (35'). Turning movement diagrams may be required to demonstrate appropriate radii have been designed. Turning movement diagrams are required when trucks larger than WB-40 will be regularly using the intersection.

- G. Spacing between adjacent intersecting streets, alleys, and driveways, will be per the Sedro-Woolley Access Management Standard found in Section 3.2.13.
- H. On sloping approaches at an intersection, landings will be provided with grade not to exceed one foot (1') difference in elevation for a distance of thirty (30) feet

(3.33%) approaching any arterial or twenty (20) feet (5%) approaching a minor collector or local access street, measured from nearest right-of-way line (extended) of intersecting street.

- I. All points of access to the public street system shall be permitted using a City of Sedro-Woolley Access Permit.
- J. Whenever possible and to the greatest degree possible, access shall be shared ingress/egress to the public streets, and mutual ingress/egress access between businesses, parcels, parking lots, and buildings shall be provided within the commercial/industrial zones.
- K. All abandoned driveway areas on the same frontage shall be removed and the curbing, sidewalk, shoulders, ditch section, etc. shall be properly restored.

3.2.11 Street Layout

No street or combination of streets shall function as a cul-de-sac or dead-end longer than three hundred feet (300') without written modification approval from the City Engineer / Director of Public Works.

Temporary or permanent dead-end streets shall have an approved turn-around area (cul-de-sac) for emergency vehicles. The maximum length for a cul-de-sac street shall be three hundred feet (300') without written modification from these standards.

Hammerhead turnarounds may be used on streets that exceed one hundred fifty feet (150') and provide access to four (4) or less lots.

Emergency vehicle turnarounds shall comply with the International Fire Code, section D103.1.

Block perimeters shall be no greater than 1,760 feet (1/3 mile), as measured on center lines.

Exceptions to the block perimeter standards may be granted due to topographical constraints, environmentally sensitive areas, and adjacent development not being conducive.

An arterial grid pattern of no more than 2,640 feet (1/2 mile) shall be maintained in new development and re-development throughout the City.

A minor collector grid pattern of no more than 1,320 feet (1/4 mile) shall be maintained in new development and re-development throughout the City.

Existing arterial/collector street patterns shall be extended wherever logical. Extensions/improvements of streets which line up with arterial/collector roads shall be improved to match the classification of the existing roadway.

A local street grid pattern of 330' (16 per mile) - 528' (10 per mile) is encouraged.

Streets on steep slopes should be designed to be generally parallel, rather than perpendicular, to the slope. Maximum slope is 12%

All newly created residential lots should abut a public street right-of-way. Direct access onto arterial streets is prohibited, unless no reasonable alternative exists.

3.2.12 Alleys

The pavement width of an alley shall be no more than eighteen feet (18'), with a minimum twenty foot (20') right-of-way.

Dead-end alleys shall be avoided. If unavoidable, turn-around facilities shall be provided when the alley is longer than one hundred fifty feet (150').

The length of an alley shall be no more than three-hundred thirty feet (330') if dead-end, and five-hundred twenty-eight feet (528') if access is provided at both ends.

3.2.13 Driveways

A. General

1. Details of driveway sections are located in the Appendix.
2. All abandoned driveway areas on the same frontage shall be removed and the curbing and sidewalk or shoulder and ditch section shall be properly restored.
3. All driveways shall be constructed of Portland Cement Concrete and will be subject to the same testing inspection requirements as curb, gutter, and sidewalk construction.
4. Joint-use driveways serving two or more adjacent parcels are encouraged, and may be built on their common boundary. For the protection of all parties, it will be necessary to obtain a mutual ingress/egress easement agreement signed by all property owners and approved by the City. The agreement will be a recorded easement for all parcels of land specifying joint usage. The City can provide an example easement format.
5. Grade breaks, including the tie to the roadway, will be constructed as smooth vertical curves. The maximum change in driveway grade will be eight percent within any ten feet of distance on a crest and 10 percent within any ten feet (10') of distance in a sag vertical curve.
6. No driveway, other than one serving a detached dwelling unit, will be approved where backing onto the sidewalk or street will occur.
7. Where driveways cross sidewalks, the thickness of the concrete shall not be less than six inches (6") and shall contain welded wire fabric (WWF) reinforcement.

B. Width

1. For driveways that serve only single-family residential uses, the maximum driveway width is the greater of 24 feet (24') for a two-way driveway, or ten feet (10') for each parking stall, and twelve feet (12') for a one-way driveway, but may not exceed thirty feet (30') at the front property line.
2. For driveways that serve uses other than single-family residential uses, driveway width shall be minimum twelve feet (12') and maximum twenty feet (20') for a one-lane, one-way driveway, minimum twenty-four feet (24') and maximum thirty feet (30') for a two-lane, two-way driveway, and minimum thirty-three feet (33') and maximum forty feet (40') for a three-

lane, two-way driveway. Driveway widths may be increased in order to provide adequate width for vehicles that may be reasonably expected to use the driveway, as determined by the Public Works Director / City Engineer.

C. Driveway / Throat Length

- A. For driveways serving commercial or industrial property off of an arterial (principal or secondary) the throat length shall be a minimum of one-hundred feet (100'). The intent is to allow a combination truck-trailer to follow a passenger car into the driveway without having to stop in the traffic lane(s).
- B. For driveways serving commercial or industrial property off of a collector arterial, the throat length shall be a minimum of seventy-five feet (75') in order to allow a combination truck-trailer to pull into the driveway without having to stop in the traffic lane(s).
- C. For driveways serving residential property off of an arterial (principal or secondary) or a collector arterial, the minimum length is thirty feet (30'), and shall provide a turn-around area outside of the right-of-way.

D. Arterial and Collector Arterial Streets

- 1. Access to arterials and collector arterials may be permitted consistent with the following table. On state highways that are not designated as limited access, the minimum spacing is two hundred fifty feet (250'), or as shown in the following table, whichever is greater. Left-turn and crossing movements through standing queues of traffic may be prohibited, as determined by the Public Works Director / City Engineer.
- 2. Driveways that serve any use other than detached dwelling units may not be located closer than one hundred sixty five feet (165', 32 per mile) to any street intersection or to any other driveway, whether on or off the subject property. Driveways that serve only residential use may not be located closer than twenty-five feet (25') to any street intersection.
- 3. There may be no more than one driveway for each three hundred thirty feet (330') of lot frontage (16 per mile). The City may further limit or prohibit access to or from driveways onto arterial and collector arterial streets.
- 4. Separation distances shall be measured from centerline to centerline of roadways and driveways.
- 5. Driveways giving direct access onto arterials or collector arterials may be denied if alternate access is available. The Public Works Director / City Engineer may permit modifications from these standards.

City of Sedro-Woolley Access Management Standards

Access Classification	Median	Through Traffic Lanes	Crossing Movements	Minimum Spacing (feet)**				Minimum Signal Progression Efficiency***
				Left-Turn Out	Left-Turn In	Right-Turn Out	Right-Turn In	
1	Raised	6	Only at signalized intersections	Only at signalized intersections	330	165	165	40%
2	Raised	4	330	330	330	165	165	30%
3	2-Way Left Turn Lane	4	165	165*	165*	165*	165*	20%
4	2-Way Left Turn Lane	2	165*	165*	165*	165*	165*	10%

*Does not apply to single-family residential uses

**Greater spacing may be required in order to minimize conflicts with queued traffic.

***If the existing efficiency is less than the standard, new traffic signals may not reduce the existing efficiency.

3.2.14 Sight Obstructions

The following sight clearance requirements take into account the proportional relationship between speed and stopping distance.

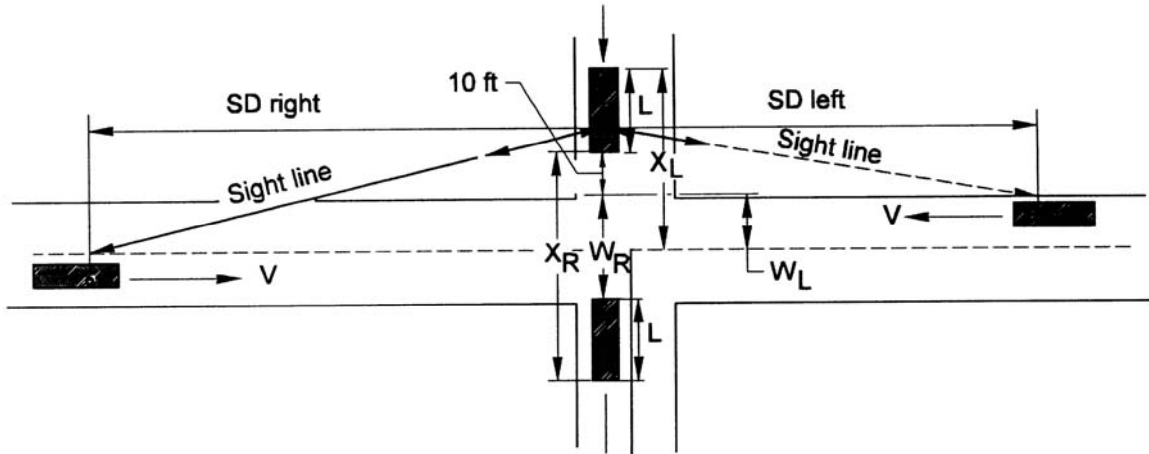
The sight distance area is a clear-view triangle formed on all intersections by extending two lines of specified length right and Left as shown below from the intersecting street along the centerline of the through street and connecting those endpoints to form the hypotenuse of the triangle. The area within the triangle will be subject to restrictions to maintain a clear view on the intersection approaches.

Intersection Sight Distance Triangle:

A. Stop or Yield Controlled Intersection

Providing adequate sight distance from a street or driveway is one of the most important considerations in ensuring safe street and driveway operation. The WSDOT Design Manual criteria given in Figures 910-16a and 16b below must be used to determine the minimum sight distance along the through roadway. If the proper sight distance cannot be achieved using the WSDOT Design Manual, then the AASHTO publication entitled *A Policy on Geometric Design of Highways and Streets* (“Green Book”) may be used. When designing intersections for commercial streets the AASHTO method must be used.

Supporting data and calculations for intersection sight distance must be submitted with the street plans for review.



SIGHT DISTANCE FOR GRADE INTERSECTION WITH STOP CONTROL

SD = Sight Distance
 t_a = Time for acceleration
 V = Design speed on the through highway
 L = Length of vehicle
 X = Length of vehicle travel

Note: If the crossroad is not level, multiply t_a by the adjustment factor to consider the grade.

L Values	
P =	19 ft
SU =	30 ft
WB 50 =	55 ft
WB 67 =	73.5 ft

Sight Distance Adjustment Factor					
Design Vehicle	Crossroad Grade, Percent				
	-4	-2	0	+2	+4
P	0.7	0.9	1.0	1.1	1.3
SU	0.8	0.9	1.0	1.1	1.3
WB 40	0.8	0.9	1.0	1.2	1.7

EXAMPLE:

Given:

Two – 12 ft lanes to be crossed by a WB-50
 Intersection angle approximately 90°
 Through highway design speed = 70 mph

Find:

The minimum required sight distance.

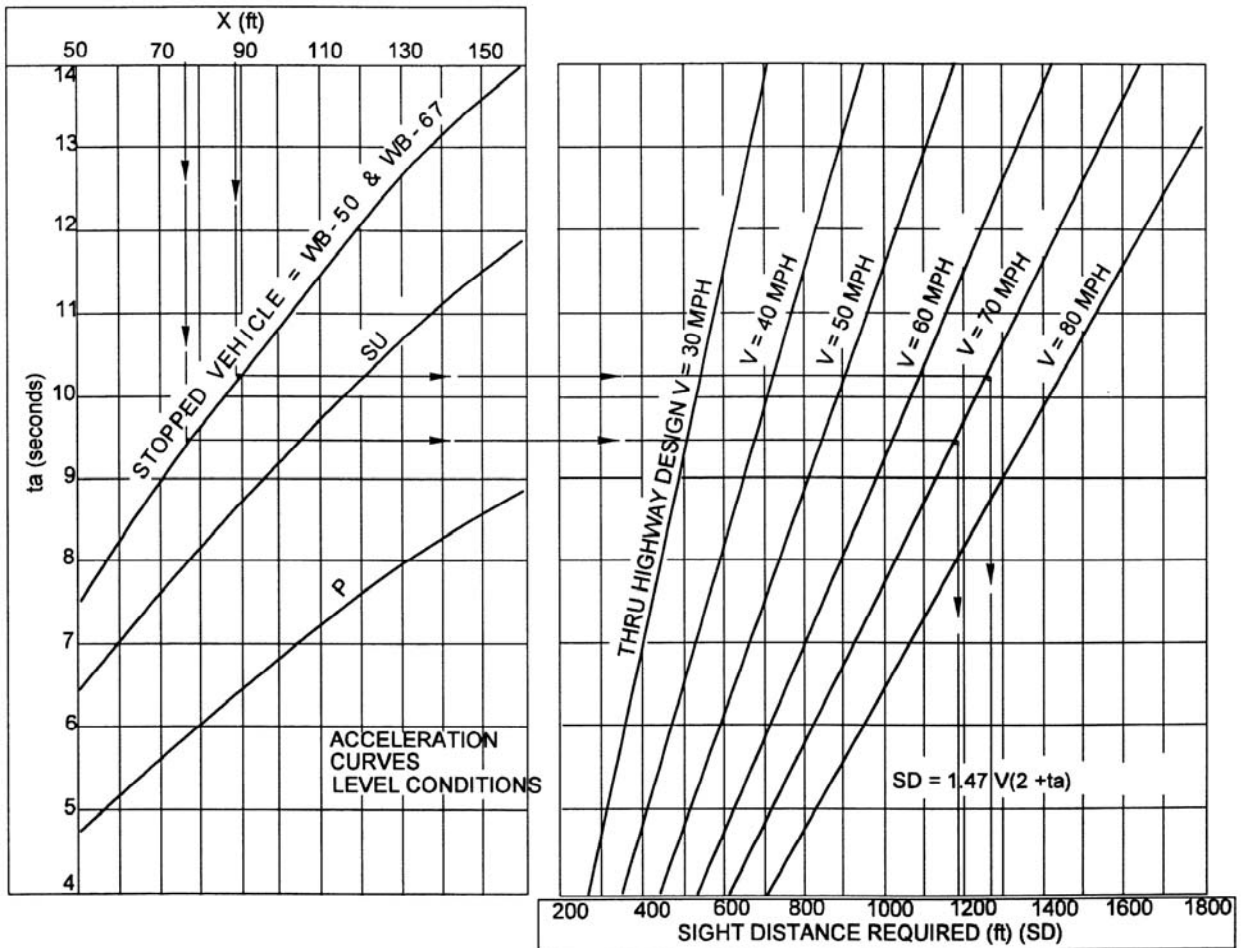
Solution:

$$X_{right} = 10 \text{ ft} + W_R + L = 10 \text{ ft} + 24 \text{ ft} + 55 \text{ ft} = 89 \text{ ft}$$

$$X_{left} = 10 \text{ ft} + W_L + L = 10 \text{ ft} + 12 \text{ ft} + 55 \text{ ft} = 77 \text{ ft}$$

From the charts as shown, the required minimum SD = 1,260 ft right and 1,180 ft left.

SIGHT DISTANCE FOR GRADE INTERSECTION WITH STOP CONTROL



B. The vertical clearance area within the sight distance triangle will be free from obstructions to a motor vehicle operator's view between a height of 2.5 feet (2.5') and ten feet (10') above the existing surface of the street.

C. Exclusions

The following are permitted to be within the area that must be clear of sight obstructions:

1. Any structure erected before the effective date (5-31-03)
2. Natural topography of the ground. However, the Public Works Director / City Engineer may require land surface modification to fulfill the intent of this division of the SWPWDS as part of any development activity on the subject property.
3. Any number of tree trunks, sign poles or utility poles if the Public Works Director / City Engineer determines that adequate visual access is available between them.

3.2.15 Surfacing Requirements

The following are the surfacing requirements for each application listed.

The minimum pavement sections listed in the street standard plans are in lieu of pavement design; and are based on subgrade California Bearing Ratio value of three (CBR = 3). Alternate pavement sections will be accepted based on soil tests to determine the actual CBR value and traffic counts, truck percentages, and twenty (20) year design life. Soil tests and a pavement design for each road classification will accompany plans submitted if other than the sections shown below are used.

Fire access lanes shall be designed with an all-weather surface so that the pavement section can withstand loading pressure of 90 psi. Fire access lanes that are not part of required circulation or parking may be paved with grass grid pavers or other low-impact design, provided they meet the minimum loading pressure.

One (1) soil sample per each five hundred (500) LF of centerline with three (3) minimum per project representative of the roadway subgrade will be taken to determine a statistical representation of the existing soil condition.

An engineering firm specializing in soils analysis shall perform soil tests.

A soils report, signed and stamped by a professional engineer licensed by the State of Washington, shall be based on actual soils tests and submitted with the plans. All depths indicated are a minimum compacted depth.

Parking areas, driveways and other vehicular circulation areas must be surfaced with a material comparable or superior to the surface material of the adjacent right-of-way. The first forty feet (40') of an access driveway must meet the standards described above.

Note that after April 1, 2006, all City projects shall use the new (current) HMA (hot mix asphalt) specifications in the 2006 or later Standard Specifications for Road, Bridge, and Municipal Construction.

All subgrade compacted to 95% modified proctor.

A. Sidewalks

Surfacing: 4" Commercial Concrete, 3000 psi or better (6" concrete where driveway crosses, and 6" reinforced commercial concrete when at highway, arterial, or collector arterial intersection)

Base: 2" Crushed Surfacing Top Course (4" C.S.T.C. when at highway, arterial, or collector arterial intersection)

Asphalt sidewalks will not be permitted unless otherwise approved by the Public Works Director / City Engineer.

Alternate:

Low-impact development (LID) designs are encouraged. Please present your LID alternate design to the Public Works Department.

Joints: Expansion joints every fifty feet (50') filled with standard one-half inch (1/2") joint filler material.

Contraction joints every five feet (5') to make standard five-foot long panels.

B. Driveway

Residential

Surfacing: 6" Commercial Concrete

Base: 2" Crushed Surfacing Top Course
(4" C.S.T.C. if subject to commercial traffic)

Alternate:

Low-impact development (LID) designs are encouraged. Please present your LID alternate design to the Public Works Department.

Non-Residential

Surfacing: 6" Commercial Concrete

Base: 4" Crushed Surfacing Base Course

C. Non-Motorized Path

Surfacing: 4" Commercial Concrete
(6" if over utility easement or heavy loads are expected)

Base: 2" Crushed Surfacing Top Course

Alternate:

Surfacing: 2-1/2" Class 1/2" PG 64-22 HMA or Class B Asphalt Concrete
(3" Class B if over utility easement or heavy loads are expected)

Base: 4" Crushed Surfacing Top Course
(6" C.S.T.C. if heavy loads are expected)

Alternate:

Low-impact development (LID) designs are encouraged. Please present your LID alternate design to the Public Works Department.

D. Minimum Pavement Section

1. Principal Arterial

Surfacing: 4" Class ½" PG 64-22 HMA or Class B Asphalt Concrete (in 2-2" lifts)
Base: ▪ 9" Class E Asphalt Concrete (3" max lifts) over
 ▪ 6" C.S.T.C.
Subbase: 12" Pit Run / Bank Run or thickness to be determined by design.

Alternate:
Surfacing: 8" Class ½" PG 64-22 HMA or Class B Asphalt Concrete (3" max lift thickness)
Base: 9" C.S.B.C.
Subbase: 18" Pit Run / Bank Run or thickness to be determined by design.

Alternate:
Surfacing: 4" Class ½" PG 64-22 HMA or Class B Asphalt Concrete (in 2-2" lifts)
Base: ▪ 6" Asphalt Treated Base (ATB)
 ▪ 12" C.S.B.C.
Subbase: 12" Pit Run / Bank Run or thickness to be determined by design.

2. Minor Arterial

Surfacing: 8" Class ½" PG 64-22 HMA or Class B Asphalt Concrete.
Base: 6" Class E Asphalt Concrete
or:
 ▪ 3.5" Class B Asphalt Concrete over
 ▪ 10" Asphalt Treated Base
Subbase: 12" Pit Run / Bank Run or thickness to be determined by design.

3. Collector Arterial

a. Commercial/Industrial/Multi-family

Surfacing: 6" Class ½" PG 64-22 HMA or Class B Asphalt Concrete.
Base: 6" of ATB and/or Crushed Surfacing.
(Thickness to be determined by design with minimum thickness of 8" if no ATB is used).
Subbase: 12" Pit Run / Bank Run or thickness to be determined by design.

b. Single Family

Surfacing: 4" Class ½" PG 64-22 HMA or Class B Asphalt

Concrete.
Base: 6" of ATB and/or Crushed Surfacing.
(Thickness to be determined by design with minimum thickness of 8" if no ATB is used).
Subbase: 12" Pit Run / Bank Run or thickness to be determined by design.

4. Minor Collector

Surfacing: 3" Class ½" PG 64-22 HMA or Class B Asphalt Concrete
Base: 2" Crushed Surfacing Top Course
6" Crushed Surfacing Base Course
Subbase: 9" Pit Run / Bank Run min. as necessary to stabilize pavement.

5. Local Street - Residential

Surfacing: 3" Class ½" PG 64-22 HMA or Class B Asphalt Concrete
Base: 2" Crushed Surfacing Top Course
5" Crushed Surfacing Base Course
Subbase: 8" Pit Run / Bank Run min. as necessary to stabilize pavement.

Alternate:

Low-impact development (LID) designs are encouraged. Please present your LID alternate design to the Public Works Department. The City has done an experimental pervious asphalt intersection at F&S Grade Road and West Jones/Klinger Street.

E. Pavement Construction

All pavement construction shall be in accordance with the Standard Specifications except as modified herein.

1. Compaction tests shall be performed by an approved geotechnical or testing firm under the direction of a professional civil engineer registered in the State of Washington.
2. Class ½" PG 64-22 HMA, Asphalt Concrete Class A, B, D, E, & F shall be compacted in lifts not to exceed three inches (3") unless approved by the Director or his designated representative. Density shall be at least 91% of maximum theoretical density (Rice Density). Asphalt concrete Class E shall be compacted in lifts not the exceed four inches (4").
3. Base Course (crushed surfacing) shall be compacted in depths not to exceed four inches (4") except top course shall be two inches (2") unless otherwise directed. Density shall be at 95% of ASTM D 1557.
4. Pit Run / Bank Run (gravel base) shall be compacted in depths not to exceed nine inches (9") unless otherwise directed. Density shall be at least 95% of ASTM D 1557. Pit Run / Bank Run (gravel base) materials shall meet WSDOT requirements.
5. Asphalt treated Base (ATB) shall be compacted in depths not to exceed four inches (4") unless otherwise directed. Density shall be at least 80% of maximum theoretical density (rice density) of the mix established by

WSDOT FOP for AASHTO T 209. ATB shall meet WSDOT requirements.

6. The prepared subgrade shall be compacted in the top six inches (6") to 95% of ASTM D 1557 for a cut section. If the underlying subgrade is too soft to permit compaction of the upper six-inch layer, the contractor shall loosen (or excavate and remove), and compact the subgrade until the top layer can meet compaction requirements. Fill sections shall be prepared in accordance with the Standard Specification Section 2-03. (14) C, Method B except ASTM D 1557 shall determine the maximum density.
7. Where asphalt concrete is placed in lifts, tack coat shall be used unless the lifts are placed on the same day and approved by the Public Works Director / City Engineer.
8. In areas where soft subgrade requires stabilization, approved geofabric may be used and/or soil stabilizing may be used. Ballast material may be used where necessary as directed by the engineer.

F. Materials

1. All materials used for road construction shall be in accordance with the applicable sections of the WSDOT Standard Specifications and as modified herein.
2. If other materials than those specified are used or concrete pavement is designed, criteria and procedures shall be approved by the Public Works Director / City Engineer.
3. Recycled materials for the pavement sections shall only be allowed by permission from the Public Works Director / City Engineer. The decision to use such materials under varying site conditions is final.

3.2.16 Road and Sidewalk Cuts

All road and sidewalk cuts within public right-of-way shall require a right-of-way permit and road cut permit.

- A. Road Cut Moratorium. Pursuant to Ordinance 1360-00 and SWMC 15.40, except for emergency situations, it is City policy to disallow open cuts made to the surfacing of any public roadway or sidewalks for the periods stated below:

Pavements:

1. Seven- (7) years immediately following new construction or reconstruction.
2. Five- (5) years immediately following major resurfacing, (greater than 1.5 inches of new surfacing) this does not include surface treatments such as BST, chip seal, fog seal, slurry seal, etc.
3. Two- (2) years immediately following a surface treatment such as BST, chip seal, fog seal, slurry seal, etc.

Sidewalks:

4. Five- (5) years immediately following a new sidewalk installation, such as in a new subdivision. Exception: Mitigation by placement /

replacement of other sidewalks in the City to the satisfaction of the Public Works Director / City Engineer.

5. Two- (2) years immediately following a municipally funded sidewalk replacement / repair. Exception: Mitigation by placement / replacement of other sidewalks in the City to the satisfaction of the Public Works Director / City Engineer.
 6. All new sidewalk installations involving an intersection or near an intersection shall be responsible for installing new ADA acceptable ramps with truncated domes detectable warning devices.
- B. If an open cut is allowed to a public roadway, all joints shall be saw cut prior to patching, and an approved crack sealer shall be used to seal all cracks and joints in the vicinity of the roadway cut(s). Crack sealant shall be rubberized asphalt as specified in WSDOT/APWA Standard Specifications Section 9-04.10 (ASTM D-1190) unless approved by Public Works Director or City Engineer. Plain emulsified asphalt, or “tack” is not an acceptable substitute.
- C. If an open cut is allowed in a cut moratorium section of pavement, the minimum mitigation is to repave ½ the width of the paved surface for a length of one hundred feet (100’) unless the road cut crosses over the centerline, which will require repaving the full-width for a length of one hundred feet (100’). Actual mitigation shall be determined by the Public Works Director / City Engineer.
- D. Temporary restoration of trenches will be accomplished by using minimum two inches (2”) Class B Asphalt Concrete Pavement when available, or two inches (2”) medium-curing (MC-250) Liquid Asphalt (cold mix), U.P.M., two inches (2”) Asphalt Treated Base (ATB), or steel plates.
- E. ATB used for temporary restoration may be dumped directly into the trench, bladed and rolled. After rolling, the trench must be filled flush with asphalt concrete pavement to provide a smooth riding surface.
- F. Prior to beginning street trenching work, the contractor will ensure that temporary patching material is stockpiled at the project site, both for completing and maintaining the patching.
- G. All temporary patches will be maintained by the contractor and will be made permanent within three (3) working days, unless approved otherwise by the Public Works Department. Patches that are not properly maintained will be identified by the City Construction Inspector and repaired by the City at the developers/contractors expense.

H. Road Cut Permits:

1. All work performed in a public right-of-way shall require the issuance of a right-of-way and street/road cut permit. Permits shall be obtained forty-eight (48) hours prior to construction (except as noted in paragraph 3).
2. The work of installing range boxes, surveying monuments, adjusting manhole rings and service boxes, or any similar work undertaken solely for the convenience of and at the order of the City shall require a permit; however the permit shall be issued on a "NO FEE" basis. The permittee will still be required to perform his work in complete compliance with all City standards and requirements.

3. Permits shall apply to emergency repairs; however, a delay of 48 hours is granted, excluding weekends and holidays, following the beginning of such repair before the permit for the same shall become a penalty permit.
4. Any permit issued shall pertain only to excavating or constructing within the City right-of-way and is in no way a permit to enter any private property adjacent to such right-of-way or easement or to alter or disturb any facilities or installations existing within the right-of-way and which may have been installed and are owned by others.
5. No permit shall be issued to any person or corporation except as set forth in paragraph 4.
6. Permits, when issued, shall be valid for a period of ninety (90) calendar days, and may be renewed for one (1) additional ninety (90) calendar day period, providing the renewal is obtained (renewal may be obtained by telephone or fax) prior to the expiration date of the permit. Failure to obtain a renewal as stated herein will require the obtaining of a new permit and payment of all applicable fees.
7. Any permit determined to be without an adequate bond as required in paragraph 4, shall be subject to immediate revocation by the City.
8. Failure of the applicant to comply with any of the terms and conditions of the permit shall be sufficient cause for cancellation of the permit and may be cause for the refusal of future permits. The permit, the privileges granted by the permit, and the obligations of the permittee shall be binding upon the successors and subcontractors of the permittee.
9. The City Inspector is authorized to inspect all work performed under the permit, including, but not limited to clearing and grubbing, compaction of subgrade, base and asphalt, forms, concrete work, structures, and materials to be used. The Inspector may be present on the site to advise contractors of these standards. The Inspector has authority to reject defective materials and workmanship.
10. No permits will be issued for roadway cuts on newly paved or overlaid roads for a period of seven (7) years, unless approved in writing by the Public Works Director / City Engineer. Services to new construction will be evaluated case by case. Emergency cuts will be permitted in accordance with paragraph 3.
11. The permittee shall submit plans to the City for approval for all projects in excess of \$10,000 in value. These plans are to be submitted prior to the pre-construction meeting and shall adhere to all City standards and policies.
12. Surveyors shall be responsible for obtaining a permit when setting new monumentation within City Right-of-Way or when replacing existing monumentation. Permits are not required for accessing existing monumentation, however, the Surveyor is responsible for repair of damages to the roadway.
 - I. If potholes are required to verify utility crossing depths and allowed to avoid an open cut, all utility potholing shall be done by vactor method, six-inch (6") or eight-inch (8") diameter, and backfilled to within six inches (6") of the top with CDF, and capped with six inches (6") of 3000 psi early strength concrete.

3.2.17 Trench Backfill and Restoration

Trench restoration will be done by a patch, patch plus overlay, or lane

reconstruction as required by the City. See trench repair details 3-2-17a, 3-2-17b, and 3-2-17c.

- A. All trench and pavement cuts will be made uniformly by saw-cutting. If edge of trench line degrades, ravel, or is non-uniform, additional saw-cutting is required prior to final patch or paving. The minimum width for asphalt patching will be three feet (3') for transverse and longitudinal trenching.
- B. All crushed surfacing materials will conform to Section 9-03.19 of the WSDOT/APWA Standard Specifications. The trench will be compacted to 95 percent maximum density, as described in Section 2-03 of the WSDOT/APWA Standard Specifications.

All granular backfill material will conform to Section 9-03.19 of the WSDOT/APWA Standard Specifications. The trench will be compacted to 95 percent maximum density, as described in Section 2-03 of the WSDOT/APWA Standard Specifications. Compaction testing shall be performed by an independent geotechnical / materials testing firm at a frequency of not less than one hundred feet (100'). More frequent testing may be required by the City, at the Public Works Director / City Engineer / City Inspector's discretion.

If the existing material is determined by the City to be suitable for backfill, the contractor may use the native material except that the top eight inches of trench will be 2½-inch minus ballast. All trench backfill materials below the roadway base and sub-base level will be compacted to 95 percent density.

When trench width is eighteen inches (18") or less, and is within the traveled way, trench will be backfilled with 150 p.s.i. controlled density fill (CDF, CLSM [Controlled Low-Strength Material], flowable fill).

Backfill compaction and placement will be performed in compliance with WSDOT/APWA Standard Specifications. All perpendicular crossings of the roadway will be backfilled 100% with CSTC.

Replacement of the asphalt concrete or Portland Cement Concrete pavement will be to WSDOT/APWA Standard Specifications.

- C. Tack will be applied to the existing pavement and edge of cut and will be emulsified asphalt grade CSS-1 as specified in Section 9-02.1(6) of the WSDOT/APWA Standard Specifications. Tack coat will be applied as specified in Section 5-04 of the WSDOT/APWA Standard Specifications.
- D. Asphalt concrete will be placed on the prepared surface by an approved paving machine and will be in accordance with the applicable requirements of Section 5-04 of the WSDOT/APWA Standard Specifications, except that longitudinal joints between successive layers of asphalt concrete will be displaced laterally a minimum of twelve inches (12") unless otherwise approved by the Public Works Director / City Engineer. Fine and coarse aggregate will be in accordance with Section 9-03.8 of the WSDOT/APWA Standard Specifications. Asphalt concrete over three inches thick will be placed in equal lifts not to exceed three inches each.

All street surfaces, walks, or driveways within the street trenching areas affected by the trenching will be feathered and shimmed to an extent that

provides a smooth-riding connection and expeditious drainage flow for the newly paved surface. Shimming and feathering as required by the Public Works Director / City Engineer will be accomplished by raking out the oversized aggregates from the Class B mix as appropriate. Surface smoothness will be per Section 5-04.3 (13) of the WSDOT/APWA Standard Specifications. The paving will be corrected by removal and repaving of the trench only.

Asphalt concrete pavement for permanent wearing course will not be placed on any traveled way between October 1st and April 30th without written approval from the Public Works Director / City Engineer.

Asphalt for prime coat will not be applied when the ground temperature is lower than 50° F, without written permission of the Public Works Director / City Engineer.

Asphalt concrete will not be placed on any wet surface, or when the average surface temperatures are less than those specified in Section 5-04.3(16) of the WSDOT/APWA Standard Specifications, or when weather conditions otherwise prevent the proper handling or finishing of the bituminous mixtures:

Section 5-04.3(16) – WSDOT/APWA Standard Specs

Compacted Thickness (ft.)	Surface Temperature Limitations	
	Surface Course	Sub-Surface Course
Less than 0.10	55° F	55° F
0.10 to 0.20	45° F	35° F
0.21 to 0.25	35° F	35° F

- E. All joints on trenching or overlays shall be sealed using rubberized asphalt as specified in WSDOT/APWA Standard Specifications Section 9-04.10 (ASTM D-1190) unless approved by Public Works Director or City Engineer.
- F. When trenching within the roadway shoulder(s), the shoulder shall be restored to its original or better condition.
- G. The final patch will be completed as soon as possible and will be completed within three days after first opening the trench. This time frame may be adjusted if delays are due to inclement paving weather, or other adverse conditions that may exist. However, delaying of final patch or overlay work is allowable only subject to the Public Works Director / City Engineer’s approval. The Public Works Director / City Engineer may deem it necessary to complete the work within the three days time frame and not to allow any time extension. If this occurs, the Contractor will perform the necessary work as directed by the Public Works Director / City Engineer.
- H. For longitudinal utility trench cuts, the City requires matching the existing pavement section or a minimum two-inch (2”) asphalt overlay, whichever is more, after trench pavement restoration or pavement reconstruction when trench cut or patch is within one travel lane.

3.3 SIDEWALKS AND CURBS

3.3.1 Design Standards

Plans for the construction of sidewalks and curbs are to be submitted as part of the street plans when applicable.

The City has set forth minimum standards as outlined in the Appendix that must be met in the design and construction of sidewalks and curbs. Because these are minimum standards, the Public Works Director / City Engineer may modify them should the Director feel circumstances require increased or decreased widths.

3.3.2. Sidewalks

Sidewalks used in conjunction with vertical curb shall be constructed of commercial concrete four inches (4") minimum thickness on two-inch (2") minimum CSTC, except where driveways cross the sidewalk, which shall be six inches (6") minimum thickness on two-inch (2") minimum CSTC. When the sidewalk and curb are contiguous, the width of the sidewalk will be measured from back of curb to back of sidewalk.

Sidewalks used in conjunction with rolled curb, no curb, or otherwise subject to occasional vehicular loadings shall be constructed of commercial concrete six inches (6") minimum thickness on two-inch (2") minimum CSTC.

Sidewalks at highway, arterial, or collector arterial intersections shall be designed and constructed of reinforced commercial concrete, six inches (6") minimum thickness on four-inches (4") minimum thickness CSTC between the PC and PT of the curb return unless the intersection is designed with a WB-67 design vehicle at 4 mph, not crossing into lanes of opposing traffic, and outside wheel tracks are a minimum of 12 inches (12") from the curb during turning maneuvers.

The width of sidewalks will be shown in the street design drawings. Those sidewalks designated in the comprehensive bike plan of the City as bike paths will, in addition, meet the minimum width requirements established for said bike paths. The Public Works Director / City Engineer will require that the design of all sidewalks provide for a gradual, rather than an abrupt, transition between sidewalks of different widths or alignments.

- A. All new sidewalks, including driveway sections, shall conform to current ADA standards, including ADA acceptable wheelchair ramps with truncated domes detectable warning devices. See section 3.3.4.
- B. Form and subgrade inspection by the City is required before sidewalk is poured.
- C. Monolithic pour of curb and sidewalk will not be allowed.
- D. For driveway requirements, see Section 3.2.13.

3.3.3 Curb

Cement concrete curb will be used for all street edges unless otherwise approved by the Public Works Director / City Engineer, or where ditch sections are approved. All curbs will be constructed of Commercial Concrete as shown on Detail 3-4.

Curb at highway, arterial, or collector arterial intersections shall be designed and constructed of reinforced commercial concrete between the PC and PT of the curb return, unless the intersection is designed with a WB-67 design vehicle at 4 mph, not crossing into lanes of opposing traffic, and outside wheel tracks are a minimum of 12 inches (12") from the curb during turning maneuvers.

Form and subgrade inspection by the City are required before curb and gutter are poured.

3.3.4 Curb Access Ramps

All sidewalks shall be constructed to provide for access ramps in accordance with the standards of the Americans with Disabilities Act and Washington State Barrier-Free code (WAC 51-30). Construction shall conform to **WSDOT Standard Plans F-3a Type 1B, Layout 3 or F-3e, Type 4B ONLY**, modified so that areas within the ramp which are not covered by truncated domes or edging are covered with standard 'diamond' expanded metal grating hatch pattern. Other types of ramps will be permitted only on a case by case basis, through written modification request and approval.

Access ramps shall be provided on each quadrant of an intersection from which pedestrian movement is permitted. They shall be oriented in the same direction as the pedestrian flow within crosswalks. Visual and tactile cues (Truncated Domes) shall also be oriented in the same direction as the pedestrian flow within crosswalks, and shall be 24" in 'depth.' Diagonally oriented curb ramps are prohibited.

Truncated Domes shall be permanent yellow in color and have the maximum spacing and minimum size dimensions as shown in WSDOT Standard Plans F-3a and F-3e, as follow:

- A = 2-3/8"
- B = 1-1/2"
- C = 7/16"
- D = 7/8"

3.3.5 Staking

All surveying and staking will be performed by engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work will be licensed by the State of Washington.

At the Pre-construction Meeting, the City will discuss staking requirements. The City may inspect construction staking prior to construction.

The minimum staking of curb and sidewalk will be as follows:

- A. Stake top back of sidewalk or top face of curb at a consistent offset for vertical and horizontal alignment every twenty-five feet (25') (fifty feet

(50') in tangent sections).

- B. Staking will be maintained throughout construction.

3.3.6 Testing

Testing will be required at the developer or contractor's expense on all materials and construction as specified in the WSDOT/APWA Standard Specifications.

3.4 BIKEWAYS

3.4.1 Design Standards

The design of bicycle paths will depend upon their type of usage. Bikeway surfacing will be as outlined in Section 3.2.15.

All minimum design standards as set forth in Section 3.2.15(E) will apply.

The minimum design standards for bikeways will be as defined in the "WSDOT Design Manual," Section 1020, Facilities for Non-Motorized Transportation.

Bikeways are categorized as follows:

- A. **Class I, Bike Path** – A separate facility for use principally by bicyclists, but may be shared with pedestrians. These facilities are separated from motor vehicle roadways.
- B. **Class II, Bike Lane** – A portion of the motor vehicle roadway that is designated by signs and pavement markings for bicycle use. These facilities are adjacent to the motor vehicle roadway.
- C. **Class III, Bike Route** – A street that is designated with signs as a bicycle route, where bicycle usage is shared with motor vehicles on the street or, less desirably, with pedestrians on a sidewalk or walkway.
- D. Class I, II, or III Bikeways as appropriate, will be provided:
 - 1. Wherever called for in the Sedro-Woolley Comprehensive Plan. (See the City of Sedro-Woolley adopted 'Bike Routes and Trails in the City of Sedro-Woolley.
 - 2. When traffic analysis or planning indicates substantial bicycle usage that would benefit from a designated bicycle facility as determined by the City except where noted herein.

3.5 PLANTER STRIP

The planter strip shall be the width specified in the Street Section Details, and shall be landscaped with a minimum of twelve inches (12") sandy-loam soil underlying street trees and sod grass. An underground irrigation system is required. Following installation, it is the responsibility of the developer to maintain the planter strip in a healthy, growing condition during the two (2) year maintenance period.

Within the Central Business District (CBD), planter strips are not required, except on State Street. Instead, trees shall be placed in four-foot by six-foot tree grates alternating with pedestrian streetlights. Detail 3-30 provides spacing and dimensions. Plantings within the

pedestrian street light planter well shall be as specified in the Appendix.

3.5.1 Street Trees

The recommended trees and minimum spacing between them is shown in the City of Sedro-Woolley Urban Forestry Manual, July 2003. Spacing is approximate – exact spacing will depend on locations of streetlights, fire hydrants, driveways, sight clearance triangles, etc., but in general, 30’ spacing is desired.

Street trees shall be selected from the approved species list shown in the City of Sedro-Woolley Urban Forestry Manual, July 2003 and shall be placed on twenty-five (25) to thirty-five (35) foot centers. At the time of installation, street trees shall be a minimum 2-inch caliper measured six inches (6”) above the ground and shall be installed as shown in City of Sedro-Woolley standard detail 3-31 (ANSI Standards) and the City of Sedro-Woolley Urban Forestry Manual, July 2003.

Street trees shall not be planted closer than ten feet (10’) from driveways/alleys, and thirty feet (30’) from intersections.

On roadways with speeds greater than thirty-five miles per hour (35 mph), street trees shall be located beyond the “Clear Zone” as defined in the WSDOT Design Manual.

3.6 ILLUMINATION

3.6.1 General

All new commercial or residential subdivisions, short plats or property development shall provide streetlights in accordance with the standards for such improvements of the City, and they will be owned and operated by the City or its designee (Puget Sound Energy). Non-standard, internal, privately owned and maintained streetlights may be acceptable as permitted by the Public Works and Planning Departments.

3.6.2 Design Standards

A public street lighting plan submitted by the applicant and approved by **Intolight** lighting services from Puget Sound Energy (PSE) and the Public Works Director / City Engineer will be required for all streetlight installations. Installations on privately owned property shall be designed to the same (IES) standards, except that ownership and maintenance is by private party or homeowners’ association. Type of installation will be as directed by the City except where noted herein.

Refer to the City of Sedro-Woolley Streetlight Installation Guidelines for specific equipment and installation guidelines and procedures. Electrical service for streetlights shall not be metered, unless private or directed by the Public Works Director / City Engineer.

Design of illumination for all roadways shall be in accordance with the most current version of the WSDOT Traffic Manual M 51, the most current version of the WSDOT Design Manual, M-22, Chapter 710, and all other City standards for illumination included within or referenced by these standards.

Intolight or an engineering firm approved by the City capable of performing such work will prepare all public streetlight designs, and those to be used by the public. The engineer will be licensed by the State of Washington. After the system is approved, completed, and accepted, a set of “as-built” mylars and electronic submittals will be submitted to the City as a permanent record.

Streetlights will be located in accordance with the City of Sedro-Woolley Street Light Standards (see Appendix). In addition, intersections will be illuminated to 1.5 times the highest footcandle requirement of the streets surrounding the intersection, if none of the intersecting streets average maintained horizontal illumination level (footcandles) is equal to or greater than one footcandle.

Exception: In residential zones, local streets intersecting local or minor collector streets do not need 1.5 times the illumination at intersections, provided a luminaire is placed at the intersection. Streetlight layout will be first considered for one-sided street placement then opposite-side street placement. Staggered spacing is preferred.

On low volume CBD streets, pedestrian lighting is required using ornamental lampposts. Standard cobra-head type streetlights are required as necessary to maintain the required average footcandle and uniformity ratio. All other street classifications require the use of standard cobra-head type streetlights. Specifications for each type of streetlight pole and spacing are included in the Appendix.

Line loss calculations shall show that no more than five percent (5%) voltage drop occurs in any circuit. Branch circuits will serve a minimum of four (4) luminaires.

Poles shall be located outside of the clear zone as defined by WSDOT.

Pole foundations will be per Standard Plan 3-39. The City will approve the poles.

Junction boxes (J-boxes) will be placed as shown in Standards Plan 3-40.

3.6.3 Staking

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington.

At the Pre-construction Meeting, the City will discuss staking requirements. The City may inspect construction staking prior to construction.

The minimum staking of luminaires will be as follows:

- A. Location and elevation to the center of every pole base.
- B. Location and elevation of each service disconnect.
- C. Location and elevation of each J-Box.
- D. Location of conduit crossings.

3.6.4 Testing

All luminaires will be subject to an electrical inspection. Lamp, photocell, and fixture to be owned by the City shall be warranted for a period of one (1) year.

3.7 SIGNALS

3.7.1 General

Signals will be installed per the requirements set forth herein. This work shall consist of furnishing and installing a complete and functional traffic control system of controllers, signals, interconnect conduit, and appurtenances as required by the City.

3.7.2 Design Standards

Signal systems will be designed in accordance with the specifications as set forth in City, Skagit County, WSDOT Design Manual, and the WSDOT/APWA Standard Specifications.

An engineering firm capable of performing such work shall prepare all public signal designs. The engineer shall be licensed by the State of Washington. All applicable requirements set forth in Section 2.1.4 shall be included. Approval of plans and specifications shall be obtained before construction commences.

Signal or strain pole foundations shall be per Standard Plan J-7a.

3.7.3 Induction Loops

Induction loops shall be constructed per WSDOT/APWA Standard Specification 8-20.3(14)C, WSDOT Standard Plan J-8a, Standard Plan 3-44, and the following:

- A. Loops shall not be cut into final lift of new asphalt.
- B. Loops shall be cut in existing asphalt or leveling course to sub-base before intersection is overlaid.

3.7.4 Staking

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington. Staking shall be maintained throughout construction.

At the Pre-construction Meeting, the City will discuss staking requirements. The City may inspect construction staking prior to construction.

The minimum staking of signals shall be as follows:

- A. Location with cut or fills to center of all pole bases.
- B. Location of junction boxes.
- C. Location of all corners of controller base.

- D. Location of service disconnects.
- E. Locations of conduit crossings.

3.7.5 Testing

All signals shall be subject to any necessary electrical inspections as well as requirements as set forth in the WSDOT Design Manual and the WSDOT/APWA Standard Specifications.

A signal system will not be approved or accepted by the City until the signal has performed correctly to the City's satisfaction for a thirty (30) day "check-out" period as outlined below.

Controller and cabinet testing by WSDOT is required. All specifications and material samples shall be submitted to the City for review and approval prior to installation.

3.7.6 Check-Out Procedure

The contractor shall call for an intersection checkout after completing the controller cabinet installation along with all other signal equipment complete with wiring connections. All parts and workmanship shall be warranted for two (2) years from the date of acceptance.

New signals shall operate without any type of failure for a period of thirty (30) days. The contractor shall have technical personnel available to respond to system failure within twenty-four (24) hours during the thirty (30) day "check-out" period.

Failure of any control equipment or hardware within the "check-out" period will restart the thirty (30) day "check-out" period.

3.8 ROADSIDE FEATURES

3.8.1 General

Miscellaneous features included herein shall be developed and constructed to encourage the uniform development and use of roadside features wherever possible.

3.8.2 Design Standards

The design and placement of roadside features included herein shall adhere to the specific requirements as listed for each feature, and, when applicable, to the appropriate standards as set forth in Section 2.1.1.

3.8.3 Staking

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington. Staking shall be maintained throughout construction.

At the Pre-construction Meeting, the City will discuss staking requirements. The City may inspect construction staking prior to construction.

3.8.4 Testing

Testing shall be conducted at the developer or contractor's expense on all materials and construction as specified in the WSDOT/APWA Standard Specifications and with a frequency as specified in the WSDOT Construction Manual.

3.8.5 Survey Monuments

- A. All existing survey control monuments that are disturbed, lost, or destroyed during surveying or construction shall be replaced with the proper monument as outlined in B or C below by a land surveyor registered in the State of Washington at the expense of the responsible builder or developer.
- B. A cast-in-place concrete surface monument per Standard Details 3-36 & 3-37 (WSDOT Standard Plans H-6 and H-7, with the exception that the letters W-S-D-O-T are not necessary) except that the Monument Case and Cover are not necessary outside of right-of-way unless subject to traffic loads, but shall be replaced with a white guard post, shall be placed as outlined below.

C. Required Monument Locations

Appropriate monuments will be placed:

- 1. At all street intersections;
 - 2. At the PC and PT's of all horizontal curves;
 - 3. At PI of all horizontal curves of streets where the PI lies within the limits of the traveled roadway;
 - 4. At all section corners, quarter corners, and sixteenth corners;
 - 5. At all corners, control points, and angle points around the perimeter of subdivisions as required by the City. 1/2" diameter (#4) or 3/4" diameter (#6) reinforcing bar or 3/4" diameter galvanized pipe is acceptable at these locations, provided they do not coincide with points of more significant monumentation.
- D. The monument case shall be installed after the final course of surfacing has been placed.

3.8.6 Bus Shelter and Amenities

- A. Bus zone requirements shall be coordinated by the applicant and shall accommodate the recommendations of the Skagit Area Transit (SKAT). These requirements may include, but are not limited to, providing district access to the site for mass transit areas, providing for bus shelters, and providing an on-site transit information area.

The applicant shall provide documentation to the City that the mass transit recommendations have been accommodated. (Contact the appropriate transit authority for standard plan details.)

- B. The Sedro-Woolley School District shall use the following criteria in placement and design of school bus stops:
 - 1. A school bus stop is required for each new residential subdivision or apartment complex where school children are to be boarding or deboarding unless it is determined by the Sedro-Woolley Way School District that a new bus stop is not required because adjacent facilities already exist for the site.
 - 2. The Sedro-Woolley School District and the City will determine placement.
 - 3. Location of school bus stops will be designed with safety as a paramount concern. Major arterials with high traffic counts should be avoided where possible, and only used when bus pullouts are available and significant protection provided for children.
 - 4. Location of school bus stops will be designed to compliment the residential environment and provide convenient location and access for neighborhood children, including sidewalk access.
 - 5. Every effort shall be made to make school bus stops and sidewalk access to school bus stops a safe and friendly pedestrian environment.
 - 6. SKAT and the Sedro-Woolley School District should make every effort to coordinate the location of bus stops.
- C. The physical location of any bus stop will be primarily determined by the following considerations: maximizing safety, operational efficiency, and minimizing impacts to adjacent property. Bus pullouts may be required on all arterial roads for safe bus berthing and to minimize impacts on traffic flow of buses stopping. Maintaining adequate separation between driveways/intersections and bus pullouts can increase the safety and efficiency of both the roadway and the transit service.
- D. All Skagit Area Transit (SKAT) and Sedro-Woolley School District bus stops shall be identified in some fashion. This may include pavement marking and bus stop signs. Contact SKAT for details on SKAT Transit sites.
- E. Passenger shelters may be required at bus pullouts, and transfer centers. Shelters may also be required at bus stops as determined by SKAT and the City.
 - 1. The transit authority will maintain the transit shelters. School bus stop shelters shall be maintained by the subdivision, Homeowner's Association, or apartment owner, whichever is appropriate.
 - 2. Shelter size shall be appropriate to anticipated service and use. The

applicable transit agency and the City will determine the size of transit shelters. School bus shelters shall provide a minimum of fifty square feet (50 sq.ft.) of shelter for each twenty-five (25) lots in a subdivision, or each twenty-five (25) units of two (2) or more bedrooms in an apartment complex.

3.8.7 Mailboxes

- A. During construction, existing mailboxes shall be accessible for the delivery of mail, or if necessary, moved to a temporary location. Temporary relocation shall be coordinated with the U.S. Postal Service. The mailboxes shall be reinstalled at the original location, or if construction has made it impossible, to a location as outlined below and approved by the U.S. Postal Service.
- B. Location
 - 1. Bottom or base of box height shall be as required by the Postmaster.
 - 2. Front of mailbox shall be eighteen inches (18") behind vertical curb face or outside edge of shoulder, with a minimum six feet (6') of sidewalk behind the mailbox. See Standard Detail 3-34.
 - 3. New developments. Clustered mailboxes are required. Contact the U.S. Postal Service for details. See Standard Detail 3-34.
 - 4. All construction plans that involve location / relocation of mailboxes shall show such locations in the plans, and have a signature block for the postmaster's approval.
- C. Mailboxes shall be set on posts strong enough to give firm support, but not to exceed 4 x 4-inch wood or material and design with comparable breakaway characteristics.

3.8.8 Guardrails

For purposes of design and location, all guardrails along roadways shall conform to the criteria of the "WSDOT Design Manual" as may be amended or revised.

3.8.9 Rock Walls (Rockeries)

- A. Rock walls may be used for erosion protection of cut or fill embankments up to a maximum height of eight feet (8') in stable soil conditions that will result in no significant foundation settlement or outward thrust upon the walls. For height over four feet (4') or when soil is unstable, a structural wall of acceptable design stamped by a licensed structural engineer shall be used. Rock walls over four feet (4') high will be subject to inspection by a geotechnical engineer as outlined in the following paragraph.

Any rock wall over 48 inches (4') high in a fill section requires an engineered design by a geotechnical engineer. The geotechnical engineer shall continuously inspect the installation of the wall as it progresses and shall submit inspection reports, including compaction test results and photographs taken during the construction, documenting the techniques used and the degree of conformance to the geotechnical engineer's design.

In the absence of such a rock wall design, walls having heights over four feet (4'), or walls to be constructed in conditions when soil is unstable, require a structural wall having a design approved by the Public Works Department or the Planning Department if outside of the right-of-way. The design of structural walls shall be by a professional structural engineer qualified in retaining wall design. Structural walls require issuance of a Building Permit prior to construction.

Rock walls over three feet (3') tall and subject to pedestrian access shall be protected by a fence or handrail per Standard Plan 3-29.

- B. The rock material shall be as nearly rectangular as possible. No stone shall be used that does not extend through the wall. The rock material shall be hard, sound, durable, and free from weathered portions, seams, cracks, and other defects. The rock density shall be a minimum of one-hundred sixty pounds per cubic feet (160 pcf).
- C. The rock wall shall be started by excavating a trench having a depth below subgrade of one half the base course or one-foot (1') (whichever is greater).
- D. Rock selection and placement shall be such that there will be minimum voids, and in the exposed face, no open voids over six inches (6") across in any direction. The final course shall have a continuous appearance and shall be placed to minimize erosion of the backfill material. The larger rocks shall be placed at the base of the rockery so that the wall will be stable and have a stable appearance. The rocks shall be placed in a manner such that the longitudinal axis of the rock will be at right angles or perpendicular to the rockery face. The rocks shall have all inclining faces sloping to the back of the rockery. Each course of rocks shall be seated as tightly and evenly as possible on the source beneath. After setting each course of rock, all voids between the rocks shall be chinked on the back with quarry rock to eliminate any void sufficient to pass a two-inch (2") square probe.
- E. The wall backfill shall consist of 1½-inch washed rock or as specified by a licensed engineer. This material shall be placed to an eight-inch (8") minimum thickness between the entire wall and the cut or fill material. The backfill material shall be placed in lifts to an elevation approximately six inches (6") below the top of each course of rocks as they are placed, until the uppermost course is placed. Any backfill material on the bearing surface of one rock course shall be removed before setting the next course.
- F. Drain rock, perforated drainage pipe, and filter fabric shall be installed at the base of the wall as per Drawing No. 3-22. The City Engineer, upon a showing by the developer that no subsurface water problem exists, may waive this pipe requirement.

3.8.10 Parking Lots

Storm water detention / retention shall be provided, and shall follow the criteria as set forth in Chapter 4 of these standards.

Plans and specifications are required by the Public Works Department and shall be submitted for review and approval by the City with respect to storm drainage discharge and on site retention or detention, matching street and/or sidewalk grades, access locations, parking layout, and to check for future street improvement conformity and City zoning regulations.

Parking lot surfacing materials shall satisfy the requirement for a permanent all-weather surface. Asphalt concrete pavement and Portland Cement Concrete pavement satisfy this requirement and are approved materials. Generally, gravel surfaces are not acceptable or approved surface material types. Low-impact design elements such as porous pavements are encouraged for parking areas. Combination grass/paving systems are approved surface material types, however, their use requires submittal of an overall parking lot paving plan showing the limits of the grass/paving systems and a description of how the systems will be irrigated and maintained. If the City determines the grass/paving system is not appropriate for the specific application, alternate approved surfacing materials shall be utilized.

The City will determine minimum requirements for parking lot capacity.

Parking shall be laid out in accordance with section 3.9 of these standards.

Parking lots, including fire lanes, shall be marked in accordance with section 3.2.4 of these standards.

3.8.11 Transportation Impact Study and Mitigation

A Transportation Impact Study (TIS) may be required whenever a project generates more than ten trips during any peak hours. A “trip” is defined as one vehicle movement either entering or exiting the subject site.

As outlined in the SWMC, in addition to frontage improvements, the City may require off-site right-of-way improvements, either abutting or not abutting the subject property. These may include traffic signals, channelization, road widening, turn lanes, or other improvements, the need for which is directly attributable to development of the subject property. At the discretion of the Public Works Director / City Engineer, pro-rata share contributions may, in some cases, be submitted for installation of the improvements.

The Transportation Impact Study shall be prepared under the direction of a registered Civil Engineer with experience in traffic engineering, in conjunction with the Sedro-Woolley Traffic Impact Study Guidelines. Final documents shall bear the seal of the responsible engineer.

3.8.12 Roadside Obstacles

Non-yielding or non-breakaway structures which may be potential hazards to the traveling public, shall be placed with due regard to safety. On urban roads with a vertical curb section, hazardous objects shall be placed at the back of the sidewalk, and as close to the right-of-way line as practical. Such an object shall not be placed in a sidewalk.

On urban roads with a speed limit of forty miles per hour (40 mph) or greater, poles and obstacles shall be placed in accordance with Drawing No. 3-13, or at the back of the sidewalk, whichever is greater.

3.9 PARKING

3.8.1 General

Parking shall conform to this section.

Standard 90 degree parking stall dimensions shall be nine feet (9') wide by nineteen feet (19') long. 90 degree compact parking stalls shall be a minimum of eight feet (8') wide by sixteen feet (16') long. Compact parking stalls shall be labeled "COMPACT."

Isle widths for 90 degree parking shall be a minimum twenty five feet (25').

Bump stops or curbing shall be provided if overlapping sidewalk or against a wall. Minimum two feet (2') of overhang shall be provided past a curb or bump stop. If no bump stop is provided, and vehicles will overhang the sidewalk or other pedestrian walkway, a minimum of 5' width shall be provided on the sidewalk or pedestrian walkway.

If head to head parking is to be used, a minimum of five feet (5') front face to front face of the bump stops or curbing shall be provided.

ADA handicap accessible parking shall have dimensions and markings which conform to WSDOT Standard Plan M-17.10-00.

ADA slope requirements: No slope shall be greater than 2.0% in any direction, including the arithmetic mean (vector sum) of the longitudinal and transverse slopes.

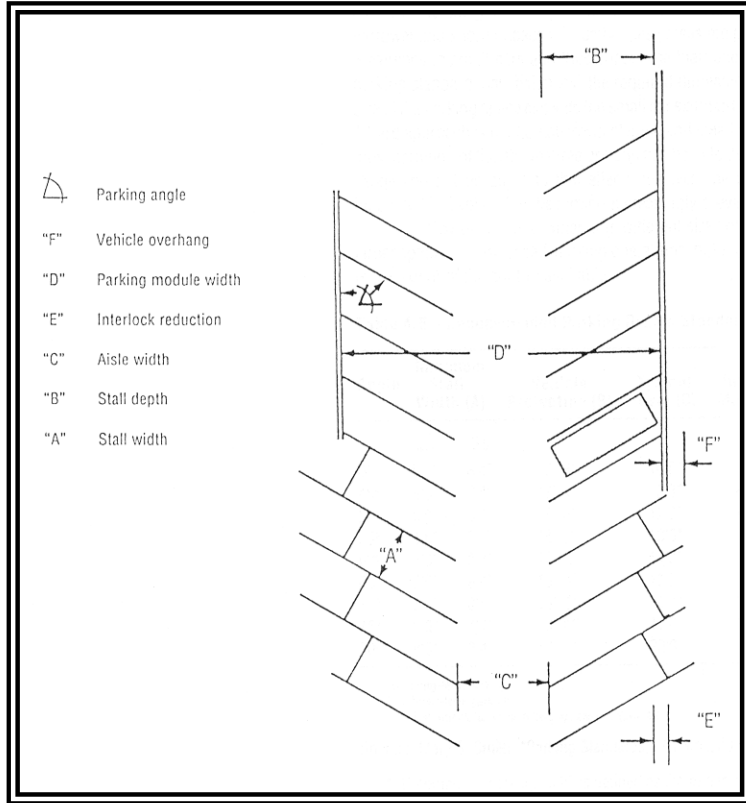
CBD Parking:

- a. 80-foot right-of-way:
 - i. 56 feet face-of -curb to face-of-curb width
 - ii. 11.5 feet sidewalks + 6-inch vertical curb
 - iii. 55 degree parking
 - iv. 13-foot stall depth
 - v. 10-foot stall width
 - vi. Two 15-foot driving lanes
 - vii. First and last stalls on each side of street shall be ADA accessible stalls. (4 ADA stalls per block)
 - viii. No parking stall shall begin or end within 25 feet of the curb return at an intersection or shall begin or end within 10 feet of an alley.

- b. 66-foot right-of-way - parking shall be laid out as 55 degree parking as shown above for 80-foot right-of-way on one side only, or shall have parallel parking on one side only to match existing sections or at the Director's discretion. Curb-to-curb width is 42 feet.

C.

PARKING LOT MODULE LAYOUT



Angle	Min. Stall Width (A)	Vehicle Projection (B)	Typical Aisle (C)	Interlock Module (D)	Reduction (E)	Overhang (F)
< 0°	9'	8'	12'	28'	-	3'
45°	9'	18.5'	14'	51'	2'	2'
50°	9'	19'	15'	53'	2'	2'
55°	9'	19.5'	15'	54'	2'	2.5'
	(10' CBD)	(13' CBD)	(30' CBD)	(56' CBD)	(N/A CBD)	(N/A CBD)
60°	9'	20'	16'	56'	1.5'	2.5'
65°	9'	20'	17'	57'	1.5'	2.5'
70°	9'	20'	18'	58'	1'	2.5'
75°	9'	20'	23'	63'	1'	2.5'
90°	9'	19'	25'	63'	-	3'

CHAPTER 4 STORM DRAINAGE

4.1 GENERAL REQUIREMENTS AND POLICIES

- A. The City of Sedro-Woolley has adopted the 1992 Department of Ecology Stormwater Management Manual for the Puget Sound Basin, the City of Sedro-Woolley Addendum to the 1992 DOE Manual, and portions of the 2001 Department of Ecology Stormwater Management Manual for Western Washington (SMMWW). The City of Sedro-Woolley addendum includes all changes and deletions to the 1992 Manual and is to be used for guidance for drainage review and design of storm water facilities within the City.
- B. Complete Building Permit Applications or complete Preliminary Plat Applications submitted PRIOR TO May 31, 2004 are vested under the 1992 DOE Manual only, and may use that manual for analysis and design. Applications submitted after May 31, 2004 must comply with the requirements outlined in the sources cited above. Combined usage of the 1992, 2001 and 2005 DOE manuals is currently allowed, as appropriate.
- C. In addition to these manuals, the City has maps available for public use pertaining to topography, the city-wide drainage system, flow control applications, and water quality treatment applications. The City of Sedro-Woolley Comprehensive Surface Water Management Plan has not yet been completed at the time of this update. This planning document will identify specific projects that the City has identified for correcting drainage problems. These projects may require developer analysis and/or financial contributions.
- D. Individual projects, both large and small, shall not put additional stormwater volume onto adjacent property(ies). The City of Sedro-Woolley shall not be held liable for impacts caused by individual projects.
- E. Individual projects, both large and small, shall not cause an adverse affect due to changes in stormwater runoff. This applies to buildings and developments which may impact the manner in which stormwater runs off a particular area. The City of Sedro-Woolley shall not be held liable for impacts caused by individual projects. Recorded Plats shall have "All runoff from impervious surfaces and roof/footing drains shall be directed so as not to adversely affect adjacent properties." Building permits will have similar stipulations incorporated into them.

4.1.1 Drainage Review

Drainage review is required for any proposed project (except those proposing only routine maintenance, repair, or emergency modifications) that is subject to a Sedro-Woolley development proposal, permit, or approval listed below, AND which meets any one of the following conditions:

- A. Is a single-family residence or small site development, OR
- B. Adds 5,000 square feet or more of **new impervious surface**, OR
- C. Proposes to **construct or modify** a drainage pipe/ditch, or receives surface and storm water runoff from a drainage pipe/ditch that is twelve inches (12") or more in size/depth, OR
- D. Contains or is adjacent to a floodplain, stream, lake, wetland, closed depression,

or other **protected critical area** as defined by SWMC, OR

- E. ~~Is a redevelopment project and the proposed development meets or exceeds the thresholds of the 2001 DOE Stormwater Management Manual for Western Washington.~~

If drainage review is required for the proposed project, the type of drainage review must be determined based on project and site characteristics as described in Section 1.1.2. The type of drainage review defines the scope of drainage requirements that must be evaluated for project compliance with this manual.

CITY OF SEDRO-WOOLLEY PERMITS AND APPROVALS
Administrative Subdivision (Short Plat)
Binding Site Plan (BSP)
Clearing and Grading
Commercial Building
Formal Subdivision (Plat)
Franchise Utility Right-of-way Use
Right-of-Way Use
Modification from Standards in SWPWDS
Access Permit
Haul Route Approval
Traffic Impact Study Approval
Shoreline Substantial Development*
Single Family Residential Building
Conditional Use*
Zoning Reclassification*
Zoning Variance*
<i>*Note: If the proposed project will require subsequent permits subject to drainage review then Public Works may allow the drainage review to be deferred until application for the later permits.</i>

4.2 ANALYSIS

4.2.1 Stormwater and Design Report

- A. A Stormwater and Design Report (S.D.R.) will be required as outlined in 4.1.1, above.
- B. A complete S.D.R. does not need to be submitted for site plan or preliminary plat approval. However, a narrative ***must*** be provided addressing the **ten (10) minimum requirements** outlined in the 2001 DOE Manual as they relate to the project. At a minimum, a Downstream Analysis is necessary. If any problem areas are identified in the downstream analysis, Further analysis may be required prior to site plan or preliminary plat approval.
- C. A complete S.D.R. must be submitted with the Building Permit Application (for commercial projects) or the Land Use Permit Application (for plats). The Bond Quantities Worksheet required in the S.D.R. for Sedro-Woolley is provided in the Appendix.

- D. All submittals shall include an electronic version of the report in Microsoft Word® or PDF format.

4.2.2 Downstream Analysis

A complete downstream analysis will be submitted with the initial application and include the following items:

A. Task 1: Define and map the study area

1. Site map w/ property lines
2. Assessor's map of the property
3. Best available topographic map with the study area boundaries and potential/existing problems
4. Other maps or diagrams to describe the study area

B. Task 2: Review resources

1. Wetland inventory maps
2. USDA Skagit County Soils Survey
3. Sedro-Woolley Public Works and Planning Department Maps
4. Other offsite drainage reports
5. FEMA maps

C. Task 3: Inspect the study area

1. Investigate any problems found in resource review
2. Locate existing / potential constrictions or lack of capacity in the existing drainage system
3. Identify existing / potential flooding of commercial or residential properties, streets, accesses, or septic drain fields
4. Identify existing / potential overtopping, scouring, bank sloughing or sedimentation
5. Identify significant destruction of aquatic habitat or organisms
6. Collect qualitative data on features such as land use, impervious surfaces, topography, and soil types
7. Collect information on pipe sizes, channel characteristics, drainage structures, and environmentally sensitive areas (streams, steep slopes, and wetlands).

8. Contact neighboring property owners about drainage problems and describe
9. Date and weather conditions at time of inspection

D. Task 4: Describe the drainage system and its existing and predicted problems

1. Show each drainage system component and problem on a map and address in the off-site analysis (Task 1), narrative, and drainage system table.
2. Include information on: pipes, culverts, bridges, outfalls, ponds, tanks, and vaults.
3. Address location, type, size, length, slope, vegetation, cover, problems, and field observations.
4. All existing / potential problems must be described regardless of whether or not the proposal will aggravate the problem.
5. Explain why the proposal will or will not aggravate the existing problem nor create a new drainage problem. Depending upon the presence of existing or predicted flooding, erosion, or nuisance problems identified in the analysis, further analysis may be required.

4.3 CONVEYANCE SYSTEMS

Stormwater conveyance systems shall meet the requirements of the 1992 DOE Manual, the City of Sedro-Woolley Addendum to the 1992 DOE Manual, the SWMC, and the most recent publication of the SWRS, unless specified differently in this document.

4.3.1 Pipe Specifications

Storm pipe within the public right-of-way shall be a minimum of twelve-inch (12") diameter. (Eight-inch (8") diameter may be permitted on cross street laterals less than sixty-six feet (66') long to avoid utility conflict or meet shallow gradient with written modification approval from the Public Works Department.) The following pipes, specified in Section 9-05 of the WSDOT/APWA Standard Specifications, are allowed:

- A. Plain or reinforced concrete storm sewer pipe;
- B. Aluminized Type-2 corrugated steel;
- C. Steel spiral rib and corrugated steel with asphalt coating Type-1;
- D. Spiral rib and corrugated aluminum;
- E. Ductile iron (must be used when cover is less than two-feet (2'));
- F. Lined corrugated polyethylene (LCPE) and solid wall polyethylene (SWPE) pipe;
- G. Smooth interior wall, corrugated exterior wall polyethylene (e.g. N-12);
- H. Smooth wall high-density polyethylene (HDPE), SDR-32.5, SDR-26, SDR-21,

SDR-17, SDR-11, depending on application.

PVC pipe (SDR-35) may be used only on private storm systems with prior approval. Cover must be a minimum of three feet (3') and a maximum of thirty feet (30').

4.3.2 Catch Basins

- A. Type-1 catch basins shall have a maximum vertical distance of 5'-0" from the rim to the invert.
- B. Type-2 catch basins shall have a maximum vertical distance of 25'-0" from the rim to the invert.
- C. Type-2 manholes (no sump) shall be used on rim to invert vertical distances of greater than 25'-0". A catch basin (with a sump) shall be placed at the nearest possible location downstream of a Type-2 manhole.
- D. Drainage structures having a depth in excess of 20' shall comply with WAC 296-24-81009 regarding access platforms, etc.
- E. Catch basins shall be spaced no greater than one-hundred fifty feet (150') for grades less than one percent (<1%), two-hundred feet (200') for grades between one and three percent (1% - 3%), three-hundred feet (300') for grades between three percent and ten percent (3% - 10%), and two-hundred feet (200') for grades greater than ten percent (>10%) (reduce spacing due to bypass).
- F. A catch basin must be provided ten to twenty feet (10' - 20') upstream of a reverse slope driveway.
- G. For new or redevelopment projects, all new or existing catch basins within the street right-of-way for the project which are used as inlets, regardless of grade, shall be fitted with vaned grates. Through curb inlet frames will still be required where conditions severely limit the effectiveness of a flat inlet.
- H. The last manhole prior to entering a stormwater facility or leaving a commercial or industrial site or parking lot subject to vehicular traffic shall be a Type-2 manhole with a tee structure on the outlet to act as spill prevention / containment.
- I. Grates shall include casting mark:

CITY OF SEDRO-WOOLLEY
Dump No Pollutants, Drains to Stream

- J. Catch basins and manholes within the limits of a new or redevelopment project located within the street right-of-way, but not in the flow line, shall be located outside of wheel tracks and:
 - 1. Removed; or, if not feasible
 - 2. Converted to a round manhole cover (detail 4-18), and
 - 3. Unless used as inlet, fitted with a solid locking lid
- K. Special-order concrete conversion risers must be used to convert the structure.
- L. After the pipe is installed, fill the gap with joint mortar which meets the standard specification 9-04.3.
- M. All Storm Sewer Pipe shall be cleaned and tested in accordance with standard

specification 7-04.3(1).

4.3.3 Open Channels

- A. Open channels shall be designed to safely convey the 100-year storm event with 1' freeboard.
- B. Open channels discharging into an enclosed system shall only enter the enclosed system through a Type-2 catch basin with a beehive grate. A Type-1 catch basin with beehive grate may be allowed for maximum peak flows less than 0.25 cfs.

4.3.4 Bridges

- A. Bridges shall be designed by a Structural Engineer, registered in the State of Washington.
- B. Bridges shall be designed according to the WSDOT bridge manual.
- C. The stream channel and floodplain shall be modeled in both the existing condition and with the proposed structure utilizing HEC-RAS modeling. A copy of the modeling inputs and outputs, and a report summarizing existing conditions and proposed modifications with all calculations must accompany submittal of all bridge plans.
- D. The stream channel underneath the bridge structure, 25' upstream, and 25' downstream shall be designed using WDFW 'stream simulation' fish passage design. ($W_{\text{channel bottom}} = W_{\text{bed}} \times 1.2 + 2'$)
- E. The bottom chord of the bridge shall be a minimum of 18" above the HEC-RAS model results for the 100-year design flood water surface elevation.

4.4 STORM WATER QUALITY TREATMENT

Treatment requirements shall include both onsite impervious area and new impervious area within the right-of-way, which is subject to vehicular traffic. Discharge of wash down and incidental storm water from petroleum handling facilities, car washes, and restaurant trash receptacles must be sent to sanitary sewer facilities. Pump islands, wash pads, and trash enclosures must be covered.

4.4.1 Storm Water Facilities within Wetlands, Streams and Associated Buffers

The City of Sedro-Woolley may allow water quality facilities within wetland buffers, streams and associated buffers subject to applicable land use and environmental requirements.

4.4.2 Water Quality Improvements for Redevelopment Projects

SWMC requires that certain redevelopment projects, such as remodels and expansions, bring water quality measures into compliance with current standards. This code section applies under any one of the following situations:

- A. Creation or addition of impervious surface having an area of 5,000 square feet or more,
- B. Construction or replacement of a building footprint or other structure having a

surface area of 5,000 square feet or more, or expansion of a building footprint by 5,000 square feet or more,

- C. Repair or replacement of 5,000 square feet or more of an impervious surface, when it is not part of a routine maintenance activity,
- D. Collection or concentration of surface water runoff from a drainage area of 5,000 square feet or more,
- E. The redevelopment project contains or directly discharges to a floodplain, stream, lake, wetland, closed depression, groundwater recharge area, or other water quality sensitive area. These areas will be determined to be water-quality sensitive by the Public Works Director / City Engineer, based on either existing information or information developed during review of the Redevelopment Application,
- F. The subject property drains or discharges to a receiving water that has a documented water quality problem,
- G. The redevelopment is a change in use and has the potential to release new or larger quantities of pollutants to the surface water system,
- H. The cost of the redevelopment project, in any one consecutive 12-month period, exceeds fifty percent (50%) of the value of the existing structures. The value of existing improvements may be determined by assessed or appraised value, whichever is greater. The value of the redevelopment project does not include normal maintenance activities, tenant improvements, or improvements required by SWMC and SWPWDS. It does include any increase in gross floor area.

4.4.3 Timing of Installation

Improvements shall be installed concurrently with the redevelopment, unless the applicant chooses to pursue incremental construction of the required improvements.

4.4.4 Requirements for Incremental Construction

To qualify for incremental construction, the applicant must:

- A. Submit a Stormwater Management Plan and Stormwater and Design Report (SDR) detailing all of the improvements required by SWMC and SWPWDS,
- B. Show that incremental construction is physically feasible,
- C. Construct portions of the required improvements according to the schedule in Section 4.4.5, below,
- D. Provide a Performance Bond and Bond Agreement,

4.4.5 Extent of Improvements Under Incremental Construction

Where the Public Works Director / City Engineer determines that incremental construction is feasible, the applicant is required to construct a portion of the required improvements using the following schedule:

Value of the project as a percentage of the value of existing structures:	Percentage of the site which must be brought up to current standards:
0% to 24%	25%
25% to 49%	50%
Over 50%	100%

Where 100% of the system is required to be improved, the improvements may be constructed over a period of no more than five years from the date of approval of the redevelopment.

If the Public Works Director / City Engineer determines that incremental construction is not physically feasible, one-hundred percent (100%) of the required water quality improvements must be installed, concurrently with the redevelopment.

4.4.6 Approval of Underground Water Quality Facilities

- A. Precast vaults will be accepted based on a structural engineer's stamp.
- B. Cast-in-place vaults will require review by a third-party structural engineer. Such review will require City approval of the third party, and all costs shall be borne by the applicant.
- C. Special inspection of poured-in-place structures will be required at the applicant's expense, and reports shall be submitted to the City prior to final.

4.4.7 Bioswale Construction

To aid in establishment of the grass, the following procedures must be followed during construction:

- A. Dormant Season (October 1 – March 31) - The contractor shall install sod along the entire length of the swale from the bottom to the 100-year/24 hour water surface elevation. The sod shall be laid in strips perpendicular to the flow line and secured with jute mat staples. Use a minimum of three (3) staples per section.
- B. If the sod's seed mix is not an approved bioswale seed mix, the sod shall be overseeded with the approved seed mix as soon as the weather is conducive to seed germination.
- C. Growing Season (April 1- September 30) - The contractor may use sod as outlined above. As an alternative, the contractor may seed the swale with the approved seed mix. Seeding may be accomplished in any of the following ways: hand seeding, hydroseeding, or seed "blanket." Seeding shall be performed in accordance with the 2001 DOE Manual. Until the turf is established, the contractor shall provide adequate irrigation and the bioswale shall be taken off-line to prevent erosion.
- D. A Turf reinforcement mat (TRM) may be required if soils are unstable, friable, or good grass establishment is not properly accomplished.

To take the bioswale off-line during turf establishment and routine maintenance, the following should be done:

- A. Storm drainage shall bypass the swale through a pipe designed for the ten-year/24 hour design storm event. Minimum pipe diameter is six inches (6”).
- B. Bypass shall occur downstream of the oil/water separator.
- C. Elbow fittings will be allowed to accommodate bends in the bypass system.
- D. Bypass piping does not have to be removed after turf establishment. The inlet and outlet of the bypass shall be plugged to prevent general use of the bypass.

4.4.8 Bioretention (Rain Gardens)

Bioretention (Rain Gardens) and other Low Impact Development measures are eligible for stormwater runoff credit. For more on Bioretention:

- A. Bioretention is an encouraged method of stormwater treatment and control. See the Puget Sound Action Team publication “Low Impact Development – Technical Guidance Manual for Puget Sound” (LID-TGM).
- B. The LID-TGM replaces most of Appendix 3D in the 2001 DOE SMMWW.

4.5 STORM WATER FLOW CONTROL REQUIREMENTS

All construction projects in the City of Sedro-Woolley shall incorporate infiltration to the greatest extent practicable.

New and/or significantly modified Single Family Residences (SFR) and Multi-Family Residential Buildings shall incorporate infiltration to the greatest extent practicable, and shall include one drywell per 1000 sq. ft. of roof area.

4.5.1 Retention/Detention (R/D) Facility Design

- A. Detention Facilities shall be used only after retention (infiltration) facilities (dry ponds, infiltration galleries, etc.) are proven to be not feasible. Sufficient infiltration (“perc”) tests shall be conducted to determine this feasibility unless depth to ground water is proven to be a limiting factor.
- B. Underground detention facilities are preferred and encouraged due to the recent risks imposed by the introduction of the West Nile Virus (WNV) to Washington. City staff is available to make suggestions in selecting the right underground solution for a project. Uses of ‘emerging technologies’ are encouraged.
- C. Detention requirements shall include both onsite impervious area and new impervious area within the right-of-way.
- D. In specific areas of Sedro-Woolley, regional detention facilities are available or are being planned. The developer is responsible for providing onsite water quality treatment facilities, but may elect to pay a “fee-in-lieu” or “latecomer’s” fee in place of providing onsite detention facilities. If this option is selected, analysis of the conveyance system between the site and the regional facility site is required. If upgrades are necessary to accommodate flows from the proposed development, the upgrades or the costs associated with the upgrades will be the responsibility of the developer.

- E. All stormwater facilities shall have a primary, outlet, (infiltration for retention ponds) a secondary outlet, and an emergency overflow outlet. All outlets from stormwater facilities shall be designed with a secondary outlet structure, set at an elevation 12” above the 100-year outlet elevation and 12” below the emergency overflow weir outlet elevation.

4.5.2 Existing Conditions

Existing conditions are defined as those that existed prior to May 1979. If in question, the “existing conditions” must be documented by the best available aerial photographs. If aerial photographs are not available, knowledge of the site by individuals familiar with the area will be admissible.

4.5.3 Approval of Underground Detention Facilities

- A. Precast vaults will be accepted based on a structural engineer’s stamp.
- B. Cast-in-place vaults will require review by a third-party structural engineer. Such review will require City approval of the third party, and all costs shall be borne by the applicant.

4.6 TEMPORARY EROSION AND SEDIMENT CONTROL (TESC)

Temporary Erosion and Sediment Control is required for all projects that will clear, grade, or disturb a site, including single-family residences, to prevent transport of sediment to drainage facilities, streams, lakes, wetlands, adjacent properties, and City streets.

At a minimum, the following TESC measures shall be installed and maintained in accordance with the 1992 and 2001 DOE Manuals and the SWMC. These facilities shall be modified and/or upgraded as needed for unexpected storm events.

- A. Prior to any clearing or grading, silt fencing shall be installed down slope of all areas to be disturbed.
- B. Prior to any clearing or grading, downstream storm drain inlet protection shall be installed. **Filter fabric wrapped under or over a grate inlet is not an acceptable method of inlet protection.**
- C. Prior to any delivery of materials or construction of any kind, a stabilized construction entrance shall be installed. The entrance shall be a minimum fifteen feet (15’) by one-hundred feet (100’) in area, with sturdy, non-woven filter fabric underlying four-inch to eight-inch quarry spalls one-foot deep.
- D. Temporary and permanent cover measures shall be provided to protect disturbed areas.
- E. Temporary cover shall be installed if a disturbed area is to remain unworked for more than seven (7) days during the dry season (May 1 to September 30) or for more than two (2) days during the wet season (October 1 to April 30). During the wet season, slopes and stockpiles 3H:1V or steeper and with more than ten feet (10’) of vertical relief shall be covered if they are to remain unworked for more than twelve (12) hours.
- F. Cover methods include mulch, erosion control nets and blankets, plastic

covering, seeding, and sod.

- G. It is the responsibility of the applicant to maintain erosion control measures in proper working condition to insure that no sediment is leaving the site.
- H. If, in the opinion of the inspector, the Public Works Director, the City Engineer, or the Planning Director, the temporary erosion control measures are not installed, installed incorrectly, or are in need of repair, a **“Stop Work Order”** may be issued until corrective action is taken. If a reinspection is necessary, a Reinspection Fee will be charged
- I. TESC measures shall comply with Division 8-01 in the *Standard Specifications for Road, Bridge, and Municipal Construction*.

4.6.1 TESC Plan

- A. A TESC Plan consisting of a report and a plan sheet showing locations of all TESC BMP measures shall be submitted for all land-disturbing activities which meet the criteria in the 2001 DOE SMMWW section I-2.4.
 - 1. This TESC Plan shall be signed and stamped by a Professional Engineer and/or Certified TESC Lead (Provide proof of current certification).
 - 2. The TESC Plan shall be clear, concise, and include ALL pertinent information and calculations, and ALL items presented on the TESC Plan checklist. (See Appendix.)
 - 3. The TESC Plan may be a portion of the S.D.R. as required, but shall be presented and submitted as a separate, stand-alone document.
 - 4. The TESC Plan sheet shall be presented in the construction plan set, and as an exhibit in the TESC Plan. The plan sheet shall show ALL BMP's to be utilized on-site. No exceptions. General notes are not sufficient to replace the plan sheet requirement. A separate plan sheet shall be utilized for each phase in a phased-construction project.
 - 5. This document including plan sheet must be present on-site for the entire duration of the project. Failure to produce the full approved TESC plan will result in a **“Stop Work Order.”**

CHAPTER 5 SANITARY SEWER

5.1 GENERAL REQUIREMENTS AND POLICIES

The City of Sedro-Woolley is committed to providing quality sanitary sewer service to all its citizens. However, extensions of the public sanitary sewer system shall not be made into critical areas, hazard areas, or the Skagit River Floodway for the purpose of providing services within critical areas, hazard areas, or the Skagit River Floodway.

5.1.1 Sanitary Sewer Requirements

- A. All sanitary sewers shall be designed to City of Sedro-Woolley standards.
- B. All sanitary sewer systems shall be designed using the Department of Ecology's most recent "Criteria for Sewage Works Design" as modified by the SWPWDS.
- C. All projects must receive a "Certificate of Sewer Availability" from the City of Sedro-Woolley Sewer Department.
- D. All public sewers shall have Manholes at each end. All new sanitary sewers with manholes at each end are to be public.
- E. All pipe and fittings will be rubber gasketed PVC, and shall meet ASTM3034 – SDR 35 specifications. Glued joints are not acceptable. 6-inch minimum diameter for residential connections, and 6-inch minimum diameter for commercial connections.
- F. A licensed bonded contractor must be employed for work in the public right-of-way.
- G. Pipe will be bedded 6 inches under and 6 inches over with pea gravel or buckshot only.
- H. All ditches within the public right-of-way will be safe guarded with barricades and must not be left open overnight.
- I. Backfill all trenches after inspection and clean up street, including pavement restoration.
- J. Any portion of the installation covered or backfilled without approval by the inspector will be uncovered. NO EXCEPTIONS.
- K. Fixtures below street elevation will be equipped with backflow preventer.
- L. Installation will not be approved without satisfactory as-built drawing.
- M. Requests for inspection will be made at least 24 hours in advance by call to the Inspection line (360) 855-0139.
- N. Sewer pipe must have at least 30 inches cover at the property line and 18 inches on private property.
- O. Side Sewers:

All sanitary sewer side sewer services:

1. Shall utilize a 'sweep-tee' or sanitary wye connection into the sanitary sewer main;
 2. Shall be 6" diameter;
 3. Shall be laid at minimum 2% slope;
 4. Shall be rubber gasketed PVC, and shall meet ASTM3034 – SDR 35 specifications. Glued joints within the right-of-way are not acceptable.
 5. Shall consist of a separate 'tap' for each lot;
 6. May not serve more than two (2) residential buildings or one (1) commercial building;
 7. Shall not serve more than one (1) building when directly fronting the right-of-way (ROW) which contains the sanitary sewer main.
 8. Shall not connect to a sanitary sewer manhole.
 9. May only be reduced to 4" diameter on private property upstream of the right-of-way cleanout on single family dwellings;
 10. All side sewer installations shall include a cleanout at the foundation, a cleanout at the property line and a cleanout every 100 feet in long pipe runs;
 11. Shall contain NO bend sharper than 1/8 (45°) without a cleanout. All cleanouts shall be brought to the surface and capped. Cleanouts within sidewalks, driveways, or other areas subject to vehicle loading shall be located within an H-20 load rated cast iron cleanout frame and cover;
 12. Shall have minimum 30" cover in the ROW.;
 13. Shall have minimum 18" cover on private property;
 14. Shall be bedded 6" under and 6" over with pea gravel or buckshot only;
 15. Shall be pressure tested for 15 minutes with 10' minimum static head above the ground surface at the foundation cleanout;
 16. Will not be approved without a satisfactory as-built drawing.
- P. All sanitary sewers shall have minimum 36" cover unless Ductile Iron (D.I) is used, where 18" minimum cover is allowed.
- Q. A sanitary sewer manhole shall be placed at all horizontal angle points, at all changes in slope, at all changes in pipe diameter, at all changes in pipe material, and at all public sewer termini.
- R. Easements shall provide a minimum 10' from the center of all pipes and structures, on all sides. Minimum twenty-foot (20') wide easement shall be provided when sewer mains are located on private property. Easement width shall conform to the following:

<u>Pipe Size</u>	<u>Pipe Depth</u>	<u>Easement Width</u>
12" and less	Less than 20'	20'
12" and less	Greater than 20'	30'
Greater than 12", up to 24"	Less than 20'	30'

Greater than 12", up to 24"	Greater than 20'	40'
Greater than 24"	All depths	City Engineer Specified

S. Sanitary sewer manholes:

1. 48" minimum diameter, with channeled bottom.
 2. Within the limits of a new or redevelopment project located within the street right-of-way shall be located outside of wheel tracks and:
 - i. Removed; or, if not feasible
 - ii. Converted to a 24-inch or 30-inch round manhole cover (detail 4-18), and
 - iii. Unless used as inlet, fitted with a solid locking lid
 3. Type 1, 2, or 3 pre-cast with pre-cast riser and cone sections. The base may be cast-in-place.
 4. All joints shall be properly aligned, fastened, and sealed. No leaking is permitted. Manholes greater than 8' deep shall be sealed externally over the full-diameter segments and joints.
 5. 0.1" drop through manhole when pipe diameter does not increase unless azimuth angle 75-degrees or greater, which shall have a 0.2" drop through the manhole. If in straight line, 0.05' drop through manhole will be allowed.
 6. If pipe diameter increases through manhole, 80% full line shall be matched to set outlet invert elevation.
 7. 300-foot maximum spacing between manholes.
 8. External drop manholes will be allowed with permission from the Public Works Department only. Internal drops are not allowed.
 9. Shall be vacuum tested prior to backfill in conformance with ASTM C1244.
- T. Sanitary sewer, if running parallel to another utility, shall maintain a minimum of 10' horizontal separation, center-center when all utility pipes are 24" I.D. or smaller diameter. 10' minimum separation from outside of pipe to outside of pipe if either I.D. is greater than 24".
- U. Minimum vertical separation is 18", with sewer being below the other utility.
- V. Unless written modification is obtained from the Director or Public Works / City Engineer, all sewer pipes shall be constructed with increasing diameter downstream.
- W. As-built plans shall be submitted prior to video inspection by the City.

- X. Contractor shall provide evidence of City approved pressure testing and City video inspection prior to acceptance of sewer mains by the City.

5.1.2 Gas Stations

- A. Gas station canopy drainage shall not be connected to the sanitary sewer or the storm sewer. (Dead-end sump)
- B. The canopy area shall be designed so that the fueling area is completely covered so that it is not exposed to regular rainfall.
- C. The canopy area shall be designed to safely collect and contain fuel spills.
- D. Storm drainage shall be designed so that the canopy area is separate from other site drainage, is completely self contained, and discharges to a blind sump for spill protection.

5.1.3 Septic System Decommissioning

Single on-site septic systems connected to single family residences are eligible for a decommissioning credit, currently \$2,855.00, provided that they are properly decommissioned.

- A. Septic tank/vault shall be pumped prior to decommissioning.
- B. If tank/vault is not totally removed, the top of the tank/vault shall be removed.
- C. If tank/vault is not totally removed, the bottom of the tank/vault shall be perforated to provide good drainage.
- D. If tank/vault is not totally removed, it shall be filled with clean sand or pea gravel.
- E. Tank/vault decommissioning inspection by the public works department is required.
 - a. If the tank/vault is totally removed, one inspection upon removal is required.
 - b. If the tank/vault is to be decommissioned in place, inspections are required just prior to backfilling and after backfilling.
 - c. Inspections are \$36 per visit.
- F. Upon completion of the septic tank/vault decommissioning, a connection to the public sewer system is required. All City side-sewer and side-sewer lateral standards shall be followed, and a side-sewer inspection is required.

5.1.4 On-Site Septic Systems

New single-lot on-site septic facilities may be allowed within the city limits when certain conditions are met:

- A. On-site septic systems are allowed only on pre-existing single lots of record which are more than 200 feet from access to the municipal sewer system.

- B. On-site septic systems are allowed only on pre-existing single lots of record which are more than 12,500 sq. ft. in size. Lot lines may be eliminated to meet this requirement.
- C. On-site septic systems shall serve single structures only.
- D. On-site septic systems shall be designed by a licensed on-site septic designer or civil engineer within their level of expertise.
- E. On-site septic systems shall be located with minimum setbacks of 20 feet from any property line or easement line to the edge of the tank or drainfield seepage area.
- F. On-site septic systems shall be located with two same-size drainfield areas identified. One of these areas shall be a 'reserve' area, with covenants and restrictions placed on both drainfield areas.
- G. On-site septic systems are not allowed to be located within the 100-foot well protection setback for any potable water well, regardless of being 'offsite.'
- H. On-site septic systems which serve multi-family structures shall incorporate O&M Manuals recorded with County Auditor's Office, and utilize drainfield areas with 30% oversizing.
- I. On-site septic systems are not allowed within the Skagit River Floodway.

5.2 SANITARY SEWER PLANS

5.2.1 Sanitary Sewer Plan Requirements

- A. See the checklist(s) in the appendix. Each item on the checklist(s) is/are required.
- B. Sanitary sewer shall be shown on its own sheet(s) with other utilities shown, but screened back so that sanitary sewer stands out.
- C. Sanitary sewer shall be shown in "plan over profile" configuration. Utilities crossing the profile shall be shown in the profile view.
- D. If "plan over profile" is not shown, (only with specific permission for simple projects from the City Engineer or Director of Public Works) then crossing information must be shown for each crossing with invert and crown of pipes crossing over other pipes. This should be done so that at a glance, it can be seen that minimum cover and separation are being met.
- E. A box shall be shown on the plan view which shows:
 1. MH # and size (diameter).
 2. invert elevation, size, and direction of each pipe entering/exiting manhole.
- F.

5.2.2 Certified As-Built Plans

A. Certification:

Certified as-builts are to be provided by a State of Washington licensed Land Surveyor. Certified as-builts shall accurately reflect all field design revisions made during the construction process. All required as-built information shall be clearly shown on the original design mylar construction drawings approved for construction by the City of Sedro-Woolley. In lieu of correcting the original design mylar drawings, a new set of AutoCAD-prepared mylars may be submitted which are based upon the as-built information. In either case, each sheet of the as-built plans shall include the following statement along with the professional surveyor's stamp and date of expiration of said stamp. The stamp shall be signed and the expiration date filled in. The statement below shall be placed on every as-built plan set and should be located in the bottom left hand corner of the as-built drawing whenever possible.

"I CERTIFY THAT THE LOCATIONS, ELEVATIONS, DEPTHS, AND AS-BUILT COMMENTS REFLECTING MATERIALS ACTUALLY USED DURING CONSTRUCTION ACCURATELY REFLECT EXISTING FIELD CONDITIONS AS DETERMINED BY ME OR UNDER MY DIRECT SUPERVISION ON THIS DATE: _____."

Professional PLS Stamp,
Expiration Date,
Signature & Date

B. Minimum Requirements:

The following as-built requirements are intended to provide a guide as to the *minimum* criteria for Developers, Engineers of record, and Licensed Land Surveyors, and should be used along with good engineering and surveying practices for the type of project and as the situation warrants.

1. General:

Identify and show on the "As-Built Plans" all existing or abandoned utilities that were encountered during construction that were not shown on the design plans or that were shown on the design plans incorrectly.

The preferred method to show locations (both for proposed construction and as-builts) is by the use of survey lines or centerlines between existing survey monuments with suitable distances (or stations) and offsets given relative to these lines.

The next acceptable method for showing locations is by the use of City of Sedro-Woolley Coordinates for each point located. For the latter method, the surveyor must clearly show which survey points or monuments he used to begin his location work, the City of Sedro-Woolley coordinates for these survey points or monuments, the bearings and distances to all temporary control points, and the coordinates of each point located.

All elevation information shall be based upon City of Sedro-Woolley data, and the proposed construction plans and as-built drawings will identify the City of Sedro-Woolley Bench Mark used and the elevation of that Bench

Mark. The use of assumed elevations is not acceptable, although the Engineering Department may at its option accept depths measured with respect to the top of existing pavement surfaces, in lieu of actual elevations, depending on the scope of the proposed project.

In addition, the following information shall be shown/corrected on the "As-Built Plans":

2. Sanitary Sewer Projects:

Manholes: locations, types, rim and invert elevations.

Sewer Lines: locations, materials, lengths, slopes, diameters, elevations along the top of the pipe at 100 foot maximum intervals, diameter and locations of side sewer tees and stubouts, and invert elevations.

Side Sewer Lines: tee locations, materials, lengths, slopes, diameter, invert elevations, and depths of buried stubouts.

Public Utility Easements: legal descriptions, widths, and location of sanitary appurtenances within the easement.

TV Reports: comparison of side sewer locations shown on sewer line as-builts with the TV reports.

3. Electronic submittal of As-built information:

- a. As-builts shall be submitted in electronic form in AutoCAD 2000 format.
- b. City Datums shall be used.

5.3 SANITARY SEWER CONSTRUCTION

5.3.1 Sanitary Sewer Construction Requirements

- A. All sanitary sewers shall be constructed using modern techniques and industry standards.
- B. Construction shall conform to the most recent version of the Standard Specifications for Road, Bridge, and Municipal Construction.
- C. No sanitary sewer shall be constructed without approved engineered construction plans. Sanitary sewers shall be constructed to match the approved engineered construction plans. Deviation from the approved plans shall require specific confirmation from the City Engineer or his designee. No exceptions.
- D. All pipe shall be pressure tested.

CHAPTER 6 SOLID WASTE

6.1 GENERAL REQUIREMENTS AND POLICIES

The City of Sedro-Woolley is committed to providing quality sanitary sewer service to all its citizens.

6.1.1 Solid Waste Enclosure Requirements

- A. All solid waste enclosures shall be designed to City of Sedro-Woolley standards.
- B. See Solid Waste Enclosure Standards in the Appendix.

CHAPTER 7 WATER

7.1 GENERAL REQUIREMENTS AND POLICIES

Water within the City Limits of Sedro-Woolley is provided by Skagit P.U.D. #1.

7.1.1 Water Plan Set Requirements

- A. The water plan set shall contain water plans in plan over profile format, showing all utility crossings in profile.
- B. All utility crossings shall show clear distance from crown of bottom utility to invert of top utility, called out in box or balloon format.
- C. Water plans shall be shown on their own plan sheet(s) and shall be emphasized with other utilities shown screened back.
- D. Concurrence shall be obtained by the applicant or agent of the applicant by the Sedro-Woolley Fire Department (S.W.F.D.), the Skagit P.U.D. #1, and the Director of Public Works / City Engineer. Approval shall be sought in the following order: Fire Chief; Skagit P.U.D. #1; Director.
- E. “Looping” of the water system is to be maximized. Dead-end lines are permitted only when circumstances specifically do not allow “looping.”
- F. The location of the nearest fire hydrant(s) shall be clearly indicated on the plan with length and direction to hydrant listed.
- G. Fire hydrant detail shall list hydrant with “Storz” fitting and showing the hydrant barrel painted red and the caps painted white, as approved by the Sedro-Woolley Fire Department.

7.1.2 Fire Hydrant Requirements

- A. Fire hydrants are owned and operated by the Sedro-Woolley Fire Department (S.W.F.D).
- B. Fire hydrants shall be placed in conjunction with the International Fire Code, Section 508 – Fire Protection Water Supplies.
- C. All new fire hydrant installations or repositionings shall be Clow ‘Medallion’. Repositioned fire hydrants shall be examined and certified acceptable prior to re-installation.
- D. Fire hydrants shall be painted Safety Red with White top and caps.
- E. Fire hydrants shall be placed so that the farthest portion of any and all structures are within four-hundred feet (400’) **as measured by an approved route around the exterior of the facility or building** (IFC 508.5.1) with no exceptions; that being a line between and around the perimeter of obstacles and buildings. Fire hydrants shall also be placed as designated by the City Engineer / Director of Public Works and/or Fire Chief.

- F. A certificate of water availability from the Skagit P.U.D. #1 shall be submitted with all land use applications, certifying that satisfactory fire flow is available.
 - 1. If satisfactory fire flow is not available at the time of the water availability certificate, the applicant shall submit plans representing proposed improvements to the water system which will allow satisfactory fire flow.
- G. A blue double-sided reflector shall be placed in the center of the adjacent pavement immediately perpendicular to the fire hydrant to indicate its location.