



Large On-site Sewage Systems (LOSS) Documents Cross Reference: Health & Ecology

A Comparison of LOSS Submittal Requirements for the Department of Health and the Department of Ecology

This information assists owners of Large On-site Sewage Systems (LOSS) regulated by Department of Health (Health) who apply for or receive wastewater treatment funding from Department of Ecology (Ecology) or others that rely on report requirements established in Ecology regulations. Ecology guidance such as the “Orange Book” is not referenced in this document. This cross reference identifies where overlap occurs for information required in Health documents and Ecology documents. In these cases the information required by one agency can also be used to satisfy requirements of the other.

The first section of this cross reference lists Health WAC (with detail) and the corresponding Ecology WAC. The second section lists the Ecology WAC (without detail) and the corresponding Health WAC.

WAC sections covered in this document:

Health (beginning on page 2):

Pre-design Report	WAC 246-272B-03000
Site Risk Survey	WAC 246-272B-03200
Hydrogeology Report	WAC 246-272B-03300
Engineering Report	WAC 246-272B-04000
Management Plan	WAC 246-272B-04100
Operations & Maintenance Manual	WAC 246-272B-04200
Monitoring & Reporting Plan	WAC 246-272B-04300
Plans and Specifications	WAC 246-272B-04400
Post-construction Documentation	WAC 246-272B-05400
Operator Qualifications and Responsibilities	WAC 246-272B-07200

Ecology (beginning on page 23):

General sewer plan	WAC 173-240-050
Engineering report	WAC 173-240-060
Plans & specifications	WAC 173-240-070
Construction quality assurance plan	WAC 173-240-075
Operations & maintenance	WAC 173-240-080
Declaration of construction completion	WAC 173-240-090
Requirement for certified operator	WAC 173-240-100

For additional information: LOSS Program / 360-236-3330 or wastewatermgmt@doh.wa.gov
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WAC 246-272B-03000

This Health Citation & Requirement: WAC 246-272B-03000 Predesign Report	Satisfies This Ecology WAC Requirement
At a minimum, the predesign report must include the following information:	
(1) Contact information for the owner and design engineer	173-240-060(3)(a) Engineering Report
(2) Site address, legal description, and name of the county where the project is located;	
(3) Vicinity map showing:	173-240-050(3)(d)(i) General Sewer Plan
(a) The project site;	
(b) Project property boundaries;	
(c) Parcels surrounding and adjoining the project property boundaries; and	
(d) Zoning and current land use of all identified properties and parcels.	
(4) Site map scaled to clearly show:	173-240-050(3)(d) General Sewer Plan
(a) Project boundaries;	
(b) Topographic contours with maximum intervals of five feet, including the data source for the map;	
(c) Cuts, banks, fill;	
(d) Slopes greater than thirty percent;	
(e) Areas of soil or slope instability;	
(f) Bedrock outcrops;	
(g) All items identified in WAC 246-272B-06050, Table 3 that are within the minimum horizontal setback distance noted in the table;	173-240-050(3)(j) General Sewer Plan
(h) All wells within one thousand feet of the project property boundaries;	173-240-050(3)(j) General Sewer Plan
(i) Location of one hundred-year flood boundaries, if any, within the mapped area;	173-240-060(3)(h) Engineering Report
(j) Proposed primary and reserve drainfield boundaries; and	
(k) Test pits.	
(5) Identification of tribal lands and archaeological resources within one thousand feet of the primary or reserve drainfield perimeter.	
(6) A description of underground utilities at the site;	
(7) USDA NRCS soil map and mapping unit description;	



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This Health Citation & Requirement: WAC 246-272B-03000 Predesign Report	Satisfies This Ecology WAC Requirement
(8) A narrative discussion of the LOSS project describing at a minimum:	
(a) The development with specific residential and nonresidential facilities identified;	173-240-050(3)(a), (e) General Sewer Plan
(b) The drinking water source serving the development;	173-240-050(3)(d)(vii) General Sewer Plan
(c) The total land area available, in acres, for the development and all LOSS components;	
(d) Applicable parts of the city, town, or county comprehensive plan or development regulations for all property the LOSS will be sited on and the development it serves, including the primary and reserve drainfield areas;	
(e) How the LOSS project complies and is consistent with local comprehensive plans and land use and development regulations, including standards developed for any sensitive or critical areas designated by a city, town, county, or local health jurisdiction within one thousand feet of the drainfield perimeter;	173-240-050(3) General Sewer Plan
(f) Any city, town, county, or local health jurisdiction requirement for the property to connect to public sewer;	173-240-050(3)(a) General Sewer Plan; 173-240-060(4)(c) Engineering Report
(g) Expected project design flow and waste strength;	173-240-060(3)(c) Engineering Report
(h) Proposed treatment and dispersal method; and	173-240-050(3)(k) General Sewer Plan
(i) A description of how the owner proposes to meet the ownership and management requirements in WAC 246-272B-04100(2).	173-240-050(3)(b) General Sewer Plan
(9) Soil logs meeting the requirements in WAC 246-272B-03400 from the primary and reserve drainfield areas;	
(10) Soil type and hydraulic loading rate using Table 1 in WAC 246-272B-03400;	
(11) Narrative describing the physical characteristics of the primary and reserve drainfield site including:	
(a) Topography and slope;	
(b) Vegetation;	
(c) Predominant soil type;	
(d) Vertical separation;	



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This Health Citation & Requirement: WAC 246-272B-03000 Predesign Report	Satisfies This Ecology WAC Requirement
(e) Site drainage patterns; and	
(f) Water table and any restrictive layers.	
(12) Calculations and a discussion showing that the proposed site meets the minimum land area requirements of WAC 246-272B-03500 using the values in Table 2 in that section for the identified soil types; and	
(13) If available, a copy of the SEPA checklist and determination or other environmental review and local planning determination for the development.	173-240-050(3)(n) General Sewer Plan

WAC 246-272-03200

This Health Citation & Requirement: WAC 246-272B-03200 Site Risk Survey (SRS)	Satisfies This Ecology WAC Requirement
At a minimum, the SRS must include the following information:	
(1) Design flow and waste strength.	
(2) A description of the physical characteristics of the primary and reserve drainfield site including:	173-240-060(4)(a) Engineering Report
(a) Predominant soil type;	
(b) Vertical separation; and	
(c) Water table.	
(3) Identification of sensitive or critical areas designated by a local, state, or federal agency if the primary or reserve drainfield is located within the boundaries of the area including, but not limited to:	
(a) Critical aquifer recharge area;	
(b) Sole source aquifer;	
(c) Designated wellhead protection area;	
(d) Marine recovery area; and	
(e) One hundred-year flood plain.	
(4) Identification of sensitive lands or resources within one-half mile of the primary or reserve drainfield perimeter including, but not limited to:	
(a) Fish hatcheries;	
(b) Shellfish growing areas; and	
(c) Water recreation areas.	
(5) Basic hydrogeology information for the primary and reserve drainfield including, but not limited to:	

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This Health Citation & Requirement: WAC 246-272B-03200 Site Risk Survey (SRS)	Satisfies This Ecology WAC Requirement
(a) Well logs for all wells within one thousand feet;	173-240-050(3d)(vi) General Sewer Plan
(b) Depth to groundwater including perched groundwater and deeper aquifers;	173-240-060(4)(b)(i) Engineering Report
(c) Vadose zone characteristics, including the presence of impermeable layers or aquitards;	173-240-060(4)(a) Engineering Report
(d) Direction of groundwater flow;	173-240-060(4)(b)(i) Engineering Report
(e) Groundwater quality information, including nitrate and fecal coliform;	
(f) Nitrate screening balance; and	173-240-060(4)(b)(ii) Engineering Report
(g) Potential hydraulic continuity to surface water.	
(6) Topographic map that clearly shows site features including:	
(a) Map scale and north arrow;	
(b) Section, township, and range where project is located;	
(c) Project or property boundaries;	
(d) Location of proposed primary and reserve drainfields;	173-240-060(4)(d) Engineering Report
(e) Location of areas prone to flooding including any designated one hundred-year flood plain boundaries;	173-240-060(3)(h) Engineering Report
(f) Unstable areas prone to significant surface or mass erosion;	
(g) Direction of groundwater flow;	173-240-060(4)(b)(i) Engineering Report
(h) Other contaminant sources including other OSS;	
(i) Critical area boundaries or other sensitive areas listed in subsections (3) and (4) of this section;	
(j) Surface water and wetlands within one thousand feet of the proposed drainfield perimeter; and	
(k) Active and abandoned wells within one thousand feet of the proposed drainfield perimeter.	
(7) Other information the department may request to determine public health and environmental impacts from the LOSS.	

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WAC 246-272B-03300

This Health Citation & Requirement: WAC 246-272B-03300 Environmental Review - Hydrogeology Report (HGR)	Satisfies This Ecology WAC Requirement
(1) The department will determine the scope of the HGR based on the site conditions identified in the SRS, if one has been completed.	
(2) If an SRS has not been completed, the owner shall include the information listed in WAC 246-272B-03200 in the HGR.	
(3) The HGR must include sufficient site specific information and analysis for the department to determine the public health and environmental impacts of the LOSS, including:	
(a) Further analysis of the site conditions identified in the SRS; and	173-240-060(4)(b)(iii) Engineering Report
(b) Mitigation to reduce or eliminate potential impacts.	
(4) The HGR must also include a ground and surface water monitoring plan as appropriate.	173-240-060(3)(o) Engineering Report

WAC 246-272B-04000

This Health Citation & Requirement: WAC 246-272B-04000 Engineering Report	Satisfies This Ecology WAC Requirement
(1) The engineering report must outline the scope of the LOSS project, provide necessary background information, the design guidance or standards used, calculations for developing plans and specifications, and impact on public health and the environment.	173-240-060(3)(a) Engineering Report
(2) The engineering report must be prepared using design and technical standards in Part 6 of this chapter and consistent with good engineering practice.	
(3) The engineer may incorporate by reference, or include in an appendix, information developed for the site review or environmental review, if still relevant.	
(4) At a minimum the report must include:	
(a) An executive summary providing a brief overview of the following:	173-240-060(3) Engineering Report
(i) Nature of the project, such as a new development, expansion, phased construction;	173-240-050(3)(a) General Sewer Plan
(ii) Location of the LOSS;	

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This Health Citation & Requirement: WAC 246-272B-04000 Engineering Report	Satisfies This Ecology WAC Requirement
(iii) Proposed ownership and management;	173-240-050(3)(b) General Sewer Plan
(iv) Facilities served when the development is complete;	173-240-050(3)(c) General Sewer Plan
(v) Design flow;	173-240-060(3)(c) Engineering Report
(vi) Wastewater characteristics and strength;	173-240-060(3)(c), (d) Engineering Report
(vii) Site and soil characteristics; and	173-240-060(4)(a) Engineering Report
(viii) Treatment and dispersal proposal;	173-240-060(3)(d), (f), (h) Engineering Report
(b) A narrative providing a detailed explanation of the following:	
(i) Facilities served when the development is complete;	173-240-060(3)(c) Engineering Report
(ii) Existing or anticipated wastewater characteristics and strength;	173-240-060(3)(c) Engineering Report
(iii) Proposed treatment and dispersal method;	173-240-060(3)(f) Engineering Report
(iv) Local comprehensive plans, land use and development regulations, sensitive area designations, and requirements by local jurisdictions to connect to public sewer that apply to property the LOSS will be sited on and the development to be served, including the primary and reserve drainfield areas;	
(v) Existing sewer or water systems on the development site; and	173-240-050(3)(d)(ii), & (3)(d)(vii) General Sewer Plan
(vi) Source of drinking water and water system purveyor for properties served by the LOSS;	173-240-050(3)(d)(vii) General Sewer Plan
(c) A copy of the applicable parts of:	
(i) City, town, or county comprehensive plans or development regulations for property the LOSS will be sited on and the development it serves, including the primary and reserve drainfield areas; and	
(ii) City, town, county, or local health jurisdiction requirements for the property to connect to public sewer;	173-240-060(4)(c) Engineering Report

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This Health Citation & Requirement: WAC 246-272B-04000 Engineering Report	Satisfies This Ecology WAC Requirement
(d) A statement that the LOSS and development are consistent with the regulations and designations identified in (c) of this subsection;	173-240-050(3)(m),(n) General Sewer Plan
(e) An explanation of how the LOSS and the development are consistent with the local comprehensive plan, land use and development regulations, and sensitive and critical areas. The explanation must provide sufficient information to demonstrate that the LOSS and the development are consistent with these regulations and designations, and may include copies of relevant portions of the local comprehensive plan, land use or development regulations, sensitive area designations, or other related documents pertaining to the LOSS site and proposed development;	
(f) A copy of the SEPA checklist and determination or other environmental review and local planning determination for the project;	173-240-050(3)(n) General Sewer Plan
(g) A vicinity map showing the project's location;	173-240-060(3)(b) Engineering Report
(h) A map and development plan of the development area scaled to clearly show the following:	
(i) Total development area;	173-240-060(3)(b) Engineering Report
(ii) Proposed primary and reserve drainfield areas;	
(iii) Any surface water, wetland, or well within one thousand feet of the drainfield perimeter;	173-240-050(3)(d)(vi) General Sewer Plan
(iv) Topographic contour lines and elevations shown at intervals of ten feet or less and verified by field measurements;	173-240-050(3)(d)(v) General Sewer Plan
(v) Drainage basins and drainage patterns throughout the development site;	
(vi) Any existing or proposed storm water systems or retention basins on the development site;	
(vii) Location of one hundred-year flood boundaries within one thousand feet of the drainfield perimeter;	173-240-060(3)(h) Engineering Report
(viii) Existing or proposed structures, roads, and parking areas adjacent to the proposed drainfield;	173-240-050(3)(d)(v) General Sewer Plan

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This Health Citation & Requirement: WAC 246-272B-04000 Engineering Report	Satisfies This Ecology WAC Requirement
(ix) Location of existing and proposed encumbrances affecting system placement; and	
(x) All water, sewer, greywater, reclaimed water, storm water, irrigation lines within ten feet of the project or property boundaries;	173-240-050(3)(d)(ii), (iii), (iv), (vii) General Sewer Plan
(i) An analysis of the site's capacity to treat and dispose of the proposed quantity and quality of sewage;	173-240-060(4)(b)(iii) Engineering Report
(j) SRS as described in WAC 246-272B-03200, if one was completed;	173-240-060(3)(e) Engineering Report
(k) HGR as described in WAC 246-272B-03300, if one was completed;	173-240-060(3)(e) Engineering Report
(l) Soil characterization as described in WAC 246-272B-03400 if updated since the department approval of the predesign report;	
(m) A discussion of proposed treatment processes addressing:	
(i) Wastewater characterization, flow patterns, and any site specific constituents of concern of the wastewater;	173-240-050(3)(g), (h) General Sewer Plan
(ii) Treatment standard approved by the department in the site review and environmental review process, and the expected treatment performance of the proposed treatment technology;	173-240-060(3)(d), (g) Engineering Report
(iii) Proposed O&M activities; and	
(iv) Any alternative treatment processes evaluated;	173-240-050(3)(k) General Sewer Plan
(n) Confirmation, including calculations, that the development and LOSS design complies with the minimum land requirements in WAC 246-272B-03500;	
(o) Design criteria, calculations, and any other supporting material needed to develop the plans and specifications, including:	
(i) Design flow;	
(ii) Soil type and hydraulic loading rate;	173-240-060(4)(a), (b) Engineering Report
(iii) Pipe sizes;	
(iv) Hydraulic evaluation and drainfield dosing calculations to determine dose volume, orifice size, spacing, residual head;	



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This Health Citation & Requirement: WAC 246-272B-04000 Engineering Report	Satisfies This Ecology WAC Requirement
(v) Pump selection with pump and system curves;	
(vi) Tank size; and	
(vii) Treatment component design calculations, if applicable, and supporting performance information;	
(p) Proposed monitoring and sampling for influent, effluent, and, if necessary, water quality monitoring to demonstrate treatment standards will be met on an ongoing basis;	173-240-060(4)(o) Engineering Report
(q) A summary description of how the LOSS will be owned and managed after construction;	173-240-060(3)(a) Engineering Report
(r) A copy of the legal title or recorded easement to the property where the LOSS will be located showing that the owner retains legal control of the drainfield and LOSS components. If there will be sewage tanks on individual lots, the report must include a plan for obtaining easements if not already established;	
(s) Discussion of the construction process summarizing how the requirements of Part 5 will be met;	173-240-075(2)(a), (f) Construction QA Plan
(t) Updated general information, including changes to the following:	
(i) Name, telephone number, fax number, mailing address, and e-mail address of:	
(A) Owner of the LOSS proposal;	
(B) Authorized representative of the owner, if any;	
(C) Legal owner of property where the LOSS is proposed to be installed;	
(D) Design engineer;	
(E) Certified operator, if known; and	
(F) Any other project contact;	
(ii) Project site address, county, tax parcel number, and legal description; and	
(u) A management plan that meets the requirements of WAC 246-272B-04100.	



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WAC 246-272-04100

This Health Citation & Requirement: WAC 246-272B-04100 Management Plan	Satisfies This Ecology WAC Requirement
(1) The management plan must include, at a minimum:	
(a) A statement identifying whether the ownership of the development served by the LOSS is:	
(i) A single owner; or	
(ii) A collection of individually owned lots or units.	
(b) If a development has individually owned lots or units, a statement that it is managed by:	
(i) A public entity or a wastewater company regulated by the Washington utilities and transportation commission; or	
(ii) A private management entity with a public entity or a wastewater company regulated by the Washington utilities and transportation commission contracted as a third party guarantor.	
(c) A copy of the agreement, ordinance, covenant, or other legal document given to all customers that explains the rights and responsibilities of individual users of the LOSS and of the owner, management entity, or other responsible person. The agreement, ordinance, covenant, or other legal document must include, but is not limited to, the following:	
(i) The fees and rates to be charged;	173-240-060(3)(p) Engineering Report
(ii) How charges may be amended; and	173-240-060(3)(p) Engineering Report
(iii) A list of substances that are prohibited from entering the LOSS in WAC 246-272B-06000.	
(d) A narrative describing the management entity's experience managing LOSS and OSS including, but not be limited to:	
(i) A list of all LOSS and OSS currently managed and owned, and counties they are located in;	
(ii) Number of staff and their qualifications.	
(e) Name, telephone number, fax number, mailing address, and e-mail address for the following:	
(i) Management entity;	
(ii) Primary contact person for the management entity;	
(iii) Third-party guarantor, if any.	



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This Health Citation & Requirement: WAC 246-272B-04100 Management Plan	Satisfies This Ecology WAC Requirement
(f) A copy of all recorded LOSS and LOSS component easements that allow access to perform O&M, repair, modification, and replacement, if located on private property or in the public right of way, including easements for sewage tanks on individual lots. Easements for sewage tanks on individual lots must be obtained and recorded as the lots are built upon, if not before.	
(g) A description of the specific duties of the management entity;	
(h) A contingency plan to operate, maintain, and manage the LOSS so that public health and the environment are protected during a transition from one management entity to another;	
(i) Signed and notarized management agreement between the LOSS owner and the management entity in which the management entity agrees to comply with the following requirements:	
(i) Operate and maintain the LOSS consistent with this chapter and any other applicable rules or statutes, and with the requirements in the owner's operating permit;	
(ii) Provide adequate management, staff, and facilities to properly manage the LOSS;	
(iii) Provide the owner and the department updated contact information including name, telephone number, fax number, mailing address, and e-mail address when changes occur;	
(iv) Contract with licensed, certified, or local health jurisdiction-approved professionals for maintenance service, pumping, electrical, and mechanical repair and modifications, as needed; and	
(v) When a proprietary treatment component is used, employ the proprietary treatment component manufacturer to monitor and maintain the proprietary system, or employ a LOSS operator who meets the requirements of WAC 246-272B-07200(3).	
(j) Maintain records of performance and all inspections, repairs, sampling, pumping, and improvements;	



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This Health Citation & Requirement: WAC 246-272B-04100 Management Plan	Satisfies This Ecology WAC Requirement
(k) Proof of an accounting and audit system set up and maintained using standard accounting practices; and	
(l) Description of how the owner or management entity will obtain and maintain adequate current and future funding for LOSS operations and capital improvement expenses including:	
(i) Long-term maintenance and operation of the LOSS and operator costs;	
(ii) Inspection, repair, and replacement of components; and	
(iii) Compliance with any conditions of construction approval or conditions that may be included in the operating permit.	
(2) If the LOSS serves individually owned units or lots, the management plan must also include the following:	
(a) Articles of incorporation and bylaws, including procedures to amend existing agreements for homeowner associations, corporations, or other associations of owners.	
(b) Name of the association's or corporation's registered agent; and	
(c) Copies of recorded easements to the LOSS and all components, including sewage tanks on individual lots, regarding access to perform O&M, repair, modification, and replacement. Easements for sewage tanks on individual lots must be obtained and recorded as the lots are built upon, if not before.	

WAC 246-272B-04200

This Health Citation & Requirement: WAC 246-272B-04200 Operations and Maintenance Manual	Satisfies This Ecology WAC Requirement
The O&M manual must include the following information:	
(1) Name, telephone number, fax number, mailing address, and e-mail address for the following:	173-240-080(1) O&M manual
(a) Operator;	
(b) Owner;	
(c) Design engineer;	
(d) Installer;	
(e) Electrician;	

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This Health Citation & Requirement: WAC 246-272B-04200 Operations and Maintenance Manual	Satisfies This Ecology WAC Requirement
(f) Pumper;	
(g) Management entity;	
(h) Primary contact person for the management entity; and	
(i) Third party guarantor, if any.	
(2) Owner and operator responsibilities;	173-240-080(1), (4)(a) O&M manual
(3) Copies of LOSS legal documents including, but not limited to, the management contract;	
(4) LOSS information including:	173-240-080(4)(b), (c), (d), (e) O&M manual
(a) Narrative description of treatment and dispersal process and components;	
(b) LOSS flow diagram or schematic; and	
(c) Design criteria:	
(i) Number and type of units served;	
(ii) Design flow;	
(iii) Soil type and drainfield hydraulic loading rate;	
(iv) Sieve analysis, if any;	
(v) Drainfield capacity;	
(vi) Tank capacities; and	
(vii) Treatment component capacities.	
(5) Normal operation and maintenance procedures and schedules, including at a minimum:	
(a) Summary and schedule of permit conditions to be met;	173-240-080(4)(f), (i) O&M manual
(b) Flow metering reading;	
(c) Recommended component settings;	
(d) Process control information;	
(e) Periodic facilities inspection to verify efficiency of operation, adequacy of performance, and general condition of the equipment and components;	
(f) Periodic inspection of scum and sludge levels and the integrity of LOSS sewage tanks and tanks on individual lots and cleaning filters, pumping tanks, or making repairs as needed;	
(g) Periodic maintenance of pumps, motors, and switches;	
(h) Periodic calibration of sampling and measuring devices;	

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This Health Citation & Requirement: WAC 246-272B-04200 Operations and Maintenance Manual	Satisfies This Ecology WAC Requirement
(i) Replacement or repair of worn or damaged equipment;	
(j) Methods that provide dosing and resting cycles for the drainfield; and	
(k) Other maintenance activities as needed, depending on the type of system.	
(6) Trouble-shooting guide listing possible failure and malfunction situations and responses to repair, replace, or modify LOSS components to restore LOSS function;	
(7) Abnormal operation procedures including, but not limited to:	173-240-080(4)(l) O&M manual
(a) Emergency contact information for the owner, management entity, operator, pumper, local health jurisdiction, department, and any contractors or maintenance provider; and	
(b) Emergency notification procedures to alert and advise customers, the department, and the local health jurisdiction.	
(8) Documentation of repairs;	
(9) Ongoing component testing methods and schedules;	
(10) Recordkeeping procedures for the following:	173-240-080(4)(h) O&M manual
(a) Operator inspections;	
(b) Monitoring and sampling;	
(c) Routine and emergency maintenance;	
(d) Repairs;	
(e) Modifications; and	
(f) Annual reports.	
(11) Safety procedures, including where to find a copy of the following Department of Labor and Industries rules:	173-240-080(4)(j) O&M manual
(a) Chapter 296-809 WAC, Confined spaces;	
(b) Chapter 296-62 WAC, General occupational health standards;	
(c) Chapter 296-823 WAC, Occupational exposure to bloodborne pathogens; and	
(d) Chapter 296-803 WAC, Lockout/tagout (control of hazardous energy).	
(12) Electrical component information and wiring diagram for alarms, panels, pumps, dosing controls;	173-240-080(4)(d), (e) O&M manual



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This Health Citation & Requirement: WAC 246-272B-04200 Operations and Maintenance Manual	Satisfies This Ecology WAC Requirement
(13) Manufacturer cut sheets for all components requiring routine or periodic maintenance;	173-240-080(4)(d), (e) O&M manual
(14) Annual operating permit renewal schedule and fee schedule, including where to find the current application form;	
(15) Copies of the following LOSS documents:	
(a) Department approval letter of the engineering report, plans and specifications, and final O&M manual;	
(b) Current operating permit;	
(c) Construction completion report submitted with final O&M manual; and	
(d) LOSS record drawings submitted with final O&M manual showing the locations of all easements.	
(16) Initial component testing information submitted with the final O&M manual, including:	
(a) Tank water tightness testing results;	
(b) Pipe pressure testing results;	
(c) Pump chamber drawdown information; and	
(d) Drainfield squirt heights.	
(17) The final monitoring and reporting plan in its own section of the O&M manual that meets the requirements in WAC 246-272B-04300 submitted with the final O&M manual; and	
(18) Any other information required by the department.	

WAC 246-272B-04300

This Health Citation & Requirement: WAC 246-272B-04300 Monitoring and Reporting Plan	Satisfies This Ecology WAC Requirement
At a minimum, the monitoring and reporting plan must include:	
(1) Constituents of the sewage or effluent that must be tested to assure that treatment components are meeting treatment level requirements, and to monitor groundwater or surface water:	
(a) As required by the department; and	
(b) For process control.	
(2) Values or ranges of values that must be met for the constituents listed in subsection (1) of this section;	



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This Health Citation & Requirement: WAC 246-272B-04300 Monitoring and Reporting Plan	Satisfies This Ecology WAC Requirement
(3) Sampling frequency, including time and day samples will be taken. Samples must be taken when maximum concentrations of contaminants are expected;	
(4) Procedures for decontaminating sampling equipment and sample ports;	
(5) Field test methods;	
(6) Sampling methods;	
(7) Well purging methods, if applicable;	
(8) Handling and labeling of containers;	
(9) Holding times;	
(10) Quality assurance and quality control procedures;	
(11) Transport of samples;	
(12) List of equipment that will be used for sampling and field testing;	
(13) Test method for each constituent;	
(14) Monitoring that will be performed by a proprietary treatment manufacturer or their agent as described in WAC 246-272B-04100 (1)(g)(v);	
(15) Map or schematics showing any monitoring wells and all sample points;	
(16) Plans and construction specifications for monitoring wells, monitoring points, and piezometers;	
(17) Response plan for abnormal or elevated sampling results which may include additional sampling, notification to the department, treatment, or other appropriate action;	
(18) Any report forms;	
(19) Procedures for submitting required monitoring results to the department; and	
(20) Procedures and schedules for recordkeeping.	

WAC 246-272B-04400

This Health Citation & Requirement: WAC 246-272B-04400 Plans and Specifications	Satisfies This Ecology WAC Requirement
(1) Construction plans and specifications must be clear and detailed documents. Hard copies must use a common engineering drawing size of 22 x 34 inches, 24 x 36 inches, or 11 x 17 inches.	173-240-070(1), (2), (3) Plans & specifications
(2) Plans must include the following:	

Large On-site Sewage Systems (LOSS) Documents Cross Reference: Health & Ecology

This Health Citation & Requirement: WAC 246-272B-04400 Plans and Specifications	Satisfies This Ecology WAC Requirement
(a) Design flow, treatment level, drainfield and tank sizing, and hydraulic loading rate;	
(b) LOSS schematic or flow diagram;	173-240-060(3)(i) Engineering Report
(c) Hydraulic profile of the LOSS; and	173-240-060(3)(i) Engineering Report
(d) Plan and profile views as applicable of all LOSS components.	
(3) Plan sets must be scaled to clearly show all necessary information and include the following:	
(a) A title sheet, plan and profile sheets, and other information that outlines and details the LOSS facilities design:	
(i) Title block indicating the project title, owner's name, date, seal and signature of the design engineer;	
(ii) Index to individual sheets;	
(iii) Vicinity map with project site location;	
(iv) Master site plan showing facilities served and general system layout; and	
(v) List of abbreviations, definitions, and symbols used within the plans.	
(b) A general statement that all work must be in conformance with the requirements of this chapter and other design and technical standards specified by the design engineer.	
(4) Plan sheets must be consecutively numbered and include, as appropriate:	
(a) A north arrow;	
(b) Description of scale in text and with a graphical bar;	
(c) A descriptive title and date;	
(d) Plan views;	
(e) Section views;	
(f) Profile views;	
(g) Elevations;	
(h) Easement and franchise locations and boundaries;	
(i) Component details;	
(j) General layout; and	
(k) Supplemental views.	

Large On-site Sewage Systems (LOSS) Documents Cross Reference: Health & Ecology

This Health Citation & Requirement: WAC 246-272B-04400 Plans and Specifications	Satisfies This Ecology WAC Requirement
(5) Sewage tanks and other treatment component plans and specifications must:	
(a) Show location, dimensions, and elevations of all treatment and pumping units;	
(b) Include detailed plan and cross-section views with dimensions;	
(c) Include installation details including placement depth and bedding materials, and connections to the tank to minimize settling impacts;	
(d) Include a detailed standard plan, including any related electrical components, and installation requirements for tanks designed for individual lots;	
(e) Specify tank capacity, baffling, filters, risers and other appurtenances, liquid volume, emergency, scum and sludge volumes, float switch or other control component settings;	
(f) Identify manufacturer and model for prefabricated tanks; and	
(g) Include a statement that:	
(i) Any substitutions must be approved by the design engineer; and	
(ii) All prefabricated tanks must meet the requirements of chapter 246-272C WAC, On-site sewage system tanks.	
(6) Plans and specifications must include design and structural calculations and all necessary construction information for tanks constructed on-site.	
(7) Plans and specifications for collection and transmission piping must specify:	
(a) Pipe type, material and size;	
(b) Pipe elevations;	
(c) Depth from grade and slope if applicable;	
(d) Installation details including placement depth and bedding materials;	
(e) Location and detail for all cleanouts and other appurtenances;	
(f) Horizontal setbacks from all other utility piping; and	
(g) All water-sewer crossing detail and instructions.	
(8) Plans for the drainfield component must:	
(a) Use an appropriate scale of 1:50 or less;	

Large On-site Sewage Systems (LOSS) Documents Cross Reference: Health & Ecology

This Health Citation & Requirement: WAC 246-272B-04400 Plans and Specifications	Satisfies This Ecology WAC Requirement
(b) Show plan view of trenches or beds in relation to site topography, showing contours on maximum two-foot intervals;	
(c) Show trench or bed:	
(i) Length;	
(ii) Separations;	
(iii) Pipe size, materials, and configuration; and	
(iv) Detail of orifice size, spacing and orientation.	
(d) Show locations of numbered test pits and test wells, if any, in relation to primary and reserve drainfields; and	
(e) Show trench or bed profile with width, depth, piping, cover and any features such as sand, gravel, geotextile, chambers.	
(9) Plans for alarm systems must:	
(a) Show location of panels and alarms; and	
(b) Identify manufacturer and model number of panel.	
(10) Plans for flow metering must show:	
(a) Valve locations;	
(b) Access boxes to grade; and	
(c) Any special installation instructions.	
(11) Plans must show all electrical components and include a statement that all components meet applicable state or federal codes.	
(12) Plan notes must include quality assurance, inspection, and testing:	173-240-075 (Construction quality assurance plan)
(a) Where appropriate, the installer shall provide documentation to the design engineer that sand or other media meets specifications;	
(b) The design engineer or authorized representative shall inspect the work during construction;	
(c) The design engineer shall schedule a final inspection and drainfield pressure test witnessed by the department prior to cover; and	
(d) The installer shall call for a special inspection for the following type of work:	
(i) Poured-in-place septic tanks and pump chambers and other special containment vessels;	
(ii) Proprietary treatment or distribution components;	
(iii) Any special excavation requirements;	

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This Health Citation & Requirement: WAC 246-272B-04400 Plans and Specifications	Satisfies This Ecology WAC Requirement
(iv) Placement of select fill material or final elevation of fill;	
(v) Testing of the pressure distribution network prior to final inspection;	
(vi) Pressure testing of all piping; and	
(vii) Water tightness testing of all tanks.	
(13) All LOSS construction specifications must be in conformance with state or nationally recognized standards. Examples include, American Public Works Association standards, Ten States Standards, Department of Ecology's Criteria for Sewage Works Design, Department of Transportation's Standard Specifications for Road, Bridge, and Municipal Construction, and the department's recommended standards and guidance.	
(14) Specifications must include all construction information not shown on the plans and necessary to inform the installer of the design requirements including, but not limited to:	
(a) The quality of materials;	
(b) Workmanship and fabrication of the project;	
(c) Type, size, strength, operating characteristics, and rating of equipment;	
(d) Allowable leakage for testing gravity sewer pipe;	
(e) Electrical apparatus and wiring components;	
(f) Meters;	
(g) Operating tools;	
(h) Construction materials;	
(i) Special filter or drainfield media other than native soil;	
(j) Other appurtenances;	
(k) Instructions for testing materials and equipment as needed to meet design standards; and	
(l) LOSS component and process testing to confirm functionality prior to department final inspection.	

Large On-site Sewage Systems (LOSS) Documents Cross Reference: Health & Ecology

WAC 246-272B-05400

This Health Citation & Requirement: WAC 246-272B-05400 Post-Construction Documentation	Satisfies This Ecology WAC Requirement
Post-construction documents must include the following:	173-240-090 (Declaration of construction completion)
(1) A LOSS construction completion report prepared by the design engineer that:	
(a) Is on a form provided by the department;	
(b) States the LOSS was constructed in substantial accordance with the approved plans and specifications; and	
(c) Notes changes from the approved plans and specifications, if any.	
(2) LOSS record drawings that:	
(a) Include one hard copy in a common engineering drawing size of 22 x 34 inches, 24 x 36 inches, or 11 x 17 inches, and one copy in electronic format; and	
(b) Are scaled to clearly show all necessary information.	
(3) The final management plan that meets the requirements of WAC 246-272B-04100.	
(4) A final O&M manual for the installed LOSS that meets the requirements of WAC 246-272B-04200.	

WAC 246-272B-07200

This Health Citation & Requirement: WAC 246-272B-07200 Operator Qualifications and Responsibilities	Satisfies This Ecology WAC Requirement
(1) Owners of LOSS using mechanical treatment or lagoons with design flow greater than 14,500 gpd shall employ one or more operators certified according to chapter 173-230 WAC, Certification of operators of wastewater treatment plants.	173-240-100 (Requirement for certified operator)
(2) Owners of LOSS with design flow greater than 14,500 gpd not using mechanical treatment or lagoons shall employ one or more operators approved by a local health jurisdiction in Washington state.	173-240-100 (Requirement for certified operator)
(3) The operator of a LOSS using proprietary treatment shall be qualified to monitor and maintain that LOSS. Examples of a qualified operator include someone who:	173-240-100 (Requirement for certified operator)



Large On-site Sewage Systems (LOSS) Documents Cross Reference: Health & Ecology

This Health Citation & Requirement: WAC 246-272B-07200 Operator Qualifications and Responsibilities	Satisfies This Ecology WAC Requirement
(a) Has experience successfully operating a LOSS with similar technology;	
(b) Is an employee or authorized agent of the treatment component manufacturer;	
(c) Is trained, authorized in writing by, and in good standing with the manufacturer of the proprietary treatment;	
(d) Has education or certification in operating similar technology; or	
(e) Has other qualifications acceptable to the department.	

Large On-site Sewage Systems (LOSS) Documents Cross Reference: Health & Ecology

Requirements in Ecology WAC	Satisfies Health WAC 246-272B
173-240-050(3)	03000(8)(e)
173-240-050(3)(a)	03000(8)(a), (8)(f); 04000(4)(a)(i)
173-240-050(3)(b)	03000(8)(i); 04000(4)(a)(iii)
173-240-050(3)(c)	04000(4)(a)(iv)
173-240-050(3)(d)	03000(4)
173-240-050(3)(d)(i)	03000(3)
173-240-050(3)(d)(ii)	04000(4)(b)(v), (4)(h)(x)
173-240-050(3)(d)(iii)	04000(4)(h)(x)
173-240-050(3)(d)(iv)	04000(h)(x)
173-240-050(3)(d)(v)	04000(4)(h)(iv), (4)(h)(viii)
173-240-050(3)(d)(vi)	03200(5)(a); 04000(4)(h)(iii),
173-240-050(3)(d)(vii)	03000(8)(b); 04000(4)(b)(v), (4)(b)(vi), (4)(h)(x)
173-240-050(3)(e)	03000(8)(a)
173-240-050(3)(g)	04000(4)(m)(i)
173-240-050(3)(h)	04000(4)(m)(i)
173-240-050(3)(j)	03000(4)(g), (4)(h)
173-240-050(3)(k)	03000(8)(h); 04000(m)(iv)
173-240-050(3)(m)	04000(4)(d)
173-240-050(3)(n)	03000(13); 04000(4)(d), (4)(f)
173-240-060(3)	04000(4)(a)
173-240-060(3)(a)	03000(1); 04000(1), (4)(q)
173-240-060(3)(b)	04000(4)(g), (4)(h)(i)
173-240-060(3)(c)	03000(8)(g); 04000(4)(a)(v), (4)(a)(vi), (4)(b)(i), (4)(b)(ii)

Large On-site Sewage Systems (LOSS) Documents Cross Reference: Health & Ecology

Requirements in Ecology WAC	Satisfies Health WAC 246-272B
173-240-060(3)(d)	04000(4)(a)(vi), (4)(a)(viii), (4)(m)(ii)
173-240-060(3)(e)	04000(4)(j), (4)(k)
173-240-060(3)(f)	04000(4)(a)(viii), (4)(b)(iii)
173-240-060(3)(g)	04000(4)(m)(ii)
173-240-060(3)(h)	03000(4)(i); 03200(6)(e); 04000(4)(a)(viii), (4)(h)(vii)
173-240-060(3)(i)	04400(2)(b), (2)(c)
173-240-060(3)(k)	04000(4)(m)(iv)
173-240-060(3)(o)	03300(4)
173-240-060(3)(p)	04100(1)(c)(i), (1)(c)(ii)
173-240-060(4)(a)	03200(2), (5)(c); 04000(4)(a)(vii), (4)(o)(ii)
173-240-060(4)(b)	04000(4)(o)(ii)
173-240-060(4)(b)(i)	03200(5)(b), (5)(d), (6)(g)
173-240-060(4)(b)(ii)	03200(5)(f)
173-240-060(4)(b)(iii)	03300(3)(a); 04000(4)(i)
173-240-060(4)(c)	03000(8)(f); 04000(4)(c)(ii)
173-240-060(4)(d)	03200(6)(d)
173-240-060(4)(o)	04000(4)(p)
173-240-070(1)	04400(1)
173-240-070(2)	04400(1)
173-240-070(3)	04400(1)
173-240-075	04400(12)
173-240-075(2)(a)	04000(4)(s)
173-240-075(2)(f)	04000(4)(s)
173-240-080(1)	04200(1), (2)
173-240-080(4)(a)	04200(2)
173-240-080(4)(b)	04200(4)



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Requirements in Ecology WAC	Satisfies Health WAC 246-272B
173-240-080(4)(c)	04200(4)
173-240-080(4)(d)	04200(4), (12), (13)
173-240-080(4)(e)	04200(4), (12), (13)
173-240-080(4)(f)	04200(5)(a)
173-240-080(4)(h)	04200(10)
173-240-080(4)(i)	04200(5)(a)
173-240-080(4)(j)	04200(11)
173-240-080(4)(l)	04200(7)
173-240-090	05400(1), (2), (3), (4)
173-240-100	07200(1), (2), (3)