



COUNTY COMMISSIONERS

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PLANNING DEPARTMENT

Creating Solutions for Our Future

Scott Clark
Director

MEMORANDUM

TO: Thurston County Planning Commission

FROM: Andrew Deffobis, Associate Planner

DATE: September 7, 2011

SUBJECT: Critical Areas Ordinance (CAO) Update – Critical Aquifer Recharge Areas (CARAs) Draft Materials (Proposed 24.10 TCC)

The Planning Department has completed a staff draft chapter addressing critical aquifer recharge areas under the CAO, which is proposed Chapter 24.10 TCC, attached. The chapter covers development regulations for areas sensitive to groundwater contamination, including wellhead protection areas. A staff presentation and work session on the proposed CARAs chapter will be held at the Planning Commission's September 14, 2011 meeting.

Staff continues to work on the draft, and will continue to consult other departments on certain portions of the draft regulations. The staff draft is subject to change prior to public hearing.

Also included is a digital collection of documents representing a partial list of best available science (BAS) and other information used in the creation of draft chapter 24.10 TCC. The numbered documents in the bibliography (first document on CD) correspond to the numbers at the beginning of each document name. In some instances, web links were provided instead of actual documents.

In the near future, supporting materials will be created for this chapter, to include:

- Jurisdictional comparison table that outlines how standards for CARAs are addressed by cities within Thurston County and neighboring jurisdictions.
- Comparison table that highlights differences between the current and proposed CAO provisions related to CARAs
- Summary report for BAS sources and information

DRAFT IN PROGRESS

AMENDMENTS TO THE CRITICAL AREAS REGULATIONS

TCC 17.15.500

09/07/11

CRITICAL AQUIFER RECHARGE AREAS

- 24.10.005 Purposes.
- 24.10.010 Applicability.
- 24.10.015 Map Updating/Boundary Determinations.
- 24.10.020 Standards and restricted and prohibited uses.
- 24.10.030 General standards.
- 24.10.040 Abandoned wells.
- 24.10.050 Above ground tanks and distribution systems.
- 24.10.060 Agricultural uses and activities.
- 24.10.070 Asphalt plants/concrete plants.
- 24.10.080 Biosolid application.
- 24.10.090 Cemeteries.
- 24.10.100 Commercial and industrial uses – General standards.
- 24.10.110 Fueling stations.
- 24.10.120 (Unattended) Gasoline and diesel powered generators.
- 24.10.130 Golf Courses, Parks, Playgrounds, Athletic Fields, and Landscaped Areas Exceeding One Acre in Size.
- 24.10.140 Hazardous materials.
- 24.10.150 Mineral extraction – Gravel and sand.
- 24.10.160 Onsite sewage disposal.
- 24.10.170 Pier foundations.
- 24.10.180 Pipelines.
- 24.10.190 Reclaimed water.
- 24.10.200 Sawmills.
- 24.10.210 Stormwater.
- 24.10.220 Underground storage tanks and vaults.
- 24.10.230 Vehicle repair and servicing/body shops.
- 24.10.240 Vehicle wrecking yards.
- 24.10.250 Wood products preserving and treating.

24.10.005 Purposes.

The purposes of this section are to:

- A. Protect the public health and welfare by safeguarding Critical Aquifer Recharge Areas (CARA) and vital groundwater resources that serve as the county's primary potable water source. This includes avoiding or, where that is not possible, minimizing the risks of ground water contamination from new, existing, expanded and altered land uses and activities, consistent with state water quality standards.

- B. Identify and protect aquifer recharge areas and vital groundwater resources based on their physical susceptibility to contamination, the potential for contamination from existing and allowed uses, the number of people or uses that rely on the aquifer as a potable water source, the presence of wellhead protection areas and whether there is an alternative water source.⁴ ←(Note: Numbers such as the preceding ⁴ refer to corresponding numbers in Attachment A, “Best Available Science-Aquifer Recharge Areas.” That attachment contains excerpts from scientific literature that are relevant to the draft regulations.)
- C. Recognize and maintain the delicate balance and connection between surface water and ground water in order to preserve essential biological, physical, and geochemical functions. This includes avoidance of saltwater intrusion, avoidance of pumping deep saline thermobaric water that could contaminate the upper aquifer(s), avoidance of groundwater withdrawals and interruptions that would diminish stream flows and temperatures sustaining anadromous fish or alter the quantity and timing of water sustaining wetlands and associated plants and wildlife.
- D. Ensure sufficient infiltration of water at the land’s surface to sustain aquifers used as a potable water source, to maintain base flows in streams supporting anadromous fish, and maintain water levels in wetlands.
- E. Be consistent with Chapters 36.70A.170 and 172 RCW; Public Water Systems Penalties and Compliance, Chapters 70-119A RCW; Washington State Wellhead Protection Program and the Public Water Supplies, Chapter 246-290 WAC; Dangerous Waste Regulations, Chapter 173-303 WAC; the Water Quality Standards for Groundwater of the State of Washington, Chapter 173-200 WAC; County adopted water resource inventory area watershed management plans; and County adopted water system plans and wellhead protection plans.

24.10.010 Applicability.

This section applies to proposals for new development and alteration and expansion of existing uses listed in Table 24.10-1 that are located in a CARA I-III identified on the “Critical Aquifer Recharge Areas” Map, dated-----, as amended. These regulations also apply to the one, five and ten year time of travel zones of wellhead protection areas meeting the criteria in this chapter. See the map entitled “Wellhead Protection Areas.” These maps shall be on file at the Thurston County Development Services Department.

In accordance with RCW 36.70A, agricultural uses are not subject to this chapter. Agriculture uses, consistent with RCW 36.70 A, are subject to chapter 17.15 TCC.

- A. "Category I, extreme aquifer sensitivity" include:
 - 1. Those areas which provide very rapid recharge with little protection, contain coarse soil textures and soil materials, and are derived from glacial outwash materials. The predominant soil series and types are those listed as Category I in Table 24.10-4 at the end of this chapter; and
 - 2. Wellhead protection areas as defined by chapter 24.03 TCC, including their one-, five-, and ten-year time of travel zones are included in Category I CARAs.

- B. "Category II, high aquifer sensitivity" are those areas which provide slightly lower recharge, also provide little protection, and are from materials of glacial deposit. The predominant soil series and types are those listed as Category II in Table 24.10-4 at the end of this chapter.
- C. "Category III, moderate aquifer sensitivity" are those areas with aquifers present but which have a surface soil material that encourages run-off and slows water entry into the ground. The predominant soil series and types are those listed as Category III Table 24.10-4 at the end of this chapter.

24.10.020 Standards and restricted and prohibited uses.

Table 24.10-1 identifies the new, expanded, and altered land uses and activities that are restricted or prohibited in the CARA depicted on the Critical Aquifer Recharge Areas Map. These restricted and prohibited uses and activities are subject to the applicable standards in sections 24.10.030-250 TCC and all other applicable regulations. (See Article III of the Rules and Regulations of the Thurston County Board of Health Governing Water Supplies; Article IV, Rules and Regulations of the Thurston County Board of Health Governing Disposal of Sewage; and Article VI, Rules and Regulations of the Thurston County Board of Health Governing Nonpoint Pollution).

The general standards listed in section 24.10.030 TCC apply to all uses in Table 24.10-1. Standards provided in sections 24.10.040-250 TCC apply to specific uses in CARAs, and are in addition to other requirements of this title.

Table 24.10-1. Prohibited and Restricted Uses and Activities Within Critical Aquifer Recharge Areas

Note: This table is still under staff review and is subject to change before a final draft is issued, prior to public hearing.

RESTRICTED USES AND ACTIVITIES	AQUIFER RECHARGE AREA CATEGORY									
	Connected To Sewer/ STEP System					Not Connected To Sewer/ STEP System				
	Wellhead Protection Areas		I	II	III	Wellhead Protection Areas		I	II	III
	1-year time of travel zone	5 and 10-year time of travel zones				1-year time of travel zone	5 and 10-year time of travel			
Abandoned wells ⁶	S	S	S	S	S	S	S	S	S	S
Agricultural uses are subject to chapter 17.15 TCC										
Asphalt plants/cement and concrete plants ⁶	X	X	X	S	S	X	X	X	S	S
Boat refinishing ⁶	S	S	S	S	S	S	S	S	S	S
Cemeteries ^{6,16}	X	X	X	S	S	X	X	X	S	S
Chemical manufacturing/processing, mixing and remanufacturing	X	X	X	X	X	X	X	X	X	X
Chemical storage facilities (not including fuel)	X	X	X	S	S	X	X	X	S	S
Chemical/hazardous waste reprocessing and disposal	X	X	X	X	X	X	X	X	X	X
Commercial uses –other, including but not limited to, furniture stripping/repair/refinishing, hardware/lumber/parts stores, medical/dental/veterinary offices, photo processing/printing, printing and publishing ⁶	S	S	S	S	S	S	S	S	S	S
Composting facilities	S	S	S	S	S	S	S	S	S	S

LEGEND

P = Permitted without a Critical Area Permit, subject to requirements of this title
 S = Permitted, subject to Critical Area Permit and requirements of this title
 X = Prohibited
 X/S = These uses shall be prohibited. As determined by the approval authority, small scale uses or those using nonhazardous materials may be permitted when the quantity, nature of materials processed and mitigation methods are determined to contain no significant risk to groundwater

RESTRICTED USES AND ACTIVITIES	AQUIFER RECHARGE AREA CATEGORY									
	Connected To Sewer/ STEP System					Not Connected To Sewer/ STEP System				
	Wellhead Protection Areas		I	II	III	Wellhead Protection Areas		I	II	III
	1-year time of travel zone	5 and 10-year time of travel zones				1-year time of travel zone	5 and 10-year time of travel			
Dry cleaners (excluding drop-off only) using equipment that does not use chlorinated substances ⁶	X	X/S	S	S	S	X	X/S	X	X	X
Electroplating, metal plating and metal finishing	X	X	X	S	S	X	X	X	X	X
Funeral facilities (except crematory facilities) ⁶	S	S	S	S	S	X	S	S	S	S
Furniture staining/fabricating with hazardous materials	X/S	X/S	S	S	S	X	X/S	X/S	X/S	X/S
Gas stations ⁶	X	X/S	S	S	S	X	X/S	S	S	S
Golf courses, parks, athletic fields, playgrounds ⁶ Campgrounds/RV Parks/landscaping more than one acre ⁶	S	S	S	S	S	S	S	S	S	S
Greenhouse - commercial/Nursery – wholesale/retail of plants not grown on site.	P	P	P	P	P	S	S	S	S	S
Industrial uses-other, including but not limited to battery processing, reprocessing, and storage, food processing facilities, ⁶ tanning, textile dyeing, wood/pulp/paper processing, ⁶	S	S	S	S	S	S	S	S	S	S
Infiltration of reclaimed water (application to the land's surface above agronomic rates)	X	X/S	X	S	S	X	X/S	X	S	S

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	Wellhead Protection Areas		I	II	III	Wellhead Protection Areas		I	II	III
	1-year time of travel zone	5 and 10-year time of travel zones				1-year time of travel zone	5 and 10-year time of travel			
Injection wells-Class II (per 173-218 WAC) ^{3, 8}	X/S	X/S	X/S	X/S	X/S	X/S	X/S	X/S	X/S	X/S
Kennels –with more than 10 animals	S	S	S	S	S	S	S	S	S	S
Land application of Class A exceptional quality biosolids (see WAC 173-304 and WAC 173-308) ^{6, 22}	X	S	S	S	S	X	S	S	S	S
Land application of Class A non-exceptional quality biosolids ^{6, 22}	X	S	S	S	S	X	S	S	S	S
Land application of Class B biosolids ^{6, 22}	X	X	X	X	S	X	X	X	X	S
Land spreading irrigation with reclaimed water at agronomic rates	S	S	S	S	S	S	S	S	S	S
Landfill—demolition (inert), municipal sanitary waste, solid waste, wood waste, hazardous waste ^{6, 9}	X	X	X	X	X	X	X	X	X	X
Machine shops, fabricating, metal processing with etchers and chemicals	X	X/S	X/S	S	S	X	X/S	X/S	S	S
Maintenance/fueling facilities – municipal, county, state, school district, transit, airports, railroads, buses ⁶	X	S	S	S	S	X	S	S	S	S
Manufacturing-electrical/electronic	X	X	X	S	S	X	X	X	S	S
Mining-coal and minerals 10	X	X	X	X	X	X	X	X	X	X
Mining—gravel and sand 6, 18	X	X	X	S	S	X	X	X	S	S

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	Wellhead Protection Areas		I	II	III	Wellhead Protection Areas		I	II	III
	1-year time of travel zone	5 and 10 year time of travel zones				1-year time of travel zone	5 and 10 year time of travel zones			
New hazardous waste transfer and storage facilities including radioactive wastes as defined in Chapter 43.200 RCW; ⁶	X	X	X	X/S	X/S	X	X	X	X/S	X/S
Pesticide/fertilizer storage facilities	X	X/S	X/S	S	S	X	X/S	X/S	S	S
Petroleum products refining, reprocessing, and related storage	X	X	X	S	S	X	X	X	S	S
Pier foundations	S	S	S	S	S	S	S	S	S	S
Pipelines- liquid petroleum products or other hazardous liquid transmission ²¹	X	X	X	S	S	X	X	X	S	S
Railroad yards-cargo transfer areas	X	S	S	S	S	X	S	S	S	S
Research laboratories /facilities-chemical or biological ⁶	S	S	S	S	S	S	S	S	S	S
Residential use/subdivisions, short plats, and large lots	S	S	S	S	S	S	S	S	S	S
Sawmills	S	S	S	S	S	S	S	S	P	P
Sewage disposal-onsite ^{6,19}	N/A	N/A	N/A	N/A	N/A	S	S	S	S	S
Sewage lift stations	S	S	S	S	S	S	S	S	S	S
Solid waste handling /transferring /recycling ^{6,9}	X	S	S	S	S	X	S	S	S	S
Solid waste processing	X	X/S	S	S	S	X	X/S	S	S	S

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	1-year time of travel zone	5 and 10 year time of travel zones				1-year time of travel zone	5 and 10 year time of travel zones			
Storage tanks-above-ground ^{6,23}	S	S	S	S	S	S	S	S	S	S
Storage tanks- underground ^{6,23}	X	S	S	S	S	X	S	S	S	S
Stormwater facilities/discharges ^{6,24}	S	S	S	S	S	S	S	S	S	S
Taxidermy ⁶	S	S	S	S	S	X	S	S	S	S
Unattended gas powered portable generators	S	S	S	S	S	S	S	S	S	S
Utility substations	S	S	S	S	S	S	S	S	S	S
Vehicle wrecking/junk/scrap/salvage yards ^{6,15}	X	X	X	S	S	X	X	X	S	S
Vehicle and boat repair/service garages/body shops ^{6,25}	S	S	S	S	S	S	S	S	S	S
Wastewater reuse facilities/recycling satellite plant, not including injection/infiltration of reclaimed water	X	S	S	S	S	X	S	S	S	S
Wood and wood products preserving/treating ^{6,11}	X	X	X	X	X	X	X	X	X	X
All other activities involving the use, handling, or storing of hazardous materials or generating hazardous materials by their activities or actions in quantities exceeding the threshold in Table 24.10-2.	X	S	S	S	S	X	S	S	S	S
Other new and existing uses identified by the County as posing a risk to ground water quality	S	S	S	S	S	S	S	S	S	S

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24.10.030 General standards.

The following requirements apply, as applicable, to all restricted uses and activities in Table 24.10-1.

- A. Differences in regulations because of the overlap of two or more Critical Areas are governed by chapter 24.01 TCC.
- B. The approval authority, in consultation with a qualified hydrogeologist shall evaluate hydrogeological reports required pursuant to this chapter to determine the proposed project's potential impacts to ground water and surface water. This evaluation shall include, if applicable, evaluation of the project's potential impact on base flows of streams regulated under chapter 24.25 TCC, and the quantity and timing of ground water flows sustaining wetlands regulated under chapter 24.30 TCC.
- C. The uses and activities listed in Table 24.10-1 shall not be allowed in a CARA if the approval authority determines, in consultation with others having expertise or jurisdiction, that the proposed use poses a risk to ground water quality, consistent with the provisions of this chapter.
- D. Treatment.^{13, 17} If warranted to protect ground water, the approval authority shall require applicants for new, expanded and altered uses listed in Table 24.10-1 that require a County permit to use best management practices (BMPs), including all known, available, reasonable treatments, to ensure the highest degree of aquifer protection. In this case, the applicant shall submit a report identifying the appropriate BMPs and describing how they will be employed to prevent degradation of ground water quality. The report shall be prepared by or under the direction of a qualified person with demonstrated expertise in the industry or field. The report shall include all necessary technical data, drawings, calculations, and other information to describe the proposed application of BMPs. If necessary, the approval authority will review the report with technical experts at the applicant's expense.
- E. Mitigation of impacts.
 - 1. The approval authority may condition the approval of a proposed use or activity if it is determined to be warranted in order to protect ground water quality, maintain stream flows and temperatures sufficient to sustain anadromous and native fish, and maintain the volume and timing of ground water flows sustaining wetlands and dependent plants and wildlife (see chapters 24.25 and 24.30 TCC).
 - 2. The approval authority may deny proposed wells or require mitigative measures (e.g., methods of prevention and control) for any use as necessary to preserve adequate ground water quality and quantity for existing users of the aquifer that do not have an alternative water source, particularly in areas subject to saltwater intrusion. This subsection shall not affect any right to use or appropriate water under state or federal law.
- F. New uses in Category I CARA. Applicants for uses proposed to be located within a Category I CARA that involve use, storage, handling or disposal of hazardous materials in excess of the quantity thresholds listed in Table 24.10-2 shall submit a BMP report, consistent with subsection D above, to the County documenting that BMPs will be used to prevent ground water degradation.

The approval authority, in consultation with the water purveyor serving the area and, if necessary, a third party consultant at the applicant's expense, will review the report to determine whether the proposed activity can be conducted without degrading the water quality of the affected aquifer. The County shall provide the applicant with a cost estimate and obtain their approval prior to consulting with the third party consultant. The application shall be closed if the applicant chooses not to bear the cost of the evaluation. The approval authority may approve, condition, or deny the project as they deem warranted in order to ensure adequate ground water protection. The applicant shall implement the approved report.

- G. Existing uses in Category I CARA. The approval authority may require the owner of any existing use within a Category I CARA which involves the use, storage, handling or disposal of hazardous materials above the minimum quantity thresholds listed in Table 24.10-2, to submit a hazardous materials management plan (see [section 24.35.XXX TCC](#)) that will ensure adequate protection of the ground water drawn upon by the protected well. The approval authority, in consultation with the appropriate water purveyor and, if warranted, others with expertise, shall review this plan and determine whether to approve the project as proposed or approve it subject to conditions in order to ensure adequate ground water protection.

Option A: Decommissioning underground tanks. Underground storage tanks storing hazardous materials in the one-year time of travel zone for Category I CARA that do not meet current state and County standards (see Chapter 173-360 WAC, Chapter 14.32 TCC, International Fire Code, and Subsection 17.15.530 (G)) shall be decommissioned or removed consistent with applicable regulations by June 1, 2010.

Option B: Require annual monitoring of underground tanks not meeting current standards and require replacement of leaking tanks.

- H. Expansion of prohibited uses in CARAs.
1. Uses prohibited by Table 24.10-1 in Category I-III CARA shall not be expanded unless the applicant demonstrates that all equipment/facilities involving hazardous materials will be brought into compliance with current standards and therefore pose less risk of ground water contamination than the existing use.
 2. Applicants for any proposed expansion of an existing use in Category I CARA that is listed as an allowable use in Table 24.10-1 under Category I which uses, stores, handles or disposes of hazardous materials above the minimum quantities listed in Table 24.10-2 shall submit a BMP report, consistent with subsection D above, for County review and approval and a Hazardous Materials Management Plan consistent with [section 24.35.XXX TCC](#). The approval authority will review the submitted materials and determine whether the proposed expansion shall be approved, denied, or approved with conditions as necessary to ensure adequate ground water protection.
- I. A development proposal will be considered unacceptable if a hydrogeological report indicates that a ground water maximum contaminant level will be violated due to proposed development.

- J. A development proposal will be considered unacceptable if a hydrogeological report concludes that it will reduce the assimilative capacity of the aquifer by more than 10 percent for a contaminant of concern.

24.10.040 Abandoned wells.

Wells that cease to be used as a water source shall be decommissioned, consistent with WAC 173-160-381 and Article 3, Section 5.6, of the Rules and Regulations of the Thurston County Board of Health Governing Water Supplies, to prevent ground water contamination.

24.10.050 Above ground tanks and distribution systems.

Above ground tanks and associated distribution systems for the storage or conveyance of hazardous materials, sewage sludge, fertilizers, or other chemical or biological substances defined as a hazard or dangerous waste in Chapter 173-303 WAC are subject to the following:⁶

- A. Compliance with state and county requirements. Compliance with chapters 173-303 WAC and 173-360 WAC, Chapter 14.32 TCC, International Fire Code, and Article VI of the Rules and Regulations of the Thurston County Board of Health Governing Nonpoint Source Pollution.
- B. Secondary containment. New above ground tanks and distribution systems that will contain a hazardous material shall either be double walled or have a separate, impervious secondary containment system constructed around and under the tank/distribution system. The containment system shall be covered or otherwise designed so it does not collect precipitation or stormwater runoff. Secondary containment systems shall be sized to hold at least 110% of the largest tank's capacity and shall be designed and constructed with materials that are compatible with the substance to be stored in the tank.
- C. Leak detection. Leak detection devices shall be required for all double walled tanks and, when possible, for other tanks.
- D. Waiver. The approval authority may grant a waiver from one or more of the above requirements upon finding that the proposed above ground storage facility would not create a risk to ground water quality.

24.10.060 Agricultural uses and activities.

Reserved for future critical area agriculture regulations. Refer to chapter 17.15 TCC for regulations on new and existing agricultural activities.

24.10.070 Asphalt plants/concrete plants.

- A. Applicants for asphalt plants or concrete plants shall submit, in addition to other material required by this chapter, the following: the location of wells and wellhead protection areas within one mile down gradient of the proposed site or the two day time of travel, if known, whichever is greater; and a characterization of the proposed activity including a description of the industrial process, storage of materials, and discharge of water.
- B. All process water from production, pouring, and equipment cleaning activities shall be discharged to a sump or a recycling system. Process water treatment or materials shall use the least toxic products and raw materials available.

- C. **[Staff option:** The applicant shall submit a hazardous waste management plan consistent with **section 24.35.XXX TCC.]**
- D. The approval authority may require monitoring wells to the extent necessary to determine if pollution associated with the permitted activity is occurring, periodic monitoring, and remedial action if the monitoring reveals that ground water contamination is occurring. Also see chapter 24.70 TCC regarding sureties.

24.10.080 Biosolid application.

Biosolid application shall meet all applicable federal and state standards, including WAC 173-308. Applicants proposing application of biosolids shall demonstrate that the biosolid will not contaminate ground water, consistent with applicable state and county standards. Applicants proposing application of Class B biosolids shall submit a hydrological study identifying and evaluating the potential impacts the biosolid application poses for water quality.

24.10.090 Cemeteries.¹⁶

Applicants for a cemetery shall submit a hydrogeological report evaluating the risk the proposed cemetery poses to groundwater. The approval authority may condition the project as necessary to protect ground water quality. The approval authority shall deny the proposed cemetery if it is determined that it would likely contaminate potable ground water supplies.

24.10.100 Commercial and industrial uses – General standards.

Commercial and industrial uses and activities are allowed in CARAs as specified in Table 24.10-1, subject to the following standards, as applicable:

- A. Any floor drains in areas where hazardous materials are used, stored or otherwise present shall have a removable lip that will prevent spilled hazardous material from entering the drain, consistent with Chapter 14.28 TCC, Uniform Plumbing Code. The approval authority may require that a sump or other device be used to ensure that hazardous material does not drain to the soil, sewage disposal system, or a water body.
- B. Areas where hazardous materials are used or stored shall not drain to the soil, a stormwater system, water body, or a sewage disposal system. The approval authority may require that a sump or other device, as appropriate to address the contaminants of concern, be used to ensure protection of ground water quality.
- C. All vehicle and equipment washing must be done in a self contained area (e.g., with recycling system) designed to ensure that hazardous materials do not reach the soil, a water body or a sewage disposal system. This does not apply to discharges to a sewer that were approved by the sewer utility, consistent with chapter 14.28 TCC. Water used in wash down areas shall be treated to remove contaminants prior to discharge. (See 173-216 WAC and the BMPs for Vehicle and Equipment Discharges, Department of Ecology WQR 95-56, as amended).
- D. Integrated pest management practices shall be used for pest control unless the applicant/proponent demonstrates that the proposed method of pest management will not diminish ground water quality.

- E. Within the one-year time of travel zone of Category I CARA wellhead protection areas, applicable Washington State University Extension Office BMPs, Thurston County BMPs, or other BMPs accepted by the approval authority shall be used for fertilizing, landscaping and managing weeds.
- F. All new commercial and industrial land uses that involve the use, handling, storage, disposal, or transportation of hazardous materials or dangerous/extremely dangerous wastes, as defined in Chapter 173-303 WAC, which may come in contact with stormwater runoff shall remove contaminants prior to their point of entry into surface or ground water. This includes, but is not limited to, gas stations, fuel distributors, car/truck washes, trucking companies, asphalt plants and paint shops. Methods of contaminant removal may include, as appropriate and consistent with the Drainage Design and Erosion Control Manual for Thurston County, as amended (Chapter 15.05 TCC), use of oil separators, sumps and catch basin inserts that control pollutants. Standard drywells are prohibited except where stormwater is pretreated using BMPs.
- G. The applicant shall demonstrate that the proposed use or activity will not cause degradation of ground water quality exceeding the standards described in Chapter 173-200 WAC (Water Quality Standards of the State of Washington) and comply with all other applicable local, state, and federal regulations.
- H. The approval authority may require that the applicant install monitoring wells, to the extent necessary to determine if pollution is occurring, periodic monitoring at specified intervals, and remedial action if the monitoring reveals that ground water contamination is occurring. (See chapter 24.70 TCC regarding surety.)
- I. The approval authority may require additional protective measures if necessary to protect ground water quality.

24.10.110 Fueling stations.

Sites containing a fueling station in a Category I CARA shall be designed to contain fuel spills on site without contaminating stormwater systems, sewage disposal systems, soil or water. This can be accomplished, for example, by installing a roof structure that shields the fueling area from precipitation and sloping the area surrounding the fuel pumps toward a sump with capacity for at least 100 gallons of fuel or by surrounding the covered fueling area with a shallow curb that provides capacity for at least 100 gallons of fuel.

24.10.120 (Unattended) Gasoline and diesel powered generators.

Gasoline and diesel powered backup generators in a CARA shall be placed in a secondary containment device, consistent with subsection 24.10.050(B) TCC, such that a fuel spill or leak will not reach the soil or a water body unless the site where the generator will be operated contains a full time residence or is occupied a minimum of eight hours per day, five days a week by employees associated with the facility.

24.10.130 Golf Courses, Parks, Playgrounds, Athletic Fields, and Landscaped Areas Exceeding One Acre in Size. ^{6, 20}

- A. New uses. Fertilizer, herbicide and pesticide management practices for golf courses, parks, playgrounds, athletic fields and other public facilities and institutions with landscaped areas exceeding one acre in size shall comply with the following:
1. Integrated pest management practices shall be used for pest control unless the property owner provides technical justification based on best available science demonstrating that the proposed method of pest management will not diminish ground water quality.
 2. The applicant shall submit a maintenance plan for County review and approval identifying the timing and amount of fertilizer, herbicide, or other chemicals proposed to be used on the site. The application rate shall not exceed the application guidelines on the product packaging. Applicable Washington State University Extension Office BMPs, Thurston County BMPs or other BMPs accepted by the approval authority shall be used for maintaining grassed areas and other landscaping. See section 24.10.140 TCC regarding the storage of hazardous materials. The County may periodically verify compliance with the approved plan.
 3. If necessary to maintain ground water quality, the approval authority may require use of BMPs, devices or methods to provide a high level of nutrient removal from stormwater, consistent with the Drainage Design and Erosion Control Manual for Thurston County, as amended (Chapter 15.05 TCC).
 4. The approval authority may require additional protective measures as necessary to maintain ground water quality.
- B. Existing uses. In areas identified on the map entitled Known Areas of Soil or Groundwater Concern, April 2004, as amended, as having elevated nitrate levels, the approval authority shall, if warranted to maintain nitrate levels consistent with section 24.10.030(J) TCC above, require the owners of existing golf courses, parks, playgrounds, athletic fields, and other landscaped areas exceeding one-acre in size to use applicable Washington State University Extension Office BMPs, Thurston County BMPs or other BMPs accepted by the approval authority for maintaining grassed areas and other landscaping. The owner shall submit a maintenance plan for review and approval by the County identifying the timing and amount of fertilizer, herbicide, or other chemicals proposed to be used on the site. The application rate for such substances shall not exceed the application guidelines on the product packaging. See **section 24.10.140 TCC below** regarding the storage of hazardous materials. The County may require monitoring at existing wells to verify compliance. Remedial action shall be required to attain compliance with applicable water quality standards.

24.10.140 Hazardous materials.

- A. Hazardous materials shall be used, handled, stored, and disposed of in accordance with the standards contained in this section, Chapter 14.32 TCC, International Fire Code, Article VI of the Thurston County Sanitary Code, and applicable state law (see Chapter 173-303 WAC).

Table 24.10-2

Hazardous Material	Threshold (Cumulative total at any given time)
Any chemical substances, including new and waste products that exhibit the characteristics of ignitability, corrosivity, reactivity or toxicity, consistent with the criteria set forth in WAC 173-303-090, except as provided for below.	250 pounds or the equivalent of 30 gallons
Petroleum distillates	30 gallons in a single container, 120 gallons cumulatively
Substances used in commercial or industrial applications that are ignitable, corrosive, reactive or toxic, consistent with WAC 173-303-090, or for retail sale that are of the same or similar size, packaging and concentrations as products packaged for use by the general public.	800 pounds (or the equivalent 100 gallons), not to exceed 55 gallons for any single package
Chemicals identified in WAC 173-303-9903 as “P” chemicals	2.2 pounds

- B. Operators of new and existing uses and activities that involve the use, handling, storage or generation of hazardous materials exceeding the threshold specified in Table 24.10-2 shall submit for County review and approval a hazardous materials management plan that demonstrates that the use or activity will not have an adverse impact on ground water quality. Notwithstanding the quantity thresholds listed in Table 24.10-2, if the approval authority determines that the proposed use or activity poses a risk to ground water, they shall require submission of a hazardous materials management plan to protect ground water quality. Approved hazardous materials management plans shall be implemented. Hazardous materials management plans shall include, at a minimum, the information listed in [section 24.35.XXX](#).
- C. Persons that possess liquid, soluble, or leachable hazardous materials shall contain such materials and the entire distribution system in a secondary containment device or system that will effectively prevent discharge on-site. Secondary containment may be achieved in a variety of ways, including, but not limited to, use of sloping floors that provide capacity to contain spills or installation of a curb around the perimeter of the structure. (See Article VI of the Thurston County Sanitary Code, the Rules and Regulations Governing Nonpoint Source Pollution. Also see Chapter 15.54 and 17.21 RCW regarding pesticide storage. Refer to chapter 14.32 TCC, International Fire Code, regarding seismic standards).

24.10.150 Mineral extraction – Gravel and sand.

See Chapter 17.20, Mineral Extraction Code and 332- WAC 18-015. ¹⁸

- A. Stormwater from the portion of the site where hazardous materials are stored and/or fueling of equipment occurs shall be directed away from the pit.

- B. Gravel mining shall not occur in locations where the approval authority determines, based on a hydrogeologic report, that proposed mining would likely diminish the volume of water in springs or shallow wells such that it would no longer meet the needs of dependent users or increase water's turbidity such that it would no longer be suitable for drinking. As an alternative to project denial, the applicant may, with the consent of the affected property owner, mitigate such impacts by providing the affected residents with a deeper well or a connection to an alternative water system. Also see chapter 17.20 TCC.
- C. Mines shall be prohibited in areas with contamination that could impair water quality if it were disturbed or exposed, unless the applicant demonstrates that the proposed mining operation would be conducted in a manner that would not jeopardize ground and surface water quality. The approval authority may require a hydrogeologic report and soil testing and down gradient water testing for suspected toxic chemicals on the site.
- D. Fueling. See Section 17.20.050, Mineral Extraction Code, Fuel and Hazardous Materials.

[**Staff option:** Hazardous waste management plan. Applicants for a mine in a Category 1 CARA shall submit a hazardous waste management plan consistent with **section 24.35.XXX TCC.**]
- E. Monitoring. See Section 17.20.160(B) TCC.
- F. Mining is not allowed in the one-, five- and ten-year time of travel zone of wellhead protection areas, and CARA I soils. In CARA II and III soils, the mine operator shall maintain a buffer of unsaturated material five feet in depth between the bottom of the pit and the seasonal high groundwater table. The approval authority may adjust the depth of the buffer based a hydrogeologic report as warranted to protect ground water quality.
- G. Redevelopment. The approval authority shall give protection of ground water the highest priority when considering proposed land uses at former gravel mine sites. The approval authority shall require, at the time of mine approval, that a note be filed with the title of the subject property indicating that use of the property subsequent to mine closure will be limited as the County determines necessary to protect ground water quality, consistent with the provisions of this section. In addition, gates and fencing shall be required at mine access points along public and private roads to prevent dumping.

24.10.160 Onsite sewage disposal.¹⁹

Onsite sewage disposal systems may be allowed subject to compliance with applicable County and state regulations (See Article IV of the Thurston County Sanitary Code; Chapter 246-272 WAC, the On-Site Sewage Regulations of the Washington State Board of Health; and Chapter 173-200 WAC, the Water Quality Standards for Ground water of the State of Washington) and the following:

- A. Applicants for sewage disposal facilities with capacity for more than 3,500 gallons shall submit a hydrologic report demonstrating that the system will not degrade ground water quantity, consistent with this section. The approval authority shall condition or deny the project as necessary to maintain ground water quality.
- B. Nitrate levels at the applicable monitoring well or down-gradient property line of proposed subdivisions, short subdivisions, or binding site plans in a Category I CARA and areas

identified as having elevated nitrate levels on the map entitled Known Area of Soil or Groundwater Concern, dated April 2004, as amended, shall not exceed more than 10% of the assimilative capacity of the aquifer, as determined by a hydrogeological report prepared by a licensed hydrogeologist or engineer.

- C. Lots less than one acre in size shall not be created by subdivisions, short subdivisions, or binding site plans if they would use on-site sewage disposal systems, regardless of whether the structure will be served by a well or public water system, in a Category I CARA unless the applicant demonstrates, consistent with Article IV of the Thurston County Sanitary Code, that due to the proposed system design, vertical separation from ground water, and the existing soils, ground water quality will not be degraded. (Also see Article IV of the Thurston County Sanitary Code, Section 22, and Areas of Special Concern).
- D. Monitoring. See Article IV, Section 16 and Section 22.3 of the Thurston County Sanitary Code.
- E. Hydrogeologic reports shall be required pursuant to Table 24.10-3 below.

Table 24.10-3. Report Requirements For Subdivisions, Short Subdivisions, Multifamily Residential And Nonresidential Projects Proposed To Use On-Site Sewage Disposal

Lot sizes (in acres)	Report Requirements by Aquifer Category		
	I	II	III
2.0 or greater			
1.0 to 1.99	*	*	*
0.5 to 0.99	H	H	H
0.49 or less	H	H	H
Sewage disposal systems with capacity for 3,500 gallons or more	H	H	H

Legend	
H =	Hydrogeological report required
* =	Hydrogeological report required in areas of known water quality degradation

24.10.170 Pier foundations.

Pier foundations that would extend more than twenty feet below the ground's surface that are proposed to be located within two-hundred feet of a well in a CARA shall be subject to review and approval by the approval authority. In the event the approval authority determines that the proposed foundation will pose a risk to the affected well's water quality, they may require that the proposed foundation be relocated, replaced with a shallow mat foundation, if feasible, or require other mitigation measures.

24.10.180 Pipelines. ²¹

Applicants for pipelines that carry oil, gas, diesel, kerosene or any other liquid hazardous material shall identify spill prevention measures and submit a spill response plan that prioritizes response based on the susceptibility of the aquifer to contamination and its importance as a potable water supply, consistent with federal and state law. The approval

authority shall require mitigative measures as necessary to minimize the risk of ground water contamination.

24.10.190 Reclaimed water.⁶

- A. Irrigation with Class A reclaimed water at agronomic rates is permitted in all CARAs, subject to subsection 24.10.030(J).
- B. Infiltration of Class A reclaimed water by application on the land's surface above agronomic rates (e.g., in spray fields or infiltration basins) is allowed as specified in Table 24.10-1, subject to the following:
 - 1. The applicant shall demonstrate that the proposed infiltration of reclaimed water will not cause degradation of ground water quality exceeding the standards described in Chapter 173-200 WAC (Water Quality Standards of the State of Washington) and comply with all other applicable local, state and federal regulations.
 - 2. The applicant shall demonstrate that application of the reclaimed water will not be harmful to anadromous salmonids in receiving water bodies because:
 - a. The water has been processed through secondary treatment followed by reverse osmosis or nanofiltration; or
 - b. The site proposed for infiltration of reclaimed water has a soil type that will provide additional filtration of the reclaimed water (e.g., sandy loam, organic soil, or manufactured soil) at least ten feet in depth above the groundwater table and at least 500 feet from all surface water bodies containing anadromous fish; or
 - c. When a federal or state standard or management recommendation is established, the applicant will demonstrate, based on best available science, that the reclaimed water will not contain emerging contaminants, such as 17 β -estradiol or synthetic estrogen at levels documented as having harmful effects on salmonids when it enters the surface water body. Mitigative measures will be employed so the reclaimed water will not contain emerging contaminants, such as 17 β -estradiol or synthetic estrogen, at levels documented as having harmful effects on anadromous fish when it enters the surface water body.
 - 3. The approval authority may require monitoring wells, to the extent necessary to determine if pollution is occurring, periodic monitoring at specified intervals, and remedial action if the monitoring reveals that ground water contamination is occurring.

(Also see Chapters 173-216 WAC and 173-200 WAC and Ecology Land Application Guidelines, Chapter 90.46 RCW).

24.10.200 Sawmills.

See chapters 173-303 and 173-304 WAC and the best management practices to Prevent Stormwater Pollution at Log Yards, Washington Department of Ecology 95-53, as amended.

24.10.210 Stormwater. ²⁴

See subsection 24.10.100(F) TCC regarding stormwater management for commercial and industrial sites. Also see the Drainage Design and Erosion Control Manual for Thurston County, as amended (Chapter 15.05 TCC), the Northern Thurston County Ground water Management Plan (1991), and Article VI of the Sanitary Code.

24.10.220 Underground storage tanks and vaults. ²³

Underground tanks and vaults for the storage of hazardous materials, fertilizers, or hazardous/dangerous waste, as defined in Chapter 173-303 WAC, are allowed in a CARA only if they are designed and constructed consistent with state regulations (see Chapter 173-360 WAC), Chapter 14.32 TCC, International Fire Code, and Article VI, Rules and Regulations of the Thurston County Board of Health Governing Nonpoint Source Pollution, so as to:

- A. Prevent releases to the ground, ground water, and surface water due to corrosion, structural failure, or seismic activity for the operational life of the tank or vault. (See Chapter 14.32 TCC, International Fire Code);
- B. Be protected against corrosion, constructed of non-corrosive material, or steel clad with a noncorrosive material, or contained in a secondary containment system to prevent the release of any stored substance;
- C. Be composed of or lined with material that is compatible with the substance to be stored;
- D. Prevent releases to the ground, ground water, and surface water due to spillage. The opening for filling the tank shall be surrounded with impermeable material designed and sized to prevent spilled hazardous material from reaching the soil, groundwater, or surface water; and
- E. Provide for leak detection meeting state standards.

The applicant shall submit design and as built drawings of the facilities and keep records of required testing consistent with state law.

24.10.230 Vehicle repair and servicing/body shops.

- A. Vehicle repair/servicing shall be performed over an impermeable surface under cover from the weather.
- B. Dry wells shall not be permitted in conjunction with such uses.
- C. The approval authority shall require use of a sump or oil water separator, as appropriate to address the contaminants of concern and consistent with state law, to ensure that hazardous materials do not reach the soil, a water body or a sewage disposal system.
- D. The approval authority shall require that new hydraulic hoists be located in a vault to ensure that any leaks from such equipment are contained.
- E. Lubricants, solvents and other hazardous materials shall have secondary containment sized to accommodate at least 110% of the capacity of the largest container, consistent with Article VI of the Rules and Regulations of the Thurston County Board of Health Governing Non Point

Source Pollution. Also see subsections 24.10.050(B) and 140(C) TCC, secondary containment.

24.10.240 Vehicle wrecking yards.¹⁵

- A. Vehicle wrecking yards shall conduct operations consistent with the BMPs for "Preventing Storm water Pollution at Vehicle Recycler Facilities." (Washington Department of Ecology 94-146), as amended (See chapter 173-304 WAC). At a minimum, all hazardous materials and liquids shall be removed from vehicles prior to wrecking activities.
- B. The approval authority shall require submission and implementation of a monitoring program to ensure that the operation is in compliance with required BMPs and any conditions of approval applied by the county.
- C. The approval authority may require monitoring wells, to the extent necessary to determine if pollution is occurring, periodic monitoring, and remedial action if the monitoring reveals that ground water contamination is occurring.

24.10.250 Wood products preserving and treating.^{6,11}

Wood products preserving and treating shall comply with the following:

- A. Wood products preserving, treating, drying, and storage shall be conducted on an impermeable surface, consistent with Resource Conservation and Recovery Act, 42 US Subsection 6901 et.seq. Subtitle C.
- B. The approval authority shall require submittal of a monitoring plan for commercial/industrial wood products preserving and treating operations to ensure that the operation is in compliance with all applicable local, state and federal regulations pertaining to groundwater protection and any conditions of approval applied by the County. Remedial action shall be required if the monitoring reveals that ground water contamination is occurring.

Table 24.10-4

Critical Aquifer Recharge Area soil series.

CATEGORY I SOIL SERIES	
Series Name	SCS Map Symbol #
Baldhill	5, 6, 7, 8
Cagey	20
Everett	32, 33, 34, 35
Grove	42
Indianola	46, 47, 48
Newberg	71, 72
Nisqually	73, 74
Pilchuck	84
Pits, gravel	85
Puyallup	89
Spanaway	110, 111, 112, 113, 114
Sultan	115
Tenino	117, 118, 119
CATEGORY II SOIL SERIES	
Series Name	SCS Map Symbol #
Alderwood	1, 2, 3, 4
Chehalis	26
Delphi	27, 28
Eld	31
Giles	38, 39, 40
Maytown	64
Spana	109
Yelm	126, 127, 128
CATEGORY III SOIL SERIES	
Series Name	SCS Map Symbol #
Bellingham	14
Dupont	29
Everson	36
Galvin	37
Godfrey	41
Hoogdal	43, 44
Kapowsin	50, 51, 52, 53, 54, 55
Mashel	62, 63
McKenna	65
Mukilteo	69, 70
Norma	75, 76
Puget	88
Scammen	100, 101
Semiamoo	104
Shalkar	105
Shalkar Variant	106
Skipopa	107, 108
Tacoma	116
Tisch	120