Report of General Field Investigation

Date: 3/1/06
To: Bob Crowe
From: Jack Powell (Licensed Geologist, Engineering Geologist, and Hydrogeologist)

On March 1, 2006, I investigated the Onstot Quarry located in the SE ¼ corner of Section 8 of T17N, R20E. The quarry is situated between the John Wayne Trial and Parke Creek Road (Figure 1). This site visit was conducted as a private individual pursuing a long term academic investigating (I was not representing the Department of Natural Resources where I work as a geologist in Forest Practices). I received permission to visit the property from the landowners, whom I have known for many years. I met with Shane Jump, who leases the site, during my site visit.

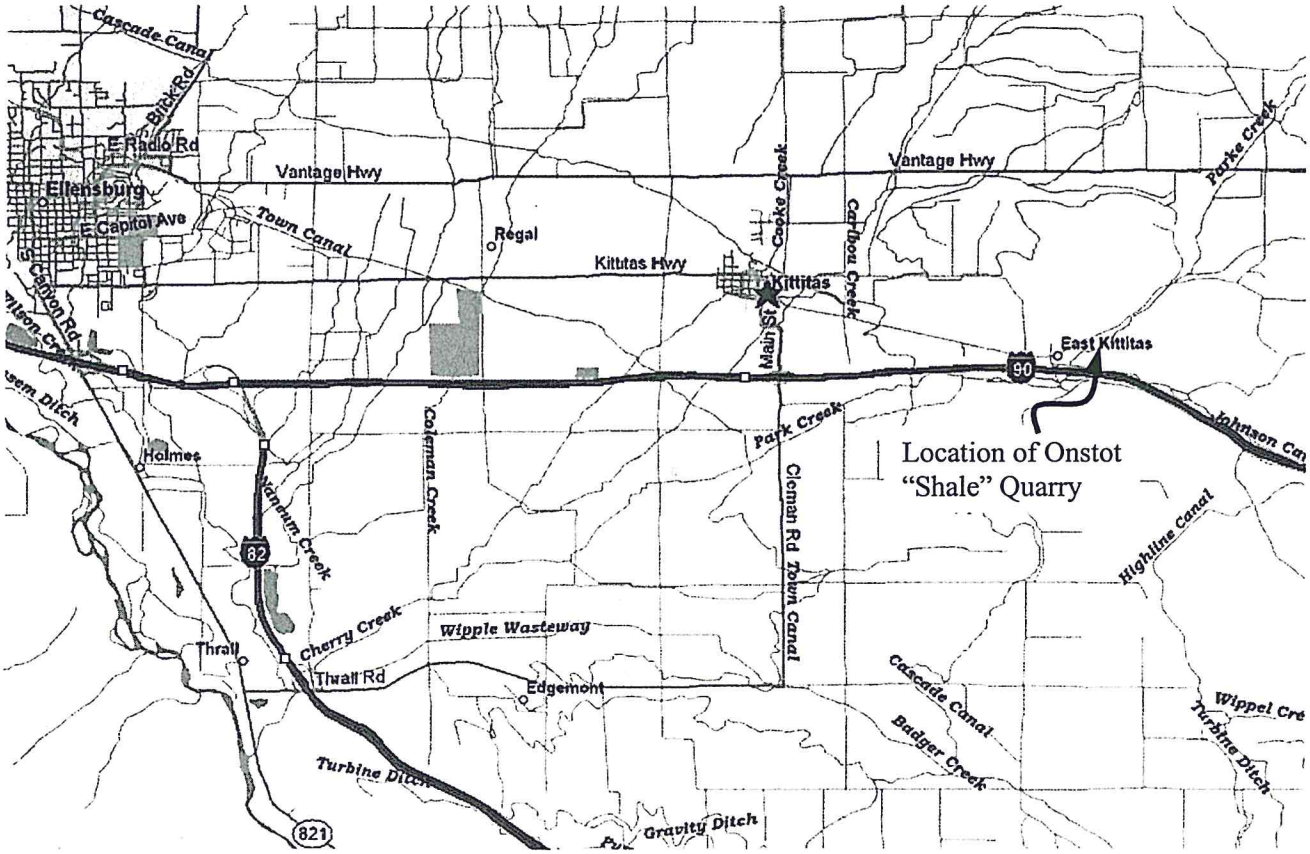


Figure 1. Map showing the location of the Onstot "Shale" Quarry 8 miles east of Ellensburg.

During this field visit I measured the extent of the area disturbed by surface mining, evaluated the quality of the aggregate being produced and checked the height of working faces in the quarry. Using a Garmin V GPS with an external antenna, I determined the size of the quarry to be 2.82 acres. The reclaimed areas (as defined in RCW 78.44.031(11)) and the access road to the quarry were not included in the calculation of the disturbed area. The access road to the quarry is the permanent access to the property and will remain as a capital improvement after the completion of mining (see RCW 78.44.031(5)(a)). Figure 2 shows the GPS outline of the area disturbed by mining as of March 1, 2006, as measured by GPS then downloaded into Maptech Terrain Navigator.

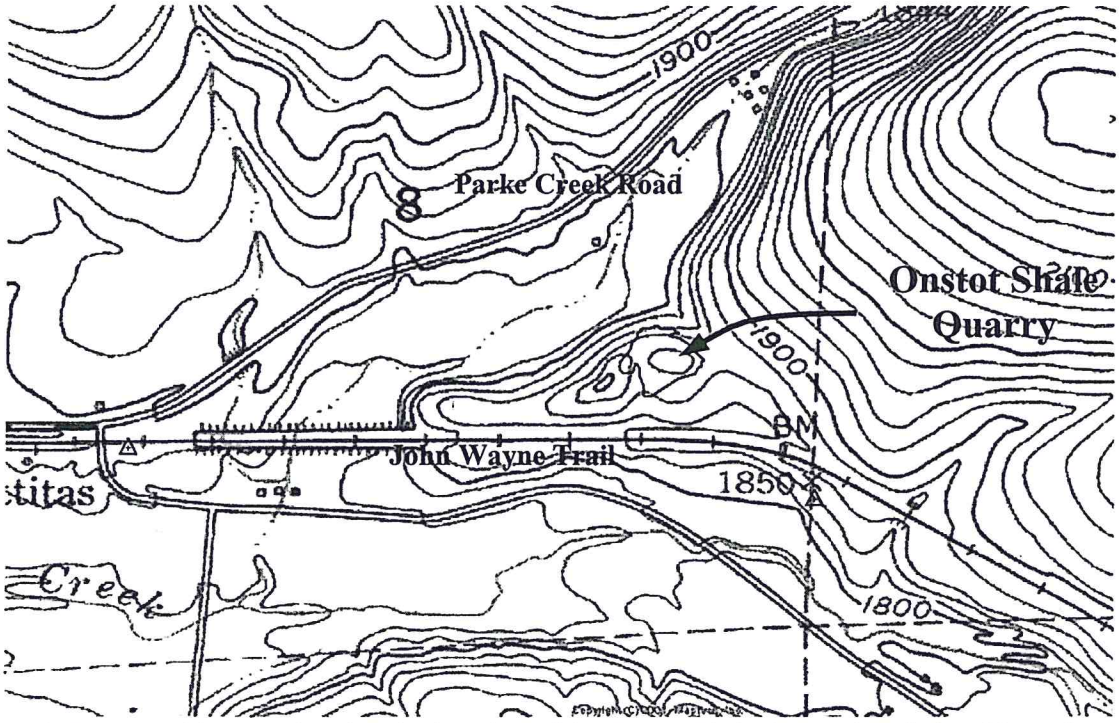


Figure 2. Topographic map showing the location of the Onstot Shale Quarry in relationship to the John Wayne Trail and Parke Creek Road.

The Onstot quarry contains several working faces, however, no face is greater than 30 feet high with a slope greater than 45 degrees. In its current configuration and condition the quarry is below the State of Washington threshold for requiring a Surface Mining Permit. The State requires a permit for surface mining as defined in RCW 78.44.031 which states:

(17)(a) "Surface mine" means any area or areas in close proximity to each other, as determined by the department, where extraction of minerals results in:

(i) More than three acres of disturbed area;

(ii) Surface mined slopes greater than thirty feet high and steeper than 1.0 foot horizontal to 1.0 foot vertical.

(The definitions related to surface mining are attached to this report as Attachment #1)

The Onstot "Shale" quarry is one of a number of quarries in the general area of the East Kittitas Valley. Figure 3 shows the location of three other 'shale' quarries and a large hardrock basalt crushing operation in a quarry south of I-90.

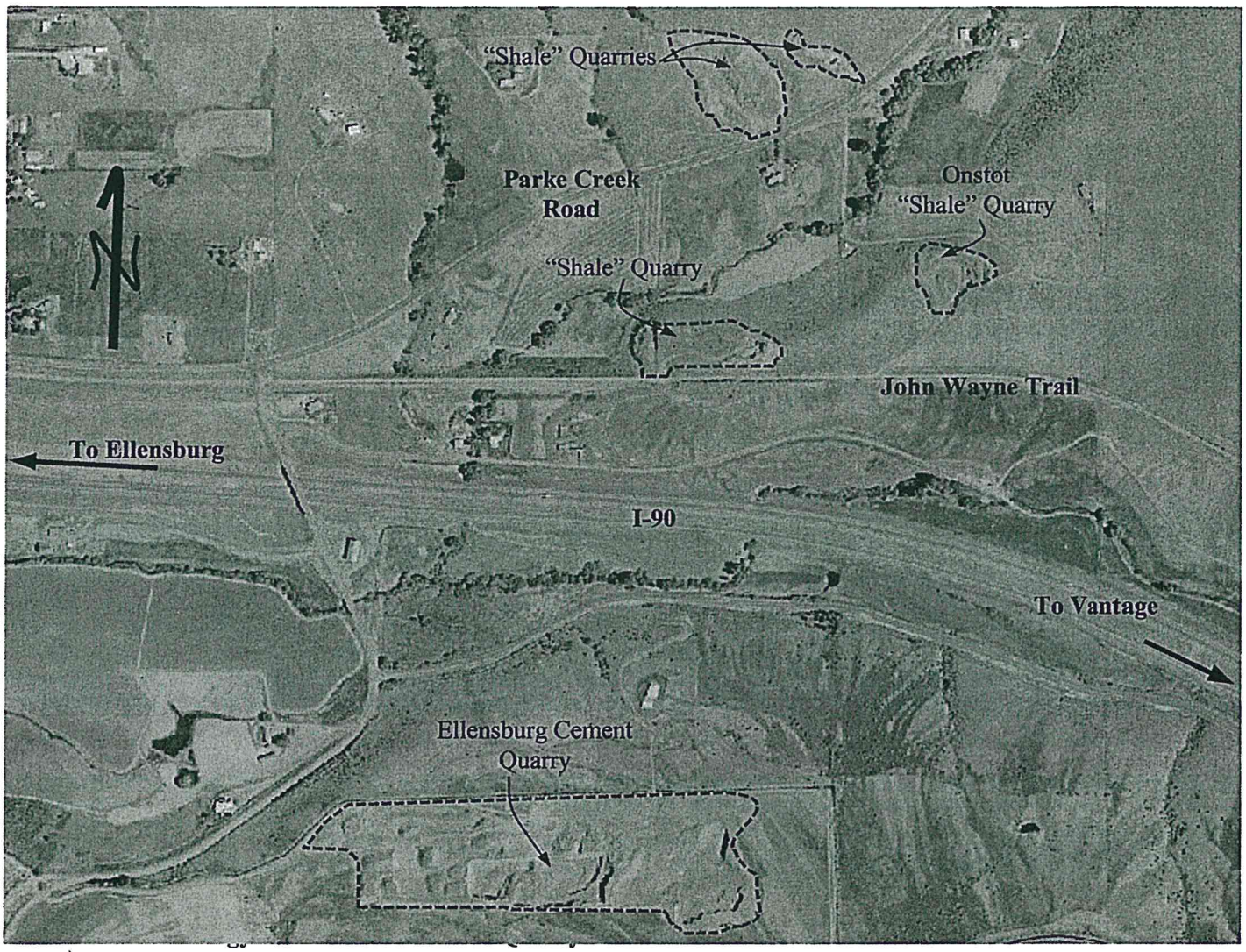


Figure 3 is an orthophoto of the area near the Onstot Quarry. This image shows five quarrying operations near the Onstot Quarry.

Weathered platy basalt is mined for use as unimproved road aggregate at a number of locations along the eastern edge of Kittitas Valley. This material is marketed as is and is referred to locally as "shale". Shale is a soft sedimentary rock composed of compressed clay and silt, however, throughout eastern Washington State platy basalt is called "shale". Platy basalt or "shale" formed in the lower portion of the Frenchman Springs Member of the Columbia River Basalt. The fractures in the basalt formed as cooling cracks in the basalt flow. The basalt unit below the Frenchman Springs flow producing the "shale" is the Rocky Coulee Flow. Below its vesicular top, the Rocky Coulee Flow consists of a hard, erosion resistant, entablature. South of the Onstot Quarry, Ellensburg Cement Products is quarrying and crushing this entablature in the Clerf Quarry located south of I-90 (Figure 3). Between the Rock Coulee Flow and the Frenchman Spring Basalt flows is a white clay layer deposit formed in an ancient lake. This clay layer is known as the

Vantage Sediment and is 20 to 80 feet thick (Figure 4). The lava flow containing the "shale" developed vertical cooling crack forming large basalt columns. The vertical cooling cracks acted as cooling surfaces, which promoted the development of horizontal cracks to produce the platy fracturing. Over time, mechanical and chemical weathering fragmented these thin plates, altering their mineral composition to form thin clay layers between individual plates. Frost action has further loosened the fragments of basalts. This chemical and mechanical weathering of the platy basalt formed a crumbly rock body that is suitable for use as pit run aggregate locally utilized for unimproved road surfaces. I roughly measured the thickness of the "shale" deposit with a GPS instrument finding it to be 78ft as measured by elevation change from the upper access road to just above the lower access road (Figure 4). The deposit pinches-out along the north, east and west edges of the property while thickening to the south side of the property.

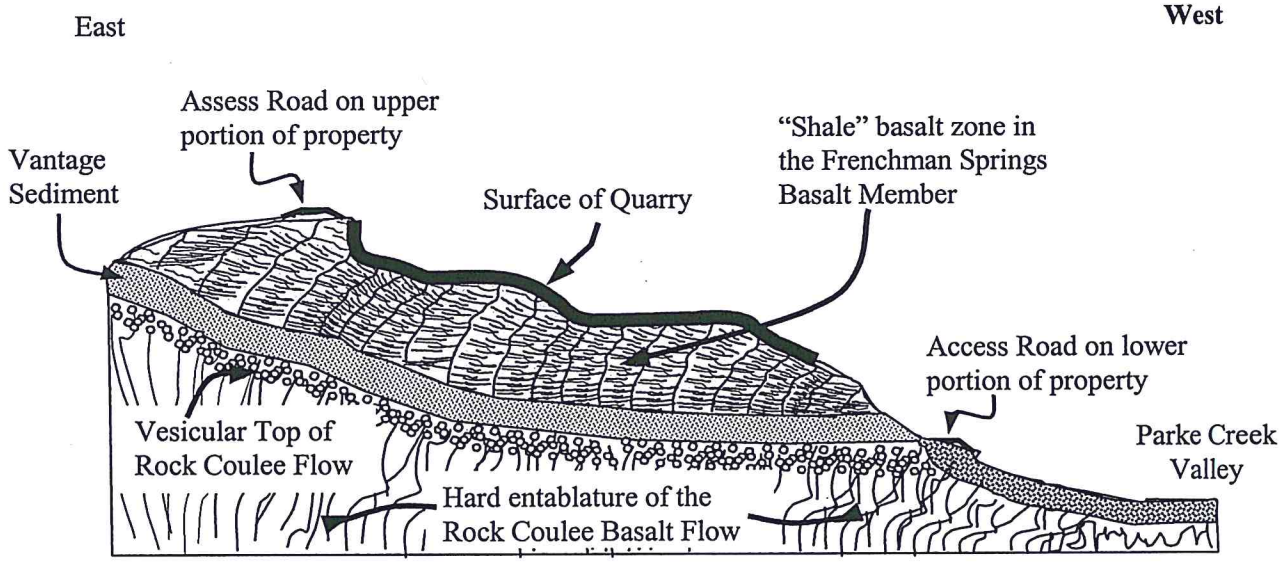
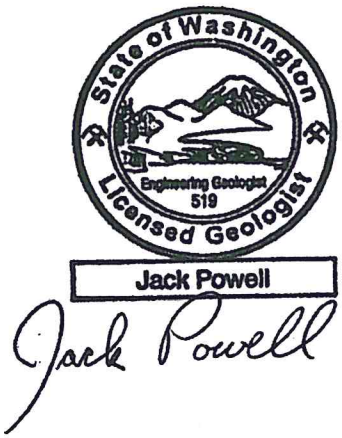


Figure 4. This illustration is a diagrammatical east/west cross section through the Onstot "Shale" Quarry. The "shale" formed in the lowest Frenchman Springs Basalt flow. The Vantage Sediment and the Rock Coulee Basalt Flow underlie it. The "shale" deposit occurs along a ridge. It thickens to the south and pinches out to the north, east, and west.

No detailed material reserve calculation was done during this investigation, however, the "shale" under lays the property to its southern boundary. Reserves will last at least ten to twenty years at the present rate of development. The quality of the "shale" is uniform in character and condition with only small zones resistant to fracture. This produces pit run sized aggregate suitable for surfacing unimproved roads. The occasional oversize material can be utilized as riprap or ornamental stone. The mine has reached the bottom of the deposit (the Vantage Sediment) only in the lowest, westernmost portion of the present quarry (Figure 4).

Thank you for an opportunity to visit your property and follow the development of mineral deposits that I have been investigating for many years.

Jack Powell
(DNR Forest Practices Geologist)
Licensed Geologist, Engineering
Geologist, and Hydrogeologist
1091 Manastash Road
Ellensburg, Washington 98926
Phone 509-925-6198



Attachment #1

RCWs > Title 78 > Chapter 78.44 > Section 78.44.031

Definitions.
Unless the context clearly indicates otherwise, the definitions in this section apply throughout this chapter.

(1) "Approved subsequent use" means the post surface-mining land use contained in an approved reclamation plan and approved by the local land use authority.

(2) "Completion of surface mining" means the cessation of mining and directly related activities in any segment of a surface mine that occurs when essentially all minerals that can be taken under the terms of the reclamation permit have been depleted except minerals required to accomplish reclamation according to the approved reclamation plan.

(3) "Department" means the department of natural resources.

(4) "Determination" means any action by the department including permit issuance, reporting, reclamation plan approval or modification, permit transfers, orders, fines, or refusal to issue permits.

(5) "Disturbed area" means any place where activities clearly in preparation for, or during, surface mining have physically disrupted, covered, compacted, moved, or otherwise altered the characteristics of soil, bedrock, vegetation, or topography that existed prior to such activity. Disturbed areas may include but are not limited to: Working faces, water bodies created by mine-related excavation, pit floors, the land beneath processing plant and stock pile sites, spoil pile sites, and equipment staging areas. Disturbed areas shall also include aboveground waste rock sites and tailing facilities, and other surface manifestations of underground mines.

Disturbed areas do not include:

(a) Surface mine access roads unless these have characteristics of topography, drainage, slope stability, or ownership that, in the opinion of the department, make reclamation necessary;

(b) Lands that have been reclaimed to all standards outlined in this chapter, rules of the department, any applicable SEPA document, and the approved reclamation plan; and

(c) Subsurface aspects of underground mines, such as portals, tunnels, shafts, pillars, and stopes.

(6) "Miner" means any person or persons, any partnership, limited partnership, or corporation, or any association of persons, including every public or governmental agency engaged in surface mining.

(7) "Minerals" means clay, coal, gravel, industrial minerals, metallic substances, peat, sand, stone, topsoil, and any other similar solid material or substance to be excavated from natural deposits on or in the earth for commercial, industrial, or construction use.

(8) "Operations" means all mine-related activities, exclusive of reclamation, that include, but are not limited to activities that affect noise generation, air quality, surface and ground water quality, quantity, and flow, glare, pollution, traffic safety, ground vibrations, and/or significant or substantial impacts commonly regulated under provisions of land use or other permits of local government and local ordinances, or other state laws.

Operations specifically include:

(a) The mining or extraction of rock, stone, gravel, sand, earth, and other minerals;

(b) Blasting, equipment maintenance, sorting, crushing, and loading;

(c) On-site mineral processing including asphalt or concrete batching, concrete recycling, and other aggregate recycling;

(d) Transporting minerals to and from the mine, on site road maintenance, road maintenance for roads used extensively for surface mining activities, traffic safety, and traffic control.

(9) "Overburden" means the earth, rock, soil, and topsoil that lie above mineral deposits.

(10) "Permit holder" means any person or persons, any partnership, limited partnership, or corporation, or any association of persons, either natural or artificial, including every public or governmental agency engaged in surface mining and/or the operation of surface mines, whether individually, jointly, or through subsidiaries, agents, employees, operators, or contractors who holds a state reclamation permit.

(11) "Reclamation" means rehabilitation for the appropriate future use of disturbed areas resulting from surface mining including areas under associated mineral processing equipment, areas under stockpiled materials, and aboveground waste rock and tailing facilities, and all other surface disturbances associated with underground mines. Although both the need for and the practicability of reclamation will control the type and degree of reclamation in any specific surface mine, the basic objective shall be to reestablish on a perpetual basis the vegetative cover, soil stability, and water conditions appropriate to the approved subsequent use of the surface mine and to prevent or mitigate future environmental degradation.

(12) "Reclamation setbacks" include those lands along the margins of surface mines wherein minerals and overburden shall be preserved in sufficient volumes to accomplish reclamation according to the approved plan and the minimum reclamation standards. Maintenance of reclamation setbacks may not preclude other mine-related activities within the reclamation setback.

(13) "Recycling" means the reuse of minerals or rock products.

(14) "Screening" consists of vegetation, berms or other topography, fencing, and/or other screens that may be required to mitigate impacts of surface mining on adjacent properties and/or the environment.

(15) "Segment" means any portion of the surface mine that, in the opinion of the department:

(a) Has characteristics of topography, drainage, slope stability, ownership, mining development, or mineral distribution, that make reclamation necessary;

(b) Is not in use as part of surface mining and/or related activities; and

(c) Is larger than seven acres and has more than five hundred linear feet of working face except as provided in a segmental reclamation agreement approved by the department.

(16) "SEPA" means the state environmental policy act, chapter 43.21C RCW and rules adopted thereunder.

(17)(a) "Surface mine" means any area or areas in close proximity to each other, as determined by the department, where extraction of minerals results in:

(i) More than three acres of disturbed area;

(ii) Surface mined slopes greater than thirty feet high and steeper than 1.0 foot horizontal to 1.0 foot vertical; or

(iii) More than one acre of disturbed area within an eight acre area, when the disturbed area results from mineral prospecting or exploration activities. (b) Surface mines include areas where mineral extraction from the surface or subsurface occurs by the auger method or by reworking mine refuse or tailings, when the disturbed area exceeds the size or height thresholds listed in (a) of this subsection.

(c) Surface mining occurs when operations have created or are intended to create a surface mine as defined by this subsection.

(d) Surface mining shall exclude excavations or grading used:

(i) Primarily for on-site construction, on-site road maintenance, or on-site landfill construction;

(ii) For the purpose of public safety or restoring the land following a natural disaster;

(iii) For the purpose of removing stockpiles;

(iv) For forest or farm road construction or maintenance on site or on contiguous lands;

(v) Primarily for public works projects if the mines are owned or primarily operated by counties with 1993 populations of less than twenty thousand persons, and if each mine has less than seven acres of disturbed area; and

(vi) For sand authorized by RCW 79A.05.630.

(18) "Topsoil" means the naturally occurring upper part of a soil profile, including the soil horizon that is rich in humus and capable of supporting vegetation together with other sediments within four vertical feet of the ground surface.

[2000 c 11 § 22; 1999 c 252 § 1; 1997 c 142 § 1; 1993 c 518 § 4.]

Notes:

Severability -- 1999 c 252: "If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected." [1999 c 252 § 3.]

Captions -- Severability -- Effective date -- 1993 c 518: See notes following RCW 78.44.010.