in conjunction with their own operation. Record 760 ("We would be happy to lease the land for our cattle; we would be able to increase the herd significantly"). Petitioners point out that the Mellors rented the Richards ranch prior to 2000, growing hay and conducting a seasonal grazing operation with 60 cow/calf pairs, and that the Mellors currently manage the Napier parcel as well as their own property. Further, petitioners argue that the subject property could be used in conjunction with the 119-acre Trent parcel, which adjoins the property to the east across Champagne Creek. Finally, petitioners argue that while Napier is not currently interested in using his land in conjunction with the subject property, there is no reason why that could not change, and the two halves of the Richards ranch could resume their 70-year history of combined operations.

Intervenor agrees that the question is whether the property is suitable for grazing using reasonable management techniques, but argues that the evidence in the record establishes that the property is not reasonably suited for farm use even using such techniques. Intervenor cites to evidence that the soils on the subject property produce enough forage to support 211 animal unit months (AUM), or 17.6 animal units on an annual basis.[6] The county found that that level of grazing is below the "accepted farming practices for livestock grazing in western Oregon." Record 23. The only way to increase the number of livestock supported would involve supplemental feeding, pasture maintenance and regular fertilization, measures that the county found would not be cost-effective, if the goal is to make a profit. Record 16. While the property could support a limited number of cattle without such measures, the county found, that number is so low that the operation would be more accurately characterized as a "lifestyle activity" rather than "farm use," *i.e.*, an activity with the primary intent of making a profit in money. Record 27. With respect to using the subject property in conjunction with nearby or adjacent properties, the decision generally dismisses that possibility, citing the subject property's relatively low forage productivity.

For the following reasons, we agree with petitioners that the county's findings that the property is unsuitable for grazing, alone or in conjunction with nearby or adjacent properties, are inadequate and misconstrue the applicable law.

a. Profit in Money

Turning first to the question of profitability, OAR 660-033-0020(1)(a)(B) requires that the

county determine whether land with predominantly non-agricultural soils is otherwise "suitable for farm use as defined in ORS 215.203(2)(a)," based on consideration of the listed factors, including suitability for grazing. *See* n 1. ORS 215.203(2)(a) defines "farm use" in relevant part as "the current employment of land for the primary purpose of obtaining a profit in money" by, among other things, producing livestock.[7] The county's analysis repeatedly cites and relies upon the statutory definition to conclude that, while the subject property is capable of supporting some level of grazing, it is ultimately not "suitable for farm use" because a grazing operation on the subject property would be unprofitable.[8] That conclusion appears to rest on the relatively small scale of the grazing operation the property can support without improvements, and the relatively high cost of and marginal returns from undertaking improvements to support a larger or more intensive grazing operation.

As noted, OAR 660-033-0030(5) provides that "[n]otwithstanding the definition of 'farm use' in ORS 215.203(2)(a), profitability or gross farm income shall not be considered in determining whether land is agricultural land." We are not aware of any cases construing OAR 660-033-0030(5), and it is not clear to us how far its prohibition on considering profitability or gross farm income extends, in determining whether land is agricultural land under Goal 3. Under the most extreme interpretation, land capable only of the most minimal farm uses generating gross revenue could qualify as agricultural land. We need not decide the full meaning of OAR 660-033-0030(5) or how it might be applied in such extreme circumstances, because extreme circumstances are not present here. It seems relatively clear that the rule operates to de-emphasize, if not eliminate, the role that the "primary purpose of obtaining a profit in money" language in ORS 215.203(2)(a) otherwise might play, in determining whether land is agricultural land under OAR 660-033-0020(1)(a)(B). The county in the present case relied heavily on that statutory language to conclude, not that the subject property could not generate revenue from grazing, but essentially that it could not generate *enough* revenue to qualify as a bona fide as opposed to a "lifestyle" farm operation.

Intervenor cites *Lovinger v. Lane County*, 36 Or LUBA 1, 16-19, *aff'd* 161 Or App 198, 984 P2d 958 (1999), for the proposition that the county has some latitude to set a threshold level of profitability in determining whether "farm uses" are impracticable under the statutes and administrative rules governing committed exceptions. In *Lovinger*, intervenor explains, we held that whatever latitude the

county may have to set such thresholds, the county in that case erred to the extent it set a threshold of profitability based on whether the property is capable of supporting a "commercial" or an "economically self-sufficient" agricultural operation. In the present case, however, intervenor argues that the county properly identified a threshold of profitability short of a "commercial" agricultural operation, and found that the subject property is not capable of meeting that threshold. According to intervenor, the appropriate standard is whether a "reasonable and prudent farmer" would use the subject property for the primary purpose, and expectation, of making a *net* profit in money from grazing operations, after deducting the cost of direct operating expenditures, such as feed, fuel, fertilizer, vehicles, maintenance and labor. Intervenor argues that expert testimony in the record, adopted by the county, demonstrates that the subject property is not capable of producing a net profit in money, given the neglected condition of the property, its current low forage productivity, and the high cost and marginal returns of attempting to increase that productivity to support a larger or more intensive grazing operation.

Lovinger and other cases cited for the proposition that counties have some latitude to define a threshold of profitability all antedate OAR 660-033-0030(5), involve circumstances where the applicant seeks a committed exception to Goal 3, or involve other circumstances where the rule's prohibition on considering profitability did not apply. Such cases are of limited utility in determining whether property is agricultural land where OAR 660-033-0030(5) applies.

There appears to be no dispute that even in its current neglected condition the subject property produces forage that can support a limited number of livestock on a seasonal basis, even without supplemental feed. There is evidence in the record that seasonal grazing is common in the area, and that it occurs primarily during the spring months. It appears that the soils on the subject property could potentially provide spring seasonal forage for at least 50-60 head of cattle (211 AUMs divided by 4), approximately the same number of cattle that the Mellors seasonally grazed on the property during their tenure.

The county dismisses a grazing operation at that scale and intensity as a "lifestyle activity" rather than as an activity with the "primary purpose of obtaining a profit in money." The county's analysis relies heavily on considerations of profitability or gross farm revenue, considerations that are prohibited by OAR 660-033-0030(5). In addition, the county's analysis appears to be based in part on the view

that a certain scale or intensity of grazing is necessary to constitute "farm use." Record 23 ("This stocking level is far below that of accepted farming practices for livestock grazing in western Oregon"). However, Goal 3 protects small-scale agricultural uses as well as large-scale ones. Intervenor argues, and we tend to agree, that land capable of supporting only a "few animals" probably would not constitute land "suitable for grazing" under OAR 660-033-0020(1)(a)(B). However, it is not clear to us and the decision does not explain why land capable of supporting 211 AUMs on a seasonal basis, consistent with its historic use for grazing, and consistent with other grazing operations in the area, is such a *de minimis* level of capability as to fall outside the Goal 3 definition. In short, although the county did not phrase it this way, it appears to have applied what is essentially a "commercial-scale" agricultural operation standard under OAR 660-033-0020(1)(a)(B). That approach would be error even if OAR 660-033-0030(5) did not apply.[9]

Two other points merit discussion. We tend to agree with petitioners that the current neglected status of the property is not the proper baseline for considering whether it is agricultural land. Where land was once maintained at some level of agricultural productivity that has suffered in recent years due to neglect, it is inappropriate to take such neglect into account under OAR 660-033-0020(1)(a)(B). A reasonable rancher, for example, would maintain fences, control brush and weeds and take similar appropriate measures to maintain the productivity of the property. The county erred to the extent it took as its baseline the neglected condition resulting from failure to provide such maintenance. However, it is not clear that the county did so. As we understand the record, the 211 AUM figure the county relied upon is an estimate of the subject property's forage productivity under appropriate management measures.

Second, in concluding that the subject property is no longer part of a "farm unit" for purposes of OAR 660-033-0020(1)(a)(B), we noted that in approving the subject property's creation in 2000 the county was required under ORS 215.263(2) to find that the subject property is either "appropriate for the continuation of the existing commercial agricultural enterprise within the area," or that it exceeds the minimum size established under ORS 215.780. The apparent intent of ORS 215.263(2) is to ensure that parcels created for farm uses are of sufficient size to continue to contribute to the agricultural economy. Creation of a parcel for farm use pursuant to the findings required by ORS 215.263(2) certainly does not

preclude a subsequent determination that the parcel so approved is not, in fact, suitable for farm use. However, it further buttresses our view that the relative scale of the agricultural operation the property can support, which is partially related to the size of the property, is not a sufficient basis to conclude that the property is not suitable for farm use.

b. Use in Conjunction with Nearby or Adjacent Land

As noted, OAR 660-033-0030(3) provides that "Goal 3 attaches no significance to the ownership of a lot or parcel when determining whether it is agricultural land" and that "[n]earby or adjacent land, regardless of ownership, shall be examined" in determining whether land is "suitable for farm use" under OAR 660-033-0020(1)(a)(B). *See* n 4.

The county's conclusion that the subject property is not "suitable for farm use" under OAR 660-033-0020(1)(a)(B) becomes even more unsupportable when the focus shifts from the subject property in isolation to whether the subject property can be used in conjunction with adjacent or nearby properties, an inquiry that OAR 660-033-0030(3) directs. The decision dismisses the possibility of use in conjunction with the Napier property, the other half of the Richards ranch, because Napier is not interested in joint use. The decision does not address at all the Mellors' stated willingness to lease the subject property in conjunction with their grazing operation. Nor does it adequately address conjoined use with the Trent property, although intervenor cites to a statement in the agricultural consultant's report that due to steep terrain around Champagne Creek the adjoining parcels are "not connected in a practical manner." Record 1197.

In our view, the fact that Napier is not currently interested in conjoined use is not determinative under OAR 660-033-0030(3), if the two adjacent properties can in fact be used together in a combined agricultural operation. There seems to be little question that the two properties could be used together in a joint operation, because there is a 70-year history of such joint use. Similarly, the decision cites no reason why the subject property could not be used in conjunction with the Mellors' nearby property and grazing operation, other than to describe their property as "marginal." *See* n 5. As to the Trent property, it might be the case that steep terrain between the subject property and the Trent property would preclude joint use, or that the stretch of Colonial Road connecting the two properties does not provide practicable access. It also could be that there is no farm use on the Trent property with which the

subject property could combine. However, without more focused findings on this point and the Trent property in general, we agree with petitioners that the county has not demonstrated that the subject property cannot be used in conjunction with the Trent parcel.

2. Forage Improvement Practices

Petitioners next fault the county for failing to address testimony that the forage productivity of the property could be significantly improved by planting subterranean clover.

Intervenor argues that the county adopted findings rejecting the cited testimony because it was general in nature, not specific to the subject property, and was controverted by evidence that techniques advisable elsewhere in the county would not be appropriate on the subject property.[10] Petitioners do not challenge those findings, and we agree with intervenor that petitioners' forage improvement arguments do not provide a basis for reversal or remand.

3. Other Agricultural Uses

The county found that 12 percent or approximately 19 acres of the property has soils, aspects and other features suitable for a "commercial vineyard," but nonetheless concluded that the property as a whole is not suitable for a vineyard "for the primary purpose of obtaining a money in profit," given the poor soils on the remainder, which are not capable of producing commercial quality grapes.[11]

Petitioners again fault the county for relying on a commercial standard of profitability and distinguishing between allegedly noncommercial, "lifestyle" agricultural operations and commercial agricultural operations.[12]

Intervenor responds that the county's decision uses "commercial" in the sense of producing commercial-grade grapes that can be sold on the market, as opposed to lesser quality grapes produced only for domestic consumption that have no ready market value. Intervenor contends that the county did not intend to apply a "commercial" standard of profitability. Instead, intervenor argues, the county concluded that the property as a whole is not suitable for use as a vineyard, because only a portion of the subject property can produce commercial-grade grapes.

As the findings quoted in n 11 indicate, the county's findings regarding use of the property for a vineyard are permeated with the view, rejected above, that "small-scale" agricultural uses are merely "life-style" activities and cannot also be farm uses for purposes of OAR 660-033-0020(1)(a)(B), because

their "primary purpose" is not that of "making a profit in money." As explained, the county's emphasis on profitability is inconsistent with OAR 660-033-0030(5). The findings characterize a nearby 15-acre vineyard as "small-scale" and as a "life-style" activity, in part due to its size and in part because it is associated with a bed and breakfast. However, a 15-acre vineyard is a fairly intensive agricultural enterprise, which may be sufficient in size to support a winery allowed under ORS 215.213(1)(s), 215.283(1)(q) and 215.452. Further, we do not see that the association of such a vineyard with a bed and breakfast means that the vineyard is not a farm use. If the subject property can support a similar 15 or 20-acre commercial vineyard, and intervenor's own evidence suggests that it might be able to, then the county must consider that possibility, under an analysis that is consistent with OAR 660-033-0030 (5).

The county's findings also emphasize the fact that a majority of the soils on the subject property are not suitable for a commercial vineyard. Unlike OAR 660-033-0020(1)(a)(A), a determination whether property is "suitable for farm use" under OAR 660-033-0020(1)(a)(B) does not turn on the *predominant* soil classification or characteristics of the property. If a significant portion of a large parcel is suitable for a farm use, then the fact that the remainder of the parcel is not suitable for that particular use does not automatically disqualify the parcel as agricultural land under OAR 660-033-0020 (1)(a)(B). While the county must evaluate the whole parcel, if 19 acres of the property are suitable for a commercial vineyard, and a significant portion of the remainder is suitable for seasonal grazing, for example, then the county must consider that possibility. The fact that the majority of the parcel is not suitable for a commercial vineyard is not dispositive.

C. OAR 660-033-0020(1)(a)(C): Necessary Land

OAR 660-033-0020(1)(a)(C) includes within the definition of "agricultural land" land that is "necessary to permit farm practices to be undertaken on adjacent or nearby agricultural lands." *See* n 1. The county's findings discuss many of the surrounding parcels in resource zoning, and conclude, in relevant part, that "[f]arm use on the properties within the notice area is not connected with the subject property in any way." Record 29.

Petitioners challenge that finding, arguing that the county misconstrued the "necessity" standard to require that *farm use* of the property in conjunction with adjacent or nearby properties is necessary to

permit farm practices on such adjacent or nearby properties. The proper question under the necessity standard, petitioners contend, is whether keeping the subject property under an agricultural designation is necessary to support farm practices on adjacent or nearby properties. According to petitioners, if the subject property's plan and zoning designations are amended to allow the proposed 32 rural residential dwellings, the ensuing conflicts between residential uses and adjacent and nearby farm practices will hinder or prevent those practices.

Intervenor argues, and we agree, that the county did not construe the necessity standard in the way petitioners allege. As far we can tell from the findings, the county did not presume that *farm use* of the subject property must occur in conjunction with neighboring farm to show that the subject property qualifies as agricultural land under the necessity standard. The county understood, instead, that there must be some connection between the subject property and adjacent or nearby farm practices, such that the subject property must remain as "agricultural land" in order to permit such practices on other lands to be undertaken. We agree with that understanding of the necessity standard. The county found no evidence of any connection between the subject property and adjacent or nearby farm practices, or that the subject property must remain as "agricultural land" in order to permit such practices to be undertaken. Petitioners cite to no evidence that rural residential use of the subject property on five-acre lots is likely to cause conflicts such that adjacent or nearby farm practices cannot continue or be undertaken. Intervenor notes that resource uses are protected from complaints by rural residents under ORS 30.936, the right to farm statute, which makes it even more unlikely that such conflicts could rise to that level. Petitioners have not demonstrated that the county erred in finding that the subject property is not "agricultural land" under the necessity standard.

D. Conclusion

For the above reasons, the county misconstrued OAR 660-033-0020(1)(a)(B) and failed to adopt adequate findings addressing whether the subject property is agricultural land under that definition. Remand is necessary for the county to apply the correct standard, consistent with OAR 660-033-0030 (5).[13]

The first assignment of error is sustained, in part.

SECOND ASSIGNMENT OF ERROR

Petitioners challenge the county's finding that the subject property is not "forest land" as defined by Statewide Planning Goal 4 (Forest Lands).[14]

The county adopted four alternative rationales in support of its conclusion that the subject property is not "suitable for commercial forest uses" and hence protected by Goal 4, based on a report by intervenor's consulting forester.[15] According to intervenor, the first analysis is a "qualitative" judgment that "no commercial timber operator" would be interested in managing the property for timber production, since most of the property has not historically supported commercial stands of timber, and the majority of the soils on the property are not rated for timber productivity. The remaining analyses are technical estimates of the productivity of the soil types on the subject property, expressed in cubic feet per acre per year (cf/ac/yr). The technical analyses rely on language in finding 4 of the comprehensive plan's Goal 4 element, which the county interprets to provide a minimum standard of 80 cf/ac/yr for commercial forest lands protected by Goal 4.[16]

The Speaker and Josephine soils that comprise about 35 acres or 22 percent of the subject property are capable of producing 114 cf/ac/yr and 129 cf/ac/yr, respectively, based on National Resource and Conservation Service (NRCS) data. Apparently, there are no NRCS timber productivity data for the Dickerson and Nonpareil soils that comprise about 127 acres or 78 percent of the property.

The second analysis assumed that the Dickerson and Nonpareil soils that predominate on the subject property have zero productivity, despite the fact that scattered stands of trees are found on 56.1 acres of those soils on the subject property. Under that assumption, the average per acre productivity for the entire parcel is 26.1 cf/ac/yr.

The third analysis examined the stands of trees growing on 56.1 acres of Dickerson and Nonpareil soils on the property, and estimated that the soil supporting those stands would yield 130 cf/ac/yr if the stands were fully stocked. However, the consultant found that those areas can support only half stocking, and accordingly halved the estimate to 65 cf/ac/yr. The consultant continued to assume that the 71 acres of Dickerson and Nonpareil soils with no stands of trees have zero capability to grow trees. Under these assumptions, the average productivity for the entire parcel is 48.5 cf/ac/yr.

Finally, the fourth technical analysis assumed that the 56.1 acres of Dickerson and Nonpareil soils supporting scattered trees could in fact be fully stocked, and thus yield 130 cf/ac/yr. Under this

assumption, the average productivity for the entire parcel is 70.93 cf/ac/yr. Because none of the three technical analyses showed that the subject property met the 80 cf/ac/yr standard, the county concluded, the subject property is not "suitable for commercial forestry" under the Goal 4 definition.

A. 80 cf/ac/yr

Petitioners first challenge the county's reliance on the 80 cf/ac/yr minimum standard for commercial forest lands that the county interpreted its comprehensive plan to provide. Petitioners contend that the county's interpretation of comprehensive plan language and other local provisions implementing Goal 4 cannot be contrary to the goal. ORS 197.829(1)(d).[17] According to petitioners, interpreting the threshold for lands protected by Goal 4 to be 80 cf/ac/yr is inconsistent with the goal. In addition, petitioners argue that the comprehensive plan policies and land use regulations implementing Goal 4 apply Goal 4 protection to lands capable of producing considerably less than 80 cf/ac/yr, which belies the county's interpretation that 80 cf/ac/yr is the threshold.

Intervenor responds that the county has discretion to define a threshold for lands "suitable for commercial forestry" under Goal 4, and that the acknowledged comprehensive plan does precisely that. Because the county's comprehensive plan is acknowledged to comply with Goal 4, intervenor argues, the consistency of the 80 cf/ac/yr standard with Goal 4 cannot be challenged in this appeal. Further, intervenor argues, LUBA affirmed the county 80 cf/ac/yr standard in two separate cases, both involving the same petitioners in the present case. *Friends of Douglas County v. Douglas County*, 46 Or LUBA 757, 760 (2004); *Wetherell v. Douglas County*, 44 Or LUBA 567, 568-9 n 1 (2003).

To take the last point first, we disagree with intervenor that our decisions in *Wetherell* and *Friends of Douglas County* "affirmed" the county's use of the 80 cf/ac/yr comprehensive plan language as the threshold for Goal 4 protection. While we noted the existence of that language in both cases, in neither case was the 80 cf/ac/yr comprehensive plan language at issue. At best our references to the 80 cf/ac/yr comprehensive plan language was *dicta*.

We also disagree more fundamentally with intervenor that the county has in fact defined 80 cf/ac/yr as the threshold for Goal 4 protection. Had the county in fact adopted such a definition in its acknowledged comprehensive plan, then that acknowledged standard would, as a matter of law, be consistent with Goal 4, and the county could apply that standard to determine whether lands are

protected by Goal 4, and need not apply Goal 4 directly. *Sommer v. Josephine County*, 49 Or LUBA ___ (LUBA No. 2004-131, April 5, 2005) slip op 5, *aff'd* ___ Or App ___, ___ P3d ___ (2005). In *Sommer*, we held based on the reasoning in *League of Women Voters v. Metro Service Dist.*, 99 Or App 333, 781 P2d 1256 (1989), that the county did not err in applying a comprehensive plan policy defining an objective threshold for commercial forest lands, rather than Goal 4, to determine whether lands are "suitable for commercial forestry." That conclusion was based both on the policy text and legislative history in the record, which made it clear that the objective standards in the policy were intended to replace direct application of Goal 4, at least in certain circumstances, and that the Department of Land Conservation and Development (DLCD) had acknowledged the policy with that understanding.[18]

In the present case, however, it is much less clear that the comprehensive plan language relied upon is intended to define a threshold for Goal 4 protection or to replace any aspect of Goal 4. Moreover, when read in context with the county comprehensive plan policies and land use regulations implementing Goal 4, it is reasonably clear that the cited comprehensive plan language does not adopt a 80 cf/ac/yr threshold for Goal 4 protection, and the county's interpretation to that effect cannot be affirmed under ORS 197.829(1).

Neither Goal 4 nor the Goal 4 rule set forth a precise methodology for determining whether land is "suitable for commercial forestry." *Potts v. Clackamas County*, 42 Or LUBA 1, 5, *aff'd* 183 Or App 145, 52 P3d 449 (2002). In *Potts*, we reviewed several cases indicating that the Goal 4 "suitable for commercial forestry" standard protects nonprime forest lands as well as prime forest lands. *Id.* We discussed cases questioning findings that lands producing 48.48 to 63 cf/ac/yr are not protected by Goal 4.[19] As *Sommer* indicates, counties may develop more specific or objective standards as a threshold for Goal 4 protection. If such standards are acknowledged, they may replace or supplement direct application of the Goal 4 standard. However, we believe that the intent to adopt such a standard as the threshold for Goal 4 protection must be more clearly evident from the text, context or relevant legislative history than in the present case.

The comprehensive plan language relied upon states in relevant part that "lands growing Douglas fir which produce less than eighty [cf/ac/yr] are generally not used for commercial uses." *See* n 16.

That language does not suggest, much less clearly evince, an intent to adopt 80 cf/ac/yr as the threshold for Goal 4 protection, or as a definition of lands "suitable for commercial forestry." The statement is one of 50 "Forest Resource Findings" that preface the plan policies that actually implement Goal 4. The language reads like most of the other "findings" in that section, as a factual and historical recitation, summing up the relevant facts and considerations that underlie and justify the comprehensive plan policies that follow: in Douglas County, lands growing Douglas fir that produce less than 80 cf/ac/yr are "generally" not used for "commercial uses," unlike other parts of the country with less productive forest lands. It is a statement of historical fact, not a standard or definition of forest lands protected by Goal 4.[20]

The county's view that the 80 cf/ac/yr plan language defines the threshold of lands protected by Goal 4 becomes even more tenuous when the comprehensive plan policies that actually implement Goal 4 are considered. As petitioners point out, the Policy Implementation section describes two plan designations applicable to forest lands: the first, Timberlands, is intended for prime forest lands, and includes "[f]orest lands which are predominantly cubic foot site class 1 through 4 in southern Douglas and 1 through 3 in central and northern Douglas County." Petitioners explain that site class 4 includes lands capable of producing 85 to 119 cf/ac/yr. The second plan designation, Farm/Forest Transitional, is intended for nonprime forest lands, and includes "[f]orest lands which are predominantly cubic foot site class 5 or below in southern Douglas County and 4 through 5 in northern, central, and coastal Douglas County[.]"[21] Site class 5 includes lands capable of producing 50 to 84 cf/ac/yr, while site class 6 includes lands capable of producing 20 to 49 cf/ac/yr. There is no dispute that both the Timberland and Farm/Forest Transitional plan designations are Goal 4 designations. The fact that comprehensive plan designations implementing Goal 4 include lands capable of producing 85 cf/ac/yr as *prime* forest lands, and include lands capable of producing considerably less than 85 cf/ac/yr as nonprime forest lands nonetheless protected by Goal 4 strongly undercuts the county's interpretation that 80 cf/ac/yr is the threshold standard for Goal 4 protection.

Consequently, we agree with petitioners that the county erred in relying on the 80 cf/ac/yr as the threshold for Goal 4 protection.

B. Qualitative Analysis

Intervenor argues that the forestry consultant's first analysis is not dependent on the 80 cf/ac/yr threshold or actual measurement of productivity, but instead is a "qualitative" analysis based on the consultant's expert opinion that the subject property is not suitable for commercial forestry. *See* n 15 (findings describing first analysis). Intervenor argues that the first analysis is a sufficient basis to affirm the county's conclusion that the subject property is not protected by Goal 4.

The "first analysis" is apparently based on an April 20, 2004 report that the county adopted as part of its findings, found at Record 1292-94. That report describes two approaches. The first approach notes the lack of NRCS ratings for the Dickerson and Nonpareil soils, cites the 80 cf/ac/yr language in the county's comprehensive plan, and concludes that "[l]ooking at the entire property from the viewpoint of timber production, it can be seen that less than a quarter of the property is capable of growing trees at all." Record 1293. The second approach assumes that Dickerson and Nonpareil soils have zero productivity, yielding an average per acre productivity of 26.08 cf/ac/yr.

As far as we can tell, the first analysis assumes that 80 cf/ac/yr is the relevant standard under Goal 4 and also relies heavily on the fact that there are no NRCS ratings for the Dickerson and Nonpareil soils, two bases that we conclude above and below are insufficient to support a finding that subject property is not forest land protected by Goal 4. Those problems aside, we question whether a purely "qualitative" analysis is consistent with Goal 4. As discussed below, Goal 4 and the Goal 4 rule strongly suggest that determinations of suitability for commercial forestry must be made based on published productivity data or, in the absence of such data, on an "equivalent method of determining forest land suitability." OAR 660-006-0010. An expert opinion that is not based on published productivity data or equivalent data, but instead relies heavily on the absence of such data, is not a sufficient basis for concluding that land is not subject to Goal 4.

C. Zero Productivity for Unrated Soils

The second analysis assumed that the Dickerson and Nonpareil soils, for which NRCS does not provide productivity or site class ratings, have essentially zero capability for producing commercial stands of timber, notwithstanding that 56.1 acres of those soils in fact currently support scattered stands of trees. Petitioners argue that this approach is error, and that where soils have no published productivity ratings but in fact are capable of supporting trees Goal 4 and the Goal 4 rule require an

actual evaluation of productivity.

In support of that argument, petitioners cite to OAR 660-006-0005(2), defining the term "cubic foot per acre," and OAR 660-006-0010, which imposes an obligation on local governments to inventory forest lands, using a forest site class or equivalent method.[22] Petitioners cite *Carlson v. Benton County*, 34 Or LUBA 140, 149, *aff'd* 154 Or App 62, 961 P2d 248 (1998), for the proposition that for purposes of determining forest productivity, OAR 660-006-0005(2) requires that, where NRCS data is not available, an alternative method for determining productivity must be used that provides "equivalent data" and that is approved by the Department of Forestry.

Intervenor responds that *Carlson* and OAR 660-006-0005(2) both relate to the analysis necessary to determine whether property is qualified for a forest template dwelling under OAR 660-006-0027(1)(d). According to intervenor, OAR 660-006-0005(2) does not apply to determinations whether land is "forest land" under Goal 4.

In *Dept. of Transportation v. Coos County*, 35 Or LUBA 285, 293-4 (1998), *rev'd on other grounds* 158 Or App 568, 976 P2d 68 (1999), we stated:

> "We agree with intervenor that the definition of cf/ac/yr at OAR 660-006-0005(2) is not an approval criterion with respect to whether land is forest land under Goal 4. The preface to the definitions in OAR 660-006-0005 provides that those definitions apply '[f]or purposes of this division[.]' Thus, the cf/ac/yr definition at OAR 660-006-0005(2) applies only to the extent it is used in OAR chapter 660, division 6. Intervenor is correct that the only place that definition is used in division 6 is with respect to forest dwellings. It follows that, while measurements of productivity are relevant and perhaps essential to any inquiry into whether land is 'suitable for commercial forest uses,' nothing in division 6 or Goal 4 directed to our attention requires that the county apply the restrictive definition of cf/ac/yr in OAR 660-006-0005(2) in determining whether the subject property consists of 'forest lands.' * * *" *Id.* (footnotes omitted).

While OAR 660-006-0005(2) is not directly applicable to a determination whether land is "suitable for commercial forestry" under Goal 4, it is relevant context. As we noted in *Dept. of Transportation*, "measurements of productivity" may be "essential to any inquiry into whether land is 'suitable for commercial forest uses.'" *Id.* at 294. The fact that LCDC requires an "alternative method of determining productivity" when NRCS data is unavailable in determining whether lands qualify for forest template dwellings, and does not allow the county to proceed on the assumption that unrated soils cannot produce timber, is some indication that it is similarly impermissible to adopt that assumption in

the context of determining whether lands are subject to Goal 4.

We addressed a related issue in *Sommer* and other cases involving Josephine County's standard for determining whether land is suitable for commercial forestry under Goal 4. In that case, the study supporting the county's standards did not address or evaluate 44 of the 111 soils in the county for which there were no NRCS productivity data. After adopting the standard, the county made several unsuccessful attempts to treat the 44 unrated soils as having zero or near zero productivity. In *Sommer*, we rejected what was essentially the county's most recent attempt. Specifically, we stated:

> "* * * [N]o one has pointed to anything in the NRCS soil survey that explains how NRCS reached a conclusion that only the 67 included soils that are included on Table 6 are 'suitable for commercial tree production.' Perhaps if the [county] had provided that missing explanation, instead of simply proceeding as though it were a given that those 44 soils are not forest land within the meaning of Goal 4, we could agree with the county that it can assume that the unrated soils are nonresource lands. However, if some of those 44 soils were not included on Table 6 solely because they are more commonly used for agricultural purposes or because NRCS lacked sufficient data at the time to confirm the suitability of one or more of those 44 soils for commercial forest use, the omission of those soils from Table 6 does not necessarily mean those soils are not suitable for commercial forest use, and it certainly does not mean that parcels with those soils could not fall within the broad Goal 4 definition of forest land." Slip op 20-21.

Sommer indicates that Goal 4 requires some measurement of productivity for unrated soils when determining whether land is forest land, and the goal does not permit counties to simply assume that unrated soils have zero or near zero productivity.

Finally, additional support is provided by OAR 660-006-0010, which intervenor does not address. That rule requires that local governments inventory "forest lands" and include a "mapping of forest site class." Significantly, "[i]f site information is not available then an equivalent method of determining forest land suitability must be used." Thus, in inventorying forest lands, local governments must map "forest land suitability" using a "forest site class" method. The absence of data requires use of an "equivalent method." While OAR 660-006-0010 pertains to the inventory of forest lands, it again shows that LCDC is concerned that determinations of "forest land suitability" be made based on empirical methods, and that counties cannot simply assume from the fact that no NRCS productivity ratings exist for certain soils that such soils are nonresource soils.

In sum, we agree with petitioners that the second analysis, under which the county assumed that unrated soils have zero capacity to produce timber, is not a sufficient basis on which to conclude that the

subject property is not forest land under Goal 4.

D. Third and Fourth Analyses

The third and fourth analyses estimate that the subject property is capable of producing an average of 48.5 cf/ac/yr (assuming the 56.1 acres of Dickerson and Nonpareil soils that currently support trees were half-stocked) or 70.93 cf/ac/yr (assuming those acres could be fully stocked). As discussed above, these analyses are based on the erroneous premise that 80 cf/ac/yr is the county's acknowledged threshold for Goal 4 lands. Remand is necessary for the county to reconsider whether the subject property is "suitable for commercial forestry" without that premise. We address these analyses further only to clarify the issues to be addressed on remand.

First, petitioners offer no focused challenge to the county's conclusion that the 56.1 acres of Dickerson and Nonpareil soils that currently support trees cannot support full stocking levels. Second, petitioners offer no focused challenge to the county's conclusion that the 71.5 acres of Dickerson and Nonpareil soils that have not supported trees for at least the past 50 years cannot in fact produce any trees. As far as petitioners have shown, both of those conclusions are supported by the record.

Second, although petitioners do not assign error to this aspect of the analyses, we note that under the third and fourth analyses the forestry consultant *averaged* the cf/ac/yr data across the entire parcel. Because slightly less than half of the 162-acre subject property, 71.5 acres of Dickerson and Nonpareil soils, have essentially zero productivity, the overall average productivity per acre is relatively low, as low as 48.5 cf/ac/yr. Goal 4 does not specify how such calculations are made. However, as explained above, the comprehensive plan element implementing Goal 4 describes what kinds of lands may be included in two types of Goal 4 plan designations. As relevant here, both plan designations include lands that "predominantly" consist of specified cubic foot site classes. On remand, the county may wish to consider whether, in light of the standards for placing lands within these two Goal 4 plan designations, the approach taken by the consultant in calculating the *average* productivity of the parcel is the correct approach, or whether calculating the productivity or cubic foot site class of the *predominant* portion of the subject property is more consistent with the comprehensive plan Goal 4 element.

The second assignment of error is sustained.

THIRD ASSIGNMENT OF ERROR

OAR 660-004-0040(7), adopted in 2000, provided:

> "For rural residential areas designated after the effective date of this rule, the affected county shall either:
>
> "(A) Require that any new lot or parcel have an area of at least ten acres, or
>
> "(B) Establish a minimum size of at least two acres for new lots or parcels in accordance with the requirements for an exception to Goal 14 in OAR 660, Division 014. The minimum lot size adopted by the county shall be consistent with OAR 660-004-0018, 'Planning and Zoning for Exception Areas.'"[23]

Pursuant to OAR 660-004-0040(7), in November 2000 the county adopted a Goal 14 exception for its five-acre rural residential plan designation, as a post-acknowledgment plan amendment. The amendments essentially declared that five-acre residential development on septic systems is not an urban use anywhere in the county, and is therefore consistent with Goal 14. Based on that exception, the county concluded in the present case that Goal 14 does not apply to rezoning the subject property to allow for five-acre residential lots.

Petitioners argue that county erred in failing to apply Goal 14 directly to the decision on appeal and either (1) find that allowing five-acre residential development is consistent with the goal, or (2) take an exception to the goal. According to petitioners, because the 2000 Goal 14 exception was county-wide in scope, and did not apply to specific properties, it was not an "exception" as that term is defined in ORS 197.732(8).[24] Therefore, we understand petitioners to argue, the 2000 Goal 14 exception is not a basis under OAR 660-004-0040 to avoid direct application of Goal 14 in subsequent property-specific decision-making.

The county and intervenor respond that ORS 197.732(8) defines "exception" to include "specific properties *or* situations" (emphasis added), and is not limited to plan amendments focused on specific properties. According to respondents, a Goal 14 exception focused on five-acre rural residential lands is a "specific * * * situation." In any case, respondents contend, petitioners' argument that the Goal 14 exception is not an "exception" is essentially a collateral attack on the 2000 legislation, which is acknowledged to comply with all applicable goals and administrative rules.

OAR 660-004-0040(7) clearly authorizes the county to adopt, in a legislative decision, an

exception to Goal 14 that will allow the county to apply a particular rural residential zone or plan designation to property, without the necessity of applying or taking an exception to Goal 14. The county adopted such an exception in 2000, and applied it in the manner contemplated by the rule. We agree with respondents that an exception justifying a five-acre rural residential plan designation is directed at a specific "situation," and therefore an exception as defined by ORS 197.732(8). Even if the 2000 exception were flawed in some manner, we agree with respondents that arguments to that effect are impermissible collateral attacks on the 2000 decision, and not a basis to reverse or remand the decision before us.

The third assignment of error is denied.

FOURTH ASSIGNMENT OF ERROR

Land Use and Development Ordinance (LUDO) 6.500(2)(b) requires findings that a quasi-judicial plan amendment provides a reasonable opportunity to satisfy a "local need." The county adopted findings of compliance with LUDO 6.500(2)(b) and (c) based on letters from local realtors attesting to the demand for 5-acre rural residential lots in the area.

Petitioners argue that the county failed to consider evidence that there are numerous existing vacant parcels in the area that are currently zoned for residential use.

Intervenor responds, and we agree, that the evidence the county relied upon is substantial evidence, *i.e.*, evidence on which a reasonable person could rely. The county cited evidence that 5-acre rural residential lots in the Melrose area had a typical market life of only 2-4 days before being purchased. In other words, the county relied upon the relative scarcity of properties on the market, not the total inventory of vacant lands. Petitioners do not explain why that approach is error, for purposes of demonstrating a "local need" under LUDO 6.500(2)(b), and we do not see that it is.

The fourth assignment of error is denied.

The county's decision is remanded.

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[1] OAR 660-033-0020(1) provides:

"(a) 'Agricultural Land' as defined in Goal 3 includes:

"(A) Lands classified by the U.S. Natural Resources Conservation Service (NRCS) as

predominantly Class I-IV soils in Western Oregon and I-VI soils in Eastern Oregon;

"(B) Land in other soil classes that is suitable for farm use as defined in ORS 215.203(2)(a), taking into consideration soil fertility; suitability for grazing; climatic conditions; existing and future availability of water for farm irrigation purposes; existing land use patterns; technological and energy inputs required; and accepted farming practices; and

"(C) Land that is necessary to permit farm practices to be undertaken on adjacent or nearby agricultural lands.

"(b) Land in capability classes other than I-IV/I-VI that is adjacent to or intermingled with lands in capability classes I-IV/I-VI within a farm unit, shall be inventoried as agricultural lands even though this land may not be cropped or grazed[.]"

[2] The county's decision states, as relevant:

"The subject property is not located within a farm unit. Before Richards sold the west half of his original ranch to Napier in 2000, the subject property had been in the same farm unit. But after the sale, the Napier parcel has been managed independently of the subject property. There is no connection between the use of the two properties. Further, it is unlikely that joint management of the Napier parcel and the subject property will resume. The high level of intensive management that was needed to make the overall ranch productive is no longer an accepted farming practice for the primary purpose of making a profit in money. In the past, the subject property was only grazed seasonally, alternating with grazing on the Napier parcel. Napier will not allow his parcel to be grazed. The subject property has not been part of a farm unit with any other parcel since 1930." Record 30-31.

[3] ORS 215.263(2) provides:

"The governing body of a county or its designee may approve a proposed division of land to create parcels for farm use as defined in ORS 215.203 if it finds:

"(a) That the proposed division of land is appropriate for the continuation of the existing commercial agricultural enterprise within the area; or

"(b) The parcels created by the proposed division are not smaller than the minimum size established under ORS 215.780."

[4] OAR 660-033-0030 provides, in relevant part:

"(2) When a jurisdiction determines the predominant soil capability classification of a lot or parcel it need only look to the land within the lot or parcel being inventoried. However, whether land is 'suitable for farm use' requires an inquiry into factors beyond the mere identification of scientific soil classifications. The factors are listed in the definition of agricultural land set forth at OAR 660-033-0020(1)(a)(B). This inquiry requires the consideration of conditions existing outside the lot or parcel being inventoried. Even if a lot or parcel is not predominantly Class I-IV soils or suitable for farm use, Goal 3 nonetheless defines as agricultural 'lands in other classes which are necessary to permit farm practices to be undertaken on adjacent or nearby lands.' A determination that a lot or parcel is not agricultural land requires findings supported by substantial evidence that addresses each of the factors set forth in OAR 660-033-0020(1).

"(3) Goal 3 attaches no significance to the ownership of a lot or parcel when determining whether it is agricultural land. Nearby or adjacent land, regardless of ownership, shall be examined to the extent that a lot or parcel is either 'suitable for farm use' or 'necessary to permit farm practices to be undertaken on adjacent or nearby lands' outside the lot or parcel.

"* * * * *

"(5) Notwithstanding the definition of 'farm use' in ORS 215.203(2)(a), profitability or gross farm income

shall not be considered in determining whether land is agricultural land or whether Goal 3, 'Agricultural Land,' is applicable."

[5] The county's findings state, in relevant part:

"Some opponents suggested the subject property could be used for grazing. Because cattle used to be grazed on the subject property, in the opinion of some, it could be grazed again. Mr. Day analyzed the claims and noted that the property could support only a fraction of what was claimed on an annual basis. The Mellors compared the subject property to their own small ranch, which they acknowledge is marginal and which lies just northwest of the Napier parcel. However, according to the NRCS soils maps, the Mellor property is composed predominantly of USDA Class II to IV soils. Mellors' experience that grazing lands within Class II to IV soils may be marginally profitable does not provide significant relevant evidence that grazing is feasibly profitable on the subject property's Class VI to VIII soils.

"As Mr. Day noted, the subject property was originally part of a larger farm unit. The unit was divided when Richards sold the west half which had the farm's resource soils to Napier and which continues in production to the present. The subject property was nonproductive. Grazing was abandoned as a use. Cattle could be run on the property as a lifestyle activity, but not with the primary intent of making a profit in money.

"Some opposers suggested the subject property could become part of a dispersed farm unit, for example, a rancher could lease several properties and move stock between them. The subject property is not suited because of the low productivity of the soils; the very short growing season for forage; the poor condition of the fences and buildings; and the brush and weed infestation—which would require high technology and energy inputs to overcome, and such property would not customarily be grazed with a primary purpose to make a profit in money. In the past, the low rental value of $550 per month for the 387-acre parent parcel (which included the productive Napier parcel west of the subject property) also evidences the property's low productivity." Record 27-28 (footnote omitted).

[6] An AUM is a measure of forage productive capacity, equivalent to the amount of feed to care for a 1,000 pound cow for a 30-day period. Record 1196. We note, in passing, that the agricultural consultant's report includes a table at Record 1196 that sets out the AUMs supported by the various soils on the subject property. The table assigns zero AUMs to the ten percent (16.1 acres) of the subject property with Josephine Gravelly Loam 3-12 percent slopes (Class II) and Josephine Gravelly Loam 12-30 percent slopes (Class IV). Petitioners advance no evidentiary or other arguments on this point, and we do not consider it in our analysis. Nonetheless, it seems strange that the class VI soils on the property provide some forage and hence a certain number of AUMs per acre, while these class II and IV agricultural soils provide none. The answer may be that, for some reason, these class II and IV soils have not been assigned a rating for forage productivity or AUMs per acre, not that they have zero capacity to produce forage.

[7] ORS 215.203(2)(a) provides, in relevant part:

"As used in this section, 'farm use' means the current employment of land for the primary purpose of obtaining a profit in money by raising, harvesting and selling crops or the feeding, breeding, management and sale of, or the produce of, livestock, poultry, fur-bearing animals or honeybees or for dairying and the sale of dairy products or any other agricultural or horticultural use or animal husbandry or any combination thereof. 'Farm use' includes the preparation, storage and disposal by marketing or otherwise of the products or by-products raised on such land for human or animal use. * * *"

[8] The county's findings state, in relevant part:

"The key point of the definition of 'farm use' is that the land be employed for the primary purpose of obtaining a profit in money by farm activities. The history of the subject property showed that it was originally managed as part of a farm unit, and had low productivity at the time. Upon severance from the parent parcel in 2000, the subject property could not support farm use. Farm use requires a consideration of the amount of resource (e.g., feed, fertilizer, fuel) and time inputs relative to the amount of product produced.

"An agricultural consultant, Paul E. Day, M.S., studied the subject property and analyzed its agricultural

potential. Mr. Day found the subject property had no potential use for grazing or haying as a farm use, using accepted farming practices, with a view to making a profit in money. * * *

"As Mr. Day noted, it is important to differentiate farming activity as a lifestyle from farming activity with an intent to make a profit from money. The subject property may well be suitable for farm use as a lifestyle, but it is poorly suited for farm use to make a profit.

"* * * * *

"Day found the 160-acre subject property could support an average of 17 animal units per year. This stocking level is far below that of accepted farming practices for livestock grazing in western Oregon. The subject property could not be viably managed for grazing or hay production.

"* * * * *

"Enormous inputs of technology and energy would be required to make the subject property suitable for farming. The site's steep topography, lack of maintenance of fences and buildings, overgrown brush, and weed invasion are additional barriers to the property's suitability for farming. No reasonable application of technology and energy could overcome the limiting characteristics inherent in the subject property, such as lack of irrigation, steepness, shallow soil, low-water holding capacity of soils, lack of saprolite, to make it a viable agricultural unit.

"Accepted farming practices, such as clearing, burning, and fertilizer application to establish productive pasture, are not practicable on the subject property. Starting with the subject property in its present state, it would not be common for a farmer to undertake to rehabilitate the subject property to a working farm, with the intent to make a profit in money, due to the subject property's unproductive droughty soils, lack of irrigation water, difficult topography, and deferred maintenance needs of pasture and improvements.

"Although farm activities occurred on neighboring rural residential properties, there was no evidence these activities constituted 'farm use' within the meaning of ORS 215.203(2)(a), i.e., an activity with the intent to make a profit in money. The testimony indicated this was a lifestyle chosen by residents; there was no accounting for overhead costs, and the small scale operations typically suffer from the diseconomies of scale described by Mr. Day." Record 22-25.

[9] In any case, even if Goal 3 protected only lands capable of supporting large scale agricultural operations, considering the scale of the grazing operation the subject property can support on its own is not sufficient under OAR 660-033-0020(1)(a)(B). If the subject property can be used in conjunction with adjacent or nearby lands then it may be "other suitable land." OAR 660-033-0030(3). *See* n 4. To the extent the scale of agricultural operation is determinative under OAR 660-033-0020(1)(a)(B), OAR 660-033-0030(3) would seem to require the county to consider the scale of the entire potential operation, including adjacent or nearby lands with which the property may be used. As discussed below, the county did not adequately address the possibility of using the subject property in conjunction with adjacent or nearby agricultural operations.

[10] The county adopted the following statements of intervenor's agricultural consultant as findings:

"Page Two, Paragraph Two [of petitioner Wetherall's testimony] provides a summary of the general livestock/pasture management practices in Douglas County. However, no reference is made to the specific soils * * * and relatively unique conditions of the subject property as noted in the Kitzrow Report. Mr. Kitzrow pointed out in his report how these conditions detract from the capacity of the subject property in comparison to the general conditions found in Douglas County. He further specifically noted (Kitzrow Addendum dated July 9, 2004, second paragraph) that techniques advisable elsewhere in Douglas County would not be appropriate on the subject property and he provided technical evidence as to why the practices would not be advisable on the subject property." Record 524 (underlining omitted).

[11] The county adopted the following findings, based on a September 5, 2004 report at Record 538-42:

"* * * Only 24% of the subject property—generally, the same portions having Class II to IV soils—would have soils suitable for a commercial vineyard. Further, half of this area is in small scattered pockets unsuited for a commercial operation; only about 12% of the subject property is a suitable location for a commercial vineyard. The subject property as a whole is therefore not suitable for use as a vineyard for the

primary purpose of obtaining a profit in money. The lack of saprolite and irrigation make it impossible to establish a commercial vineyard on the subject property as the primary use of the land, with the primary intent to obtain a profit in money.

"Opposers' Exhibit 15 was purported to show that the Delfino vineyard was located on the same soil type [Nonpareil] as much of the subject property. The Delfino vineyard was claimed to be a productive nearby vineyard. * * * Even if the Delfino property were located on Nonpareil soils, as Mr. Kitzrow notes, some Nonpareil soils contain saprolite and are much better soils than the ones on the subject property. No soil boring was reported from the Delfino property, and without a detailed study, the evidence is insufficient to make a comparison between the Delfino property and the subject property.

"Further, the Delfino operation is run as a bed and breakfast, with a newly planted vineyard of unproven success, and is typical of a small-scale operation entered into for life style choice, not for the primary purpose of making a profit in money by raising, harvesting, and selling wine grapes. The 160-acre Delfino property has a 15-acre vineyard of 5 varieties planted in 2002, and advertises double occupancy at $115 per night, with an invitation to stroll the vineyard." Record 25-26.

[12] Petitioners also argue under this subassignment of error that the county failed to address the possibility of a mixed forestry/grazing operation. Intervenor responds, and we agree, that petitioners do not develop this argument sufficiently for review. *Deschutes Development v. Deschutes County*, 5 Or LUBA 218, 220 (1982).

[13] Given our understanding of the facts in this case, and our above-expressed understanding of OAR 660-033-0020(1)(a)(B) and 660-033-0030(5), it seems unlikely that the county can reach a sustainable conclusion that the subject property is not "agricultural land" under OAR 660-033-0020(1)(a)(B). The 70-year history of grazing use in conjunction with the Napier parcel, and the absence of a sufficient reason to believe that the subject property could not be used again with the Napier parcel, or the Mellor parcel, for that matter, would seem to compel the conclusion that the subject property is agricultural land. Nonetheless, the county did not fully consider these matters under the correct standard, and it may be on remand that the county can reach a sustainable conclusion to the contrary. Accordingly, remand rather than reversal is appropriate.

[14] Goal 4 defines "forest lands" as follows:

"Forest lands are those lands acknowledged as forest lands as of the date of adoption of this goal amendment. Where a plan is not acknowledged or a plan amendment involving forest lands is proposed, forest land shall include lands which are suitable for commercial forest uses including adjacent or nearby lands which are necessary to permit forest operations or practices and other forested lands that maintain soil, air, water and fish and wildlife resources."

[15] The county's findings state, in relevant part:

"First, we note that Mark Setchko, M.F., a consulting forester, extensively studied the trees and the subject property to develop an expert opinion as to whether the subject property comprised lands suitable for commercial forestry. Most of the subject property showed no trees have been present since 1950, the date of the earliest aerial photograph. Most of the rest of the subject property showed poor timber growth or the capability of supporting only poor timber growth. The site on the subject property capable of producing good growth was a small localized area along Colonial Road on the south part of the subject property. Mr. Setchko concluded that no commercial timber operator would be interested in attempting to manage the subject property to grow timber. Mr. Kitzrow found the soils on the subject property were predominantly not able to support commercial forestry production. From this we conclude the evidence shows the subject property is not suitable for commercial forestry. * * *

"Moreover, the comprehensive plan (Forest Resource Findings 4, page 2-3) employs a standard of 80 cubic feet of wood fiber per acre per year [cf/ac/yr]for identifying commercial forestry lands in the county. We apply this threshold as a standard to the average site class capability of the subject property to determine whether it comprises forest lands protected by Goal 4. The tree species we considered are Douglas fir, pine and cedar.

"* * * * *

"The issue arises as to what site class capability to assign to Dickerson and Nonpareil soils. * * *

"Here, the identification of forest land is delegated to the county to determine. The comprehensive plan sets a standard at 80 [cf/ac/yr] for lands growing Douglas fir. The unrated [Dickerson and Nonpareil soils] soil types do not grow forests. There is justification in using a rating of 0 for the purpose of identifying forest lands (even if not justified for applying the forest template test *within* identified forest lands), in that the Dickerson and Nonpareil soils cannot support timber stands. As a second alternative, we adopt the reasoning of Mr. Setchko that the subject property can be expected to produce 26.1 [cf/ac/yr], based on the premise that the nonresource soils will not reasonably produce any timber due to commercial forestry activities, as no such activities would be conducted on such unproductive soils; we therefore interpret the comprehensive plan's 80 cf/ac/yr standard to be computed across the entire subject property, but based on timber production from resource soils.

"* * * * *

"There are 56.1 acres of Dickerson and Nonpareil soils which have scattered trees. Individual trees showed growth rates which correspond to a cubic site class index of 130 cf/ac/yr if the stand were fully stocked. However, the sites cannot support full stocking; indeed, the Dickerson and Nonpareil soils could not support more than 50% stocking. Accordingly, we find that the Dickerson and Nonpareil soils with trees would produce no more than 65 cf/ac/yr. The 71.5 acres which have grown no trees since 1950 would produce 0 cf/ac/yr in a commercial forestry operation. Under this third alternative line of reasoning, the subject property is able to produce 7900 cf/yr total, or 48.5 cf/ac/yr.

"Mr. Setchko concluded that if all the sites on the subject property that had at least scattered trees were fully stocked, the subject property would produce 70.93 [cf/ac/yr]. This is below the standard of 80 that Douglas County adopted. We believe this line of analysis is unwarrantedly optimistic in assuming that full stocking can be achieved on the Dickerson and Nonpareil soils, but note it is a fourth alternative reasoning." Record 31-34 (table omitted)."

[16] The comprehensive plan finding the county relies upon states:

"In Douglas County, lands growing Douglas fir which produce less than eighty cubic feet per acre per year are generally not used for commercial uses. This is higher than the national standard for commercially productive forest land, which is twenty cubic feet per acre per year." DCCP 2-3.

[17] ORS 197.829(1) provides:

"[LUBA] shall affirm a local government's interpretation of its comprehensive plan and land use regulations, unless the board determines that the local government's interpretation:

"(a) Is inconsistent with the express language of the comprehensive plan or land use regulation;

"(b) Is inconsistent with the purpose for the comprehensive plan or land use regulation;

"(c) Is inconsistent with the underlying policy that provides the basis for the comprehensive plan or land use regulation; or

"(d) Is contrary to a state statute, land use goal or rule that the comprehensive plan provision or land use regulation implements."

[18] We ultimately remanded the decision in *Sommer*, after rejecting the county's interpretation that the objective thresholds in the plan policy applied to the circumstances present in that case.

[19] Our conclusion that the county did not adopt 80 cf/ac/yr as the threshold for Goal 4 protection makes it unnecessary to opine whether such a standard, if adopted and properly before us, would be contrary to Goal 4. However, we seriously question whether such a threshold would be consistent with the goal. As we note below, the county's own comprehensive plan policies implementing Goal 4 indicate that the county regards *prime* forest lands to include lands within site class 4, the

bottom range of which is approximately 85 cf/ac/yr. We question whether it would be consistent with Goal 4 to locate the minimum threshold for "forest lands" slightly below the level of productivity regarded as prime forest lands.

[20] Although not determinative, we also think it significant that no party has identified any legislative history suggesting that when the county adopted the finding quoted above it intended that that language would function as a threshold for identifying Goal 4 forest lands, or that the county ever represented to DLCD during periodic review or during a post-acknowledgment plan amendment process that the language had that intent, unlike the standards at issue in *Sommer*. We also think it significant that, at least as far as reported cases indicate, the county has not until the present case applied that plan language to determine whether land is subject to Goal 4. That is again in contrast to the standard in *Sommers*, which the county has consistently applied since the standard was adopted in the 1980s, through many rounds of litigation. *See Doob v. Josephine County*, 48 Or LUBA 227, 235-39 (2004) (describing history of the standard and cases applying it). In other words, the county's interpretation that the comprehensive plan language defines the threshold for Goal 4 lands appears to be of relatively recent vintage, perhaps prompted by our references in *Wetherell* and *Friends of Douglas County*.

[21] As far as we can tell, the site classification system runs (somewhat counter intuitively) from class 1 (highest) to 6 (lowest). The reference to "5 or below" thus indicates classes 5 or 6, not classes 1 through 5.

[22] OAR 660-004-0005(2) provides as follows:

> "'Cubic Foot Per Acre' means the average annual increase in cubic foot volume of wood fiber per acre for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS). Where NRCS data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data and be approved by the Department of Forestry."

OAR 660-006-0010 provides as follows:

> "Governing bodies shall include an inventory of 'forest lands' as defined by Goal 4 in the comprehensive plan. Lands inventoried as Goal 3 agricultural lands or lands for which an exception to Goal 4 is justified pursuant to ORS 197.732 and taken are not required to be inventoried under this rule. Outside urban growth boundaries, this inventory shall include a mapping of forest site class. If site information is not available then an equivalent method of determining forest land suitability must be used. Notwithstanding this rule, governing bodies are not required to reinventory forest lands if such an inventory was acknowledged previously by the Land Conservation and Development Commission."

[23] In 2004, OAR 660-004-0040 was amended to require compliance with OAR chapter 660 division 14.

[24] ORS 197.732(8) provides:

> "As used in this section, 'exception' means a comprehensive plan provision, including an amendment to an acknowledged comprehensive plan, that:
>
> "(a) Is applicable to specific properties or situations and does not establish a planning or zoning policy of general applicability;
>
> "(b) Does not comply with some or all goal requirements applicable to the subject properties or situations; and
>
> "(c) Complies with standards under subsection (1) of this section."

MARGINAL LANDS

BEFORE THE LAND USE BOARD OF APPEALS

OF THE STATE OF OREGON

JAMES JUST,
Petitioner,

vs.

LANE COUNTY,
Respondent,

and

ROY CARVER III,
Intervenor-Respondent.

LUBA No. 2005-029

FINAL OPINION
AND ORDER

Appeal from Lane County.

James P. Just, Lebanon, filed the petition for review and argued on his own behalf.

Stephen L. Vorhes, Lane County Legal Counsel, Eugene, filed the response brief and argued on behalf of the respondent.

P. Steven Cornacchia, Eugene, filed the response brief and argued on behalf of intervenor-respondent. With him on the brief was Hershner Hunter LLP.

BASSHAM, Board Member; DAVIES, Board Chair; HOLSTUN, Board Member, participated in the decision.

AFFIRMED 06/08/2005

You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

Opinion by Bassham.

NATURE OF THE DECISION

Petitioner appeals an ordinance that changes the comprehensive plan designation for a 42.2-acre parcel from "Forest Land" to "Marginal Land," and rezones the property from Impacted Forest Lands (F-2) to Marginal Lands (ML).

MOTION TO INTERVENE

Roy Carver III (intervenor), the applicant below, moves to intervene on the side of respondent. There is no opposition to the motion, and it is allowed.

MOTION TO FILE REPLY BRIEF

Petitioner seeks permission to file a reply brief, to address alleged new matters raised in the response briefs. There is no opposition to the reply brief, and it is allowed.

FACTS

The subject property is a 42.2-acre irregularly shaped parcel bordered on the north and east by the City of Eugene urban growth boundary. The northern portion of the property is relatively flat, rising to the south, and covered with scattered stands of Ponderosa Pine, Douglas Fir and oak trees. The property has received forest tax deferral since 1970. The adjoining properties to the north, west and east are in rural or urban residential zoning. To the south of the subject property lies a 53.60-acre parcel also zoned F-2.

In 1987, the Soil Conservation Service (SCS, now the National Resource and Conservation Service (NRCS)) published a soil survey for the county. According to the 1987 soil survey, the soils on the subject property consist of the following four soil types or complexes:

> Unit 43C Dixonville-Philomath-Hazelair Complex, 3 to 12 percent slopes, agricultural capability class VI, 19 acres (48%);
>
> Unit 43E Dixonville-Philomath-Hazelair Complex, 12 to 35 percent slopes, agricultural capability class VI, 1.145 acres (3.6%);
>
> Unit 45C Dupee Silt Loam, agricultural capability class III, 15 acres (39%);
>
> Unit 138E Witzel Very Cobbly Loam, agricultural capability class VI, 3.6 acres (9%).

Thus, slightly more than half of the soils on the property consist of Units 43C and 43E, the two Dixonville-Philomath-Hazelair complexes.[1] The 1987 soil survey rates the agricultural capability of

Units 43C and 43E as Class VIe.[2] However, the 1987 soil survey assigns higher capability classifications to some of the individual soils that make up the Unit 43C and 43E complexes. Unit 41C (Dixonville silty clay loam, 3 to 12 percent slopes) is class IIIe, and Unit 41E (Dixonville silty clay loam, 12 to 30 percent slopes) is class IVe. Similarly, Units 52B (Hazelair silty clay loam, 2 to 7 percent slopes) and 52D (Hazelair silty clay loam, 7 to 20 percent slopes) are rated IIIe and IVe, respectively.

Lane County is a "marginal lands" county, and therefore may designate certain lands as marginal lands, under *former* ORS 197.247. OAR 660-033-0020(8)(j). In September 2003, intervenor applied to redesignate the subject property from "Forest Land" to "Marginal Land," and to rezone the property from F-2 to ML. Under the requested plan map and zoning map designations, the property could develop at a density of one dwelling per 10 acres. The county planning commission recommended approval. The county board of commissioners held a hearing on December 15, 2004, and approved the application on January 12, 2005. This appeal followed.

MOTION TO STRIKE

Petitioner moves to strike appendices A-F, and H, attached to intervenor's response brief, arguing that the documents therein are not in the record, subject to official notice, or the subject of a motion to take evidence under OAR 661-010-0045. Intervenor does not argue that any of the cited appendices are in the record, request that we take official notice, or request that we consider those documents pursuant to OAR 661-010-0045. Accordingly, we grant the motion to strike, and will not consider appendices A-F and H, or the references to those appendices in intervenor's brief.

FIRST, SECOND AND THIRD ASSIGNMENTS OF ERROR

Former ORS 197.247 (1991) allowed a county to designate as "marginal lands" lands that met a series of tests.[3] The "gross income" test at ORS 197.247(1)(a) requires a finding that the proposed marginal land was not managed, during three of the five calendar years preceding January 1, 1983, as part of (1) a farm operation producing grossing $20,000 or more in annual gross income, or (2) a forest operation capable of producing an average, over the growth cycle, of $10,000 in annual gross income. The "productivity" test at ORS 197.247(1)(b)(C) requires a finding that (1) the land is composed predominantly of Class V through VIII soils in the capability classification system in use by SCS on

October 15, 1983, and (2) the land is not capable of producing 85 cubic feet of timber per acre per year (cf/ac/yr).

The county concluded that the subject property met both the "gross income" test and the "productivity" test. Petitioner challenges both conclusions.

A. Gross Income Test (ORS 197.247(1)(a))

In 1997, the county board of commissioners issued an "information sheet" that sets out the following methodology for applying the "forest operation" prong of the ORS 197.247(1)(a) gross income test:

> "1. Based on the best information available regarding soils, topography, etc., determine the optimal level of timber production for the tract assuming reasonable management.
>
> "2. Assume that the stand was, in 1983, fully mature and ready for harvest.
>
> "3. Using the volumes calculated in step (1), and 1983 prices, calculate the average gross income over the growth cycle." Record 36.

The information sheet also directs that the methodology assume a 50-year growth cycle, *i.e.*, divide by 50 the timber revenue produced at harvest of a (hypothetical) fully mature stand to determine the average annual gross income. Intervenor does not dispute that the subject property was part of a "forest operation" during three of the five calendar years preceding January 1, 1983. However, intervenor submitted expert testimony using the county's methodology concluding that the subject property is not capable of producing $10,000 in average annual gross income over a 50-year growth cycle, as measured in 1983 dollars.[4]

Petitioner contends that ORS 197.247 requires the county to use actual or projected lumber prices at the time of harvest in applying the gross income test and, further, that there is no basis in the statute to assume a 50-year growth cycle. According to petitioner,

> "* * * The county's findings assume a 50-year growth cycle. Actual growth cycles could be considerably longer. Evidence in the record establishes that trees were planted on the subject property at some time prior to March 1979, and that the trees were still present in 1982. The projected harvest date for the trees planted on the subject property would therefore be no sooner than sometime around 2029, a minimum of fifty years following planting. There is no evidence in the record which suggests that 1983 timber pricing would prevail in 2029, and no reasonable person could conclude from evidence in the record that 1983 prices would be in fact be obtained by the forest operation manager.

> "ORS 197.247(1)(a) requires that average income be projected over the growth cycle, and thus clearly anticipates that the harvesting of timber would occur at different times over the growth cycle and that prices obtained would be those prevailing at the time of harvest. Nothing in ORS 197.247(1)(a) mandates or ever mentions the use of a 1983 timber harvest date or the use of timber prices prevailing at that time. There is no basis whatsoever in law or in fact for the county's reliance on 1983 timber prices in its decision." Petition for Review 18.

We understand petitioner to contend that the county must (1) estimate the harvest date of the trees planted in 1979 based on the actual or optimal growth cycle, (2) estimate the timber prices on the projected harvest date, and (3) based on those estimates determine whether the subject property is capable of producing an average, over the growth cycle, of $10,000 in annual gross income.[5]

Although ORS 197.247(1)(a) does not expressly mandate that counties use 1983 timber prices in applying the gross income test, we agree with the county and intervenor that it implicitly does so. The purpose of the forest operation test is to identify lands that are not capable of meeting the specified $10,000 threshold averaged over the growth cycle. Both the "farm operation" and "forest operation" prongs of the test are specifically linked to January 1, 1983. There is no explicit provision to adjust either threshold for inflation or other economic changes over subsequent decades. The $10,000 threshold would rapidly become outdated and incapable of performing its intended function if counties (1) must use inflated timber prices but (2) cannot adjust the $10,000 threshold to compensate for inflation since 1983. In a relatively short time it would become difficult if not impossible to designate any marginal land under ORS 197.247(1)(a). Clearly, that was not the legislature's intent. The text and context of ORS 197.247(1)(a) make it reasonably clear that the statute requires an "apples to apples" comparison. If the unadjusted threshold ($10,000 in 1983 dollars) is used, then the estimate of annual average timber revenue derived from the property must also be based on 1983 timber prices.[6]

To the extent resort to legislative history is warranted, the history directed to our attention is consistent with the above textual analysis. Intervenor attaches to its brief transcripts of the House and Senate committee hearings that led to adoption of ORS 197.247. Those transcripts make it reasonably clear that the legislature intended the gross income test under ORS 197.247(1) to be applied based on the five-year period preceding January 1, 1983, and not based on subsequent years. The question of whether to include a mechanism to adjust the income test for inflation was discussed, and apparently rejected as unnecessary, because the income test was linked to the five-year period preceding January 1,

1983.[7] Petitioner does not dispute that point with respect to the "farm operation" prong of the gross income test, but argues there is no indication that the legislature intended the "forest operation" prong to be also fixed at 1983 levels. However, the legislative discussion of the question of adjusting for inflation, while directed at the farm operation element of ORS 197.247(1)(a), seems equally applicable to the forest operation prong of that subsection. We conclude that the legislative history of ORS 197.247(1)(a) brought to our attention does not support petitioner's view of the statute, and is more consistent with the county's approach.

With respect to the 50-year growth cycle assumed under the county's methodology, petitioner does not explain why it is unreasonable to assume a 50-year growth cycle, or why ORS 197.247(1)(a) compels the county to assume a longer or different cycle.

B. Productivity Test (ORS 197.247(1)(b)(C))

Petitioner challenges the county's findings that the subject property is predominantly composed of Class VI soils and that the property is not capable of producing 85 cf/ac/yr of merchantable timber.

1. Agricultural Capability Class

As noted, according to the SCS soil survey maps, the predominant soils on the subject property are Units 43C and 43E, two variants of the Dixonville/Philomath/Hazelair complex, both of which the soil survey assigns a capability classification of VIe. Petitioner argues, however, that the 1987 soil survey assigns higher capability classifications to the majority of individual soils making up the two complexes. Further, petitioner points out, the 1987 soil survey assigns percentages to each of the individual soils in each complex, so that, for example, Dixonville soils (class IIIe) make up approximately 30 percent of the Unit 43C complex. *See* n 2. If the relative portion of the individual soils and their individual ratings are taken into account, petitioner argues, then it is clear that approximately 53 percent of the subject property consists of Class III soils, while approximately 67 percent consists of Class III or IV soils.

In addition, petitioner argues that while the 1987 soil survey may have assigned a single agricultural capability classification of VIe to Units 43C and 43E, the current NRCS practice is to assign individual ratings to the soils making up those soil complexes, without an overall capability classification. *See* Record 58 (NRCS table listing individual ratings for each soil in the Unit 43C and

43E complexes) and Record 62 (memorandum from staff to the Lane Council of Governments documenting the staff person's understanding of the current NRCS practice, and explaining her decision to assign a capability classification to a complex based on the predominant soil—the soil first listed in the complex). According to petitioner, the former NRCS practice was to assign to the complex as a whole the capability classification of the least productive soil in the complex (in Units 43C and 43E, the Philomath soils, Class VIe). The current NRCS practice, petitioner argues, is to rate each individual soil separately, and not assign a composite rating based on the least productive soil in the complex.

The county and intervenor respond that the predominant soil test under ORS 197.247(1)(b)(C) must be based on the "Agricultural Capability Classification System in use by the United States Department of Agriculture, Soil Conservation Service on October 15, 1983," not subsequent or modified classification systems. Even assuming that the NRCS has since revised its system of classifying soils within complexes, which respondents do not concede, respondents argue that ORS 197.247(1)(b)(C) requires evaluation under the system in use on October 15, 1983. According to respondents, the 1987 soil survey accurately reflects the classification system in use on that date.

Petitioner responds that the above-described changes is simply a change in how the data generated by the Class I through VIII classification system is reported, not a change in the Class I through VIII *classification system* itself.

The documents cited to us in the record do not establish that the NRCS has in fact changed the way it reports or classifies complex soils. Something more official than an obscure table and a memorandum from a staff person at the Lane Council of Governments is necessary to establish that claim. Accordingly, we need not resolve the parties' contentions regarding whether the purported change is a change in the "classification system" that was in use on October 15, 1983, for purposes of ORS 197.247(1)(b)(C).

Petitioner does not dispute that the 1987 soil survey is a product of, and consistent with, the "Agricultural Capability Classification System in use by the United States Department of Agriculture, Soil Conservation Service on October 15, 1983." The 1987 soil survey provides a single rating for complex soils, such as Units 43C and 43E. Therefore, the county did not err in relying on that composite rating in the 1987 soil survey to conclude that the predominant soils on the subject property

are Class VIe, for purposes of ORS 197.247(1)(b)(C).

2. Wood Fiber Production Capability of 85 cf/ac/yr

The NRCS rates the forest productivity of the Dixonville soils in Units 43C and 43D at 152 cf/ac/yr, but apparently publishes no forest productivity ratings for any of the soil units or soil complexes on the property. Record 66. The county found, based on a report from intervenor's forestry consultant, that the subject property is not capable of producing 85 cf/ac/yr of merchantable timber. The consultant's report relied on several sources to estimate timber productivity, principally (1) a document entitled "Lane County Soil Ratings for Forestry and Agriculture," and (2) a document entitled "Lane County Forest Soil Ratings."[8] Record 347-49. The first document rates the forest productivity of Units 43C and 43E at 54 cf/ac/yr and 64 cf/ac/yr, respectively. Record 347. The second document rates both Units 43C and 43E at 45 cf/ac/yr, Unit 45C (Dupee) at 70 cf/ac/yr and Unit 138E (Witzel) at 70 cf/ac/yr. Record 348-49. The cited source of the pertinent ratings in the second document is a memorandum dated February 8, 1990, from the Office of State Forester. *Id.* That memorandum is not in the record.

Petitioner contends that the county's findings are inadequate, misconstrue the applicable law, and are not supported by substantial evidence. According to petitioner, the county's findings under ORS ORS 197.247(1)(b)(C) are governed by OAR 660-006-0005(2), which defines the term "cubic foot per acre" for purposes of the administrative rules implementing Statewide Planning Goal 4 (Forest Lands).[9] OAR 660-006-0005(2) requires that the county use productivity data "as reported by [NRCS]." Where NRCS data are not available or are shown to be inaccurate, OAR 660-006-0005(2) allows for alternative methods of determining productivity, if the alternative method provides "equivalent data" and is approved by the state Department of Forestry (ODF). *See, generally, Carlson v. Benton County*, 37 Or LUBA 897, 909-915 (2000), for an extensive discussion of OAR 660-006-0005 (2).

Petitioner argues that the county has not shown that the NRCS rating of 152 cf/ac/yr for the Dixonville component of Units 43C and 43E is "inaccurate." With respect to the soils on the property not rated by NRCS for forest productivity, petitioner contends that the county has not shown that ODF has approved the methodology used by the forestry consultant, or the methodology used to generate the

ratings in the two documents relied upon by the forestry consultant. According to petitioner, an ODF publication entitled "Land Use Planning Notes, Number 3X, April 1998," found at Record 452-58, describes the methodology approved by the department under OAR 660-006-0005 in circumstances where NRCS data is unavailable or inaccurate.[10] Petitioner contends that the forestry consultant did not follow the methodology prescribed in that ODF publication.

Intervenor responds that the two documents the forestry consultant relied upon are ultimately based on NRCS data and therefore there is no need under OAR 660-006-0005(2) to use or seek approval for an alternate methodology. Even if the documents are not based on NRCS data, intervenor argues, the documents provide "equivalent data" that was generated by an ODF-approved methodology. Intervenor points out that the pertinent data in the "Lane County Forest Soil Ratings" document are based on data from a February 8, 1990 memorandum from the Office of the State Forester. Using data generated by the State Forester should be sufficient, intervenor argues, to satisfy the requirements of OAR 660-006-0005(2).

We assume, without deciding, that OAR 660-006-0005(2) governs the forest productivity element of ORS 197.247(1)(b)(C) (1991).[11] The only NRCS data cited to us indicates that the NRCS does not rate the forest productivity of any soil on the property, with the exception of the Dixonville soils. Intervenor has not established that the ratings in the "Lane County Soil Ratings for Forestry and Agriculture," or "Lane County Forest Soil Ratings" are based on NRCS or SCS data. Because NRCS data are not available, intervenor can proceed under OAR 660-006-0005(2) only by providing "equivalent data" pursuant to an "alternative method" that is approved by ODF.

As noted, the first document, "Lane County Soil Ratings for Forestry and Agriculture," rates Units 43C and 43E as 54 cf/ac/yr and 63 cf/ac/yr, respectively. Record 347. The source of that rating and the methodology by which it was derived is not described. There is no indication in the record that it is based on SCS, NRCS or ODF data.

The second document, "Lane County Forest Soil Ratings," provides ratings for Units 43C and 43E (both 45 cf/ac/yr), Dupee soils (70 cf/ac/yr) and Witzel soils (70 cf/ac/yr). Each of these ratings is marked with asterisks ("**"). A footnote states that ratings marked with asterisks are not derived from the SCS "green sheets." A second footnote indicates: "** These estimated soils ratings are taken from

an Office of State Forester Memorandum, February 8, 1990, General File 7-1-1." Record 348-49.

Petitioner does not dispute that the documents relied upon provide "equivalent data" to NRCS data, for purposes of OAR 660-006-0005(2). Nor does petitioner dispute that the pertinent cf/ac/yr figures in the "Lane County Forest Soil Ratings" document are based on the February 8, 1990 memorandum from the Office of State Forester. Instead, petitioner complains that the February 8, 1990 memorandum is not in the record and there is no description of the methodology used to generate the data in that memorandum, or any evidence that the methodology used conforms to the methodology set out in the April 1998 ODF publication.

Petitioner is correct that, as a general matter, OAR 660-006-0005(2) requires that the "alternative methodology" be described or set forth in the record, and that there is evidence that ODF has approved the methodology. Presumably, use of the methodology set out in the April 1998 ODF publication would suffice to satisfy the rule. It also seems consistent with the rule to obtain explicit ODF approval of a different methodology, on a case-by-case basis. However, we believe that it is also consistent with the rule to use ODF-generated cf/ac/yr figures, if available, even if the methodology that generated those figures is not described in the record. Here, petitioner does not dispute that the cf/ac/yr figures in the "Lane County Forest Soil Ratings" accurately reflect the ODF-generated figures for the pertinent soils. A decision maker could reasonably presume that whatever methodology generated the ODF cf/ac/yr figures is one that ODF approves of. Even if the ODF figures were generated under a different methodology than that set out in the April 1998 ODF publication, as petitioner contends, the ODF is presumably free to follow or approve a different methodology for calculating timber productivity than the one set out in the April 1998 publication.

The first, second and third assignments of error are denied.

FOURTH ASSIGNMENT OF ERROR

ORS 215.327 provides for different minimum lot sizes for marginal lands, depending on the character of the surrounding land.[12] Ten-acre lots are permissible if the subject property is not adjacent to land zoned for exclusive farm or forest use or, if adjacent to such land, such land must qualify for designation for marginal land. Otherwise the lot or parcel must be 20 acres or more in size.

A 53.6-acre parcel south of the subject property is zoned for forest uses. The county concluded that this parcel qualified for designation for marginal land, and thus that the subject property could be divided into 10-acre lots. Petitioner argues that the county's conclusion that the adjacent property qualifies for designation as marginal land suffers from the same flaws described in the first, second and third assignments of error.

Because petitioner's arguments under the first, second and third assignments of error do not provide a basis for reversal or remand, neither do the incorporated arguments under this assignment of error.

The fourth assignment of error is denied.

The county's decision is affirmed.

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[1] The 1987 soil survey describes a soil complex as follows:

> "A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Dixonville-Philomath-Hazelair complex, 3 to 12 percent slopes, is an example."

[2] The 1987 soil survey describes the composition of Unit 43C as follows:

> "This unit is 30 percent Dixonville silty clay loam, 30 percent Philomath cobbly silty clay, and 25 percent Hazelair silty clay loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used. Included in this unit are small areas of Panther, Ritner, and Witzel soils and Rock outcrop. Included areas make up about 15 percent of the total acreage." Record 63.

The soil survey describes the composition of Unit 43E as follows:

> "This unit is 35 percent Dixonville silty clay loam, 30 percent Philomath cobbly silty clay, and 20 percent Hazelair silty clay loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used. Included in this unit are small areas of Ritner and Witzel soils and Rock outcrop. Included areas make up about 15 percent of the total acreage." Record 64.

[3] ORS 197.247(1) (1991) provided, in relevant part:

> "In accordance with ORS 197.240 and 197.245, the commission shall amend the goals to authorize counties to designate land as marginal land if the land meets the following criteria and the criteria set out in subsections (2) and (4) of this section:
>
> "(a) The proposed marginal land was not managed during three of the five calendar years preceding January 1, 1983, as part of a farm operation that produced $20,000 or more in annual gross income or a forest operation capable of producing an average, over the growth cycle, of $10,000 in annual gross income; and
>
> "(b) The proposed marginal land also meets at least one of the following tests:

"* * * * *

"(C) The proposed marginal land is composed predominantly of soils in capability classes V through VIII in the Agricultural Capability Classification System in use by the United States Department of Agriculture Soil Conservation Service on October 15, 1983, and is not capable of producing * * * eighty-five cubic feet of merchantable timber per acre per year in those counties west of the summit of the Cascade Range, as that term is defined in ORS 477.011(21)."

In addition, ORS 197.247(5) (1991) provided:

"A county may use statistical information compiled by the Oregon State University Extension Service or other objective criteria to calculate income for the purposes of paragraph (a) of subsection (1) of this section."

[4] It is not clear whether the subject property was part of a larger forest operation involving multiple properties during three of the five calendar years preceding January 1, 1983, or whether the "forest operation" included only the subject property during the relevant period. ORS 197.247(1)(a) can be read to apply the gross income threshold test to the farm and forest operation itself, not limited to the subject property. In other words, the pertinent question under ORS 197.247(1)(a) may not be whether the *subject property* can produce $10,000 in average annual income, the question that intervenor's forestry consultant asked and answered, but whether the forest operation that the property is or was part of can produce $10,000 in average annual income. However, petitioner does this challenge this aspect of the evidence submitted under the gross income test, and therefore we need not address or resolve that question.

[5] In support of his view that the statute requires use of current timber values, petitioner also cites to *DLCD v. Lane County*, 23 Or LUBA 33 (1992) (*Ericsson*), in which LUBA affirmed a county decision that designated marginal lands under the ORS 197.247(1)(a) forest operation prong of the gross income test, based in part on evidence of then-current timber values. However, while *Ericsson* recites the county's findings describing the methodology used by the applicant's expert, no issue was raised regarding the expert's use of current timber values, and our decision expressed no views on that point.

[6] In response to petitioner's arguments against using 1983 prices, intervenor's consultant also calculated revenues based on current timber values, and concluded that even so calculated the average annual gross income fell below the $10,000 threshold. Record 371. Intervenor argues that this evidence renders petitioner's objections to using 1983 prices moot. Petitioner disagrees, arguing that use of current prices rather than the estimated price at the projected harvest date is also inappropriate. Our conclusion that the county did not err in using 1983 timber prices makes it unnecessary to address these contentions.

[7] *See* testimony of Richard Benner before the House Committee on Energy and Environment on SB 237, Tape 260, Side A:

"* * * [The gross income test] is intended to be the way it reads which is, you use the five-year period preceding the effective date of the Act. The reason the farmers chose that language was to get in part at Representative Parkinson's point about inflation. If you look at a set period in time, those numbers can't inflate over time. Those figures are set, obviously, and they have been. * * *"

[8] The report also cites to "U.S. Dept. of Agriculture SCS Data, as presented in the Soil Survey of Lane County Area (Green Sheet)." Record 342. However, the cited source is not attached to the report and, as far as we can tell, not in the record. As noted above, no party has argued, and it does not appear to be the case, that either the SCS or NRCS has published timber productivity figures for Units 43C, 43E, 45C or 138E.

[9] OAR 660-004-0005 provides, in relevant part:

"For the purpose of this division, the following definitions apply:

"* * * * *

"(2) 'Cubic Foot Per Acre' means the average annual increase in cubic foot volume of wood fiber per acre for fully stocked stands at the culmination of mean annual increment as reported by the USDA Natural Resource Conservation Service (NRCS). Where NRCS data are not available or are shown to be inaccurate, an alternative method for determining productivity may be used. An alternative method must provide equivalent data and be approved by the Department of Forestry."

[10] The methodology described in the April 1998 ODF publication generally requires a field survey of selected trees on the property.

[11] We note that the statute, adopted in 1983 and repealed in 1991, does not require reliance on NRCS data in determining whether the property is capable of producing 85 cf/ac/yr of merchantable timber. The statute explicitly imposes such a requirement with respect to agricultural capability, but not forest productivity. OAR 660-006-0005(2), in turn, was adopted after the statute's repeal and simply defines a term, "Cubic Foot Per Acre" for purposes of OAR chapter 660, Division 006. As far as we can tell, nothing in Division 006 governs designation of marginal lands under ORS 197.247. Instead, it appears that the term "Cubic Foot Per Acre" is used in Division 006 only with respect to forest template dwellings, under OAR 660-006-0027. It is possible that the Land Conservation and Development Commission did not intend the definition of "Cubic Foot Per Acre" to apply to designation of marginal land under the ORS 197.247(1)(b)(C) forest productivity test. One could also argue the converse. We need not resolve this question, as the county and the parties proceeded under the assumption that the rule definition is applicable to a marginal lands designation, and no party raises any arguments to us questioning that assumption.

[12] ORS 215.327 provides:

"A county may allow the following divisions of marginal land:

"(1) Divisions of land to create a parcel or lot containing 10 or more acres if the lot or parcel is not adjacent to land zoned for exclusive farm use or forest use or, if it is adjacent to such land, the land qualifies for designation as marginal land under ORS 197.247 (1991 Edition).

"(2) Divisions of land to create a lot or parcel containing 20 or more acres if the lot or parcel is adjacent to land zoned for exclusive farm use and that land does not qualify for designation as marginal land under ORS 197.247 (1991 Edition)."

NEIL GOLDSCHMIDT
GOVERNOR

Forestry Department
OFFICE OF STATE FORESTER
2600 STATE STREET, SALEM, OREGON 97310 PHONE 378-2560

General File 7-1-1

MEMORANDUM

Subj: Forest Lands Soils Ratings - Revisions

To : Ron Eber, Policy Analyst, DLCD

From: Dave Stere, Director, Forest Resources Planning

Date: February 8, 1990

Attached are revisions to my listing of Forest Soils Productivity Ratings for Lane, Benton, Linn, Marion, Polk and Yamhill Counties.

I've revised these ratings based upon the valuable information gained during the field tour in Lane County, and on the vegetational comparisons that we can now make as a result of that information.

I'm certain that more revisions are warranted in other areas and on other soils. As I mentioned to you before, we are ready and willing to make revisions if field-gathered information shows them warranted.

I'll send copies of these revisions to Jerry Latshaw and Herb Huddleston and to the affected Counties.

DS-200

ds-47a

2-7-90

LANE COUNTY - FOREST SOILS RATINGS

SCS #	SCS Name	(Site Index) Rating	SCS Acreage	Cuft/Ac per yr
004G	Atring-Rock Outcrop Complex, 30-60%	Med 120	1140	* 86
005	Awbrig sicl	3	9890	est 40
006	Awbrig Urban Land complex	3	350	est 20
008	Bashaw c	3	9650	est 30
009	Bashaw-Urban Land complex	3	350	est 20
010	Beaches	3	1000	
017	Brallier muck, drained	3	1160	
018	Brallier muck, tidal	3	930	
019	Brenner sicl	3	860	
021B	Bullards-Ferrelo loams, 0-7%	Med 144	510	est 80
021C	Bullards-Ferrelo loams, 7-12%	Med 144	1560	est 80
021E	Bullards-Ferrelo loams, 12-30%	Med 144	1210	est 80
021G	Bullards-Ferrelo loams, 30-60%	Med 144	850	est 80
022	Camas gr sl, occ flooded	3	6370	est 40
023	Camas-Urban land complex	3	600	est 20
028C	Chehulpum sil, 3-12%	3	1970	est 40
028E	Chehulpum sil, 12-40%	3	440	est 40
033	Conser sicl	3	4200	est 45
034	Courtney gr sicl	3	2920	est 40
038	Dayton, sil, clay sub	3	4280	est 40
12E	Dixonville-Hazelair-Urban Land, 12-35%	Low	640	est 35
043C	Dixonville-Philomath-Hazelair, 3-12%	Med	11480	est 45
043E	Dixonville-Philomath-Hazelair, 12-35%	Med	22990	est 45
044	Dune Land	3	5870	
045C	Dupee sil, 3-20%	Med	20190	est70 *
048	Fluvents, Nearly Level	3	9550	
052B	Hazelair sicl, 2-7%	Low	5680	est 40
052D	Hazelair, 7-20%	Low	41510	est 40
053	Heceta fs	3	2010	est 20
073	Linslaw l	2	5700	est 80
075	Malabon sicl	2	15350	est 65
076	Malabon-Urban land complex	2	6420	est 50
077B	Marcola cob sicl, 2-7%	Med	690	est 70
085	Natroy sicl	3	15170	est 60
086	Natroy sic	3	2100	est 60
087	Natroy-Urban Land Complex	3	610	est 40
094C	Netarts fs, 3-12%	Med 80	1060	58
094E	Netarts fs, 12-30%	Med 80	420	58
098	Noti l	3	3860	est 30
100	Oxley gr sil	2	2010	est 80
101	Oxley-Urban land complex	2	870	est 60
102C	Panther sicl, 2-12%	3	8400	est 45
103C	Panther-Urban Land complex, 2-12%	3	440	est 40
105A	Pengra sil, 1-4%	3	5070	est 45
106A	Pengra-Urban land complex, 1-4%	3	780	est 30
107C	Philomath sic, 3-12%	Low	2280	est 45
08C	Philomath cob sic, 3-12%	Low	2280	est 45
108F	Philomath cob sic, 12-45%	Low	7090	est 45
109F	Philomath-Urban land complex, 12-45%	Low	270	est 20

110	Pits	3	700		
14	Riverwash	3	2050		
115H	Rock Outcrop-Kilchis complex, 30-90%	Low	3950		34
116G	Rock Outcrop-Witzel complex, 10-70%	Low	1480		21
125C	Steiwer l, 3-12%	Low	2790	est	30
125D	Steiwer l, 12-20%	Low	1000	est	30
125F	Steiwer l, 20-50%	Low	1240	est	30
127C	Urban Land-Hazelair-Dixonville, 3-12%	Low	1450	est	45
130	Waldo sicl	3	7550	est	45
131C	Waldport fs, 0-12%	Low 92	1700		29
131E	Waldport fs, 12-30%	Low 92	1000		29
131G	Waldport fs, 30-70%	Low 92	650		29
132E	Waldport fs, thin surf., 0-30%	Low 92	2110		29
133C	Waldport-Urban Land Complex, 0-12%	Low	250	est	20
136	Willanch fsl	3	870	est	40
137F	Winberry v gr l, 10-45%	Low 70	560		48
138E	Witzel v cob l, 3-30%	Med 90	5780		70
138G	Witzel v cob l, 30-75%	Med 90	5520	--	70
141	Yaquina-Urban land complex	3	260	est	45
142G	Yellowstone-Rock Outcrop, 10-60%	Low 86	1560		38

* No examples of Forested lands on Dupee soil found...adjacent areas had a productivity rating of (est) 45 cuft/acre/yr. This rating is questionable.

Total - LOW & MEDIUM ratings -- 293,500 acres

001A	Abiqua sicl, 0-3%	High 152	5210		161
001B	Abiqua sicl, 3-5%	High 152	1230		161
002E	Astoria sil, 5-30%	High 170	3380		181
003E	Astoria Variant sil, 3-30%	High 170	200		181
003G	Astoria Variant sil, 30-60%	High 170	1500		181
007B	Bandon sl, 0-7%	High 138	240		142
007C	Bandon sl, 7-12%	High 138	220		142
007F	Bandon sl, 12-50%	High 138	270		142
011C	Bellpine sicl, 3-12%	High 155	15950		164
011D	Bellpine sicl, 12-20%	High 155	58600		164
011E	Bellpine sicl, 20-30%	High 155	38100		164
011F	Bellpine sicl, 30-50%	High 155	27100		164
012E	Bellpine cob sicl, 2-30%	High 155	4230		164
013F	Blachly cl, 30-50%	High 148	13400		156
013G	Blachly cl, 50-70%	High 148	2960		176
014E	Blachly sicl, 3-30%	High 165	7030		176
014F	Blachly sicl, 30-50%	High 165	8520		176
015E	Blachly-McCully cls, 3-30%	High 147	23000		155
016D	Bohannon gr l, 3-25%	High 155	15800		164
016F	Bohannon gr l, 25-50%	High 155	27770		164
016H	Bohannon gr l, 50-90%	High 155	92000		164
020B	Briedwell cob l, 0-7%	High 135	1780		138
024	Chapman l	1	3800	est	140
025	Chapman-Urban land complex	1	1070	est	100
026	Chehalis sicl, occ flooded	1	9300	est	100
27	Chehalis-Urban land complex	1	700	est	90
029	Cloquato sil	1	5170	est	120
030	Cloquato-Urban land complex	1	230	est	100

031	Coburg sicl	1		13480	est	100
032	Coburg-Urban land complex	1		2740	est	90
035D	Crusier gr cl, 3-25%	High	135	2670		138
035F	Crusier gr cl, 25-50%	High	135	1710		138
035G	Cruiser gr cl, 35-70%	High	135	360		138
036D	Cumley sicl, 2-20%	High	154	34000		163
037C	Cupola cob l, 3-12%	High	124	2530		121
037E	Cupola cob l, 12-30%	High	124	1110		121
039E	Digger gr l, 10-30%	High	145	970		152
039F	Digger gr l, 30-50%	High	145	3730		152
040H	Digger-Rock outcrop complex, 50-85%	High	145	62140		114
041C	Dixonville sicl, 3-12%	High	120	3360		115
041E	Dixonville sicl, 12-30%	High	120	3670		115
041F	Dixonville sicl, 30-50%	High	120	3280		115
046	Eilertsen sil	High	159	1580		169
047E	Fendall sil, 3-30%	High	150	720		158
049E	Formander l, 3-30%	High	162	4690		172
049G	Formander l, 30-60%	High	162	5130		172
050G	Formander-Hembre-Klicitat, 50-80%	High	165	24510		170
051B	Haflinger-Jimbo complex, 0-5%	High	159	1990		161
054D	Hembre sil, 5-25%	High	170	650		181
054G	Hembre sil, 25-60%	High	170	1030		181
055E	Hembre-Klickitat complex, 3-30%	High		1920		170
055G	Hembre-Klickitat complex, 30-60%	High		1760		168
056	Holcomb sicl	1		1560	est	100
057D	Holderman ext cob l, 5-25%	High	120	490		98
057F	Holderman ext cob l, 25-50%	High	120	1900		98
057G	Holderman ext cob l, 50-75%	High	120	1600		98
058D	Honeygrove sicl, 3-25%	High	165	31050		176
058F	Honeygrove sicl, 25-50%	High	165	10430		176
059E	Hullt l, 2-30%	High	165	480		176
059G	Hullt l, 30-60%	High	165	400		176
060D	Hummington gr l, 5-25%	High	145	840		152
060F	Hummington gr l, 25-50%	High	145	1620		152
060G	Hummington gr l, 50-75%	High	145	7530		152
061	Jimbo sil	High	162	2550		173
062B	Jimbo-Haflinger complex, 0-5%	High		590		167
063C	Jory sicl, 2-12%	High	155	4560		164
063D	Jory sicl, 12-20%	High	155	6940		164
063E	Jory sicl, 20-30%	High	155	3130		164
064D	Keel cob cl, 3-25%	High	139	6390		144
064F	Keel cob cl, 35-45%	High	139	9300		144
064G	Keel cob cl, 45-75%	High	139	5060		144
065G	Kilchis st l, 30-60%	High	110	2370		98
065H	Kilchis st l, 60-90%	High	110	7920		98
066D	Kinney cob l, 3-20%	High	150	6970		158
067F	Kinney cob l, 20-50%, N	High	162	9010		172
067G	Kinney cob l, 50-70%, N	High	162	18220		172
068F	Kinney cob l, 20-50%, S	High	150	13710		164
068G	Kinney cob l, 50-70%, S	High	150	7780		164
069E	Kinney cob l, slump, 3-30%	High	168	15530		180
070E	Klickitat st l, 3-30%	High	144	10050		165
071F	Klickitat st l, 30-50%, N	High	156	8350		165
071G	Klickitat st l, 50-75%, N	High	156	37150		145
072F	Klickitat st l, 30-50%, S	High	140	25900		145
072G	Klickitat st l, 50-75%, S	High	140	68800		150

074B	Lint sil, 0-7%	High	160	1120		170
074C	Lint sil, 7-12%	High	160	1510		170
074D	Lint sil, 12-20%	High	160	1860		170
074E	Lint sil, 20-40%	High	160	1920		170
078	McAlpin sicl	High	159	11860		169
079	McBee sicl	1		5200	est	100
080F	McKully cl, 30-50%	High	162	7730		172
080G	McKully cl, 50-70%	High	162	4210		172
081D	McDuff cl, 3-25%	High	142	3010		148
081F	McDuff cl, 25-50%	High	142	3000		148
081G	McDuff cl, 50-70%	High	142	950		148
082C	Meda l, 2-12%	High	161	10650		171
083B	Minniece sicl, 0-8%	High	130	1420		129
084D	Mulkey l, 5-25%	High	143	230		224
088	Nehalem sil	High	174	5950		186
089C	Nekia sicl, 2-12%	High	151	4960		159
089D	Nikia sicl, 12-20%	High	151	15520		159
089E	Nikia sicl, 20-30%	High	151	8760		159
089F	Nikia sicl, 30-50%	High	151	7580		159
090	Nekoma sil	High	180	7170		191
091D	Neskowin sil, 12-20%	High	133	560		205
091E	Neskowin sil, 20-40%	High	133	230		205
092G	Neskowin-Salander sil, 40-60%	High	133	4350		205
093	Nestucca sil	1		5830	est	130
095	Newberg fsl	1		2970	est	150
096	Newberg l	1		4490	est	150
097	Newberg-Urban land complex	1		930	est	100
99H	Ochrepts & Umbrepts, v. steep	1		1070	est	130
104E	Peavine sicl, 3-30%	High	155	68300		164
104G	Peavine sicl, 30-60%	High	155	124810		164
111D	Preacher l, 0-25%	High	181	10950		192
111F	Preacher l, 25-50%	High	181	25600		192
112G	Preacher-Bohannon-Slickrock, 50-75%	High		113500		185
113C	Ritner cob sicl, 2-12%	High	131	2940		131
113E	Ritner cob sicl, 12-30%	High	131	14890		131
113G	Ritner cob sicl, 30-60%	High	131	21340		131
117E	Salander sil, 12-30%	High	133	770		205
118	Salem gr sil	1		7550	est	130
119	Salem-Urban land complex	1		2300	est	100
120B	Salkum sil, 2-6%	High	145	5060		151
121B	Salkum sicl, 2-8%	High	145	5160		151
121C	Salkum sicl, 8-16%	High	145	2160		151
122	Saturn cl	High	162	4210		172
123	Sifton gr l	1		650		
124D	Slickrock gr l, 3-25%	High	194	1850		203
124F	Slickrock gr l, 25-50%	High	194	1500		203
126F	Tahkenitch l, 20-45%	High	156	390		165
126G	Tahkenitch l, 45-75%	High	156	500		165
128B	Veneta l, 0-7%	High	139	11930		144
129B	Veneta Variant sil, 0-7%	High	150	1320		158
135C	Willakenzie cl, 2-12%	High	160	2500		170
135D	Willakenzie cl, 12-20%	High	160	7320		170
135E	Willakenzie cl, 20-30%	High	160	6490		170
135F	Willakenzie cl, 30-50%	High	160	10610		170
139	Woodburn sil	1		215	est	170

Lane County
Soil Ratings for Forestry and Agriculture

Lane County
Land Management Division

August 1997

Prepared by
Lane Council of Governments

Lane County Soil Ratings for Forestry and Agriculture

The Lane County Land Management Division, with technical assistance from Lane Council of Governments, compiled this data to assist the public in preparing land use applications. The Natural Resources Conservation Service (NRCS) reviewed the data and methodology.

Map Symbol	Lane County Soil Map Unit	Douglas Fir Site Index	Cu. Ft./ Acre/ Year	Agricultural Capability Class	High Value Farmland
01A	Abiqua silty clay loam, 0 - 3% slopes	135	203	1	X
01B	Abiqua silty clay loam, 3 - 5% slopes	135	203	2	X
02E	Astoria silt loam, 5 - 30% slopes	130	193	6	
03E	Astoria Variant silt loam, 3 - 30% slopes	none		6	
03G	Astoria Variant silt loam, 30 - 60% slopes	none		6	
04G	Atring-Rock outcrop complex, 30 - 60% slopes	***	81	6	
05	Awbrig silty clay loam	none		4	X
06	Awbrig-Urban land complex	none		4	
07B	Bandon sandy loam, 0 - 7% slopes	105	145	3	
07C	Bandon sandy loam, 7 - 12% slopes	105	145	3	
07F	Bandon sandy loam, 12 - 50% slopes	105	145	6	
08	Bashaw clay	none		4	X
09	Bashaw-Urban land complex	none		4	
10	Beaches	none		8	
11C	Bellpine silty clay loam, 3 - 12% slopes	115	163	3	X
11D	Bellpine silty clay loam, 12 - 20% slopes	115	163	3	X
11E	Bellpine silty clay loam, 20 - 30% slopes	115	163	4	X
11F	Bellpine silty clay loam, 30 - 50% slopes	115	163	6	
12E	Bellpine cobbly silty clay loam, 2 - 30% slopes	115	163	4	
13F	Blachly clay loam, 30 - 50% slopes	119	173	6	
13G	Blachly clay loam, 50 - 70% slopes	119	173	7	
14E	Blachly silty clay loam, 3 - 30% slopes	125	184	6	
14F	Blachly silty clay loam, 30 - 50% slopes	125	184	6	
15E	Blachly-McCully clay loam, 3 - 30% slopes	***	172	6	
16D	Bohannon gravelly loam, 3 - 25% slopes	118	171	6	
16F	Bohannon gravelly loam, 25 - 50% slopes	118	171	6	
16H	Bohannon gravelly loam, 50 - 90% slopes	118	171	7	
17	Brallier muck, drained	none		4	
18	Brallier Variant muck	none		5	
19	Brenner silty clay loam	none		3	X
20B	Briedwell cobbly loam, 0 - 7% slopes	103	141	3	X
21B	Bullards-Ferrelo loams, 0 - 7% slopes	***	84	3	
21C	Bullards-Ferrelo loams, 7 - 12% slopes	***	84	3	
21E	Bullards-Ferrelo loams, 12 - 30% slopes	***	76	4	
21G	Bullards-Ferrelo loams, 30 - 60% slopes	***	76	6	

Lane County Soil Ratings for Forestry and Agriculture

Map Symbol	Lane County Soil Map Unit	Douglas Fir Site Index	Cu. Ft./ Acre/ Year	Agricultural Capability Class	High Value Farmland
22	Camas gravelly sandy loam, occasionally flooded	none		4	
23	Camas-Urban land complex	none		4	
24	Chapman loam	none		1	X
25	Chapman-Urban land complex	none		1	X
26	Chehalis silty clay loam, occasionally flooded	none		2	X
27	Chehalis-Urban land complex	none		2	X
28C	Chehulpum silt loam, 3 - 12% slopes	none		6 *	
28E	Chehulpum silt loam, 12 - 40% slopes	none		6	
29	Cloquato silt loam	none		2	X
30	Cloquato-Urban land complex	none		2	X
31	Coburg silty clay loam	none		2	X
32	Coburg-Urban land complex	none		2	X
33	Conser silty clay loam	none		3	X
34	Courtney gravelly silty clay loam	none		4	X
35D	Cruiser gravelly clay loam, 3 - 25% slopes	140**	145	6	
35F	Cruiser gravelly clay loam, 25 - 50% slopes	140**	145	6	
35G	Cruiser gravelly clay loam, 35 - 70% slopes	140**	145	7	
36D	Cumley silty clay loam, 2 - 20% slopes	114	162	6	
37C	Cupola cobbly loam, 3 - 12% slopes	100	136	6	
37E	Cupola cobbly loam, 12 - 30% slopes	100	136	6	
38	Dayton silt loam, clay substratum	none		4	X
39E	Digger gravelly loam, 10 - 30% slopes	102	140	6	
39F	Digger gravelly loam, 30 - 50% slopes	102	140	6	
40H	Digger-Rock outcrop complex, 50 - 85% slopes	***	114	7	
41C	Dixonville silty clay loam, 3 - 12% slopes	109	152	3	
41E	Dixonville silty clay loam, 12 - 30% slopes	109	152	4	
41F	Dixonville silty clay loam, 30 - 50% slopes	109	152	6	
42E	Dixonville-Hazelair-Urban land complex, 12 - 35% slopes	***	89	4	
43C	Dixonville-Philomath-Hazelair complex, 3 - 12% slopes	***	54	3	
43E	Dixonville-Philomath-Hazelair complex, 12 - 35% slopes	***	63	4	
44	Dune land	none		8	
05C	Dupee silt loam, 3 - 20% slopes	none		3	
46	Eilertsen silt loam	133	199	2	X
47E	Fendall silt loam, 3 - 30% slopes	125	184	6	
48	Fluvents, nearly level	none		--	
49E	Formader loam, 3 - 30% slopes	121	176	6	
49G	Formader loam, 30 - 60% slopes	121	176	6	
50G	Formader-Hembre-Klickitat complex, 50 - 80% slopes	***	176	7	

Lane County Soil Ratings for Forestry and Agriculture

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51B	Haflinger-Jimbo complex, 0 - 5% slopes	***	165	6	X
52B	Hazelair silty clay loam, 2 - 7% slopes	none		3	
52D	Hazelair silty clay loam, 7 - 20% slopes	none		4	
53	Heceta fine sand	none		4	
54D	Hembre silt loam, 5 - 25% slopes	127	188	6	
54G	Hembre silt loam, 25-60% slopes	127	188	6	
55E	Hembre-Klickitat complex, 3 - 30% slopes	***	177	6	
55G	Hembre-Klickitat complex, 30 - 60% slopes	***	176	6	
56	Holcomb silty clay loam	none		3	X[1]
57D	Holderman extremely cobbly loam, 5 - 25% slopes	119**	113	6	
57F	Holderman extremely cobbly loam, 25 - 50% slopes	119**	113	6	
57G	Holderman extremely cobbly loam, 50 - 75% slopes	119**	113	7	
58D	Honeygrove silty clay loam, 3 - 25% slopes	122	178	6	
58F	Honeygrove silty clay loam, 25 - 50% slopes	122	178	6	
59E	Hullt loam, 2 - 30% slopes	121	176	3	X
59G	Hullt loam, 30 - 60% slopes	121	176	6	
60D	Hummington gravelly loam, 5 - 25% slopes	131**	131	6	
60F	Hummington gravelly loam, 25 - 50% slopes	131**	131	6	
60G	Hummington gravelly loam, 50 - 75% slopes	131**	131	7	
61	Jimbo silt loam	121	176	1	X
62B	Jimbo-Haflinger complex, 0 - 5% slopes	***	171	1	X
63C	Jory silty clay loam, 2 - 12% slopes	122	178	2	X
63D	Jory silty clay loam, 12 - 20% slopes	122	178	3	X
63E	Jory silty clay loam, 20 - 30% slopes	122	178	4	X
64D	Keel cobbly clay loam, 3 - 25% slopes	132**	133	6	
64F	Keel cobbly clay loam, 25 - 45% slopes	132**	133	6	
64G	Keel cobbly clay loam, 45 - 75% slopes	132**	133	7	
65G	Kilchis stony loam, 30 - 60% slopes	90	116	6	
65H	Kilchis stony loam, 60 - 90% slopes	90	116	7	
66D	Kinney cobbly loam, 3 - 20% slopes	122	178	6	
67F	Kinney cobbly loam, 20 - 50% north slopes	122	178	6	
67G	Kinney cobbly loam, 50 - 70% north slopes	122	178	7	
68F	Kinney cobbly loam, 20 - 50% south slopes	122	178	6	
68G	Kinney cobbly loam, 50 - 70% south slopes	122	178	7	
69E	Kinney cobbly loam, slump, 3 - 30% slopes	122	178	6	
70E	Klickitat stony loam, 3 - 30% slopes	112	158	6	
71F	Klickitat stony loam, 30 - 50% north slopes	112	158	6	
71G	Klickitat stony loam, 50 - 75% north slopes	112	158	7	

Lane County Soil Ratings for Forestry and Agriculture

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72F	Klickitat stony loam, 30 - 50% south slopes	112	158	6	
72G	Klickitat stony loam, 50 - 75% south slopes	112	158	7	
73	Linslaw loam	none		3	X[1]
74B	Lint silt loam, 0 - 7% slopes	117	169	3	
74C	Lint silt loam, 7 - 12% slopes	117	169	3	
74D	Lint silt loam, 12 - 20% slopes	117	169	3	
74E	Lint silt loam, 20 - 40% slopes	117	169	4	
75	Malabon silty clay loam	none		1	X
76	Malabon-Urban land complex	none		1	X
77B	Marcola cobbly silty clay loam, 2 - 7% slopes	none		4	
78	McAlpin silty clay loam	none		2	X
79	McBee silty clay loam	none		3	X[2]
80F	McCully clay loam, 30 - 35% slopes	118	171	6	
80G	McCully clay loam, 50 - 70% slopes	118	171	7	
81D	McDuff clay loam, 3 - 25% slopes	112	158	6	
81F	McDuff clay loam, 25 - 50% slopes	112	158	6	
81G	McDuff clay loam, 50 - 70% slopes	112	158	7	
82C	Meda loam, 2 - 12% slopes	none		3	X
83B	Minniece silty clay loam, 0 - 8% slopes	none		6	
84D	Mulkey loam, 5 - 25% slopes	none		6	
85	Natroy silty clay loam	none		4	X
86	Natroy silty clay	none		4	X
87	Natroy-Urban land complex	none		4	X
88	Nehalem silt loam	none		2	X
89C	Nekia silty clay loam, 2 - 12% slopes	113	160	3	X
89D	Nekia silty clay loam, 12 - 20% slopes	113	160	3	X
89E	Nekia silty clay loam, 20 - 30% slopes	113	160	4	
89F	Nekia silty clay loam, 30 - 50% slopes	113	160	6	
90	Nekoma silt loam	none		3	
91D	Neskowin silt loam, 12 - 20% slopes	none		6	
91E	Neskowin silt loam, 20 - 40% slopes	none		6	
92G	Neskowin-Salander silt loams, 40 - 60% slopes	none		6	
93	Nestucca silt loam	none		3	
94C	Netarts fine sand, 3 - 12% slopes	none		6	
94E	Netarts fine sand, 12 - 30% slopes	none		6	
95	Newberg fine sandy loam	none		2	X
96	Newberg loam	none		2	X

Lane County Soil Ratings for Forestry and Agriculture

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97	Newberg-Urban land complex	none		2	X
98	Noti loam	none		4	X
99H	Ochrepts & Umbrepts, very steep	none		--	
100	Oxley gravelly silt loam	none		3	
101	Oxley-Urban land complex	none		3	
102C	Panther silty clay loam, 2 - 12% slopes	none		6	
103C	Panther-Urban land complex, 2 - 12% slopes	none		6	
104E	Peavine silty clay loam, 3 - 30% slopes	125	184	6	
104G	Peavine silty clay loam, 30 - 60% slopes	125	184	6	
105A	Pengra silt loam, 1 - 4% slopes	none		3	X[1]
106A	Pengra-Urban land complex, 1 - 4% slopes	none		3	
107C	Philomath silty clay, 3 - 12% slopes	none		6	
108C	Philomath cobbly silty clay, 3 - 12% slopes	none		6	
108F	Philomath cobbly silty clay, 12 - 45% slopes	none		6	
109F	Philomath-Urban land complex, 12 - 45% slopes	none		6	
110	Pits	none		8	
111D	Preacher loam, 0 - 25% slopes	128	190	6	
111F	Preacher loam, 25 - 50% slopes	128	190	6	
112G	Preacher-Bohannon-Slickrock complex, 50 - 75% slopes	***	188	7	
113C	Ritner cobbly silty clay loam, 2 - 12% slopes	107	149	4	
113E	Ritner cobbly silty clay loam, 12 - 30% slopes	107	149	6	
113G	Ritner cobbly silty clay loam, 30 - 60% slopes	107	149	7	
114	Riverwash	none		8	
115H	Rock outcrop-Kilchis complex, 30 - 90% slopes	***	27	8	
116G	Rock outcrop-Witzel complex, 10 - 70% slopes	***	none	8	
117E	Salander silt loam, 12 - 30% slopes	125	184	6	
118	Salem gravelly silt loam	none		2	X
119	Salem-Urban land complex	none		2	X
120B	Salkum silt loam, 2 - 6% slopes	116	167	2	X
121B	Salkum silty clay loam, 2 - 8% slopes	116	167	2	X
121C	Salkum silty clay loam, 8 - 16% slopes	116	167	3	X
122	Saturn clay loam	123	180	3	
123	Sifton gravelly loam	124	182	3	X
124D	Slickrock gravelly loam, 3 - 25% slopes	137	209	6	
124F	Slickrock gravelly loam, 25 - 50% slopes	137	209	6	
125C	Steiwer loam, 3 - 12% slopes	none		3	
125D	Steiwer loam, 12 - 20% slopes	none		4*	

Lane County Soil Ratings for Forestry and Agriculture

Map Symbol	Lane County Soil Map Unit	Douglas Fir Site Index	Cu. Ft./ Acre/ Year	Agricultural Capability Class	High Value Farmland
125F	Steiwer loam, 20 - 50% slopes	none		6	
126F	Tahkenitch loam, 20 - 45% slopes	124	182	6	
126G	Tahkenitch loam, 45 - 75% slopes	124	182	7	
127C	Urban land-Hazelair-Dixonville complex, 3 - 12% slopes	***	68	8	
128B	Veneta loam, 0 - 7% slopes	108	150	2	X
129B	Veneta Variant silt loam, 0 - 7% slopes	124	182	2	X
130	Waldo silty clay loam	none		3	
131C	Waldport fine sand, 0 - 12% slopes	none		6	
131E	Waldport fine sand, 12 - 30% slopes	none		7	
131G	Waldport fine sand, 30 - 70% slopes	none		7	
132E	Waldport fine sand, thin surface, 0 - 30% slopes	none		7	
133C	Waldport-Urban land complex, 0 - 12% slopes	none		6	
134	Wapato silty clay loam	none		3	X[3]
135C	Willakenzie clay loam, 2 - 12% slopes	110	154	3	X
135D	Willakenzie clay loam, 12 - 20% slopes	110	154	3	X
135E	Willakenzie clay loam, 20 - 30% slopes	110	154	4	X
135F	Willakenzie clay loam, 30 - 50% slopes	110	154	6	
136	Willanch fine sandy loam	none		3	
137F	Winberry very gravelly loam, 10 - 45% slopes	none		7	
138E	Witzel very cobbly loam, 3 - 30% slopes	none		6	
138G	Witzel very cobbly loam, 30 - 75% slopes	none		6	
139	Woodburn silt loam	none		2	X
140	Yaquina loamy fine sand	none		4	
141	Yaquina-Urban land complex	none		4	
142G	Yellowstone-Rock outcrop, 10 - 60% slopes	none		7	

*	Indicates soils which have an irrigated capability class which is different from the non-irrigated capability class.
**	Indicates productivity calculated using 100-year Douglas fir data.
***	Indicates soil complexes with multiple site indices, refer to the CuFt/Acre/Year column for a composite volume rating for the complex.
"none"	Indicates soil map units that lack site index information on Douglas fir. The soil map unit may have the capability to produce Douglas fir, but this productivity may be very low to very high. No site index has been collected by the NRCS due to lack of suitable sites or lack of time and or funds.
X[1]	Only drained areas are high value farmland.
X[2]	Only areas protected from flooding or not frequently flooded during the growing season are high value farmland.
X[3]	Only drained areas that are either protected from flooding or not frequently flooded during the growing season are high value farmland.

SOURCE AND DESCRIPTION OF THE DATA

Map Symbol

Data Source

USDA-Soil Conservation Service, September 1987. *Soil Survey of Lane County Area, Oregon.*

Soil Map Unit

Data Source

USDA-Soil Conservation Service, September 1987. *Soil Survey of Lane County Area, Oregon.*

Site Index

Data Source

USDA-Natural Resources Conservation Service, August 1997 printout from the National Soils Information System (NASIS). *Soils Database for Lane County, Woodland Management and Productivity* table.

Description

These site indices indicate the average height, in feet, that dominant and codominant Douglas fir trees attain in 50 years. The site index applies to fully stocked, even-aged, unmanaged stands. This table lists only site indices for Douglas fir and does not list site indices for soil complexes. The Description under Cubic Feet/Acre/Year explains the composite volume rating in this table for soil complexes.

Cubic feet/acre/year

Data Source

USDA-Soil Conservation Service, June 1986. *Technical Note No. 2 Revised, Culmination of Mean Annual Increment for Commercial Forest Trees of Oregon.*

Description

Converting site index to cubic feet/acre/year expresses productivity as a volume of wood fiber produced. For map units that are predominantly one soil type, it is straightforward to use the tables in Technical Note No. 2 to look up the cubic feet/acre/year that a soil could potentially produce based on the site index in the State Soils Database. Calculating a volume rating for a complex is more problematic. The NRCS reports site index data for each component of a soil complex but does not calculate a composite volume for the entire complex. A complex is a soil map unit which has two or more kinds of soil in such an intricate pattern or so small in area that the soils cannot be delineated separately at the scale of mapping.

The methodology used in this table to calculate forest productivity volume ratings for soil complexes involves applying a weighted average to each component of the complex and then normalizing to base it on 100% excluding the inclusions. The following example illustrates this calculation for a soil complex which has a site index for only one of the two components.

43 C	*Dixonville-Philomath-Hazelair complex 3-12%*				
Component	*Actual %*	*Normalized %**	*Site Index*	*CuFt/ Ac/Yr*	*Normalized % x Cu.F.t/Ac./Year*
Dixonville	30%	35%	97	130	46
Philomath	30%	35%	-	-	-
Hazelair	25%	29%			
Total	85%	100%			46

* Normalized % = $\frac{\%\ of\ Individual\ Component}{100 - (\%\ Inclusions + \%\ Urban\ Land)}$

Agricultural Capability Class

Data Source

USDA-Natural Resources Conservation Service, August 1997 printout from the National Soils Information System (NASIS). *Soils Database for Lane County, Land Capability and Yields Per Acre of Crops and Pasture* table.

Description

Land capability class, often called agricultural capability class, generally shows the suitability of soils for most kinds of field crops. The Soil Survey describes capability class: "The soils are grouped according to their limitations for field crops, the risk of damage if they are used for field crops, and the way they respond to management." There are eight capability classes, I through VIII (sometimes written as 1 through 8), indicating progressively greater limitations for use as cropland. The land capability classification is discussed in USDA Agriculture Handbook No. 210, issued September 1961 and reprinted January 1973.

The NRCS reports both irrigated and non-irrigated capability classes. In Lane County, because of adequate rainfall, the ratings are the same for irrigated and non-irrigated except for all but two map units (28C, Chehulpum silt loam, 3-12%, and 125D, Steiwer loam, 3-12%). This table lists the non-irrigated capability class. For soil complexes, this table lists only the capability class of the most predominant soil in the complex (which is the first soil in the name of the map unit).

High Value Soils

Data Source

Land Conservation and Development Commission, adopted February 18, 1994. *Oregon Administrative Rules, Chapter 660, Division 33* (OAR 660-33).

Description

The Agricultural Land Rule (OAR 660-33) defines "high value farmland" as land in a tract composed predominantly of soils that are prime, unique, Class I or II, and other soils as specified in the rule. These other soils include the wet clay soils on valley terraces that are generally used for grass seed production, and moderately sloping soils on low foothills.

NRCS is the agency responsible for classifying soils as prime, unique, or land capability class I through VIII (1 through 8). The names 'prime' and 'unique' are what they imply. Prime soils are the best soils from a national perspective—easy to farm, suitable for a wide variety of crops, producing the highest yields. NRCS designates unique soils in conjunction with the state and county so as to recognize soils suited for growing a specialty crop of state or local importance, e.g., the soils on the southern Oregon coast used for growing cranberries and the organic soils in the Willamette Valley used for growing onions. Lane County has not requested the designation of any unique soils. Class I and II are land capability classes—the soils in them have the fewest limitations for crop growth. Refer to the description of Agricultural Capability Class (immediately above) for more information.

Note: The Soil Conservation Service and Natural Resources Conservation Service are the same USDA agency. A name change to Natural Resources Conservation Service was approved in 1994.

Section 33 T.18 S. R. 1 W.W.M.

LANE COUNTY

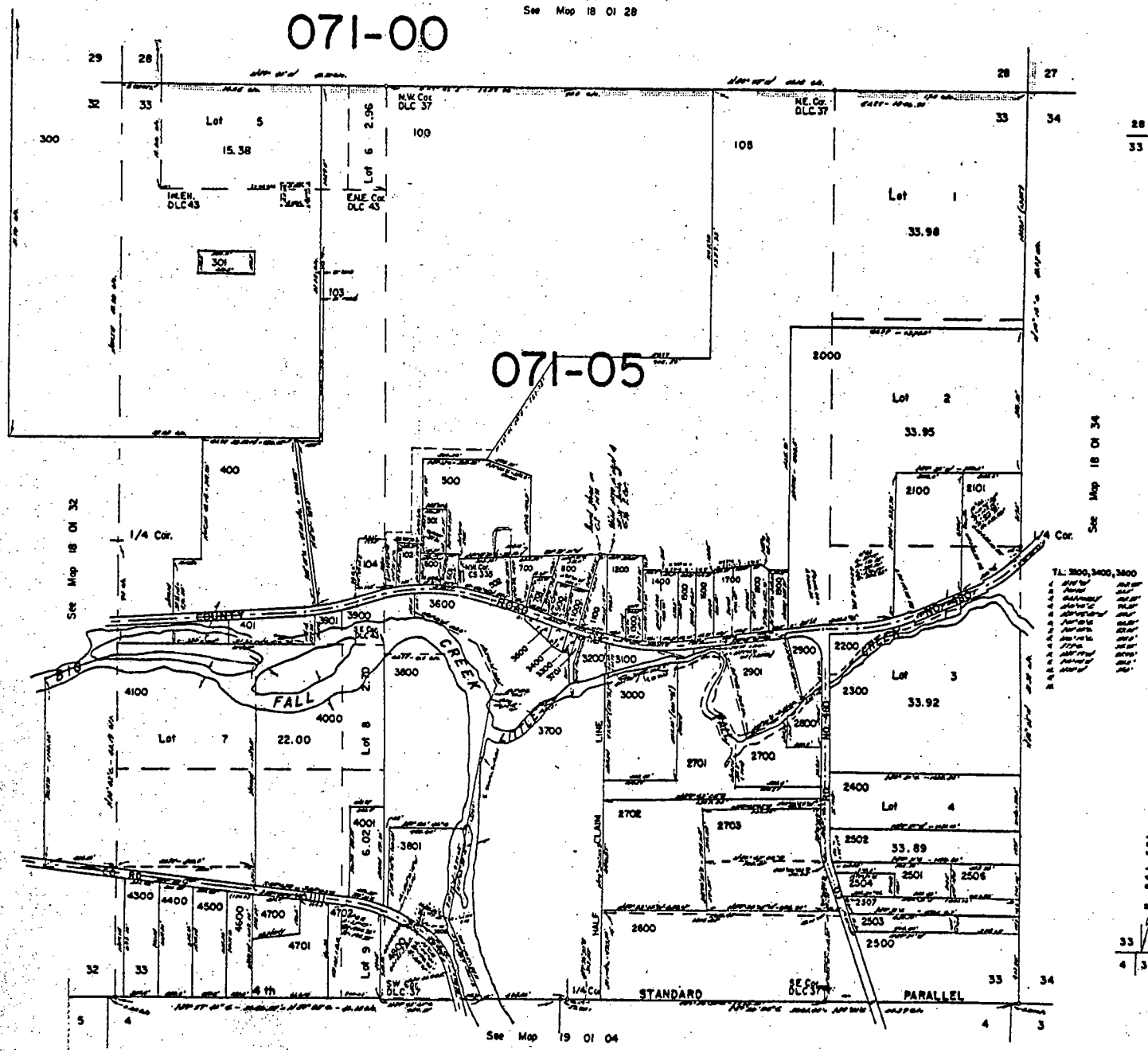
1"=400'

See Map 18 01 28

18 01 33

071-00

071-05



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CASEY JONES WELL DRILLING CO. Inc.
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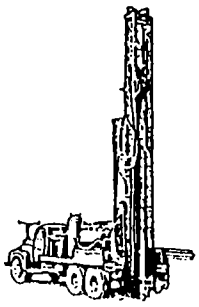

July 10, 2000

Mr. Tom Donnelly
PO Box 1069
Fall Creek, OR 97438

To Whom It May Concern:

The well drilled we drilled for you at 38739 Jasper-Lowell Road in Fall Creek, Well ID#40613 had a production rate of 4 ½ gallons per minute with a water static level of 132 feet.

A six-inch well has a 1 ½ gallon per foot storage capacity. The bottom of the hole at 385 feet minus the static water level of 132 feet gives you 253 feet of water or 379 ½ gallons of storage. Thus, mathematically, with a pumping rate held constant at 5 gallons per minute, you should be able to pump this well for 12.65 hours at 5 gallons per minute.

Sincerely,

Casey L. Jones, Jr.
Vice President

Encl.

PA 00 - 6304

EXHIBIT "P"
WELL DATA SUMMARY REPORT

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form.

WELL I.D. # L 40613
START CARD # 129392

(1) OWNER: Well Number #1
Name Tom Donnelly
Address PO Box 1069
City FallCreek State OR Zip 97438

(2) TYPE OF WORK
[X] New Well [ ] Deepening [ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD:
[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger
[ ] Other

(4) PROPOSED USE:
[X] Domestic [ ] Community [ ] Industrial [ ] Irrigation
[ ] Thermal [ ] Injection [ ] Livestock [ ] Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval [ ] Yes [X] No Depth of Completed Well 385 ft.
Explosives used [ ] Yes [X] No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
10"	0	19	cement	0	19	6 sacks
6"	19	385				

How was seal placed: Method [ ] A [ ] B [X] C [ ] D [ ] E
[ ] Other
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6"	+1	19	250	[X]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]
Liner:					[ ]	[ ]	[ ]	[ ]
					[ ]	[ ]	[ ]	[ ]

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
[ ] Perforations Method
[ ] Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]
						[ ]	[ ]

(8) WELL TESTS: Minimum testing time is 1 hour

[ ] Pump [ ] Bailer [X] Air [ ] Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
4½	253	385	1 hr.

Temperature of water 56 Depth Artesian Flow Found
Was a water analysis done? [ ] Yes By whom not tested
Did any strata contain water not suitable for intended use? [ ] Too little
[ ] Salty [ ] Muddy [ ] Odor [ ] Colored [ ] Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Lane Latitude Longitude
Township 18S N or S Range 1W E or W. WM.
Section 17 SW 1/4 NW 1/4
Tax Lot 700 Lot Block Subdivision
Street Address of Well (or nearest address) 37739 Jasper Lowell Rd
Little Fall Creek, OR

(10) STATIC WATER LEVEL:
132 ft. below land surface. Date 7-7-00
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found

From	To	Estimated Flow Rate	SWL
151	152	1½	132
225	230	3	132

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
topsoil	0	4	
brown conglom.	4	12	
blue conglom. soft	12	122	
blue red clnglom. medium	122	140	
red claystone	140	153	
blue red basalt hard	153	175	
blue basalt	175	310	
blue red basalt hard	310	360	
red claystone soft	360	370	
blue red basalt medium	370	385	

Date started 7-3-00 Completed 7-7-00

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 1541
Signed Date 7-7-00

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number
Signed Date 7-7-00

ORIGINAL - WATER RESOURCES DEPARTMENT FIRST COPY - CONSTRUCTOR SECOND COPY - CUSTOMER

CASEY JONES WELL DRILLING CO. Inc.
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Pleasant Hill, OR 97455

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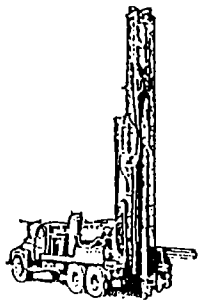

WELL DATA SUMMARY REPORT

Owner Name	and/or Company	Reg Date	Driller	Tnp	Rng	Sct	Depth	GPM
HARMON		3/20/61	JONES	18 S	1 W	32	121	5.8
HOLLANDSWORT		4/8/64	CARTER	18 S	1 W	32	104	16
POWELL		3/23/65	CARTER	18 S	1 W	32	195	8
MAINWARING		8/23/65	JONES	18 S	1 W	32	220	3.5
MAINWARING		5/31/66	CARTER	18 S	1 W	32	225	
MAINWARING		5/31/66	CARTER	18 S	1 W	32	295	
MAINWARING		6/2/66	CARTER	18 S	1 W	32	112	25
WRIGHT		12/5/67	UNKNOWN	18 S	1 W	32	120	30
DIXON		11/12/69	JONES	18 S	1 W	32	170	4
	ALL AMERICAN PLYWOOD	4/2/70	CARTER	18 S	1 W	32	158	20
SILVERS		6/12/70	CHRISTENSEN	18 S	1 W	32	81	40
STIERS		10/1/70	HAAS	18 S	1 W	32	16	20
HOLLANDSWORT		10/29/70	CARTER	18 S	1 W	32	53	10
GODBY		6/30/71	MILLER	18 S	1 W	32	54	20
STAPLETON		10/15/71	HAAS	18 S	1 W	32	99	11
MCCOLLUM		9/11/72	WILSON	18 S	1 W	32	95	40
	MARVIN-BEESON PLUMBING	10/2/73	WILSON	18 S	1 W	32	100	10
PHILE		12/15/74	WILSON	18 S	1 W	32	280	8
DURNMITT		12/16/74	WILSON	18 S	1 W	32	380	
SMITH		4/23/75	JONES	18 S	1 W	32	0	
MILLER		8/4/75	COX	18 S	1 W	32	121	2
NORTHROP		8/26/76	UNKNOWN	18 S	1 W	32	0	
FAWVER		11/1/76	CARTER	18 S	1 W	32	176	15
KEYSER		12/15/77	JONES	18 S	1 W	32	210	75
HUMES		5/22/78	PITCHER	18 S	1 W	32	420	2
HUNTER		6/22/78	CARTER	18 S	1 W	32	485	5
ANEBLUK		7/27/78	JONES	18 S	1 W	32	80	20
WILSON		6/30/81	PITCHER	18 S	1 W	32	520	1
JOHNSON		4/20/82	LEE	18 S	1 W	32	51	10
	GORDON BRUNTON REALTY	6/24/85	CARTER	18 S	1 W	32	285	7
STIERS		8/28/86	CARTER	18 S	1 W	32	110	40
STIERS		8/28/86	CARTER	18 S	1 W	32	205	50
HIGGINSON		10/14/87	JONES	18 S	1 W	32	150	17
JOHNSON		9/7/89	LEE	18 S	1 W	32	91	10
KRAGNESS		9/4/91	JONES	18 S	1 W	32	600	2
KRAGNESS		9/4/91	JONES	18 S	1 W	32	328	30
JAMISON		10/7/91	WILSON	18 S	1 W	32	100	15
FIEDLER		8/27/92	JONES	18 S	1 W	32	535	0.1
VINCENT		6/29/93	OLSON	18 S	1 W	32	365	3
GOOD		9/6/94	CARTER	18 S	1 W	32	140	50

Notes: "Reg. Date" refers to the date of registration with the State Water Resources Dept. which is usually about 1 month after the drilling date.

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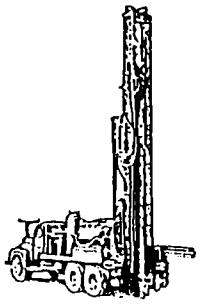

WELL DATA SUMMARY REPORT

Owner Name	and/or Company	Reg Date	Driller	Tnp	Rng	Sct	Depth	GPM
CASHMAN		12/16/96	OLDHAM	18 S	1 W	32	430	0.3
CRAWFORD		8/29/97	JONES JR	18 S	1 W	32	174	15
BRADFORD		12/22/97	JONES JR	18 S	1 W	32	260	12.5

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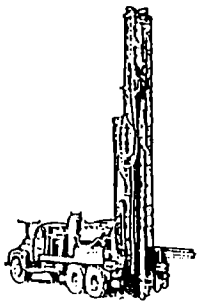

WELL DATA SUMMARY REPORT

Owner Name	and/or Company	Reg Date	Driller	Tnp	Rng	Sct	Depth	GPM
CONKLIN		10/9/59	UNKNOWN	18 S	1 W	33	65	15
GLASPEY		2/1/60	CARTER	18 S	1 W	33	95	14
DAMEWOOD		5/31/60	JONES	18 S	1 W	33	134	3
DAMEWOOD		5/31/60	JONES	18 S	1 W	33	172	2
SMITH		6/18/62	JONES	18 S	1 W	33	56	10
SMELSER		10/12/62	JONES	18 S	1 W	33	48	3800
FRANCK		8/12/64	JONES	18 S	1 W	33	75	12
MCDANIELS		10/30/64	JONES	18 S	1 W	33	341	2.5
MCDANIELS		10/30/64	JONES	18 S	1 W	33	55	22
ASKIN		9/23/66	CHRISTENSEN	18 S	1 W	33	68	18
MORRISSEY		5/29/70	UNKNOWN	18 S	1 W	33	220	20
FOX		10/9/70	UNKNOWN	18 S	1 W	33	80	30
CARROLL		8/23/71	JONES	18 S	1 W	33	80	7
TUTTLE		12/10/71	CARTER	18 S	1 W	33	80	7
SMITH		9/11/72	HAAS	18 S	1 W	33	50	25
GOOD		9/10/73	WILSON	18 S	1 W	33	75	15
MARMARO		6/20/74	COPE	18 S	1 W	33	150	15
LAFON		7/16/74	CARTER	18 S	1 W	33	120	15
DIETZ	FAIRVIEW REALTY	7/10/75	CARTER	18 S	1 W	33	300	1
DRORBOUGHS		7/30/75	CARTER	18 S	1 W	33	200	12
		12/17/75	PULLIAM	18 S	1 W	33	90	24
MC CALLUM		2/6/76	WILSON	18 S	1 W	33	280	30
MARLOW		7/8/77	PULLIAM	18 S	1 W	33	280	30
GERNHARDT		9/20/82	CHRISTENSEN	18 S	1 W	33	135	0.3
GRENHARDT		10/3/83	CHRISTENSEN	18 S	1 W	33	250	5
	FALL CREEK CHRISTIAN CH	12/19/83	CARTER	18 S	1 W	33	87	40
MATTHEWS		9/4/86	LEE	18 S	1 W	33	44	10
MORRISSEY		6/15/87	JONES	18 S	1 W	33	440	50
WALSH		9/23/91	CARTER	18 S	1 W	33	115	30
GERNHARDT		5/2/94	WILSON	18 S	1 W	33	240	30
POWELL		6/1/94	CARTER	18 S	1 W	33	125	15
GAGE		5/5/95	JONES JR	18 S	1 W	33	125	30
REINHART		6/2/95	CARTER	18 S	1 W	33	250	13
LEVESQUE		6/5/96	JONES	18 S	1 W	33	145	60
MATHEWS	INDIAN HEALTH SERVICE (C	6/27/96	JONES JR	18 S	1 W	33	120	50
MARLOW		10/3/97	WHITE	18 S	1 W	33	27	40
NOLAN		11/14/97	JONES JR	18 S	1 W	33	60	6
WHITE	CHRISTIE RAE WHITE	2/25/98		18 S	1 W	33		

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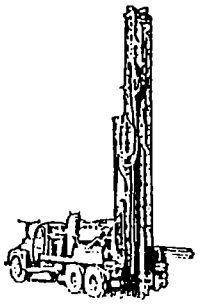

WELL DATA SUMMARY REPORT

Owner Name	and/or Company	Reg Date	Driller	Tnp	Rng	Sct	Depth	GPM
BRILEY		12/18/57	UNKNOWN	18 S	1 W	34	49	10
JOCA		2/5/62	JONES	18 S	1 W	34	194	12
ADKINS		6/18/65	UNKNOWN	18 S	1 W	34	73	10
BRISTOW		8/16/65	JONES	18 S	1 W	34	345	4
WHITE		11/1/66	JONES	18 S	1 W	34	115	720
WHITE		11/28/66	JONES	18 S	1 W	34	122	12
AMES		8/27/70	JONES	18 S	1 W	34	375	2.5
FOX		10/6/71	UNKNOWN	18 S	1 W	34	135	10
HAKE		8/21/72	JONES	18 S	1 W	34	100	4
ALLEN		8/21/72	JONES	18 S	1 W	34	250	5
PROVINS		9/1/72	JONES	18 S	1 W	34	81	30
RICHMOND		9/11/72	WILSON	18 S	1 W	34	280	10
COLTRANE		6/30/76	UNKNOWN	18 S	1 W	34	60	10
GUTH		8/26/76	UNKNOWN	18 S	1 W	34	100	20
MEYER		9/18/76	CARTER	18 S	1 W	34	373	30
HASTIE		10/2/78	CARTER	18 S	1 W	34	320	6
CLARK		12/21/84	CARTER	18 S	1 W	34	225	12
ANDREWS		9/25/87	PITCHER	18 S	1 W	34	63	10
ELIZONDO		4/13/88	HOLTE	18 S	1 W	34	120	30
HAKE		5/17/89	JONES	18 S	1 W	34	165	20
COHEN		7/14/89	JONES	18 S	1 W	34	265	20
KNIGHT		10/1/91	JONES	18 S	1 W	34	268	4
DONNELLY		12/13/93	JONES	18 S	1 W	34	180	17
VEDDER		5/5/95	JONES JR	18 S	1 W	34	235	12
KAUFMAN		12/11/95	CHRISTENSEN	18 S	1 W	34	325	20
GIFFIN		6/27/96	JONES JR	18 S	1 W	34	280	20
FAIRCHILD		9/16/96	JONES JR	18 S	1 W	34	63	15
BURCH		8/7/97	JONES JR	18 S	1 W	34	212	25

Notes: "Reg. Date" refers to the date of registration with the State Water Resources Dept. which is usually about 1 month after the drilling date.

LANE COUNTY AREA, OREGON

USDA-SCS
6-87

SOIL INTERPRETATIONS RECORD

41C DIXONVILLE SILTY CLAY LOAM, 3 TO 12 PERCENT SLOPES

THE DIXONVILLE SERIES CONSISTS OF WELL DRAINED SOILS FORMED IN FINE TEXTURED COLLUVIAL AND RESIDUAL MATERIALS FROM BASIC IGNEOUS ROCK IN THE FOOTHILLS. TYPICALLY, THE SURFACE LAYER IS VERY DARK BROWN SILTY CLAY LOAM ABOUT 12 INCHES THICK THE SUBSOIL IS DARK REDDISH-BROWN CLAY ABOUT 22 INCHES THICK. THE SUBSTRATUM IS WEATHERED BASIC ROCK. ELEVATIONS ARE 350 TO 2000 FEET. MEAN ANNUAL PRECIP IS 30 TO 60 INCHES. MEAN ANNUAL AIR TEMP. IS 49 TO 54 DEGREES. FROST FREE PERIOD IS 160 TO 235 DAYS.

LANDSCAPE AND CLIMATE PROPERTIES

ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS	SLOPE (PCT)
	160-235	30-60	350-2000	W	3-12

ESTIMATED SOIL PROPERTIES

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT. >10 IN (PCT)	FRACT. >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	CLAY (PCT)
0-14	SICL	CL	A-6		0-10	90-100	90-100	85-100	75-85	27-40
14-26	C, CB-C, SIC	CH	A-7		0-30	75-100	70-100	65-100	50-85	40-60
26-30	WB									

DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CACO3 (PCT)	GYPSUM (PCT)
0-14	35-40	15-20	1.30-1.50	0.6-2.0	0.14-0.21	5.6-6.5	-				
14-26	50-80	30-50	1.30-1.60	0.06-0.2	0.12-0.17	5.6-6.5	-				
26-30											

DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS K	T	WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY STEEL	CONCRETE
0-14	3-6	MODERATE	.32	2	7	38	MODERATE	MODERATE
14-26		HIGH	.24					
26-30								

FLOODING FREQUENCY	FLOODING DURATION	FLOODING MONTHS	HIGH WATER TABLE DEPTH (FT)	HIGH WATER TABLE KIND	HIGH WATER TABLE MONTHS	CEMENTED PAN DEPTH (IN)	CEMENTED PAN HARDNESS	BEDROCK DEPTH (IN)	BEDROCK HARDNESS	SUBSIDENCE INIT. (IN)	SUBSIDENCE TOTAL (IN)	HYD GRP	POTENT'L FROST ACTION
NONE			>6.0			-		20-40	SOFT	-		C	-

SANITARY FACILITIES

SEPTIC TANK ABSORPTION FIELDS	SEVERE-DEPTH TO ROCK, PERCS SLOWLY
SEWAGE LAGOON AREAS	SEVERE-DEPTH TO ROCK, SLOPE
SANITARY LANDFILL (TRENCH)	SEVERE-DEPTH TO ROCK, TOO CLAYEY
SANITARY LANDFILL (AREA)	SEVERE-DEPTH TO ROCK
DAILY COVER FOR LANDFILL	POOR-DEPTH TO ROCK, TOO CLAYEY, HARD TO PACK

BUILDING SITE DEVELOPMENT

SHALLOW EXCAVATIONS	MODERATE-DEPTH TO ROCK, TOO CLAYEY
DWELLINGS WITHOUT BASEMENTS	SEVERE-SHRINK-SWELL
DWELLINGS WITH BASEMENTS	SEVERE-SHRINK-SWELL
SMALL COMMERCIAL BUILDINGS	SEVERE-SHRINK-SWELL
LOCAL ROADS AND STREETS	SEVERE-LOW STRENGTH, SHRINK-SWELL
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	MODERATE-LARGE STONES, DEPTH TO ROCK

CONSTRUCTION MATERIAL

ROADFILL	POOR-DEPTH TO ROCK, LOW STRENGTH
SAND	IMPROBABLE-EXCESS FINES
GRAVEL	IMPROBABLE-EXCESS FINES
TOPSOIL	POOR-LARGE STONES

WATER MANAGEMENT

POND RESERVOIR AREA	MODERATE-DEPTH TO ROCK, SLOPE
EMBANKMENTS DIKES AND LEVEES	SEVERE-HARD TO PACK
EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DRAINAGE	DEEP TO WATER
IRRIGATION	LARGE STONES, PERCS SLOWLY, DEPTH TO ROCK
TERRACES AND DIVERSIONS	LARGE STONES, DEPTH TO ROCK
GRASSED WATERWAYS	LARGE STONES, DEPTH TO ROCK

41C DIXONVILLE SILTY CLAY LOAM, 3 TO 12 PERCENT SLOPES

USDA-SCS
6-67

RECREATIONAL DEVELOPMENT

CAMP AREAS	SLIGHT	PLAYGROUNDS	SEVERE-SLOPE
PICNIC AREAS	SLIGHT	PATHS AND TRAILS	SLIGHT

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

	CAPABILITY	FILBERTS (TONS)		PASTURE (AUM)		CHERRIES (TONS)		BARLEY (BU)		WHEAT, WINTER (BU)		CORN, SWEET (TONS)			
	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
	3E		0.5		6		3		30		50			6		

WOODLAND SUITABILITY

	ORD SYM	MANAGEMENT PROBLEMS					POTENTIAL PRODUCTIVITY			TREES TO PLANT
		EROS'N HAZARD	EQUIP. LIMIT	SEEDL. MORT'Y	WINDTH HAZARD	PLANT COMPET	COMMON TREES	SITE INDX	PROD CLAS	
	8C	SLIGHT	MODER.	MODER.	SLIGHT	SEVERE	DOUGLAS FIR PACIFIC MADRONE OREGON WHITE OAK GRAND FIR	87	8	DOUGLAS FIR PONDEROSA PINE

WINDBREAKS

SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
NONE							

WILDLIFE HABITAT SUITABILITY

POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR:			
GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
FAIR	GOOD	FAIR	GOOD	GOOD	GOOD	V. POOR	V. POOR	FAIR	GOOD	V. POOR	-

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT)				
POTENTIAL PRODUCTION (LBS./AC. DRY WT): FAVORABLE YEARS NORMAL YEARS UNFAVORABLE YEARS						

FOOTNOTES

SOIL INTERPRETATIONS RECORD

41E DIXONVILLE SILTY CLAY LOAM, 12 TO 30 PERCENT SLOPES

THE DIXONVILLE SERIES CONSISTS OF WELL DRAINED SOILS FORMED IN FINE TEXTURED COLLUVIAL AND RESIDUAL MATERIALS FROM BASIC IGNEOUS ROCK IN THE FOOTHILLS. TYPICALLY, THE SURFACE LAYER IS VERY DARK BROWN SILTY CLAY LOAM ABOUT 12 INCHES THICK. THE SUBSOIL IS DARK REDDISH-BROWN CLAY ABOUT 22 INCHES THICK. THE SUBSTRATUM IS WEATHERED BASIC ROCK. ELEVATIONS ARE 350 TO 2000 FEET. MEAN ANNUAL PRECIP IS 30 TO 60 INCHES. MEAN ANNUAL AIR TEMP. IS 48 TO 54 DEGREES. FROST FREE PERIOD IS 160 TO 235 DAYS.

LANDSCAPE AND CLIMATE PROPERTIES

ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS	SLOPE (PCT)
	160-235	30-60	350-2000	W	12-30

ESTIMATED SOIL PROPERTIES

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT. >10 IN (PCT)	FRACT. > 3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	CLAY (PCT)
0-14	SICL	CL	A-6		0-10	90-100	80-100	65-100	75-95	27-40
14-26	C, CB-C, SIC	CH	A-7		0-30	75-100	70-100	65-100	50-95	40-60
26-30	WB									

DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CACO3 (PCT)	GYPSUM (PCT)
0-14	35-40	15-20	1.30-1.60	0.6-2.0	0.18-0.21	5.6-6.5	-				
14-26	50-80	30-50	1.30-1.60	0.06-0.2	0.12-0.17	5.6-6.5	-				
26-30											

DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS K	T	WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY STEEL	CONCRETE
0-14	3-6	MODERATE	.32	2	7	38	MODERATE	MODERATE
14-26		HIGH	.24					
26-30								

FLOODING FREQUENCY	FLOODING DURATION	FLOODING MONTHS	HIGH WATER TABLE DEPTH (FT)	HIGH WATER TABLE KIND	HIGH WATER TABLE MONTHS	CEMENTED PAN DEPTH (IN)	CEMENTED PAN HARDNESS	BEDROCK DEPTH (IN)	BEDROCK HARDNESS	SUBSIDENCE INIT (IN)	SUBSIDENCE TOTAL (IN)	HYD GRP	POTENT'L FROST ACTION
NONE			>6.0			-		20-40	SOFT	-		C	-

SANITARY FACILITIES

SEPTIC TANK ABSORPTION FIELDS	SEVERE-DEPTH TO ROCK,PERCS SLOWLY,SLOPE
SEWAGE LAGOON AREAS	SEVERE-DEPTH TO ROCK,SLOPE
SANITARY LANDFILL (TRENCH)	SEVERE-DEPTH TO ROCK,SLOPE,TOO CLAYEY
SANITARY LANDFILL (AREA)	SEVERE-DEPTH TO ROCK,SLOPE
DAILY COVER FOR LANDFILL	POOR-DEPTH TO ROCK,TOO CLAYEY,HARD TO PACK

CONSTRUCTION MATERIAL

ROADFILL	POOR-DEPTH TO ROCK,LOW STRENGTH
SAND	IMPROBABLE-EXCESS FINES
GRAVEL	IMPROBABLE-EXCESS FINES
TOPSOIL	POOR-LARGE STONES,SLOPE

BUILDING SITE DEVELOPMENT

SHALLOW EXCAVATIONS	SEVERE-SLOPE
DWELLINGS WITHOUT BASEMENTS	SEVERE-SHRINK-SWELL,SLOPE
DWELLINGS WITH BASEMENTS	SEVERE-SLOPE,SHRINK-SWELL
SMALL COMMERCIAL BUILDINGS	SEVERE-SHRINK-SWELL,SLOPE
LOCAL ROADS AND STREETS	SEVERE-LOW STRENGTH,SLOPE,SHRINK-SWELL
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	SEVERE-SLOPE

WATER MANAGEMENT

POND RESERVOIR AREA	SEVERE-SLOPE
EMBANKMENTS DIKES AND LEVEES	SEVERE-HARD TO PACK
EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DRAINAGE	DEEP TO WATER
IRRIGATION	LARGE STONES,PERCS SLOWLY,DEPTH TO ROCK
TERRACES AND DIVERSIONS	SLOPE,LARGE STONES,DEPTH TO ROCK
GRASSED WATERWAYS	LARGE STONES,SLOPE,DEPTH TO ROCK

41E DIXONVILLE SILTY CLAY LOAM, 12 TO 30 PERCENT SLOPES

RECREATIONAL DEVELOPMENT

CAMP AREAS	SEVERE-SLOPE	PLAYGROUNDS	SEVERE-SLOPE
PICNIC AREAS	SEVERE-SLOPE	PATHS AND TRAILS	MODERATE-SLOPE

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE [HIGH LEVEL MANAGEMENT]

	CAPABILITY		FILBERTS (TONS)		PASTURE (AUM)		CHERRIES (TONS)		BARLEY (BU)		WHEAT, WINTER (BU)		CORN, SWEET (TONS)			
	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
	4E		0.5		6		3		30		40					

WOODLAND SUITABILITY

	ORD SYM	MANAGEMENT PROBLEMS					POTENTIAL PRODUCTIVITY			TREES TO PLANT
		EROS'N HAZARD	EQUIP. LIMIT	SEEDL. MORT'Y	WINDTH HAZARD	PLANT COMPET	COMMON TREES	SITE INDX	PROD CLAS	
	6C	SLIGHT	MODER.	MODER.	SLIGHT	SEVERE	DOUGLAS FIR PACIFIC MADRONE OREGON WHITE OAK GRAND FIR	97	8	DOUGLAS FIR PONDEROSA PINE

WINDBREAKS

SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
NONE							

WILDLIFE HABITAT SUITABILITY

	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR:			
	GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
	POOR	FAIR	FAIR	GOOD	GOOD	GOOD	V. POOR	V. POOR	FAIR	GOOD	V. POOR	-

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT)				

POTENTIAL PRODUCTION (LBS./AC. DRY WT):
FAVORABLE YEARS
NORMAL YEARS
UNFAVORABLE YEARS

FOOTNOTES

SOIL INTERPRETATIONS RECORD

41F DIXONVILLE SILTY CLAY LOAM, 30 TO 50 PERCENT SLOPES

THE DIXONVILLE SERIES CONSISTS OF WELL DRAINED SOILS FORMED IN FINE TEXTURED COLLUVIAL AND RESIDUAL MATERIALS FROM BASIC IGNEOUS ROCK IN THE FOOTHILLS. TYPICALLY, THE SURFACE LAYER IS VERY DARK BROWN SILTY CLAY LOAM ABOUT 12 INCHES THICK. THE SUBSOIL IS DARK REDDISH-BROWN CLAY ABOUT 22 INCHES THICK. THE SUBSTRATUM IS WEATHERED BASIC ROCK. ELEVATIONS ARE 350 TO 2000 FEET. MEAN ANNUAL PRECIP IS 30 TO 80 INCHES. MEAN ANNUAL AIR TEMP. IS 49 TO 54 DEGREES. FROST FREE PERIOD IS 160 TO 235 DAYS.

LANDSCAPE AND CLIMATE PROPERTIES

ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS	SLOPE (PCT)
	160-235	30-80	350-2000	W	30-50

ESTIMATED SOIL PROPERTIES

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT. >10 IN (PCT)	FRACT. >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	CLAY (PCT)
0-14	SICL	CL	A-6		0-10	80-100	80-100	85-100	75-95	27-40
14-26	C, CB-C, SIC	CH	A-7		0-30	75-100	70-100	85-100	50-95	40-60
26-30	WB									

DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CACO3 (PCT)	GYPSUM (PCT)
0-14	35-40	15-20	1.30-1.50	0.6-2.0	0.18-0.21	5.6-6.5	-				
14-26	50-80	30-50	1.30-1.60	0.06-0.2	0.12-0.17	5.6-6.5	-				
26-30											

DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS K	T	WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY STEEL	CONCRETE
0-14	3-6	MODERATE	.32	2	7	38	MODERATE	MODERATE
14-26		HIGH	.24					
26-30								

FLOODING FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	HARDNESS	BEDROCK DEPTH (IN)	HARDNESS	SUBSIDENCE INIT. (IN)	TOTAL (IN)	HYD GRP	POTENT'L FROST ACTION
NONE			>6.0			-		20-40	SOFT	-		C	-

SANITARY FACILITIES

SEPTIC TANK ABSORPTION FIELDS	SEVERE-DEPTH TO ROCK,PERCS SLOWLY,SLOPE
SEWAGE LAGOON AREAS	SEVERE-DEPTH TO ROCK,SLOPE
SANITARY LANDFILL (TRENCH)	SEVERE-DEPTH TO ROCK,SLOPE,TOO CLAYEY
SANITARY LANDFILL (AREA)	SEVERE-DEPTH TO ROCK,SLOPE
DAILY COVER FOR LANDFILL	POOR-DEPTH TO ROCK,TOO CLAYEY,HARD TO PACK

CONSTRUCTION MATERIAL

ROADFILL	POOR-DEPTH TO ROCK,LOW STRENGTH,SLOPE
SAND	IMPROBABLE-EXCESS FINES
GRAVEL	IMPROBABLE-EXCESS FINES
TOPSOIL	POOR-LARGE STONES,SLOPE

BUILDING SITE DEVELOPMENT

SHALLOW EXCAVATIONS	SEVERE-SLOPE
DWELLINGS WITHOUT BASEMENTS	SEVERE-SHRINK-SWELL,SLOPE
DWELLINGS WITH BASEMENTS	SEVERE-SLOPE,SHRINK-SWELL
SMALL COMMERCIAL BUILDINGS	SEVERE-SHRINK-SWELL,SLOPE
LOCAL ROADS AND STREETS	SEVERE-LOW STRENGTH,SLOPE,SHRINK-SWELL
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	SEVERE-SLOPE

WATER MANAGEMENT

POND RESERVOIR AREA	SEVERE-SLOPE
EMBANKMENTS DIKES AND LEVEES	SEVERE-HARD TO PACK
EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DRAINAGE	DEEP TO WATER
IRRIGATION	LARGE STONES,PERCS SLOWLY,DEPTH TO ROCK
TERRACES AND DIVERSIONS	SLOPE,LARGE STONES,DEPTH TO ROCK
GRASSED WATERWAYS	LARGE STONES,SLOPE,DEPTH TO ROCK

41F DIXONVILLE SILTY CLAY LOAM, 30 TO 50 PERCENT SLOPES

USDA-SCS
6-87

RECREATIONAL DEVELOPMENT

CAMP AREAS	SEVERE-SLOPE	PLAYGROUNDS	SEVERE-SLOPE
PICNIC AREAS	SEVERE-SLOPE	PATHS AND TRAILS	SEVERE-SLOPE

CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

	CAPABILITY	FILBERTS (TONS)		PASTURE (AUM)		CHERRIES (TONS)		BARLEY (BU)		WHEAT, WINTER (BU)		CORN, SWEET (TONS)			
	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
	6E				4											

WOODLAND SUITABILITY

	ORD SYM	MANAGEMENT PROBLEMS					POTENTIAL PRODUCTIVITY			TREES TO PLANT
		EROS'N HAZARD	EQUIP. LIMIT	SEEDL. MORT'Y	WINDTH HAZARD	PLANT COMPET	COMMON TREES	SITE INDX	PROD CLAS	
	6R	MODER.	SEVERE	MODER.	SLIGHT	SEVERE	DOUGLAS FIR PACIFIC MADRONE OREGON WHITE OAK GRAND FIR	97	8	DOUGLAS FIR PONDEROSA PINE

WINDBREAKS

SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
NONE							

WILDLIFE HABITAT SUITABILITY

	POTENTIAL FOR HABITAT ELEMENTS								POTENTIAL AS HABITAT FOR:			
	GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPENLD WILDLF	WOODLD WILDLF	WETLAND WILDLF	RANGELD WILDLF
	V. POOR	POOR	FAIR	GOOD	GOOD	GOOD	V. POOR	V. POOR	POOR	FAIR	V. POOR	-

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT)				
POTENTIAL PRODUCTION (LBS./AC. DRY WT): FAVORABLE YEARS NORMAL YEARS UNFAVORABLE YEARS						

FOOTNOTES