



MEMORANDUM

DATE: October 30, 2023

TO: Board of County Commissioners

FROM: Public Works / Land Management Division
Shawna Adams, Senior Planner

RE: Distribution Memorandum #1 for October 31, 2023 Continued Public Hearing
Information Received for Planning Action File No. 509-PA20-05634
(Perkins Plan Amendment & Zone Change)

Attached is additional information that has been added to the record for this matter as of 11am today.

Enclosed:

- Email from Mike Reeder with attached revised follow-up hearing response letter, received 8:54 AM 10/30/2023.
- Written testimony from Bruce Hadley with related email correspondence, received 4:38PM 10/25/2023.
- 9/14/1983 Version of Lane Code 13.050(13) water supply provisions with related handouts and background materials for implementation prepared by County hydrologist and Planning staff.

ADAMS Shawna L

From: Micheal Reeder <mreeder@oregonlanduse.com>
Sent: Monday, October 30, 2023 8:54 AM
To: ADAMS Shawna L
Cc: BELL Amber R; DOHRMAN Rebekah L
Subject: RE: Perkins testimony distribution memo et. al. - 509-PA20-05634
Attachments: Reeder to BCC (Perkins Goal 3 Exception) Oct 18, 2023 REVISED.pdf

[EXTERNAL 

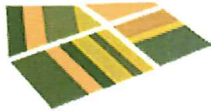
Good morning Shawna:

If you have not already sent the BCC my Oct 18th letter, please send them this one as it revises the earlier one with minor, non substantive edits.

Many thanks!

Best,

Mike



Law Office of Mike Reeder
Oregon Land Use Law

Office: (541) 225-8777 | oregonlanduse.com
375 W. 4th Ave., Suite 205, Eugene, OR 97401

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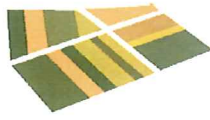
From: ADAMS Shawna L <shawna.adams@lanecountyor.gov>
Sent: Friday, October 27, 2023 1:26 PM
To: Micheal Reeder <mreeder@oregonlanduse.com>
Cc: BELL Amber R <amber.bell@lanecountyor.gov>; DOHRMAN Rebekah L <Rebekah.DOHRMAN@lanecountyor.gov>
Subject: RE: Perkins testimony distribution memo et. al. - 509-PA20-05634

Mike, You October 18th letter came after the Board Packet was in transit. It will be included in a distribution memo to the Board when I am back in the office at the top of the week.

Best regards,

Shawna Adams | Senior Planner
Lane County | Land Management Division
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Law Office of Mike Reeder
Oregon Land Use Law

October 18, 2023

Via Email

Board of County Commissioners
c/o Shawna Adams, Senior Planner
Lane County | Land Management Division
3050 North Delta Hwy
Eugene, Oregon 97408
shawna.adams@lanecountyor.gov

**Re: Response to Comments and Questions at August 1st Public Hearing
Plan Amendment/Zone Change/Exception to Goal 3 Application
Lane County File #509-PA20-05634 (Applicant: Perkins)**

Dear Chair Farr and Commissioners:

This letter is a follow-up to the August 1, 2023 public hearing regarding the above-cited application.

Question: If this application for a Goal 3 exception is not approved, are there other options to the application to establish a dwelling on the subject property?

No. In the staff presentation at the Board hearing on August 1, 2023, Staff listed “nonfarm dwelling” as a possible path to a dwelling on the subject property. This is inaccurate. There are two provisions for “nonfarm dwellings” within the Exclusive Farm Use Zone. Although there are substantial differences in the applicable criteria for approval of a nonfarm dwelling dependent upon whether the property soils are classified as high value or non-high value, the subject property cannot meet either set of provisions. Both sets of nonfarm dwelling criteria require that the soils on the property be composed predominately of soils classified as Agricultural Capability Class IV through VIII. The subject property is composed predominately Class III soils¹ thereby eliminating the option for approval of a nonfarm dwelling on the subject property under LC 16.212(9)(a) or LC 16.212(10)(a).

The other purported options espoused by LMD staff are either legally impossible or vastly more speculative than this process. This application for a plan/zone change and Goal 3 exception is the right application for the subject property.

¹ Specifically, the Soils map shows that 88% of the subject property are identified as unit #105A Pengra silt loam (which is classified as a Class III soil).

Question: *Are the classification of soils on the subject property relevant to the application?*

No. The classification of the soils on the subject property as High Value or Non-High Value is only relevant to determining which provisions apply to the development of a dwelling within the Exclusive Farm Use Zone. That distinction is not a relevant factor within the criteria applicable to demonstrate the subject property meets the Committed Lands Exception requirements for this application.

Question: *Is the subject property listed in a water quantity limited area, in a watershed?*

No. The subject property is not listed as a water quantity limited area within Lane Manual 13.010. The property is not within the Spencer Creek Watershed and it is not within one of the listed Developed and Committed Lands Exception Areas. The subject property is not in a protected Goal 5 area. In addition, the immediate exception area, D&C Area #385-4, is also not listed as a water quantity limited area.

Since staff continue to espouse the view that somehow Goal 5 applies to the subject property for water, it is necessary for the applicant to be very clear on this matter.

Below is an excerpt of the staff-produced draft Board Order riddled with inaccuracies:

Finding #32:

32. The subject property is located in a Groundwater Quantity Limited Area. Comments from an adjacent property owner indicate groundwater supply has declined and will be adversely affected by the additional development allowed by the proposal. DLCD comments note that the concerns need to be addressed. Several RCP policies and Lane Code provisions related to groundwater resources apply and are not addressed in the proposed findings. RCP Goal 5 Water Resources Policy 3 and 5 require that land use designations and implementing zoning be commensurate with groundwater aquifer capacities and that the adequacy of water supply, particularly those relying on groundwater sources, shall be a major concern in reviewing land use applications reviewed by the Planning Commission. Groundwater Quantity Limited areas are identified Goal 5 resource and rural residential use is a conflict. Lane County's Water Resources Working Paper provides a method for resolving groundwater quantity conflicts: *For the reasons described in the staff ACM, the Board finds that the Applicant fails to demonstrate with the applicable criteria and policies related to groundwater resources and impacts.*" (Emphasis mine).

Staff is off base. The methodology for determining the adequacy of water supply is identified in the **Lane County Rural Comprehensive Plan Goal 5 Water Resources Policy #4:**

4. The primary means of evaluating groundwater resources for land use planning purposes shall be through the land division review process. The Little Butte Volcanics, Eugene Formation, Fisher Formation, Spencer Formation, Flourney Formation, Alluvium and Older Dunes geological units shall be designated as quality and/or quantity limited aquifers. As such the provisions of Chapter 13, Lane Code (Land Divisions) regarding areas so designated will apply.

Lane County RCP Policy #4 directs the use of the requirements found in the land division requirements of Lane Code 13:

Lane Code Chapter 13 – Land Divisions and Property Line Adjustments

Lane Code 13.060(h) (ii) Prior to final plat approval, areas designated by the Board as having problems in the quantity or quality of available water as adopted into Lane Manual Chapter 13.010 must also comply with the following requirements for all vacant proposed parcels that are less than 20 acres in size:
 (aa) If the subject property is designated as quantity limited, as listed in Lane Manual 13.010(2), prior to final plat approval, the applicant must submit proof demonstrating it can sustain the proposed development with sufficient water. The Director can require an aquifer study prepared by an Oregon registered geologist.

This Lane Code provision above contains extra provisions for areas that have been designated as quantity limited areas in the adopted Lane Manual Chapter 13.010. The subject property is not listed as a water quantity limited area within Lane Manual 13.010. The subject property is not within the Spencer Creek Watershed and it is not within one of the listed Developed and Committed Lands Exception Areas. The immediate exception area, D&C Area #385-4, is also not listed as a water quantity limited area.

Because the subject property is not listed as water quantity limited, demonstration of water availability can be demonstrated in accordance with Lane Code 13.060(h)(iii):

Lane Code 13.060(h) (iii) Water Availability

(bb) Individual Water Systems. When parcels are to be served by individual or shared water systems, they must comply with either (A) or (B) below.

(A) When parcels will be served by individual or shared water systems, sufficient evidence may be submitted to demonstrate that each parcel will have an adequate supply of water prior to final plat approval. Adequate supply of water for parcels created by a land division must comply with the following standards:

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(i-i) For an individual well, the well must produce on average five gallons per minute during a five-hour pump test;

The subject property is developed with a 110' deep well (LANE 55153) which was drilled in 1998 and produced 8.5 gallons per minute at that time. This well production conforms to the requirements of Lane Code for determination that there is an adequate supply of water for the subject property.

The testimony of the neighboring property owner about purported decline in his well performance is not relevant to the criteria. It should be noted that wells may "decline" for a variety of reasons, some which have nothing to do with overall groundwater resources.

Respectfully submitted,

/s/Micheal M. Reeder

Micheal M. Reeder
Attorney for Perkins

ADAMS Shawna L

From: ADAMS Shawna L
Sent: Thursday, October 26, 2023 5:48 PM
To: Bruce
Subject: RE: Perkins' petition

Bruce, Thanks for taking the time to provide testimony. I will distribute it to the Board along with other testimony received prior to next Tuesday's continued hearing.

Best regards,

Shawna Adams | Senior Planner

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From: Bruce <bwh541@gmail.com>
Sent: Wednesday, October 25, 2023 4:38 PM
To: ADAMS Shawna L <shawna.adams@lanecountyor.gov>
Subject: Perkins' petition

[EXTERNAL 

Shawna,

Please include my letter attached as part of the public record in regards to the Perkins' petition to rezone their land from exclusive farm use to rural residential.

I already submitted it to the county commissioners (via Diana Jones) as a Public Comment, but that was my mistake; I would like this letter to be considered as part of the commissioners' specific deliberations at their next meeting.

thanks

Bruce Hadley
4828 Oceana Dr
Florence, OR 97439
cell: (541) 901-1140

29 July 2023

Re: Planning Action File No. 509-PA20-05634

To: Lane County Commissioners:

I am a member of the Lane County Planning Commission, but I am writing to you today as a member of the community; what follows are my own opinions, not those of the planning commission.

On February 21, when the planning commission considered this application for an exception to Statewide Planning Goal 3, I (obviously) failed to make my points clear; mine was the only vote in favor.

So, please allow me to try again:

- a) The Perkins' property is surrounded by residential use, at a much higher density than what they propose; they want RR10 zoning to build a single permanent home for themselves.
- b) We heard multiple testimony that their 10-acre parcel is not valued as agricultural land, and has never been used for farming. Half of the acreage is covered with mature trees.
- c) There is no easy access to the Perkins' acreage from another farm in the area, so even if someone did want their land, getting equipment in there would be costly.

The entire point of Goal 3 is to protect land for growing crops: "Non-farm uses permitted within farm use zones... should be minimized to allow for maximum agricultural productivity."

Ironically, while the Perkins' proposed home is a "non-farm use," having their home – and *only* their home -- on that acreage would in fact *maximize agricultural productivity* for their 10 acres.

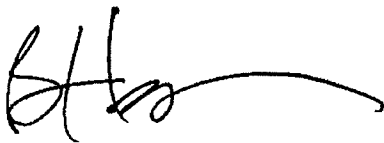
You see, if the Perkins live on that acreage, they will engage in hobby farming, and try to bring the existing fruit trees back to production. No one who does not live on the property is going to do that.

In addition, granting an exception in this case will not create a domino effect for neighboring properties, because they're already zoned and occupied as Residential.

Permitting the Perkins to build a single modest home will not open the floodgates for developers of tract homes; rather, it will transform a small parcel of land from fallow to fertile.

If the Perkins are not granted an exception, then their 10 acres will remain unused and unproductive, as it has for 70 years or more. How does that serve the interests of the state and county?

Respectfully,



Bruce Hadley
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Florence, OR 97439
bwh541@gmail.com

system and replacement area are designed to serve, then a variance must first be applied for and may be approved if in compliance with the variance section of this Chapter.

(13) Water Supply. Lots and parcels shall be served by an approved public, community or individual water system. No construction or development work on proposed lots or parcels shall be started until information pertaining to water availability and quality is submitted to and approved by the Department. Water system shall be in accordance with and subject to applicable provisions of ORS, as well as all appropriate rules, regulations and policies promulgated under authority of these statutes, Lane Code and Manual. The establishment of rural water systems shall be consistent with RCP Goal 2 policy #24 and RCP Goal 11 policies.

(a) Public or Community Water System. The County may require that a new community or public water system be developed to serve lots or parcels when no existing public or community water system is available or suitable for use by the lots or parcels, and individual water systems are not feasible due to the density of the lots or parcels and/or the possibility of problems concerning the long-term availability of adequate quantities of suitable water. Aquifer and quality tests as discussed in LC 13.050(13)(c) below shall be required.

(b) Individual Water Systems. When lots or parcels are to be served by individual water systems, sufficient evidence shall be submitted to show that each parcel or lot will have available at time of development an adequate supply of potable water which will meet minimum County standards for drinking water. Aquifer and quality tests as discussed in LC 13.050(13)(c) below may be required.

(c) Aquifer and Quality Tests or Geological Evaluation. Aquifer and quality tests or geological evaluation may be required by Lane County for any lot or parcel. These requirements may include, but need not be limited to, evaluation of existing well logs and preparation of a geological report on the area, an evaluation of the site by a professional geologist or engineering geologist or full scale aquifer tests as required. In determining the detail of analysis required, the following apply:

(i) Areas designated by Board order as having problems in the quantity or quality of available water as adopted, documented in Lane Manual and filed in the office of the Department shall meet the following requirements for all parcels less than 20 acres in size. The applicant must affirmatively demonstrate, in a manner acceptable to Lane County, that the proposed subdivision/partition is capable of sustaining the development anticipated with

sufficient potable water. This demonstration must include, but need not be limited to, aquifer tests. More specifically, the aquifer test shall show coefficient of transmissivity, permeability, storage and the specific yield. The bacteriology/chemical tests shall show compliance with standards set by the Oregon State Health Division and Lane County. The test procedure shall utilize standard acceptable practices for aquifer tests using pumped and observation wells and records of static water level, date, clock, elapsed time (in min.), depth of water, drawdown and recovery. Analysis using the non-equilibrium method (or other methods where appropriate) must be performed by a licensed geologist or engineer. A copy of all field notes and test results shall be submitted with the report, together with summary statements which indicate whether the proposed use of the aquifer could adversely impact the neighboring wells or properties or deplete the aquifer and the general impact of the proposed use.

(d) For all areas not designated as problem areas by the procedures documented in LC 13.050(13)(a) above, a pump test report or a well log report shall be supplied, unless determined by Lane County to be not necessary. Pump test and well log reports shall be prepared according to the following criteria:

(i) Pump Test. The test shall be a minimum five hour pumping duration and record the following information: static water level; pumping level; drawdown; recovery; residual drawdown, well yield (pumping rate) and specific capacity. Measurements shall be made before pumping begins, during the pumping phase and during the recovery phase as necessary.

(ii) Well log reports shall include tax map showing the subject property and surrounding area, all well logs of record from adjacent and surrounding properties and the location of the wells on the tax lot map.

(14) Additional Cluster Subdivision Requirements.

(a) The land in a cluster subdivision not platted as a building lot shall be secured and maintained as private open space and recreation area by covenant or association prepared by the applicant and approved by Director or County Counsel. Said approved covenant shall be recorded with and referenced on the cluster subdivision plat.

CONDUCTING AN ACCURATE AND ACCEPTABLE AQUIFER TEST

An aquifer test is conducted to determine the ability of an aquifer to store and then deliver water to a well. The information from the test is necessary to accurately assess the long term water supply available in the aquifer. By using several aquifer tests on wells covering a larger area, the maximum usage the aquifer can sustain can be determined and limits can be set to assure all users of an adequate long term water supply.

In order to make this assessment accurate data must be supplied to the professionals doing the calculations to determine aquifer constants.

DATA COLLECTION

The data collected and the method of collection are as follows:

- 1) The rate of pumping (in gpm) must remain constant throughout the test.
- 2) The water levels in the pumped well and one or more observation wells must be accurately measured beginning with static water level (the pre-pumping water level) and water levels measurements at prescribed intervals thereafter according to a schedule.
- 3) Each measurement and activity must be accurately timed from the beginning of the pump test until the end of the recovery phase, in minutes.
- 4) Recovery (water level rise after pumping has stopped) must be recorded (and timed) for either:
 - a) a period equal to one half the time pumped or longer,
 - b) or until the water level returns to the static water level.

Aquifer tests that do not conform to the above standards will not give acceptable results and will necessitate re-testing. An aquifer test should be approximately 24-72 hours in duration, pumping at $1/4$ to $1/2$ the maximum yield expected of the well. In no case will an aquifer test of less than 24 hours be accepted. A pump or flow test (not an aquifer test) of less than 24 hours may be accepted in some cases but the data collection requirements will remain the same.

The following hints may be useful in meeting the above requirements:

- 1) The regulation of the rate of flow from the pump should be accomplished by adjusting valves rather than the pump speed. This is more accurate, subject to less fluctuation and can be accurately controlled. The pump, pipe and valve size should be such that the valve is about $1/4$ open when the desired pumping rate is being maintained.
- 2) Several methods of measuring pumping rates are available such as:
 - a) Measuring the time required to fill a known volume, i.e. a five gallon bucket in one minute is equal to 5 gpm.
 - b) A commercial water meter that measures gpm directly.
 - c) A meter which indicates the total amount pumped. Find the difference between two readings and divide that by the time between the measurements.

- d) An orifice wier with appropriate set up.
 - e) An orifice bucket.
 - f) A flume with appropriate set-up.
- 3) The measurement of water level in wells can be accomplished by direct measurement with an electric contact measuring device designed to allow an electric charge to pass through the instrument when the tip touches water. The measurement is then read off the markings of the electric cord that lowers the tip into the well. Also useful in measuring the water level in the pumped well is the air tube method. A rigid tube is put down the well and pumped full of air to evacuate all the water from the tube. An air pressure gauge on the tube (some are calibrated in "feet of water" for this purpose) is read to determine the length of tube that is submerged. Therefore, you must know the total length of tube that is inserted down the well. If the air gauge is not calibrated in feet of water, a conversion factor must be used. The reading in PSI is multiplied by 2.31 to convert it to feet of water. Depth to water is found by subtracting gauge reading from the total length of tube. $\text{Depth} = \text{Total length of tube} - \text{gauge reading in feet of water}$. In observation wells, the wetted tape method may be used. The tape (with a weight attached) is covered by chalk at the lower end, lowered down until the end enters the water (an estimated distance to water is often needed). The top of the tape is read at a reference point (usually the top of the casing) and the wetted portion of the tape subtracted from the reading. A sample schedule of measuring water levels would be:

- every 30 seconds for the first five minutes
- every five minutes for the next one hour
- every 15 minutes for the next two hours
- every hour after three hours.

Adjustments to this schedule should be made according to rate of water level decline or recovery. The more rapid the rate the shorter the sampling interval.

- 4) Observation wells do not need to be of the same diameter as the pumped well (two inch wells are common). They should be between 100 and 300 feet from the pumped well. One observation well may be sufficient, however, circumstances may require more. Occasionally a test may be completed without an observation well if sufficient data from the pumped well is available. Observation wells must be placed into the same aquifer or aquifers that are being tested. This may require setting observation wells at various depths. (See diagram C)
- 5) The pumped well should have had sufficient rest time from the time it was last pumped to be at completely static conditions. That is, it should be completely recovered from any previous pumping before the test begins.
- 6) A complete log of all pertinent events and associated observations should be kept, with times. Examples of items that should be logged are break downs, accidents, movement of heavy equipment near observation or pumped wells that may cause water level fluctuation due to compression, temporary changes in flow rate or any other event that may cause a change in the procedure, flow rate, schedule or aquifer characteristics.

ANALYSIS

After completion of the aquifer test the collected data must be analyzed using one of the accepted procedures for deriving transmissivity, permeability, storage coefficient

and specific capacity. In most cases the non-equilibrium method of Theis, or some modification of that method will be used. Applicable formulas and computational methods can be found in texts on ground water such as Groundwater by Cherry and Freeze, Hydrogeology by Davis and DeWeist, Ground Water and Wells by the Johnson Division, UOP Inc., Groundwater Resource Evaluation by Walton, Ground Water Manuel by the Department of the Interior and many others. Test data without the appropriate calculations and analysis are not acceptable for aquifer tests. For pump or flow tests the requirement for analysis may be waved in specific instances. Check before submitting raw data.

CONDUCTING AN ACCEPTABLE 5 HOUR PUMP TEST

In those instances where the aquifer or water bearing formation need not be evaluated for the hydraulic characteristics of the aquifer, a pumping test can provide a measure of the productive capacity of a completed well and provide data for the selection of pumping equipment.

The pumping test, if intended for use as part of a land division or loan review process, should be conducted by a licensed professional competent in the field and a report submitted by that professional to this office.

The test should be of five hour pumping duration (as the name implies) and measure and record the following information as the minimum raw data:

1. Static Water Level
2. Pumping Level
3. Drawdown
4. Recovery
5. Residual Drawdown
6. Well Yield (pumping rate)
7. Specific Capacity

These measurements should be made before pumping begins, during the pumping phase and during the recovery phase as necessary.

HJY/jbw

DEMONSTRATION OF WATER AVAILABILITY

Lane Code 13.080 requires that when a division is to be served by individual water systems, sufficient evidence shall be submitted to show that each parcel or lot will have available at time of development an adequate supply of potable water.

In areas designated by the B/CC as water quantity and quality limited areas, Lane Manual Section 13.010, the appropriate tests as required in Lane Code Ch 13.050(13)(c)(i) shall apply. Additional standards may be deemed necessary to adequately demonstrate long term water availability, as required by the intent of Ch. 13.050(13). These additional standards shall be specified at preliminary approval of land divisions.

Lane Code Ch 13.050(13)(c) requires that development within ground water quantity and quality limited areas have an aquifer test performed along with any additional work that may be required to demonstrate long term supply. Aquifer tests must be conducted and analyzed by a licensed geologist or engineer and must demonstrate: transmissivity, permeability, storage coefficient and specific yield. Chemical tests will be required as appropriate. A prediction of long term supply is also required. A qualified professional requires a water budget including infiltration rate, recharge, change in storage, runoff, evapotranspiration and precipitation in order to support the prediction.

In areas where water quantity and quality is a concern but not defined by the Board as limited, the standards of Lane Code Ch 13.050(13)(a)(b)(d) will apply. These standards require that an adequate demonstration of water availability be made and the long term supply addressed. In meeting these requirements, the County may ask for the following: 1) a 5gpm well on each lot to affirmatively demonstrate water, 2) a minimum 5 hour well test (pumping test) with analysis or 3) an analysis and listing of wells and well logs for the area adjacent to the proposed development. Any or all of the above requirements may be necessary to adequately demonstrate water. We recommend a prudent approach and that you NOT wait for water adequacy demonstration until late in the process. If adequate water is not available, your development will be denied. Monies already spent on roads, surveys and other installations will be wasted. It is a very important step to prove water first; it is not a valid assumption that every parcel has adequate water available. Within the bounds of Lane Code and Lane Manual, the County Hydrogeologist will work with applicants to meet these requirements. The applicant should ultimately be prepared to drill a well on each parcel, perform a five (5) hour pumping test in non-limited areas or be prepared for a full scale aquifer test in quantity and quality limited areas.

New Wells

Where a new well is being placed on each lot to demonstrate adequate water supply a 5 gpm minimum standard will be used. It may be required that the well have a 5 hour pump test to confirm the flow if the area is suspected or known to have highly variable flows. Pump tests will generally be required on wells more than 6 months old. (See below)

Conducting an Acceptable Pump Test

In those instances where the aquifer or water bearing formation need not be evaluated for the hydraulic characteristics of the aquifer, a pumping test can provide a measure of the productive capacity of a completed well and provide data for the selection of pumping equipment.

The pumping test, if intended for use as part of a land division or loan review process, should be conducted by a licensed professional competent in the field and a report submitted by that professional to this office.

The test must be a minimum of 5 hour pumping duration and measure and record the following information as the minimum raw data:

1. Static Water Level
2. Pumping Level
3. Drawdown
4. Recovery
5. Residual Drawdown
6. Well Yield (pumping rate)
7. Specific Capacity

These measurements should be made before pumping begins, during the pumping phase and during the recovery phase as necessary.

Preparing a Well Log Report

The well log report should contain the following minimum information:

1. A tax lot map showing the subject property and surrounding area.
2. All well logs from adjacent and nearby properties.
3. Location of the wells on the tax lot map.

Chemical/Bacteriological Tests

In areas where water quality can be a problem a chemical and/or bacteriological test is required. These tests will generally be limited to tests for arsenic, total coliform, fecal coliform and high conductivity (indicating salt water). Applicants in "hard rock" areas of Lane County west of Territorial Road should be prepared to provide arsenic analysis and possibly conductivity. In other hard rock areas conductivity may be the only requirement. In some gravel or alluvial aquifer areas of Lane County, biological contamination can be a problem and bacteriological testing may be required where conditions warrant.

<u>TRS</u>	<u>PLOT</u>	<u>TRS</u>	<u>PLOT</u>	<u>TRS</u>	<u>PLOT</u>
15 - 01 - 21	521	16 - 06 - 36	174	17 - 05 - 18	187
15 - 01 - 22	533	16 - 07 - 02	124	17 - 05 - 20	199
15 - 01 - 27	533	16 - 07 - 18	109	17 - 05 - 29	200
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15 - 05 - 09	205	16 - 25 - 27	593	17 - 06 - 08	140
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16 - 01 - 08	511	16 - 25 - 34	593	17 - 06 - 17	140
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16 - 02 - 10	466	17 - 01 - 19	502	17 - 06 - 21	148
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16 - 02 - 34	468	17 - 01 - 32	514	18 - 01 - 29	516
16 - 02 - 35	480	17 - 02 - 02	480	18 - 01 - 32	516
16 - 03 - 27 34, 35 & 36		17 - 02 - 03	468	18 - 01 - 33	527
16 - 05 - 08	195	17 - ⁰³ 04 - 04	456	18 - 01 - 34	536
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16 - 06 - 25	174				

<u>TRS</u>	<u>PLOT</u>
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18 - 03 - 28	383
18 - 03 - 30	349
18 - 03 - 31	349
18 - 03 - 33	383
18 - 04 - 05	284
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18 - 04 - 08	284
18 - 04 - 13	334
18 - 04 - 14	320
18 - 04 - 15	309
18 - 04 - 16	298
18 - 04 - 17	285
18 - 04 - 18	270
18 - 04 - 19	270
18 - 04 - 20	285
18 - 04 - 21	298
18 - 04 - 22	309
18 - 04 - 23	334
18 - 04 - 24	334
18 - 04 - 25	335
18 - 04 - 26	321

<u>TRS</u>	<u>PLOT</u>
18 - 04 - 27	310
18 - 04 - 28	299
18 - 04 - 29	286
18 - 04 - 30	271
18 - 04 - 31	271
18 - 04 - 32	286
18 - 04 - 33	299
18 - 04 - 34	310
18 - 04 - 35	321
18 - 04 - 36	335
18 - 05 - 04	212
18 - 05 - 05	201
18 - 05 - 08	201
18 - 05 - 09	212
18 - 05 - 12	254
18 - 05 - 13	254
18 - 05 - 24	255
18 - 05 - 25	255
18 - 05 - 36	256
18 - 06 - 02	168
18 - 06 - 11	168
18 - 07 - 06	112
18 - 11 - 19	039
18 - 11 - 30	039
18 - 12 - 26	023

<u>TRS</u>	<u>PLOT</u>
18 - 12 - 34	014
18 - 12 - 35	023
19 - 01 - 16	529
19 - 01 - 17	518
19 - 01 - 18	507
19 - 01 - 19	507
19 - 01 - 20	518
19 - 01 - 21	529
19 - 01 - 28	530
19 - 01 - 33	530
19 - 02 - 03	474
19 - 02 - 04	461
19 - 02 - 09	461
19 - 02 - 10	474
19 - 02 - 17	451
19 - 02 - 18	440
19 - 02 - 19	440
19 - 02 - 20	451
19 - 03 - 15	400
19 - 03 - 16	385
19 - 03 - 17	367
19 - 03 - 18	351
19 - 03 - 19	351
19 - 03 - 20	367
19 - 03 - 21	385

<u>TRS</u>	<u>PLOT</u>	<u>TRS</u>	<u>PLOT</u>	<u>TRS</u>	<u>PLOT</u>
19 - 03 - 33	400	20 - 03 - 04	387	21 - 03 - 06	356
19 - 03 - 30	352	20 - 03 - 09	387	21 - 03 - 07	356
19 - 03 - 31	352	20 - 03 - 16	388	21 - 03 - 09	390
19 - 04 - 03	311	20 - 03 - 21	388	21 - 03 - 12	434
19 - 04 - 06	272	20 - 03 - 25	433	21 - 03 - 16	391
19 - 04 - 07	272	20 - 03 - 26	420	21 - 03 - 21	391
19 - 04 - 10	311	20 - 03 - 29	371	21 - 35 - 10	610
19 - 05 - 01	256	20 - 03 - 30	355	21 - 35 - 14	614
19 - 12 - 02	024	20 - 03 - 31	355	21 - 35 - 15	610
19 - 12 - 03	014	20 - 03 - 32	371	21 - 35 - 23	614
19 - 12 - 10	015	20 - 03 - 35	420	22 - 03 - 05	375
19 - 12 - 11	024	20 - 03 - 36	433	22 - 03 - 08	375
19 - 12 - 12	032	20 - 05 - 12	260	23 - 03 - 05	378
19 - 12 - 13	032	20 - 05 - 13	260		
19 - 12 - 15	015	20 - 05 - 24	261		
19 - 12 - 24	033	20 - 05 - 25	261		
19 - 12 - 25	033	21 - 02 - 03	477		
20 - 01 - 03	539	21 - 02 - 10	477		
20 - 01 - 04	531	21 - 02 - 13	498		
20 - 01 - 10	539	21 - 02 - 18	443		
20 - 02 - 27	476	21 - 02 - 19	443		
20 - 02 - 30	441	21 - 02 - 24	498		
20 - 02 - 31	441	21 - 03 - 01	434		
20 - 02 - 34	476	21 - 03 - 04	390		

IN THE BOARD OF COUNTY COMMISSIONERS OF LANE COUNTY, OREGON

It is known that Lane County has extensive geologic formations where ground water availability and potability are limited. The Flournoy, Spencer, Fisher and Eugene formations and the Little Butte volcanics have hydrogeologic characteristics that limit ground water quantity and quality. The population distribution, density and pressure exceed the calculated quantity limitations in specific geographic areas of specific watersheds and populations are encroaching in areas where arsenic and salt water are demonstrated quality limitations to potable water.

The Board of County Commissioners has expressed a concern for the future economic and physical well being of Lane County citizens with respect to their water supply, and the adopted Plan as submitted to the Land Conservation and Development Commission must address ground water under Goals 5 and 6 (Natural Resources, and Air, Water and Land Resource Quality).

Ground water availability is a limiting factor in the carry capacity of the marginal, developable rural lands of Lane County. Ground water is necessary for drinking water, a source of irrigation water for livestock and crops, and as base flow water for lakes and streams. Ground water conflicts can be aggravated by land use activities such as inappropriate zoning in quantity limited aquifers. Eighty percent of the land area of the County is subject to serious ground water quality or quantity problems, or both.

Groundwater quality is limited by both natural and human introduced contaminants. Four chemical constituents are known to be natural contaminants in Lane County wells - sulfur, iron, salt and arsenic. Pollution from septic systems is the major human contamination source. Landfill and lagoon leachates, fuel spills and chemical spills represent additional pollution sources.

At the time of the 1974 Water Quality Report, interest in ground water quality was generally isolated and related to specific natural problems, such as arsenic. The last several years have shown a growing concern both for the impacts of natural quality problems on developments and for the constraints and impacts posed by contamination from septic systems in moderate to high densities. A great deal of technical information has been accumulated in selected areas of the County on quality problems.

Numerous publications discuss ground water availability in Lane County. J. Frank (USGS in 1973), H. H. Ham (M.S. Thesis, 1976), Lane County (Arsenic Study, 1963 and Water Supply Paper, 1979), A. Piper (USGS, 1942), H.G. Schlicker (DOGAMI, 1974) and the State of Oregon (DOGAMI 1969) all address ground water quantity. The conclusion reached by the publications is that the alluvial aquifers are a significant untapped resource, however, the hard rock (bed rock) aquifers, with the exception of the High Cascade Volcanics, are poor to very poor aquifers with limited ground water resources.

The principal aquifers which generally yield moderate to high volumes of water, the alluvial aquifers, are located on the coast near Florence in the dunal sands, along the lower McKenzie valley, the lower Middle Fork Willamette valley, the lower Coast Fork Willamette valley and on the valley floor north of Eugene along the main stem of the Willamette. Most of the County east of the Willamette is composed of volcanic rock with poor yields of ground water. West of the Willamette, the lands are mainly sedimentary rocks with very poor yields.

In order to quantify the carrying capacity of the quantity limited aquifers (hard rock aquifers) of Lane County, a simple water budget is prepared for various watersheds across the county. Since the carrying capacity is directly related to the recharge within a basin the water budget formula is solved to find the recharge that occurs in each watershed. The formula is:

Recharge = precipitation - evapotranspiration - overland flow - surface discharge + storage.

Evapotranspiration is water that is lost to the atmosphere through evaporation or is transpired by plants. Surface discharge is the amount of water that leaves the ground water system to go back into the surface water system (streams and lakes). Recharge is a measure of the water going into storage in the ground water system. In watersheds that are in equilibrium, recharge (the amount entering ground water storage) will equal surface discharge (the amount leaving storage from the ground water system).

The data used to quantify watersheds is precipitation, evapotranspiration and base stream flows. Base flow is the late summer flow of a stream with all surface runoff (the runoff that occurs due to recent rainfall) eliminated. The average minimum flow of a stream is approximately its base flow.

The calculation of recharge is based on the assumption that base flow represents the long term equilibrium ground water recharge, whereas all stream flows above base flow represent surface runoff, short term (less than 1 year) recharge, bank recharge and surface storage (dams, ponds and lakes). The difference between annual stream flow and annual precipitation is assumed to represent evapotranspiration losses. Implicit in this assumption is that ground water supplies all of the base flow. Removal of that ground water for other purposes will decrease base flows. Not figured in these calculations are changes in recharge that may occur because new ground water reservoir space is made available by removing water from storage. (A full cup can't be refilled until it is partially drained.)

Following is a list of watersheds for which base flows are known or can be estimated and their calculated recharge rates in feet per year. Also shown is the maximum sustained yield density of housing that should be associated with each basin.

1. Determine the generalized acreage restriction for the basin in which the area lies. See attached chart.
2. **KNOWN:** Modify according to known areas where problems or abundances occur.
3. **TOPO:** Possible modification where topography indicates some change from the general restriction may be warranted.

Number 1 is the general rule followed. Special reports are to be used only to modify particular sites where they deviate strongly from the generalized norm. Most reports support the norm, such as the Skyridge Report, which indicates a 50 acre minimum lot size is appropriate for the Coyote Creek/Spencer Creek Basin. Areas known from other sources to deviate from the norm in quantity or quality, also modify the acreage restriction. Topography modifies the number only if it indicates rock character may be sufficiently different to expect significant hydrologic variation.

Where specific data is lacking, data is used from nearby basins with comparable hydrogeologic units. /f

13.010 Quantity and Quality Ground Water Limited Areas. In the interest of public health and the economic well being of the citizens of Lane County, the following areas of Lane County are to be designated quantity and/or quality ground water limited areas, pursuant to Chapter 13.050(13) Lane Code.

(1)The following areas are designated quality limited areas for ground water:

The outcrop area of the Fisher, Eugene and Little Butte Volcanics for arsenic contamination.

The River Road/Santa Clara area as defined by the Willamette River on the east, the Northwest Expressway on the west and south, and Beacon Drive on the north for nitrate and biological contamination.

The East Creswell area as defined by I-5 on the west, Cloverdale Road on the north, the Willamette River on the east and River Drive on the south for nitrate and biological contamination.

The Junction City South area as defined by Junction City city limits on the north, Prairie Road on the west and Highway 99 on the east to the intersection with Prairie Road for nitrate and biological contamination.

(2)The following areas are designated quantity limited areas for ground water:

The Spencer Creek Watershed as defined by the topographic expression of the watershed boundries.

The committed lands areas listed below which are in quantity limited areas and show development which can reasonably be expected to locally exceed the carrying capacity of the ground water system:

PLOT # TWN/RNG/SEC COMMITTED LAND LIMITATION

014	18-12-34/19-12-03	R-1 GLENADA	10 QT
015	19-12-10/19-12-15	R-1 GLENADA	10 QT
023	18-12-26/18-12-35	R-1 GLENADA	10 QT
024	19-12-02/19-12-11	R-1 GLENADA	10 QT
032	19-12-12/19-12-13	R-1	15 QT
032	19-12-12/19-12-13	R-2	15 QT
032	19-12-12/19-12-13	R-3	15 QT
033	19-12-24/19-12-25	R-1	15 QT
039	18-11-19/18-11-30	R-3	15 QT
109	16-07-18/16-07-10	RR	20 QT
112	18-07-06	R-2	10 QT known
124	15-07-35/16-07-02	R-1	20 QT
140	17-06-08/17-06-17	R-1	20 QT
141	17-06-20/17-06-29	NOTI	20 QT
148	17-06-16/17-06-21	R-1	20 QT
168	18-06-02/18-06-11	R-1	20 QT
173	16-06-13/16-06-24	R-3	20 QT
174	16-06-25/16-06-36	R-2	20 QT
175	17-06-01/17-06-12	R-3	20 QT
186	16-05-19/16-05-30	R-1	20 QT
		R-2	20 QT
		R-3	20 QT
187	17-05-07/17-05-18	R-1	10 KNOWN QT
195	16-05-08/16-05-17	R-1	20 QT
199	17-05-20	R-1	02 QT
200	17-05-29/17-05-32	R-1	02 QT
201	18-05-05/18-05-08	R-1	10 KNOWN QT
		R-2	50 QT
		R-3	50 QT
205	15-05-21/15-05-16	R-1	20 QT
212	18-05-04/18-05-09	R-1	50 QT
		R-2	50 QT
		R-3	50 QT
254	18-05-12/18-05-13	R-1	50 QT
255	18-05-24/18-05-25	R-1	50 QT
		R-2	50 QT
		R-3	50 QT
256	18-05-36/19-05-01	R-1	50 QT
260	20-05-12/20-05-13	R-1 LORANE	50 QT
		R-3	50 QT
261	20-05-24/20-05-25	R-1	50 QT
296	18-04-06/18-04-07	R-3	50 QT
270	18-04-18/18-04-19	R-1	50 QT
		R-2	50 QT
		R-3	50 QT
		R-4	50 QT
271	18-04-30/18-04-31	R-1	50 QT
		R-2	50 QT
272	18-04-06/19-04-07	R-1	50 QT
284	18-04-05/18-04-08	R-1	50 QT
285	18-04-17/18-04-20	R-1	50 QT
		R-2	50 QT
286	18-04-29/18-04-32	R-1	50 QT

298	18-04-16/18-04-21	R-1	50 QT
299	18-04-28/18-04-33	R-1	50 QT
309	18-04-15/18-04-22	R-1	50 QT
		R-2	50 QT
310	18-04-27/18-04-34	R-1	50 QT
		R-2	50 QT
311	19-04-03/19-04-10	R-1	50 QT
320	18-04-14/18-04-23	R-1	50 QT
321	18-04-26/18-04-35	R-1	50 QT
		R-2	50 QT
334	18-04-13/18-04-24	R-1	50 QT
		R-2	50 QT
		R-3	50 QT
335	18-04-25/18-04-36	R-1	50 QT
348	18-03-18/18-03-19	R-1	50 QT
349	18-03-30/18-03-31	R-1	50 KNOWN QT
		R-2	50 KNOWN QT
351	19-03-18/19-03-19	R-1	20 QT
352	19-03-30/19-03-31	R-1	20 QT
355	20-03-30/20-03-31	R-1	20 QT
356	21-03-06/21-03-07	R-1	20 QT
		R-3	20 QT
367	19-03-17/19-03-20	R-1	20 QT
371	20-03-29/20-03-32	R-1	20 QT
		R-2	20 QT
375	22-03-05/22-03-08	R-1	20 QT
		R-2	20 QT
378	23-03-05	R-1	20 QT
382	18-03-16/18-03-21	R-1	20 QT
383	18-04-28/18-03-33	R-1	20 QT
385	19-03-16/19-03-21	R-1	20 QT
		R-2	20 QT
387	20-03-04/20-03-09	R-2	20 QT
388	20-03-17/20-03-21	R-3	20 QT
390	21-03-04/21-03-09	R-2	20 QT
391	21-04-16/21-03-21	R-1	20 QT
		R-2	20 QT
400	19-03-15/19-03-22	R-1	20 QT
		R-2	20 QT
		R-3	20 QT
420	20-03-26/20-03-35	R-1	20 QT
433	20-03-25/20-03-36	R-1	20 QT
		R-2	20 QT
		R-3	20 QT
434	21-03-01/21-03-12	R-1	35 QT
440	19-02-18/19-02-19	R-1	20 QT
441	20-02-30/20-02-31	R-1	20 QT
443	21-02-18/21-02-19	R-3	35 QT
446	17-02-17/17-02-20	R-1	15 QT
451	19-02-17/19-02-20	R-1	20 QT
456	16-02-33/17-02-04	R-1	15 QT
		R-2	15 QT
461	19-02-04/19-02-09	R-1	20 QT
466	16-02-10	R-1	15 QT
468	16-02-34/17-02-03	R-1	15 QT
		R-3	15 QT
472	18-02-15/18-02-22	R-1	15 QT

474	19-0203/19-02-10	R-1	20 QT
		R-2	20 QT
		R-3	20 QT
476	20-02-27/20-02-34	R-1	20 QT & QL
477	21-02-03/21-02-10	R-1	20 QT
478	16-02-11/16-02-14	R-1	15 QT
479	16-02-23/16-02-26	R-1	15 QT
		R-2	15 QT
480	16-02-35/17-02-02	R-1	15 QT
		R-2	15 QT
482	?????	R-1	15 QT
490	17-02-13/17-02-24	R-1	15 QT
		R-2	15 QT
498	21-02-13/21-02-24	R-1	20 QT
502	17-01-19/17-01-30	R-1	15 QT
504	17-04-31/18-01-08	R-2	15 QT
507	19-01-18/19-01-19	R-1	15 QT
		R-2	15 QT
511	16-01-08/16-01-17	R-1	15 QT
514	17-01-29/17-01-32	R-2	15 QT
516	18-01-29/18-01-32	R-2	15 QT
518	19-01-17/19-01-20	R-2	15 QT
521	15-01-21/15-01-28	R-	15 QT
		R-2	15 QT
527	18-01-28/18-01-33	R-1	15 QT
529	19-01-16/19-01-21	R-1	15 QT
		R-2	15 QT
530	19-01-28/19-01-33	R-1	15 QT
531	20-01-04	R-1	15 QT
533	15-01-22/15-01-27	R-1	15 QT
535	17-01-22/17-01-27	R-1	02-15
536	18-01-27/18-01-34	R-1	15 QT
539	20-01-03/20-01-10	R-1	15 QT
549	17-01-13/17-01-24	R-1	02-15 QT
		R-2	15 QT
587	16-25-29/16-25-32	R-1	15 QT
593	16-25-27/16-25-34	R-1	15 QT
596	17-25-02	R-1	15 QT
610	21-35-10/21-35-15	R-1	15 QT
614	21-35-14/21-35-23	R-1	15 QT