PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **July 7, 2008**

FROM: Ground Water/Hydrology Section **Karl Wozniak / Josh Hackett**
Reviewer's Name

SUBJECT: Application G- **16940** Supersedes review of _____
Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525.* Department staff review ground water applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. **This review is based upon available information and agency policies in place at the time of evaluation**.

A. GENERAL INFORMATION: **Applicant's Name**: **Patterson Nursery Sales, Inc.** **County: Clackamas**

A1. Applicant(s) seek(s) **0.90** cfs from **2** well(s) in the **Willamette** Basin, _____ subbasin Quad Map: **Sandy**

A2. Proposed use: **Irrigation - Nursery** Seasonality: **year - round**

A3. Well and aquifer data **(attach and number logs for existing wells; mark proposed wells as such under logid)**:

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	CLAC 19304	2	Troutdale	0.90	2S/4E-10 NE-NW	680' S, 1280' E fr NW cor S 10
2	CLAC 57278	3	Troutdale	0.90	2S/4E-10 NE-NW	210' S, 800' W fr NW cor S 10
3						
4						
5						

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	**684**	**20**	**20, 158**	**60/20/1994**	**500**	**0-200**	**0-400**		**360-400**	**150**		
2	**694**	**170**	**140, 283**	**8/19/2001**	**540**	**0-250**	**+1-250**	**0-540**	**280-540**	**190 190**	**147 147**	**P 1hr P 8hr**

Use data from application for proposed wells.

A4. **Comments:** CLAC 19304 is also listed as POD 1 on permit G-11792.

A5. ☒ **Provisions of the** Willamette Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water ☐ **are**, *or* ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)
Comments: The applicant's wells are producing from a confined aquifer, so the pertinent basin rules do not apply.

A6. ☒ **Well(s) #** 1 , 2 , _____ , _____ , _____ , tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: Sandy-Boring Ground Water Limited Area
Comments: The wells are located in a portion of the limited area that classifies ground water in the shallow Troutdale aquifer for exempt uses only but allows a variety of uses from the deep Troutdale aquifer. Both wells are completed in the deep Troutdale aquifer.

B. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that ground water* for the proposed use:

a. ☐ **is** over appropriated, ☐ **is not** over appropriated, *or* ☐ **cannot be determined to be** over appropriated during any period of the proposed use. * This finding is limited to the ground water portion of the over-appropriation determination as prescribed in OAR 690-310-130;

b. ☐ **will not** *or* ☐ **will** likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the ground water portion of the injury determination as prescribed in OAR 690-310-130;

c. ☐ **will not** *or* ☐ **will** likely to be available within the capacity of the ground water resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource:
   i. ☒ The permit should contain condition #(s) **7B, 7H**;
   ii. ☐ The permit should be conditioned as indicated in item 2 below.
   iii. ☒ The permit should contain special condition(s) as indicated in item 3 below;

B2. a. ☐ **Condition** to allow ground water production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow ground water production from no shallower than _____ ft. below land surface;

c. ☐ **Condition** to allow ground water production only from the **deep Troutdale aquifer** ~~ground water reservoir between approximately _____ ft. and _____ ft. below land surface;~~

d. ☐ **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Ground Water Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): _____

B3. **Ground water availability remarks: Special Condition: For the purpose of determining declines, the reference level for Well 2 (CLAC 19304) shall be 190 feet below land surface.**
CLAC 19304 already has a 25 foot decline condition which was placed on permit G-11792. The condition we usually assign in this area is 7H, which has a 15 foot decline limit. To rectify the difference, 10 feet was added to the 3/28/1997 water level of 180 feet. This was the first water level reported for this well under permit G-11792 and is the recommended reference level for the well on permit G-11792.

` The area around the applicant's wells is underlain by a thick sequence of alluvial sediments and some interbedded post-Columbia River Basalt Group lava flows which have been subdivided by the U.S. Geological Survey into the Troutdale gravel aquifer and the Troutdale sandstone aquifer, separated in places by a distinct confining unit (Swanson and other, 1993; McFarland and Morgan, 1996). These aquifers are also referred to as the shallow Troutdale aquifer and the deep Troutdale aquifer. Both of the applicant's wells are cased and sealed into the deep Troutdale aquifer.

In general, hydraulic heads in the shallow Troutdale aquifer are 50 to 100 feet higher than heads in the underlying deep Troutdale aquifer. Water level data from wells in the area generally indicate falling head with depth (see attached plot) and progressive confinement with depth, whether a distinct confining layer is present or not. Water levels in nearby wells indicate declines of about 20 feet over the last 10 years. However, some of the declines are probably exaggerated as many of the wells are used year round, including use that occurs within a few hours of many of the annual water level measurements. Nevertheless, there is some evidence that declines are progressive in the vicinity of the proposed permit and that ground water use may be approaching the limits of sustainability in the area.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	**Deep Troutdale**	☒	☐
2	**Deep Troutdale**	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: The water-bearing zones in the deep Troutdale aquifer are overlain by a considerable thickness of fine grained sediment. Additionally, static water levels rise above the upper surface of the aquifer. These facts indicate confined conditions.

C2. **690-09-040 (2) (3):** Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Tickle Creek**	**500**	**500-640**	**3900**	☐	☒	☐	☐	☒
2	**1**	**Tickle Creek**	**407**	**500-640**	**4500**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Water levels in the deep Troutdale aquifer are about 100 feet lower than adjacent reaches of Tickle Creek (McFarland and Morgan, 1996). This suggests that there is no effective hydraulic connection between the aquifer and nearby reaches of the creek.

Water Availability Basin the well(s) are located within: 172 TICKLE CR > DEEP CR – AT MOUTH; 137 N FK DEEP CR > DEEP CR – AT MOUTH

C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells**. Otherwise same evaluation and limitations apply as in C3a above.

	SW #		Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: ____

C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

(A) = Total Interf.												
(B) = 80 % Nat. Q												
(C) = 1 % Nat. Q												
(D) = (A) > (C)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100	%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation: ____

C4b. **690-09-040 (5) (b) The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.**

C5. ☐ **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or ground water use under this permit can be regulated if it is found to substantially interfere with surface water:

i. ☐ The permit should contain condition #(s)_____;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:**

References Used:

Swanson R.D., McFarland W.D., Gonthier J.B., Wilkinson J.M, 1993, A description of hydrogeologic units in the Portland Basin, Oregon and Washington, USGS Water-Resources Investigations Report 90-4196, 56 p.

McFarland W.D., Morgan D.S., 1996, Description of the ground-water flow system in the Portland Basin, Oregon and Washington, USGS Water-Supply Paper 2470-A, 58 p.

Trimble, D.E., 1963, Geology of Portland, Oregon and Adjacent Areas: U.S. Geological Survey Bulletin 119, 119 p.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #**: _____ **Logid:** _____

D2. **THE WELL does not meet current well construction standards based upon:**
- a. ☐ review of the well log;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

D3. **THE WELL construction deficiency**:
- a. ☐ constitutes a health threat under Division 200 rules;
- b. ☐ commingles water from more than one ground water reservoir;
- c. ☐ permits the loss of artesian head;
- d. ☐ permits the de-watering of one or more ground water reservoirs;
- e. ☐ other: (specify) _____

D4. **THE WELL construction deficiency is described as follows:** _____

D5. **THE WELL**
- a. ☐ **was**, *or* ☐ **was not** constructed according to the standards in effect at the time of original construction or most recent modification.
- b. ☐ I don't know if it met standards at the time of construction.

D6. ☐ **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

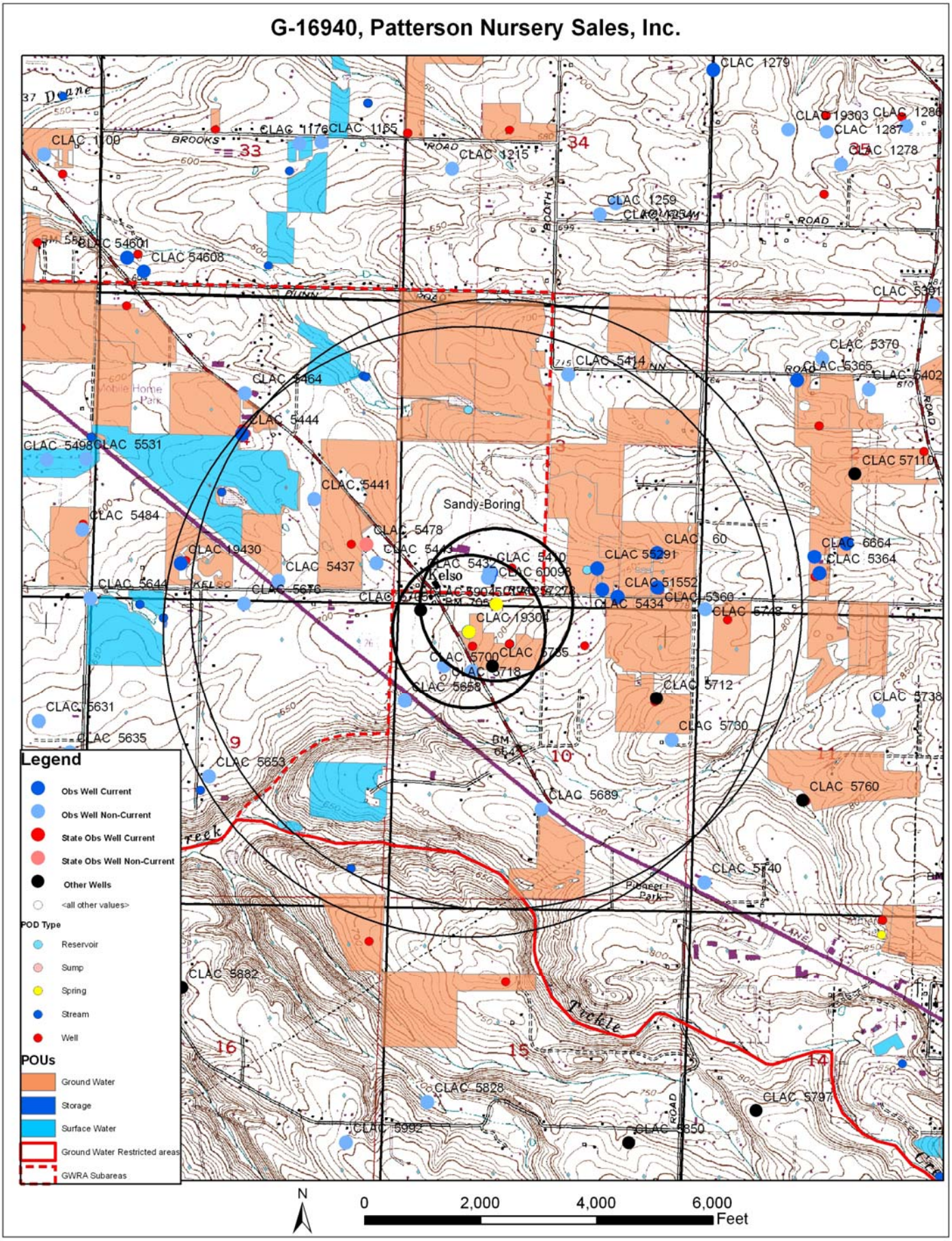
THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. ☐ Well construction deficiency has been corrected by the following actions: _____

_____ _____, 200____.
(Enforcement Section Signature)

D8. ☐ **Route to Water Rights Section (attach well reconstruction logs to this page).**

Well Location Map



Water Levels in Nearby Wells