Groundwater Application Review Summary Form

Application # G- 18714

GW Reviewer M. Thoma **Date Review Completed:** 05-24-19

Summary of GW Availability and Injury Review:

[ ] Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

[ ] There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

[ ] The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

WATER RESOURCES DEPARTMENT

MEMO 05-24, 2019

TO: **Application** G- 18714

FROM: **GW:** M. Thoma
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES
☒ NO — The source of appropriation is within or above a Scenic Waterway

☐ YES
☒ NO — Use the Scenic Waterway condition (Condition 7J)

☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

☐ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is *unable to make a Preponderance of Evidence finding.*

Exercise of this permit is calculated to reduce monthly flows in _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 05/24/2019
FROM: Groundwater Section Michael Thoma
Reviewer's Name
SUBJECT: Application G- 18714 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 groundwater 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: **Housing Authority and Community Services Agency**
County: **Lane**

A1. Applicant(s) seek(s) 0.04 cfs from 1 well(s) in the Mid Coast Basin, Siuslaw River subbasin

A2. Proposed use Irrigation (8.8 acres) Seasonality: March 1 – October 31 (244 d)

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	PROPOSED	Well 1	Alluvium	0.04	18S/12W-27 NESE	2490'N, 882'W of SE cor S 27
2						

* 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	36	*	10-20*	*	80	0-18	+1.5-60	None	20 ft	*	*	*

Use data from application for proposed wells.

A4. **Comments:** *The well is proposed. SWL is estimated for area well logs. Most of the well logs available for the area are for Monitoring Wells or Geotechnical Holes.

A5. ☒ **Provisions of the** Mid-Coast (OAR 690-518) Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☐ **are**, *or* ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)
Comments:

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area:
Comments:

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

B1. **Based upon available data**, I have determined that groundwater* 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 groundwater 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 groundwater 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 groundwater resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing groundwater rights or to the groundwater resource:
   i. ☒ The permit should contain condition #(s) **7C (7-year); Medium Water-use Reporting**;
   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 groundwater production from no deeper than _____ ft. below land surface;

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

c. ☐ **Condition** to allow groundwater production only from the _____ groundwater 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 Groundwater 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. **Groundwater availability remarks:**
There are limited water level data in the aquifer and vicinity of the applicant's proposed POA so Capacity of the Resource cannot be determined and water-level reporting conditions in B1(d) are recommended. There are no permitted groundwater rights within 1 mile of the applicant's proposed POA so it is unlikely that the applicant's use would result in injury to any permitted water rights, especially given the low rate of appropriation. However, standard interference conditions should be applied

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

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

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	**Alluvial or Aeolian Deposits**	☐	☒

Basis for aquifer confinement evaluation: there is limited 'First Water' and 'SWL' data available in the area to assess confinement but given the unconsolidated nature of the aquifer material, the proposed POA is more-likely to encounter unconfined aquifer 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	**Siuslaw River**	**25**	**0-10**	**3530**	☒	☐	☐	☐	☒
1	2	**Munsel Cr***	**25**	**5-10**	**1800**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation:
Siuslaw River: groundwater elevations are above surface water elevations implying groundwater is flowing towards and discharging to surface water; unconfined, alluvial nature of the aquifer.

*Munsel Creek is within 1 mile of the proposed POA and has a certificated POD on the creek near the proposed POA. However, for the purposes of this review and OAR 690-009 analysis, Munsel Creek is not considered because the likely point of hydraulic connection is very near the confluence of the creek with the Siuslaw River and so use from the proposed POA will likely have very minimal to no impact on the creek.

Water Availability Basin the well(s) are located within: Siuslaw R > Pacific Ocean – At Mouth (ID# 505)

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?
1	1	☐	☐	**MF504A**	**50.0**	☐	**138.0**	☐	**< 10%**	☐
		☐	☐			☐		☐		☐

Comments: Interference at 30 days was estimated using the Hunt (1999) stream-depletion model and aquifer parameter values derived from CH2MHill (1995) or considered in the range typical for this type of aquifer system.

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													
(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 groundwater 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:** The applicant's proposed POA would be producing from an aquifer that has been found to be hydraulically connected to surface water – specifically the Siuslaw River Estuary – at a distance of less than 1 mile. The proposed maximum rate of appropriation is **less than** 1% of the pertinent adopted perennial streamflow and also **less than** 1% of the adopted instream water rights for the surface water source and the estimated stream-depletion is **less than** 25% after 30 days. Per OAR 690-009-0040(4) the POA is assumed to **not** have the Potential for Substantial Interference

References Used:

CH2MHill, 1995, Sand Dune Aquifer Groundwater Availability Study. Submitted to Coos-Bay North Bend Water Board.

Hunt, 1999, Unsteady Stream-depletion from Ground Water Pumping. Ground Water, 37(1), pp 98-102.

Schlicker et al., 1974, Environmental Geology of Coastal Lane County Oregon, Department of Geology and Mineral Industries Bulletin 85.

D. WELL CONSTRUCTION, OAR 690-200

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

D2. **THE WELL does not appear to 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 or other comment is described as follows:** _____

D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Water Availability Tables

Water Availability Analysis
Detailed Reports

SIUSLAW R > PACIFIC OCEAN - AT MOUTH
MIDDLE COAST BASIN

Water Availability as of 5/24/2019

Watershed ID #: 505 (Map) Exceedance Level: 80%
Date: 5/24/2019 Time: 11:39 AM

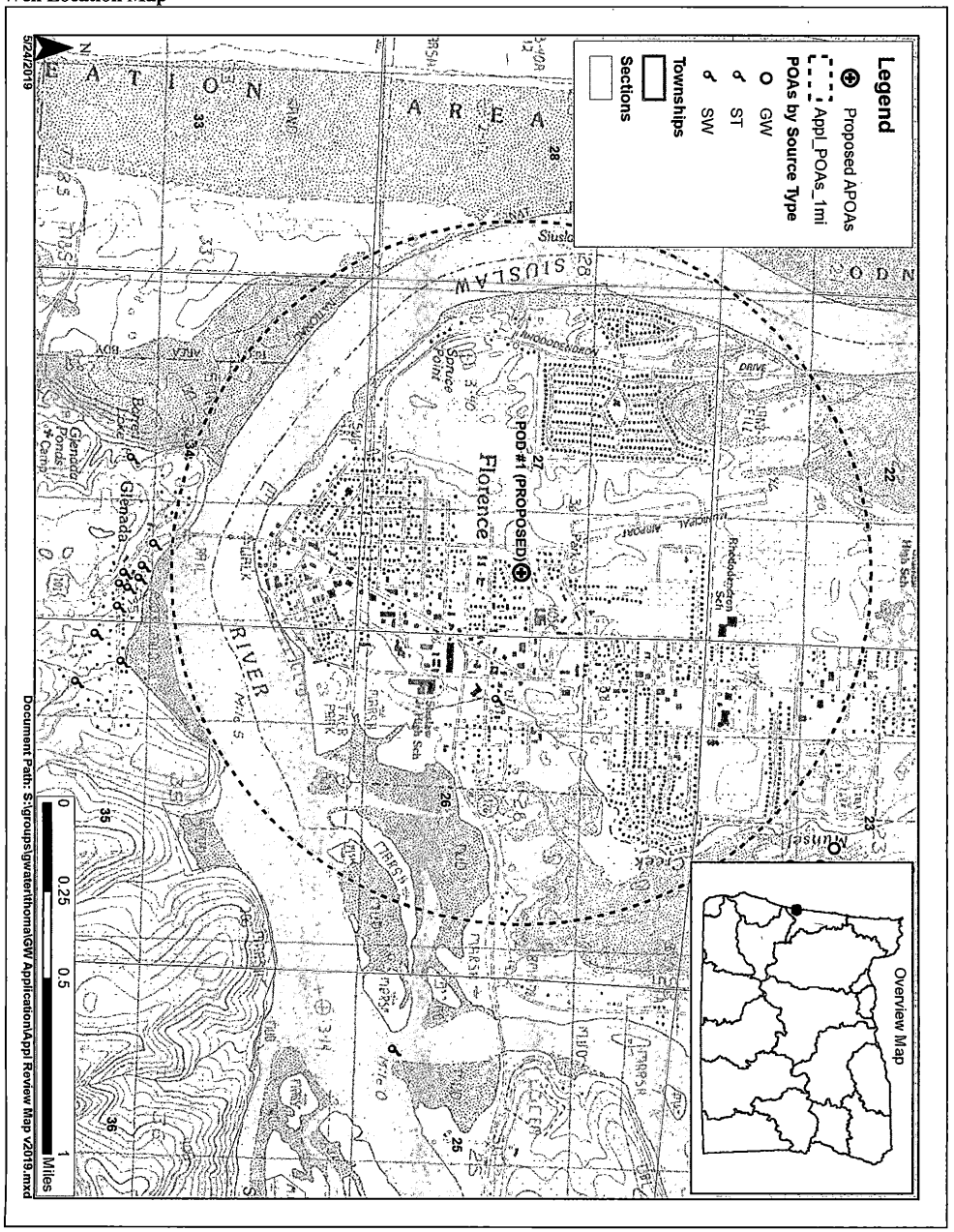
Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations
Water Rights | Watershed Characteristics

Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	2,570.00	4.86	2,570.00	0.00	260.00	2,310.00
FEB	2,810.00	4.88	2,810.00	0.00	260.00	2,550.00
MAR	2,380.00	4.83	2,380.00	0.00	260.00	2,120.00
APR	1,570.00	5.16	1,560.00	0.00	260.00	1,300.00
MAY	901.00	7.34	894.00	0.00	215.00	679.00
JUN	503.00	11.90	491.00	0.00	160.00	331.00
JUL	268.00	16.00	252.00	0.00	95.00	157.00
AUG	162.00	13.50	148.00	0.00	95.00	53.50
SEP	138.00	8.78	129.00	0.00	95.00	34.20
OCT	191.00	4.11	187.00	0.00	250.00	-63.10
NOV	747.00	4.76	742.00	0.00	320.00	422.00
DEC	2,060.00	4.82	2,060.00	0.00	320.00	1,740.00
ANN	1,540,000.00	5,510.00	1,540,000.00	0.00	156,000.00	1,380,000.00

Well Location Map



Stream-depletion Estimates

Application type:	G
Application number:	18714
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.04
Pumping duration (days):	244.0
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	3530	3530	3530	ft
Aquifer transmissivity	T	3000	8000	10000	ft2/day
Aquifer storativity	S	0.001	0.005	0.01	-
Aquitard vertical hydraulic conductivity	Kva	0.0001	0.0005	0.001	ft/day
Not used		20.0	20.0	20.0	
Aquitard thickness below stream	babs	3.0	3.0	3	ft
Not used		0.2	0.2	0.2	
Stream width	ws	1000	1000	1000	ft

Stream depletion for Scenario 2:

Days	10	330	360	30	60	90	120	150	180	210	240	270	300
Depletion (%)	2	10	9	5	8	10	11	13	14	16	17	13	11
Depletion (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00