Groundwater Application Review Summary Form

Application # G- 18742

GW Reviewer DENNIS ORLOWSKI **Date Review Completed:** 5/30/2019

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).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 5/30/2019
FROM: Groundwater Section Dennis Orlowski
Reviewer's Name
SUBJECT: Application G- 18742 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: **Portland Parks and Recreation** County: **Multnomah**

A1. Applicant(s) seek(s) 0.1671 cfs from one well(s) in the Willamette Basin, Columbia subbasin

A2. Proposed use Municipal 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	Proposed	GG-1	Alluvium	0.1671	T1N/R2E-28 NE-SE	693' N, 226' W from ctr ¼ NE-SE S28

f* 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	163	TBD	TBD	TBD	300	0-80	0-300	--	200-300	TBD	TBD	TBD

Use data from application for proposed wells.

A4. **Comments:** The proposed use is to supply water needs for the Gateway Green municipal park, to include irrigation, bathroom facilities, a fountain, and maintenance activities.

A5. ☐ **Provisions of the** Willamette 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: The proposed well will obtain groundwater from a semi-confined to unconfined aquifer, but its location will not be within ¼ mile of a perennial stream reach, and therefore the pertinent Willamette Basin rules (OAR 690-502-0240) do not apply.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: Not applicable.
Comments: Not applicable.

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) **Medium water-use reporting, 7C (7-yrs measurements)**;
   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:** The proposed POA will obtain groundwater from the Troutdale Gravel Aquifer (TGA) (Gannett and Caldwell, 1998; Morgan and McFarland, 1996; Swanson and others, 1993). Elsewhere in the Portland Basin the TGA is a heavily exploited groundwater resource. However, in this particular area, large-scale groundwater usage from the TGA and other alluvial aquifers appears to be relatively limited. Exceptions are the presence of two irrigation wells at the Rose City Golf Course located approximately 1.2 miles west of the proposed POA, and several municipal wells, the nearest of which are located about 1 to 1.5 miles to the east and southeast.

Although recharge rates to the alluvial aquifer system are relatively high (Swanson and others, 1993) and local pumpage appears to be fairly low, available groundwater level data is extremely sparse for this area. Therefore, if a permit is granted, reporting and monitoring conditions are recommended to allow for future evaluation of the groundwater resource in this area.

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	**Alluvium (Troutdale Gravel Aquifer)**	☐	☒

Basis for aquifer confinement evaluation: Groundwater levels reported on nearby well logs (e.g., MULT 1160, MULT 78361, MULT 1230) are generally coincident with the depths of primary water-bearing deposits. These same logs also do not show the presence of significant confining units, with typically only localized deposits of thin (<10 ft) beds of "clayey gravel" or "silt seams" reported. These conditions indicate generally unconfined, to perhaps locally semi-confined, 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	**Columbia Slough**	**40-60**	**10**	**8800**	☒ ☐ ☐	☐ ☒

Basis for aquifer hydraulic connection evaluation: The range of groundwater elevations was estimated from measurements reported from several wells in the area; because data are particularly sparse for this area, emphasis was placed on measurements reported for MULT 78361, a TGA well that possesses the most recent data set (see attached hydrograph). Note that the USGS reports (Gannett and Caldwell, 1998) groundwater elevations much higher than estimated for this review (i.e., elevation ~150 ft msl), but that information is somewhat dated and thus more recent measurements were considered for this review.

The regional groundwater system discharges to the Columbia Slough/Columbia River surface water network beginning about 1.7 miles to the north, and thus the local aquifer is hydraulically connected to the surface water bodies.

Water Availability Basin the well(s) are located within: WID 181: Willamette River > Columbia River – 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: C3a and C3b: not applicable.

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: Not applicable.

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:** None.

References Used:

Application G-18742 file

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 p.

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

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

D. WELL CONSTRUCTION, OAR 690-200

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

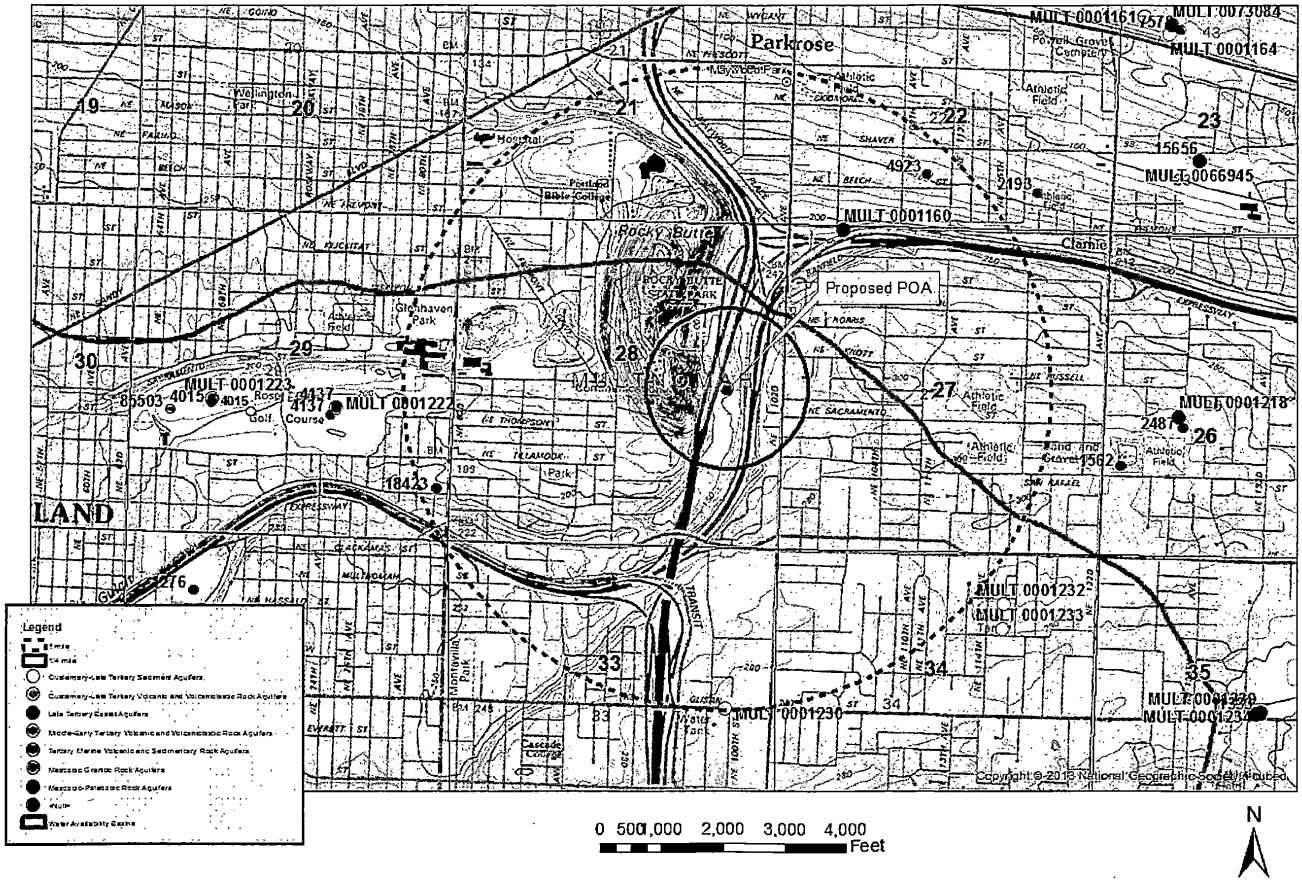
D2. **THE WELL does not appear to meet current well construction standards based upon:**

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.**

Application G-18742
Portland Parks and Recreation
T1N, R2E, S28



Version: 05/07/2018

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WILLAMETTE R > COLUMBIA R - AT MOUTH
WILLAMETTE BASIN
Water Availability as of 5/30/2019

Watershed ID #: 181 (Map)
Date: 5/30/2019

Exceedance Level: 80%
Time: 9:35 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	27,500.00	2,810.00	24,700.00	0.00	1,500.00	23,200.00
FEB	30,000.00	8,060.00	21,900.00	0.00	1,500.00	20,400.00
MAR	28,500.00	7,630.00	20,900.00	0.00	1,500.00	19,400.00
APR	25,400.00	7,240.00	18,200.00	0.00	1,500.00	16,700.00
MAY	20,700.00	4,460.00	16,200.00	0.00	1,500.00	14,700.00
JUN	11,000.00	2,350.00	8,650.00	0.00	1,500.00	7,150.00
JUL	6,280.00	2,310.00	3,970.00	0.00	1,500.00	2,470.00
AUG	4,890.00	2,060.00	2,830.00	0.00	1,500.00	1,330.00
SEP	4,930.00	1,690.00	3,240.00	0.00	1,500.00	1,740.00
OCT	5,990.00	728.00	5,260.00	0.00	1,500.00	3,760.00
NOV	12,700.00	1,070.00	11,600.00	0.00	1,500.00	10,100.00
DEC	24,800.00	1,460.00	23,300.00	0.00	1,500.00	21,800.00
ANN	19,700,000.00	2,510,000.00	17,200,000.00	0.00	1,090,000.00	16,100,000.00

Groundwater-Level Trends in Nearby Wells