

Groundwater Transfer Review Summary Form

Transfer/PA # T- 12876

GW Reviewer Bon Scandella, Dennis Orlawski Date Review Completed: 7/18/2018

Summary of Enlargement (Same Source) Review:

☐ The proposed transfer fails to keep the original place of use from receiving water from the same source.

Summary of Injury Review:

☐ The proposed transfer will result in another, existing water right not receiving previously available water to which it is legally entitled or result in significant interference with a surface water source.

Summary of Well Construction Assessment:

☐ The proposed POA does not have a well log.

☐ The proposed POA does not appear to meet current well construction standards. 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.



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Ground Water Review Form:

- ☒ Water Right Transfer
☐ Permit Amendment
☐ GR Modification
☐ Other

Application: T-12876

Applicant Name: Horta Latitude 45, LLC c/o George Xidias

Proposed Changes: ☒ POA ☐ APOA ☐ SW→GW ☒ RA
☐ USE ☐ POU ☐ OTHER

Reviewer(s): Benjamin Scandella, Dennis Orlowski

Date of Review: 7/18/2018

Date Reviewed by GW Mgr. and Returned to WRSD: 7/24/18

The information provided in the application is insufficient to evaluate whether the proposed transfer may be approved because:

- ☐ The water well reports provided with the application do not correspond to the water rights affected by the transfer.
- ☐ The application does not include water well reports or a description of the well construction details sufficient to establish the ground water body developed or proposed to be developed.
- ☐ Other _____

1. Basic description of the changes proposed in this transfer: This transfer would modify Certificate 87775, a nursery right on 16 acres with a total maximum rate of 1.33 cfs. The certificate lists different maximum rates for different uses, with a maximum of 0.15 cfs/acre for nursery operations (2.4 cfs for 16 acres), such that the total maximum rate could be exercised. The applicant proposes to transfer 9.56 acres of water on Certificate 87775 from the authorized POA, CLAC 56080 ("Authorized Well"), to up to 4 new POAs at proposed wells. Certificate 87775 has a maximum rate of 1.33 cfs for 16 acres, so the maximum rate that would be transferred to the new POAs would be $1.33 \times 9.56 / 16 = 0.79$ cfs = 355 gpm.
2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
☒ Yes ☐ No Comments: The proposed well construction includes a total depth of 400', casing to 400', and seal to 200'. This configuration should access the same aquifer as the authorized POA, which was drilled to 401', backfilled to 328' (albeit with porous media), sealed to 164' and perforated from 277-306'. The application states, "The well specifications given below for the proposed wells are estimates only. The actual well construction will be based on conditions encountered in the field. The objective will be to construct one or more wells which develop water from the alluvial aquifer."
3. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?
☐ Yes ☒ No _____
- b) If yes, estimate the portion of the right supplied by each of the sources and describe any limitations that will need to be placed on the proposed change (rate, duty, etc.): _____

a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with **another ground water right**?

☒ Yes ☐ No Comments: Under this transfer, a new POA could move as much as 980' from the authorized POA location, bringing it closer to other nearby groundwater rights. The maximum increase in interference would occur if 355 gpm was transferred from the Authorized POA to Proposed Well 1 or Proposed Well 2, the farthest proposed well locations. Such a transfer would increase interference with a number of nearby wells to the west that are completed in shallower portions of the alluvial aquifer system, including at least 3 exempt domestic wells, CLAC 13050 on Claim GR-2242, and CLAC 13263 on Certificate 34113. It would also impact wells CLAC 13214 and CLAC 50991, which are similarly completed to the applicant's wells.

b) If yes, would this proposed change, at its maximum allowed rate of use, likely result in another groundwater right not receiving the water to which it is legally entitled?

☐ Yes ☒ No If yes, explain: For the purposes of this review, the largest potential impact is assumed to apply to CLAC 13214, which is similarly completed to the Authorized POA, despite its greater distance from the applicant's wells compared with other domestic wells. Other nearer wells are completed in shallower portions of the alluvial aquifer system that would have pumping impacts buffered by relatively low-permeability materials at intermediate depths, such that the proposed change would not cause an appreciable increase in interference.

The increase in interference in CLAC 13214 by pumping Proposed Well 2 (distance 2900') compared with the Authorized Well (distance 3380') was estimated using the Theis equation. Using aquifer parameters derived from pump tests in the Authorized Well and nearby wells and assuming constant pumping at the maximum rate (355 gpm) until the maximum annual volume (47.8 AF, from 5.0 AF/acre on 9.56 acres) is reached (after 31 days), the estimated increase in interference at CLAC 13214 was limited to approximately 12 feet (Figure 1 and Figure 2 below). Given the 362' depth of CLAC 13214 and reported static water level of 25' below land surfaces on 4/20/1988, it is unlikely that this amount of increased interference will prevent the well owners from receiving the water to which they are legally entitled.

Similarly, wells that are nearer than CLAC 13214 and located such that the proposed transfer might lead to increased interference all have water levels more than 60' above the bottom of the well. While wells in the general vicinity have shown seasonal swings in water levels of nearly 60' in the past (see CLAC 13431, located roughly 2 miles SW of the applicant's wells, in Figure 3), recent seasonal variation appears to be closer to 30'. An analysis considering these factors, along with expected drawdown during normal use, indicates that even 12' of extra interference from the proposed transfer should not cause water levels to reach the bottom of these wells.

4. a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with **another surface water source**?

☒ Yes ☐ No Comments: Moving the POA from the Authorized Well to the Proposed Well 2 location would decrease the horizontal distance to Dove Creek (SW #1) from 1400' to 430'.

b) If yes, at its maximum allowed rate of use, what is the expected change in degree of interference with any **surface water sources** resulting from the proposed change?

Stream: Dove Creek (SW #1)



Minimal



Significant

Stream: _____



Minimal



Significant

Provide context for minimal/significant impact: About 20-60' of fine-grained sediments (Willamette Silt) occur at land surface in the area. The low hydraulic conductivity of these sediments creates a relatively inefficient connection between the aquifer system and local streams (Gannett and Caldwell, 1998; Caldwell and others, 2005). While the Willamette River incises through the Willamette Silt, the proposed transfer would not bring the POA closer to the Willamette River.

5. What conditions or other changes in the application are necessary to address any potential issues identified above: The proposed wells should be sealed to a depth of at least 200' to limit potential interference with nearby, shallow domestic wells.
6. Any additional comments: _____

References:

Application files T-12876, G-15582, G-16883, G-17212, and G-18196.

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.

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.

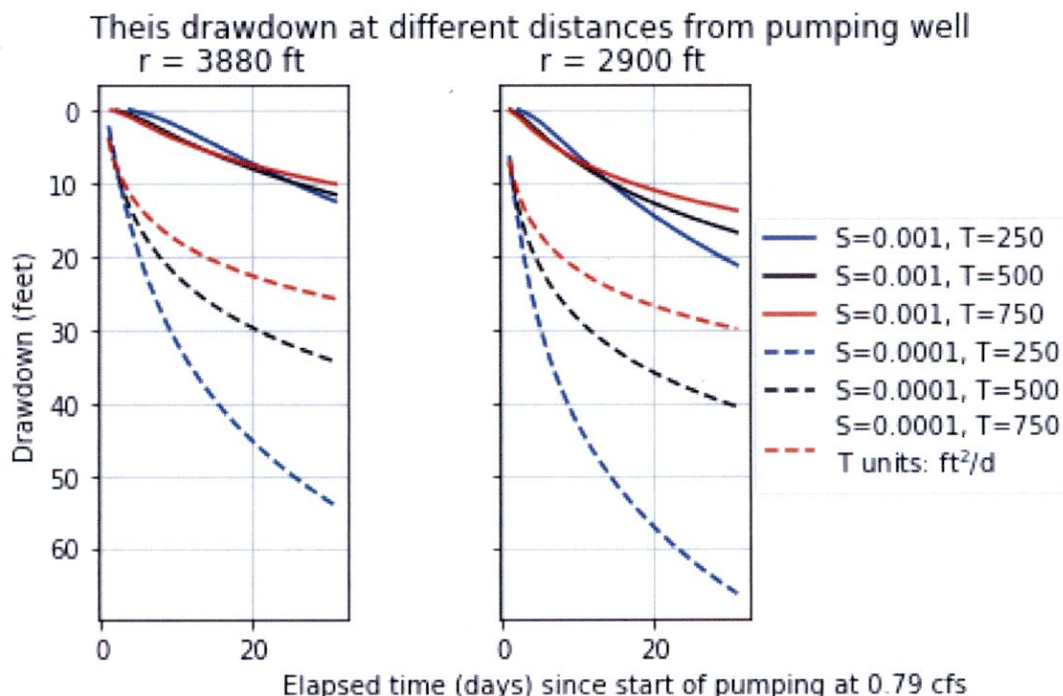


Figure 1: Theis drawdown at 2 different distances from the pumping well, representing the distance from CLAC 13214 to the Authorized POA (left) and to Proposed Well 2 (right).

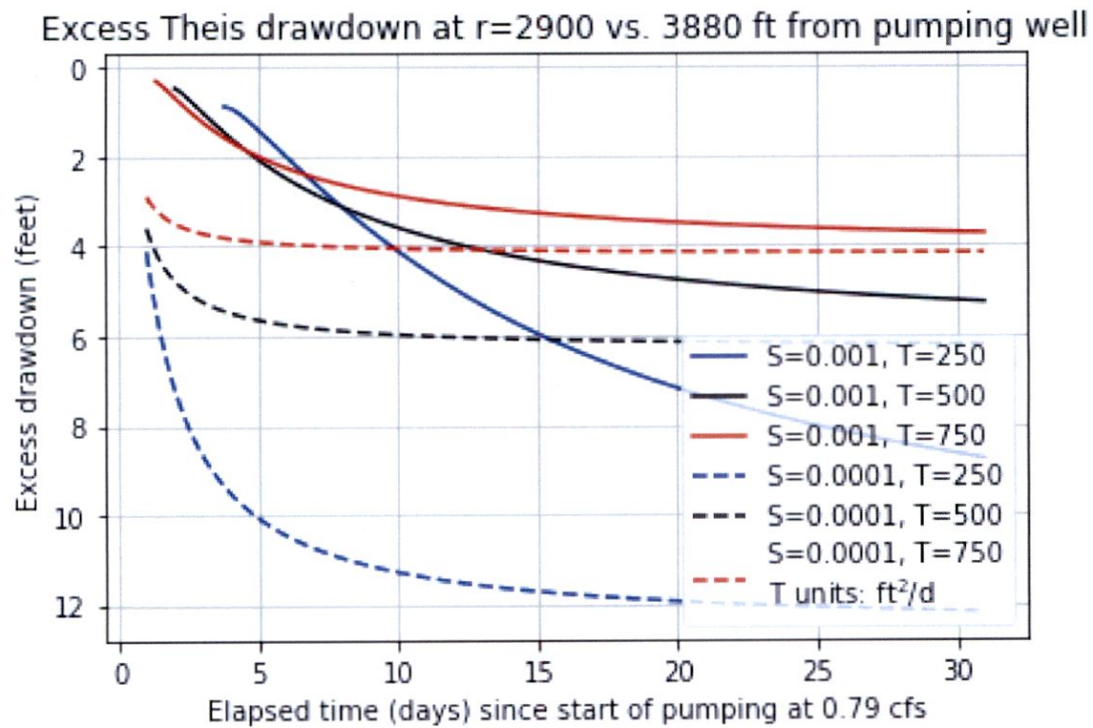


Figure 2: Difference in drawdown driven by the Authorized POA vs. Proposed Well 2.

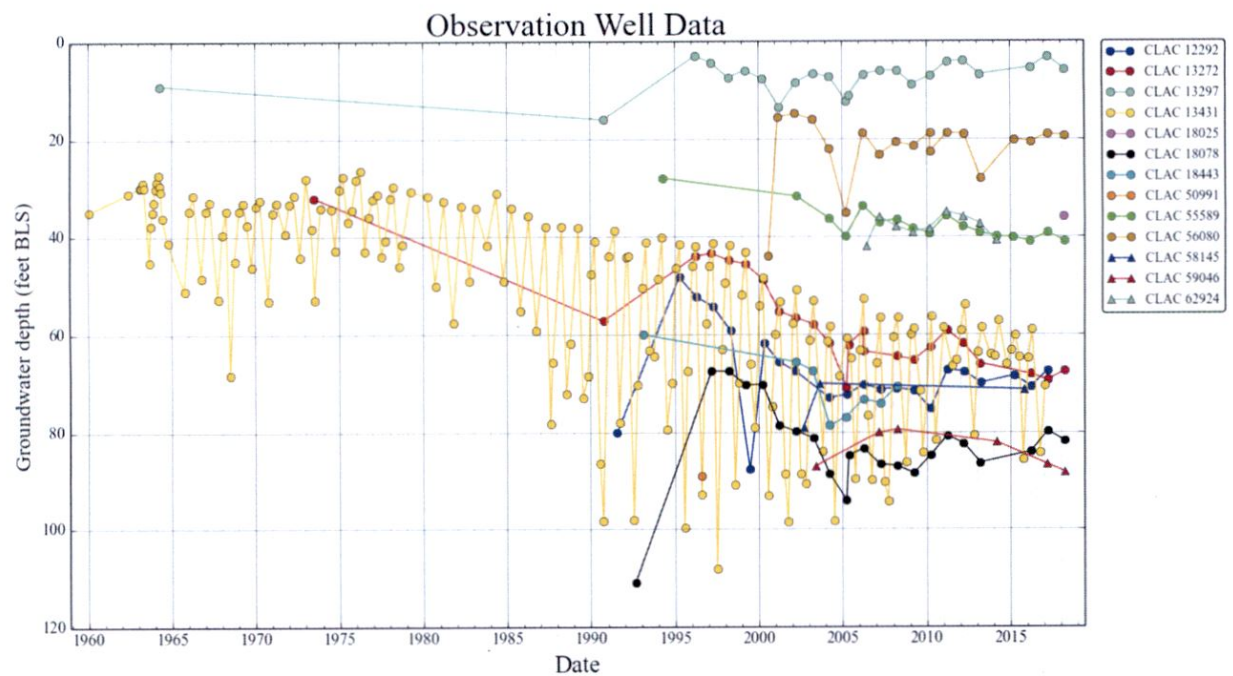


Figure 3: Water level data from wells with in approximately 1 mile of the applicant's wells.

Map T-12876: Horta Latitude 45, LLC. T4S / R1E - S10

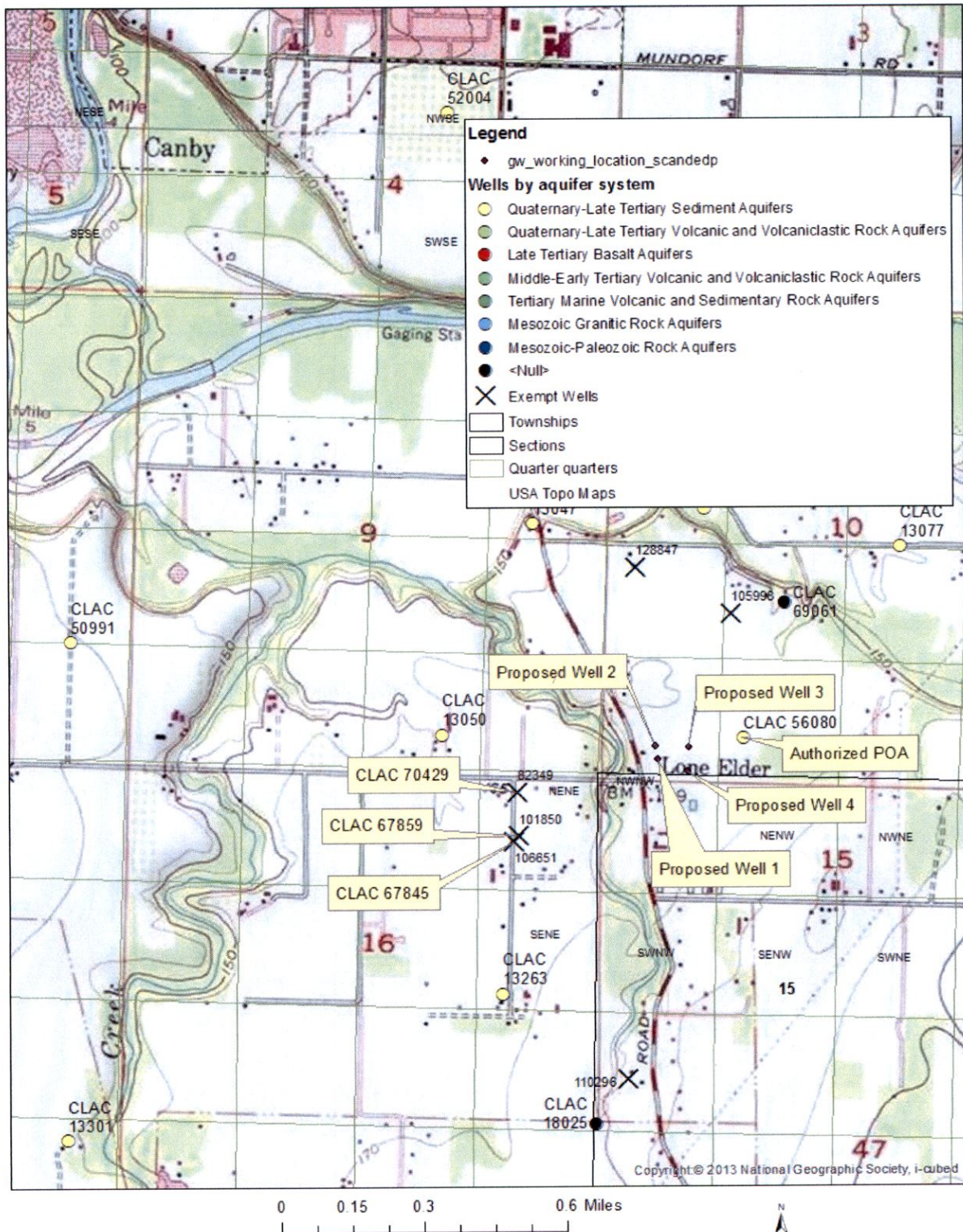


Figure 4: Map of applicant's wells and the surrounding region.