MEMORANDUM

To: Jesse Winterowd, AICP, PMP
From: Anita Smyth, MS, SPWS
Date: May 27, 2022
Subject: Raw Water Pipeline Wildlife Conservation Plan

Introduction

The Portland Water Bureau (Water Bureau) proposes to construct the Bull Run Pipeline Project that will convey water from the Lusted raw water pipeline segments to the proposed filtration facility. The raw water pipelines must cross through the SEC-h zone to reach the filtration facility site to the west. The project will use a subsurface boring to tunnel two pipelines from a portal near Dodge Park Boulevard to an exit shaft on the filtration facility site. The entry portal is located on tax lot 1500 (1S4E23C) and the tunnels cross under the SEC-h overlay zone on tax lot 1500 and tax lot 2200 (1S4E23C) before reaching the site (Figure 1). The tunnels will be driven from the portal upslope to the base of a shaft in the southeastern corner of the filtration facility site, abutting the boundary between Multnomah and Clackamas counties.

Figure 1. Raw Water Pipeline tunnel alignment below SEC-h overlay zone

The project team evaluated four tunnel portal alternatives, all of which would be located near the eastern edge of the SEC-h zone: Deep, Mid-Level Flat, Mid-level Steep, and Shallow (Figure 2). The Shallow and two Mid-Level Portals require surface disturbance within the SEC-h zone, while the Deep Tunnel Portal is located east of the SEC-h boundary. To avoid impact to SEC resources, the Deep Tunnel Portal alternative was selected as the preferred alternative in October 2021. This alternative allows the raw waterline alignment to cross the SEC-h overlay to

reach the filtration facility to the west without any surface or subsurface disturbance that affects wildlife habitat above it.

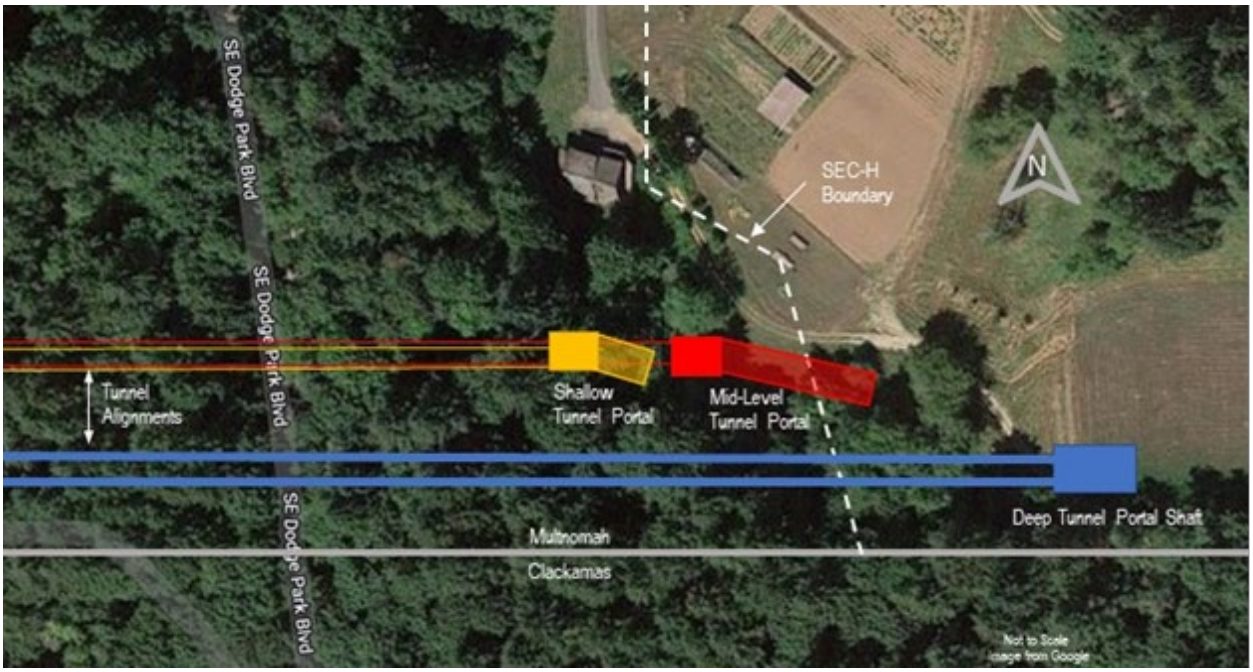

Figure 2. Tunnel alignments and portal locations relative to the SEC-h boundary (both mid-level portals are in same location)

The Deep Tunnel portal is the only option that lies outside the SEC-h zone; it begins at a lower elevation that lies within areas subjected to greater past disturbance than the higher slopes east of Dodge Park Boulevard. The higher slopes in the SEC-h zone are forested and relatively undisturbed.

While there is no planned impact to SEC-protected resources, the tunneled pipelines must still transit the SEC-h zone and therefore require SEC review. To meet the County's SEC-h requirements, the Water Bureau has prepared a Wildlife Conservation Plan, pursuant to Multnomah County Code (MCC) 39.5860(C). This memo presents the Wildlife Conservation Plan and responds to SEC approval criteria.

Proposed project activities include:

- Entry portal for pipelines
- Pipeline tunnel alignments
- Exit Shaft for pipelines

Of these activities, only the subsurface tunnels will be located in the SEC-h zone. The Deep Tunnel Portal is proposed to be constructed approximately 100 feet to the east of the SEC-h overlay zone. The site is accessible and no trees or vegetation within the SEC-h zone are proposed to be disturbed to construct the portal.

Wildlife Conservation Plan

The tunnel portal has been located to the east of the SEC-h zone so that 1) there is no portal access driveway within the SEC-h zone, and 2) a deep tunnel can be bored below ground to avoid all impacts to forested areas with the SEC-h zone (Figures 3 and 4). There will be no ground surface disturbance and no impacts to protected SEC-h habitat resources. Figure 4 shows the portal and tree protection fencing set approximately 100 feet back from the SEC-h zone. The proposed Wildlife Conservation Plan shows that all trees and forested areas within the SEC-h zone are protected.

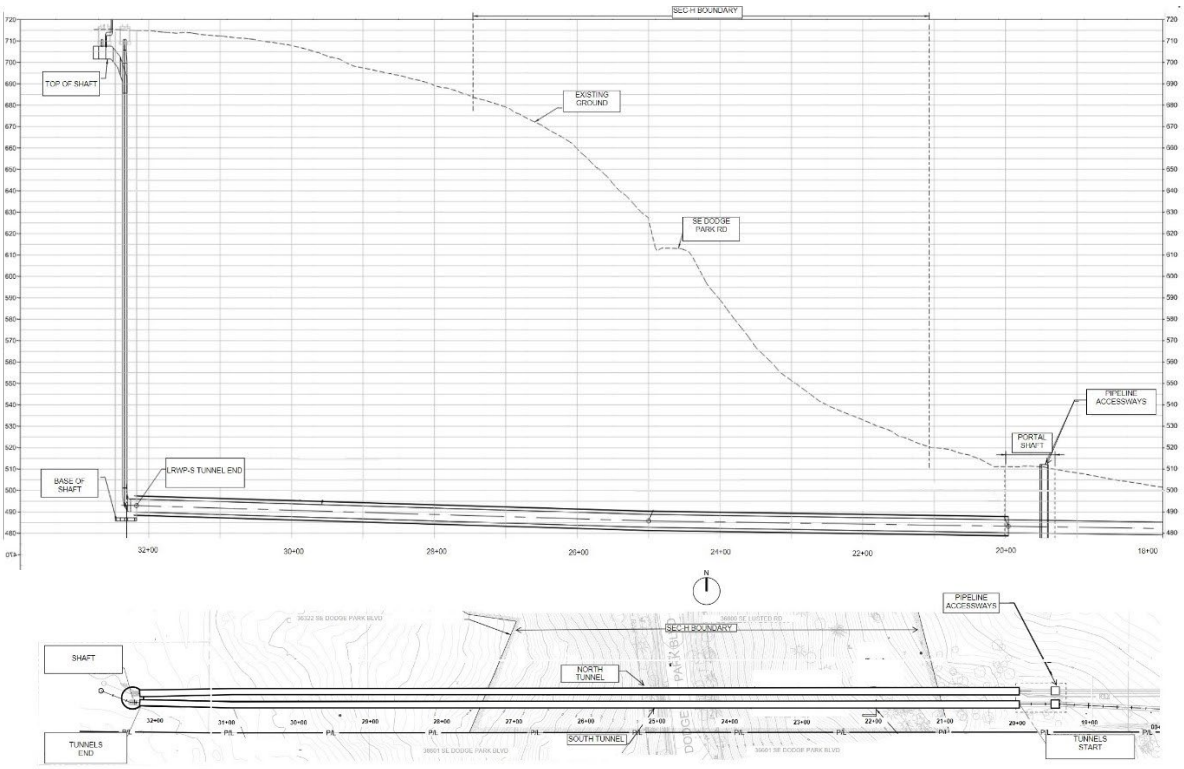

Figure 3. Tunnel Plan and Profile

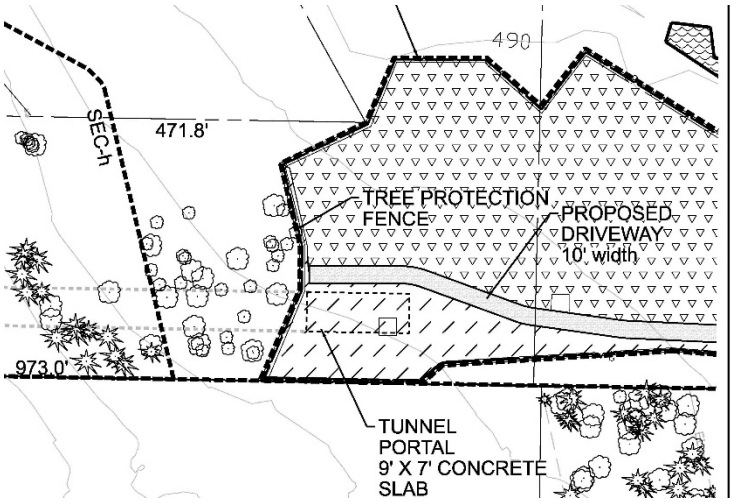

Figure 4. Tree Protection Fencing east of the SEC-h zone

Forest Areas and Habitat Conditions

Winterbrook's professional environmental scientist, Anita Smyth, MS, SPWS conducted a survey of habitat conditions and forested/non-forested areas of the site on October 19, 2021. The field study area included the portal location, construction access and staging locations, and existing cleared areas.

<u>Forest/Non-Forest Areas</u>

Forested and non-forested areas within the SEC-h zone were documented using on-site investigations and aerial photo interpretation. As stated in MCC 39.5860(A)(1):

> …a forested area is defined as an area that has at least 75 percent crown closure, or 80 square feet of basal area per acre, of trees 11 inches DBH and larger, or an area which is being reforested pursuant to Forest Practice Rules of the Department of Forestry. A non-forested "cleared" area is defined as an area which does not meet the description of a forested area and which is not being reforested pursuant to a forest management plan.

Figure 6 identifies the forested and cleared areas in the vicinity of the portal construction zone and across the width of the SEC-h zone. The portal construction zone lies outside of areas meeting the forested designation per MCC 39.5860(A)(1).

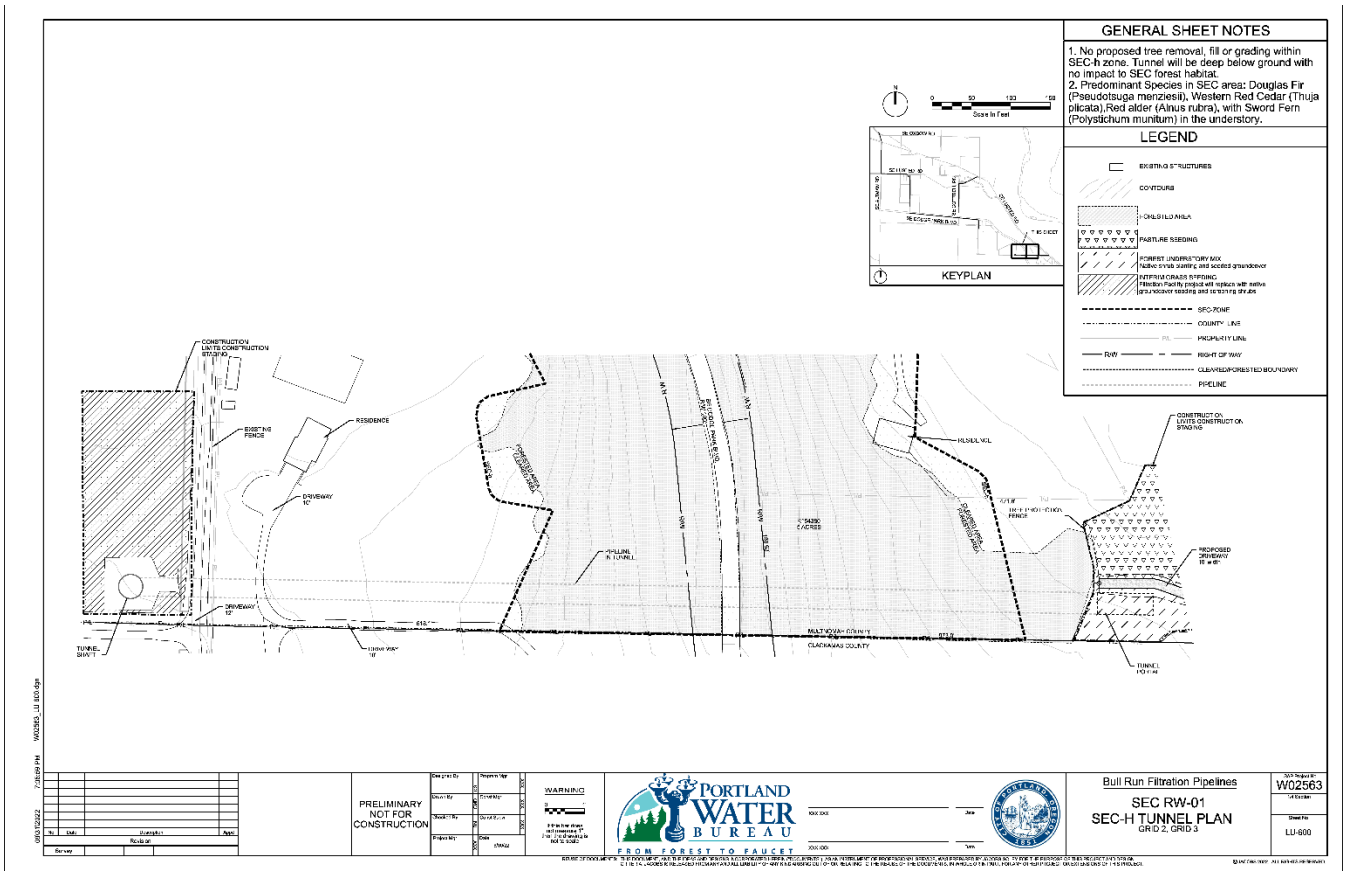

Figure 5. SEC-h Tunnel Plan

<u>Habitat Conditions</u>

Habitat conditions in the area of the portal are degraded and consist of disturbed vegetation (e.g., pasture grasses) with no trees. The vegetation community changes to mature forest approximately 100 feet to the west of the portal location and coterminous with a transition to steeper terrain. This improved habitat is also where the SEC-h zone begins.

The SEC-h overlay zone contains a mature mixed mesic forest dominated by Douglas fir (*Pseudotsuga menziesii*) and bigleaf maple (*Acer macrophyllum*) with red alder (Alnus rubra) and sweet cherry (*Prunus avium*). In the understory, osoberry (*Oemleria cerasiformis*), Oregon grape (*Mahonia aquifolium*), California dewberry (*Rubus ursinus*), and swordfern (*Polystichum munitum*) are common. This community has persisted in part due to the steep slopes that render other uses (e.g., rural residential) less feasible than more accessible terrain. Evergreen blackberry (*Rubus laciniatus*) and Himalayan blackberry (*Rubus armeniacus*) are found outside the SEC-h zone at the interface of the relatively unaltered forest and the adjacent fields.

The wildlife habitat functions provided by the forest are moderate in quality. Limiting factors for habitat include forest fragmentation and proximity to Dodge Park Boulevard, which passes through the SEC-h zone. The forest habitat provides forage, cover, movement corridor, and nest

sites for birds and small mammals. The forest habitat includes structural elements such as snags and downed logs.

Low Impact Design

To minimize any potential wildlife habitat impacts or tree removal, all ground surface disturbance will be located in existing cleared areas outside the SEC-h overlay zone. This includes the tunnel portal and shaft, equipment and materials staging, and construction access.

The proposed underground pipelines encroach into the SEC-h overlay zone as mapped but do not affect wildlife habitat: they do not interface with the soil surface, tree root zones, or any drainage pathways within the SEC-h zone. No direct or indirect impacts are proposed to trees, forest, or habitat subject to the SEC-h overlay requirements. The top of the proposed tunnels is a minimum 30 feet below ground at the eastern boundary of SEC zone, with depths increasing to 192 feet at the west boundary of the zone.

Overall, the proposal avoids all forest habitat disturbance, including any fragmentation of forest habitat areas. All temporary disturbance areas are set back from the SEC-h zone and will be revegetated with native plantings as shown in Figure 5. The project will have no impact on protected SEC resources.

Review of SEC-h Approval Criteria

MCC 39.5860(C)
Wildlife Conservation Plan. An applicant shall propose a wildlife conservation plan if one of two situations exist.

(1) The applicant cannot meet the development standards of Section (B) because of physical characteristics unique to the property. The applicant must show that the wildlife conservation plan results in the minimum departure from the standards required in order to allow the use;

Response: The proposal cannot meet the development standards of subsection (B) because the only available property access is from Lusted Road at the east side of the property, while the SEC-h resource area covers the entirety of the western, sloped end of the property. These unusual physical characteristics mean that for the pipeline to reach the filtration facility site on the other side of the SEC-h zone, the standards related to distance from the road cannot be met. Therefore, a Wildlife Conservation Plan is proposed. The proposal is the minimum departure from the standards in (B)(2)-(3) in order to allow the use, as the raw water pipelines must cross under the SEC-h zone that covers the entirety of the western end of the property in order to reach the filtration facility site on the other side. This *Raw Water Pipeline Wildlife Conservation Plan* shows that all trees and forested areas within the SEC-h zone are protected and the plan meets the applicable standards below.

(3) Unless the wildlife conservation plan demonstrates satisfaction of the criteria in subsection (C)(5) of this section, the wildlife conservation plan must demonstrate the following:

(a) That measures are included in order to reduce impacts to forested areas to the minimum necessary to serve the proposed development by restricting the amount of clearance and length/width of cleared areas and disturbing the least amount of forest canopy cover.

Response: The Water Bureau selected a set of tunnels as the least impact alternative. The Water Bureau also selected the deep tunnel option, which allowed the entry portal to be located outside the SEC-h zone, avoiding all surface impacts within the SEC-h overlay zone. Potential impacts were further minimized by locating all construction staging and access outside the SEC-h overlay zone. The proposal avoids fragmentation of forest areas adjacent to the SEC and reuses existing cleared areas to preserve forest canopy near the SEC-h zone.

These combined measures eliminated impacts to protected SEC-h habitat resources. This standard is met.

(b) That any newly cleared area associated with the development is not greater than one acre, excluding from this total the area of the minimum necessary accessway required for fire safety purposes.

Response: No newly cleared areas are proposed. This standard is met to the extent it applies.

(c) That no fencing will be built and existing fencing will be removed outside of areas cleared for the site development except for existing cleared areas used for agricultural purposes.

Response: No fencing exists or is proposed within the SEC-h overlay zone. Therefore, this standard does not apply to this proposal.

(d) That revegetation of existing cleared areas on the property at a 2:1 ratio with newly cleared areas occurs if such cleared areas exist on the property.

Response: No newly cleared areas are proposed within the SEC-h resource area; therefore, no revegetation is required. All areas temporarily disturbed by the project outside the SEC-h zone will be revegetated.

(e) That revegetation and enhancement of disturbed stream riparian areas occurs along drainages and streams located on the property.

Response: The SEC-h resource at this location is an upland forest. There are no stream riparian areas within the subject SEC-h zone.

Summary

The pipelines must cross an SEC-h overlay zone to achieve project objectives and connect to the filtration facility site. However, by tunneling deep below the SEC-h resource area, the pipelines

are able to cross the overlay zone while fully avoiding disturbance to wildlife habitat. Forested habitat areas are fully protected from direct and indirect impacts from construction activities. No significant or long-term detrimental impacts to wildlife habitat functions within the SEC-h overlay are anticipated. All temporary impacts outside the SEC-h will be revegetated as shown in Figure 5.