

# Results of Watchtower Heights Net Environmental Benefit Analysis

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This memorandum represents a Department of Ecology recommendation for the Net Environmental Benefit Analysis (NEBA) specific to the Watchtower Heights Site, located at 5920 Browns Point Boulevard, Tacoma, WA.

Determination:

It is recommended that the entire proposed non-developed area (decision unit [DU] B) should be designated as "especially valuable habitat (EVH)," and that any additional remediation for this proposed non-developed area is not required following the provisions of this memorandum.

This memorandum specifically pertains to Ecological Risk Assessment and the Terrestrial Ecological Evaluation (TEE) under MTCA (WAC 173-340-7490 through 7494).

For questions regarding this memorandum, please contact:

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# Background

Net environmental benefits are the gains in environmental services or other ecological properties attained by remediation or ecological restoration, minus the environmental injuries caused by those actions (Efroymson et al., 2003). Ecosystems and natural resources (including wild animal and plant populations) can be thought of as environmental assets which provide people with a range of "services" which directly or indirectly contribute to our well-being. Decisions where there may be ecological tradeoffs, for example, clearing a vegetated site to access contaminated soil, needs to be balanced with the potential damage caused to the habitat, or "ecosystem" and the wider services that it provides (Deacon et al., 2010). Therefore, a Net Environmental Benefit Analysis (NEBA) would be the procedure of weighing the advantages of active cleanup (remediation) versus the impact that cleanup might have on potentially valuable ecological receptor habitat. Terrestrial ecological evaluation procedures should not create an incentive to cause harm through the destruction of habitat. As a result, WAC 173-340-7490(5) applies, in that under:

"Additional measures. The department may require additional measures to evaluate potential threats to terrestrial ecological receptors notwithstanding the provisions in this and the following sections (when based upon a site-specific review), the department determines that such measures are necessary to protect the environment." (Ecology, 2007).

### **NEBA Steps**

**Step 1:** The proposed non-remediated area needs to be defined as "especially valuable habitat." "Especially valuable habitat" can be designated through the use of one of the below proposed methods (Method 1 or Method 2):

Method 1: Site can be designated "especially valuable habitat" if:

- The site <u>is used</u> by a threatened or endangered species protected under the Federal Endangered Species Act, or;
- The site <u>is used</u> by a "priority species" or "species of concern" designated under Title 77 RCW, or;
- The site <u>is used</u> by a plant species classified as "endangered," "threatened," or "sensitive" under Title 79 RCW, or;
- Wetlands and Fish and Wildlife habitat conservation areas designated as critical area under Chapter 36.70A.170 RCW. Other critical areas that might be found on the property, such as recharge areas, frequently flooded areas, geologically hazardous areas, steep slopes, and aquatic areas, are not immediately designated as "especially valuable habitat" unless they meet one of the previous criteria. These other types of critical areas must follow the Method 2 process.

Note: For animals, "used" means that individuals of a species have been observed to live, feed or breed at the site. For plants, "used" means that a plant species grows at the site or has been found growing at the site (Ecology, 2007).

Method 2: Site can be designated "especially valuable habitat" if:

- An experienced field biologist must visit the site and document that:
  - The site <u>can be potentially used</u> by a threatened or endangered species protected under the Federal Endangered Species Act, or;
  - The site <u>can be potentially used</u> by a "priority species" or "species of concern" designated under Title 77 RCW, or;
  - The site <u>can be potentially used</u> by a plant species classified as "endangered," "threatened," or "sensitive" under Title 79 RCW.

#### Results:

It is recommended that the requirements of Step 1 (Method 2) have been met:

Based on the vigorous vegetation growth and healthy plant community, the potential for providing habitat to protected species, and the lack of any other indicators of contaminant uptake, DU B should be designated as [especially valuable habitat – under method 2] and retained for elevated ecological benefit provided onsite (Ecology, 2025).

**Step 2:** A field biologist (or other department approved individual) must document types of flora and fauna and any signs of excessive uptake of the specific contaminants. This will help establish sustainability and whether or not native species occupy the habitat.

- Document the species of plant, soil biota, and wildlife found at the specific site.
  - Differentiate between those that are native and those that are invasive.
- Document if native plant life is well-established (i.e., primary or secondary growth)
- Document if plant life shows signs of contaminant uptake including (but not limited to) signs of:
  - Wilting
  - Chlorosis (pale, yellow or white plant tissue)
  - Browning
  - Excess mortality
  - Reduced growth, photosynthesis, mitosis, or water absorption (dehydration)
  - Document any signs of contaminant uptake in soil biota including (but not limited to): • Limited numbers
- Document any signs of contaminant uptake in wildlife including (but not limited to):
  - Muscular incoordination
  - Debility
  - o Slowness
  - o Jerkiness
  - $\circ$  Falling
  - Hyperactivity
  - Fluffed feathers
  - Drooped eyelids
  - o Seizures

#### Results:

It is recommended that the requirements of Step 2 have been met for DU B. This is based on the observations regarding species found within the site of interest (SoundEarth Strategies, 2025).

Document the species of plant, soil biota, and wildlife found at the specific site and differentiate between those that are native and those that are invasive.

#### Vegetation:

Site habitat conditions have been assessed and documented during a Site visit with Ecology and separate field surveys by Facet Northwest biologists. As described by Facet Northwest in their technical memorandum (SoundEarth Strategies, 2025), the forest consists of native vegetation with multiple overlapping canopy layers. Tree species include a mix of red alder (*Alnus rubra*), Scouler's willow (*Salix scouleriana*), Pacific madrone (*Arbutus menziesii*), Douglas-fir (*Pseudotsuga menziesii*), and bitter cherry (*Prunus emarginata*). The canopy is mostly closed, but has variable heights, crown arrangements, and layers, unlike the rest of the site. Beaked hazelnut (*Corylus cornuta*), salmonberry (*Rubus spectabilis*), salal (*Gaultheria shallon*), and sword fern (*Polystichum munitum*) are commonly present in the understory. Non-native plants – mainly Himalayan blackberry (*Rubus bifrons*) – are also present, but not dominant in DU B.

One wetland, Wetland A, is located in the northeast corner of the project site (in DU B), extending offsite to the east (see Figure 1). Wetland A is supported by groundwater seeps that begin on the slope. Surface water flows east where it is generally captured in a shallow, poorly defined swale at the edge of Browns Point Boulevard NE and/or disperses as sheet flow across the road. Vegetation in Wetland A includes red alder, Scouler's willow, salmonberry, Himalayan blackberry, giant horsetail (*Equisetum telmateia*), and bittercress (*Cardamine* sp.).

Additionally, the City of Tacoma requires a Biodiversity Corridor between the Biodiversity Area and Wetland A in the northeast corner of the property. A Biodiversity Corridor is a relatively undisturbed and unbroken tract of vegetation that allows for wildlife movement.

In general, habitat outside of the Biodiversity Area in DU B is lower quality when compared with habitat within the Biodiversity Area, because non-native plant coverage increases and forest structural diversity decreases.

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Figure 1. Excerpt from Sheet L001 (Existing Conditions) of the wetland buffer enhancement plan prepared for the project by Facet Northwest in December 2024, showing the northeast portion of the site, east of Watchtower Road NE, characterized as DUB.

#### Wildlife

Wildlife observations made during site visits by Facet Northwest biologists included evidence of mountain beavers (burrows), coyote (scat), and sapsuckers (holes in trees). Direct observations of the following birds were also made:

- American Robin
- American Crow
- Anna's Hummingbird
- Song Sparrow
- Golden-crowned Kinglet
- Ruby-crowned Kinglet
- Dark-eyed Junco
- Black-capped Chickadee
- Northern Flicker
- Varied Thrush

- Unknown gull
- Unknown small raptor

The wildlife species observed and expected to potentially utilize habitat on the property are relatively common, mobile, urban species that are present in other residential areas of Tacoma. No state or federally threatened or endangered plants or animals are known to use the habitat on the project site, but the habitat could potentially be used by them in the future.

#### Document if native plant life is well-established (i.e., primary or secondary growth)

The forest communities of the Site are well established, and the forest consists of native vegetation with multiple overlapping canopy layers. The diverse plant community has the potential to provide habitat for protected species.

#### Document if plant life, soil biota, and wildlife show signs of contaminant uptake

No signs of contaminant uptake (e.g., wilting, chlorosis, or excess mortality in plants and debility, slowness, or falling in wildlife) were observed by Facet Northwest staff during the numerous site visits to the property. Similarly, no signs of distressed vegetation or wildlife were encountered during Terra's prior site visits (N. Hoffman, personal communication, December 20, 2024).

**Step 3:** The Ecology Site Manager (or designee) should then visit the site to make a final determination as to whether or not the proposed non-remediated area appears to be established, sustainable, and native habitat. In granting the request of non-remediation, the Ecology Site Manager (or designee) should consider the following factors prior to making a final decision:

- The rarity of the habitat for the geographic area in which the site is located.
- The size of the habitat.
- Whether the habitat functions as a wildlife corridor.
- Whether the habitat functions as a refuge or feeding area for migratory species.
- The structural diversity of the habitat.
- Surrounding habitat and land uses.
- Whether the habitat is manmade or natural.
- Whether the cleanup would significantly disturb the ecological functions of the habitat.
- The level of human activity in the area.
- The length of time for recovery of the habitat after cleanup.

#### Results:

It is recommended that the final determination for the proposed non-remediated area is that it is established, sustainable, and predominantly native habitat. This is based on the observations regarding the following factors (SoundEarth Strategies, 2025).

- <u>The rarity of the habitat for the geographic area in which the site is located</u>: The site is a parcel of secondary forest in a residential area of Tacoma, WA. The forest is well-established and consists of native vegetation with multiple overlapping canopy layers. It also supports a range of plants and invertebrates for birds and small mammals to forage. There is habitat available for rearing and refuge of birds in snags and trees. The habitat features may also provide refuge and feeding areas for migratory birds.
- <u>The size of the habitat: The entire site is 18.19 acres and the EVH is approximately 4 acres in size</u>.
- <u>Whether the habitat functions as a wildlife corridor:</u> Part of the EVH is a Biodiversity Corridor. A Biodiversity Corridor is a relatively undisturbed and unbroken tract of vegetation that allows for wildlife movement.
- <u>Whether the habitat functions as a refuge or feeding area for migratory species:</u> The proposed area of retention is likely large enough to be utilized as refuge or feeding habitat for terrestrial migrating species in the vicinity of the subject property. Additionally, the subject property is located within the Pacific Flyway and as such has an increased potential to be utilized as refuge by any migratory species utilizing the migration route.
- <u>The structural diversity of this habitat</u>: The subject property is vegetated with healthy and diverse plant communities. The diverse plant community has the potential to provide habitat for protected species and provide refuge and feeding areas for migratory birds.
- <u>Surrounding habitat and land uses:</u> The property is located within a residential area and contains a second-growth conifer and hardwood forest in the Puget Lowlands Ecoregion.
- <u>Whether the habitat is man-made or natural:</u> The EVH will remain undeveloped and consists of the forested habitat described above.
- Whether the cleanup would significantly disturb the ecological functions of the habitat: A full cleanup of DU B to achieve arsenic cleanup levels would (1) remove herbs, shrubs, small trees, and some large trees, and (2) result in the direct loss of plant habitat and indirect loss of ecological services provided by terrestrial invertebrates. The secondary forest in the EVH has not been disturbed for decades.
- <u>The level of human activity in the area</u>: Institutional controls will be applied to prevent human exposure to contaminated soil remaining in place in no-action areas justified by the NEBA. Human exposure to contaminated soil in natural areas can be addressed via institutional controls such as fencing and signs that eliminate direct contact without disturbing soil.
- <u>The length of time for recovery of the habitat after cleanup:</u> If full soil cleanup were conducted in DU B, the recovery of the habitat to the current level of services would take more than 50 years. Conducting soil cleanup activities in DU B would result in a net loss of habitat and ecological services and potentially harm protected species in a suburban setting where habitat quality and quantity are already very limited. Conducting active soil remediation in DU B would result in substantial habitat loss with very little benefit to human health.

**Step 4:** Institutional controls should be required to help enhance and protect the area of interest. The purpose of institutional controls would be to demonstrably limit any future development or

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land use activities and reduce the risk of present or future releases or migration of the hazardous substance(s) located at the site (e.g., erosion from land clearing).

- To prevent people from accessing the EVH, signage will be posted about hazards from arsenic in the soil on or near all property fences that border the entire EVH area.
- Hazardous substances are currently sequestered within the soils onsite. The presence of a dense root structure associated with the mature forest vegetation supports soil stabilization and aids in reducing overall erosion potential throughout the property. The risk of migration of such substances is minimized through retention of the forested habitat.
- The intent of the institutional controls would be to preserve the EVH by restricting future development and human activities in the designated area. If those institutional controls are proposed to be lifted, then the original cleanup levels assigned to the site would apply.
- To ensure that such man-made barriers are maintained, an environmental covenant shall be filed with the appropriate local jurisdiction. The covenant will include restrictions on intrusive activities in the EVH and an annual monitoring and maintenance plan for fencing and signage. Additionally, the monitoring and maintenance plan will include annual sweeps of the entire EVH area to remove debris and invasive plant species.

### Additional Depth-Weighted Exposure Adjustment

Table 1 presents the depth-weighted exposure adjustment (DWEA) concentrations at each location in DU B. Of the 24 sample locations in DU B, only sample location 59B exceeds the MTCA Method A arsenic cleanup value of 20 milligrams per kilogram (mg/kg) after applying the DWEA. Based on the conclusion that there is no impact on plants, soil invertebrates, and wildlife at sample location 59B with the greatest arsenic concentrations (Ecology, 2025; SoundEarth Strategies, 2025) in the EVH, it is assumed that there are no impacts to plants, soil invertebrates, and wildlife at site locations with arsenic concentrations of a similar or lesser magnitude.

Sample ID	DWEA (mg/kg)	Sample ID	DWEA (mg/kg)
1B	16.75	40B	12.75
2B	11.07	41B	9.68
3B	7.20	42B	15.45
4B	16.05	43B	12.22
5B	10.36	44B	11.61
6B	11.19	45B	8.86
7B	14.87	54B	10.70
8B	6.63	55B	11.21
9B	6.48	56B	6.81
10B	12.76	57B	12.75
29B	7.74	58B	17
30B	5.16	59B	22.3

Table 1Calculation of Depth-Weighted Exposure Adjusted Arsenic Concentrations in DU B

#### NOTES:

Cells highlighted in blue exceed MTCA Method A cleanup level.

Adjustment factors of 0.3, 0.55, 0.1, and 0.05 applied to 0-to-6-inch, 6-to-12-inch, 12-to-24-inch, and 24-to-36-inch sample intervals, respectively.

# **References**

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