

Eagles Nest Management Plan

Proposed development at Lot 26
Gray Avenue and Ross Drive, UBC

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Submitted to:

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Corporate Information and Contacts

The following Diamond Head Consulting staff performed the site visit and prepared the report. All general and professional liability insurance and individual accreditations have been provided below for reference.

If the recommendations of this report are implemented as described, the development will not be in contravention of Section 34(b) of the Wildlife Act.



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1.0 Introduction

This Eagles Nest Management Plan is intended to inform construction of the new residential development (Lot 26) on the corner of Gray Avenue and Ross Drive at the University of British Columbia South Campus. A bald eagle nest is located approximately 160 m west of the proposed development site. This nest is legally protected under the British Columbia Wildlife Act, 1996. Under this Act:

“It is an offence to possess, take, injure, molest or destroy a bird or its eggs, or the nests of birds when occupied by a bird or egg. In addition, the nests of all species of eagles and herons, as well as ospreys, peregrine falcons, gyrfalcons, and burrowing owls are protected year-round, whether or not the nest is in use.”

Current best practices are referenced to guide proposed development in the vicinity of the nest site. These best practices include Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia and Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia (2013), which are published by the BC Ministry of Environment (MoE). This management plan is based on these current best practices, the history of development in the area, and the specific conditions observed at the site by professional biologists from Diamond Head Consulting.

2.0 Site Assessment

2.1 Nest and Surrounding Forest Description

The eagle nest is located close to the top of a large Douglas-fir (*Pseudotsuga menziesii*) tree, approximately 125 cm in diameter and 41 m in height, located on Ross Drive, between Birney Avenue and the UBC Farm access road. The tree is located 9 m from the sidewalk and appears healthy with no signs of structural instability. The nest itself is approximately 120 cm across and 50 cm deep, and was constructed close to the main stem at a natural crotch of large branches approximately 8 m down from the top of the tree.

This nest was built sometime before 2014 and was added as an inactive nest to the Stanley Park Ecology Society's (SPES) Vancouver Bald Eagle Update 2014 report¹. At the time, the nest was considered “a relatively new nest which is believed to have been established by the breeding pair that abandoned the nearby Wesbrook nest.” It is possible that the pair of eagles may have had a second nest in the territory and decided to lay their eggs there instead. Most bald eagle pairs have more than one nest and will

¹ Stanley Park Ecology Society. 2014. Urban Bald Eagles in Vancouver. Retrieved June 30th, 2017 from <http://stanleyparkecology.ca/conservation/urban-wildlife/bald-eagles/>. Note this link is no longer active and the report is no longer available on the SPES website. Please contact the Stanley Park Ecology Society or Diamond Head for a copy.

often switch nests from year to year². No recent eagle observation data from SPES or the Hancock Wildlife Foundation was available to confirm or deny this.

The nesting tree is located in a linear band of forest that is between Ross Drive and the UBC Farm. The surrounding area to the north and east is largely developed with high density commercial and residential buildings, playing fields, and cleared lands. The UBC Farm, which includes various fields with scattered small shrub and tree areas, is located south of the nest tree. Fragmented tree stands remain in this area, with a larger forest patch (approximately 100 ha) located 200 m to the northwest.

The patch of forest that contains the nest is ~1800 m² and comprises of six large Douglas-firs that are 40-42 m tall and 60-140 cm in diameter. There is a suppressed layer of 10-15 m tall western redcedar (*Thuja plicata*), Douglas-fir, big-leaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), and cherry (*Prunus sp.*). The understory includes fragmented patches of salal (*Gaultheria shallon*), red huckleberry (*Vaccinium parvifolium*), and bracken fern (*Pteridium aquilinum*). Invasive English holly (*Ilex aquifolium*) and scotch broom (*Cytisus scoparius*) were also noted.

The surrounding mature tree stands are similar in species composition and structure. There is a 1500 m² stand located about 20 m to the south, by an inactive road and temporary power station. To the east, the closest forest patch is 55 m away. These stands support a moderate density of mature Douglas-fir, with a codominant layer of mostly 15-30 m tall western redcedar, Douglas-fir, and big-leaf maple.

2.2 Nest Coning

Due to the ongoing construction and development activities in close proximity to this nest, the eagles nest was coned on September 14, 2022, at the recommendation of the raptor expert at the Ministry of Forests and the Hancock Wildlife Foundation. A wildlife permit for the nest coning was granted by the Province on September 2, 2022. This permit expires September 15, 2024. **The cone must be removed between August 1st and September 15th, 2024.** If noisy construction is still ongoing by September 2024, an application will need to be made to the province to extend the length of time the cone can remain in place.

² Moul, I., and T. Martin. 2010. Bald Eagle Nesting Results: Comox Valley, Vancouver Island. Federation of BC Naturalists, Wildlife Tree Stewardship (WiTS) Local Area Report 2010:2. Retrieved July 7, 2017 from <http://www.wildlifetree.ca/docs/reports/ComoxValleyEagleReport.pdf>. Note this link and website are inactive.



View of the nest tree and surrounding vegetation



View of the coned nest

2.3 Site Description – Development Property

A development proposal has been submitted to UBC Campus + Community Planning to develop Lot 26, located on the corner of Gray Avenue and Ross Drive (Figure 1). The lot is currently cleared and mostly vacant, except for the presentation and sales center located at the southeast corner of the property. The proposed development consists of one multi-residential tower and 11 townhomes. Vegetation on the property is limited to grasses and herbaceous species that were planted to reduce erosion.

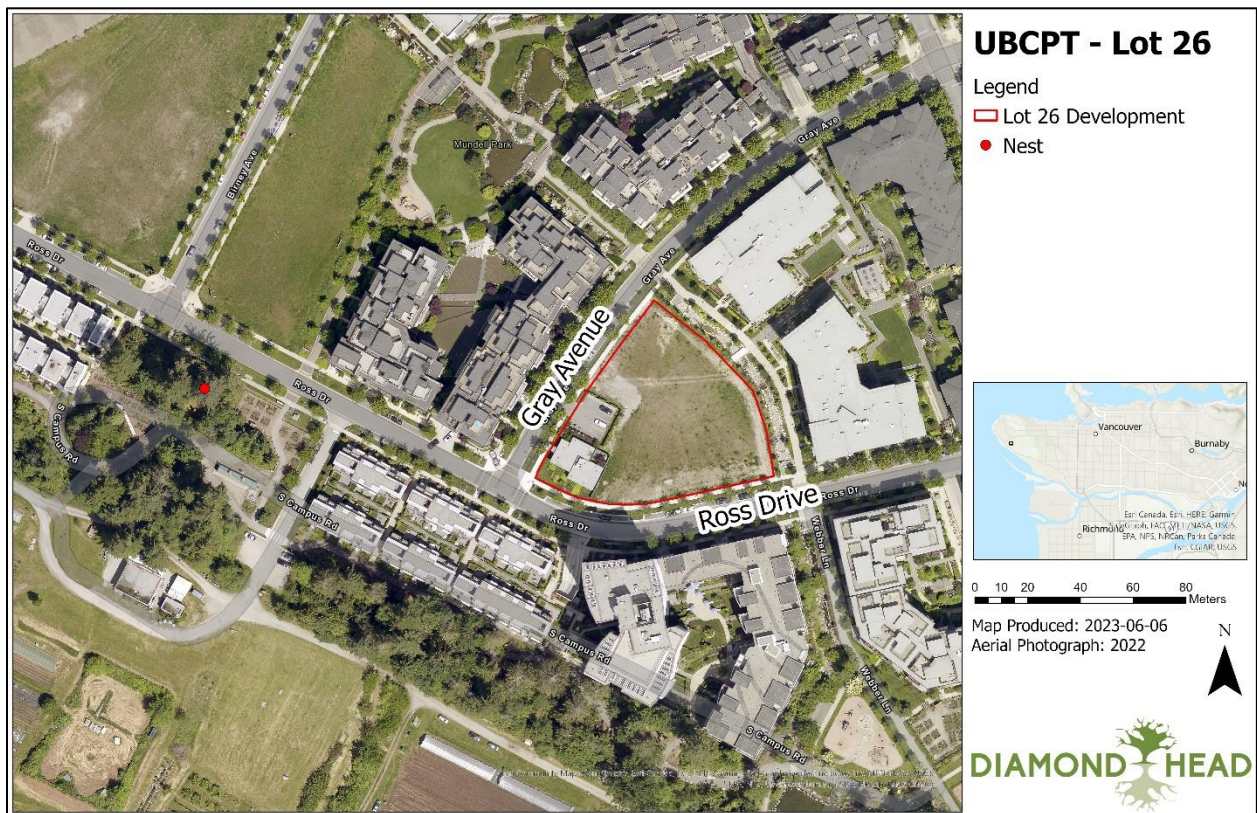


Figure 1. Aerial overview of Lot 26 and the location of the eagles nest.



View of the nest from the southeast corner of Lot 26



View of Lot 26 and adjacent buildings



View of Lot 26 and adjacent buildings



View of Lot 26 and adjacent buildings



Figure 2. Proposed site plan for the Lot 26 development as per application submitted to UBC Campus + Community Planning.

2.4 Background Noise Monitoring

A site visit was conducted on May 31, 2023 to inform this management plan. No eagle activity was observed close to the nest and no active construction was taking place. Noise levels were recorded using a decibel meter at ground level to collect background data. This monitoring provides a record and understanding of baseline background noise conditions prior to the start of planned construction activities at the development site.

Table 1 details noise activity, observed noise levels (dB), and nest or eagle activity. Noise levels were generally low, with the loudest noises coming from vehicles. Ambient noise levels were slightly louder at the nest compared to Lot 26, likely attributed to the busier road and neighbourhood traffic.

Table 1. Baseline background noise monitoring and observed eagle activity.

Location	Noise (dB)			Eagle & Site Activity
	High	Low	Average	
At nest	51	68	59.5	No eagle activity, local noise and traffic.
At Lot 26	43	60	51.5	No eagle activity, local noise and traffic.

3.0 Management Recommendations

The following are a list best management practices (BMPs) that are recommended for the UBC eagles nest. Due to the coning of the nest, eagle nesting activity will not be present at the eagles nest until September 2024.

1. Retain existing habitats and features; minimize loss of natural vegetation.

The minimum recommended buffer of undisturbed natural vegetation for urban Bald Eagle nests is 1.5 tree lengths, which is equivalent to 60 m for this tree. Much of the area that is within the 60 m radius has been historically cleared of vegetation. Lot 26 is located outside of this vegetative buffer and will not cause any impacts to this setback area.

2. Protect raptor nest sites.

Bald eagles are considered tolerant of human activity with a moderate to high ability to co-exist. Provincial BMPs recommend a no disturbance buffer be established during the active nest season. This includes the 60 m vegetated buffer, as well as an additional noise buffer of 100 m from the vegetated buffer (Figure 3). The west side of this site is within the 160 m noise buffer. The vegetated buffer is in effect year-round, while the noise buffer is in effect during the breeding season.

Best Management Practices recommend that no construction take place in the noise buffer during the breeding season. Most eagles return to the Lower Mainland from Alaska around mid-September and stay to the end of August, with the breeding and nesting season occurring January 1 to August 31. The length of this time makes it unfeasible to complete a development in the 1.5 months that are outside of

this timeframe, hence noise monitoring of the construction activity during the breeding season is required.

Noise levels from construction activities vary depending on the type of work and the equipment used. The characteristic of the noise and its duration also affect how it will impact wildlife. This site currently experiences low to moderate noise disturbance from regular neighbourhood activities such as people, vehicles, and landscaping activities. Typical noise levels for construction equipment are between 75 and 90 dBA³. Examples of loud construction activities include: pile drivers, jack hammer, rock drills, and blasting.

Many eagles nesting in urban areas in the Lower Mainland have been tolerant of loud noises during breeding. Nesting eagles have been shown to be resistant to noise disturbances as loud as 94 dBA; however, all individual birds have unique tolerance levels, and the long-term impacts of noise disruption on eagle health and productivity are largely unknown⁴. The types of construction activity that cause loud (>90dBA) and sudden noises should be avoided within the noise buffer during the breeding and nesting season (January 1 to August 31), unless a QEP is onsite to monitor the impacts of the noise on the eagles' behaviour.

The nest is currently coned and therefore loud construction can occur without a QEP monitor up until September 2024 when the cone is to be removed. If loud construction is to occur past this date, a new wildlife permit should be applied to extend the nest coning or a QEP monitor must be on site to monitor the noise during the breeding season.

If development continues after the nest cone is removed, on site monitoring is recommended with the frequency of monitoring to be determined upon the construction activities. A monitoring report must be produced by the Qualified Environmental Professional (QEP). The QEP monitor will have the authority to require the contractor to stop work if construction activity is deemed to be disturbing the nesting activity of the bald eagles, as well as to increase the frequency of monitoring if needed.

³ Hanson, CE; Towers, DA; Meister, LD. 2006. Transit Noise and Vibration Impact Assessment. US Department of Transportation Federal Transit Administration: FTA-VA-90-1003-06

⁴ Johnson, NP. 1990. Nesting bald eagles (*Haliaeetus leucocephalus*) in urban areas of southeast Alaska: assessing highway construction and disturbance impacts. Transportation Research Record 1279

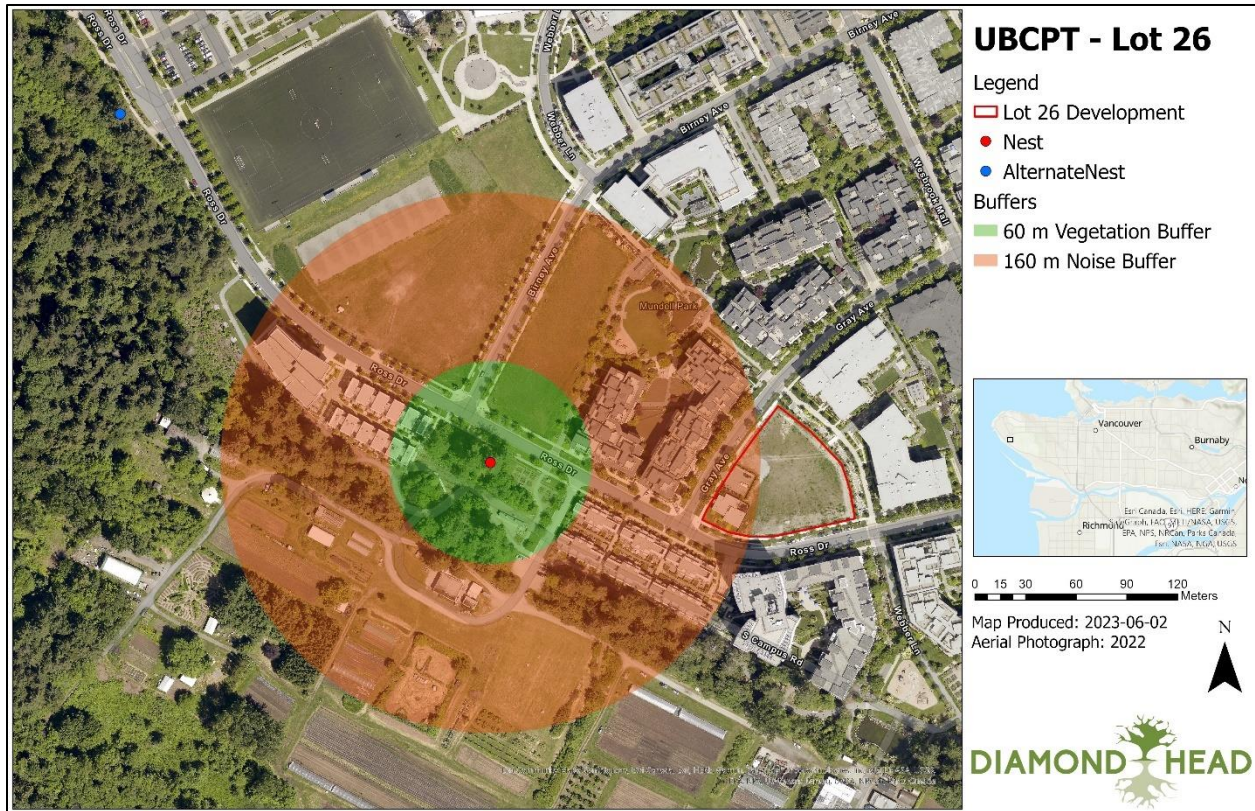


Figure 3. Lot 26 and the 60 m vegetation buffer and 160 m noise buffer for the UBC eagles nest.

3. Protect raptor roosting/perching sites and foraging areas.

Nesting eagles tend to roost in close proximity to their nest site. Existing trees within the vegetation buffer should be protected and tree protection measures (including an adequate root protection zone) should be in place to ensure trees and their roots are not damaged during demolition and construction. No changes to any nearby trees is required for this development.

4. Avoid disturbance of sensitive habitats during and after development.

New trails, buildings, and roads should be located as far as possible from the nest site, as well as any roosting or foraging areas. As this nest site has already experienced significant encroachment of human activities and human development, care should be taken to avoid any further disturbance beyond the proposed development. After development, machinery, people, and pets should be kept away from nesting, brooding and rearing areas. No changes to any nearby trees or natural areas are required for this development.

5. Manage, restore, or enhance raptor habitat and features.

There are areas within the vegetation buffer (i.e., 60 m from the nest) that have been cleared of vegetation during past development around the nest. Any areas that are not being developed, particularly within the vegetation buffer, should be restored back to native plant communities. No changes to any nearby trees or natural areas are required for this development.

6. Minimize the risk of accidental mortality.

Efforts should be made to reduce the probability of electrocution from power lines and collisions with wires, windows and sundeck enclosures. Transmission lines should be located underground where possible; large floats and other markers should be used to make any exposed lines more visible. Use non-transparent materials for sundecks and tinted films or screens on windows and clear panels.

7. Avoid the use of pesticides and herbicides.

Use integrated pest management strategies and avoid the use of chemical pesticides. Residents in this neighborhood should be encouraged to use traps instead of poisons to control rodents.

8. Educate the public about the importance of maintaining raptors in urban and rural environments.

Use interpretive materials to make the public aware of the need to protect raptor habitats and to prevent disturbance to the nest site. Local residents and landowners should be informed about the eagles near their property and encouraged to observe and record their activities.

4.0 Conclusions & Recommendations

The eagles nest on the corner of Ross Drive and Birney avenue has been monitored by DHC since 2017. Due to ongoing construction activities, the nest was coned at the recommendation of the raptors expert from the Ministry of Forests and the Hancock Wildlife Foundation. A wildlife permit was granted by the Province to cone the nest which took place in September 2022. **The permit for the nest coning expires September 15, 2024 and the cone must be removed between August 1st 2024 and September 15th, 2024 (unless an extension of the nest coning is approved).**

The recommended Best Management Practices for protecting this nest include the protection of a 60 m vegetated buffer, and restrictions on construction activities within the noise buffer (160 m) during the breeding season if the nest becomes active.

While the eagles nest is coned, breeding and nesting activity will be absent from the nest. Construction at Lot 26 can occur without a QEP monitor. All loud construction activities (e.g. pile driving, jack hammering, blasting) should be completed while the nest is coned. **It is recommended that a QEP monitor the nest and the development site to collect baseline data of the construction activities and noise levels. This monitoring should occur at a frequency of one visit per month during the breeding season.**

Upon expiration of the wildlife permit, the nest cone must be removed between August 1st and September 15th, 2024. **If loud construction noises are expected to continue past September 15th, it is recommended that a wildlife permit application be submitted to the Province to extend the nest coning.** The wildlife permit application to extend the coning should be submitted by June 2024 to ensure the application can be processed before the previous wildlife permit expires and the cone must be removed.

If the cone is removed and construction continues, it is expected that an eagle pair will likely reoccupy the nest for the breeding season of 2025. Monitoring sessions should be completed in December/January to determine whether the nest is active. **If the nest is active, a QEP monitor must be onsite to monitor the construction activity and noise levels for the duration of the breeding season.** Monitoring should occur bimonthly (twice a month), with additional visits for louder activities as required. The QEP will have the authority to require the contractor to stop work if construction activity is deemed to be disturbing the nesting activity of the bald eagles. Nest monitoring must continue until the construction is complete or until the eagles have completed nesting. **If construction activity is deemed to be disturbing nesting activity, the contractor will be required to stop work immediately.**

Appendix A – Limitations

This document was prepared by **Diamond Head Consulting Ltd**. Should this report contain an error or omission then the liability, if any, of Diamond Head Consulting Ltd should be limited to the fee received by Diamond Head Consulting Ltd for the preparation of this document. Recommendations contained in this report reflect Diamond Head Consulting Ltd.'s judgment in light of information available at the time of study. The accuracy of information provided by Diamond Head Consulting Ltd is not guaranteed.

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