

Attachment D. Raptor Nest Survey Report

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2022 Raptor Nest Survey Report for the Carriger Solar, LLC Project

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October 28, 2022

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Executive Summary

Tetra Tech, Inc. (Tetra Tech) conducted raptor nest surveys at the Carriger Solar, LLC Project (Project) in March and May 2022 as part of agency approved baseline survey efforts on behalf of Cypress Creek Renewables, LLC. Surveys were completed from the ground when raptors would be actively incubating eggs or tending to young. Surveys focused on locating stick nest structures in suitable raptor nesting habitat within the proposed Project Lease Boundary and 0.5-mile buffer (Survey Area). Efforts were made to minimize disturbance to nesting raptors; the biologist approached nests cautiously and maintained the greatest possible distance at which the species could be identified, with distances varying depending upon nest location and behavior of nesting birds. The biologist recorded the location of any concentrations of prey for golden eagles (*Aquila chrysaetos*) such as ground squirrel colonies, herds of big game, and carrion, and incidental observations of eagles or Washington Department of Fish and Wildlife (WDFW) Priority Wildlife Species.

Eighteen nests were detected during the surveys, including one in-use Swainson's hawk (*Buteo swainsoni*) nest, two in-use red tailed hawk (*Buteo jamaicensis*) nests, two in-use great horned owl (*Bubo virginianus*) nests, two in-use common raven (*Corvus corax*) nests, and 11 small inactive nests with unknown species determinations. All of the inactive nests were small and not consistent with the size of a golden eagle or ferruginous hawk (*Buteo regalis*) nest.

Suitable nesting habitat within the Survey Area was primarily limited to conifer forests, riparian shrub and woodlands, and utility structures. Sixteen of the nests were in trees (12 in broadleaf trees, three in conifer trees, and one in a snag) and two were on utility structures. No cliffs or rock outcrops were observed within the Survey Area.

No eagles or federally listed threatened or endangered species were documented during the raptor nest surveys. A ferruginous hawk was observed perching on top of a small tree in the southern portion of the Project Lease Boundary during the initial survey. The ferruginous hawk is state endangered and thus, also a WDFW Priority Species. The ferruginous hawk was likely migrating through the area because no breeding behavior was observed, and the Project is outside their breeding range. No golden eagle prey concentrations were observed but a small herd of mule deer (*Odocoileus hemionus*) and two California ground squirrels (*Spermophilus beecheyi*) sign (scat and tracks) were observed in the Project Lease Area.

Raptors and other migratory birds are protected under the Migratory Bird Treaty Act (MBTA). Bald and golden eagles are also protected under the Bald and Golden Eagle Protection Act (BGEPA). The recommended seasonal buffer to protect active nest sites of common raptors is generally 0.25 to 0.5 miles. However, there are many factors that wildlife agencies consider when evaluating spatial and seasonal buffers such as the type and duration of the proposed activity, the position of topographic and vegetative features, the sensitivity of the affected species, the habituation of breeding pairs to existing activities in the proposed project area, and the local raptor nesting density. Tetra Tech recommends coordination with WDFW and USFWS to develop Project-specific spatial and temporal

non-disturbance buffers around active raptor nests, and to determine the types of construction activities restricted within them. Recommended measures to avoid and minimize adverse impacts to breeding raptors are provided in the report

Table of Contents

1.0	Project Background, Setting and Purpose	1
2.0	Regulatory Framework.....	1
2.1	Endangered Species Act	1
2.2	Bald and Golden Eagle Protection Act.....	1
2.3	Migratory Bird Treaty Act	2
2.4	Washington Threatened and Endangered Species.....	2
2.5	WDFW Priority Habitats and Species List.....	3
2.6	Washington State Environmental Policy Act (SEPA)	3
2.7	Critical Area Ordinance.....	3
3.0	Methods.....	4
3.1	Agency Coordination and Review of Existing Data	4
3.2	Field Surveys.....	4
4.0	Results and Discussion	7
5.0	Recommendations	10
6.0	References.....	11

List of Tables

Table 1.	2022 Raptor Nest Survey Results.....	9
Table 2.	Recommended Nest Buffer Zones for Raptors Occurring in the Survey Area	10

List of Figures

- Figure 1. 2022 Raptor Nest Survey Results with Aerial Background (Confidential)
- Figure 2. 2022 Raptor Nest Survey Results with Public and Protected Land (Confidential)
- Figure 3. 2022 Raptor Nest Survey Results with Topographical Background (Confidential)

List of Appendices

- Appendix A. Agency Meeting Notes and Correspondence
- Appendix B. Raptor Nest Photos (Confidential)

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1.0 Project Background, Setting and Purpose

Cypress Creek Renewables, LLC (CCR) plans to develop the Carriger Solar Project (Project) located in Klickitat County, Washington (Figures 1,2,3,4). As part of its environmental due diligence, CCR contracted Tetra Tech, Inc. (Tetra Tech) to conduct raptor nest surveys for the Project during the 2022 breeding season. The primary objective of the surveys was to inventory raptor nests within the Project Lease Boundary and 0.5-mile buffer (Survey Area) to support Project permitting and inform development of design constraints and potential avoidance and minimization measures. Because the U.S. Fish and Wildlife Service (USFWS) and the Washington Department of Fish and Wildlife (WDFW) have not issued guidance pertaining to raptor nest surveys for solar projects, the survey approach was based on wind energy guidelines (USFWS 2012) and in coordination with WDFW (Appendix A).

The Project is located within the Columbia Plateau Region (Clarke and Bryce 1997). The topography within the Project Lease Boundary is relatively flat with gentle rolling hills. Most of the habitat has been converted to agriculture. Land use within the Project Lease Boundary consists primarily of farming and ranching activities, with land cover being predominantly cultivated crops. A detailed analysis of wildlife habitat/vegetation communities can be found under separate cover in the Habitat and General Wildlife Survey Report (Tetra Tech 2022).

2.0 Regulatory Framework

This section provides a brief background on federal, state and local regulations pertaining to nesting raptor species at the Project.

2.1 Endangered Species Act

The Endangered Species Act (ESA) establishes protections for fish, wildlife, and plants that are listed as threatened or endangered; outlines the process for adding species to and removing them from the list of threatened and endangered species, requires the preparation and implementation of plans for their recovery; provides for interagency cooperation to avoid take of listed species and for issuing permits for otherwise prohibited activities; provides for cooperation with States, including authorization of financial assistance; and implements the provisions of the Convention on International Trade in Endangered Species of Wild Flora and Fauna. Under the ESA imperiled animals are protected wherever they occur, but endangered plants are protected only on federal lands. No federally listed threatened or endangered raptors are known or expected to occur within or near the Project (USFWS 2022).

2.2 Bald and Golden Eagle Protection Act

Under authority of the Bald and Golden Eagle Protection Act (BGEPA; 16 USC 668–668d), bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are afforded legal

protection. The BGEPA prohibits the take, sale, purchase, offer of sale, purchase or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof (16 USC 668). The BGEPA defines take to include “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb,” and includes criminal and civil penalties for violating the statute (16 USC 668c). The term “disturb” is defined as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury to an eagle, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (50 Code of Federal Regulations [CFR] 22.3).

Under 50 CFR 22.26, eagle take permits (ETPs) are available for incidental take associated with otherwise lawful activities (USFWS 2016). Although ETPs are not required to operate a solar facility, an operator is liable if an eagle is taken without an ETP. ETPs are available for take of both bald and golden eagles and their nests and can be issued for up to 30 years contingent upon 5-year reviews. Issuance of an ETP typically involves consultation with USFWS, submission of an application, and because it is a federal action, it requires National Environmental Policy Act compliance.

2.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements the United States’ obligations under four international treaties for the protection of more than 1,000 species (50 CFR 10 and 21) of migratory birds, including eagles and other raptors, waterfowl, shorebirds, seabirds, wading birds, and passerines. The MBTA is administered by the USFWS, which maintains a list of all species protected by the MBTA (50 CFR 10.13). The MBTA makes it unlawful “by any means or in any manner, to pursue, hunt, take, capture, kill ... possess, offer for sale, sell ... purchase ... ship, export, import ...transport or cause to be transported... any migratory bird, any part, nest, or eggs of any such bird ...” except as otherwise permitted under the regulations (16 USC 703). The word “take” is defined by regulation as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect” (50 CFR 10.12). There has been varying guidance from U.S. District Courts on the prohibition of incidental take under the MBTA. The USFWS issued a Final Rule which went into effect on December 3, 2021, determining that incidental take is prohibited under the MBTA, subject to District Court rulings. Currently, no permits are authorized to allow incidental take under MBTA.

2.4 Washington Threatened and Endangered Species

Washington provides protection for certain species under the Revised Code of Washington (RCW) 77.12.020, which states that the Washington Fish and Wildlife Commission (the policy-setting arm of the Washington Department of Fish and Wildlife [WDFW]) has the authority to designate species of wildlife as endangered or as protected species, which also includes threatened and sensitive species. Species classified as endangered are designated in Washington Administrative Code (WAC) 220-610-010. Species classified as threatened or sensitive are designated in WAC 220-200-100. Additionally, WDFW has designated species as candidates for state listing (WDFW 2022a).

The Washington Endangered Species Act (WAC 232-12-011) prohibits taking (meaning to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of species protected under the laws. Projects permitted through the State Environmental Policy Act (SEPA) process are required to abide by the State Endangered Species Act, assess impacts to state-listed species, and obtain WDFW approval of measures to avoid and minimize impacts to special-status species and habitats. The ferruginous hawk (*Buteo regalis*) and northern spotted owl (*Strix occidentalis*) are the only raptor species classified as state endangered or threatened (WDFW 2019; WAC 220-610-010 and WAC 220-200-100).

2.5 WDFW Priority Habitats and Species List

WDFW's Priority Habitat and Species (PHS) database includes habitats and species the agency deems to be of priority for conservation and management. Priority species are those requiring protective measures or management to ensure their future survival because of low population numbers, sensitivity to habitat alteration, tendency to form in vulnerable groups (e.g., grouse leks, heron rookeries, bat colonies), or because they are of commercial, recreational, or tribal importance. Cities and counties use PHS for permit evaluation purposes and to fulfill land use planning requirements under the Growth Management Act (GMA) and Shoreline Management Act. On non-federal lands, the GMA is Washington's primary regulatory tool to protect rare and threatened species from development impacts (WAC 365-190-130). There are seven raptor species on the PHS List (WDFW 2008): burrowing owl (*Athene cunicularia*), ferruginous hawk, flammulated owl (*Psilosops flammeolus*), golden eagle, northern goshawk (*Accipiter gentilis*), northern spotted owl, and prairie falcon (*Falco mexicanus*).

2.6 Washington State Environmental Policy Act (SEPA)

SEPA requires state and local governments to identify possible environmental impacts before making decisions. The SEPA process is designed to work with other regulatory processes to provide a comprehensive evaluation of probable impacts on all elements of the environment. State and local agencies determine whether a project or proposal needs environmental review under SEPA. Any governmental action may be conditioned or denied pursuant to SEPA (Ecology 2022). The SEPA process requires that impacts to special-status species and habitats and evaluated and WDFW will review proposed projects to identify potential impacts to fish, wildlife, and their habitats.

2.7 Critical Area Ordinance

Under Washington State's GMA, all cities and counties are directed to adopt critical areas regulations. Counties and cities are required to include the best available science in developing policies and development regulations to protect the functions and values of critical areas (RCW 36.70A.172). Klickitat County's Critical Areas Ordinance (CAO) was developed to comply with the requirements of the GMA, and was most recently updated on August 6, 2013, consistent with the GMA periodic review requirement in RCW 36.70A.130. The provisions of the CAOs apply to all activities (unless exempted) in unincorporated Klickitat County that require permits or land use approves from the County. Chapter II of the Klickitat County CAO defines critical areas as including

the following areas and ecosystems: 1) wetlands, 2) areas with a critical recharging effect on aquifers used for potable water, 3) fish and wildlife habitat conservation areas, 4) frequently flooded areas, and 5) geologically hazardous areas.

As described in Chapters II and IV of the Klickitat County CAO, critical wildlife habitat conservation areas include the following: 1) areas with which known federal or state endangered, threatened, or sensitive species have a primary association, where a primary association consists of areas in which there is a high relative density or species richness and the area is significant for providing breeding habitat, winter range, or movement corridors; 2) habitats of local importance (i.e., a habitat in which a species of local importance has a primary association); and 3) areas designated by the WDNR as state natural area preserves and natural resource conservation areas. Critical fish habitat conservation areas include the following: 1) naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat; 2) waters of the State as defined in Title 222 WAC; and 3) lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.

The CAO specifies required steps to avoid, minimize, or compensate for adverse impacts upon the functions and values of critical areas. In some cases, the CAO specifies the required mitigation, such as providing for buffer widths. In other instances, the applicant will develop mitigation. Where a project is proposed within a critical wildlife/fish habitat conservation area, and the habitat functions and values are likely to be impaired by the project, a habitat management plan is required.

3.0 Methods

3.1 Agency Coordination and Review of Existing Data

CCR and Tetra Tech met with WDFW via video meeting on March 30, 2022, to introduce the Project and discuss completed and planned biological surveys. At the meeting, WDFW concurred with the raptor nest survey approach and acknowledged that no significant raptor issues were anticipated, and that sensitive raptor species were not expected to nest in the Survey Area (Appendix A).

WDFW PHS data received in December 2021 had no nest records of raptors tracked by PHS within 2 miles of the Project Lease Boundary (WDFW 2021). The PHS program does not track bald eagle nests, but nesting bald eagles are rare or absent from the Columbia Basin and southeastern Washington (WDFW 2022b) and based on a lack of suitable habitat conditions (Buehler 2020), bald eagle nests were not expected to be observed during the surveys.

3.2 Field Surveys

Surveys focused on locating stick nest structures in suitable raptor nesting substrate within the Survey Area¹. The surveys were conducted by a Tetra Tech biologist experienced in identifying raptor nests found on the eastern side of the Cascade Range. The biologist performed two rounds of

¹ As noted in Section 1.0, the Survey Area is defined as the Project Lease Boundary plus a 0.5-mile buffer.

ground-based surveys to facilitate a complete inventory and accurate nest occupancy determinations. The first survey round was conducted March 29-30, 2022, during the early nesting period for most raptors in the region (when most breeding pairs exhibit courtship, nest-building, and/or incubation behaviors), and prior to the emergence of foliage on broadleaf trees. The second survey was conducted May 4 and 9-10, 2022, when most raptors in the region are engaged in mid- to late-breeding season reproductive activities (e.g., brooding, feeding nestlings). The primary objective was to assess nest occupancy; clutch size, brood size, and number of fledglings was recorded when possible.

The biologist systematically searched raptor nest habitat within the Survey Area by vehicle and on foot. Nesting substrate within the Project Lease Boundary was investigated from public and private roads and on foot when additional inspection was necessary. The area between the Project Lease Boundary and the 0.5-mile buffer was searched by scanning suitable nesting habitat from public roads or from the Project Lease Boundary. Periodic stops were made to scan suitable habitat (e.g., trees, utility towers, and power poles) and examine nests with the aid of binoculars and a spotting scope. During the second survey round, the biologist checked the status of nests found during the initial survey round and recorded any new nests observed. To determine the status of a nest, the biologist made observations on the behavior of adults, presence of young, signs of nest building or refurbishment (e.g., fresh greenery, freshly broken ends on twigs used to build the nest, or a distinct layer of new material on top of older, weathered sticks), accumulation of down feathers or whitewash on the nest, or other signs that a nest was actively being used such as feathers, bird droppings, regurgitated pellets of bits of bone, fur and/or feathers, or prey remains at the base of the nest tree. Efforts were made to minimize disturbance to nesting raptors; the biologist approached nests cautiously and maintained the greatest possible distance at which the species could be identified, with distances varying depending upon nest location and behavior of nesting birds. Monitoring ceased if nesting raptors displayed any sign of agitation. The biologist also recorded the location of any concentrations of prey for golden eagles, such as ground squirrel colonies, herds of big game, and carrion, and incidental observations of eagles or PHS wildlife species. Although not raptors, common raven nests were recorded during the surveys because they could be used by nesting raptors during subsequent breeding seasons.

Data Collection

A tablet computer with ArcGIS mapping software and electronic data forms was used during the surveys to aid in navigation and record data. For each raptor nest, the following data were collected:

- **Nest Identification Number:** Corresponding with the coordinates of the site location.
- **Raptor Species:** If identified, the species was recorded. If the species using the nest could not be determined, it was recorded as unknown.
- **Adult Present:** Proximity of the adult to the nest (e.g., on nest, nearby, or unknown).
- **Eggs or Young:** Number of eggs or young visible from the ground.

- **Nest Size:** Classified as large or small; small nests were those estimated by the biologist as having a diameter of less than 24 inches, comprised of smaller sticks, and with other characteristics typical of nests used by smaller raptors and not by eagles. Large nests were those estimated by the biologist as having a diameter of 24 inches or greater, comprised of larger sticks, and with other characteristics typical of nests used by eagles and other large raptors.
- **Nest Substrate:** Structure in which nest was located (e.g., broadleaf tree, cliff, artificial nest structure, etc.).
- **Nest Height:** Height relative to the structure it was on (e.g., on top of transmission pole, 3/4 of height of tree).
- **Nest Status:** To assess nest status, the following terms were adapted from the USFWS Eagle Rule (USFWS 2016) and Postupalsky (1974):
 - **Inactive:** Defined by the absence of any adult, egg, or dependent young at the nest, or signs of building or adding to the nest in preparation for egg-laying. This term is specific to non-eagle nests.
 - **In-use nest:** The presence of eggs, dependent young, or adult on the nest, or signs of building or adding to the nest in preparation for egg-laying. This term applies to eagle and non-eagle nests.
 - **Alternate nest:** One of potentially several nests within an eagle territory that is not an in-use nest at the time of surveys. When there is no in-use nest, all nests in the territory are alternate nests. This term is specific to eagle nests.
 - **Unknown:** A nest not detected during the first round of surveys which may have gone undetected or been built subsequent to the survey, or a nest that is present but for which surveyors are unable to determine status (e.g., vegetation around the nest site obscured the view of nest, etc.). This term applies to eagle and non-eagle nests.
 - **No Longer Present:** A nest that was located during a previous survey but has subsequently been positively ascertained to be destroyed and no evidence of the nest remains. This term applies to eagle and non-eagle nests.
 - **Not Found:** A previously known nest that could not be located (e.g., road or access limitations), but that may still exist (not the same as “No Longer Present” above). This term applies to eagle and non-eagle nests.
 - **Not Surveyed:** A known nest that occurred outside of the given survey area, or that could not be surveyed due to other reasons (e.g., no landowner permission, the presence of nearby cattle, etc.). This term applies to eagle and non-eagle nests.

- **Failed:** A nest for which evidence indicates nest initiation (egg-laying), but the nest failed to produce any chicks to fledging age. This term applies to eagle and non-eagle nests.
- **Nest Condition:** To assess nest condition, the following criteria were used (Postupalsky 1974):
 - **Excellent:** Defined cup or nest bowl with a well-maintained rim; adult or young present.
 - **Good:** Nest bowl intact and rim defined; minor repair needed for nest to be used; margins of nest in loose configuration, minor slumping occurring.
 - **Fair:** Nest bowl intact and nest not dilapidated but needs significant repair in order to be used; material is slumping or sliding.
 - **Poor:** Loose structure of nest bowl still present; nest walls and side falling out; nest is in need of major repair to be used.
 - **Remnant:** Nest bowl not defined; scant material remaining and not usable unless fully rebuilt.
 - **Unknown:** The nest cannot be found, was not surveyed, or the nest is present, but because of its location, a determination cannot be made.
 - **Not Applicable:** Nest no longer present.

4.0 Results and Discussion

Eighteen nests were detected during the surveys, including one in-use Swainson's hawk (*Buteo swainsoni*) nest, two in-use red tailed hawk (*Buteo jamaicensis*) nests, two in-use great horned owl (*Bubo virginianus*) nests, two in-use common raven (*Corvus corax*) nests, and 11 small inactive nests with unknown species determinations (Table 1, Figures 1,2,3,4, Appendix B). All of the inactive nests were small and not consistent with the size of a golden eagle or ferruginous hawk nest. Nine nests were found during the first survey and nine additional nests were found during the second survey. Small inactive Nest 8 was present during the first survey but fell out of tree and was no longer present during the second survey. Because Nest 8 was no longer present, it is not depicted in the report figures.

Suitable nesting habitat within the Survey Area was primarily limited to conifer forests, riparian shrub and woodlands, and utility structures. Sixteen of the nests were in trees (12 in broadleaf trees, three in conifer trees, and one in a snag) and two were on utility structures (Table 1). No cliffs or rock outcrops were observed within the Survey Area.

No eagles or federally listed threatened or endangered species were documented during the raptor nest surveys. A ferruginous hawk was observed perching on top of a small tree in the southern portion of the Project Lease Boundary during the initial survey (Figures 1,2,3,4). The ferruginous

hawk is state endangered and thus, also a WDFW Priority Species. No breeding behavior was observed and because the Project is outside their breeding range, the ferruginous hawk was likely migrating through the area. Ferruginous hawk nesting territories are only known to occur in eastern Klickitat County (Hayes and Watson 2021).

Golden eagle habitat generally includes open to semi-open terrain where they can effectively find and capture prey (Katzner et al. 2020). Typical habitats are often associated with areas containing some topographic relief, such as rolling foothills and mountainous areas, but golden eagles also utilize flatter areas (e.g., sagebrush flats and agricultural fields). Golden eagles most often nest on cliffs or rock outcrops but may also nest in trees or on manmade structures where high-quality cliff sites are limited. Golden eagles primarily prey on leporid (e.g., hares and rabbits) and sciurid species (e.g., ground squirrels), but will also take other mammals, birds, and reptiles and can kill larger animals, including deer, bighorn sheep (*Ovis canadensis*), and domestic livestock (Bedrosian et al. 2017, Katzner et al. 2020). Golden eagles are opportunistic feeders and also eat carrion when available (Katzner et al. 2020). Deer and elk (*Cervus canadensis*) carrion can be an important food source for eagles especially in the winter when prey is less available (O'Connell and Kochert 2013). Sources of deer carrion include animals killed by winter exposure and those accidentally killed by motor vehicles, and as well as offal piles left from field dressed deer.

High-quality habitats for golden eagles are relatively undeveloped with abundant prey, predominantly sciurid and leporid species (Bedrosian et al. 2017; Katzner et al. 2020). No concentrations of golden eagle prey were observed during the surveys. The biologist did observe a small herd of mule deer (*Odocoileus hemionus*) and deer sign (scat and tracks) and California ground squirrels (*Spermophilus beecheyi*). The herd of four individual deer was located in the south-central portion of the Project Lease Boundary (Figures 1,2,3). Deer sign was observed in the riparian areas in the south-central portion of the Project Lease Boundary. Two individual California ground squirrels were observed in the northeast portion of the Project Lease Boundary. California ground squirrels live in underground burrows and form colonies of 2 to 20 or more animals.

The Project does not appear to contain any high-quality golden eagle foraging or nesting habitat, as it consists primarily of cultivated crops and livestock-modified grasslands, but golden eagles may hunt for California ground squirrels and other prey within these land cover types or potentially feed on roadkill within the Project Lease Area.

Swainson's hawk, red-tailed hawk and great horned owl were the only raptor species observed nesting in the Survey Area. All three species use a wide range of nesting habitats and are common in eastern Washington. Although these species have no special status, they are protected by the MBTA.

Table 1. 2022 Raptor Nest Survey Results

Nest ID	Species	First Round Nest Status	Second Round Nest Status	Nest Size	Nest Substrate	Pertinent Survey Notes
7	Common raven	Inactive	In-use Nest	Small	Broadleaf Tree	
9	Common raven	In-use	In-use Nest	Small	Broadleaf Tree	
5	Great horned owl	In-use	In-use Nest	Small	Broadleaf Tree	Agitated adult observed near the nest during the second round. Surveyor attempted to observe nest from a safe distance but was unable to see nest through foliage.
104	Great horned owl	Unknown	In-use Nest	Small	Broadleaf Tree	Two fledglings observed on limbs next to nest during the second round.
1	Red-tailed hawk	In-use	In-use Nest	Small	Broadleaf Tree	The surveyor unable to see nest during the second round due to leaf out; the in-use status was inferred by the presence of an adult perched within the stand of poplars where the nest is located.
2	Red-tailed hawk	In-use	In-use Nest	Small	Manmade Structure	Nest located on utility structure.
105	Swainson's hawk	Unknown	In-use Nest	Small	Conifer Tree	
3	Unknown	Inactive	Inactive	Small	Broadleaf Tree	
4	Unknown	Inactive	Inactive	Small	Broadleaf Tree	
6	Unknown	Inactive	Inactive	Small	Broadleaf Tree	
8	Unknown	Inactive	No Longer Present	Small	Broadleaf Tree	Nest fell out of tree between the first and second round.
100	Unknown	Unknown	Inactive	Small	Broadleaf Tree	
101	Unknown	Unknown	Inactive	Small	Conifer Tree	
102	Unknown	Unknown	Inactive	Small	Broadleaf Tree	
103	Unknown	Unknown	Inactive	Small	Snag	
106	Unknown	Unknown	Inactive	Small	Conifer Tree	
107	Unknown	Unknown	Inactive	Small	Manmade Structure	Nest located on utility structure.
108	Unknown	Unknown	Inactive	Small	Broadleaf Tree	

5.0 Recommendations

Natural resource agencies often recommend that non-disturbance buffers be placed around active (in-use) raptor nests to avoid potential adverse impacts to nesting birds. The USFWS and WDFW have not issued guidance pertaining to raptor nest setbacks for solar projects. Although WDFW has provided management recommendations for priority bird species that include non-disturbance buffers for some priority species (Larsen et al. 2004), WDFW has not issued guidance pertaining to common raptors. Tetra Tech asked WDFW for recommended raptor nest buffers raptor nests during the agency meeting on March 30, 2022, and in a follow up email sent on June 21, 2022 (Appendix A). However, at the time this report was produced, no buffer recommendations have been provided by WDFW.

The recommended seasonal buffer to protect active nest sites of common raptors is generally 0.25 to 0.5 miles (Romin and Muck 2002, Whittington and Allen 2008, CPW 2020). However, there are many factors that wildlife agencies consider when evaluating spatial and seasonal buffers such as the type and duration of the proposed activity, the position of topographic and vegetative features, the sensitivity of the affected species, the habituation of breeding pairs to existing activities in the proposed project area, and the local raptor nesting density. The active nesting season and buffer zones for the raptor species observed within the Survey Area are shown in Table 2. Tetra Tech recommends coordination with WDFW and USFWS to develop Project-specific spatial and temporal non-disturbance buffers around active raptor nests, and to determine the types of construction activities restricted within them.

Table 2. Recommended Nest Buffer Zones for Raptors Occurring in the Survey Area

Species	Nest Buffer Zones	Active Breeding Season
Red-tailed hawk	0.33- 0.5 miles	March 1 - August 15
Swainson's hawk	0.25 - 0.5 miles	April 1 - August 15
Great horned owl	0.25 miles	February 1 to July 31
Common Raven	No official recommended buffer -100 to 300 feet may be sufficient to prevent disturbance depending on activity.	February 15 to July 31

Source: Romin and Muck 2002, Whittington and Allen 2008, CPW 2020.

Raptor nest locations vary from year to year based on factors such as food supply, nest-site availability, and weather conditions. Implementation of the following measures are recommended to avoid and minimize adverse impacts to breeding raptors:

- Conduct pre-construction vegetation clearing outside of the breeding season (e.g., September to February) to avoid potential impacts on active nests, preclude future nesting, and avoid violations of the MBTA.

- If construction activities occur during the breeding season (February through August), additional raptor nest surveys of the impacted areas should be conducted prior to the start of construction activities.
 - If active raptor nests are found during the surveys, non-disturbance buffer zones should be created around active nests during the breeding season or until a qualified biologist determines that the nests have ceased to be active (e.g., nestlings have fledged, the nest has failed, or breeding behaviors are no longer observed). The size of the buffer zones and types of construction activities restricted within them should be determined through consultation with WDFW and USFWS.
- Design overhead transmission lines in compliance with Avian Power Line Interaction Committee standards (APLIC 2012).

6.0 References

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Figures

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and is not intended for public distribution

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Appendix A. Agency Meeting Notes and Correspondence

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To:	Michael Ritter / Washington Department of Fish and Wildlife (WDFW), Statewide Field Lead for Wind and Solar Projects Amber Johnson / WDFW, Southwest Region
Cc:	Julie Alpert / Cypress Creek Renewables (CCR), Environmental Manager – Western Region Dave McClure / Klickitat County, Director, Natural Resources & Economic Development
From:	Alex Shin / Tetra Tech, Project Manager Rich Young / Tetra Tech, Senior Biologist Karen Brimacombe / Tetra Tech, Botanist/Ecologist
Date:	March 30, 2022
Subject:	Carriger Solar Project Introduction

Meeting Purpose: Introduce the proposed Carriger Solar Project (Project) to the Washington Department of Fish and Wildlife.

Project: Cypress Creek Renewables is in the process of planning for studies that will be required in the application for either a Conditional Use Permit from the County or a Site Certification Agreement from Washington’s Energy Facility Site Evaluation Council. The Project is a proposed solar photovoltaic (PV) electric generating facility that includes 160 megawatts (MW) of solar energy and 63 MW of battery energy storage. The Project components would include a solar array comprised of PV modules, pile-driven racking equipment, power inverters and transformers mounted on concrete pads, a collection system of cables, battery energy storage system, Project substation, and interconnection with the regional electric transmission system.

The Project Lease Boundary consists of 2,110 acres of private lands under an option to purchase or lease by CCR. Within the Project Lease Boundary, an approximately 1,448-acre solar siting area has been identified for development of the Project. Following completion of required studies and identification of resource constraints, as well as detailed engineering and design, it is anticipated that the final Project layout would occupy less than the 1,448-acre solar siting area.

The Project’s survey area for the Spring 2022 biological surveys and WDFW PHS data are shown in the attached figure.

Agenda:

Item	Description	Duration (minutes)	Lead
1	Introductions	5	All
2	Project Overview	10	CCR
3	Completed Biological Studies <ul style="list-style-type: none">Critical Issues Assessment and Limited NEPA Report (Desktop Assessment)Wetlands and Waters DelineationsCritical Areas Report	5	CCR / Tetra Tech
4	Planned Biological Surveys – Spring 2022 <ul style="list-style-type: none">Habitat and General WildlifeBotanical and Vegetation CommunitiesRaptor Nest Surveys	20	Tetra Tech
5	Discussion	25	All

Notes:

Alex and Julie provided an overview of the Project:

- Solar arrays located in two groupings on private land parcels, one southern grouping and one northern grouping.
 - WDFW requested information on acreages of the two groups of parcels:
 - Northern Group: ~454 acres
 - Southern Group: ~1,654 acres
 - WDFW noted that project parcels should be confirmed against the WDFW parcels for the Goldendale Fish Hatchery; Amber noted in the meeting that the County parcels are correct, the WDFW property is the hatchery and just west of hatchery.
- An overhead collection line that connects the Southern Group with the Northern Group of parcels will be constructed within an existing Klickitat County ROW along Knight Road. The parcel where this ROW is located is a Washington Department of Natural Resources (DNR) parcel; CCR understands that another company is looking at a solar development on this parcel.
- The project will interconnect with the BPA Knight Substation. The project’s substation and battery storage will be located in the northwest corner of the project near the BPA Knight Substation.
- Construction is anticipated to start in Q1 2024 and would take 12-24 months to complete.

Alex and Julie provide a summary of completed studies for the Project:

- Critical Issues Assessment and Limited NEPA Report completed for the project, these focused on desktop assessments and regulatory requirements
- Wetlands and Waters Delineations
 - Two surveys were done, one in 2020 and one in 2022
 - Two fish bearing streams were located in the southern parcels, these areas will be avoided by the project
 - CCR will coordinate with the Department of Ecology WSP, Inc in May/June of this year on the wetland delineation reports

- Critical Areas Report
 - Draft report prepared per Klickitat County CAO requirement
- A Phase 1 ESA and preliminary geotechnical assessments have also been completed

Rich and Karen reviewed the planned biological surveys for the spring of 2022:

- Raptor Nest Surveys
 - Ground-based surveys within 0.5-miles of the Project Lease Boundary, with two survey rounds: one in late March and one in May
 - PHS data shows no raptor nests in 2-mile buffer
- Habitat and General Wildlife
 - Survey in April or May
 - PHS Data shown in Figure 1: mule and black-tailed deer, wild turkey, western gray squirrel
 - Desktop assessment for federally listed species: gray wolf, yellow-billed cuckoo, bull trout, and monarch butterfly
- Botanical and Vegetation Communities Survey
 - Two survey rounds, one in early April and one in mid-June. A third survey in mid-May will be conducted if determined necessary during surveys in early April.
 - Desktop research indicates no documented occurrences of WNHP-listed rare vascular plant species within the Project Lease Boundary. The closest documented occurrences are over 5 miles from the Project Lease Boundary.
 - NLCD land cover types show in Table 1

Habitat, general wildlife, and rare plant surveys will consist of the following:

- Habitat will be mapped and characterized consistent with the WDFW wind power guidelines and Johnson & O'Neil (2001).
- Surveyors will document special status species if observed (e.g., burrowing owl, ferruginous hawk, ground squirrel) as well as wildlife in general (e.g., elk) and sign, rare plants, and noxious weeds (as identifiable during the survey period).
- Surveyors will use intuitive meander transect methods.

Table 1. Acres and Percent of NLCD Land Cover Type within the Project Lease Boundary.*

Land cover type	Acres	Percent of Project Lease Boundary
Developed, Open Space	36.8	1.7
Developed, Low Intensity	33.4	1.6
Developed, Medium Intensity	1.5	0.1
Shrub/Scrub	614.2	29.1
Grassland/Herbaceous	94.2	4.5
Cultivated Crops	1320.3	62.6
Emergent Herbaceous Wetland	7.9	0.4
Total	2,108.3	100

*to be confirmed during field studies and GIS analysis.

WDFW provided the following general discussion topics:

- No comments on the general survey plan or survey methods.
- Mike confirmed with Jim Watson (WDFW) that there are no raptor issues of note in this area, maybe a few red-tail hawks around.
- Cautioned that the November 2021 PHS data should be treated as a screening tool only; it does not assess private lands where there has been no access.
- WDFW has a new shrub-steppe and eastside steppe vegetation layer that we should review for the project area. WDFW will use this data in their evaluation. Mike will provide the data link for those files.
- Julie asked if WDFW has more information on wildlife corridors for the project area or vicinity (other than PHS data or looking at vehicle strike data on SR 142). WDFW completed some deer movement surveys recently and is currently doing elk aerial surveys. WDFW will review their data and share relevant information. WDFW is interested in potential project impacts to mule deer, especially migration corridors. Mule deer migration corridors would be primarily located in draws or canyons.
- WDFW shared that the fish hatchery has concerns about project impacts to groundwater quantity and quality. The hatchery relies on the aquifer for its operations. Mike and Amber will pass on the project information to the hatchery operations.
- There is a WDFW hunting area and a 240-acre pheasant release area (Goldendale Hatchery Unit) located near the fish hatchery and appears to partially overlap with the project area. WDFW is concerned about potential impacts to recreational hunting opportunities in this area, as well as other private lands in the project area. Each year pheasants are released from this area (presumably in the fall).
 - Alex noted that this area overlaps with private lands and appears to coincide with areas that have already been excluded from the project area.
 - Julie requested that WDFW provide information on hunting use in this area.
 - CCR will also follow up with the private landowners about hunting use.
 - Following the call, Tetra Tech confirmed that the Goldendale Hatchery Unit is located outside of the Project Lease Boundary (see figures below)
- Fishing may also occur in the streams. Dave was unsure about fishing near the hatchery, but fishing does occur downstream from the hatchery. WDFW will ask the fish hatchery if they have any information on fishing in the area.
- Rich ask about recommended spatial buffers for active raptor nests. Mike said he would provide a copy of WDFWs construction buffers.

From: [Young, Rich](#)
To: Michael.Ritter@dfw.wa.gov
Cc: [McClain, Leslie](#)
Subject: Spatial Buffers for Active Raptor Nests
Date: Tuesday, June 21, 2022 11:46:00 AM

Hi Mike,

Earlier this spring, during our meeting for the Carriger Solar Project, we asked about recommended spatial buffers for active raptor nests. Could you please send a copy of WDFWs construction buffers?

Thanks,

Rich

Richard Young | Senior Biologist

Cell: 254.383.1573

rich.young@tetrattech.com

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Appendix B. Raptor Nest Photos

(Confidential)

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