GG Environmental, LLC
WETLANDS • FISH • WILDLIFE

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October 29, 2024

Nick Carey
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RE: Wetland and Stream Critical Areas Evaluation and Stream Buffer Mitigation Plan for the Construction of Two Single-family Residences on Kittitas County Parcels 20560 and 20561.

Mr. Carey,

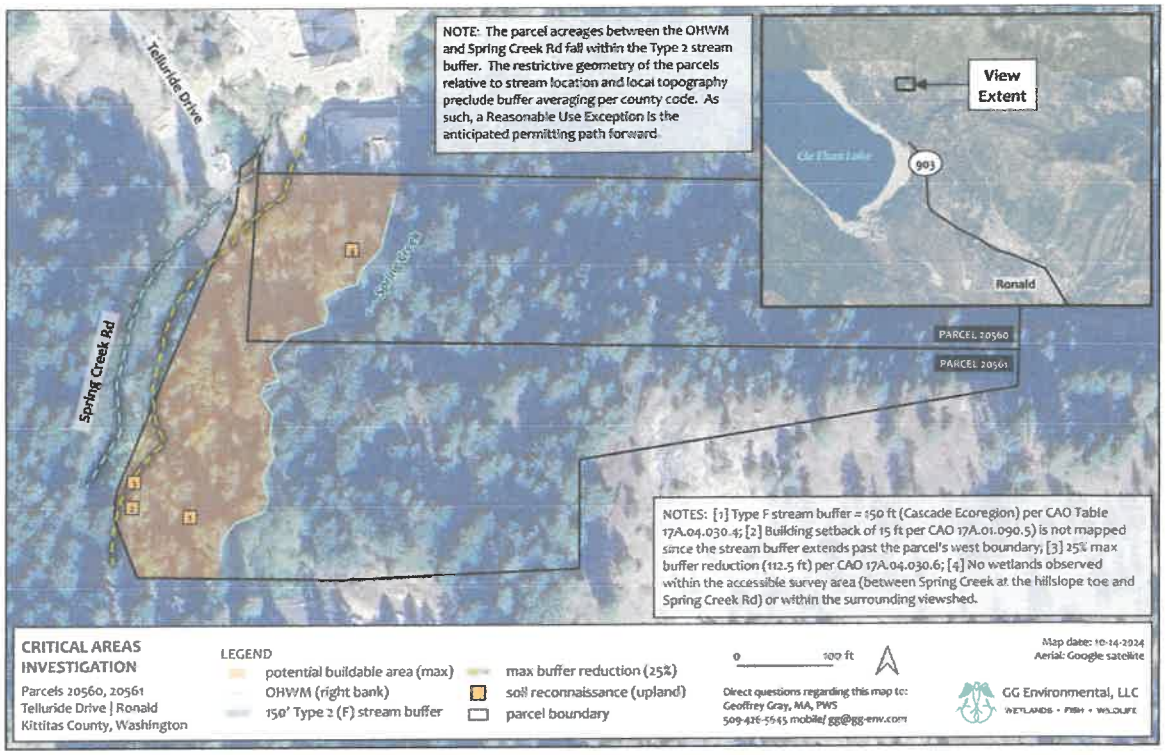
The purpose of this letter is to document the field methods and findings for a wetland and stream critical areas evaluation, completed consistent with the Kittitas County Critical Areas Ordinance (CAO), to provide permitting support for the construction of two single-family residences (Project) proposed within the westernmost portions ("potential buildable area" or "PBA") of tax parcels 20560 and 20561, located at the end of Telluride Drive and east of Spring Creek Road, in unincorporated Kittitas County, Washington (**Figure 1**). The residence on parcel 20561 would be constructed as soon as permitted while the second residence on parcel 20560 would be built at some point in the future.

Spring Creek, mapped as a Type 2 (fish-bearing) stream by Kittitas County (county)[1], bisects the two parcels (**Figure 2**). The county also maps potential wetlands along the creek corridor.

Methods: A site survey was completed April 12, 2024 during which Geoffrey Gray, MA, PWS (GG Environmental, LLC) traversed the PBA on foot, the maximum extent of which incorporates land between the right bank of Spring Creek and Spring Creek Rd. Although the CAO requires all areas within a 250-foot (ft) radius[2] of a PBA to be surveyed, permission to enter was not granted on adjacent parcels to the west and south. However, vegetation had been recently cleared from adjacent parcel 057035 (to the west), affording good visibility, and the view to the south was reasonably unimpeded from within the parcel boundary. West of the creek channel, terrain does not exhibit swales or depressions that would hold water for extended periods.

[1] Kittitas County COMPAS. Available at: https://kitcogis.maps.arcgis.com/apps/webappviewer/index.html?id=8bcc146d9c2847acb2e9aa239187c25e
[2] Per CAO 17A.07.060(2)(a)

Figure 1. Project Location, Potential Buildable Area, Critical Areas



Topography rises rapidly east of the creek where a steep, xeric hillside of a rocky outcrop was visually observed from the outcrop toe.

The presence of wetlands was evaluated in reference to routine methods described in the *Corps of Engineers Wetlands Delineation Manual*[3] and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*.[4]

Notable features, including reconnaissance soil pits and the ordinary high water mark (OHWM) of the creek (right bank) were geospatially surveyed with a Motorola G Stylus mobile phone, running the Mapit Spatial GIS application paired via Bluetooth® with a Juniper Systems Geode™ Multi-Global Navigation Satellite System (Multi-GNSS) receiver capable of sub-meter horizontal accuracy.

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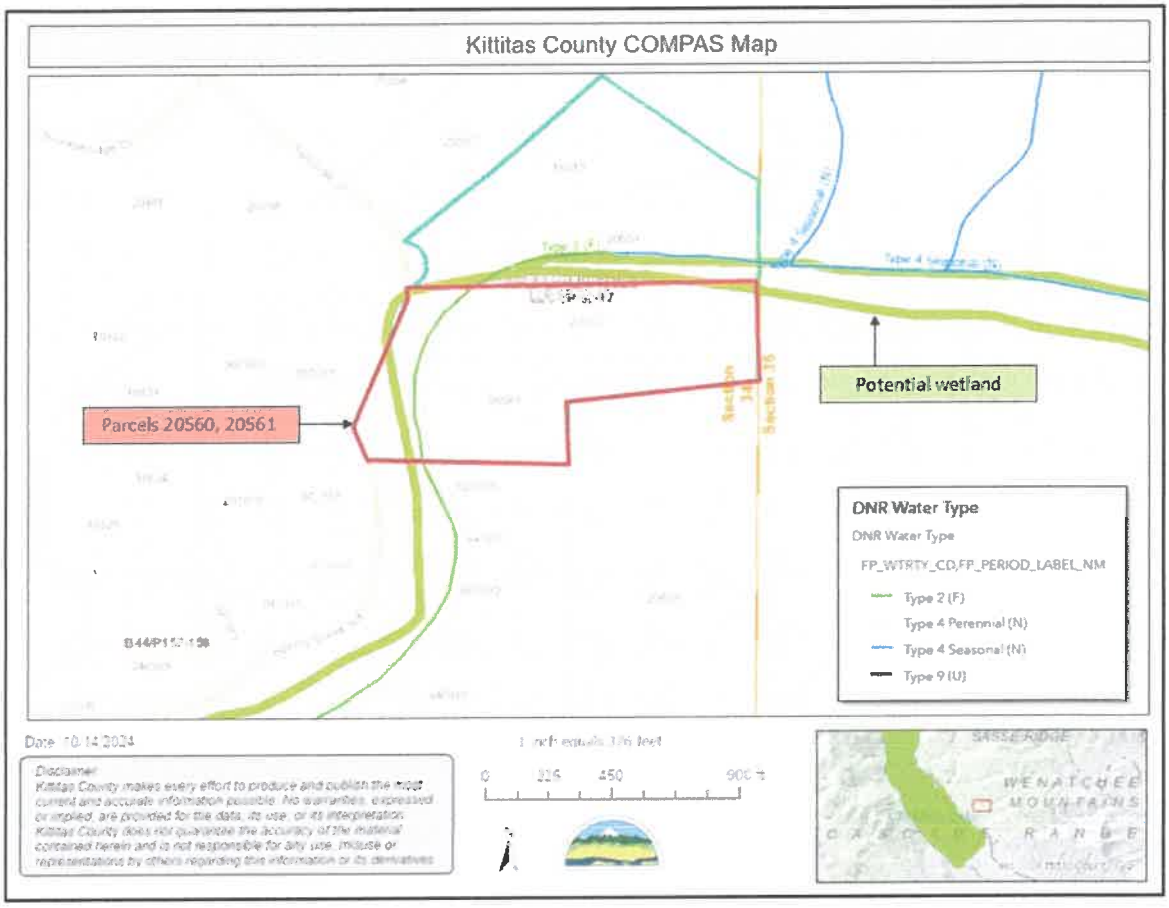
[3] Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Vicksburg (MS): US Army Engineer Waterways Experiment Station. Technical Report Y-87-1. Available at: https://www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf

[4] U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Figure 2. Kittitas County COMPAS



Vegetation observations: Historic satellite imagery[5] shows the PBA to have been dominated by mature conifers until they were largely removed at some point between 2006 and 2009. Multiple weathered stumps were observed onsite with diameters up to 36 inches (in). Subsequent satellite imagery shows a steady recolonization of the cleared area by trees from 2012 to 2022. The facultative upland (FACU) vegetation community observed within the PBA (**Figure 3**) is dominated by dense stand of big-leaf maple (*Acer macrophyllum*) (max trunk diameter at breast height (DBH) approximately 5 inches and over 20 ft in height) with several mature Douglas-fir (*Pseudotsuga menziesii*). Tree canopy coverage is 100 percent with a relatively open understory dominated by big-leaf maple saplings, many Douglas-fir seedlings, with sporadic Oregon grape (*Mahonia aquifolium*) and pineland sword fern (*Polystichum munitum*). Leaf litter is thick throughout the site and observed

[5] Google Earth Pro. Available for download at: https://www.google.com/earth/about/versions/#earth-pro

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herbaceous vegetation is limited to scattered western trillium (*Trillium ovatum*). The only facultative (FAC) plant species observed was western red cedar (*Thuja plicata*) represented by a couple of large trees along the creek edge. No facultative wetland (FACW) or wetland-obligate (OBL) plants were noted.

Figure 3. Typical upland vegetation (big-leaf maple, Douglas-fir) (April 12, 2024)

Soil observations: The Natural Resources Conservation Service (NRCS)[6] maps one soil unit within the survey area. *Nard ashy loam, 25 to 45 percent slopes*, associated with mountain slopes, is comprised of parent materials including residuum and colluvium from sandstone and old alluvium with an influence of volcanic ash in the upper part. The typical soil profile consists of slightly decomposed plant material from 0 to 1 inch (in), ashy loam from 1 to 12 in, loam from 12 to 24 in, and clay loam from 24 to 60 in. Depth to restrictive feature is more than 80 in. The soil is well-drained, exhibits depth to the water table at about 20 to 36 in, and does not flood or

[6] NRCS Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

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pond. The soil is not listed as hydric, nor are any of its minor components: Kiper (5%), Rock Outcrop (5%), Ampad (5%), and Roxer (5%).

Soils were reconnoitered[7] via four soil pits (pits) (**Figure 1**), two of which (Pits #2 and #3) were septic percolation test pits freshly excavated to approximately seven feet (ft) in depth. Pit #1, excavated at the lowest topographic elevation along the creek, revealed coarse sand (colored 10YR 4/2) with small loam pockets (10YR 3/2) to occupy the upper 16 in of the soil profile. No saturation or standing water was observed nor were oxidized root channels (ORC) or redoximorphic (redox) features. Pits #2 and #3 showed a mixture coarse sand and sandy loam to the pit bottoms, with groundwater observed at 6.5 ft in Pit #2. Pit #4 revealed coarse sand (10YR 3/2) with no saturation, ORC, or redox to a depth of six in at which point impenetrable rock was encountered.

Hydrology observations: Spring Creek flows along the toe of a steep rocky slope. Significantly incised and well-vegetated along the banks (**Figure 4**), no evidence was observed to indicate that ordinary flows overtop the creek banks, even though wracked debris was observed at ~3.5 ft above the wetted width during the site visit.[8] The creek channel exhibits steep banks with erosion and undercutting noted in several locations. High-velocity flows due to a relatively steep gradient have washed away fines, leaving a rocky, scoured bed largely devoid of vegetation. Given the elevated position of the PBA upon sandy substrate, no evidence of seasonally-elevated groundwater within the uppermost 12 in of the soil profile was observed, even at the lowest depression along the creek bank.

Findings:

No wetlands were observed within the PBA or adjacent vicinity, including within the creek channel. The area supports a facultative upland plant community with no evidence observed of wetland hydrology or hydric soil indicators.

Spring Creek is present along the eastern boundary of the PBA. Listed as a Type 2 (fish-bearing) stream, the CAO designates a 150-ft buffer[9] from the OHWM plus a 15-ft building setback[10] (165-ft total offset).

Riparian Buffer Impacts: Virtually the entire PBA falls within 150 ft of the OHWM and construction of the two residences would result in a riparian buffer impact of up to 0.85 ac (**Figure 5**). Buffer averaging[11] under the CAO, according to which the stream

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[7] Since neither wetland vegetation or hydrology (beyond the stream channel) were observed, soil reconnaissance observations are described in the report body rather than documented in wetland delineation forms.
[8] Observed near the parcel's southern boundary (lower end of the observed creek reach).
[9] Per CAO Table 17A.04.030.4 (Cascade Ecoregion).
[10] Per CAO 17A.01.090.5.
[11] Per CAO 17A.04.030.6.

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Figure 4. Spring Creek (view upstream from bridge) (April 12, 2024)

buffer could be reduced up to 25 percent (shortened to a radius of 112.5 ft), would not provide sufficient buildable area for the Project (**Figure 1**). Since the riparian buffer offset denies all reasonable economic use of the parcels, a Reasonable Use Exception[12] is anticipated in order to permit the Project.

Early Regulatory Consultation: Early consultation with Kittitas County Community Development Services[13] and the Washington Department of Fish and Wildlife (WDFW)[14] was completed in the form of a collaborative site visit on August 14, 2024 to discuss the critical areas findings, evaluate the baseline condition of the PBA, and discuss what stream buffer avoidance, minimization, and mitigation measures might be practicable. Regulatory feedback is reflected in the buffer mitigation measures outlined in this report.

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[12] Per CAO 17A.01.060.2.
[13] Bradley Gasawski.
[14] Scott Downes and Cassandra Weekes.

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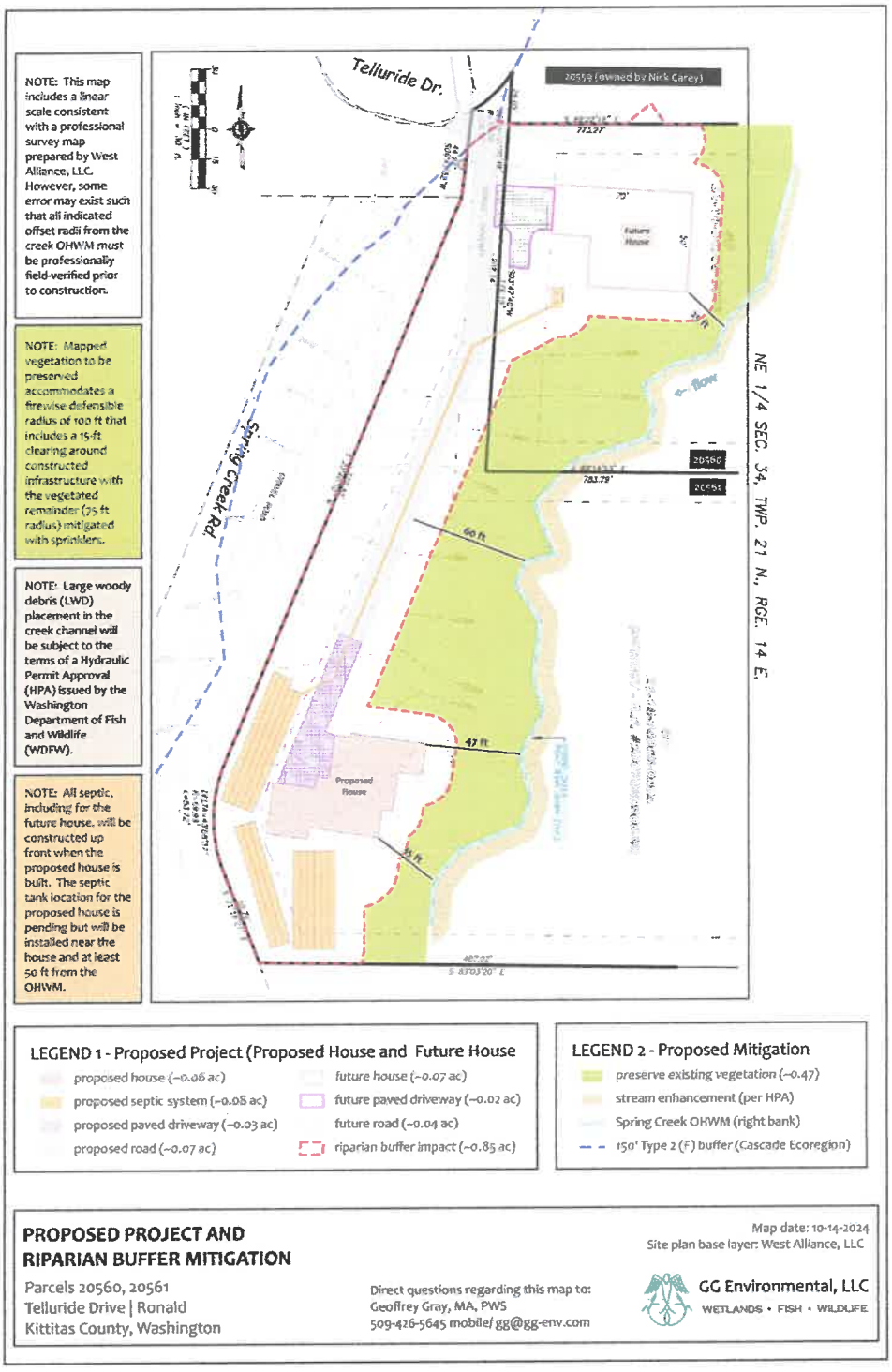
Figure 5. Proposed Project Site Plan



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Riparian Buffer Baseline Condition: Native woody vegetation (big leaf maple, Douglas-fir, western red cedar) along the creek is well-established, dense, and many seedlings are recruited in the understory. No open canopy is present. The creek is well shaded by vegetation along both banks, enhanced by an elevated rock outcrop to the east and steep banks along its incised channel. Vegetation is rooted within pervious, relatively level substrate with a substantial organic duff layer. Soils are stabilized by this root mass and duff, allowing for rapid infiltration and preventing sediment from washing into the creek. Given this positive buffer baseline condition, the proposed reduction in vegetative buffer width to accommodate construction is expected to preserve sufficient riparian vegetation to provide buffer functions and values to the creek reach (e.g., shading, water quality maintenance, organic matter recruitment, etc.). Nevertheless, riparian buffer mitigation measures are proposed for the buffer impact; measures deemed achievable and reasonable given the restrictive parcel geometry and limited buildable terrain. As a result, the Project would not result in a net loss of critical area functions and values consistent with best available science. Since proposed mitigation is limited to vegetation avoidance, vegetation impact minimization, and placement of LWD in/near the creek, no post-planting monitoring plan is proposed. Rather, an as-built report that documents the completed Project build footprint, riparian buffer preservation area, and stream habitat enhancement (LWD placement) shall be prepared and submitted to the county.

Proposed Riparian Buffer Mitigation Measures: the following riparian buffer mitigation measures are proposed in order to ensure no net loss of critical areas functions and values:

1. The riparian buffer impact shall be the minimum necessary to allow for reasonable economic use of the properties;
2. Within areas to be temporarily disturbed, vegetation shall be trimmed rather than grubbed, thereby allowing for vegetation to resprout;
3. Land within the cleared firewise zone shall be managed in a natural state that requires minimal maintenance and allows for soil stabilization and infiltration;
4. Established vegetation (~0.47 ac) between the Project construction footprint and creek right bank shall be avoided and preserved such that it continues to recruit and grow in height and density;

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5. Large wood cleared during construction shall be retained and utilized for creek habitat enhancement. Placement of large wood into the creek reach[15] would improve habitat conditions for fish and prevent further incision. A Hydraulic Project Approval (HPA), issued by WDFW, would be required to authorize this work.
6. An as-built report, including a constructed site plan and photos, that documents the completed Project build footprint, riparian buffer preservation area, and stream habitat enhancement footprint (LWD placement) shall be prepared and submitted to the county within 30 days of Project completion.

Limitations:

The data presented herein reflect site conditions encountered on April 12, 2024. Work was performed in accordance with accepted standards for professional wetland biologists and applicable federal, state, and local ordinances. Although these critical areas findings are accurate and complete to the best of scientific knowledge, the conclusions herein should be considered as preliminary until they have been reviewed and approved in writing by the appropriate jurisdictional authorities.

Best Regards,

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[15] Consistent with WDFW Stream Habitat Restoration Guidelines (April 2012 Draft). Available at https://wdfw.wa.gov/publications/01374.