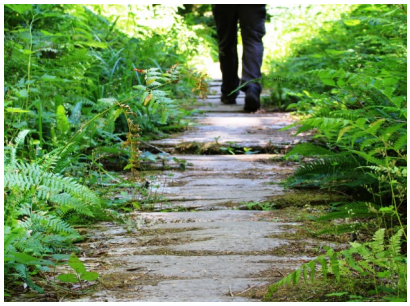
CRITICAL AREAS REPORT

November 1, 2020



Woodland Creek Delineation

Woodland, Washington

Prepared for

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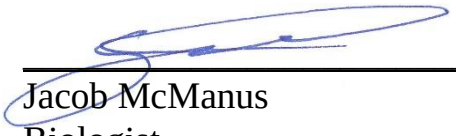

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INTRODUCTION

Ecological Land Services, Inc. (ELS) has completed this critical areas report including a buffer averaging plan on behalf of the applicant, Hinton Development, LLC, for the development of the Woodland Creek subdivision, a 150-lot residential subdivision located within Cowlitz County Tax Parcels 508260100, 508250100, 508240100, 508230100, 508220100, 508210100, and 508190100. The property is located at 2308 Lewis River Road in Woodland, Washington, within a portion of Section 7, Township 5 North, and Range 1 East of the Willamette Meridian (Figure 1). This report summarizes the findings of critical areas onsite in accordance with *Woodland Municipal Code (WMC) Chapter 15.08: Critical Areas Regulations* (February 2017).

PROJECT DESCRIPTION

Project Location

The proposed site of the Woodland Creek Subdivision is located within Cowlitz County Tax Parcels 508260100, 508250100, 508240100, 508230100, 508220100, 508210100, and 508190100. The approximately 36.78-acre project area is located at 2308 Lewis River Road in Woodland, Washington, within a portion of Section 7, Township 5 North, and Range 1 East of the Willamette Meridian (Figure 1).

Proposed Development Project

The applicant is proposing a 150-lot residential subdivision for single-family dwellings on the property that will include clearing, grading, lot preparation, utility installation, construction of interior streets, and the construction of two stormwater detention facilities. A 4-foot wide wood-chip walking path is also proposed north of the subdivision (Figure 3). Impacts will be avoided and minimized by the use of best management practices (BMPs) including installing silt fencing along the outer wetland buffer boundary during construction, applying native grass seed to disturbed areas not being paved when grading is complete, and making a water truck available to prevent dust blowing during construction. Additional BMPs, are discussed in the Avoidance and Minimization Section later in this report. Permanent 5-foot tall split-rail fencing will be installed and located along the outer edge of the wetland buffer and maintained in perpetuity with metal signs posted at 100-foot intervals along the buffer reading "The area beyond this sign is a Critical Area or Buffer. Alteration or disturbance is prohibited by law. No dumping allowed *WMC Chapter 15.08: Critical Areas.*" The development area will be cleared of vegetation and levelled prior to construction. Staging areas will be located within uplands outside of the wetland buffer in the eastern portion of the property wherein existing impervious surfaces such as a concrete and gravel parking pad are located. Construction is anticipated to start upon receipt of permits. The applicant is proposing riparian and wetland buffer averaging to ensure no direct impacts to the onsite wetland, wetland buffer, or Robinson Creek occur as a result of construction. Construction of the two stormwater conveyance facilities in the northeast portion of the property will result in 0.009 acres (380 sq. ft.) of temporary impacts to the buffer of Robinson Creek (Figure 3). However, these impacts will not persist after construction of the subdivision is complete, as stormwater currently generated onsite drains into Robinson Creek untreated, whereas stormwater will be treated onsite within the two proposed vegetated stormwater ponds prior to draining into the stream after project completion. Additionally, specific BMPs will be employed to ensure constructing the stormwater conveyance facilities results in minimal and temporary impacts. These BMPs are discussed in the

avoidance and minimization section later in this report. The proposed stormwater facilities consist of two vegetated detention basins with two corresponding vegetated filter strips. Both vegetated filter strips will convey water north into a gravel outfall to reduce flow velocity prior to draining into Robinson Creek.

SITE DESCRIPTION

The approximately 36.78-acre property consists of Parcels 508260100, 508250100, 508240100, 508230100, 508220100, 508210100, and 508190100, all of which are zoned Low Density Residential (LDR-8.5) by the City of Woodland. Topography throughout most of the property is gently sloped to the northwest with grades ranging from 0- to 2- percent. However, the northern portion of the property is relatively steep with a southward slope that faces an agricultural drainage ditch along the northern property boundary (Figure 2). No development is present throughout the property, excluding a small gravel parking pad in the eastern portion that provides access via Lewis River Road. Most of the property consists of herbaceous grasses which are regularly mowed and hayed (Photoplate 1). The western portion of the property is situated lower in elevation, forested with deciduous species, and contains a portion of the aforementioned farm ditch. Onsite ditches are discussed further in the following paragraph. Surrounding properties to the north are outside of Woodland's urban growth area and are undeveloped, consisting of unzoned forested land. Surrounding properties to the south and west consist of single-family residences and are zoned Low Density Residential (LDR-6). The eastern property boundary is formed by Lewis River Road. Properties on the adjacent eastern side of Lewis River Road are zoned Low Density Residential (LDR-7.2) and consist of single-family residences and storage areas (Figure 6). The Washington State Department of Ecology's Water Quality Atlas maps the project site within lower portion of Watershed Resource Inventory Area (WRIA) 27 – Lewis, in the Lewis River sub-watershed, which is within the 12-digit Hydrologic Unit Code (HUC): 170800020606.

Agricultural Drainage Ditches

ELS identified two man-made farm ditches during the site visit, one of which seasonally flows northwest through the western portion of the property (Ditch 1), and one of which drains into the property from the north and intersects with Ditch 1 (Ditch 2) (Figure 2). During the site visit, the ditch was approximately 4-feet wide and 1- to 2-feet deep with soil saturation present in the vicinity of the wetland, and entirely absent hydrology in the northern portion of the property. The channel of Ditch 1 begins in the central portion of the onsite wetland, areas further south do not contain a consolidated stream channel (Photoplate 1). Ditch 1 drains north along the western property boundary before draining east along the northern property boundary (Figure 2). Ditch 1 Eventually drains into Robinson Creek, which is located offsite to the northeast. During the site visit, the channel of Ditch 2 was approximately 2-3 feet wide and 1-foot deep. The ditch channel was entirely dry during the site visit. Ditch 2 seasonally drains into the property from the north and flows south for approximately 300 feet before intersecting Ditch 1 (Figure 2). The channel of Ditch 2 in the vicinity of the property exists on a relatively steep grade (15 to 30 percent slopes). Vegetation in the vicinity of the ditches included tree, scrub-shrub, and herbaceous species. (Photoplate 2). According to an adjacent landowner, Tom Thomas (Benjamin A Thomas Jr.), the onsite farm ditches were dug in 1971 by Phil Jones, uncle to Tom Thomas. The ditches were needed to maintain the property for agriculture, as the outflow from the wetland area had previously been to the west, but development along Gun Club Road had pushed the water back to

the east. From 1971 to present, the ditch has been periodically cleaned out for maintenance with a Caterpillar bulldozer to continue to facilitate drainage on the property. According to the 1974 Soil Survey of Cowlitz County Area, Washington, areas to the west of the property along Gun Club Road have historically been used for agricultural purposes (NRCS 1974).

Streams

A small portion of Robinson Creek flows southeast through the northeast corner of the property. According to DNR, Robinson Creek is a Type F (Fish bearing) body of water (Figure 2). During the site visit, the stream channel was approximately 4-6 feet wide and 3-4 feet deep with minimal flow. Robinson Creek exits the property in the northeast corner and flows east for about 200 feet before draining into the Lewis River, passing through a box culvert along the way (Lewis River Road). Dominant riparian vegetation included red alder (*Alnus rubra*), salmonberry (*Rubus spectabilis*), Himalayan blackberry, reed canarygrass, swordfern (*Polystichum munitum*), American black nightshade (*Solanum americanum*), English ivy (*Hedera helix*), and bull thistle (*Cirsium vulgare*).

METHODOLOGY

The wetland delineation followed the Routine Determination Method according to the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers 2010).

The Routine Determination Method examines three parameters—vegetation, soils, and hydrology—to determine if wetlands exist in a given area. Hydrology is critical in determining what is wetland, but is often difficult to assess because hydrologic conditions can change periodically (hourly, daily, or seasonally). Consequently, it is necessary to determine if hydrophytic vegetation and hydric soils are present, which would indicate that water is present for long enough duration to support a wetland plant community. By definition, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are regulated as "Waters of the United States" by the U.S. Army Corps of Engineers (USACE), as "Waters of the State" by the Washington Department of Ecology (Ecology), and locally by the City of Woodland.

One wetland, hereinafter referred to as Wetland A, was delineated onsite on June 26, 2020. Vegetation, soils, and hydrology information was collected from eight test plots (TP) to determine the location and extent of the onsite wetlands and wetland buffers (Appendix A). Onsite wetland boundaries were flagged with consecutively numbered pink flagging, and test plot locations were flagged with consecutively numbered orange pin-flags, both of which were mapped and recorded using a handheld GPS unit. Test plot data sheets can be found in Appendix A.

In addition to the wetland delineation, the OHWM of Robinson Creek determined using standard methodology as described in the *Washington State Department of Ecology* (Ecology) *manual: Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale 2010). The main indicators used to determine the OHWMs were changes in vegetation and

exposed roots, as well as changes in topography. The OHWM was flagged with consecutively numbered pink flagging and mapped using a handheld GPS unit (Figure 2).

VEGETATION

In addition to being recorded on the Wetland Determination Data Sheets (Appendix A), the dominant wetland and upland vegetation and their corresponding wetland indicator statuses are listed below.

The indicator status, following the scientific names, indicates the likelihood of the species to be found in wetlands. Listed from most likely to least likely to be found in wetlands, the indicator status categories are:

- **OBL** (obligate wetland) - occur almost always under natural conditions in wetlands.
- **FACW** (facultative wetland) - usually occur in wetlands, but occasionally found in non-wetlands.
- **FAC** (facultative) - equally likely to occur in wetlands or non-wetlands.
- **FACU** (facultative upland) - usually occur in non-wetlands, but occasionally found in wetlands.
- **UPL** (obligate upland) - occur almost always under natural conditions in non-wetlands.
- **NI** (no indicator) - insufficient data to assign to an indicator category.

Wetlands
Dominant vegetation in the wetland test plots consisted of **trees:** Oregon Ash (*Fraxinus latifolia*, FACW), red alder (*Alnus rubra*, FAC), and black hawthorne (*Crataegus douglasii*, FAC); **shrubs:** Himalayan blackberry (*Rubus armeniacus*, FAC), Sitka willow (*Salix sitchensis*, FACW), and rose spirea (*Spiraea douglasii*, FACW); and **herbs:** reed canarygrass (*Phalaris arundinacea*, FACW).

Uplands
Vegetation observed in the upland test plots was dominated by: **trees:** black cottonwood (*Populus balsamifera*, FAC) and red alder; **shrubs:** Himalayan blackberry, Sitka willow; and **herbs:** reed canarygrass, field horsetail (*Equisetum arvense*, FAC), colonial bentgrass (*Agrostis capillaris*, FAC), sweet vernalgrass (*Anthoxanthum odoratum*, FACU), bird's-foot trefoil (*Lotus corniculatus*, FAC), and creeping buttercup (*Ranunculus repens*, FAC).

SOILS

Natural Resources Conservation Service (NRCS) designates soils onsite as Caples silty clay loam, 0 to 3 percent slopes, Clato silt loam, 0 to 3 percent slopes, Godfrey silt loam, 0 to 3 percent slopes, Greenwater fine sandy loam, 0 to 8 percent slopes, Kelso silt loam, 15 to 30 percent slopes, Newberg fine sandy loam, 0 to 3 percent slopes, and Pilchuck loamy fine sand, 0 to 8 percent slopes (Figure 3). Caples silty clay loam is characterized as a somewhat poorly drained soil formed on floodplains and derived from alluvium, with a typical profile consisting of silty clay loam from 0 to 60 inches below ground surface (BGS). Clato silt loam is characterized as a well-drained soil formed on floodplains and derived from Alluvium. A typical profile of Clato silt loam consists of silt loam from 0 to 80 inches BGS. Godfrey silt loam is typically characterized as a poorly drained soil formed on floodplains and derived from alluvium, with a soil profile that is generally described

as silt loam from 0 to 5 inches, silty clay loam from 5 to 27 inches, and sandy clay from 27 to 60 inches BGS. Greenwater fine sandy loam is characterized as a somewhat excessively drained soil formed on escarpments and terraces. Greenwater fine sandy loam is derived from alluvium and pumice with volcanic ash. Kelso silt loam is characterized as a moderately well-drained soil formed on escarpments and terraces and derived from alluvium, with a typical profile consisting of silt loam from 0 to 60 inches BGS. Derived from alluvium, Newberg fine sandy loam is typically characterized as a well-drained soil formed on floodplains. A typical profile of Newberg fine sandy loam consists of fine sandy loam from 0 to 10 inches and very fine sandy loam from 10 to 28 inches BGS. Pilchuck loamy fine sand is derived from alluvium and formed on floodplains, with a typical profile consisting of loamy fine sand from 0 to 12 inches, fine sand from 12 to 36 inches, and gravelly sand from 12 to 36 inches BGS. Pilchuck loamy fine sand is described as a somewhat excessively drained soil (NRCS 2019a). According to the NRCS *Hydric Soils* List, Caples silty clay loam and Godfrey silt loam are classified as hydric soils (2019b). Wetland A was delineated primarily within the mapped Godfrey silt loam soil unit (Figures 2 and 3). Mapped hydric soils do not necessarily mean that the area is a wetland—hydrology, wetland vegetation, and hydric soils must all be present to classify an area as a wetland. Conversely, wetlands may be found in areas where the soils are not mapped as hydric.

All soils evaluated within wetland test plots consisted of silt loams that satisfied requirements for the hydric soil indicators "redox dark surface" or "depleted matrix". In upland areas, soils within TP's 3 and 5 satisfied requirements for the hydric soil indicator redox dark surface. However, these locations lacked either indicators of wetland hydrology or hydrophytic vegetation.

HYDROLOGY

Wetland A

Wetland A is located along a seasonally flowing farm ditch (Ditch 1) in the western portion of the property (Figure 2). Stream 1 has an approximately 2-4-foot wide channel which conveys water north through the central portion of the wetland. During the site visit, no surface water was observed within the wetland. Sources of wetland hydrology include runoff from adjacent impervious surfaces to the west, as well as runoff from the adjacent regularly mowed field bordering the wetland to the south and east. Additional sources of wetland hydrology include precipitation and a seasonally high groundwater table. Hydroperiods of the wetland include seasonally flooded and saturated only, with the saturated only hydroperiod comprising the majority of Wetland A's area. Primary wetland hydrology indicators observed within wetland test plots include a high-water table, soil saturation, sparsely vegetated concave surfaces, and oxidized rhizospheres along live roots. Hydrology information within the test plots is also listed in the Wetland Determination Data Forms (Appendix A).

NATIONAL WETLAND INVENTORY

The National Wetlands Inventory (NWI) map indicates the presence of a palustrine, forested, scrub-shrub, and seasonally flooded wetland (PFO/SSC) located along the western property boundary with portions extending north in the same general location as Ditch 1, and portions extending offsite to the west (Figures 2 and 4). ELS findings are generally in agreement with this wetland designation, as Wetland A was delineated in the same general location. However, portions

of the wetland mapped by NWI extending north in the same location as Ditch 1 are likely a reflection of seasonal water conveyance, not of a wetland, and ELS' observations indicate Wetland A is a forested wetland. Additionally, the offsite portion of the palustrine wetland mapped by NWI is likely not present, given it is mapped over existing impervious surfaces. Furthermore, NWI indicates the presence of permanently flooded freshwater pond (PUBH) in the central portion of Wetland A. ELS findings are not in agreement with this wetland designation, as onsite observations were indicative of a seasonally flooded depressional wetland - no evidence of a permanently flooded freshwater pond was observed (Photoplate 1). NWI and CCWI maps are typically used to gather wetland information about a region and due to the large scale necessary for regional mapping are limited in accuracy for localized analyses.

CRITICAL AREAS SUMMARY

Wetland A

Wetland A was delineated on June 26, 2020 in the central portion of the study area (Figure 2). According to the *Washington State Wetland Rating System for Western Washington: 2014 Update* (*Rating System*) (Hruby 2014); Wetland A is a forested depressional wetland spanning approximately 2.97 acres onsite (129,373 square feet) (Figure 2). Wetland boundaries were bordered by notable changes in vegetation, hydrology, and topography. Dominant vegetation observed within the wetland consisted of red alder, Oregon ash, black hawthorne, Himalayan blackberry, Sitka willow, rose spirea, and reed canarygrass. Sources of wetland hydrology include runoff from adjacent impervious surfaces to the west, as well as runoff from the adjacent regularly mowed field bordering the wetland to the south and east. Additional sources of wetland hydrology include precipitation and a seasonally high groundwater table. Hydroperiods of the wetland include seasonally flooded and saturated only, with the saturated only hydroperiod comprising the majority of Wetland A's area (Figure 6). According to the *Rating System*; Wetland A is a riverine Category III wetland scoring 5 points for water quality functions, 6 points for hydrologic functions, and 5 points for habitat functions. The wetland rating form can be found in Appendix B.

According to *WMC*, standard wetland buffers are based on wetland category in conjunction with land use intensity and level of habitat function (*WMC 15.08.400*). Residential development at greater than 1 unit per acre is considered a high intensity land use, and Wetland A is a Category III wetland. According to *WMC*, a habitat score of 5 is considered moderate (*WMC Table 15.08.400-1*). However, according to Washington State Department of Ecology's *Washington State Wetland Rating System for Western Washington*, which was updated in July of 2018, habitat scores of 3-5 are considered low (Washington State Ecology 2018). Therefore, Wetland A is a Category III wetland with a low habitat score and high land use intensity. *WMC Table 15.08.400-1* indicates the required buffer width for Wetland A is 80 feet. Table 1 summarizes the critical areas onsite.

Streams

Stream 1

Robinson Creek flows southeast through the northeast corner of the property. According to DNR, Robinson Creek is a Type F (Fish bearing) body of water (Figure 2). During the site visit, the stream channel was approximately 4-6 feet wide and 3-4 feet deep with minimal flow. Robinson Creek exits the property in the northeast corner and flows east for about 200 feet before draining

into the Lewis River, passing through a box culvert along the way (Lewis River Road). Dominant riparian vegetation included red alder (*Alnus rubra*), salmonberry (*Rubus spectabilis*), Himalayan blackberry, reed canarygrass, swordfern (*Polystichum munitum*), American black nightshade (*Solanum americanum*), English ivy (*Hedera helix*), and bull thistle (*Cirsium vulgare*). According to *WMC Table 15.08.730-1*, Robinson Creek is a Type F body of water with a channel width of 5 feet or less, therefore, it requires a designated riparian habitat area width of 150 feet (Figure 2).

Table 1. Critical Areas Summary

Critical Area	Category[1]/Cowardin Class[2]/HGM Class[3]/Type[4]	Size (onsite)	Habitat Score[5]	Buffer Width[6,7]
Wetland A	III/Forested/Depressional	2.97 acres (129,373 sq. ft.)	5 (low)	80 feet
Robinson Creek	Type F (fish bearing)	N/A	N/A	150 feet

[1]*Hruby 2014*
[2]*Cowardin et al. 1979*
[3]*NRCS 2008*
[4]*WMC 15.08.350*
[5]*Department of Ecology – Washington State Wetland Rating System for Western Washington (July 2018 Update)*
[6]*WMC Table 15.08.400-1*
[7]*WMC Table 15.08.730-1*

RIPARIAN BUFFER AVERAGING

The applicant is proposing a 150-lot residential subdivision for single-family dwellings on the property that will include clearing, grading, lot preparation, utility installation, construction of interior streets, and the construction of two stormwater detention facilities (Figure 3). This project proposes riparian buffer averaging to maximize the useable cleared and levelled area and allow space for stormwater management in the northern portion of the property. According to *WMC 15.08.720-(G-3) (excerpted below)*, the riparian habitat area buffer width may be modified by averaging buffer widths under the following conditions:

A. Averaging will not reduce habitat or stream functions;

b. It will not adversely affect salmonid habitat;

c. Additional natural resource protection such as buffer enhancement will be provided;

d. The total of the averaged buffer area is not less than what would be contained in the standard buffer;

e. The buffer area width is not reduced by more than twenty-five percent.

The required riparian buffer width for Robinson Creek is 150 feet. The applicant proposes a reduction in buffer width in the northern portion of the property in the vicinity of the stormwater detention ponds and lots 114 and 115 from 150 feet to 115 feet at its narrowest point, equating to 0.45 acres (19,704 sq. ft.) of reduced riparian buffer area. In exchange, the western portion of the riparian buffer associated with Robinson Creek will be increased from the designated 150-foot width to approximately 200 feet, equating to 0.45 acres (19,704 sq. ft.) of increased riparian buffer area and resulting in no net loss of total riparian buffer area. Existing riparian buffer functionality in the area of riparian buffer reduction is nominal. The buffer reduction area is generally flat, and existing vegetation diversity in the area is minimal, consisting entirely of invasive reed canarygrass and herbaceous orchard grasses that are regularly maintained and mowed, providing little water-quality improvements to the stream. The north-central area of the property wherein the riparian buffer width will be increased contains a higher degree of vegetative diversity, including several native shrub and herbaceous species, as well as several scattered trees (Figure 3). Therefore, increasing the riparian buffer width in this area is expected to provide increased riparian buffer functionality than that currently provided by the riparian buffer associated with Robinson Creek, ensuring no net loss of riparian buffer functionality. Furthermore, the area of buffer reduction is adjacent to the proposed vegetated detention basins, which constitute a low land use intensity, whereas the area of buffer addition resides near residential development, which in this case constitutes high land use intensity. Increasing the riparian buffer in the vicinity of residential development provides greater buffer functionality than the area wherein buffer reduction is proposed. The two proposed stormwater facilities will treat stormwater generated onsite prior to discharging into the stream, as opposed to current conditions which involve untreated stormwater draining into the stream without a reduction in flow velocity or sediment content. Therefore, the proposed stormwater ponds provide enhanced water quality functionality as opposed to that which is currently provided, which will benefit local salmonid species which are likely present seasonally. The average riparian buffer will not be less than 115 feet at its narrowest point (approximately 76 percent of original width).

Table 2. Summary of Riparian Buffer Averaging

Identifier	Original Buffer Width	Modified Buffer Width	Buffer Average In	Buffer Average Out
Robinson Creek Buffer	150 feet	115 feet[1]	-0.45 acres (19,704 sq. ft.)	+0.45 acres (19,704 sq. ft.)

[1]Modified buffer width refers to riparian buffer at its narrowest point

WETLAND BUFFER AVERAGING

Additionally, this project proposes wetland buffer averaging to maximize the usable cleared and levelled area. According to *WMC 15.08.400-(G) (excerpted below)*, the wetland buffer width may be modified by averaging buffer widths using the following conditions:

1. Averaging will not reduce wetland functions or values;

2. The wetland would benefit from a wider buffer in places and would not be adversely impacted by a narrower buffer in other places due to varying wetland quality;

3. The total area of the averaged buffer is not less than would be contained if there were no buffer averaging; and

4. The buffer width is not reduced to less than twenty-five percent of the standard buffer width or fifty feet, whichever is greater in any one location.

The applicant proposes to average the western portion of Wetland A's buffer from 80 feet to approximately 58 feet at its narrowest point, equating to 0.33 acres (14,273 sq. ft.) and approximately 72 percent of the required buffer width. In exchange, the northern portion of Wetland A's buffer will be increased from the designated 80-foot width by 0.33 acres (14,273 sq. ft.) to achieve no net loss of wetland buffer area (Figure 3). The area proposed for buffer reduction consists entirely of regularly mowed and hayed herbaceous species such as orchard grass and invasive reed canarygrass, whereas the area proposed for buffer addition is completely undisturbed, consisting of a dense tree, shrub, and herbaceous community. Areas proposed for increased buffer width provide considerably more habitat opportunities to local wildlife, as well as providing greater water quality improvement than the buffer currently associated with Wetland A. Increasing the wetland buffer in the proposed addition areas will provide lasting critical area protection and ensure these areas are not lost or degraded despite not currently being considered part of the wetland's buffer. Furthermore, the applicant is proposing permanent buffer signage installations at 75-foot intervals which will be installed on permanent split-rail fencing. The split-rail fencing will be installed along the final proposed wetland buffer after averaging is complete and will help ensure no impacts to Wetland A occur as a result of the proposed development. (Figure 3).

Table 3. Summary of Wetland Buffer Averaging

Identifier	Original Buffer Width	Modified Buffer Width	Buffer Average In	Buffer Average Out
Wetland A Buffer	80 feet	56 feet[1]	-0.33 acres (14,273 sq. ft.)	+0.33 acres (14,273 sq. ft.)

[1]Modified buffer width refers to wetland buffer at its narrowest point

AVOIDANCE AND MINIMIZATION

The preferred mitigation sequencing of first avoidance, then minimization, and finally compensation was taken into consideration during the design process of this project. The proposed 150 lot subdivision has gone through several revisions to minimize critical area impacts to the maximum extent possible while still providing housing opportunities that are consistent with the City's zoning requirements and housing needs. Through the use of riparian and wetland buffer averaging, the proposed subdivision entirely avoids direct impacts to wetlands, wetland buffers, and the riparian buffer associated with Robinson Creek. Only a small amount of temporary impacts

are expected to occur as a result of constructing the stormwater conveyance facilities partially within the riparian buffer of Robinson Creek (380 sq. ft, 0.009 acres), which is allowed per *WMC 15.08.730* (Figure 3).

The proposed 150 lot subdivision is located within the Low-Density Residential District (LDR-8.5) according to the City of Woodland's Comprehensive Plan, which is a zoning designation intended for single-family residences between 4-6 units per acre. The proposed subdivision contains approximately 4.1 units per acre. Although buffer averaging has eliminated all direct wetland, wetland buffer, and riparian buffer impacts related to the proposed project, 380 square feet of temporary impacts to the onsite riparian buffer are expected to occur during project construction. However, completely avoiding temporary riparian buffer impacts entirely would not be feasible given the topography of the site and the goals of Woodland's comprehensive plan. The proposed project is already at approximately 4.1 units per acre, therefore, avoiding temporary impacts via a reduction in total lots would render the project out of concurrence with City zoning requirements. Furthermore, the northeast corner of the property is the lowest point topographically of the site. Locations of the proposed vegetated stormwater ponds were determined based off the natural topography of the site: the lowest points of elevation act as natural collection points, therefore these locations are ideal for wet pond installations. Furthermore, the proposed stormwater installations include a landscaping plan to reduce surface flow velocity; improving infiltration and habitat opportunities within the project vicinity. The two ponds will each have an associated vegetated filter strip which will convey water northeast towards Robinson Creek, slowing flow velocity and trapping sediment as water is conveyed. Prior to discharging to the stream, the vegetated filter strips will intersect at a gravel outfall, further reducing flow velocity prior to stream discharge (Figure 3). Water quality improvements associated with treating all stormwater generated onsite prior to discharging to the stream far outweigh the drawbacks of 380 square feet of temporary impacts, as untreated stormwater currently generated onsite and from Lewis River Road drains into the stream without prior treatment.

During construction, temporary riparian buffer impacts will be further minimized by the use of best management practices (BMPs) including installing temporary silt fencing along the wetland and riparian buffer during construction, applying native grass seed to disturbed areas not being paved when grading is complete, and making a water truck available to prevent wind erosion and dust blowing during construction. After construction, permanent 5-foot tall split-rail fencing will be installed and located along the outer edge of the wetland and riparian buffer and maintained for the duration of the development with metal signs posted at 100 feet intervals along the buffer reading "The area beyond this sign is a Critical Area or Buffer. Alteration or disturbance is prohibited by law. No dumping allowed *WMC Chapter 15.08: Critical Areas.*" Installation of the outfall for the vegetated stormwater ponds will abide by the following BMPs:

1. A 2-foot wide trench will be installed and isolated by backfilling a short section of the trench with bentonite prior to reaching the stream to form an impenetrable barrier or plug.
2. The remaining trench will be backfilled after the outfall is installed with the native material excavated from the trench. Excess material will be spread thinly within upland areas.
3. A native grass seed mix will be applied to all disturbed areas and will be watered as necessary during construction to facilitate growth.

UNAVOIDABLE IMPACT SUMMARY

Construction activities will involve temporarily impacting 0.009 acres (380 sq. ft.) of the riparian buffer associated with Robinson Creek as a result of constructing stormwater conveyance facilities partially within the buffer, which is allowed per *WMC 15.08.730* (Figure 3). However, these impacts are expected to be nominal and will subside after installation is complete, as the hydrologic, habitat, and water quality functions provided by the riparian buffer will be improved after construction as a result of treating stormwater generated onsite within the two vegetated storm ponds prior to discharging to the stream. Current conditions allow untreated stormwater generated onsite and from Lewis River Road to drain into the stream untreated. There are no direct wetland, wetland buffer, or riparian buffer impacts expected to occur as a result of this project. A wetland impact summary is provided in Table 4.

Table 4. Summary of Wetland Impacts.

Impact Area	Type	Impact Type	Impact Amount
Robinson Creek	Type F (fish-bearing)	Direct	0.009 acres (380 sq. ft.)

[1] *WMC 15.08.350*

LIMITATIONS

ELS bases this report's determinations on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with our determinations. However, the information contained in this report should be considered preliminary and used at your own risk until it has been approved in writing by the appropriate regulatory agencies. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report.

REFERENCES

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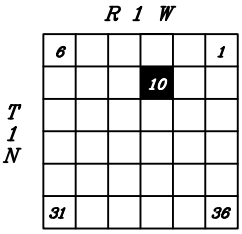
FIGURES AND PHOTOPLATES

WASHINGTON

Latitude:45.9289°
Longitude:-122.7254°

LOCATION MAP



PROJECT VICINITY MAP

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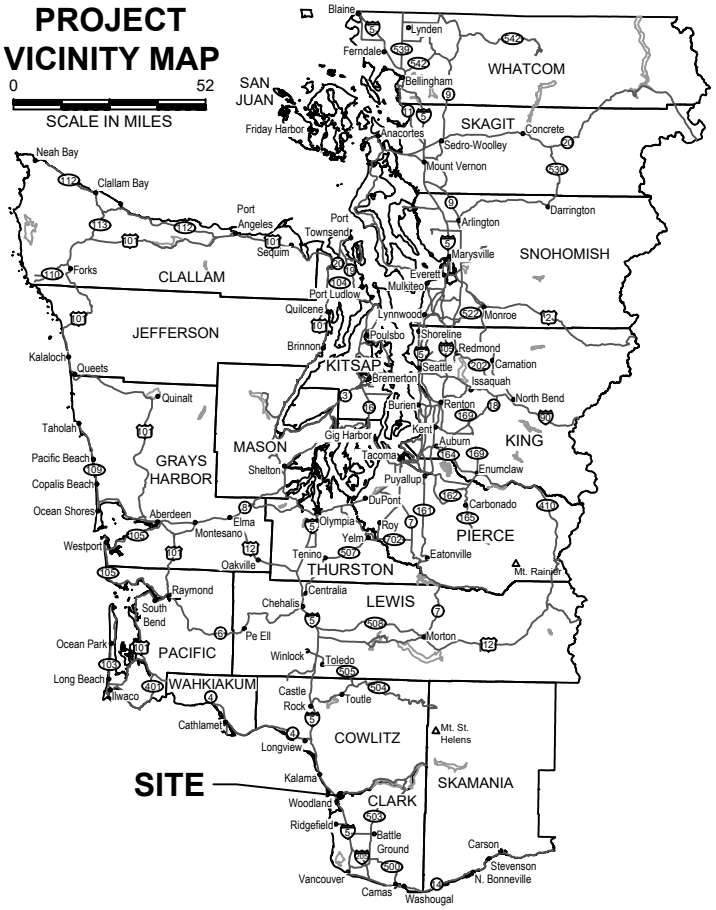

NOTE:
Quadrangle topographic map from USGS.

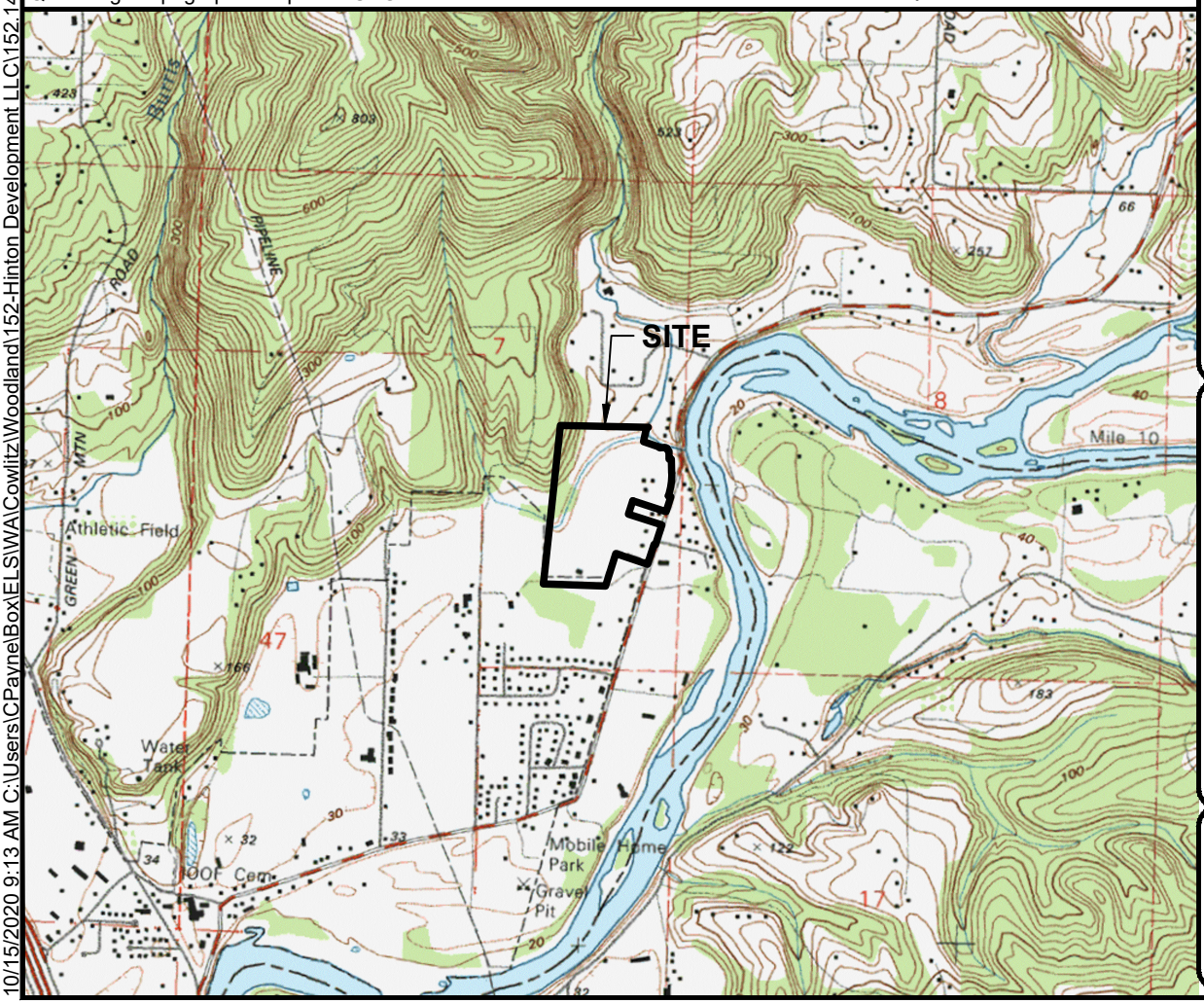

Figure 1
VICINITY MAP
Woodland Creek
Hinton Development LLC
City of Woodland, Cowlitz County, Washington
Section 7, Township 5N, Range 1E, W.M.

DATE: 10/15/20
DWN: CDP
REQ. BY: JAM
PRJ. MGR: JAM
CHK: JAM
PROJECT NO: 152.14

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com

Ecological Land Services

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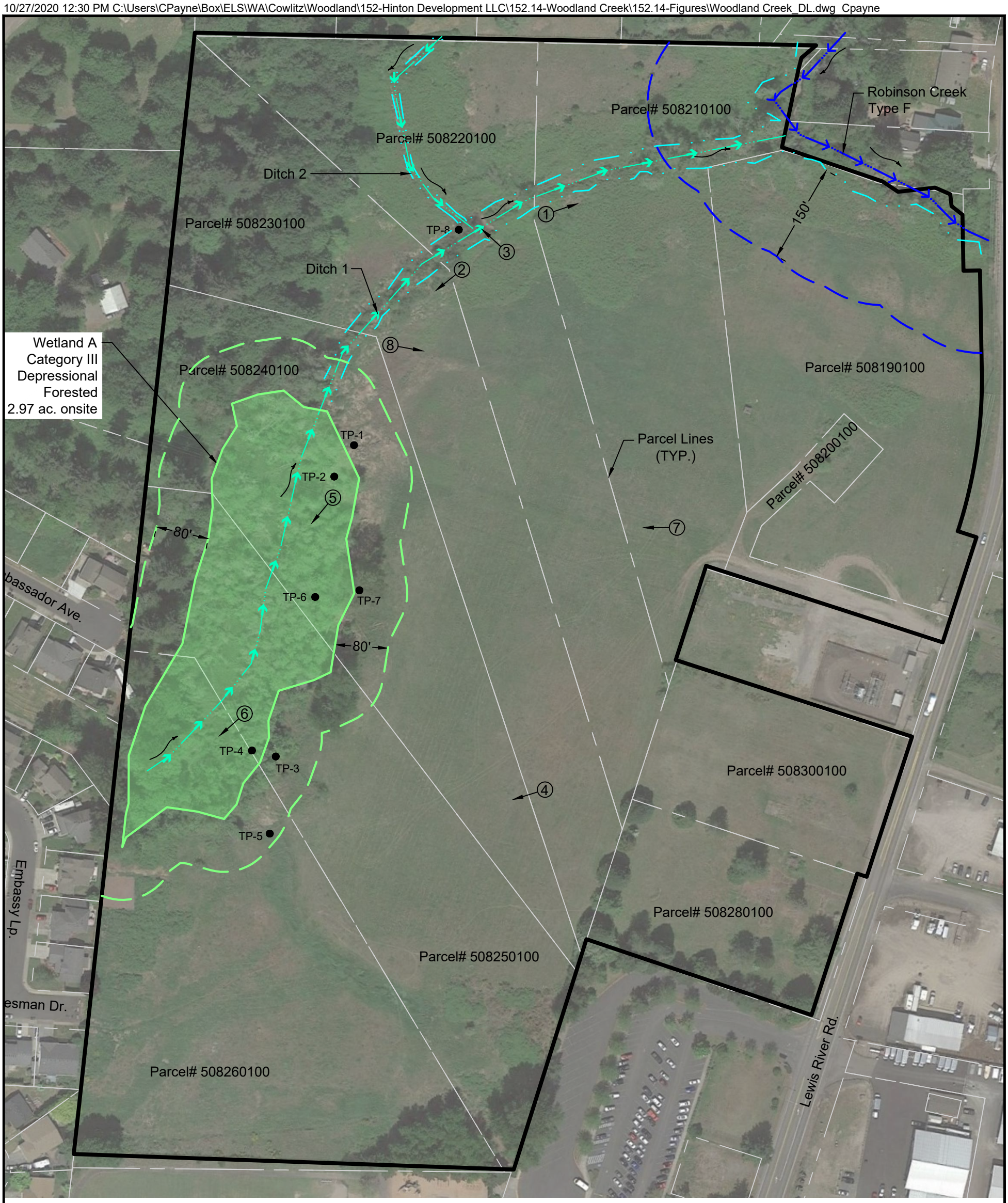

LEGEND:

- Site Boundary
- Wetland - 2.97 ac.
- Wetland Buffer
- Farm Ditch with Flow Direction
- Stream with Flow Direction
- Stream Buffer
- OHWM
- TP-1 ● Test Plot Location
- ① Photo Point Location

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REQ. BY: JAM
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PROJECT NO: 152.14

Figure 2
EXISTING CONDTIONS SITE MAP
Woodland Creek
Hinton Development LLC
City of Woodland, Cowlitz County, Washington
Section 7, Township 5N, Range 1E, W.M.

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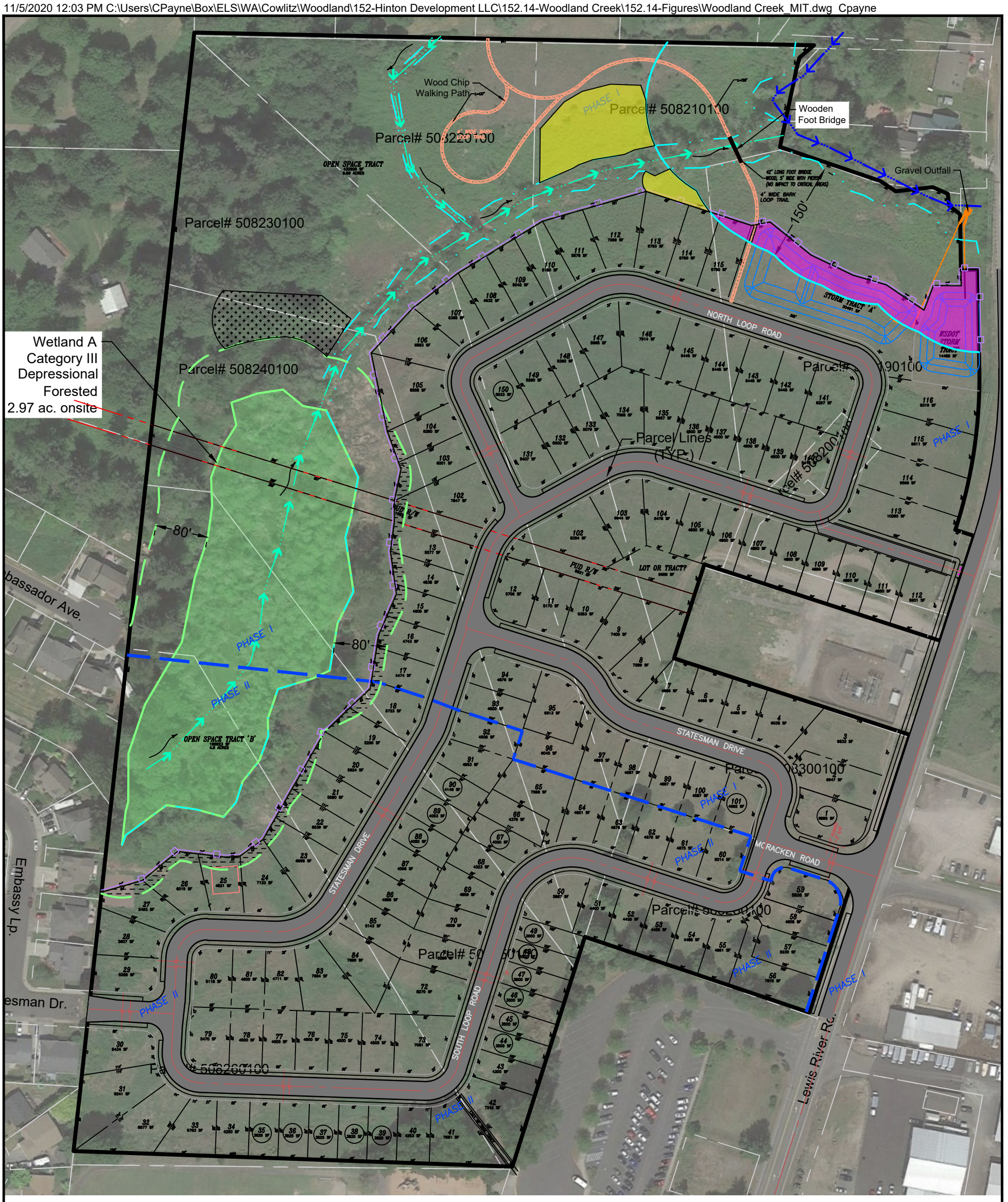

LEGEND:

- Site Boundary
- Riparian Buffer Avg. In-19,704 sq.ft.
- Riparian Buffer Avg. Out-19,704 sq.ft.
- Wetland - 2.97 ac.
- Wetland Buffer
- Farm Ditch with Flow Direction
- Stream with Flow Direction
- Stream Buffer
- OHWM

LEGEND cont:

- Temporary Riparian Buffer Impacts (380 sq. ft.)
- Wetland Buffer Avg Out - 14,273 sq.ft.
- Wetland Buffer Avg. In - 14,273 sq.ft.
- Wood Chip Walking Path
- Wooden Foot Bridge
- Permanent Split-Rail Fence and Habitat Signage

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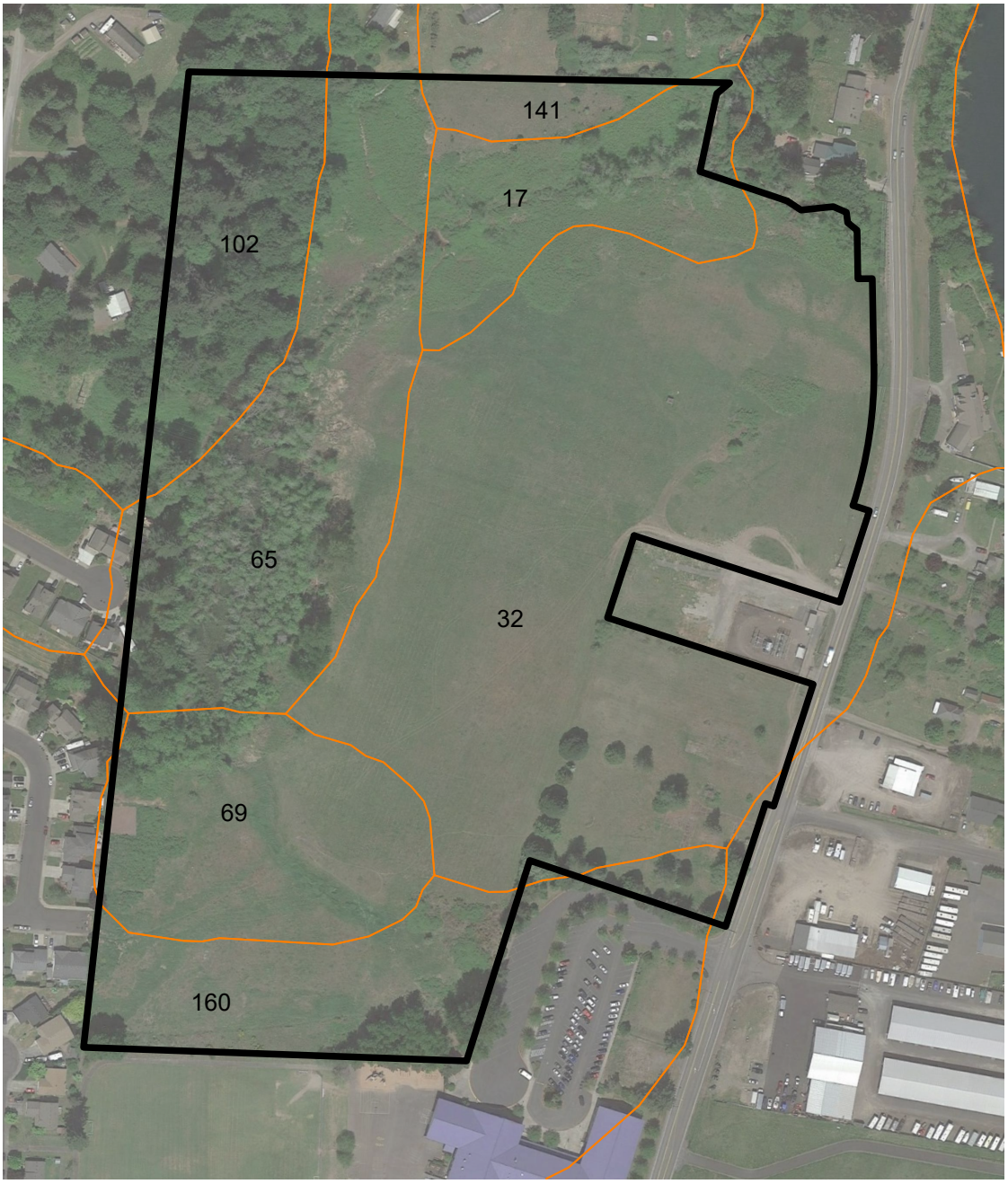
DATE: 11/5/20
DWN: CDP
REQ. BY: JAM
PRJ. MGR: JAM
CHK: JAM
PROJECT NO: 152.14

Figure 3
PROPOSED CONDTIONS SITE MAP
Woodland Creek
Hinton Development LLC
City of Woodland, Cowlitz County, Washington
Section 7, Township 5N, Range 1E, W.M.



LEGEND:

———	Site Boundary
17	Caples silty clay loam, 0 to 3 percent slopes. **Hydric.**
32	Clato silt loam, 0 to 3 percent slopes. Not hydric.
65	Godfrey silt loam, 0 to 3 percent slopes. **Hydric.**
69	Greenwater fine sandy loam, 0 to 8 percent slopes. Not hydric.
102	Kelso silt loam, 15 to 30 percent slopes. Not hydric.
160	Pilchuck loamy fine sand, 0 to 8 percent slopes. Not hydric.

NOTE(S):

1. Map provided online by NRCS at web address: *https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey*

Figure 3
NRCS SOIL SURVEY MAP
Woodland Creek
Hinton Development LLC
City of Woodland, Cowlitz County, Washington
Section 7, Township 5N, Range 1E, W.M.

DATE: 10/15/20
DWN: CDP
REQ. BY: JAM
PRJ. MGR: JAM
CHK: JAM
PROJECT NO: 152.14

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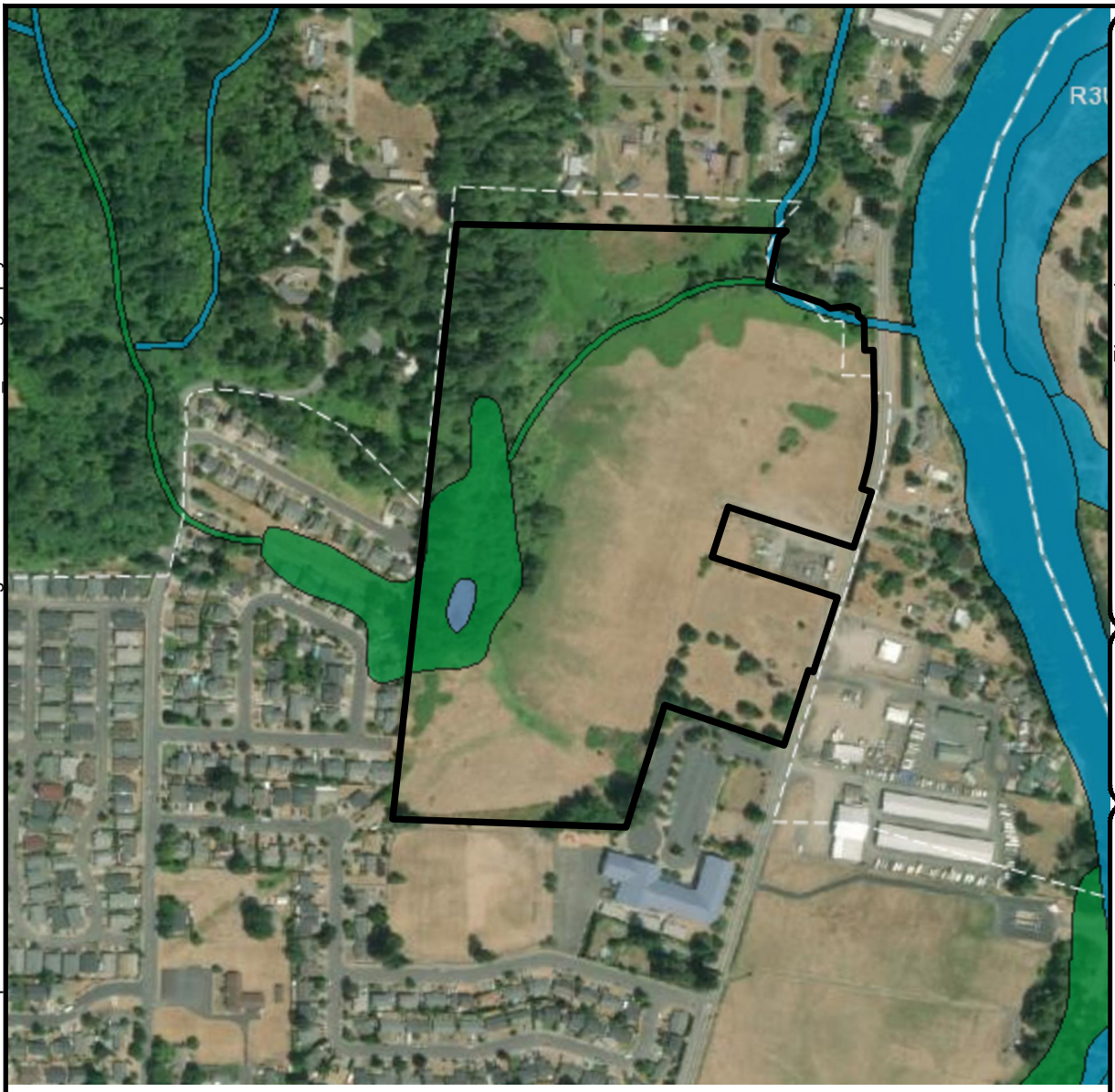

Mapped wetlands indicated onsite by US Fish & Wildlife Service.

LEGEND:

- Site Boundary
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

PUBH Palustrine, unconsolidated bottom, permanently flooded.

PFO/SSC Palustrine, forested, scrub-shrub, seasonally flooded.

NOTE(S):

1. Map provided online by US Fish & Wildlife Service at web address: *https://www.fws.gov/wetlands/data/Mapper.html*

Figure 4
NATIONAL WETLANDS INVENTORY MAP
Woodland Creek
Hinton Development LLC
City of Woodland, Cowlitz County, Washington
Section 7, Township 5N, Range 1E, W.M.

DATE: 10/15/20
DWN: CDP
REQ. BY: JAM
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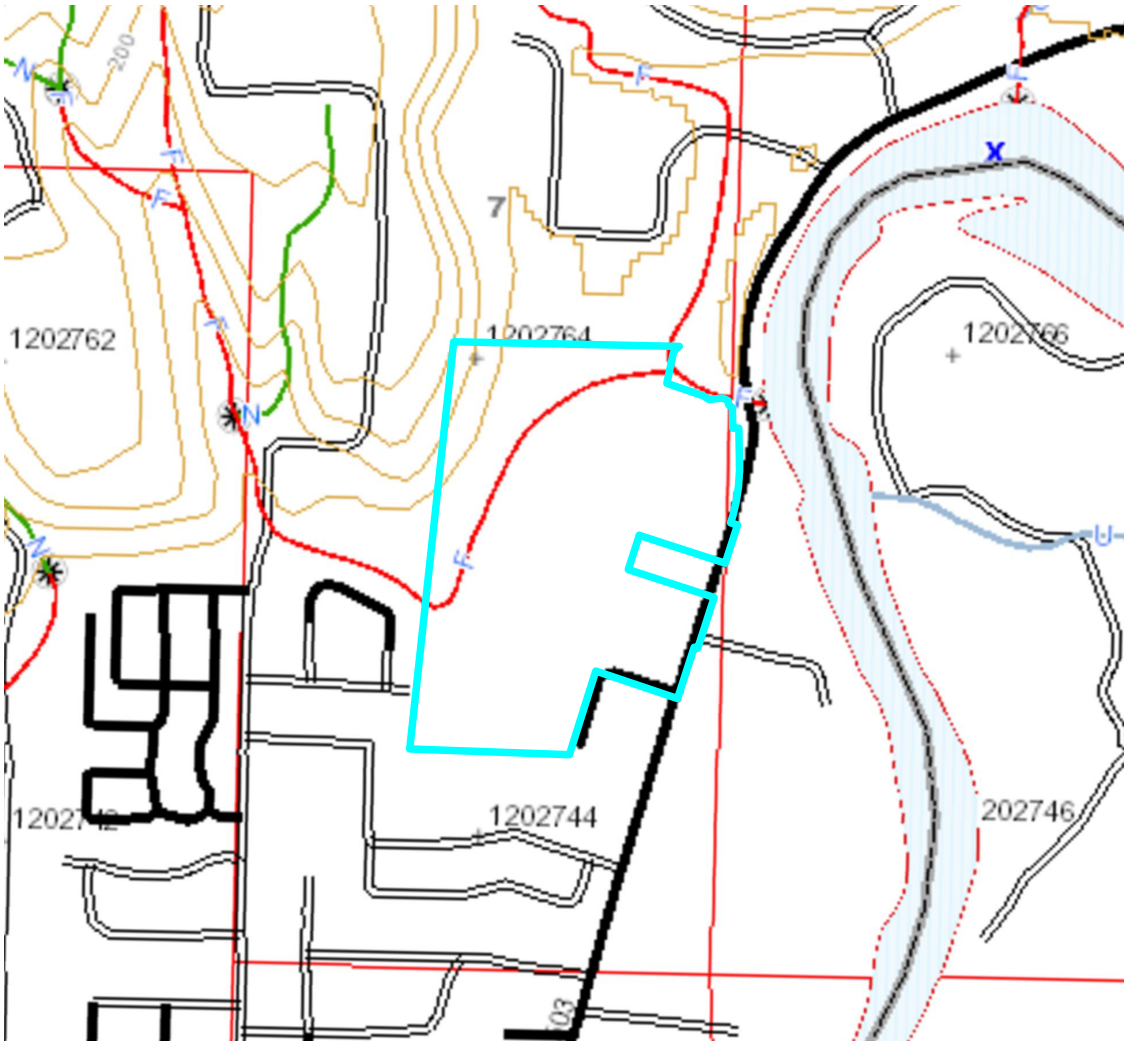

Mapped streams indicated onsite by the Washington State Department of Natural Resources (DNR).

LEGEND:

Site Boundary

Streams

Streams

- Type S
- Type F
- Type N, Np, Ns
- U, unknown
- X, non-typed per WAC 222-16

NOTE: Map provided online by Washington State Department of Natural Resources at web address: *https://fortress.wa.gov/dnr/protectiongis/fpamt/index.html*

Figure 5
DNR STREAM TYPE MAP
Woodland Creek
Hinton Development LLC
City of Woodland, Cowlitz County, Washington
Section 7, Township 5N, Range 1E, W.M.

DATE: 10/15/20
DWN: CDP
REQ. BY: JAM
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NOTE: Aerial photo provided by Google Earth™.

LEGEND:

- Wetland Unit Boundary
- Vegetation Class Division
- Hydroperiod Division
- Seasonal Ditch
- 150' Wetland Offset
- Pollutants/Runoff - 21.7%

Cowardin Classes:

FO Forested

Hydroperiods:

SF Seasonally flooded or inundated - 10.7%

SO Saturated only

Figure 6
150' OFFSET WETLAND RATING FIGURE
Woodland Creek
Hinton Development LLC
City of Woodland, Cowlitz County, Washington
Section 7, Township 5N, Range 1E, W.M.

DATE: 10/15/20
DWN: CDP
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CHK: JAM
PROJECT NO: 152.14

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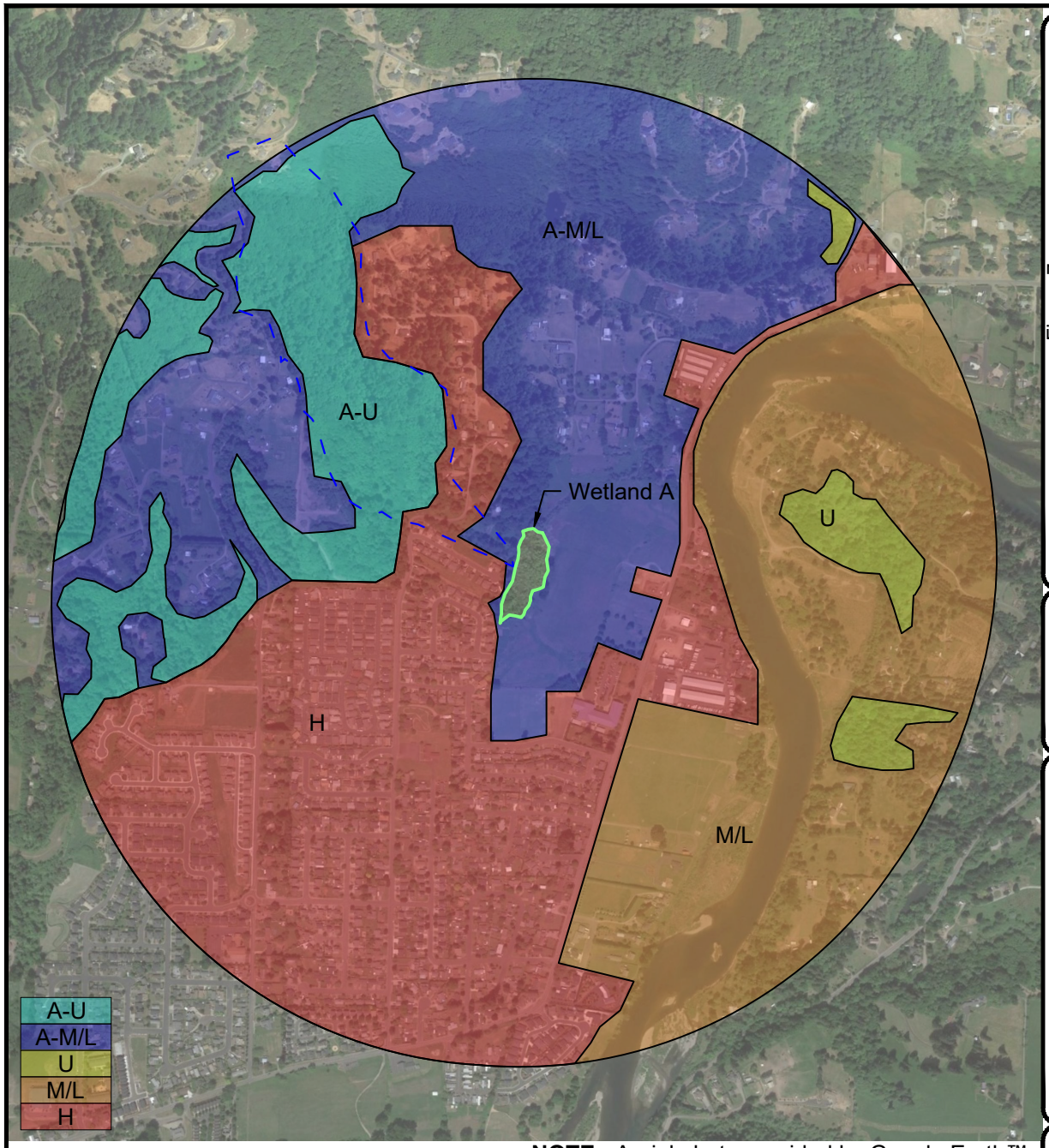

NOTE: Aerial photo provided by Google Earth™.

LEGEND:

Wetland Unit Boundary

Contributing Basin (10x area of wetland)

H2.1 Accessible Habitat

A-U — A-U (11%)

A-M/L — A-M/L (28%)

H2.2 Undisturbed Habitat

U — U (2%)

M/L — M/L (24%)

H2.3 Land Use Intensity

H — H (35%)

H 2.1. Accessible Habitat Equation

11% A-U habitat + [(**28%** A-M/L intensity land uses)/2] **14%** = **25%**

H 2.2. Total Undisturbed Habitat Equation

11% A-U + **2%** U habitat + [(**11%** A-M/L + **24%** M/L land uses)/2] **17.5%** = **30.5%**

Figure 7
1KM OFFSET WETLAND RATING FIGURE
Woodland Creek
Hinton Development LLC
City of Woodland, Cowlitz County, Washington
Section 7, Township 5N, Range 1E, W.M.

DATE: 10/15/20
DWN: CDP
REQ. BY: JAM
PRJ. MGR: JAM
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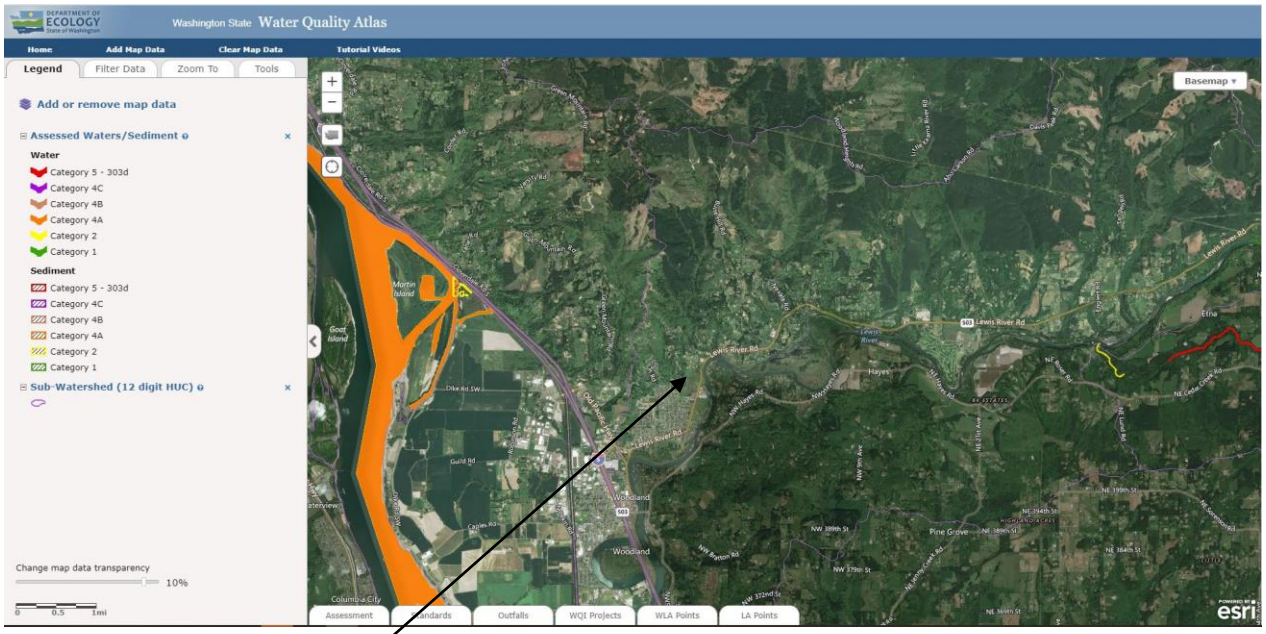

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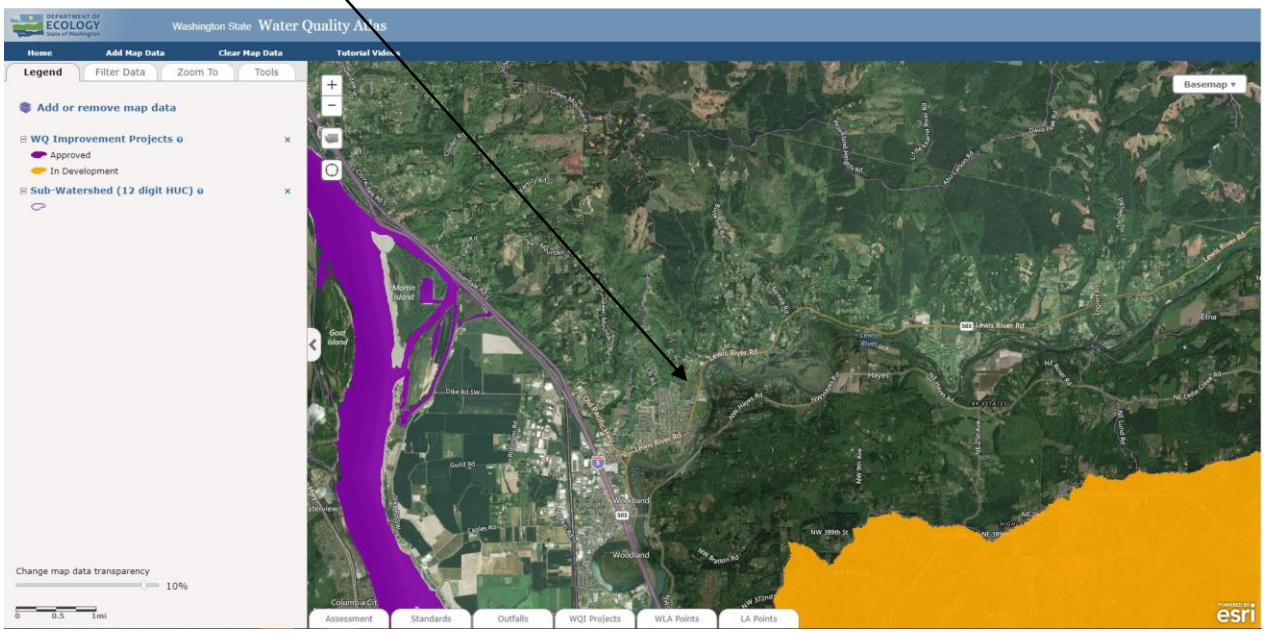
Study Area



Ecological Land Services

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Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305

DATE: 10/13/2020
DWN: JM
PRJ. MGR: JM McManus
PROJ #: 152.14

Figure 8
303(d) Listed Waters & TMDL's
Woodland Creek Delineation
Hinton Development
Cowlitz County Washington
Section 7, Township 5N, Range, 1E W.M.

APPENDIX A: WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Woodland Creek Redelineation City/County: Woodland/Cowlitz Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC State: WA Sampling Point: TP1
Investigator(s): Godinho, Shawn and McManus, Jacob Section, Township, Range: S7, T5N, R1E
Landform (hillslope, terrace, etc.): Flood plains Local relief: (concave, convex, none): none Slope (%): 0-3%
Subregion (LRR): A Lat: 45.9297625° Long: -122.725788° Datum: NAD83
Soil Map Unit Name: (65) Godfrey silt loam NWI classification: PFO/SSC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Are "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes☐ No☒
Hydric Soils Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-1 was located in the western portion of Cowlitz County Tax Parcel 508240100, north of Wetland A. Vegetation in this test plot consisted of herbaceous species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. However, there was no evidence of hydric soil or wetland hydrology indicators observed within this test plot, therefore, it is not considered to be within a wetland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
50% = ___ 20% = ___	%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
50% = ___ 20% = ___	%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	95%	yes	FACW
2. *Equisetum arvense*	5%	no	FAC
3.	%	no	
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 50 20% = 20	100%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 0%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species		x 3=	
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes☒ No☐

Remarks:The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/3	97%	10YR 4/6	3%	C	M	loam	
7-16	10YR 3/4	95%	10YR 4/6	5%	C	M	silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ____
Depth (inches):

Hydric Soil Present? **Yes☐ No☒**

Remarks: No evidence of hydric soil indicators observed within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (Inches): None
Water Table Present?	Yes ☐	No ☒	Depth (Inches): None
Saturation Present? (Includes Capillary fringe)	Yes ☐	No ☒	Depth (Inches): None

Wetland Hydrology Present? **Yes ☐ No ☒**

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:No evidence of wetland hydrology indicators observed within this test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Woodland Creek Redelineation City/County: Woodland/Cowlitz Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC State: WA Sampling Point: TP2
Investigator(s): Godinho, Shawn and McManus, Jacob Section, Township, Range: S7, T5N, R1E
Landform (hillslope, terrace, etc.): Flood plains Local relief: (concave, convex, none): Concave Slope (%): 0-3%
Subregion (LRR): A Lat: 45.92962983° Long: -122.7259° Datum: NAD83
Soil Map Unit Name: (65) Godfrey silt loam NWI classification: PFO/SSC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Are "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes☒ No☐**
Hydric Soils Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: TP-2 was located in the western portion of Cowlitz County Tax Parcel 508240100, within the northern portion of Wetland A. Vegetation in this test plot consisted of tree, scrub-shrub, and emergent species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. Additionally, the hydric soil indicator Depleted Matrix (F3) was observed, along with the following wetland hydrology indicators: Oxidized Rhizospheres Along Live Roots (C3), a positive FAC-Neutral Test (D5), and Geomorphic Position (D2). Given this test plot satisfied all three wetland indicator criteria, it is considered to be within a wetland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus latifolia*	15%	yes	FACW
2. *Crataegus douglasii*	15%	yes	FAC
3.	%		
4.	%		
50% = 15 20% = 6	30%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Spiraea douglasii*	25%	yes	FACW
2.	%		
3.	%		
4.	%		
5.	%		
50% = 13 20% = 5	25%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	50%	yes	FACW
2. *Equisetum arvense*	10%	no	FAC
3. *Rubus ursinus*	10%	no	FACU
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 35 20% = 14	70%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 30%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species		x 3=	
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes☒ No☐**

Remarks:The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/4	100%		%			Silt loam	
3-16	10YR 4/1	85%	5YR 4/6	15%	C	PL	Silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ____
Depth (inches):

Hydric Soil Present? **Yes☒ No☐**

Remarks: Requirements for the hydric soil indicator Depleted Matrix (F3) were met within this test plot given the presence of a soil layer with at least 60% matrix value of 4 or more and a chroma of 2 or less with distinct or prominent redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (Inches): None
Water Table Present?	Yes ☐	No ☒	Depth (Inches): None
Saturation Present? (Includes Capillary fringe)	Yes ☐	No ☒	Depth (Inches): None

Wetland Hydrology Present? **Yes ☒ No ☐**

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:The primary wetland hydrology indicator Oxidized Rhizospheres Along Live Roots (C3) was observed within this test plot. Additionally, requirements for the secondary indicators Geomorphic Position (D2) and FAC-Neutral Test (D5) were satisfied.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Woodland Creek Redelineation | City/County: Woodland/Cowlitz | Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC | State: WA | Sampling Point: TP3
Investigator(s): Godinho, Shawn and McManus, Jacob | Section, Township, Range: S7, T5N, R1E
Landform (hillslope, terrace, etc.): Escarpments, terraces | Local relief: (concave, convex, none): none | Slope (%): 0-3%
Subregion (LRR): A | Lat: 45.9284617° | Long: -122.7262011° | Datum: NAD83
Soil Map Unit Name: (69) Greenwater fine sandy loam | NWI classification: PFO/SSC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Are "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes☐ No☒
Hydric Soils Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-1 was located in the southwest portion of Cowlitz County Tax Parcel 508250100, east of Wetland A. Vegetation in this test plot consisted of herbaceous species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. Additionally, the hydric soil indicator Redox Dark Surface (F6) was observed. However, there was no evidence of wetland hydrology indicators observed within this test plot, therefore, it is not considered to be within a wetland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	25%	yes	FAC
2.	%		
3.	%		
4.	%		
50% = 13 20% = 5	25%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Rubus armeniacus*	25%	yes	FAC
2. *Salix sitchensis*	15%	yes	FACW
3.	%		
4.	%		
5.	%		
50% = 20 20% = 8	40%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	20%	yes	FACW
2. *Equisetum arvense*	20%	yes	FAC
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 20 20% = 8	40%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 60%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species		x 3=	
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes☒ No☐

Remarks:The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	97%	5YR 4/6	3%	C	M	Silt loam	See Remarks Below
5-16	10YR 3/2	90%	5YR 4/6	10%	C	M	Silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ____
Depth (inches):

Hydric Soil Present? **Yes☒ No☐**

Remarks: Requirements for the hydric soil indicator Redox Dark Surface (F6) have been satisfied in this test plot given the presence of soil layers with matrix values of 3 or less and chromas of 2 or less with 5% or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (Inches): None
Water Table Present?	Yes ☐	No ☒	Depth (Inches): None
Saturation Present? (Includes Capillary fringe)	Yes ☐	No ☒	Depth (Inches): None

Wetland Hydrology Present? **Yes ☐ No ☒**

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:No evidence of wetland hydrology indicators observed within this test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Woodland Creek Redelineation City/County: Woodland/Cowlitz Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC State: WA Sampling Point: TP4
Investigator(s): Godinho, Shawn and McManus, Jacob Section, Township, Range: S7, T5N, R1E
Landform (hillslope, terrace, etc.): Escarpments, terraces Local relief: (concave, convex, none): Concave Slope (%): 0-8%
Subregion (LRR): A Lat: 45.92848402° Long: -122.7263433° Datum: NAD83
Soil Map Unit Name: (69) Greenwater fine sandy loam, NWI classification: PFO/SSC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Are "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes☒ No☐**
Hydric Soils Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: TP-4 was located in the southwest portion of Cowlitz County Tax Parcel 508250100, within the southern portion of Wetland A. Vegetation in this test plot consisted of tree, scrub-shrub, and emergent species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. Additionally, the hydric soil indicators Depleted Matrix (F3) and Redox Dark Surface (F6) were observed, along with the following wetland hydrology indicators: A High Water Table (A2), Saturation (A3), and Sparsely Vegetated Surface (B8). Given this test plot satisfied all three wetland indicator criteria, it is considered to be within a wetland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50%	yes	FAC
2.	%		
3.	%		
4.	%		
50% = 25 20% = 10	50%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Salix sitchensis*	40%	yes	FACW
2. *Rubus armeniacus*	20%	yes	FAC
3.	%		
4.	%		
5.	%		
50% = 30 20% = 12	60%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	10%	yes	FACW
2. *Equisetum arvense*	5%	yes	FAC
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 7.5 20% = 3	15%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 85%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species		x 3=	
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes☒ No☐**

Remarks:The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	95%	5YR 4/6	5%	C	PL	Silt loam	See Remarks Below
5-16	10YR 4/1	80%	5YR 4/6	20%	C	M	Silty clay loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ____
Depth (inches):

Hydric Soil Present? **Yes☒ No☐**

Remarks: Requirements for the hydric soil indicator Depleted Matrix (F3) were met within this test plot given the presence of a soil layer with at least 60% matrix value of 4 or more and a chroma of 2 or less with distinct or prominent redox concentrations. Additionally, requirements for the hydric soil indicator Redox Dark Surface (F6) have been satisfied in this test plot given the presence of a soil layer with a matrix value of 3 or less and a chroma of 2 or less with 5% or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (Inches): None
Water Table Present?	Yes ☒	No ☐	Depth (Inches): 6
Saturation Present? (Includes Capillary fringe)	Yes ☒	No ☐	Depth (Inches): 5

Wetland Hydrology Present? **Yes ☒ No ☐**

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:A High Water Table (A2) was observed at a depth of 6 inches, and Saturation (A3) was observed at a depth of 6 inches below ground surface. Additionally, this test plot was located within a Sparsely Vegetated Concave Surface (B8).

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Woodland Creek Redelineation City/County: Woodland/Cowlitz Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC State: WA Sampling Point: TP5
Investigator(s): Godinho, Shawn and McManus, Jacob Section, Township, Range: S7, T5N, R1E
Landform (hillslope, terrace, etc.): Escarpments, terraces Local relief: (concave, convex, none): concave Slope (%): 0-8%
Subregion (LRR): A Lat: 45.92814112° Long: -122.7262235° Datum: NAD83
Soil Map Unit Name: (69) Greenwater fine sandy loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Are "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes☐ No☒
Hydric Soils Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-5 was located in the southwest portion of Cowlitz County Tax Parcel 508260100, within a drainage swale east of Wetland A. Vegetation in this test plot consisted of herbaceous species. The hydrophytic vegetation criterion was met given 67% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. Additionally, the hydric soil indicator Redox Dark Surface (F6) was observed. However, there was no evidence of wetland hydrology indicators observed within this test plot, therefore, it is not considered to be within a wetland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
50% = ___ 20% = ___	%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
50% = ___ 20% = ___	%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	50%	yes	FACW
2. *Agrostis capillaris*	20%	yes	FAC
3. *Anthoxanthum odoratum*	20%	yes	FACU
4. *Epilobium ciliatum*	5%	no	FACW
5. *Vicia americana*	3%	no	FAC
6. *Equisetum arvense*	2%	no	FAC
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 50 20% = 20	100%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 0%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 67 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species		x 3=	
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes☒ No☐

Remarks:The hydrophytic vegetation criterion was met given 67% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	95%	5YR 4/6	5%	C	PL	Loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ____
Depth (inches):

Hydric Soil Present? **Yes☒ No☐**

Remarks: Requirements for the hydric soil indicator Redox Dark Surface (F6) have been satisfied in this test plot given the presence of a soil layer with a matrix value of 3 or less and a chroma of 2 or less with 5% or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (Inches): None
Water Table Present?	Yes ☐	No ☒	Depth (Inches): None
Saturation Present? (Includes Capillary fringe)	Yes ☐	No ☒	Depth (Inches): None

Wetland Hydrology Present? **Yes ☐ No ☒**

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:No evidence of wetland hydrology indicators observed within this test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Woodland Creek Redelineation City/County: Woodland/Cowlitz Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC State: WA Sampling Point: TP6
Investigator(s): Godinho, Shawn and McManus, Jacob Section, Township, Range: S7, T5N, R1E
Landform (hillslope, terrace, etc.): Flood plains Local relief: (concave, convex, none): Concave Slope (%): 0-3%
Subregion (LRR): A Lat: 45.92912795° Long: -122.7259932° Datum: NAD83
Soil Map Unit Name: (65) Godfrey silt loam NWI classification: PFO/SSC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Are "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes☒ No☐**
Hydric Soils Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: TP-6 was located in the western portion of Cowlitz County Tax Parcel 508240100, within the eastern portion of Wetland A. Vegetation in this test plot consisted of tree, scrub-shrub, and emergent species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. Additionally, the hydric soil indicator Redox Dark Surface (F6) was observed, along with the following wetland hydrology indicators: Saturation (A3), Sparsely Vegetated Surface (B8), and Water Stained Leaves 9B9). Given this test plot satisfied all three wetland indicator criteria, it is considered to be within a wetland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus latifolia*	90%	yes	FACW
2.	%		
3.	%		
4.	%		
50% = 45 20% = 18	90%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Spiraea douglasii*	5%	yes	FACW
2.	%		
3.	%		
4.	%		
5.	%		
50% = 2 20% = 1	5%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	10%	yes	FACW
2.	%		
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 5 20% = 2	10%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 90%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species		x 3=	
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes☒ No☐**

Remarks:The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	90%	5YR 4/6	10%	C	PL	Silt loam	See Remarks Below
10-16	10YR 3/2	80%	5YR 4/6	20%	C	M	Silt loam	
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ____
Depth (inches):

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Requirements for the hydric soil indicator Redox Dark Surface (F6) have been satisfied in this test plot given the presence of a soil layer with a matrix value of 3 or less and a chroma of 2 or less with 5% or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (Inches): None
Water Table Present?	Yes ☐	No ☒	Depth (Inches): None
Saturation Present? (Includes Capillary fringe)	Yes ☐	No ☒	Depth (Inches): 10

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:Water Stained Leaves (B9) and Saturation (A3) were observed within this test plot. Additionally, this test plot was located within a Sparsely Vegetated Concave Surface (B8).

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Woodland Creek Redelineation City/County: Woodland/Cowlitz Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC State: WA Sampling Point: TP7
Investigator(s): Godinho, Shawn and McManus, Jacob Section, Township, Range: S7, T5N, R1E
Landform (hillslope, terrace, etc.): Flood plains Local relief: (concave, convex, none): none Slope (%): 0-3%
Subregion (LRR): A Lat: 45.92916009° Long: -122.7257878° Datum: NAD83
Soil Map Unit Name: (65) Godfrey silt loam NWI classification: PFO/SSC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Are "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes☐ No☒
Hydric Soils Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-7 was located in the western portion of Cowlitz County Tax Parcel 508240100, east of Wetland A. Vegetation in this test plot consisted of tree, scrub-shrub, and herbaceous species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. However, there was no evidence of hydric soil or wetland hydrology indicators observed within this test plot, therefore, it is not considered to be within a wetland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	40%	yes	FACW
2.	%		
3.	%		
4.	%		
50% = 20 20% = 8	40%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Rubus armeniacus*	15%	yes	FAC
2.	%		
3.	%		
4.	%		
5.	%		
50% = 7.5 20% = 3	15%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Lotus corniculatus*	25%	yes	FAC
2. *Equisetum arvense*	25%	yes	FAC
3. *Ranunculus repens*	20%	yes	FAC
4. *Agrostis capillaris*	15%	no	FAC
5. *Anthoxanthum odoratum*	15%	no	FACU
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 50 20% = 20	100%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 0%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species		x 3=	
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes☒ No☐

Remarks:The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100%		%			Loam	
4-16	10YR 3/3	100%		%			Silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ____
Depth (inches):

Hydric Soil Present? **Yes☐ No☒**

Remarks: No evidence of hydric soil indicators within this test plot.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (Inches): None
Water Table Present?	Yes ☐	No ☒	Depth (Inches): None
Saturation Present? (Includes Capillary fringe)	Yes ☐	No ☒	Depth (Inches): None

Wetland Hydrology Present? **Yes ☐ No ☒**

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:No evidence of wetland hydrology indicators observed within this test plot during the site visit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Woodland Creek Redelineation City/County: Woodland/Cowlitz Sampling Date: 6/26/2020
Applicant/Owner: Hinton Development LLC State: WA Sampling Point: TP8
Investigator(s): Godinho, Shawn and McManus, Jacob Section, Township, Range: S7, T5N, R1E
Landform (hillslope, terrace, etc.): Flood plains Local relief: (concave, convex, none): Concave Slope (%): 0-3%
Subregion (LRR): A Lat: 45.93066798° Long: -122.7252007° Datum: NAD83
Soil Map Unit Name: (65) Godfrey silt loam NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain Remarks.)
Are Vegetation☐, Soil☐, or Hydrology☐ significantly disturbed? Are "Normal Circumstances" present? Yes☒ No☐
Are Vegetation☐, Soil☐, or Hydrology☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes☐ No☒
Hydric Soils Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-8 was located in the northern portion of Cowlitz County Tax Parcel 508240100, within the OHWM of the seasonal stream which provides an outlet to Wetland A. Vegetation in this test plot consisted of tree and herbaceous species. The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses. However, there was no evidence of hydric soil or wetland hydrology indicators observed within this test plot, therefore, it is not considered to be within a wetland area. Soils within this test plot consisted of a mixed matrix and appeared disturbed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix sitchensis*	70%	yes	FACW
2.	%		
3.	%		
4.	%		
50% = 35 20% = 14	70%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
50% = ___ 20% = ___	%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	55%	yes	FACW
2.	%		
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 28 20% = 11	55%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 45%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species		x 3=	
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	(A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes☒ No☐

Remarks:The hydrophytic vegetation criterion was met given 100% of the dominant species within the plot have FAC, FACW, or OBL indicator statuses.

SOIL

Sampling Point: TP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	60%		%			Silty clay loam	See Remarks Below
	10YR 4/4	30%		%				
	10YR 5/6	10%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and Wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: ____
Depth (inches):

Hydric Soil Present? **Yes☐ No☒**

Remarks: No evidence of hydric soil indicators observed within this test plot during the site visit. The soil layer from 0-16 inches consisted of a mixed matrix with 3 distinct colors. Soils within this test plot appeared potentially disturbed. This test plot was located within the OHWM of a seasonally flowing stream which provides the primary outlet for Wetland A.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (Inches): None
Water Table Present?	Yes ☐	No ☒	Depth (Inches): None
Saturation Present? (Includes Capillary fringe)	Yes ☐	No ☒	Depth (Inches): None

Wetland Hydrology Present? **Yes ☐ No ☒**

Describe Recorded Data (Stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:No evidence of wetland hydrology indicators observed within this test plot during the site visit.

APPENDIX B: WETLAND RATING FORM

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A – Woodland Creek Date of site visit: 6/26/2020

Rated by: KT Wills Trained by Ecology? Yes X No Date of training: 2015

HGM Class used for rating: Depressional Wetland has multiple HGM classes? X Y N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 – 27

_____**Category II** – Total score = 20 – 22

X **Category III** – Total score = 16 – 19

_____**Category IV** – Total score = 9 – 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H (M) L	H M (L)	
Landscape Potential	H (M) L	(H) M L	H (M) L	
Value	H M (L)	H M (L)	H (M) L	TOTAL
Score Based on Ratings	5	6	5	**16**

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	(N/A)

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	6
Hydroperiods	D 1.4, H 1.2	6
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	6
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	6
Map of the contributing basin	D 4.3, D 5.3	6
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	6
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	7
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	8

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
___The wetland is on a slope (*slope can be very gradual*),
___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
___The water leaves the wetland **without being impounded**.

NO – go to 5 **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
___The overbank flooding occurs at least once every 2 years.

Wetland name or number A

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. (points = 2) Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 (No = 0)	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area (points = 5) Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland (points = 0)	0
Total for D 1 Add the points in the boxes above	7

Rating of Site Potential If score is: ___**12-16 = H** __**X**__**6-11 = M** ___**0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? (Yes = 1) No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes = 1) No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 (No = 0)	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source: **Deer grazing & Exhaust Particulate** (Yes = 1) No = 0	0
Total for D 2 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___**3 or 4 = H** __**X**__**1 or 2 = M** ___**0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 (No = 0)	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 (No = 0)	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 (No = 0)	0
Total for D 3 Add the points in the boxes above	0

Rating of Value If score is: ___**2-4 = H** ___**1 = M** __**X**__**0 = L** *Record the rating on the first page*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet **points = 2** Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet **points = 3** The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	3
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* **The area of the basin is less than 10 times the area of the unit points = 5** The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	5
Total for D 4 Add the points in the boxes above	**10**

Rating of Site Potential If score is: **12-16 = H** **X** **6-11 = M** **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? **Yes = 1** No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? **Yes = 1** No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? **Yes = 1** No = 0	1
Total for D 5 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: **X** **3 = H** **1 or 2 = M** **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____ points = 0 There are no problems with flooding downstream of the wetland. **points = 0**	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 **No = 0**	0
Total for D 6 Add the points in the boxes above	**0**

Rating of Value If score is: **2-4 = H** **1 = M** **X** **0 = L** *Record the rating on the first page*

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed
____Emergent
____Scrub-shrub (areas where shrubs have > 30% cover)
__X__Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
(2 structures: points = 1)
1 structure: points = 0

If the unit has a Forested class, check if:

__X__The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated
__X__Seasonally flooded or inundated
____Occasionally flooded or inundated
__X__Saturated only
____Permanently flowing stream or river in, or adjacent to, the wetland
____Seasonally flowing stream in, or adjacent to, the wetland
____**Lake Fringe wetland** **2 points**
____**Freshwater tidal wetland** **2 points**

4 or more types present: points = 3
3 types present: points = 2
(2 types present: points = 1)
1 type present: points = 0

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

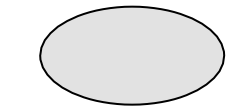
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species points = 2
(5 - 19 species) points = 1
< 5 species points = 0

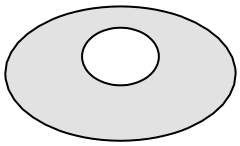
1

H 1.4. Interspersion of habitats

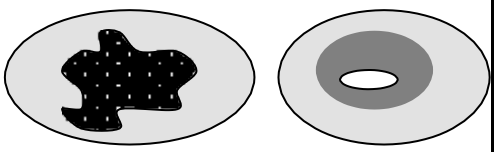
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



(**None** = 0 points)

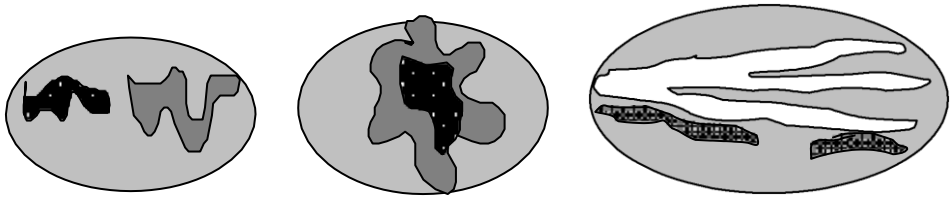


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



0

Wetland name or number _A___

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* __X__Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). __X__Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**5**

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** __**X**__**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 11%**+** [(% moderate and low intensity land uses)/2]14% **=** **25** % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 13% **+** [(% moderate and low intensity land uses)/2]17.5% **= 30.5**% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is**:**___**4-6 = H** __**X**__**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria: points = 2

__ It has 3 or more priority habitats within 100 m (see next page)

— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)

— It is mapped as a location for an individual WDFW priority species

— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources

— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan

_X__ Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1

Site does not meet any of the criteria above points = 0

Rating of Value If score is:___**2 = H** __**X**__**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _A__

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

_X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

__ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

_X_ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number A

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**N/A**

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