Critical Areas Report
for
Riverside Estates Project
La Center, Washington

Prepared for:
City of La Center
214 East 4th Street
La Center, WA 98629

Project # 109.01

Prepared by:
Loowit Consulting Group, LLC
312 Gray Road
Castle Rock, WA 98611
360.431.5118

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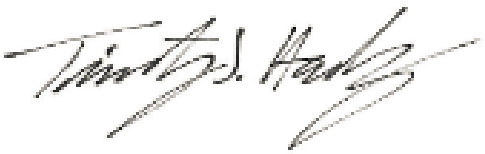
SIGNATURE PAGE

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned:



Timothy J. Haderly, Principal Scientist/Owner
Loowit Consulting Group, LLC

INTRODUCTION

Purpose and Need

Loowit Consulting Group, LLC (LCG) was retained by the City of La Center to complete a critical areas investigation and report for the proposed Riverside Estates residential subdivision project located at 1514 NW 339TH Street in the western portion of La Center, Washington (Figure 1). LCG was retained at the beginning of May 2018 with the understanding that fieldwork would start immediately even though site conditions were not optimal for evaluating emergent pasture wetlands in Clark County. Even though site conditions were challenging, vegetation and soil indicators were sufficient while hydrology indicators were less obvious.

The current buyer of the property, WPD Corporation, has retained PLS Engineering from Vancouver, Washington to design, engineer, and help permit development of the subject site into a multi-phase residential development (Figure 2).

Site Description

The subject site consists of two tax parcels totaling approximately 38.48 acres of vacant property. Only a portion of the subject site was investigated for the presence of wetlands and other jurisdictional waters (see Figure 2). The Subject site specifics include:

Site Address:	1514 NW 339TH Street La Center, WA 98629
Current Owner:	Randy & Kari Goode
Tax Parcel Number:	986028830, 986030206
Legal Description:	Section 3, Township 5 North, Range 1 East, W.M.
Property Size:	Approximately 38.48 acres
Jurisdiction:	City of La Center

The subject site is located south of NW Old Pacific Hwy, west of NW Larsen Drive, North of NW 339th Street and east of NW Hunter Lane on the western limits of the City of La Center. The site is situated on a terrace gently sloping to the south and southwest and vegetated with various pasture grasses and forbs (Photograph 1 & 2). Larsen Drive provides access to the site but there are no established access roads into the site. There are no structures or other improvements to the subject site.

Photograph 1: Central portion of the subject site showing pasture grass vegetation.

Photograph 2: Pasture grass showing very subtle transitional vegetation between Wetland AA and upland areas.

Land uses adjacent to the subject site include:

- To the South – Single family residences and East Fork Lewis River.
- To the North – Single family residences, agricultural lands, and Old Pacific Hwy.

- To the West – Single family residences and agricultural lands.
- To the East – Single family residences and agricultural lands.

Historic Critical Areas Investigations

A number of critical area investigations have been conducted at the subject site beginning in 2005 when Ecological land Services, Inc. (ELS) completed a critical areas investigation in the southern end of the property along the East Fork Lewis River. The most recent critical area investigation was completed by Castle-Rose Environmental on May 17, 2018. Due to conflicting findings and conclusions in the various reports from 2005 to 2018, Timothy J. Haderly – owner of Loowit Consulting Group, LLC (LCG) – was retained by City of La Center Planning Department to complete a review of existing information and complete and independent critical areas investigation of the subject site. The following past reports were reviewed by LCG as part of this critical areas investigation

- Castle-Rose Environmental – *Wetland Determination Report, 1514 NW 339th Street, La Center, Washington, 9862*9 - May 17, 2018
- Castle-Rose Environmental – *Critical Areas Report, Wetlands and Riparian Habitat, 1514 NW 339th Street, La Center, WA, 98629* - October 5, 2016
- Cascadia Ecological Services, Inc. – *Preliminary Wetland Assessment* – August 13, 2015
- Bluhm & Associates (Ecological Land Services, Inc.) – 2010
- Ecological land Services, Inc. – 2005

Given past and present agricultural activities at the subject site, it is not unexpected to see markedly different findings between the reports from 2005 to present. Each investigation included field work conducted at varying times of year making hydrology indicators absent or more pronounced, changes in visible vegetation, and soil indicators more or less prominent based on soil saturation conditions.

METHODS

Desktop Review

Prior to visiting the subject site, LCG conducted a desktop review of readily available mapping resources and other pertinent information including:

- Clark County GIS Maps (http://gis.clark.wa.gov/mapsonline/). This source provided parcel information, aerial photographs, physical attributes, and other information from the Clark County Assessor.
- Federal Emergency Management Agency. Flood Map Service Center. (https://msc.fema.gov/portal/search) This site includes updated flood maps for the United States.
- Google Earth Pro (https://www.google.com/earth/) This source provided recent and past aerial photographs of the project area.

- US Fish and Wildlife Service National Wetlands Inventory Wetlands Mapper (https://www.fws.gov/wetlands/data/mapper.html). This mapping source depicts wetlands and streams throughout the United States.
- US Department of Agriculture Natural Resources Conservation Service Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx). This source depicts mapped soils including hydric soils throughout the United States.
- Washington Department of Natural Resources Forest Practices Application Mapping Tool (https://fpamt.dnr.wa.gov/default.aspx). This mapping source depicts streams and wetlands in Washington State.
- Washington Department of Natural Resources Geologic Information Portal. (https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/landslides#find-mapped-landslides). This site maps known geologic hazard areas in Washington State.
- Washington Department of Fish and Wildlife Salmonscape (http://apps.wdfw.wa.gov/salmonscape/map.html). This mapping source depicts streams and fish distribution in Washington State.
- Washington Department of Fish and Wildlife Priority Habitat and Species (http://apps.wdfw.wa.gov/phsontheweb/). This mapping source depicts priority habitats and species throughout Washington State.

State Regulations

Wetlands are regulated by Washington Department of Ecology (Ecology) under the Water Pollution Control Act and the Shoreline Management Act. The State Environmental Policy Act (SEPA) process is also used to identify potential wetland-related concerns early in the permitting process. All proposed direct and identified indirect impacts to wetlands are reviewed and approved/denied by Ecology using the regulations previously listed.

Streams are regulated by Washington Department of Fish and Wildlife under the State Hydraulic Code, Chapter 77.55 Revised Code of Washington. Projects involving activities within, over, or beneath jurisdictional streams are subject to the Hydraulic Project Approval (HPA) permitting process administered by WDFW.

Federal Regulations

Wetlands are regulated as “waters of the United States” under Section 404 of the Clean Water Act. Section 404 regulations are administered by the US Army Corps of Engineers (USACE).

Local Regulations

Critical Areas are regulated by the City of La Center according to *La Center Municipal Code (LMC) Title 18.300 – Critical Areas.*

Field Investigations

LCG completed a site walk-through on May 29, 2018, to review recent wetland boundary flagging by Castle-Rose Environmental, review vegetation conditions, and conduct a series of

pedestrian transects to help understand landscape position of the site. Pedestrian transects were conducted from north to south and east to west including areas previously mapped as wetland. Recent pin flagging from the Castle-Rose Environmental investigation were observed around suspected wetland areas as well as excavated test holes. Numerous open test holes were observed throughout the site and further investigated by LCG to gather hydrology and soil information.

On June 7, 2018, LCG collected site information, delineated jurisdictional wetlands, and flagged wetland boundaries with yellow pin flagging. Conditions at the site were considered normal because vegetation was not mowed, no soil grading was observed, and no recent ditching was observed. Weather conditions at the time of site investigation were pleasant (75°F) and clear with 0.00 inches of precipitation the previous 24-hours. Recorded weather history from the Vancouver Pearson Airport Weather Station two weeks prior to visiting the site is characterized by high temperatures ranging from 64 to 82°F and low temperatures ranging from 40 to 57°F. Total recorded precipitation two weeks prior to the site visit (May 24 to June 6) was recorded at 0.03 inches (Table 1, Appendix C).

Table 1: Daily Weather Data Summary at Pearson Airport, Vancouver, Washington.

NOAA Local Climatological Data (Appendix C)

Date	Minimum Temp (Deg F)	Maximum Temp (Deg F)	Total Precipitation (in)
5/24/2018	57	75	0
5/25/2018	53	72	0
5/26/2018	49	67	0
5/27/2018	52	79	0
5/28/2018	53	72	0
5/29/2018	50	67	0
5/30/2018	40	68	0
5/31/2018	50	64	0.03
6/1/2018	49	70	0
6/2/2018	49	82	0
6/3/2018	54	71	0
6/4/2018	51	68	0
6/5/2018	43	73	0
6/6/2018	48	78	0
		Total	**0.03**

A review of prior rainfall data from October 2017 through June 2018 indicates a -7.84 inch departure from average recorded rainfall (Table 2 & Appendix C).

Table 2: Monthly Rainfall Data Summary at Pearson Airport, Vancouver, Washington.

NOAA Local Climatological Data (Appendix C)

Month	Total Recorded Precipitation (in)	Average Recorded Precipitation (in)	Departure from Normal (in)
October 2017	4.55	3.07	+1.48
November 2107	6.50	5.91	+0.59
December 2017	3.14	6.77	-3.63
January 2018	5.59	5.50	+0.09
February 2018	1.77	4.03	-2.26
March 2018	2.93	3.57	-0.64
April 2018	3.32	3.01	+0.31
May 2018	0.14	2.19	-2.33
June 2018	0.06	1.79	-1.73
Totals	28	35.84	-7.84

Site investigation work tasks included:

- Documentation of current site conditions
- Documentation of adjacent land uses
- Delineating and flagging of wetlands & streams
- Documentation of wetland/upland conditions with Test Plots
- Collection of site photographs
- Review of previous and current areas defined as wetland.

Wetlands were delineated according to methods outlined in the U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Data documenting vegetation, soils, and hydrology were collected and used to determine wetland and uplands at the site (Appendix A). Wetland boundaries (yellow pin flags) were delineated using documented test plots (blue pin flags) and subsequently surveyed by PLS Engineering.

Vegetation

Vegetation at the site is comprised of typical grass and forb species found throughout active pasture and hay producing fields in Clark County. Photograph 3 is a close-up of red fescue (*Festuca rubra*) growing in an upland area but was also a dominant species in wetland areas. Photograph 4 is velvet grass (*Holcus lanatus*) growing in an upland area but was also very

common in wetland areas. Table 3 summarizes wetland and upland vegetation observed at the subject site.

Photograph 3: Red fescue (*Festuca* rubra) growing in an upland area.

Photograph 4: Velvet grass (*Holcus lanatus*) growing in an upland area.

Table 3: Dominant Vegetation Observed at Riverside Estates Project Site – May 2018.

Scientific Name	Common Name	Wetland Indicator
Alopecurus pratensis	Meadow Foxtail	FAC
Anthoxanthum odoratum	Sweet Vernal Grass	FACU
Epilobium ciliatum	Fringed Willowherb	FACW
Festuca rubra	Red Fescue	FAC
Holcus lanatus	Velvet Grass	FAC
Hypochaeris radicata	Hairy Cats Ear	FACU
Juncus effusus	Softrush	FACW
Lolium perenne	Perennial Rye	FAC
Lotus corniculatus	Birds Foot Trefoil	FAC
Phalaris arundinacea	Reed Canary Grass	FACW
Ranunculus repens	Creeping Buttercup	FAC
Rubus armeniacus	Himalayan Blackberry	FACW
Rumex acetosella	Sheep Sorrel	FACU
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FAC

Soils

According to the US Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey for Clark County, soils at the subject site are mapped as (Figure 3):

GeB	Gee silt loam	0 - 8% slopes	Not Hydric 0%
GeE	Gee silt loam	20 - 30% slopes	Not Hydric 0%
HoB	Hillsboro silt loam	3 - 8% slopes	Not Hydric 0%
OdB	Odne silt loam	0 - 5% slopes	Hydric 100%

Historic land disturbance activities including timber harvest, fill placement, home site development, and general grading have historically altered natural soil conditions at the site resulting in soils that are somewhat different than those mapped by NRCS.

Hydrology

The project site is situated on a terrace gently sloping to the south and west into slopes and drainages that drastically descend into the East Fork Lewis River. A Type N stream (West Stream) is located in the western portion of site flowing in a west/southwest direction where it eventually empties into East Fork Lewis River (Figure 5). A roadside ditch is located on the south side of Old Pacific Hwy flowing to the southeast where it dumps water into the site (Wetland AA) at the intersection of Larsen Drive. A drainage ditch is located along the north

side of the project area (North Ditch) flowing to the west off-site where it eventually discharges into a Type N stream at Hunter Lane (Figure 5). No water was observed in either ditch at the time the site was visited by LCG staff in May 2018.

No surface water was observed within the subject site during site investigations and soil conditions were extremely dry and compacted with no groundwater encountered in any of the test holes excavated at the site. Pronounced soil cracking was observed in wetland areas at the subject site.

Mapping

Wetland boundary flagging, streams, roads, property boundaries, topography, and other site features were surveyed by PLS Engineering based in Vancouver, Washington.

RESULTS and DISCUSSION

Wetlands

Four wetland areas (Wetland-AA, -BB, -CC, & -DD) were identified and delineated at the subject site on June 7, 2018 (Figure 2). The four wetlands identified were in the same general locations as the four wetlands (Wetland-A, -B, -C, & -D) delineated by Castle-Rose Environmental.

Wetland AA

This depressional wetland is located near the intersection of Old Pacific Hwy and Larsen Drive in the northeastern portion of the subject site (Figure 2A). This emergent wetland has been actively farmed with historic livestock grazing as well as on-going grass hay production. Vegetation, soil, and hydrology data was gleaned from past wetland delineation reports and supplemented with new test plots (TP-AA1, TP-AA2) contained in Appendix A.

> Vegetation in the wetland was dominated by red fescue (*Festuca rubra* – FAC) with minor coverage of meadow foxtail (*Alopecurus pratensis* – FAC), velvet grass (*Holcus lanatus* – FAC), creeping buttercup (*Ranunculus repens* – FAC), and perennial rye (*Lolium perenne* – FAC). Adjacent uplands exhibited similar vegetation dominated by red fescue with hairy cat's ear (*Hypochaeris radicata* – FACU) and sweet vernal grass (*Anthoxanthum odoratum* – FACU).
>
> Soils in the wetland had clear indications of hydric conditions including redoximorphic depletions and a depleted matrix. Soils in the adjacent uplands lacked redoximorphic depletions and did not have a depleted matrix.
>
> Hydrology in the wetland was lacking at the time wetland was delineated but extensive soil cracking, sediment deposits, and drainage patterns were observed. An adjacent roadside ditch along Old Pacific Highway directly discharges water in Wetland AA and, along with rainfall, appears to be the primary source of hydrology to the wetland. No

surface water outlet was observed and given the compacted nature of the soils in the wetland indicates surface water entering the wetland from the roadside ditch or precipitation would most likely evaporate or infiltrate at a very slow rate.

Wetland AA has moderate (7) functions for improving water quality, moderate (6) functions for hydrologic, and low (4) functions for habitat. An overall score of 17 results in Wetland AA being a Category III wetland (Table 4 & Appendix B).

Wetland BB

This slope wetland is located outside of the subject site but discharges to the North Ditch and has a buffer encroaching into the subject site (Figure 2B). Wetland BB has been subjected to clearing activities including routine mowing in the area where it extends into the neighboring residential landscaped area. Vegetation, soil, and hydrology data was gleaned from past wetland delineation reports and supplemented with new test plots (TP-BB-1, TP-BB2) contained in Appendix A.

Vegetation in the wetland was dominated by velvet grass (FAC) and creeping buttercup (FAC) with minor coverage of meadow foxtail (FAC), and birds foot trefoil (*Lotus corniculatus*-FAC). Adjacent uplands exhibited similar vegetation dominated by hairy cats ear (FAC), sweet vernal grass (FACU), and sheep sorrel (*Rumex acetosella* – FACU).

Soils in the wetland had clear indications of hydric conditions including redoximorphic depletions and a depleted matrix. Soils in the adjacent uplands lacked redoximorphic depletions and did not have a depleted matrix.

Hydrology in the wetland was lacking at the time wetland was delineated but copious soil cracking, sediment deposits, and drainage patterns were observed. An adjacent roadside ditch along Old Pacific Highway directly discharges water in Wetland BB during periods of high flow. The North Ditch serves as an outlet to Wetland BB conveying water westerly where it discharges to a Type N stream off-site in the vicinity of Hunter lane.

Wetland BB has moderate (6) functions for improving water quality, low (4) functions for hydrologic, and low (5) functions for habitat. An overall score of 15 results in Wetland BB being a Category IV wetland (Table 4 & Appendix B).

Wetland CC

This depressional wetland is located in the northern portion of the subject site but lies just outside the project boundary (Figure 2C). This emergent wetland has been actively farmed with past livestock grazing as well as on-going grass hay production. Vegetation, soil, and hydrology data was gleaned from past wetland delineation reports and supplemented with new test plots (TP-CC1, TP-CC2, TP-CC3, TP-CC4) contained in Appendix A.

Vegetation in the wetland was dominated by red fescue (FAC), velvet grass (FAC), meadow foxtail (FAC), and hairy cats ear (FAC). Adjacent uplands exhibited similar vegetation dominated by red fescue (FAC), velvet grass (FAC), hairy cats ear (FAC), sweet vernal grass (FACU), and sheep sorrel (FACU).

Soils in the wetland had clear indications of hydric conditions including redoximorphic depletions and a depleted matrix. Soils in the adjacent uplands lacked redoximorphic depletions and did not have a depleted matrix.

Hydrology in the wetland was lacking at the time wetland was delineated but extensive soil cracking, sediment deposits, and drainage patterns were observed. There are no surface water inlets or outlets to Wetland CC with the primary source of hydrology most likely rainfall.

Wetland CC has moderate (7) functions for improving water quality, low (5) functions for hydrologic, and low (4) functions for habitat. An overall score of 16 results in Wetland CC being a Category III wetland (Table 4 & Appendix B).

Wetland DD

This depressional/flats wetland is located in the southern portion of the subject site within a shallow swale feature (Figure 2D). This emergent wetland has been actively farmed with past livestock grazing as well as on-going grass hay production. Vegetation, soil, and hydrology data was gleaned from past wetland delineation reports and supplemented with new test plots (TP-DD1, TP-DD2, TP-DD3, TP-DD4) contained in Appendix A.

Vegetation in the wetland was dominated by red fescue (FAC), velvet grass (FAC), meadow foxtail (FAC), and hairy cats ear (FAC). Adjacent uplands exhibited similar vegetation dominated by velvet grass (FAC), hairy cats ear (FAC), sweet vernal grass (FACU), and sheep sorrel (FACU).

Soils in the wetland had clear indications of hydric conditions including redoximorphic depletions and a depleted matrix. Soils in the adjacent uplands lacked redoximorphic depletions and did not have a depleted matrix.

Hydrology in the wetland was lacking at the time wetland was delineated but extensive soil cracking, sediment deposits, and drainage patterns were observed. LCG did not observe any surface water inlets or outlets to Wetland DD but City staff and others have observed clear and cold water bubbling out of the ground west of Wetland DD immediately upslope of West Stream (email from Eric Eisemann and Todd Boulanger). This area could have historic drainage tiles but LCG did not observe and has no direct knowledge of the area being tiled. The primary source of hydrology to Wetland DD is most likely rainfall.

Wetland DD has moderate (7) functions for improving water quality, low (5) functions for hydrologic, and low (4) functions for habitat. An overall score of 16 results in Wetland DD being a Category III wetland (Table 4 & Appendix B).

Table 4: Wetland Summary.

Wetland ID	HGM[A]		Wetland Rating System[B]				Category[B]	Buffer[C]
		Size (sq ft)	Improving Water Quality	Hydrologic	Habitat	Total		
Wetland AA	Depressional	6,933	7	6	4	17	III	80
Wetland BB	Slope	<16,500	6	4	5	15	IV	50
Wetland CC	Depressional	4,195	7	5	4	16	III	None[D]
Wetland DD	Depressional	3,335	7	5	4	16	III	None[D]

[A] Hydrogeomorphic Classification

[B] *Washington State Wetland Rating System for Western Washington: 2014 Update*

[C] *LMC Table 18.300.090(6)(h)(i)-1* (Appendix B)

[D] Exempted wetlands under *LMC 18.300.090(6)(C)(i)*

Wetland Buffers

LMC Table 18.300.090(6)(h)(i) requires buffers on non-exempted wetlands according to proposed land use (High, Moderate, or Low), Category of wetland, and habitat score from the wetland rating system. Habitat scores are based on the 2004 version of the rating system which has been replaced by the 2014 update. A table for converting scores from the 2014 version to the 2004 version was used to establish habitat scores comparable to those used in *LMC Table 18.300.090(6)(h)(i)*. Table 4 summarizes buffers required for the delineated wetlands at the subject site.

Streams and Ditches

Streams

There is a mapped Type Ns stream (West Stream) originating in the western portion of the subject site flowing westward where it leaves the site and eventually discharges to the East Fork Lewis River (Figure 5). This stream is within a well-defined ravine and has an intact riparian zone demarcated by recently installed silt/work fencing. No other mapped streams are depicted within the boundaries of the subject site.

Ditches

Several ditches are located within, adjacent or in close proximity of the subject site. Drainage ditches are a common occurrence in areas of Clark County used for agriculture as is the case for the subject site. The following drainage features were located and investigated:

Old Pacific Hwy Roadside Ditch

An existing roadside ditch extends along the southern side of Old Pacific Hwy to Larsen Drive where the ditch occasionally discharges water into Wetland AA during high flow events. This ditch also extends across the northern edge of Wetland BB and likely discharges water into Wetland BB and the North Ditch during periods of high flow. Given this drainage ditch (1) does not drain jurisdictional wetlands, (2) was likely created in uplands when Old Pacific Hwy was constructed, (3) contains no aquatic habitat, (4) does not convey water from a jurisdictional stream, (5) was not constructed in a historic stream channel, (6) does not have a defined OHWM, and (7) is periodically maintained as a roadside drainage conveyance; it appears this drainage feature would not meet the criteria to be considered a jurisdictional water of the United States. For the purposes of this investigation, this drainage ditch was not considered jurisdictional and treated as an exempt drainage feature. A formal Jurisdictional Determination (JD) by the US Army Corps of Engineers would need to be completed to make a final determination of the legal jurisdictional status of this drainage feature.

North Drainage Ditch

This drainage ditch extends along the northern side of the subject site flowing to the west where it leaves the site and eventually discharges into a Type Ns stream under Hunters Lane eventually discharging into East Fork Lewis River. Wetland BB discharges water to this drainage feature during periods of high rainfall events. The 1968 aerial photograph from Clark County GIS has a signature that very much appears to be a drainage ditch in the same location as the current North Drainage Ditch. This drainage ditch may not be considered jurisdictional and treated as an exempt drainage feature if a formal Jurisdictional Determination (JD) by the US Army Corps of Engineers is completed.

Wetland DD Swale

This drainage feature is entirely located within the boundaries of Wetland DD with no visible surface water inlet or outlet. This drainage feature is considered an isolated wetland.

Stream Buffers

LMC Table 18.300.090(2)(f) requires a 75-foot wide buffer on Type Ns streams that have a high mass wasting potential (Table 5).

Table 5: Stream Summary.

Stream ID	Type[A]	Buffer[B]
West Stream	Ns	75
Old Pacific Hwy Ditch	Ditch	None[C]
North Ditch	Ditch	None[C]

A WAC 222-16-030

B LMC Table 18.300.090(2)(f)

C Not mapped streams. If determined to be Waters of United States a 75-foot buffer will be required.

Other Habitats

The Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) mapping web site identifies terrestrial habitat along the East Fork Lewis River as a biodiversity area (Table 6). Proposed site developments are located on the terrace above the East Fork Lewis River corridor and will not encroach into the mapped biodiversity areas along the river.

Table 6: Priority Habitats and Species at the Subject Site.
Washington Department of Fish and Wildlife.

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic Query ID: P180628160807
REPORT DATE: 06/28/2018 4.08

Common Name / Scientific Name / Notes	Site Name / Source Dataset / Source Record / Source Date	Priority Area / Occurrence Type / More Information (URL) / Mgmt Recommendations	Accuracy	Federal Status / State Status / PHS Listing Status	Sensitive Data / Resolution	Source Entity / Geometry Type
Biodiversity Areas And	EAST FORK LEWIS RIVER PHSREGION 902219	Terrestrial Habitat N/A http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons

CONCLUSIONS

Wetlands

Four wetland areas were identified, delineated, mapped, and characterized based on field investigations completed May 29 and June 7, 2018. Given that the area experienced a 7.84 inch deficit in rainfall from October 2017 through June 2018, LCG relied heavily on drainage patterns, topography, and soil profiles to establish wetland boundaries. Vegetation at the site is a mix of grass and forb species with the majority of the dominant vegetation comprised of FAC species. Red fescue and velvet grass were the two most dominant species (both FAC) and were observed in both wetlands and uplands. Sweet vernal grass (FACU) and hairy cat's ear (FACU) and sheep sorrel (FACU) were also used to distinguish uplands and were far less

prominent in areas delineated as wetlands. Castle-Rose Environmental also experienced below normal rainfall during their field visits October & December 2017 and April & May 2018.

Wetland areas delineated by ELS in 2010 and surveyed by Bluhm Surveying are significantly larger than current site conditions indicate. This discrepancy is difficult to explain given the ELS work was completed eight years ago and was not subjected to a formal jurisdictional determination by the US Army Corps of Engineers. The large wetland ELS delineated in the central portion of site is questionable given it overlays significant changes in topography and does not follow depressions, ravines, swales or other topographical features commonly encompassing pasture wetlands in Clark County. On-going farming could and does redistribute soil but it is difficult to imagine and aerial photographs discount heavy grading at the site between 2010 and 2018. Given the age and difficulty matching wetland boundaries mapped by ELS in 2010 to site topography, the 2010 information was discounted as not representative of current wetland conditions.

Wetland AA

This wetland is located within a shallow depression that is periodically inundated with water from the roadside ditch along the south side of Old Pacific Hwy. Topographical slopes to the north, west and, south bound the wetland while Larsen Lane acts as a boundary on the east side. Wetland AA has no surface water outlet. This wetland is jurisdictional under City, State, and Federal wetland regulations. The City of La Center requires an 80-foot wide buffer on Wetland AA.

Photograph 3: Wetland AA looking south.

Wetland BB

This wetland is located north of the subject area but has a 50-foot wide required buffer that extends into the subject site. Wetland BB is partially drained by the adjacent North Ditch with water flowing to the west eventually discharging into an off-site Type N stream then into East Fork Lewis River. This wetland is jurisdictional under City, State, and Federal wetland regulations.

Photograph 4: Wetland BB on left looking east along North Ditch.

Wetland CC

This wetland is located in a depressional area in the north-central portion of the subject site surrounded by topographical slopes with no visible surface water inlet or outlet. No buffer is required under *LMC 18.300.090(6)(C)(i)* because it is less than 1/10 acre in size, isolated, and scores less than 20 habitat points (5 points under 2014 update). If determined to be hydrologically isolated, Wetland CC could also be non-jurisdictional under Section 404 but would still be regulated by Washington Department of Ecology. To determine if Wetland CC is a jurisdictional wetland under Section 404, the US Army Corps of Engineers would need to complete a Jurisdictional Determination.

Photograph 5: Wetland CC looking west.

Wetland DD

This wetland is located in a depressional swale in the southern portion of the subject site surrounded by topographical slopes with no visible surface water inlet or outlet. No buffer is required under *LMC 18.300.090(6)(C)(i)* because it is less than 1/10 acre in size, isolated, and scores less than 20 habitat points (5 points under 2014 update). If determined to be hydrologically isolated, Wetland CC could also be non-jurisdictional under Section 404 but would still be regulated by Washington Department of Ecology. To determine if Wetland DD is a jurisdictional wetland under Section 404, the US Army Corps of Engineers would need to complete a Jurisdictional Determination.

Photograph 6: Wetland DD looking east.

Streams

A Type Ns stream (West Stream) is located along the western site boundary and flows to the west eventually discharging to the East Fork Lewis River. This steam is regulated by the City of La Center and requires a 75-foot wide buffer.

Drainage Ditches

Two drainage ditches are located within or adjacent to the subject site: North Ditch and Old Pacific Hwy Ditch. Both drainage ditches are artificially created and appear to be periodically maintained with mechanized equipment. It is the opinion of LCG that the roadside ditch along Old Pacific Hwy is a non-jurisdictional drainage while North Ditch could be jurisdictional as it drains Wetland BB. Rather than make a determination of jurisdiction in this report, it is recommended that the applicant engage the US Army Corps of Engineers to complete a jurisdictional determination (JD) on the two drainage ditches. If either, or both, drainage ditches are determined to be jurisdictional, they would be considered Type Ns streams with 75-foot wide buffers under City of La Center code.

Other Habitats

Besides wetlands and streams, there are no other habitats of local importance on the subject site. A biodiversity area is mapped along the East Fork Lewis River but is well outside the project footprint and will not be impacted by site developments.

Final Thoughts

1. Current wetland conditions do not match the wetland delineation mapped by ELS in 2010.
2. The Preliminary Wetland Assessment by Cascadia Ecological Services, Inc. - August 13, 2015 – is not representative of site conditions observed by LCG in May and June 2018.
3. Wetland areas delineated by Castle-Rose Environmental are smaller than those delineated by LCG in June 2018.
4. Site conditions in May and June 2018 were extremely dry making soil and hydrology observations difficult, but not impossible, to evaluate.
5. LCG relied heavily on drainage patterns, topography, soil conditions, and slight changes in vegetation to establish wetland boundaries.
6. Wetlands delineated by LCG are Category III and IV with low to moderate functions and values.
7. The single on-site stream (West Stream) is buffered and well protected with a 75-foot buffer.
8. North Ditch and the ditch along the south side of Old Pacific Highway appear to be non-jurisdictional but a legal jurisdictional determine by US Army Corps of Engineers would be required.

9. Development of the site into a multi-phase residential development would most likely require impacting Wetland AA, Wetland CC, and Wetland DD. Wetland BB is located north of the development and would not be directly impacted by the proposed development.
10. Impacts to wetlands could be mitigated with the purchase of mitigation bank credits from East Fork Lewis Wetland Mitigation Bank.

LIMITATIONS

The findings and conclusions contained in this document were based on information and data available at the time this document was prepared and evaluated using standard Best Professional Judgement. LCG assumes no responsibility for the accuracy of information and data generated by others. Local, State, and Federal regulatory agencies may or may not agree with the findings and conclusions contained in this document.

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FIGURES

APPENDIX A - DATA FORMS

APPENDIX B - WETLAND RATING SUMMARY

APPENDIX C - RAINFALL SUMMARIES