

GRASS VALLEY DEVELOPMENT

PRELIMINARY WETLAND MITIGATION PLAN CAMAS, WASHINGTON



Prepared for:
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February 23, 2018



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WETLAND DELINEATION & ASSESSMENT

Project: Grass Valley Development
Applicant: Holland Partner Group
Location: 5800 Block NW 38th Avenue, Camas, Washington
Legal Description: NW¼ of Sec. 05, T01N, R03E, W. M., Clark County
Serial Number(s): 126043-000 (17.57 ac.) and 126255-000 (15.13 ac.)
Local Jurisdiction: City of Camas
Study Area Size: 32.7 acres
Zoning: RC
ComPlan: COM
Report
Prepared by: Kevin Grosz, P.W.S.
Site Visit(s): February 10 and 11, 2016 & January 8, 2018
Delineation
Report Date: January 26, 2018
Preliminary
Mitigation
Report Date: February 23, 2018

1.0 INTRODUCTION

This report provides the details of a preliminary wetland mitigation plan prepared for Holland Partner Group by Olson Environmental, LLC (OE) for the property located south of N.W. 38th Avenue, (near the 5800 block), Camas, Washington (Fig. 1). Wetlands and associated buffers have been identified within the study that are regulated by the City of Camas (City) Critical Areas Ordinance – Wetlands (16.60), the Washington State Department of Ecology (Ecology) under the Water Pollution Control Act and U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act are described in this report. This report is prepared under the guidelines of CMC 16.60 which was in effect in 2008 when the Development Agreement (DA) was recorded for the installation of a sanitary sewerline in the western portion of the study area. The Applicant is proposing a phased Mixed-Use Master Plan development on the property (Fig. 2). No wetlands are proposed to be directly or indirectly impacted by this project. However, the Applicant is proposing to reduce the wetland buffer as permitted CMC 16.60.040 and 16.60.050.

2.0 EXISTING CONIDITIONS

The study area includes parcel number 126043-000 (17.57 ac.) and 125255-000 (15.13 ac.) which is encompass approximately 33 acres. Currently, the property is predominantly vacant land with a house and outbuildings located near the west edge of parcel 126255-000. The study area is predominantly open grassland with a few fir trees scattered throughout the property. Fisher's Creek forms the western edge of the site. Generally, the property slopes from east to west (Fig. 3). Wetlands were identified on the western edge

of the property. A sanitary sewerline is located along the eastern edge of the wetlands. These wetlands are described in the wetland delineation report prepared by OE, dated January 26, 2018. A description of the wetland and upland portions of the site are described below:

2.1 WETLANDS

Wetlands A (Swale) & B (Farm Pond) (5.1 acres – on-site) (Fig. 4)

Wetland A is an emergent (grass dominated), HGM riverine/slope wetland. Under the Cowardin wetland system it is classified as is a Palustrine, Emergent, Seasonally Flooded (PEMC) wetland that contains an excavated pond (Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated) near the southern portion of the property. Vegetation in the wetland is dominated by reed canarygrass (*Phalaris arundinacea* – FACW) and tall fescue (*Schedonoris arundinacea* – FAC) with a patch of Oregon ash (*Fraxinus latifolia* – FACW) near the southern portion of the wetland. Vegetation along the wetland boundary consists of colonial bentgrass (*Agrostis capillaris* – FAC), reed canarygrass, orchardgrass (*Dactylis glomerata* – FACU), bird's-foot trefoil (*Lotus corniculatus* – FAC), and bedstraw (*Gallium microphyllum*). Soils in the wetland from 0 to 16 inches are generally a black (10YR 2/1) gravelly clay loam. Wetland hydrology in the wetlands is predominantly season inundation with soil saturation near the surface along the wetland boundary. Both wetlands rate as Category IV wetlands according to Ecology's wetland rating system that was in effect when the DA was recorded. Both wetlands have a base buffer width of 50 feet as shown in Figure 4.

2.2 NON-WETLANDS

The non-wetland portion of the study area is predominantly an open grassland area with blackberry (*Rubus* spp.) thickets and a few trees ((mostly Douglas-fir (*Pseudotsuga menziesii* – FACU)). The herbaceous cover is dominated of tall fescue, orchardgrass and colonial bentgrass. Soils vary from a very dark grayish brown (10YR 3/1) gravelly silt loam in the upper 10 inches and a brown (10YR 4/3) silt loam below this to a depth of 16 inches. No wetland hydrology indicators were observed in the upland portion of the site at the time of the delineation.

Photographs of the study and surrounding areas are shown in Photo-sheet 1.

3.0 AVOIDANCE AND MINIMIZATION OF IMPACTS

The Applicant has designed this mixed-use master plan project to avoid all direct and indirect wetland impacts which meets the requirements of CMC 16.60.050(D). Buffers are proposed to be reduced as allowed in CMC 16.60.040(B) and 16.60.050(C). A description of the proposed buffer reduction activities is outlined below.

The following additional measures will be taken to avoid/minimize additional impacts to wetland and buffer areas:

1. The wetland buffer boundary will be temporarily flagged in the field prior to

- construction.
2. Erosion control measures (e.g. straw bale sediment barriers or sediment fence) will be installed to prevent siltation from occurring in critical areas during construction and downstream from the site.
 3. The erosion control measures will be removed once construction is completed and vegetation has become established.
 4. The final wetland and buffer configuration will be placed in a conservation covenant that will restrict use and access to the critical areas

4.0 BUFFER ACTIVITIES

The Applicant is proposing to reduce the Category IV, 50-foot base wetland buffer through a change in the land use intensity adjacent to the wetland buffer and the enhancement of the wetland buffer as outlined below.

4.1 BUFFER REDUCTION VIA LAND USE INTENSITY

An impervious trail is proposed along the outer edge of the 50-foot wetland buffer (Fig. 5). According to CMC Table 16.60.040-4 (Land Use Intensity Matrix) impervious trails are considered a moderate intensity land use. As per CMC Table 16.60.040-1, Category IV wetlands have a 40-foot base buffer in a moderate intensity land-use as shown in Figure 5.

4.2 BUFFER REDUCTION VIA ENHANCEMENT

The Applicant is proposing to reduce the 40-foot base buffer to 30-feet through the enhancement of the area between the wetland boundary and the proposed 30-foot buffer as shown in Figure 6. This buffer reduction is allowed as outlined in 16.60.050(C)(1)(b) which allows for a 25 percent reduction if the buffer is enhanced from a pre-project condition. This buffer area is predominantly an open grassland area that is proposed to be planted with native trees and shrubs in the approximately 1.1 acre enhancement area (Fig. 6). The applicant is proposing to place fill material in portions of the buffer at a 4:1 slope prior to the woody vegetation plantings.

5.0 BUFFER MITIGATION GOALS/OBJECTIVES

The overall goal of the buffer enhancement plan is to provide an enhanced buffer to protect wetland functions and values. The objectives of the enhancement plan are as follows:

Objective #1 - The enhancement of the buffer will improve plant diversity by planting a total of 1.1 acres of buffer with native trees and shrubs on-site. The predominantly reed canarygrass monoculture will be replaced by native forest and shrub communities.

Objective #2 - The enhancement of the buffer will improve buffer functions through increasing the diversity and complexity of available wildlife habitat. The proposed project would ultimately provide a diversity of tree, shrub and ground cover habitat that will provide the opportunity for increased wildlife use.

6.0 PROJECT SCHEDULE

This project is proposed to begin construction as soon as the appropriate permits are received. Initial project grading and indirect wetland impacts are tentatively scheduled to begin in the spring/summer of 2018. Wetland enhancement activities will take place during the first planting season following wetland impacts.

7.0 PLANTING PLAN

The buffer enhancement area will be planted with native tree and shrub species at a ratio of 5 trees/10 shrubs per 1,000 sq. ft. A total of 239 trees and 478 shrubs will be planted within 1.1 acres of buffer enhancement area. Plant species and numbers are presented in Table 1 below.

Additional planting specifications applicable to this plan are listed below.

Pre-Planting Vegetation Preparation. Portions of the proposed buffer enhancement area contain reed canarygrass. Prior to planting these areas, this undesirable, aggressive plant will be cut to near surface level to allow for planting the proposed native woody species.

Source of Plant Materials. All plants will be obtained from nurseries specializing in plant materials native to the Pacific Northwest.

Planting Time. Bare-root shrubs and trees should be planted between December 1 and March 31, when plants are dormant. If planting is conducted outside this time period, containerized plant stock will be used and extra care and watering may be needed to ensure that plants become adequately established.

Table 1. Planting Plan Specifications: Wetland A Enhancement Areas – 1.1 ac. (47,780 ft²)

Species	Plant Form	Minimum Size	Minimum Spacing	Required Number
Shrubs				
Service-berry (<i>Amelanchier alnifolia</i>)	Bare Root	18"	4' +	75
Nootka rose (<i>Rosa nutkana</i>)	Bare Root	18-24"	3'	105
Native willow (<i>Salix</i> spp.)	Stakes	5-6'	3'	150
Snow-berry (<i>Symphoricarpos</i> spp.)	Bare Root	18-24"	3'	80
Douglas hawthorn (<i>Crataegus douglasii</i>)	Bare Root	4-5'	3'	45
Hazelnut (<i>Corylus cornuta</i>)	Bare Root	4-5'	3'	23
Total Shrubs				478

Trees				
Oregon ash (<i>Fraxinus latifolia</i>)	Bare Root	2'	8'	80
Quaking aspen (<i>Populus tremuloides</i>)	Bare Root	2'	8'	20
Big-leaf maple (<i>Acer macrophyllum</i>)	Bare Root	2'	8'	40
W. Red Cedar (<i>Thuja plicata</i>)	Seedling	18"	8'	30
Douglas-fir (<i>Pseudotsuga menziesii</i>)	Seedling	18"	8	69
Total Trees				239

Planting Guidelines. A hole, one foot in diameter and one foot deep, shall be excavated for bare root stock. The holes should be large enough to accommodate the plant roots without restriction. Plants will be held in place with the top of the root mass at ground level. Topsoil will be backfilled around the roots and lightly tamped to remove any air pockets in the soil. Mulch (2-3 inches deep) shall be applied around the base of each plant. Plant protectors will be placed around the base of the planted stock to inhibit girdling. Future maintenance should use scarification (by hand) to keep the 1-foot diameter area free of herbaceous vegetation until plants are well established. If the soils are not saturated, each plant should be watered at the time of planting. Supplemental watering (every two weeks during the summer season) may also be required to ensure plant survival and mitigation success.

8.0 PERFORMANCE CRITERIA

Performance measures and standards are used to provide a basis for evaluating whether the project's goals and objectives are being met. This plan established the following criteria as the basis for evaluating mitigation compliance and success. In order to meet the goals and objectives, the mitigation must meet the following criteria:

The City requires a minimum of five (5) years of monitoring and maintenance, however, since forested plant communities are proposed for the mitigation these activities should continue for at least 10 years. The criteria listed below are intended to meet the requirements of CMC 16.60. Performance measures and standards are used to provide a basis for evaluating whether the project's goals and objectives are being met. In order to meet the goals and objectives, the mitigation must meet the following criteria:

1. **Native Woody Species (Buffer Enhancement Areas)**
 - a. **Performance Standard - Year 1** - Planted, native woody species in the (scrub-shrub, and/or forested) buffer areas will achieve at least 100 percent survival one year after the site is planted. If dead plants are replaced, the performance standard will be met.

- b. Performance Standard Years 2-4 – Native woody species (planted or volunteer) will achieve a density of a minimum of 6 shrubs and 3 trees per 1000 ft² in the enhanced buffer areas.
- c. Performance Standard Year 5 - at least 30 percent aerial coverage of native trees and shrubs
- d. Performance Standard Year 7 - at least 50 percent aerial coverage of native trees and shrubs
- e. Performance Standard Year 10 - Aerial cover of native woody species will be at least 75 percent in the buffer enhancement areas by the end of the monitoring period (year 10). Natural colonization can make it difficult to separate planted individuals from volunteer trees and shrubs. Therefore, naturally recruited species will be included in vegetation monitoring.

2. Invasive species (all years)

- a. Performance Standard - During All Years, non-native, invasive plant species, with the exception of reed canarygrass, will not exceed 20 percent aerial cover in the wetland and buffer area on the enhancement mitigation site.
- b. Performance Standard - Year 5, there will be a 30 percent reduction in reed canarygrass aerial cover compared to baseline conditions.
- c. Performance Standard - Year 7, there will be a 50 percent reduction in reed canarygrass aerial cover compared to baseline conditions.
- d. Performance Standard - Year 10, reed canarygrass aerial cover will not exceed 20 percent.

9.0 MONITORING AND MAINTENANCE PLANS

The following actions will be implemented as part of the wetland mitigation monitoring and maintenance plan on this site:

- 1. The initial and all successive year plantings will be supervised by a qualified professional to ensure that correct planting procedures are followed; that plantings are done according to the planting scheme; and to determine if the enhancement areas are meeting the performance standards listed above.
- 2. Monitoring of all planted areas will commence the summer following the initial planting (year 1) and continue in years 2, 3, 4, 5, 7 and 10. Monitoring will be conducted by a qualified professional during the late spring or summer time period. Monitoring will consist of walking the site during mid- to late summer to assess the enhancement area to determine if the performance standards are being met. The monitoring report will identify deficiencies in the mitigation progress and any contingency measures that will be taken to correct those deficiencies. Photographs taken from established photo-stations will be included with these reports. For each year that monitoring is required, a report documenting the monitoring results will be submitted to the City.

3. To ensure planting success, the Applicant will be responsible for performing minor maintenance over the monitoring period. This will include the selective removal of undesirable plant species such as blackberry (*Rubus* spp.) that may be hindering the growth and establishment of the favored plant stands. An area, 1-foot in diameter surrounding each planted woody species, will be kept free of competing vegetation. This can be accomplished either by scarifying the area by hand or through the use of weed-control rings.
4. Maintenance of all mitigation areas may include irrigation of the planted stock. A watering schedule will be established during the dry months (June through September) so that the plants are watered on a weekly basis during this time period. If necessary, a temporary above ground irrigation system capable of watering the all of the mitigation areas will be installed.
5. Any maintenance that is required within the wetland area will be supervised by a qualified wetland professional familiar with this project.

10.0 ADAPTIVE MANAGEMENT PLANS

Adaptive management plans are designed to identify potential courses of action, and any corrective measures to be taken when monitoring indicates project goals are not being met. Table 2 summarizes the maintenance and contingency requirements for this project. In general, the contingency measures for this site are as follows:

1. Replacement Plantings—Replacement plantings will be made throughout the monitoring period if monitoring reveals that unacceptable plant mortality has occurred. Woody species will be re-planted to the original number of plants proposed in the accepted mitigation plan annually throughout the duration of the monitoring and maintenance period.
2. Planting Plan Modifications—Modifications to the planting plan (i.e., plant species and densities) will be made if monitoring identifies problems with the original planting scheme. For example, if annual monitoring identifies that plant mortality is attributed to an inappropriate hydrologic regime, the replacement plantings should be made using a more suitable plant species. Any recommended changes to the planting scheme will be documented in the annual monitoring report. The addition of any new plant species, not already included in this enhancement plan, must be approved by the City.
3. Soil Erosion—Any areas demonstrating soil erosion problems will be restored as soon as possible. If there does not appear to be a problem with the original design, the eroded areas will be restored by replacing any lost topsoil and replanted according to the original planting scheme.

TABLE 2. MAINTENANCE AND ADAPTIVE MANAGEMENT REQUIREMENTS

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Enhancement Areas	Trash and debris	Any trash or debris which exceeds 1 ft ³ /100ft ² (equal to the volume of a standard size office garbage can). In general, there should be no evidence of dumping.	Trash and debris cleared from site.
Enhancement Areas	Erosion	Eroded damage >2 inches deep where cause of damage is still present or where there is potential for continued erosion.	Eroded areas should be stabilized with appropriate erosion control BMPs (e.g., seeding, mulching, rip rap).
Enhancement Areas	Plant mortality	Plant mortality jeopardizes attaining the required survival rate.	Plants should be replaced according to the planting plan. Modifications to the planting plan should be made if monitoring identifies problems with the original planting scheme.
Enhancement Areas	Invasion of undesirable plant species.	Undesirable plant species are hindering the growth and establishment of the favored plant stands.	Undesirable species removed by hand, or in accordance with recommendations of the Clark County Weed Control Board.

11.0 DEMARCATION

As per CMC 16.60.040(C)(2) the outer edge of the buffer shall be denoted as follows: Permanent Marking of Buffer Area. A permanent physical demarcation along the upland boundary of the wetland buffer area shall be installed and thereafter maintained. Such demarcation may consist of logs, a tree or hedge row, fencing, or other prominent physical marking approved by the responsible official. In addition, small signs shall be posted at an interval of one per lot or every one hundred feet, whichever is less, and perpetually maintained at locations along the outer perimeter of the wetland buffer as approved by the responsible official, and worded substantially as follows:

Wetland and Buffer—Please retain in a natural state.

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Clark County

Project Location

Camas

Vancouver

SE 172ND AVE

SE 192ND AVE

SE 17TH ST

SE 19TH ST

SE 21ST ST

SE 23RD ST

SE 25TH ST

SE 27TH ST

SE 29TH ST

SE 31ST ST

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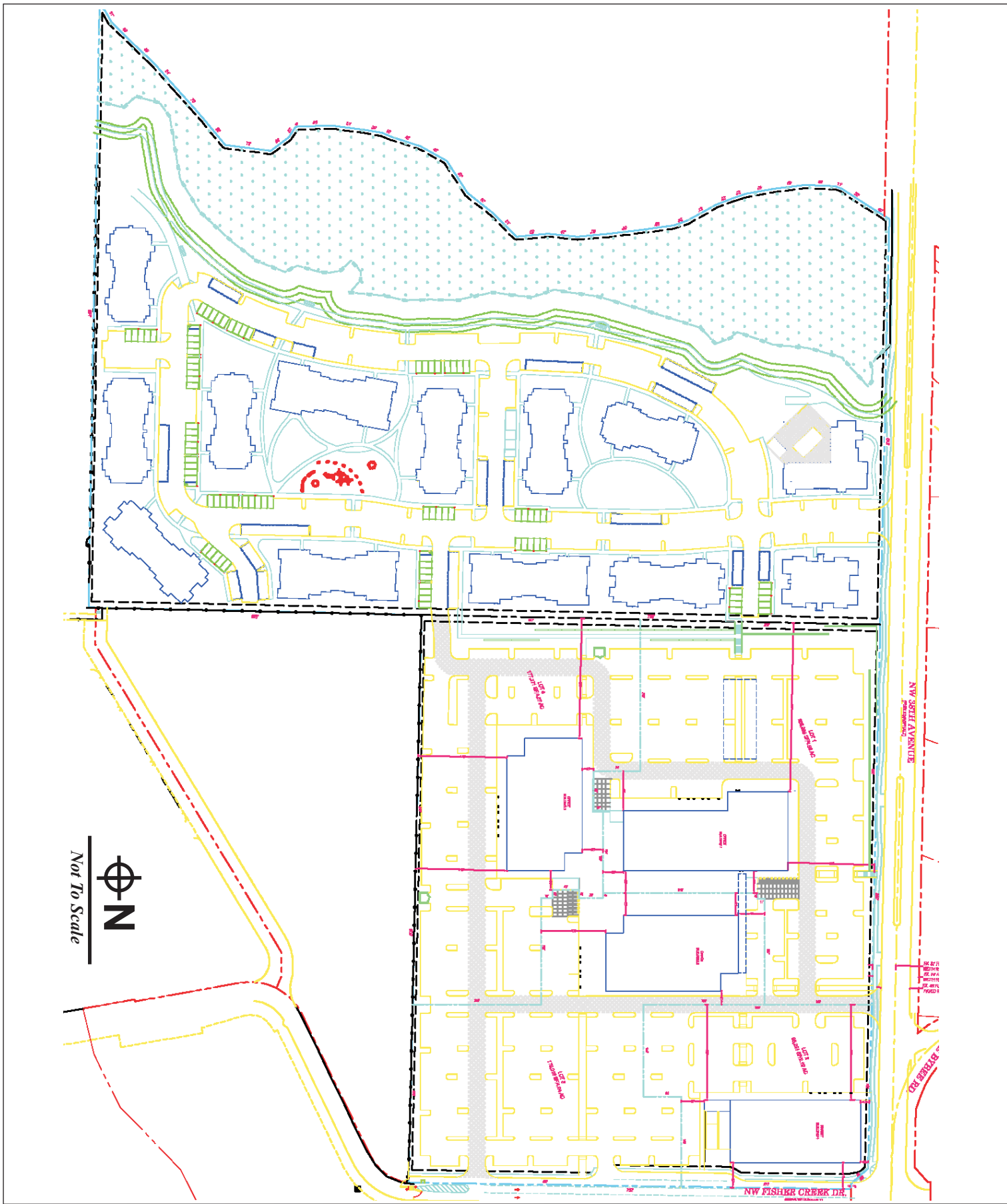
SE 615TH ST

APPLICANT:
Holland Partner Group
1111 Main Street, #700
Vancouver, WA 98660

Project Location Map Grass Valley Development Camas, Washington



PROPOSED ACTIVITIES IN:
Lacamas Creek Watershed
LEGAL: NW ¼ of Section 5, T1N, R3E,
W.M.,
NEAR: Camas, Washington
COUNTY: Clark County
DATE: February 23, 2018
Figure 1



Grass Valley Development

APPLICANT:
 Holland Partner Group
 1111 Main Street, #700
 Vancouver, WA 98660

PURPOSE: Preliminary Wetland
 Mitigation Plan

Proposed Site Plan
Grass Valley Development
Camas, Washington



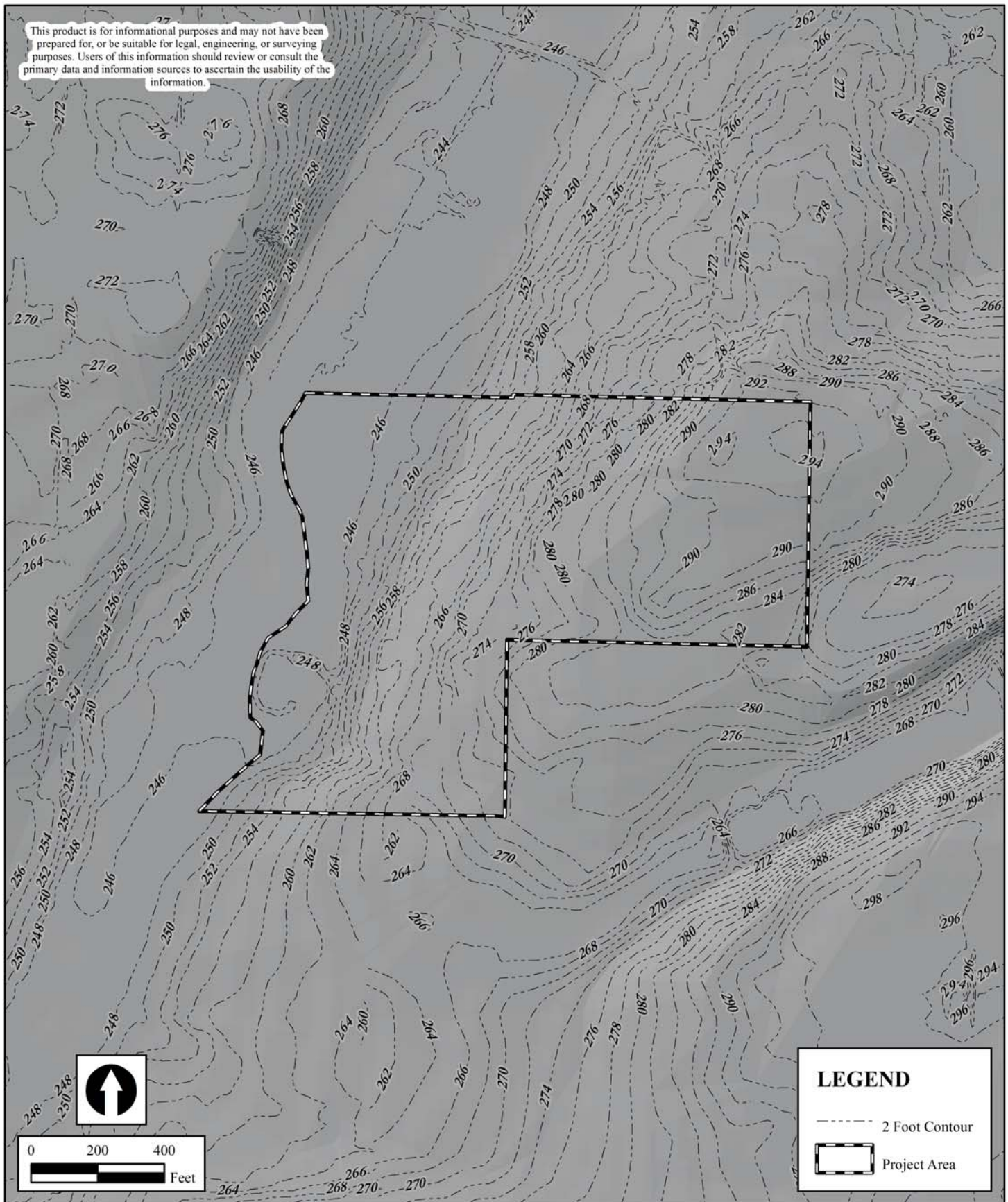
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ENVIRONMENTAL, INC.
Environmental Consultants • Engineers • Scientists

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PROPOSED ACTIVITIES IN:
 Lacamas Creek Watershed
LEGAL: NW ¼ of Section 5, T1N, R3E, WM.,
NEAR: Camas, Washington
COUNTY: Clark County
DATE: February 23, 2018

Figure 2

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Grass Valley Development

APPLICANT:
Holland Partner Group
1111 Main Street, #700
Vancouver, WA 98660

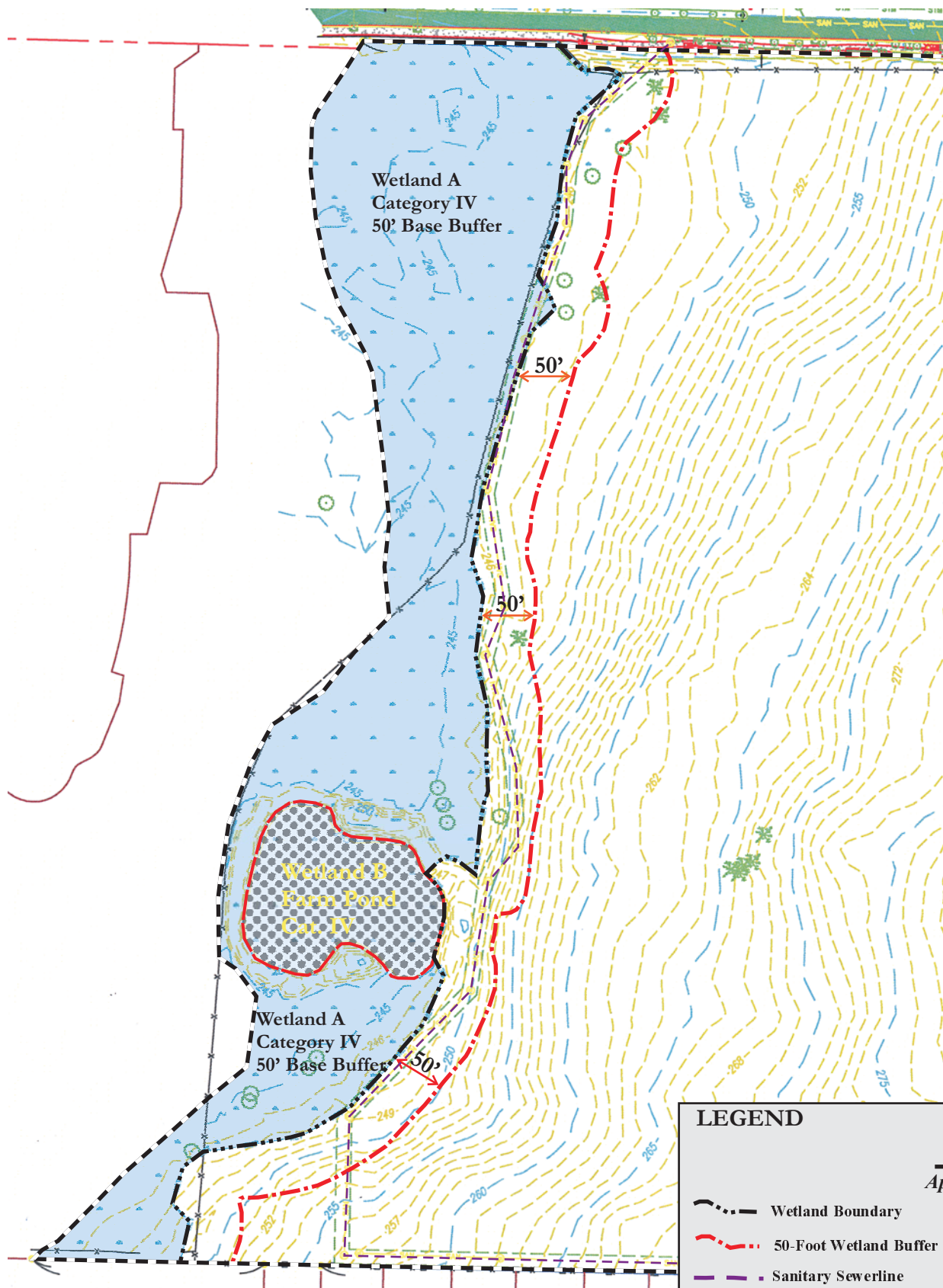
PURPOSE: Preliminary Wetland Mitigation Plan

Clark County LiDAR Topography Grass Valley Development Camas, Washington



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PROPOSED ACTIVITIES IN:
Lacamas Creek Watershed
LEGAL: NW ¼ of Section 5, T1N, R3E, WM.,
NEAR: Camas, Washington
COUNTY: Clark County
DATE: February 23, 2018
Figure 3



LEGEND



Approximate Scale
1" = 150'

- Wetland Boundary
- 50-Foot Wetland Buffer
- Sanitary Sewerline
- Project Area

Grass Valley Development

APPLICANT:
Holland Partner Group
1111 Main Street, #700
Vancouver, WA 98660

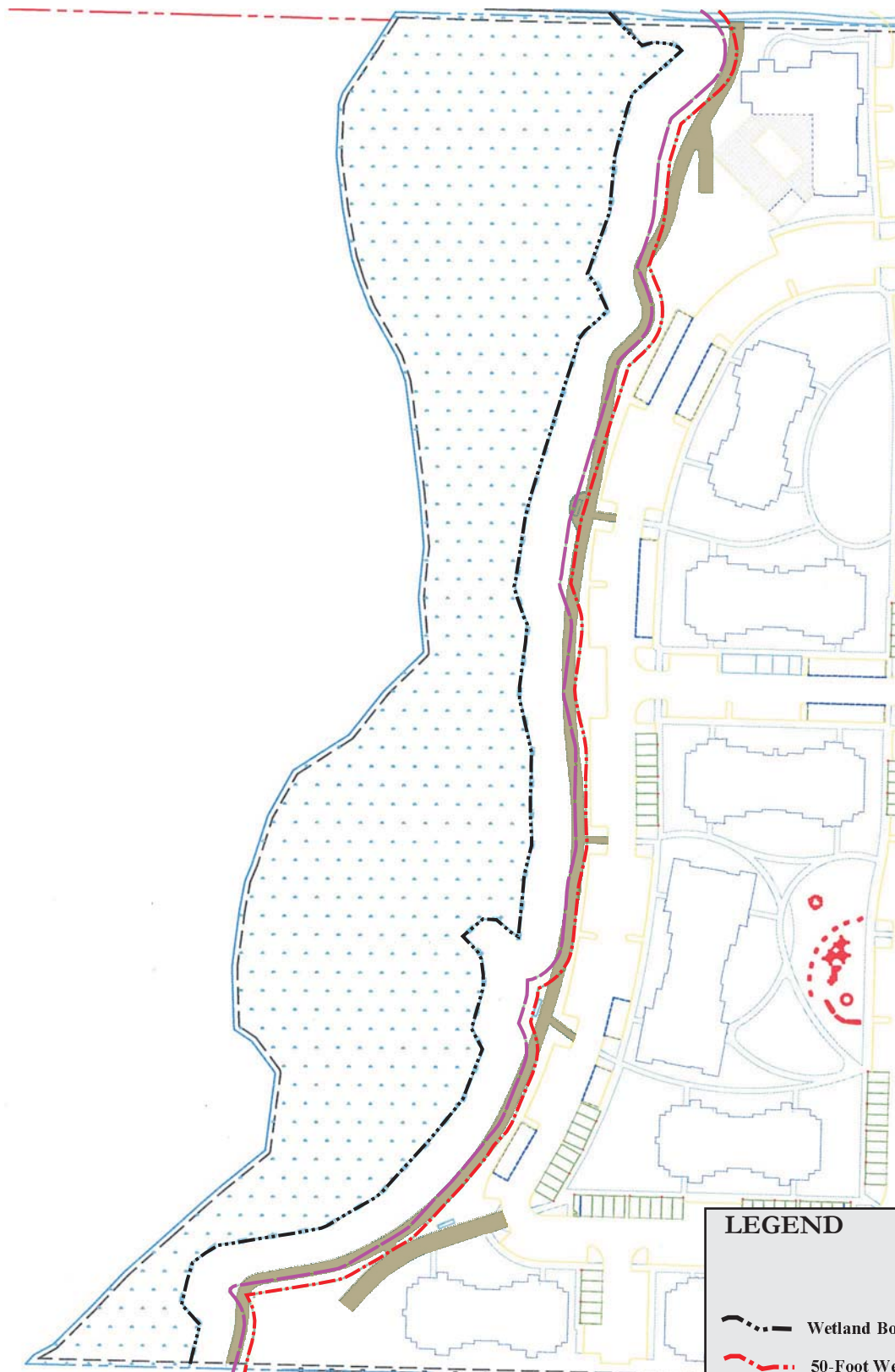
PURPOSE: Preliminary Wetland
Mitigation Plan

Existing Wetland Conditions Grass Valley Development Camas, Washington



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PROPOSED ACTIVITIES IN:
Lacamas Creek Watershed
LEGAL: NW ¼ of Section 5, T1N, R3E, WM.,
NEAR: Camas, Washington
COUNTY: Clark County
DATE: February 23, 2018
Figure 4



LEGEND



Approximate Scale
1" = 150'

-  Wetland Boundary
-  50-Foot Wetland Buffer
-  40-Foot Moderate Intensity Reduced Buffer
-  Proposed Trail

Grass Valley Development

APPLICANT:
Holland Partner Group
1111 Main Street, #700
Vancouver, WA 98660

PURPOSE: Preliminary Wetland
Mitigation Plan

Buffer Reduction Via Land Use Intensity Grass Valley Development Camas, Washington



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PROPOSED ACTIVITIES IN:
Lacamas Creek Watershed
LEGAL: NW ¼ of Section 5, T1N, R3E, WM.,
NEAR: Camas, Washington
COUNTY: Clark County
DATE: February 23, 2018
Figure 5



LEGEND

- Wetland Boundary
- 30-Foot Enhanced Reduced Buffer
- 40-Foot Moderate Intensity Reduced Buffer
- Proposed Trail
- Buffer Enhancement Area = 47,780 sq.ft.



Approximate Scale
1" = 150'

Grass Valley Development

APPLICANT:
Holland Partner Group
1111 Main Street, #700
Vancouver, WA 98660

PURPOSE: Preliminary Wetland Mitigation Plan

Buffer Reduction Via Enhancement Grass Valley Development Camas, Washington



OLSON
ENVIRONMENTAL, INC.
Environmental Services • Wetland Delineation

222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360.693.4555 fax: 360.699.6242

PROPOSED ACTIVITIES IN:
Lacamas Creek Watershed
LEGAL: NW ¼ of Section 5, T1N, R3E, WM.,
NEAR: Camas, Washington
COUNTY: Clark County
DATE: February 23, 2018
Figure 6



Grass Valley Development

APPLICANT:

Holland Partner Group
1111 Main Street, #700
Vancouver, WA 98660

PURPOSE: Preliminary Wetland
Mitigation Plan

**Project Photographs
Grass Valley Development
Camas, Washington**



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Sustainable • Innovative • Safe • Efficient • Collaborative

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PROPOSED ACTIVITIES IN:

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Photo Sheet 1