Hearings Examiner Meeting Agenda
Thursday, December 16, 2021, 5:00 PM
REMOTE PARTICIPATION

NOTE: The City welcomes public meeting citizen participation. TTY Relay Service: 711. In compliance with the ADA, if you need special assistance to participate in a meeting, contact the City Clerk's office at (360) 834-6864, 72 hours prior to the meeting so reasonable accommodations can be made (28 CFR 35.102-35.104 ADA Title 1)

To Participate Remotely:

OPTION 1 -

1. Go to www.zoom.us and download the app or click "Join A Meeting" and use Meeting ID – 97017587038
2. Or, from any device click https://zoom.us/j/97017587038

OPTION 2 - Join by phone (audio only):

1. Dial 877-853-5257 and enter meeting ID# 97017587038

For Public Comment:

1. Click the raise hand icon in the app or by phone, hit *9 to "raise your hand"
2. Or, email to publiccomments@cityofcamas.us (400 word limit)

These will be entered into the meeting record. Emails received by one hour before the start of the meeting will be emailed to the Meeting Body prior to the meeting start time. During the meeting, the clerk will read aloud the submitter's name, the subject, and the date/time it was received. Emails will be accepted until 1 hour received after the meeting and will be emailed to the Meeting Body no later than the end of the next business day.

CALL TO ORDER

INTRODUCTIONS AND INSTRUCTIONS

HEARING ITEM

1. Washougal River Oaks Cottage Development (SUB 20-01)

   Presenter: Lauren Hollenbeck, Senior Planner

ADJOURNMENT

LAND USE DECISION

STAFF REPORT

WASHOUGAL RIVER OAKS COTTAGE DEVELOPMENT

(File No. Subdivision SUB20-01)

CONSOLIDATED FILES: ZONE CHANGE (ZC20-01); DESIGN REVIEW (DR20-07); CRITICAL AREAS REVIEW (CA20-07); ARCHAEOLOGICAL REVIEW (ARCH20-07); STATE ENVIRONMENTAL POLICY ACT (SEPA20-13)

Type III

Staff Report Date: December 8, 2021

TO	Hearings Examiner	**HEARING DATE**	December 16, 2021
PROPOSAL	To subdivide approximately 2.95-acres into 22-lot detached residential subdivision with cottage homes including a zone change request from multi-family (MF-18) zone to a multi-family cottage (MF-C) overlay zone.		
LOCATION	The site is located at 2515, 2523, 2527 & 2531 NE 3rd Avenue NE ¼ of Section 12, Township 1 North, Range 3 East, of the Willamette Meridian; and described as tax parcels 89884000, 89883000, 89881000 and 898975000.		
APPLICANT	Degrosellier Development, Inc. 3100 E Evergreen Blvd. Vancouver, WA 98661		
APPLICATION SUBMITTED	November 16, 2020; Resubmitted January 11, 2021 and August 23, 2021	**APPLICATION COMPLETE**	August 23, 2021
SEPA	The City issued a SEPA Determination of Non-significance (DNS) November 18, 2021, with a comment period that ends on December 2, 2021. The SEPA MDNS was mailed to property owners November 17, 2021 and published in the Post Record on November 18, 2021. Legal publication #620210.		
PUBLIC NOTICES	Notice of Application was mailed to property owners within 300 feet of the site on September 1, 2021 and published in the Post Record on September 2, 2021. Legal publication #591700. Notice of public hearing was mailed to property owners within 300 feet of the site on November 17, 2021 and published in the Post Record November 18, 2021. Legal publication #620200.		

APPLICABLE LAW: The application was submitted on November 16, 2020 and the applicable codes are those codes that were in effect at the date of application. Camas Municipal Code (CMC) Title 16 Environment, Title 17 Land Development, and Title 18, specifically (but not limited to): Chapter 18.11 - Parking, Chapter 18.13 - Landscaping, Chapter 18.19 – Design Review, Chapter 18.51 – Comprehensive Plan and Zoning Amendments and Chapter 18.55 - Administrative Procedures.

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PROJECT SUMMARY

Application has been made to the City of Camas for preliminary plat approval for a detached residential subdivision located at 2515, 2523, 2527 & 2531 NE 3rd Avenue in the MF-18 Multi-Family Residential zone. The preliminary plat proposal would segregate approximately 3-acres into 22 lots ranging in size from 1,210 square feet to 2,486 square feet, with an average lot size of 1,823 square feet. The subdivision proposal includes tracts for an open space/critical area and a common area to include trails, landscaping, private access roads, parking, and stormwater facilities. The proposal also includes a zone change request from Multi-Family Residential (MF-18) zone to a Multi-Family Residential Cottage (MF-C) overlay zone to allow for small sized cottage units.

The subject property is bordered to the southwest by the Wedgewood multi-family residential subdivision, the northwest by a single-family residence and the east by vacant land that is also zoned MF-18. To the north is the Riverview Terrace single-family residential subdivision located in the City of Washougal. NE 3rd Avenue borders the site on its south side where site access is provided. This section of NE 3rd Avenue is also within one of the City's gateways and corridors.

The site's topography slopes from north to south and characterized as moderate to steep sloping terrain at the north end to gently sloping terrain at the south end with an elevation difference of approximately 150-feet. Vegetation at the southern end of the site is brambles while the north end is comprised of a mature forest with native trees and shrubs.

The development is subject to review and approval of the following permits: Preliminary plat review, Zone Change, Design Review, Critical Area review, SEPA review and Archaeological review. The staff report includes criteria for review for all these permit types.

FINDINGS

Title 18 Zoning

ZONE CHANGE (ZC20-01)	CMC CHAPTER 18.51

CMC Chapter 18.51.025.B.2 Zoning map amendment criteria:

The hearings examiner decision on application for zoning map amendment approval shall be based on the following criteria:

a. The map amendment shall be consistent with the policies and provisions of the comprehensive plan including the comprehensive plan map;

The property is zoned Multi-Family Residential (MF-18) and is in a zoning district with a comprehensive plan designation of "High Residential". The proposed zoning amendment is to add an overlay zone to allow for residential cottage uses with a maximum density of 24 dwelling units per acre. Per CMC 18.05.040.H, the cottage overlay zone may be utilized in multi-family zones subject to approval of a zoning district change. Overlay zones must implement the goals and values in the comprehensive plan of the underlying land use designation. The proposed map amendment is consistent with Housing Policy 3.4, "Support and encourage the development of smaller (less than 1,000 square foot), single-story houses through the Multi-Family Cottage Overlay or other tools".

b. The amendment shall be compatible with the uses and zoning of the adjacent properties and surrounding areas;

Existing adjacent uses and zoning comprise of both detached single-family and attached multi-family residential. The proposed zoning amendment to a multi-family cottage overlay allows for detached residential cottages, which is compatible with existing adjacent residential zoning and uses.

c. The amendment is warranted due to changed circumstances, error, or because of a demonstrated need for additional property in the proposed zoning district;

The City of Camas 2035 Comprehensive Plan indicates 70 percent of new homes are over 3,000 square feet with only 7 percent of homes less than 2,000 square feet in the City of Camas. The Multi-Family Cottage Overlay would address this disparity in housing by providing an incentive to build smaller, single-level homes and accommodate mobility impairments as well. The recently adopted City of Camas Housing Action Plan strategies further demonstrates the need to diversify housing typologies and affordability; which the Multi-Family Cottage Overlay can provide.

d. The subject property is suitable for development in conformance with zoning standards under the proposed zoning district;

The following table CMC 18.09.050 – Density and Dimensions for Multifamily Residential Zones:

	MF-C Overlay
Maximum density (dwelling units per net acre)	24
Minimum density (dwelling units per net acre)	6.0
Minimum lot area (square feet)	None
Minimum lot width (feet)	None
Minimum lot depth (feet)	None
Maximum gross floor area (GFA) per dwelling unit (square feet)	1,000[Note 4]
Minimum front yard/at garage front (feet)	0/20
Minimum side yard (feet)	0 / If abutting R-zone than setback is 10'
Minimum side yard, flanking a street (feet)	15
Minimum rear yard	0 / If abutting R-zone than setback is 10'

Maximum building lot coverage	Building coverage is limited by a minimum of 200 sq. ft. of useable yard adjacent to each dwelling unit.
Maximum building height (feet)	18[Note 3]

Table Notes:

1. The non-attached side of a dwelling unit shall be three feet, otherwise a zero-lot line is assumed.
2. Maximum three stories and a basement but not to exceed height listed.
3. Maximum one story and a basement but not to exceed height listed.
4. Gross floor area (GFA) in this instance does not include covered porches or accessory structures as defined per CMC 18.17.040.
5. Maximum four stories but not to exceed height listed.

In addition to the table above, the cottage units should be designed to include unique architectural elements such as a front porch, steep-pitch gable roof, a recessed garage and accommodate those with mobility impairments per CMC 18.05.040.H. The proposed cottage units include front porches and gable roofs with some to include attached rear-loaded garages. Staff provided evidence at approval criterion 5 under the Subdivision section of this staff report that demonstrates the cottage development is in overall compliance with the density and dimensions of the Multi-Family Cottage (MF-C) overlay development standards.

e. Adequate public facilities and services are likely to be available to serve the development allowed by the proposed zone;

There are adequate public facilities and services available for the development on the south and west sides of the subject site and can be mitigated for to serve the development, subject to subdivision review per CMC 17.11.030.D.

f. Specific information about the intended use and development of the property.

The purpose of the cottage development is to provide an alternative housing option (i.e. smaller dwellings) and a path to home ownership. A unique characteristic of the proposed cottage development is the opportunity for connection and interaction with neighbors via open gathering spaces including a community pavilion, benches and walking paths throughout the site. In addition, the inviting front porches with the deemphasis on garages help create a more pedestrian friendly neighborhood.

FINDING: Staff finds that the application narrative and materials demonstrate that the proposed zone change can meet the criteria of CMC 18.51.025.B.2.

Title 16 Environment

STATE ENVIRONMENTAL POLICY ACT (SEPA20-07) CMC CHAPTER 16.07

A SEPA checklist was submitted and a Determination of Non Significance (DNS) was issued November 18, 2021 as the proposed development includes more than ten residential dwelling units per CMC 16.07.020.A.1. The SEPA comment period ended December 2, 2021. Staff received comments from Ecology concerning erosion control measures (Exhibit 31).

FINDING: Staff finds the SEPA comments from Ecology should be complied with.

ARCHAEOLOGICAL RESOURCE PRESERVATION (ARCH20-07) CMC CHAPTER 16.31

An archaeological predetermination report dated April 29, 2019 was prepared by Archaeological Services LLC. Based on the report, no further archaeological work is recommended at this time, but an inadvertent discovery plan should be prepared in case of the discovery of archaeological materials. The report and findings are not subject to the open public records act and as such, the city cannot disclose the results.

> **FINDING:** Staff finds a condition of approval is warranted that if potential artifacts are discovered during the course of construction, work must immediately cease and both State Department of Archaeological and Historic Preservation and the City shall be notified.

CRITICAL AREAS (CA20-07) CMC CHAPTER 16.51

CMC 16.55 Critical Aquifer Recharge Areas (CARA)

Clark County GIS mapping identified a portion of the proposed development site within a CARA zone and an additional source, Critical Aquifer Recharge Area Report prepared by Pacific Groundwater Group (PGG), indicated the site is located within a wellhead protection area for City Well No. 13. As such, the applicant submitted a Level One Hydrogeological Assessment prepared by PGG dated September 3, 2020. The PGG report concluded, "the stormwater infiltration facility can accommodate expected stormwater loading (Soil and water Technologies Inc., 2018) and that the transmissivity of the aquifer is sufficiently high that mounding will not significantly reduce local depth to water." To mitigate potential impact to groundwater due to the proposed development, the applicant must comply with Ecology's current Stormwater Management Manual for Western Washington as discussed under Criterion 2 of this staff report.

> **FINDING:** Staff finds the project complies with the provisions for critical aquifer recharge areas, as outlined in the *Critical Aquifer Recharge Area Report* prepared by Pacific Groundwater Group (PGG) dated September 3, 2020.

CMC 16.61 Fish and Wildlife Habitat Conservation Areas

Clark County GIS mapping identified the subject property with Fish and Wildlife Habitat conservation areas (i.e. WDFW Habitat Area) as well as Habitats of Local importance (i.e. Oregon White Oaks), which are identified by the applicant. The *Critical Areas Report & Oak Mitigation Plan* report prepared by AshECO Solutions, LLC dated August 19, 2021 (Exhibit 9) identified several individual Oregon White Oak trees onsite, but the oak woodland habitat area as mapped by WDFW was not present as discussed on pages 3 and 4 of the report. However, the *Critical Areas Report & Oak Mitigation Plan* report did recognize a mature forest habitat along the hill slope area associated with the northern half of the project site. As a result, the development is focused on the southern portion of the site to avoid impacts to the mature forest habitat, which is proposed for preservation as shown as Open Space Tract B on the preliminary plat (Exhibit 6).

Per CMC 18.16.010.A.3.i., individual Oregon white oak trees greater than 20-inch diameter at breast height (dbh) are considered a habitat of local importance. Within the project development area, two (2) of the five (5) Oregon White Oaks (OWO) identified on the tree survey (Exhibit 8) are greater than 20-dbh. One of the OWO, a 42-inch dbh, is located adjacent to and highly visible from NE 3rd Avenue, which will be retained and protected as outlined in the *White Oak Mitigation and Protection Plan* prepared by Arbor Science Tree Care dated August 10, 2021 (Exhibit 9). The second OWO, a 27-inch dbh, is proposed for removal as it is located within site improvements as well as being somewhat compromised due to the adjacent paved and fenced area associated with existing NE Wedgewood Court. The removal of the tree will also allow for two existing adjacent oaks in this area room for growth per the *Critical Areas*

Report & Oak Mitigation Plan report. Mitigation for OWO tree removal is a replacement ratio of 2:1 per CMC 16.51.125.B and is proposed for mitigation on-site.

Staff recommends a condition of approval that the Oregon White Oaks should be mitigated for and protected as outlined in the *Critical Areas Report & Oak Mitigation Plan* report prepared by AshECO Solutions, LLC dated August 19, 2021 and the *White Oak Mitigation and Protection Plan* prepared by Arbor Science Tree Care dated August 10, 2021. The temporary construction fencing should be installed prior to construction that clearly marks in the field the Oregon White Oak and remain throughout permitted construction activities.

Prior to final plat approval, a conservation covenant should be recorded with the County to ensure long-term preservation of the existing Oregon White Oak and the mature forested area (i.e. Open Space Tract B as shown on the preliminary plans), including maintenance of any mitigation actions, per CMC 16.51.210 and conditioned as such. Further, a copy of the recorded conservation covenant document must be submitted to the City prior to final plat approval.

The applicant will be required to post a mitigation bond in an amount deemed acceptable by the City to ensure the oak mitigation is fully functional per CMC 16.51.250.

> **FINDING:** Staff finds the project complies with the provisions for fish and wildlife habitat areas, as conditioned, and is developable based on the findings in the *Critical Areas Report & Oak Mitigation Plan* report prepared by AshECO Solutions, LLC dated August 19, 2021, the *White Oak Mitigation and Protection Plan* prepared by Arbor Science Tree Care dated August 10, 2021 and as conditioned.

CMC Chapter 16.59.060(C) Geotechnical Evaluation and Assessment

Clark County GIS mapping identified the subject property to contain geologically hazardous areas (i.e. steep slopes, landslide hazard areas and erosion hazard areas). As such, the applicant submitted a *Geotechnical Engineering Study* dated August 2018 prepared by Soil and Water Technologies, Inc. (Exhibit 11), which observed steep slopes greater than 15% but did not identify characteristics of landslide areas. The site consists of a steep south facing slope with an elevation drop of approximately 150-feet from the north to south with moderate to steep sloping terrain at the north end (i.e. Open Space Tract B as shown on the preliminary plans) to gently sloping terrain at the south end of the project site. At page 4 of the study, the applicant concluded "the proposed development as planned will not create a risk of increased slope instability at the site" (See Exhibit 11).

The City's geotechnical consultant, Earth Engineers, Inc. (EEI), performed a peer review of the geotechnical report (Exhibit 12) and found that a revised geotechnical report will need to be submitted to address the items identified in EEI's October 13, 2021 peer review letter (Exhibit 12). Further, Soil and Water Technologies *Geotechnical Engineering Study* dated August 2018 did not appear to have the current preliminary civil drawings for review. With that, staff recommends a condition of approval that the applicant should submit a revised geotechnical report based on the current preliminary civil drawings addressing the review items identified in EEI's geotechnical peer review letter dated October 13, 2021 prior to final engineering plan approval.

> **FINDING:** Staff recommends a condition of approval that the applicant should submit a revised geotechnical report based on the current preliminary civil drawings addressing the review items identified in EEI's geotechnical peer review letter dated October 13, 2021 prior to final engineering plan approval.

CMC Chapter 17.11.030(D) Criteria for Preliminary Plat Approval:
The hearings examiner decision on application for preliminary plat approval shall be based on the following criteria:

1. The proposed subdivision is in conformance with the Camas Comprehensive Plan, Parks and Open Space Comprehensive Plan, Neighborhood Traffic Management Plan, and any other City adopted plans.

Comprehensive Plan
The subject property is designated as Multi-Family High in the City's Comprehensive Plan, which includes the Multi-Family Residential (MF-18) zone designation. The proposed cottage development complies with several of the 2035 City of Camas Comprehensive Plan Housing goals as polices such as:

- H Goal 1: Maintain the strength, vitality, and stability of all neighborhoods and promote the development of a variety of housing choices that meet the needs of all members of the community.
- H Policy 1.7: Require all new housing developments to provide a range of housing types and sizes that are evaluated through the land use approval process and stipulated on the final plat.
- **H Policy 3.4: Support and encourage the development of smaller (less than 1,000 square foot), single-story houses through the Multi-Family Cottage Overlay or other tools.**

Per the Comprehensive plan, housing building permits from 2004-2016 indicated at least 70% of new homes are over 3,000 square feet with less than 7% of homes less than 2,000 square feet. To address this disparity in housing, the Multi-Family Cottage Overlay provides for the opportunity to build smaller (less than 1,000 square feet), single-level dwellings with the intent to encourage the development of cottages, especially those with architectural elements typical of this type of dwelling such as a front porch, a steep-pitched gable roof, a recessed garage. The overlay is also intended to accommodate those with mobility impairments. The proposed cottage development meets the multi-family cottage overlay (MF-C) design criteria, which is further discussed under approval criteria 5 within this staff report. The proposed cottage housing development, when built, will provide alternative housing opportunities to meet the needs of the community in accordance with the Housing element of the Comprehensive Plan.

Overall, the 2035 City of Camas Comprehensive Plan supports the subdivision through a number of land use, transportation, and economic development policies as well such as the following:

- LU Policy 1.3: Maintain compatible use and design with the surrounding built and natural environments when considering new development or redevelopment.
- LU Goal 3: Create vibrant, stable, and livable neighborhoods with a variety of housing choices that meet all stages in the life cycle and a range of affordability.
- LU Policy 3.3: Encourage connectivity between neighborhoods (vehicular and pedestrian) to support citywide connectivity and pedestrian access.
- LU Policy 3.4: Camas residents are protective of the small-town ambiance and family-friendliness of the community. Discourage exclusive neighborhoods, privacy walls, and gated communities.
- LU Policy 3.5: Where neighborhoods adjoin natural areas or trails, ensure connections through neighborhoods to enhance access to recreation amenities.

- LU Goal 4: Develop an interconnected network of parks, trails, and open space to support wildlife corridors and natural resources and enhance the quality of life for Camas residents and visitors.
- T Policy 1.3: Construct streets that are interconnected and avoid long cul-de-sacs or dead ends.
- T Policy 2.1: Enhance travel choices and provide pedestrian and bicycle routes designed especially for them, not simply along routes designed for cars. Route planning should seek shortcuts and other opportunities that give walking or biking advantages over the automobile.
- ED Policy 6.6: Encourage development of commercial uses and multi-family residential within the 6th Avenue and 3rd "Avenue gateways and corridor to further support downtown business.
- ED Policy 6.7: Building entrances should face the street and provide pedestrian connections from the building entrance to the sidewalk. Encourage landscaping, rather than parking, between the building and the street in order to create a welcoming streetscape.

Housing Action Plan

The City of Camas adopted a Housing Action Plan (HAP) on July 6, 2021, that encourages housing diversity, affordability, and access to opportunity for people of all incomes, complements the housing goals of Camas' 2035 Comprehensive Plan as discussed above. Smaller housing types, such as a cottage development, helps achieve this goal as identified through community input, demographic data, and housing need estimates per the HAP.

Parks and Open Space Comprehensive Plan

The 2014 Parks, Recreation and Open Space (PROS) Comprehensive Plan does not identify required trail or park improvements within or adjacent to the subject parcel. Therefore, this plan is not applicable to this project.

Neighborhood Traffic Management Plan

The city has a Neighborhood Traffic Management Plan (NTM). The NTM plan identifies the need for installation of acceptable traffic calming features when a proposed development will create 700 Average Daily Trips (ADTs) or more. The proposed development consists of 22 lots and is projected to create 125 ADTs, which does not meet the threshold for installation of traffic calming features.

FINDING: Staff finds that the proposed project can or will be compatible with the aforementioned City plans.

2. Provisions have been made for water, storm drainage, erosion control and sanitary sewage disposal for the subdivision that are consistent with current standards and plans as adopted in the Camas Design Standard Manual.

Water:

Provisions for a water distribution system are required per CMC 17.19.040.C.4, which requires that each lot within a proposed development shall be served by a water distribution system designed and installed in accordance with the city's *Design Standards Manual* (CDSM).

There is an existing 8-inch ductile iron (DIP) water line located on the east side of NE Wedgewood Court. The preliminary utility plans indicate that an 8-inch DIP water line is to be stubbed off the existing water line, looped through the development and tie back into the existing water line in NE Wedgewood Court in order to provide a water distribution system to the proposed development. Additionally, there is a water service provided to each lot and the shared pavilion. The water services are proposed to be

located behind the curb at the edge of the roadway. Per CMC 17.19.040.C.3.d, a water meter for irrigation is the responsibility of the HOA/Property Owners of said open space and the irrigation meter shall be installed with a backflow prevention device.

The preliminary utility plan shows three (3) locations that propose a cluster of four or more 1-inch water services, located side-by-side, and tapped off the 8-inch water main (Lots #1- #4 & the pavilion, Lots #5 - #8, and Lots #16 - #19). Staff recommends a condition of approval that prior to final engineering plan approval, the applicant should submit a revised utility plan that shows one 6-inch tap at each of the three locations where there are a cluster of four or more 1-inch taps located side-by-side. The 6-inch tap is to extend beyond the curb, with a 6-inch manifold provided for the cluster of 1-inch services to said Lots #1- #8, the pavilion, and Lots #16 - #19.

Staff recommends a condition of approval that prior to final plat approval, the applicant is to provide to the city a 20-foot wide utility access and maintenance easement over and under the water main located in the proposed private street, Tract __.

Plat note: Tract __ consists of a 20-foot wide utility access and maintenance easement to the city, over and under the water main located in the private street.

FINDINGS: Staff finds that adequate provisions for water, as conditioned, can or will be made.

Storm Drainage:
Per CMC 17.19.040.C.3 the storm drainage collection system shall meet the requirements of the City's adopted stormwater standards. Provisions for a stormwater system are per CMC 14.02 Stormwater Control and CMC 17.19.040.C.3 Storm Drainage.

The proposed development site consists of four existing parcels that combined are approximately 2.95 acres (379,081 square feet) in size. Due to steep slopes and a heavily vegetated area on the northern portion (approximately 1.05 acres) of the proposed development, the proposed development improvements are limited to the southern portion of the combined parcels. The southern portion is approximately 1.90 acres (82,764 square feet) in size.

The preliminary grading and drainage plan provides a stormwater system consisting of catch basins, field inlets, a 12-inch storm line conveyance system, manholes, flow control manhole, emergency overflow system, and a stormwater treatment facility.

A stormwater drainage report, dated October, 2020, was prepared by Desgrosellier Design & Construction. The report was prepared using Ecology's 2014 Stormwater Management Manual for Southwest Washington (SWMMWW). Per CMC 14.02.050 use of the most current edition of Ecology's SWMMWW is required. The most current edition at time of application submittal was and is currently the 2019 SWMMWW. Staff recommends a condition of approval that prior to final engineering plan approval, the applicant should be required to submit a final stormwater drainage report that addresses and meets the Minimum Requirements (MR) in accordance with Ecology's 2019 SWMMWW manual.

The preliminary drainage report proposes to meet Minimum Requirement (MR) #6 Runoff Treatment by means of stormwater "infiltration into the ground via an infiltration basin with emergency overflow to an existing storm drainage system located in NE 3rd Avenue." The stormwater drainage report (pages 7 & 8) state that "groundwater was not encountered in any of the geotechnical borings completed on site to depths of 12.5 feet below ground surface. Refer to geotechnical report in Appendix C-2."

The geotechnical report was prepared by Soil and Water Technologies, Inc. and is dated August 21, 2018. Per the Geotechnical Report (page 2) infiltration testing was performed on August 3rd, 2018 in accordance the 2016 Clark County Stormwater Management Manual (SWMM) guidelines. The Clark

County SWMM has not been adopted by the City of Camas. Therefore, staff recommends a condition of approval that prior to final engineering plan approval, the applicant should submit a revised geotechnical report with infiltration testing conducted in accordance with Ecology's current 2019 SWMMWW and resubmit for review with the revised stormwater drainage report.

The preliminary plat shows the storm facility located on Tract A, which is designated as a common area that includes a pavilion, private streets, private parking spaces, sidewalks, pedestrian pathways, the footbridge over the storm facility, the storm facility, and stairways to future lots 16 thru 19. Per CMC 17.19.040.3.a, storm drainage facilities shall be placed on their own tract.

Staff recommends a condition of approval that prior to final plat approval, the applicant should revise the preliminary plat that shows a separate tract to include: the storm facility, the pedestrian footbridge, any portion of the pedestrian pathway on the south side of the storm facility, and any portion of the maintenance access road to the storm facility that is located outside of the right-of-way along NE 3rd Avenue.

Per CMC 14.02.090 Ownership and Maintenance is as follows:

A. Stormwater systems and facilities which collect, convey, treat, and/or infiltrate stormwater runoff, … are ultimately the responsibility of the applicant to operate and maintain, at a minimum until the end of the two-year warranty period or until turned over to an HOA or collective homeowners. Ownership for stormwater facilities shall be specified on the recorded plat, if applicable, or as stated in the condition of approval (COA).

1. Stormwater facilities, located within residential subdivisions and short plats, shall be the maintenance responsibility of the applicant for two years after date of final acceptance. This maintenance period shall run concurrent with the city's required two-year warranty period that begins at final acceptance. Prior to end of the two-year warranty period, and upon inspection by the city, the applicant shall ensure that a fully functional facility is turned over to the new owners (e.g. homeowners associations/homeowners).

2. At completion of the two-year warranty period, stormwater facilities located within a residential development shall be the maintenance responsibility of the homeowners associations (HOA) unless determined otherwise by the director. All stormwater facilities, or such facilities within any residential subdivision where an HOA has not been established, shall be maintained by the home/owners/property owners within the platted subdivision or short plat.

C. Stormwater Facilities Inspections. The city shall have the right-of-entry and authority to inspect all stormwater facilities for compliance with this chapter.

Staff recommends a condition of approval that prior to final plat approval, a note should be added on the final plat that states, "The storm facility and all other amenities located in Tract __ is to be owned and maintained in accordance with CMC 14.02.090, by the Homeowners Association (HOA) / Homeowners / Property Owners. The city shall have right-of-entry for inspection purposes of said storm facility."

Plat Note: Tract __, which consists of the storm facility and all other amenities located within the tract, is to be owned and maintained by the Homeowners Association (HOA) / Homeowners / Property owners, in accordance with CMC 14.02.090. The city shall have right-of-entry for inspection purposes of said storm facility.

FINDINGS: Staff finds that adequate provisions for storm drainage, as conditioned, can or will be made.

Erosion Control:
Per CMC 17.21.030 any land-disturbing activities will be required to meet the provisions for erosion prevention and sediment control as outlined in CMC 17.21.030 and CMC 14.06.

The existing parcel is approximately 2.95 acres (379,081 square feet) in size. However, due to steep slopes and heavy vegetation on the northern portion (approximately 1.05 acres) of the proposed development, the proposed improvements are shown to be confined the southern portion of the development, which is approximately 1.90 acres (32,764 square feet) in size.

Per CMC 14.06.030.A erosion prevention / sediment control plans are to be submitted for review and approval. Adequate erosion control measures are to be provided during the site improvements for the proposed development in accordance with the *Camas Design Standards Manual* (CDSM) and Ecology's *Stormwater Management Manual for Western Washington* (SWMMWW). Staff finds that a condition of approval is warranted that prior to final engineering plan approval, the applicant should submit Erosion Sediment Control (ESC) plans, as a part of the site improvement plans, to CDEV engineering for review and approval.

Per CMC 14.06.030.B Land-disturbing activities of an acre or more require an *NPDES General Construction Stormwater Permit* (GCSWP), which is issued by the Washington State Department of Ecology. Per CMC 14.06.030. C A *Stormwater Pollution Prevention Plan* (SWPPP) is required for sites in excess of an acre or more. The SWPPP is also a requirement of the NPDES GCSWP. As such, prior start of any land-disturbing activities, the applicant will be required to submit a copy of both the NPDES GCSW Permit and SWPPP are to CDEV Engineering.

Per CMC 17.21.050.B.3 an erosion control bond, in the amount of 200% of the erosion control items is required for land-disturbing activities in excess of one acre. As such, the applicant will be required to provide an Erosion Control Bond (ESC) prior to start of any land-disturbing activities.

> **FINDINGS:** Staff finds that adequate provisions for erosion control, as conditioned, can or will be made.

Sanitary Sewage Disposal:
Per CMC 17.19.040.C.2 Sanitary Sewer requires that sanitary sewer shall be provided to each lot at no cost to the city and designed in accordance with city standards.

There is an existing 8-inch gravity sanitary sewer main located on the west side of NE Wedgewood Court. Per the preliminary utility plans sanitary sewer laterals will be stubbed from the existing sanitary sewer main in NE Wedgewood Court to Lots #9 thru #12 with the sanitary sewer cleanouts located at the right-of-way.

Per the preliminary utility plan, an onsite 8-inch gravity sewer main, with manholes, cleanouts, and laterals will traverse from the northern section of the proposed development to the southernmost section of the proposed development, and tie into the existing gravity sewer main with a new manhole in NE 3rd Avenue. The proposed gravity sewer main, manholes, cleanouts, and laterals will be for the benefit of Lots #1 thru #8 and Lots #13 thru #22.

Staff recommends a condition of approval that prior to final plat approval, the applicant is to provide to the city a 20-foot wide utility access and maintenance easement over and under the sanitary sewer system located in the proposed private street, Tract __.

Staff recommends a condition of approval that prior to final plat approval, the applicant is to provide to the city a 15-foot wide utility access and maintenance easement over and under the sanitary sewer

system that traverses the proposed Common Area Tract A and the proposed Stormwater facility, Tract __.

Plat note: Tract __ consists of a 20-foot wide utility access and maintenance easement to the city, over and under the sanitary sewer system located in the private street.

Plat note: Tract A and ___ consists of a 15-foot wide utility access and maintenance easement to the city, over and under the sanitary sewer system that traverses the proposed Common Area Tract and Stormwater Facility Tract.

> **FINDINGS:** Staff finds that adequate provisions for sanitary sewage disposal, as conditioned, can or will be made

Existing wells, septic tanks, and septic drain fields:
CMC 17.19.020.A.3 requires abandonment of existing wells, septic tanks, and septic drain fields. Any existing wells, septic tanks, and drain fields should be properly abandoned and/or decommissioned in accordance with State and County guidelines prior to final plat approval. If applicable, any water rights associated with the abandoned well(s) should be transferred to the City. Per the applicant's narrative, there are not any existing wells, septic tanks, or septic drain fields on the existing parcel.

> **Finding:** Staff finds that, as conditioned, adequate provisions can or will be made for water, storm drainage, erosion control, and sanitary sewage disposal that are consistent with the Camas Municipal Code and the Camas Design Standard Manual.

3. Provisions have been made for road, utilities, street lighting, street trees and other improvements that are consistent with the Six-Year Street Plan, the Camas Design Standards Manual and other State adopted standards and plans;

Roads: Streets for the proposed development shall be designed in accordance with CMC 17.19.040.B Streets.

[Public Roads]: NE 3rd Avenue is classified as a fully improved 4-lane arterial along the frontage of the proposed development. NE Wedgewood Court is classified as a local roadway with improvements on the west side of the roadway only.

Per 17.19.040.B.1 half-width street improvements along an existing roadway are required when it is determined to be appropriate by the city engineer. NE Wedgewood Court is an existing roadway that currently consists of a 30-foot right-of-way, 20-feet of paved surface, and sidewalk on the west side only.

Per Table 17.19.040-2 the minimum public street standard, with approval from the city engineer, consists of a 52-foot right-of-way, 28-foot paved surface, a planter strip, and a 5-foot detached sidewalk. The applicant is proposing to construct half-width road improvements along the east side of NE Wedgewood Court. The half-width road improvements very in width of right-of-way and paved surface and are as follows:

A. From the northern side of NE 3rd Avenue to the ingress of the private road, the half-width road improvements consist of an additional 19.7-feet of right-of-way dedication; an additional 12-feet of paved surface; a 5-foot planter strip; and a 5-foot detached sidewalk. The total roadway improvements would be as follow:
    - 49.7-foot right-of-way width, 32-feet of paved surface, 5-foot planter strip, and 5-foot sidewalk.

- The proposed half-width improvements do not meet the minimum public street standards for a local roadway, however a deviation from the minimum public street standards would be supported by the city engineer.
- Suggestion from staff is to revise the additional right-of-way dedication to be either 19-feet or 20-feet, in lieu of 19.7-feet.

B. From ingress to the private road to the egress from the private road and onto NE Wedgewood Court, the half-width road improvements consist of an additional 17-feet of right-of-way dedication; an additional 10-feet of paved surface; a 5-foot planter strip; and a 5-foot detached sidewalk. The total roadway improvements would be as follows:
   - 47-feet of right-of-way width, 30-feet of paved surface, a 5-foot planter strip, and a 5-foot sidewalk.
   - The proposed half-width improvements do not meet the minimum public street standards for a local roadway, however a deviation from the minimum public street standards would be supported by the city engineer.

Parcel number 89937000 aka 2517 NE 3rd Avenue.

The preliminary site plan eliminates the existing driveway off NE 3rd Avenue that provides access to 2517 NE 3rd Avenue, which is not part of the proposed development. The new driveway access to 2517 NE 3rd Avenue will be relocated to NE Wedgewood Court. The new driveway location is shown to be approximately 110-feet north of the intersection with NE 3rd Avenue and approximately 100-feet south of the intersection with the ingress to the private roadway.

Per Table 3, Access Spacing Standards, the intersection & driveway setbacks from an arterial is a minimum 300-feet.

- The proposed location does not meet the minimum intersection & driveway setback standards, however, based on site constraints, a deviation from the minimum intersection & driveway setback standards is supported by the city engineer.

[Private Roads]: Per Table 17.19.040-1 Minimum Private Street Standard D, access to five dwelling units or more, greater than 300-feet in length requires a minimum tract width of 48-feet, a minimum 28-foot wide paved surface, 5-foot detached sidewalks on both sides, a planter strip, and no parking on one side.

- The applicant has proposed a private road that varies in width from 25-feet to 53-feet, which includes the parking stall areas. The private road consists of rolled curb, no adjacent planter strip or adjacent sidewalk, but does provide 5-foot wide sidewalks that intersect the roadway throughout the development, with additional 4-foot wide sidewalks to each of the dwelling units from the main 5-foot wide sidewalks.
- The city engineer is in support of a deviation from the Minimum Private Road Standard D with the following caveats:
  - The road is to be signed as a one-way access with minimum 35-foot curb radii at the ingress and egress locations, and the on-street parking stalls are to be located outside of the 20-foot wide travel lane width.
  - Additionally, the Fire Marshal is in support of the proposed road width as the dwelling units do not exceed 18-feet in height and the furthest dwelling unit is accessible from the roadway with a 150-foot fire hose.

Private streets are to be placed in a separate tract. The tract width is in accordance with Table 17.19.040-1 Minimum Private Street Standards. The private street width varies from 25-feet wide to 53-feet wide and the deviation for the private street tract width is supported by the city engineer. Per the preliminary site plan, the private street, parking stalls, and pullout area are included in Tract A, Common

Area. Staff recommends a condition of approval that prior to final plat approval, the applicant should revise the preliminary plat to show a separate private street tract to include: the proposed road, curb and gutter, parking stalls, and pullout area.

The preliminary site plan proposes 5-foot wide main sidewalk, that travels north and south throughout the development, intersects the private road, and provides 4-foot wide individual sidewalks that leave the main 5-foot wide sidewalk in order to provide pedestrian access to each dwelling unit. At any location where there are shared 4-foot wide sidewalks to more than one dwelling units, e.g. Lots #1 and #2, the shared sidewalk is to be a minimum of 5-feet wide. Staff recommends a condition of approval that prior to final engineering plan approval, the applicant should revise the site plan to show 5-foot wide shared sidewalks at those locations where a 4-foot wide sidewalk segment provides access to more than one dwelling unit, e.g. Lots #1 and #2.

The preliminary site plan proposes a pedestrian footbridge providing access over the stormwater facility. The footbridge is to meet all pedestrian ADA accessibility requirements and a handrail is required. Staff recommends a condition of approval that prior to final engineering plan approval, the applicant should be required to provide a pedestrian pathway that meets ADA accessibility requirements and a handrail is to be installed for that section that crosses the stormwater facility.

Utilities, Street Lighting, Street Trees, and Other Improvements:
[Utilities]: Public utilities will be required for this development. All utilities are to be installed underground, per CMC 8.52.040.

A 6-foot wide public utility easement (PUE) is required outside of the paved road surface for the benefit of public/private utilities, such as power, gas, cable, phone, etc. Staff recommends a condition of approval that prior to final engineering plan approval, the applicant should be required to provide the 6-foot wide public utility easement (PUE) outside of the paved road surface on the utility plans.

[Street lighting]: LED street lighting will be installed along all street frontages in accordance with Camas Design Standards Manual (CDSM). The locations for street lights are to be coordinated with the locations of other site features, landscaping, and utilities. Staff recommends a condition of approval that prior to final engineering plan approval, the applicant should be required to include the street light locations on the engineering and landscape plans.

All street lighting proposed for private streets is required to be metered separately and are to be owned and maintained by the HOA.

Preliminary electrical plans are to be submitted to the city for review and approval prior to submittal to Clark Public Utilities.

[Street trees and Landscaping]: CMC 17.19.030 (F 1) requires one 2-inch diameter street tree in the planter strip of the right-of-way, or similar location in the front yard for each dwelling unit and conditioned as such. Street trees are required along the east side of NE Wedgewood Court as part of the required street frontage improvements per CMC 18.13.050.D and should not be impacted by the placement of the proposed driveways on lots 9-12. Staff recommends a condition of approval that a final landscape plan showing the location of the street trees and driveways for lots 9-12 should be submitted prior to final engineering plan approval.

CMC 18.13.055.A requires a 5-foot L1 landscape buffer adjacent to a residential zone. Staff finds the 5-foot L1 landscape buffer is applicable along the east and north property lines of the adjacent single-family residence (parcel no. 89937000), which is located immediately southwest of the development site and should be conditioned as such. Staff finds the 5-foot L1 landscape buffer is not needed adjacent to existing forested property.

The street tree plantings and other landscaping as discussed throughout this report, should be included on the landscaping plans with final engineering plan submittal for the site improvements. Staff finds a condition of approval is required that the applicant submit to the City for review and approval a final landscape plan consistent with the landscaping standards in CMC Chapter 18.13 and include plantings from the City's approved plant list. Landscaping adjacent to or within tracts should be installed prior to final acceptance per CMC 17.19.030.F.3. Street trees adjacent to lots and within the planter strip of required right-of-way improvements should be installed prior to final occupancy or bonded for per CMC 17.19.030.F.4.

[Storm Facility Landscaping]: CMC 17.19.030.F.6 requires that storm drainage facilities within 30-feet from any street or accessory structure to be landscaped with a 10-foot L2 buffer. The proposed storm facility located in Common Area Tract A should be landscaped with a L2 buffer around the stormwater facility and shown on the final landscape plans.

[Driveways]: Staff recommends a condition of approval that prior to final engineering plan approval, the applicant should be required to include driveway locations for each lot on the utility and landscaping plans in order to ensure that there are not any conflicts between utilities and street locations.

[Parking]: The proposed average lot size falls below 7,400 square feet and therefore one additional off-street parking space is required to be located within a tract per CMC 17.19.040.B.10.e. As such, the applicant has provided 29 parking stalls within Common Area Tract A, which exceeds this requirement. Subject to the requirements of CMC 18.13.060.A and E, parking areas are to be landscaped at all perimeters with a minimum 5-foot width of planting space and should be conditioned as such.

Per CMC 18.13.060.C, parking lots shall include a minimum ratio of one tree per six parking spaces and all parking areas should provide interior landscaping for shade and visual relief. With 29 parking spaces, four trees would be required. The applicant has provided 2 trees at the book ends of the 3 parking spaces between lots 4 and 8 and has provided some covered parking areas for shade. Staff recommends a condition of approval that the applicant provide the remaining 2 required trees next to the uncovered parking stalls near Lot 16 for shade and visual relief.

> **FINDING:** Staff finds that the applicant can or will make adequate provisions as conditioned for roads, utilities, street lighting, street trees, and other improvements that are consistent with the six-year street plan, the Camas Design Standard Manual and other state adopted standards and plans.

4. Provisions have been made for dedications, easements, and reservations;

[ROW Dedications]: The applicant will be required to dedicate additional right-of-way along the east side of NE Wedgewood Court.

[Easements]: The applicant will be required to provide adequate utility access and maintenance easements to the city over the private street and open space tract, at the time of final platting, for the purpose of inspection, maintenance, and operation of said public water and sanitary sewer lines.

A homeowner's association (HOA) will be required and a copy of the CC&R's for the development will need to be submitted to the City for review and approval. Specifically, the applicant will need to make provisions in the CC&R's for ownership and maintenance of the storm drainage systems, fencing, walls, landscaping, irrigation, private roads, and tracts or easements outside of the City's right-of-way, if applicable. Further, all necessary easements and dedications should be noted on the final plat.

> **FINDING:** Staff finds that adequate provisions for dedications, easements and reservations can or will be made by the applicant at the time of final platting.

5. The design, shape and orientation of the proposed lots are appropriate to the proposed use.

The steep slopes and natural forested area at the north end of the property confines the lot layout to the southern 1.90-acres. The proposed lot layout is designed to accommodate a cottage development that contains clusters of small sized cottage homes with inviting porches oriented towards centrally located open space gathering areas, which connect to a network of walkways with the goal of creating an interactive, livable neighborhood. The narrow circular local access street allows for the placement of attached rear loaded garages within the cluster of cottages at the center of the site that help further highlight the neighborhood's walkability.

As shown on the preliminary plat, the proposed lots will have access onto a public or private street, have side lot lines that are generally perpendicular to the roadway they face.

Lot sizes/dimensions: The density of the overall site at 22 dwelling units is well below the maximum allowed at 24 du/acre for the MF-C multi-family cottage residential overlay zone per CMC 18.09.050 - Table 1. There is no minimum lot size, lot width or lot depth requirements in the MF-C overlay zone.

[Gross floor area]: Proposed cottage units A and B are less than required 1,000 maximum gross floor area at 618 and 748 square feet respectively. Although proposed cottage unit C is greater than 1,000 gross square feet by approximately 123 square feet due to the attached rear loaded garage this unit provides, staff finds the amount of livable gross floor area provided within the cottage unit meets this requirement.

[Building height]: The maximum allowable building height is 18 feet, which is limited to a one-story and a basement per CMC 18.09.050 Table 1 Note 3. Although each cottage unit includes a storage loft area above the first floor, none of the cottage units contain a basement or exceed the 18-foot maximum building height requirement. As such, staff finds this criterion is met.

[Building coverage]: Building coverage is limited to a minimum of 200 square feet of usable yard adjacent to each dwelling unit. Although each lot varies on the amount of yard space within their lot lines, staff finds the combination of the yard area within Common Area Tract A as well as the adjacent yard area to each unit satisfies with criterion.

[Lot setbacks]: There is no minimum front, side, or rear yard setback requirements in the MF-C overlay zone except for 20-foot setbacks for front yards with garages and 15-foot setbacks for side yards flanking a street. The cottage units on Lots 9-13 contain rear-loaded garages and therefore the 20-foot front yard garage setback is not applicable. However, the corner lots with side yards flanking the (street/ internal circulation drive/private road) are setback less than 15-feet.

CMC 18.09.060 allows the city to provide additional flexibility to lot size, lot width, lot depth, building setbacks, or lot coverage standards for residential development if a tract of more than one-half acre or more of contiguous area for the protection of a critical area is set aside for preservation. With proposed Open Space Tract B at 1.05-acres, staff finds the proposed reduced street side yard setbacks for Lots 4, 8, 9, 12, 13 and 15 as shown on the preliminary site plan (Exhibit 6) are acceptable if additional landscaping is provided to buffer the corner cottage units from the private circulation drive and will be conditioned as such.

> **FINDINGS:** Staff finds a condition of approval and plat notes are required that show the building envelopes and setbacks as described above on the final plat. Staff finds that the proposed lots, as conditioned, can or will meet density and dimensional requirements of the MF-C overlay designation of CMC 18.09.050 – Table 1.

6. The subdivision complies with the relevant requirements of the Camas land development and zoning codes, and all other relevant local regulations;

CMC Section 15.50.090 Clearing and Grading Standards:
CMC 15.50.090.A requires clearing and grading activities be conducted as to minimize potential adverse impacts to the vegetation, drainage, and other natural features of the land. Clearing and grading should be conducted in a manner to preserve and enhance the city of Camas aesthetic character to include the preservation of unique landforms and natural features per CMC 15.50.090.E. Further, CMC 15.50.100.B requires the minimization of clearing and grading on slopes greater than 15%. Residential land development projects with steep slopes often include retaining walls for flatter lots, which may result in walls taller than 6-feet in height for lot design.

CMC Section 18.17.060 Retaining walls:
The preliminary site plan indicates a retaining wall, up to 8-feet in height abutting the 12 parking stalls at the north end of the development. Retaining walls are not allowed over six feet in height unless approved by the director and thus would require landscaping to minimize the bulky appearance.

> **FINDING:** To minimize clearing and grading and to further highlight the existing aesthetic landscape character of Camas, a revised clearing and grading plan with wall profiles and specifications should be submitted demonstrating compliance with CMC 18.17.060 *Retaining walls* prior to final engineering plan approval and conditioned as such.

CMC Section 18.07.030 Table 1 Sales Office Use
The application did not propose a sales office for the development. The absence of approval of a sales office consolidated with this Type III hearing, will limit sales office at the time of development to six months as a Temporary Use per CMC 17.07.040 Table 2, Note 4. The applicant may provide for the contingency that a sales office use may be necessary for longer than six months. Staff finds that special conditions for the installation, use and removal of the sales office are appropriate, and are provided with this report if the applicant agrees.

> **FINDING:** Staff finds a condition of approval is required that if a model home/sales office is proposed, the model home/sales office should be closed upon construction of the last residential structure.

CMC Chapter 18.13 Landscaping – Tree survey/Tree density
A minimum of 20 tree units (TU) per net developable acre (exclusive of critical areas) is required for residential development per CMC 18.13.051(A) Table 1- Required Tree Density and should be incorporated into the overall landscape plan. Based on the approximately 1.90 net developable acreage as identified on the preliminary partition plan (Exhibit 6), 36 TU's are required. Approximately 34 TU's will be provided as shown on the landscape/tree survey (See Exhibits 7 and 8) through the retention of 3 existing trees, one of which is a 44-inch tulip tree adjacent to Lot 11, and the planting of an additional 12 trees within the Common Area Tract A. With the additional tree units that will be provided through the required installation of street trees as part of the frontage improvements along NE Wedgewood Court, the minimum TU per net acre will be met. In addition, 3 Oregon White Oaks will be preserved within the developed portion of the site and the northern 1.05-acres of the site will remain a mature forested area shown as Open Space Tract B (Exhibit 6). Per the tree survey and arborist report (Exhibit 8, 9 and 10), trees proposed for removal are due to a number of factors including tree health, hazardous trees or to accommodate on-site improvements.

> **FINDING:** Staff finds conditions of approval are required that trees identified for preservation and removal comply with the tree protection recommendations of the arborist report. Trees proposed for retention on lots should install tree protection fencing on the outer perimeter of

the critical root zone during construction. Preserved trees should be placed in a conservation easement or other permanent mechanism acceptable to the city. Any additional tree removal will require an updated arborist report for City review and approval from the City prior to removal. A note should be added on the face of the final plat that tree topping is prohibited.

7. Appropriate provisions are made to address all impacts identified by the transportation impact study;

Traffic Impact Analysis: A transportation impact analysis (TIA) may be required when a development will generate 200 or greater average daily trips (ADTs). The proposed development, which consists of 22 dwelling units will generate approximately 125 ADTs; thus a full TIA was not required.

A limited traffic analysis (TIA), dated June 10, 2019, was prepared by Greenlight Engineering Traffic Engineering / Transportation Planning for the proposed development in order to evaluate "trip generation, trip distribution, site distance at the intersection of NE 3rd Avenue, NE Wedgewood Court and NE 3rd Loop, and the need for an eastbound left-turn lane at said intersection."

[Projected Trip Generation]: Per the TIA and Land Use #220 for Multi-family Low Rise, the proposed development will generate a total of 11 AM Peak Hour trips and a total of 15 PM Peak Hour trips, with 125 ADTs for 22 dwelling units.

[Left-Turn Warrants]: The proposed development will result in additional left-turns from NE Wedgewood Court onto NE 3rd Avenue.

[Site Distance Analysis]: NE 3rd Avenue has a posted speed limit of 40 MPH. Per AASHTO's 'A Policy on Geometric Design of Highway and Streets', the intersection site distance on a roadway with a posted speed limit of 40 MPH is 445-feet. A site distance analysis was conducted on May 25, 2019 at the intersection of NE 3rd Avenue / NE Wedgewood Court / NE 3rd Loop. The available site distance to both the east and the west is in excess of 445-feet.

However, there are some low hanging tree limbs that get in the way of a clear site distance when looking west. These tree limbs are located within the public right-of-way on the adjacent property west of NE Wedgewood Court. The traffic analysis recommends that the trees be limbed up in order to avoid any future site distance problems.

> **FINDING:** Staff finds that this development can or will meet any impacts identified by the transportation impact study.

8. Appropriate provisions for maintenance of commonly owned private facilities have been made;

The preliminary stormwater plans propose the construction of a stormwater collection and conveyance system, which includes a stormwater facility. A Homeowner's Association (HOA) will be required for this development. Conditions, Covenants, and Restrictions (CC&Rs) are to be submitted to the City for approval, prior to final plat approval, in order to ensure there adequate and appropriate measures are in place for the perpetual maintenance of pedestrian walkways, retaining walls, fencing, landscaping, street trees, private parking areas, active and passive recreational amenities, private roads, and the stormwater systems.

> **FINDING:** Staff finds the applicant should place notes on the face of the plat as described above that identifies the specific ownership and maintenance responsibilities for all tracts. The applicant should also submit to the City for review and approval a copy of the CC&Rs prior to final plat approval.

9. Appropriate provisions in accordance with RCW 58.17.110, are made for (a) the public health, safety, and general welfare, and (b)The public use and interest will be served by the platting of such subdivision and dedication;

The applicant is proposing privately owned and maintained tracts for the mature forested area, landscaping, private road/parking, pedestrian pathways, and a stormwater facility. Furthermore, the applicant is providing adequate and appropriate utilities for stormwater, water, and sanitary sewer that will be dedicated to the public. The applicant will also provide sidewalks with the proposed street construction for adequate pedestrian mobility.

> **FINDING:** As discussed throughout this report, staff finds that the subdivision can be conditioned to provide the appropriate provisions for public health, safety, general welfare include serving the public use and interest.

10. The application and plans shall be consistent with the applicable regulations of the adopted comprehensive plans, shoreline master plan, state and local environmental acts and ordinances in accordance with RCW36.70B.030.

> **FINDING:** Staff concurs that the proposed subdivision, as conditioned, can or will meet the requirements of RCW 58.17 and other applicable state and local laws that are in at the time of final platting. The final plat will be processed in accordance with the requirements of CMC 17.21.060.

DESIGN REVIEW (DR20-07) CMC CHAPTER 18.19

Design Review Committee member attendees: Whitney Henion, Dawn Redmond, Heather Vo and Kevin Breuner; absent: Casey Wycoff; excused: Melissa Smith.

Design Review is required for new developments within multi-family zones per CMC 18.19.020 and therefore the proposal is subject to the applicable design review standards in CMC 18.19.050.A *Standard Principles* and CMC 18.19.050.B *Specific Principles for Gateways* and the guidelines in the Camas Design Review Manual (DRM). A Design Review Committee (DRC) public meeting was held October 25, 2021, to review the proposal for overall general compliance with the DRM.

CMC 18.19.050.A Standard Principles:

1. **Landscaping shall be done with a purpose. It shall be used as a tool integrate the proposed development into the surrounding environment**

   Installation of trees are scattered throughout the Common Area Tract A and street trees are required within the planter strip of NE Wedgewood Court. Per the applicant's narrative and site plan, lawns will be limited to the common area and the rest of the site will be designed with native, low maintenance landscaping.

2. **All attempts shall be made at minimizing the removal of significant natural features. Significant natural features shall be integrated into the overall the site plan.**

   Several significant trees are proposed for retention within Open Space Tract B, which is 1.05 acres. The developed portion of the site is designed to retain a 42-inch Oregon White Oak at the site's frontage highly visible from NE 3rd Avenue in addition to a 44-inch tulip tree between cottage units within Common Area Tract A. The applicant provided a tree protection plan and arborist report to ensure the preservation of those trees (See Exhibit 9).

3. **Buildings shall have a "finished" look. Any use of panelized materials shall be integrated into the development in a manner that achieves a seamless appearance.**

   All three cottage units are architecturally designed with porches and gable roofs. One of the cottage units includes a rear-loaded attached garage. Materials include board and batten siding including fiber cement lap siding, cedar shingle accents, and off-white to dark grey colors that are carried to all sides of the building that exhibit a seamless appearance.

4. **A proposed development shall attempt to incorporate or enhance historic/heritage elements related to a specific site or surrounding area.**

   The project name "Washougal River Oaks" cottage development attempts to promote historic/heritage elements related to the site and surrounding area.

Design Review Manual standard principles: Architecture and Landscaping/Screening-
One of standard principles indicates that fences visible from roadways are articulated to avoid a blank look. The DRC questioned the look of the walls facing the internal private roadways and parking stalls near lots 16, 18 and 20. Staff finds a condition of approval that texture blocks should be used in addition to landscaping that cascades over the wall to avoid a blank look. Any landscape, parking lot or building lighting should be directed, hooded, or shielded away from surrounding properties. Lighting specifications should be provided for City review and approval prior to engineering plan approval.

CMC 18.19.050.B Specific Principles:

1. **Gateways.**

   a. **Gateways shall be devoid of freestanding signs**

   Freestanding signage is not proposed and therefore this criterion is not applicable.

   b. **Business signage not placed on buildings shall be integrated into the landscaping/streetscaping of the subject property.**

   The cottage development monument signs are proposed along the site's frontage and will be integrated into the required landscaping.

   c. **Permanent signage within a gateway shall be standardized in a manner that creates a consistent look within the gateway in question.**

   Permanent signage is not proposed within the gateway and therefore this criterion is not applicable.

   d. **The surface of pedestrian walkways within intersections shall be accentuated with a unique character.**

   Intersections are not required for this development and therefore this criterion is not applicable.

   e. **A consistent streetscape lighting scheme shall be used.**

   Right-of-way improvements are not required on NE 3rd Avenue within the gateway and therefore this criterion is not applicable.

Design Review Manual Gateway specific principles: Streetscape and Landscaping-
One of the gateway principles in the Design Review Manual states that landscaping adjacent to the public right-of-way provide for multiple layers of plantings, including canopy trees, understory trees, shrubs and groundcover. Staff recommends that a condition of approval is required that additional landscaping is provided at the site's frontage for compliance with this gateway principle.

FINDING: The DRC and City staff found the proposed Washougal River Oaks cottage development generally in compliance with the Design Review Manual, and applicable design principles and guidelines of CMC Chapter 18.19 as conditioned.

PUBLIC COMMENTS

No written public comments were received at the writing of this staff report.

CONCLUSION

Based on the above findings and discussion provided in this staff report, staff concludes that Washougal River Oaks cottage development (SUB20-01) should be approved, because it does comply with the applicable standards if all the conditions of approval are met.

RECOMMENDATION

Staff recommends APPROVAL of the preliminary plat of Washougal River Oaks cottage development (SUB20-01) subject to the following conditions of approval:

CONDITIONS OF APPROVAL

Standard Conditions:

1. Engineering site improvement plans shall be prepared in accordance with the City of Camas Design Standards Manual (CDSM) and CMC 17.19.040.
2. The engineering site improvement plans shall be prepared by a licensed civil engineer in Washington State and submitted to the City's Community Development (CDEV) Engineering Department for review and approval.
3. CDEV Engineering shall collect a total 3% plan review and construction inspection (PR&CI) fee for the proposed development.
    a. A stamped preliminary engineer's estimate shall be submitted to the CDEV Engineering Dept prior to or with submittal of plans for first review.
        - The first review submittal only shall consist of three (3) full size sets and one (1) half size set of the engineering plans, and one (1) hard copy of the revised TIR.
    b. Payment of the 1% plan review (PR) fee shall be due prior to start of first review.
    c. Payment of the 2% construction inspection (CI) fee shall be due prior to construction plan approval and release of approved plans to the applicant's consultant.
    d. Under no circumstances will the applicant be permitted to begin construction prior to construction plan approval.
4. Any land-disturbing activities one acre or greater are required to obtain an *NPDES General Construction Stormwater Permit* (GCSWP) from Ecology. The SWPPP is a component of the NPDES permit.
    a. Prior to commencement of any land-disturbing activities, a copy of the NPDES GCSWP and the SWPPP are to be submitted to engineering.
5. An approved form of financial security, in the amount of two hundred percent (200%) of the engineer's estimate for erosion and sediment control will be required prior to any land-disturbing activities, which are greater than one acre.

a. The financial security is required to be submitted to engineering prior to commencement of any land-disturbing activities for the proposed development.

6. Any existing wells, septic tanks, and septic drain fields, to be decommissioned, shall be decommissioned in accordance with state and county guidelines regardless of lots or properties served by such utility, per CMC 17.19.020.
7. Any existing wells, septic tanks, and septic drain fields, to be decommissioned, shall be decommissioned in accordance with state and county guidelines regardless of lots or properties served by such utility, per CMC 17.19.020.
8. Installation of public improvements shall be in accordance with CMC 17.21 Procedures for Public Improvements.
9. The applicant will be responsible for ensuring that private utilities; underground power, telephone, gas, CATV, street lights, and associated appurtenances are installed.
10. The applicant will be required to purchase all permanent traffic control signs, street name signs, street lighting, traffic control markings, and barriers for the improved subdivision.
11. In the event any item of archaeological interest is uncovered during the course of a permitted ground disturbing action or activity, all ground disturbing activities shall immediately cease and the applicant shall notify the Community Development Department and DAHP. Additionally, an inadvertent discovery plan shall be prepared.
12. Final Plat and final as-built construction drawing submittals shall meet the requirements of CMC 17.11.060, CMC 17.01.050, and the Camas Design Standards Manual (CDSM).
    a. As-builts are to be submitted in either AutoCad or Carlson formats, and as PDFs. The cover sheet for the as-builts is to include the originally approved and signed cover sheet.
13. The applicant shall remove all temporary erosion prevention and sediment control measures from the site at completion of all site improvements, which includes stabilization of all disturbed soil, prior to issuance of Final Acceptance.
14. Building permits shall not be issued until:
    a. The Final Plat is approved by the Planning, Engineering, Building and Fire Departments; and recorded
    b. The subdivision has been granted Final Acceptance by Community Development Engineering.
15. Any entrance structures or signs proposed or required for this project will be reviewed and approved by the city. All designs will be in accordance with applicable City codes. The maintenance of the entrance structure will be the responsibility of the homeowners.
16. Automatic fire sprinklers installed per NFPA 13D or 13R shall be required in all new residential structures.
17. Provisions for parking enforcement acceptable to the Fire Marshal shall be included in the CC&Rs at the time of final platting.
18. The stormwater system, including conveyance, catch basins, and stormwater treatment and detention facilities are to be owned and maintained by the Homeowners Association (HOA) and/or property owners, with right-of-entry granted to the city for inspection purposes.
19. A 6-foot private utility easement (PUE) shall be located outside of the right-of-way on public streets and outside of the tracts on private streets.

20. A draft street lighting plan shall be submitted for review prior to final plan submittal to Clark Public Utility.

21. A homeowner's association (HOA) will be required and a copy of the CC&Rs for the development will need to be submitted to the City for review and approval. Specifically, the applicant will need to make provisions in the CC&Rs for ownership and maintenance of the private storm drainage system, open spaces, common areas, retaining walls, fencing, landscaping, irrigation, private roads, and tracts or easements outside of the City's right-of-way, if applicable. Further, all necessary easements and dedications should be noted on the final plat.

22. The applicant shall take appropriate measures to ensure landscaping success for a minimum of three years after issuance of Certificate of Occupancy. If planting fail to survive, the property owner shall promptly replace them.

Special Conditions:

Planning

23. Staff finds the SEPA comments from Ecology shall be complied with.

24. Best Management Practices (i.e. erosion control measures) shall be implemented throughout project construction.

25. The Oregon White Oaks shall be mitigated for and protected as outlined in the *Critical Areas Report & Oak Mitigation Plan* report prepared by AshECO Solutions, LLC dated August 19, 2021 and the *White Oak Mitigation and Protection Plan* prepared by Arbor Science Tree Care dated August 10, 2021.

26. Temporary construction fencing shall be installed prior to construction that clearly marks in the field the trees proposed for preservation and remain in place throughout permitted construction activities.

27. Trees identified for preservation and removal shall comply with the recommendations of the Arborist Report.

28. Any additional tree removal shall require an updated arborist report for City review and approval prior to removal.

29. The model home/sales office shall be closed upon the construction of the last residential structure if proposed.

Prior to Final Engineering plan approval:

Planning

30. The applicant shall submit a revised geotechnical report addressing the review items identified in EEI's geotechnical peer review letter dated October 13, 2021.

31. Prior to engineering plan approval, a final landscape, tree and vegetation plan consistent with the landscaping standards in CMC 18.13 shall be submitted to the City for review and approval to include the following but not limited to:

    a. One 2-inch diameter tree shall be provided for each dwelling unit, for a total of 22 trees, to be installed within the planter strip of the right-of-way. If the public right-of way cannot accommodate all the street trees, the remaining shall be installed in the front yards of dwelling units.

b. The proposed driveways for Lots 9-12 shall be shown to not impact the street trees along SE Wedgewood Court.

c. A 5-foot L1 landscape buffer is required along the property lines shared with the adjacent single-family residence located on parcel no. 89937000.

d. The stormwater facility located in Common Area Tract A shall be landscaped with a L2 landscape buffer.

e. Parking lot areas shall be screened at all perimeters with a minimum 5-foot width of landscaping.

f. An additional 2 trees shall be provided next to the uncovered parking stalls located near Lot 16 for shade and relief.

g. Additional landscaping shall be provided at the street side yards of Lots 4, 8, 9, 12, 13 and 15 to buffer/screen the cottage units from the private circulation drive.

h. Additional landscaping shall be provided at the site's frontage near the public-right-of way for compliance with the design review gateway principle.

i. Plants utilized shall be per the approved City's Tree list in the Camas Design Manual. Plants not on the approved City list, characteristic cards shall be submitted to the City for review and approval.

j. The planting specifications and landscape notes in the Camas Design Manual shall be included on the final landscape plan.

k. Irrigation shall be noted on the final landscape plan.

32. The applicant shall submit specifications for the outdoor pavilion and any other outdoor structures.

33. Prior to engineering plan approval, a revised clearing and grading plan with wall profiles and specifications shall be submitted in compliance with CMC 18.17.060 *Retaining walls*.

    a. The proposed retaining wall facing the parking stalls near lots 16, 18 and 20 shall include textured block as well as landscaping that cascades over the wall to avoid a blank look.

34. Any landscape, parking lot or building lighting shall be direct, hooded or shielded away from surrounding properties. Lighting specifications shall be provided for City review and approval prior to engineering plan approval.

Engineering

35. The applicant shall submit a revised utility plan that shows one 6-inch tap at each of the three locations where there are a cluster of four or more 1-inch taps located side-by-side. The 6-inch tap is to extend beyond the curb, with a 6-inch manifold provided for the cluster of 1-inch services to said Lots #1- #8, the pavilion, and Lots #16 - #19.

36. The applicant shall submit a final stormwater drainage report that addresses and meets the Minimum Requirements (MR) in accordance with Ecology's 2019 SWMMWW manual.

37. The applicant shall submit a revised geotechnical report with infiltration testing conducted in accordance with Ecology's current 2019 SWMMWW and resubmit for review with the revised stormwater drainage report.

38. The applicant shall submit Erosion Sediment Control (ESC) plans, as a part of the site improvement plans, to CDEV engineering for review and approval.
39. The applicant shall revise the site plan to show 5-foot wide shared sidewalks at those locations where a 4-foot wide sidewalk segment provides access to more than one dwelling unit, e.g. Lots #1 and #2.
40. The applicant shall provide a pedestrian pathway that meets ADA accessibility requirements and a handrail is to be installed for that section that crosses the stormwater facility.
41. The applicant shall provide the 6-foot wide public utility easement (PUE) outside of the paved road surface on the utility plans.
42. The applicant shall include the street light locations on the engineering and landscape plans.
43. The applicant shall include driveway locations for each lot on the utility and landscaping plans in order to ensure that there are not any conflicts between utilities and street tree locations.
44. Street names shall be reviewed and approved by the Building Department prior to final engineering plan approval.

Prior to Final Plat approval:

Planning

45. A note shall be added to the face of the final plat that all required tree plantings shall be maintained in good health and shall be promptly replaced (within six months) if damaged or in poor health.
46. A note shall be added to the face of the final plat that tree topping is prohibited.
47. A conservation covenant shall be recorded with the County to ensure long-term preservation of any proposed existing Oregon White Oaks and the mature forested area (i.e. Open Space Tract B as shown on the preliminary plans), including maintenance of any mitigation actions per CMC 16.51.240. A copy of the recorded conservation covenant shall be submitted to the City prior to final plat approval.
48. A mitigation bond shall be posted in an amount deemed acceptable by the City to ensure the mitigation is fully functional per CMC 16.51.250.
49. Building envelopes and setbacks shall be shown on the final plat.
50. Notes shall be placed on the final plat that identifies the specific ownership and maintenance responsibilities for all tracts.

Engineering

51. The applicant shall provide to the city a 20-foot wide utility access and maintenance easement over and under the water main located in the proposed private street, Tract __.
52. The applicant shall revise the preliminary plat that shows a separate tract to include: the storm facility, the pedestrian footbridge, any portion of the pedestrian pathway on the south side of the storm facility, and any portion of the access road to the storm facility that is located outside of the right-of-way along NE 3rd Avenue.
53. The applicant shall add a note on the final plat that states, “The storm facility and all other amenities located in Tract __ is to be owned and maintained in accordance with CMC 14.02.090, by the Homeowners Association (HOA) / Homeowners / Property Owners. The city shall have right-of-entry for inspection purposes of said storm facility.”

54. The applicant shall provide to the city a 20-foot wide utility access and maintenance easement over and under the sanitary sewer system located in the proposed private street, Tract __.

55. The applicant shall provide to the city a 15-foot wide utility access and maintenance easement over and under the sanitary sewer system that traverses the proposed Common Area Tract A and the Stormwater facility Tract __.

56. The applicant shall revise the preliminary plat to show a separate private street tract to include: the proposed road, curb and gutter, parking stalls, and pullout area.

Prior to Final Acceptance:

57. Landscaping and irrigation adjacent to or within tracts shall be installed or bonded for as approved on the final landscape plans prior to final acceptance.

Prior to Final Occupancy:

58. Street trees with a minimum two-inch diameter at breast height and irrigation shall be installed or bonded for and located within the planter strip as approved on the final landscape plans prior to final occupancy. Specified trees shall be maintained in good health, and damaged or dying trees shall be promptly replaced (within six months) by the homeowner.

59. The applicant shall provide acceptable back flow device(s) (BFD) and yearly backflow testing for any private HOA irrigation service(s) proposed.

60. Prior to occupancy of each home with an irrigation system, the builder shall submit acceptable BFD testing for each irrigation meter installed and provide said testing results to the city.

Proposed Plat Notes

1. Tract "A" is a Common Area for landscaping, pedestrian walkways/trails, and recreational structures, which are to be owned and maintained by the HOA.
2. Tract "B" is an Open Space area, which is intended for the preservation of a natural forested area, and to be owned by the HOA. This tract is to remain in a natural state. Any maintenance activities within the open space tract, including removal of invasive species and dead or dying trees, will require prior approval from the City.
3. Tract __ consist of the private street, parking stalls, and pullout area, which are to be owned and maintained by the HOA.
4. Tract __ consists of a 20-foot wide utility access and maintenance easement to the city, over and under the water main located in the private street.
5. Tract __, which consists of the storm facility and all other amenities located within the tract, is to be owned and maintained by the Homeowners Association (HOA) / Homeowners / Property owners, in accordance with CMC 14.02.090. The city shall have right-of-entry for inspection purposes of said storm facility.
6. Tract __ consists of a 20-foot wide utility access and maintenance easement to the city, over and under the sanitary sewer system located in the private street.
7. Tract A and __ consists of a 15-foot wide utility access and maintenance easement to the city, over and under the sanitary sewer system that traverses the proposed Common Area Tract and Stormwater Facility Tract.
8. A homeowner's association (HOA) will be required for this development. Copies of the CC&R's shall be submitted and on file with the City of Camas.

9. The homeowner's association (HOA) / property owners are responsible for maintaining all private roads in this subdivision, including but not limited to the pavement, curbs, sidewalks, walls, landscaping, street lights, and the stormwater drainage system.
10. An access and utility maintenance easement is provided to the city over the private street tracts for the inspection, maintenance, and operation of said public water and sanitary sewer mains.
11. The following setbacks shall apply: Front yard 0-feet, Front yard garage setback 20-feet, Rear yard 0-feet, Side yard 0-feet. Street side yard setbacks are as shown on the plat.
12. No further short platting or subdividing will be permitted once the final plat has been recorded.
13. Building permits will not be issued by the Building Department until all subdivision improvements are completed and accepted by the City.
14. The lots in this subdivision are subject to traffic impact fees, school impact fees, and park/open space impact fees. Each new dwelling unit will be subject to the payment of appropriate impact fees at the time of building permit issuance or as otherwise provided by the city.
15. Street trees shall be maintained in good health, and damaged or dying trees shall be promptly replaced (within six months) by the homeowner.
16. Automatic fire sprinkler systems designed and installed in accordance with NFPA 13D are required in all structures.
17. Illegally parked vehicles may be subject to towing or other private parking enforcement measures in accordance with the provisions outlined in the HOA documents.
18. Prior to occupancy for each home with an irrigation system, the builder shall submit acceptable back flow device (BFD) testing for each irrigation meter installed and provide said testing results to the City.
19. Tree topping is prohibited.

EXHIBIT 1
SUB 20-01

City of Camas WASHINGTON

Community Development Department | Planning
616 NE Fourth Avenue | Camas, WA 98607
(360) 817-1568 | www.cityofcamas.us

General Application Form **Case Number:** Sub 20-01

Applicant Information

Applicant/Contact:: Desgrosellier Development, Inc. Phone: (360) 907-2500

Address: 3100 E Evergreen Blvd bjd@ddc-builds.com
Street Address *E-mail Address*
Vancouver WA 98661
City *State* *ZIP Code*

Property Information

Property Address: 2515, 2523, 2527, & 2531 NE 3rd Ave 89884000, 89883000, 89881000, 89875000
Street Address *County Assessor # / Parcel #*
Camas WA 98607
City *State* *ZIP Code*

Zoning District MF-18 Site Size 3.16 AC

Description of Project

Brief description: Development of Cottage Housing - 22 Units, 1,000 SF or less, with a pavilion and gathering areas.

Are you requesting a consolidated review per CMC 18.55.020(B)? YES [X] NO [ ]

Permits Requested: [ ] Type I [ ] Type II [X] Type III [ ] Type IV, BOA, Other

Property Owner or Contract Purchaser

Owner's Name: Washougal River Property, LLC Phone: (360) 601-5541
Last *First*

Address: 418 Date Street
Street Address *Apartment/Unit #*

E mail Address: Vancouver WA 98661
City *State* *Zip*

Signature

I authorize the applicant to make this application. Further, I grant permission for city staff to conduct site inspections of the property.

Signature: [signature] **Date:** 10/28/2020

Note: If multiple property owners are party to the application, an additional application form must be signed by each owner. If it is impractical to obtain a property owner signature, then a letter of authorization from the owner is required.

Date Submitted: 10/28/2020 Pre-Application Date: ~~1/17/2019~~

Hollenbeck
Staff: Related Cases #

✓ 10/30/2020
paid
21,656.00
Validation of Fees

Revised: 01/14/13

Washougal River Oaks Cottage Development fees

Sub 20 - 01

Application Checklist and Fees [updated on January 1, 2020]

◊ Annexation	$849 - 10% petition; $3,608. - 60% petition	001-00-345-890-00		$	
◊ Appeal Fee		001-00-345-810-00	$392.00	$	
◊ Archaeological Review		001-00-345-810-00	$135.00	$	135.00
◊ Binding Site Plan	$1,848. + $24 per unit	001-00-345-810-00		$	
◊ Boundary Line Adjustment		001-00-345-810-00	$101.00	$	
◊ Comprehensive Plan Amendment		001-00-345-810-00	$5,729.00	$	
◊ Conditional Use Permit					
Residential	$3,360 + $103 per unit	001-00-345-810-00		$	
Non-Residential		001-00-345-810-00	$4,256.00	$	
◊ Continuance of Public Hearing		001-00-345-810-00	$515.00	$	
◊ Critical or Sensitive Areas (fee per type)	times 3	001-00-345-810-00	$762.00	$	2,286.00
(wetlands, steep slopes or potentially unstable soils, streams and watercourses, vegetation removal, wildlife habitat)					
◊ Design Review					
Minor		001-00-345-810-00	$426.00	$	
Committee		001-00-345-810-00	$2,335.00	$	2,335.00
◊ Development Agreement	$862 first hearing; $530 ea. add'l hearing/continuance	001-00-345-810-00		$	
◊ Engineering Department Review - *Fees Collected at Time of Engineering Plan Approval*					
Construction Plan Review & Inspection	*(3% of approved estimated construction costs)*				
Modification to Approved Construction Plan Review	*(Fee shown for information only)*		$415.00		
Single Family Residence (SFR) - Stormwater Plan Review	*(Fee shown for information only)*		$205.00		
Gates/Barrier on Private Street Plan Review	*(Fee shown for information only)*		$1,024.00		
◊ Fire Department Review					
Short Plat or other Development Construction Plan Review & Insp.		115-09-345-830-10	$280.00	$	
Subdivision or PRD Construction Plan Review & Inspection		115-09-345-830-10	$348.00	$	348.00
Commercial Construction Plan Review & Inspection		115-09-345-830-10	$416.00	$	
◊ Home Occupation					
Minor - Notification (No fee)			$0.00		
Major		001-00-321-900-00	$68.00	$	
◊ LI/BP Development	$4,256+ $40.00 per 1000 sf of GFA	001-00-345-810-00		$	
◊ Minor Modifications to approved development		001-00-345-810-00	$340.00	$	
◊ Planned Residential Development	$34 per unit + subdivision fees	001-00-345-810-00		$	
◊ Plat, Preliminary					
Short Plat	4 lots or less: $1,904 per lot	001-00-345-810-00		$	
Short Plat	5 lots or more: $7,055 + $246 per lot	001-00-345-810-00		$	
Subdivision	$7,055 + $246 per lot 22 lots	001-00-345-810-00		$	12,467.00
◊ Plat, Final:					
Short Plat		001-00-345-810-00	$197.00	$	
Subdivision		001-00-345-810-00	$2,335.00	$	
◊ Plat Modification/Alteration		001-00-345-810-00	$1,176.00	$	
◊ Pre-Application (Type III or IV Permits)					
No fee for Type I or II					
General		001-00-345-810-00	$348.00	$	
Subdivision (Type III or IV)		001-00-345-810-00	$896.00	$	
◊ SEPA		001-00-345-890-00	$796.00	$	796.00
◊ Shoreline Permit		001-00-345-890-00	$1,176.00	$	
◊ Sign Permit					
General Sign Permit	(Exempt if building permit is required)	001.00.322.400.00	$40.00	$	
Master Sign Permit		001.00.322.400.00	$124.00	$	
◊ Site Plan Review					
Residential	$1,132 + $33 per unit	001-00-345-810-00		$	
Non-Residential	$2,828 + $67 per 1000 sf of GFA	001-00-345-810-00		$	
Mixed Residential/Non Residential	(see below)	001-00-345-810-00		$	
	$3,987 + $33 per res unit + $67 per 1000 sf of GFA				
◊ Temporary Use Permit		001-00-321-990-00	$79.00	$	
◊ Variance (Minor)		001-00-345-810-00	$683.00	$	
◊ Variance (Major)		001-00-345-810-00	$1,273.00	$	
◊ Zone Change (single tract)		001-00-345-810-00	$3,289.00	$	3,289.00

Adopted by RES 1023 AUG 2005; Revised by RES 1113 SEPT 2007; Revised by RES 1163 OCT 2009; Revised by RES 1204 NOV 2010; Revised by RES 15-001 JAN 2015; Revised by RES 15-007 MAY 2015; Revised by RES 15-018 DEC 2015; Revised by RES 16-019 NOV 2016; Revised by RES 17-015 NOV 2017; Revised by RES 18-003 APRIL 2018; Revised by RES 18-013 NOV 2018; Revised by RES 19-018 DEC 2019

Fees reviewed & approved by Planner: LH *Initial* 10/29/2020 *Date*

For office use only

Total Fees Due: $ 21,656.00 ✓ pd 10/30/20

G:\CDEV\PLANNING\Forms & Handouts\Forms\Planning Fee Schedule 010120

AB

Community Development Department | Planning
616 NE Fourth Avenue | Camas, WA 98607
(360) 817-1568 | www.cityofcamas.us

General Application Form **Case Number:**

Applicant Information

Applicant/Contact:: Desgrosellier Development, Inc. Phone: (360) 907-2500

Address: 3100 E Evergreen Blvd bjd@ddc-builds.com
Street Address *E-mail Address*

Vancouver WA 98661
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Property Information

Property Address: 2515, 2523, 2527, & 2531 NE 3rd Ave 89884000, 89883000, 89881000, 89875000
Street Address *County Assessor # / Parcel #*

Camas WA 98607
City *State* *ZIP Code*

Zoning District MF-18 Site Size 3.16 AC

Description of Project

Brief description: Zoning Map Amendment to approve a Cottage Overlay for Parcels 89884000, 89883000, 89881000, 89875000.

Are you requesting a consolidated review per CMC 18.55.020(B)? YES [X] NO [ ]

Permits Requested: [ ] Type I [ ] Type II [X] Type III [ ] Type IV, BOA, Other

Property Owner or Contract Purchaser

Owner's Name: Washougal River Property, LLC Phone: (360) 601-5541
Last *First*

Address: 418 Date Street
Street Address *Apartment/Unit #*

E mail Address: Vancouver WA 98661
City *State* *Zip*

Signature

I authorize the applicant to make this application. Further, I grant permission for city staff to conduct site inspections of the property.

Signature: [signature] **Date:** 10/28/2020

Note: If multiple property owners are party to the application, an additional application form must be signed by each owner. If it is impractical to obtain a property owner signature, then a letter of authorization from the owner is required.

Date Submitted: 10/28/2020 Pre-Application Date: 1/17/2019

Staff: Related Cases #

Validation of Fees

PRE-APPLICATION MEETING NOTES

3rd Ave Garden Homes
PA19-04

Thursday, January 17, 2019
3:30pm, Public Works Meeting Rm
616 NE 4th Ave. Camas, WA. 98607

Applicant/Contact:	Bryan Desgrosellier 418 Date St Vancouver, WA 98661 360-601-5541 bjd@ddc-builds.com		
City of Camas:	Lauren Hollenbeck, Senior Planner Robert Maul, Planning Manager Anita Ashton, Engineer Jeff Noga, Building Inspector		
Location:	2531 NE 3rd Avenue Parcel No. 89884000	**Zoning:**	Multi-Family Residential (MF-18)
Description:	The applicant is proposing a development for cottage overlay housing in a city gateway corridor		

NOTICE: Notwithstanding any representation by City staff at a pre-application conference, staff is not authorized to waive any requirement of the City Code. Any omission or failure by staff to recite to an applicant all relevant applicable code requirements shall not constitute a waiver by the City of any standard or requirement. [CMC 18.55.060 (C)] This pre-application conference shall be valid for a period of 180 days from the date it is held. If no application is filed within 180 days of the conference or meeting, the applicant must schedule and attend another conference before the City will accept a permit application. [CMC 18.55.060 (D)] Any changes to the code or other applicable laws, which take effect between the pre-application conference and submittal of an application, shall be applicable. [CMC 18.55.060 (D)]. A link to the Camas Municipal Code (CMC) can be found on the City of Camas website, http://www.cityofcamas.us/ on the main page under "Business and Development".

PLANNING DEPARTMENT **Lauren Hollenbeck 360.817.7253**

Applicable codes for development include Title 16 Environment, Title 17 Land Development, and Title 18 Zoning of the Camas Municipal Code ("CMC"), which can be found on the city website. Please note it remains the applicant's responsibility to review the CMC and address all applicable provisions. The following pre-application notes are based on the application materials submitted to the City on December 27, 2018:

Application Requirements
Your proposal will need to comply with the general application requirements per **CMC Section 18.55.110**:

- ☐ A copy of a completed city application form and required fees for the following permits and reviews:

Fees will be based on the adopted fees at the time of application submittal. The current fees include the following:	
Zone Change	$3,212.00
Preliminary Plat	$6,890 + $240 per lot
Design Review	$2,280.00
Critical Areas Review for Critical Aquifer Recharge Area	$744.00
Critical Areas Review for Geologically Hazardous Areas	$744.00
Critical Areas Review for Habitat Conservation Areas	$744.00
State Environmental Policy Act (SEPA)	$777.00
Archaeological Review	$132.00
Fire Department Review	$340.00
Building Permit and Plan Review	*based on the valuation of the project
Engineering Review	3% of estimated construction costs

- ☐ A current (within thirty days prior to application) mailing list and mailing labels of owners of real property within three hundred feet of the subject parcel, certified as based on the records of Clark County assessor;
- ☐ A complete and detailed narrative description that describes the proposed development, existing site conditions, existing buildings, public facilities and services, and other natural features. The narrative shall also explain how the criteria are or can be met, and address any other information indicated by staff at the preapplication conference as being required;
- ☐ Necessary drawings- three sets and an electronic copy (send as a PDF by email or on a disc);
- ☐ Copy of the preapplication meeting notes

MF-C Cottage Overlay Zone
This is an overlay zone, which is intended to increase the housing supply and style choices for smaller, single-family dwellings. It is desirable that cottages are designed to include unique architectural elements such as a front porch, steep-pitch gable roof, and a recessed garage; and to accommodate those with mobility impairments.

Zone Change
Per CMC 18.05.040.H, the cottage overlay zone may be utilized in multi-family zones subject to approval of a zoning district change, which is a Type III decision. The application submittal requirements for a zone change request are found in CMC 18.51.025 *Zoning text and map amendments*. Zone change requests require Planning Commission and Council approval.

Preliminary Plat
In addition to the general application requirements listed above, the **specific application requirements for a preliminary subdivision plat in CMC 17.11.030.B** will also need to be complied with and submitted. A narrative addressing the criteria in **CMC 17.11.030.C** shall also be included with the application submittal. Comprehensive Plan Goals and Policies that could support your proposal:

- **Gateways**. ED-6.1 and 6.2 Ensure that development in gateway corridors exceeds (where possible) design principles and guidelines of the Camas Design Review Manual. "*ED-6.6: Encourage development of commercial uses and multi-family residential within the 6th Avenue and 3rd Avenue gateways and corridors to further support downtown businesses. Consider rezoning low-density residential land to support the downtown area. ED-6.7:* ***Building entrances should face the street and provide pedestrian connections from the building entrance to the sidewalk****. Encourage landscaping, rather than parking, between the building and the street in order to create a welcoming streetscape*. (page 6-6)"

- **Cottage Housing**. Section 2.4.3 Policy H-3.4, "*Support and encourage the development of smaller (less than 1,000-square foot), single-story houses through the Multi-Family Cottage Overlay or other tools*." Section 1.3 (page 1-4), "*the Multi-Family Cottage Overlay provides an incentive to build smaller, single-level dwellings. The intent is to encourage the development of cottages, especially those with architectural elements typical of this type of dwelling such as a front porch, a steep-pitched gable roof, and* ***a recessed garage****. This overlay is also intended to accommodate those with mobility impairments. The dwellings must be less than 1,000 square feet, and are subject to design review approval*."

CMC 18.09.050 Table 1 outlines the density and dimension requirements for the MF-C Overlay multifamily residential zone as follows:

CMC 18.09.050 Table 1

Min. lot area	**None**
Min. lot width	**None**
Min. lot depth	**None**
Max. gross floor area (GFA*) per dwelling unit (square feet)	**1,000**
Min. front yard/at garage front setback	**0ft./20ft.**
Min. side yard	**0ft. or 10ft. if abutting an R-zone**
Min. side yard flanking a street	**15ft.**
Min. rear yard	**0ft. or 10ft. if abutting an R-zone**
Max. building lot coverage	**Min. of 200-ft. of useable yard adjacent to each dwelling unit**
Max. building height	**18ft. (max. 1-story and basement but not to exceed height listed)**

***GFA does not include covered porches or accessory structures as defined per CMC 18.17.040.**

The following comments are based on the site plan materials submitted with this Pre Application:

- Per CMC 17.19.040.B.10.e, when the average lot size is less than 7,500 square feet, one additional off-street parking space is required for every 5 units and shall be located within a common tract. (3-4 stalls required)
- Per CMC 17.19.040.B.10.a, a Circulation plan is required at application that includes the subject site and properties within six hundred feet showing topography, critical areas and existing and proposed streets, trails, etc.
- Include the location and height of any proposed retaining walls on the grading plan. Also, the elevation plans with an overlay of lot layout should be included with the submittal.

Design Review (major)
Design Review is required for all new developments in a multi-family zone, which is a Type II decision and reviewed by the Design Review Committee. The standards applicable to this property for Design Review are found in the Design Review Manual to include the Standard Principles & Guidelines in addition to the Specific Principles & Guidelines for *Gateways and Corridors*. Also refer to the above-mentioned Comprehensive Plan goals and polices for design. A submittal for Design Review should include a site plan drawing, a detailed landscape plan, exterior building materials and colors, elevation views and lighting specifications and plan.

Parking Regulations
The proposed use will need to meet the automobile parking requirements pursuant to CMC Chapter 18.11. According to CMC 18.11.130, a minimum of two off-street parking spaces per unit must be provided for each single-family dwelling.

Landscaping Regulations
A Landscape, Tree and Vegetation plan must be submitted pursuant to CMC 18.13.050 along with a Tree Survey per CMC 18.13.045, which requires an inventory and assessment of existing trees prepared by a certified arborist or professional forester. A minimum tree density per net acre (exclusive of critical area tracts) is required per CMC 18.13.051. The MF zone requires a 5' L1 landscape buffer per CMC 18.13.055.A.

Critical Areas Review
Per Clark County GIS mapping, the proposal shows the property within a critical aquifer recharge area, geohazard areas (i.e. steep slopes, landslide hazard area, erosion hazard area) and fish and wildlife habitat conservation area (i.e. Oregon white oaks). Per CMC 16.51.130, a critical areas report is required if a proposed development is within or adjacent to a critical area. The general requirements for a critical areas report is found in CMC Section 16.51.140. The City's code contains additional requirements for each type of critical area.

1) Critical Aquifer Recharge Areas report are addressed in CMC Chapter 16.55.050. Development within CARA's shall not result in the loss of more than forty percent (40%) of the total pervious surface of the site.
2) Geologically Hazardous Areas report are addressed in CMC Chapter 16.59.060. If the development is outside of the geohazard area, ensure the geotech provide a clear delineation of the area and any associated setbacks.
3) Fish and Wildlife Habitat Conservation Areas report are addressed 16.61.020. Oregon White Oaks are considered a habitat of local importance. Mitigation sequencing is required per CMC 16.51.170.

SEPA
The proposal is not categorically exempt from the requirements of the State Environmental Policy Act (SEPA) per CMC Section 16.07.020.C as the property is located within a critical area.

Archeological Review
The site is located in a high-probability area for the presence of archaeological objects. As such, an archeological predetermination is required per CMC Section 16.31.070.A.

General Requirements:

- Civil plans shall be prepared by a licensed Washington State Engineer in accordance with the Camas Design Standards Manual (CDSM) and CMC 17.21.040.
- Plans are to be submitted to the Engineering Dept. for review and approval.
- A 3% plan review and inspection fee will be collected prior to release of approved plans. The fee is to be based on an engineer's estimate or construction bid.
- Any existing wells and septic tanks/septic drain fields shall be abandoned in accordance with state and county guide lines per CMC 17.19.020 (A3).
- A demo permit will be required from the Building Department for the existing homes.

Traffic/Transportation:

- A traffic analysis (TIA) will be required in accordance with the City's adopted Traffic Impact Study Guidelines.

Streets:

- NE 3rd Avenue is an existing 4-lane arterial with a 100-foot right-of-way (ROW) and improved frontage, therefore additional ROW will not be needed, nor are any frontage improvements required.
- The Applicant has proposed an access road off NE 3rd Avenue. Per the Camas Design Standards Manual, the minimum access spacing on and arterial is 660-feet. The proposed access spacing is 151-feet, which does not meet the minimum spacing and would therefore not be supported by the City Engineer.
- Access to the proposed development is to be via NE Wedgewood Court. The existing NE Wedgewood Ct. is a public road that consists of a 30-foot right-of-way and 20-foot paved surface with sidewalk on the west side.
- The Applicant will be required to construct a half-street improvement in accordance with CMC 17.19.040. This will require the dedication of 22-feet of right-of-way and construction of 8-feet of paved surface, curb & gutter, and a detached sidewalk with planter strip.
- The existing driveway access off NE 3rd Avenue is to be removed and replaced with new sidewalk and curb which shall meet ADA standards.
- The proposed private access road, as shown, meets the minimum private road standards for right-of-way and paved surface for a road in excess of 300-feet with access to five or more dwelling units. As shown the Applicant is providing a 48-foot right-of-way with a 28-foot paved surface.
- The Applicant shall provide a cul-de-sac, as the proposed road is approximate 420-feet in length. The cul-de-sac will be required to meet any special considerations to assure that garbage, recycle, and emergency vehicles have adequate access.
- The Applicant is proposing to construct a private access driveway to Lots 8, 9, & 10. The driveway is proposed with a 22-foot right-of-way and a 20-foot paved surface. This meets the minimum tract width and paved surface for an access to four or less dwelling units.
- Applicant is responsible for all traffic control signs, street name signs, pavement markings, and street lighting, per CMC 17.19.030. LED lighting is a requirement for all street lighting.
- Surface restoration will be required for all trenching across existing public roadways in accordance with Camas Detail G2, which requires full lane width with 2-inch grind & inlay for a

longitudinal trench cut and full depth in trench zone plus 12-feet on each side of trench with a 2-inch grind & inlay on transverse trench cuts.

Stormwater:

- Per CMC 14.02 Stormwater Control, stormwater treatment and detention shall be designed in accordance with the latest edition of Ecology's Stormwater Management Manual for Western Washington (2014 SWMMWW) and the City of Camas Stormwater Design Standards Manual.
- Proposed improvements with impervious surfaces greater than 5,000 sf, require both treatment and detention.
- There is an existing storm manhole and a storm main located on the south side of NE 3rd Avenue, approximately 175-feet east of NW Wedgewood Ct.
- Stormwater facilities shall be located and landscaped per CMC 17.19.030 and CMC 17.19.040.
- Ownership and maintenance of stormwater facilities shall be the responsibility of the HOA.

Erosion Control

- Land disturbing activities in excess of one acre will require an Erosion Control Bond (200% of estimate for erosion & sediment control measures).
- Land disturbing activities in excess of one acre will require a NPDES Construction Stormwater General Permit which is issued by Dept. of Ecology.
- Applicant shall provide the ESC bond and a copy of their NPDES Construction Stormwater General Permit, prior to release of approved plans.

Water:

- There is an existing 8-inch ductile iron water located in NE Wedgewood Court.
- Applicant will be required to tie into and extend the 8-inch water main to the north into the proposed development and provide water services to the proposed lots.
- A 10-foot separation between water and sewer services is required.
- Taps on existing water mains to be performed by a tapping contractor approved by the City's Water/Sewer Dept.

Sanitary Sewer:

- There is an existing 8-inch PVC sewer main located in NE Wedgewood Court.
- Applicant will be required to tie into and extend the sewer main to the north into the proposed development and provide sewer laterals to the proposed lots.
- A 10-foot separation between water and sewer services is required.
- Taps on existing sanitary mains to be performed by a tapping Contractor approved by the City's Water/Sewer Dept.

City Approved Tapping Contractors:

- A&A Drilling Services, Inc.:

16734 SE Kens Ct. #B, Milwaukie, OR 97267, 800-548-3827, http://www.aadrilling.com

- Ferguson Waterworks:

14103 NW 3rd Court, Vancouver, WA 98685, 360-896-8708, https://www.ferguson.com/branch/nw-3rd-ct-vancouver-wa-waterworks

Garbage and Recycling:

- Lots 8, 9, and 10 will be required to place garbage and recycling cans at the curb for the private road.

Parks/Trails:

- Not applicable.

Impact Fees:

- Fees are collected at time of building permit application.
- This development is located in the South District.
    - Single Family Detached:
        - Traffic Impact Fees – $3,294.00
        - School Impact Fees - $5,371.00 (Camas)
        - Park/Open Space – $4,500.00
        - Fire - $0.20 psf

System Development Charges:

- Fees are collected at time of building permit application.
- This development is located in the South District for SCDs.
- Water
    - ¾" meter - $6,044.00 + $394.00 connection fee
    - 1" meter - $10,373.00 + $438.00 connection fee
- Sewer
    - Residential – $2,493.00.00 + $170.00 STEP Inspection

BUILDING DEPARTMENT **Jeff Noga 360.817.7244**

1. The structures will be reviewed under the most current building codes as adopted by The State of Washington.
2. The structural drawings and calculations shall be prepared and stamped by a Professional Engineer licensed by the State of Washington.
3. The placement of buildings and structures on or adjacent to slopes steeper than one unit vertical in three units horizontal shall conform to Sections R403.1.7.1 through R403.1.7.4. A geotechnical report may be required.
4. Required fire distance between buildings and from property line
5. The code required fire suppression system shall be in accordance with IRC and other applicable codes standards and shall be reviewed and permitted by the Camas Fire Marshal's office.
6. System Development Charges and Impact fees shall be assessed prior to permits
7. Storm sewer disposal/connections
8. Any development located within a special flood hazard area shall be in accordance with CMC 16.57
9. Verify Water and sewer availability with the public works department
10. Storm water from existing developments that slope towards the newly proposed developments should be taken into consideration.
11. Flag lots shall have a monument address sign at the street/driveway entrance
12. All lots shall be provided a storm drain lateral at the lowest practical location.
13. Impervious surfaces > 5,000 sq/ft will trigger storm water requirements/improvements designed and calculations shall be prepared and stamped by a Professional Engineer licensed by the State of Washington.

14. Demo permit required for any existing structures, an asbestos survey in acordance with SW Clean agency is required prior to permit.

FIRE DEPARTMENT **Randy Miller 360.817.7577**

1. Residential Sprinklers Required in all new dwellings.
2. Supply line from meter into structure shall be minimum 2 inch OR sized per design by the fire sprinkler contractor. Contact our Admin Specialist Sherri at 360—834-6191 for a courtesy list of 13 D contractors if desired.
3. When calling the FMO for residential fire sprinkler inspections the Building Permit and the FMO Fire Sprinkler Permit Shall be onsite in order for the inspection to occur.
4. Address monument required where any flag lot or access road leaves the main road. Contact our office for details.
5. Parking one side only on 28 foot wide street. Provide engineering department approved signs and locations.
6. Any additional private fire hydrants required, are to be ordered in Fire Hydrant Red from the manufacturer.
7. An obstructed access mitigation plan is required for the HOA documents such as a Towing service sign that can be called at any time to remove obstructions.
8. During construction of residential structures it is required at ALL times to have a temp address clearly visible from the street on the site or building.
9. Please contact the FMO at 360-834-6191 or at fmo@cityofcamas.us if you have any questions.

DD&C
DESGROSELLIER DEVELOPMENT & CONSTRUCTION

ZONE CHANGE NARRATIVE, CMC 18.51.025

This development is based on the approval of a cottage overlay for the site.

We are requesting a map amendment to change parcels: 89884000, 89883000, 89881000, and 89875000 from MF-18 to a Cottage Overlay, as is allowed by the CMC municipal code and is encouraged in the City of Camas Comprehensive Plan, published in 2016.

The Camas 2035 Comprehensive Plan (published 2016) encourages applications for the Cottage Overlay in existing multi-family zones. The City of Camas has a disproportionate supply of large single-family homes, with very little smaller affordable homes. During the conception of this development and our first pre-application meeting, we had been encouraged by City staff to pursue the Cottage Overlay in order to increase housing diversity and provide an alternate path to home ownership in Camas. The new housing permits from 2004-2016 suggest that at least 70% of new homes are over 3,000 SF and only 7% of new homes are under 2,000 SF.

The Multi-Family Cottage Overlay emphasizes resident connectivity. Open gathering spaces are provided between the front of units so that residents can see each other and interact with one another for a livelier atmosphere. Walking paths are going to be provided through the length of the development, and all the up into the wooded area for additional open space. The hope is to create a vital, stable, and livable neighborhood for residents with smaller family units that do not want to sacrifice the quality of their home.

The proposed Cottage Overlay along the 3rd Ave Gateway Corridor will emphasize and improve the corridor, by maintaining and emphasizing the large Oak Tree at the South side of the site and providing lighting and signage for the development at NE 3rd Ave. Access over the swale and connecting to the development pathways will be provided for bike and pedestrian access from 3rd Ave. The stormwater swale has been designed in a manner to avoid harming the Oak Tree, and to tie-in the natural elements of the site. The stormwater swale will be designed as a dry pond bed, with native plantings and salvaged stacked rock outcroppings will be relocated from elsewhere on the site to line the exposed edges of the pond. The rest of the site will be design around native plant species

and natural-looking landscaping around each unit, with lawns limited to the common areas to further enhance the community feel.

Each cottage has been designed as a one-story structure with less than 1,000 SF footprint. We have 3 proposed designs to fit within the site constraints, all of which have recessed garages in the rear of the structure (where garages are provided) or covered parking provided onsite. Each cottage has an inviting front porch, steep pitched gable roof. A storage loft is provided on half of each unit since most occupants will be downsizing from larger homes. The proposed exterior façade materials will be a mix between board and batt Breckenridge siding and Fiber Cement lap siding. Some accent areas of cedar shingles (or sim.) will also be mixed into the material palette for diversity, while maintaining the cottage aesthetic. All colors will be selected from an off-white to dark grey cool color scheme.

Adequate public facilities are available along 3rd Ave and the adjacent Wedgewood court in order to support the connection to City Water, Sanitary Sewer, and Clark Public Utilities Power.

Public Transportation is available along NE 3rd Ave, which could support resident's available options for walking, biking, and riding lifestyles. We are also providing a dedicated ride share pull-out lane for delivery and pick-up options that would not impede on parking or the one-way circulation of the traffic on site.

DD&C
DESGROSELLIER DEVELOPMENT & CONSTRUCTION

'WASHOUGAL RIVER OAKS' – DEVELOPMENT NARRATIVE

Description of Development –
The proposed development consists of 22 Cottage homes, of less than 1,000 SF each. There will be a grouping of homes on the north side of the site, with two "A" style homes of 617 SF, single bedroom, single bathroom units with a small loft, and two "B" style homes that are 772 SF. The north grouping of homes will have a single covered deeded parking spot, and open parking available to all residents, guests. The middle of the site consists of seven "C" Style homes that are 2-bedroom, 2 bath, with an attached garage and driveway, 855 SF of living space. The south side of the site has four "A" Style homes and four "B" style homes.

The development has three distinct gathering areas between the different groupings of single-family cottages. The entire site is 3.16 acres, with 1.85 acres affected by the proposed development. The northern 1.31 acres will remain forested with a short natural walking/hiking area to picnic areas onsite. The south side of the site will house a small gathering pavilion and footbridge over the stormwater swale, encouraging foot traffic from NE 3rd Ave where public transportation is available.

The south grouping of homes will also have a single covered deeded parking spot, and open parking to City of Camas standards. The development's monument walls will face NE 3rd Ave, to pull its identity from the large existing Oak Tree, and draw attention from the public thoroughfare.

Parking Requirements-
CMC 18.11 requires 2 EA parking stalls provided per single family dwelling unit. According to CMC 17.19.040.B.10E, when the average lot size is less than 7,500 SF, one additional parking space is required, per 5 EA dwelling units.

According to these requirements, 49 EA parking spaces will be required (22 units, x 2 EA stalls per unit, 44 stalls; 22 units / 5 units, 4.4 stalls for visitors; grand total of 49 stalls).

The Type C units will have all on-site parking, with a full driveway and single car garage, accounting for 14 parking stalls (7 EA in garages, 7 EA in driveways).

The Type A and Type B units will have one deeded parking stall per unit covered under a shed roof structure, while the other parking spots will be uncovered and open to all visitors and tenants, alike. There are 29 parking stalls provided for this use. The 6 remaining parking spots will be available on NE Wedgewood Court. The half-improved Wedgewood Court will be expanded and finished with detached sidewalk, and will be improved to meet parking requirements on both sides of the street, opening up 11 EA street parking options.

Existing Site Conditions –
The site is located along the natural slope from Camas down to the Washougal River plains. The site is slightly terraced for the current structures on site and partially wooded from overgrown landscaping. There are several dilapidated residences and outbuilding on the site.

Critical Aquifer Recharge Area –
The site is located with a Critical Aquifer Recharge Area, within wellhead protection area for City Well No. 13. There are no designated wetlands on-site; however, the Washougal River is approximately 300’ South of the site. The CARA consultant has outlined several considerations due to the city’s wellhead protection area, and we have elected to pursue and design a stormwater swale sized to handle 100% of the anticipated stormwater load from the development, in accordance with the 2019 Stormwater Management Manual for Western Washington. Pond design will be thoughtful and deliberate, with natural stone and rock accents in order to accentuate the area as a natural feature.

Geologically Hazardous Areas –
The development is located on the south end of the group of parcels comprising the development. At the North end of the parcels, there is a Geologically Hazardous area. This area is outside the proposed construction and development zone. Very minimal impact will occur on the north side of the site, which is proposed to be unpaved walking trails for a small hike through the natural habitat on the hill.

Habitat Conservation Areas –
Similar to the Geologically Hazardous Area, the development is proposed on the large open space on the South side of the site; while maintaining the natural habitat from the forest to the North. No major impacts are anticipated from any consultants, and no endangered plant or animal life have been observed on the property. The buildable area already has several occupied homes and one abandoned and demolished structure that will be replaced by the proposed development.

Existing Buildings –
There are currently four single family residences on four separate parcels that will be redeveloped. The structure located on 2531 NE 3rd Ave was burned-out from a fire with the previous owner. It has since been demolished. The structure on 2515 NE 3rd Ave is a 792 SF double-wide mobile home set-up in 1965. The structure on 2527 NE 3rd Ave is a 760 SF ranch style home built in 1946. The current condition of this residence is very poor. The structure on 2523 NE 3rd Ave is 1782 SF ranch style home with a full daylight basement, built in 1955. The current condition is average.

Public Facilities & Services –
The development site is located on the corner of NE 3rd Ave and Wedgewood Court. The proximity to utility connections is good. Sewer and water utilities are available underground at Wedgewood court, or at NE 3rd Ave. The Storm Drains will tie into existing lines under NE 3rd Ave, while the Sanitary and Water connections will be made under Wedgewood Ct. Power will be fed from Clark Public Utility pole on the corner of NE 3rd Ave and Wedgewood Ct.

Other Natural Features –
The site has a gradual slope up into the forested land, where the slopes increase to an unbuildable natural forested area. This area will be dedicated to a small natural path, where future homeowners can walk-through, visit, and congregate in the natural setting. We will provide groomed natural hiking trails with switch-backs, to a resting area with picnic tables, and overlooking the future development and the Washougal River. The proposed resting area is an existing natural feature, and no physical improvements will be required.

DD&C
DESGROSELLIER DEVELOPMENT & CONSTRUCTION

'WASHOUGAL RIVER OAKS' – PLAT APPROVAL NARRATIVE

Ownership and Maintenance of Open Spaces, Public Trails, and Critical Areas –
The common tract between houses, where sidewalks and common yards are shown, will be maintained by the HOA for the neighborhood. CCR's will also be developed to maintain the landscaping directly adjacent to the residences, and provide guidance regarding permitted activities in and around the neighborhood, in order to maintain a high standard of living and a well-maintained community. The HOA and CCR documents are currently being drafted by the development team and their legal representation. The private street and common electrical illuminating the walking paths and parking will be managed and funded by the development's HOA. The HOA will require yearly cleaning and periodic review and improvement of the streets and concrete flatwork to ensure they remain safe

Ownership and Maintenance of Stormwater Facilities –
The stormwater swale will be designed and maintained in accordance with Southwest Washington Stormwater Requirements, and as reflected in the Civil Engineer's Storm Report recommendations. The Stormwater swale will have easy site access to the dry pond off 3rd Ave for periodic access and maintenance. The stormwater swale will have the appropriate swale soil amendments and pretreatment provided. The swale will utilize all native plantings, as selected by our landscape architect to enhance the visual appeal.

Critical Areas –
The property was identified to be within the Critical Aquifer Recharge Area. The development team procured the services of a Hydrogeologist to review the site conditions and advise with site specific recommendations. The CARA consultant's findings confirm that the water table depth is relatively high due to the proximity of the Washougal River, and they confirmed that the swale location and sizing will be adequate for properly draining the site to the water table without issues or concerns. The full report is available within this land use approval package.

Geologically Hazardous Areas Report was reviewed and incorporated into the Geotechnical Report findings. All excessive slopes and large rock outcroppings

were identified to be over 25' North of the buildable area and of the extent of the development area. No concerns were identified by the Geotechnical Engineer and the complete information is available in the Geotechnical Report.

Fish and Wildlife Habitat Conservation Area. There is single White Oak onsite, which has become an integral part of the development identity. The project has been designed around preserving this tree. The entire South cluster of cottages has been squeezed and the swale has been distorted to provide some distance away from the drip zone of the large White Oak. The sacrifices in site layout and spacing will be offset by the charm and appeal of preserving this giant tree. Another significant tree that we are targeting for preservation is the massive Tulip tree, in the middle of the center cottage cluster. This tree lays out in the center of a common area and will be a focal point after the site is cleaned up and the tree is in bloom. No other wildlife habitat conservation impacts are foreseen. The Northern side of the site will remain a natural forested area, with minimal undergrowth.

Archaeological Review. The site has been identified as a high-probability area for the discovery of items with archaeological significance. We had an archeologist consultant review the site, historical information on file and perform an on-site inspection to locate any evidence of important archaeological items. Based on the report findings, no results were identified. The report was distributed to all applicable tribes and jurisdictions for their records.

Approval Criteria and Standards of the Camas Municipal Code, including Building Conditions & Restrictions –

The site is designed and based on the setbacks identified in the MF-18 Cottage Overlay requirements. The homes are tightly spaced where the setbacks are reduced to increase density, with the majority of windows on the front and rear of the units, and skylights sparingly used to increase light into the spaces, without affecting resident privacy. We have maintained the 5' landscape buffer around the perimeter of the site between structures and the adjacent property lines, per CMC 18.13.055A.

The one-way traffic circulation loop provides better access for residents, appropriate Fire Truck access and turning radius for emergencies, and minimizes the impervious materials that bisect the site, which would have reduced the overall connectivity between residents, in a cottage development.

The minimum garage set-backs of 20’-0” have been incorporated everywhere the Type C units exist.

The site plan has no units with side yards that abut a public street; however, some units do abut the private circulation lane and will impede upon the 15’ side yard setback from streets. This impact will be mitigated with landscaping some taller trees and locating the windows higher on the wall to avoid the disturbance and light pollution from passing vehicles.

The front of each unit faces a common tract, with garages in the rear of the center grouping of cottages. All units have a rear landscape buffer; however, a rear yard is not provided for all units as it seemingly contradicts the intent of open central spaces in a cottage development. In aggregate, there is much more than 200SF of available yard/lawn per unit; however, each parcel/lot varies on the amount actually contained within their lot lines.

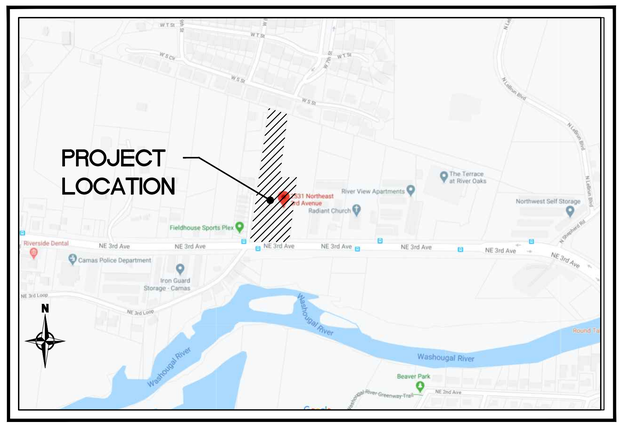
The maximum height of the units does not exceed 18’, as defined by the City of Camas height guidelines. Each lot is slightly different due to the grade of the site, but the maximum height was calculated at the Type C units, as approximately 16’-0” from grade to center of gable, and further reduced by the adjacent grade (each property has approximately 2-5’ of fall between units), which is made up in a stepped foundation and/or retaining wall between units. Overall, the unit heights are well within the City of Camas definition of maximum allowable height at the defined 18’-0”.

EXHIBIT 6
SUB20-01

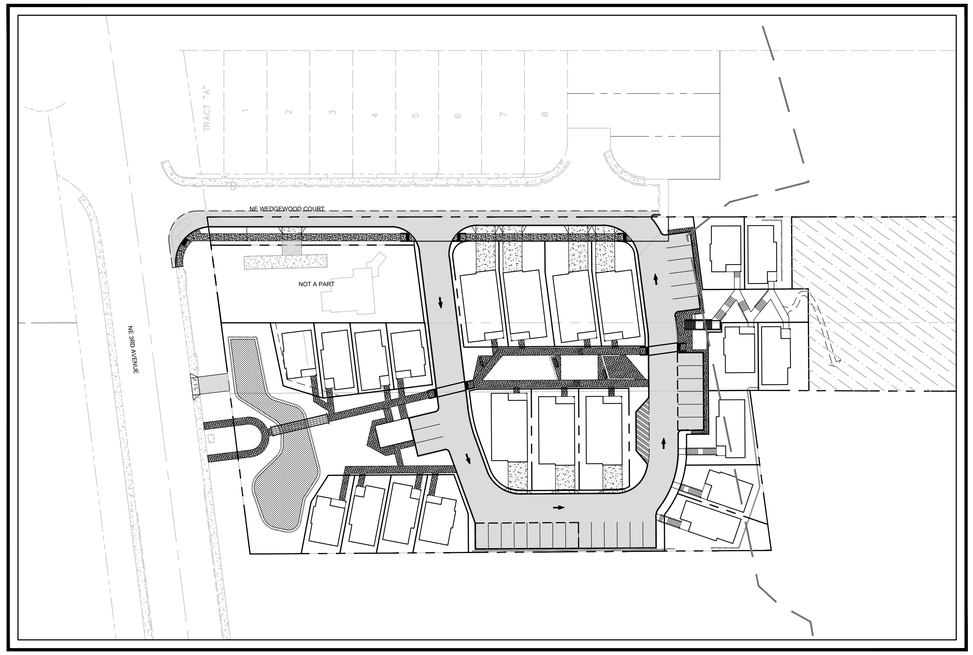
WASHOUGAL RIVER OAKS

2531 NE 3RD AVE

NW 1/4 & SW 1/4 OF NE 1/4 OF SECTION 12, T.1N., R.13E., W.M.
CITY OF CAMAS, CLARK COUNTY, WASHINGTON



VICINITY MAP
NTS



SITE MAP
SCALE : 1"=50'

GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY REGULATIONS AND CODES AND O.S.H.A. STANDARDS, INCLUDING BUT NOT LIMITED TO THE CURRENT CITY OF CAMAS STANDARD PLANS AND SPECIFICATIONS AND RELEVANT STANDARD DOT PLANS AND SPECIFICATIONS, AND THE APWA STANDARDS WHICH ARE HEREBY REFERENCED AS PART OF THESE PLANS.
2. THE DESIGN SHOWN IS BASED UPON THE ENGINEER'S UNDERSTANDING OF THE EXISTING CONDITIONS. THE PLAN DOES NOT REPRESENT A DETAILED FIELD SURVEY. THE EXISTING CONDITIONS SHOWN ON THIS PLAN SHEET ARE BASED UPON THE SURVEY PREPARED BY KLEIN & ASSOCIATED, DATED NOVEMBER 6, 2018. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING FIELD CONDITIONS PRIOR TO BIDDING THE PROPOSED SITEWORK IMPROVEMENTS. IF CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER/DEVELOPER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITEWORK WHICH WOULD BE AFFECTED. IF CONTRACTOR DOES NOT ACCEPT EXISTING SURVEY, INCLUDING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS OWN EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
3. CAUTION – NOTICE TO CONTRACTOR
   THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
4. IN THE EVENT OF CONFLICTS BETWEEN THE VARIOUS PROVISIONS OF THIS PLAN SET, THE MORE STRINGENT PROVISION APPLY.

VERTICAL DATUM

BRASS CAP AT THE SOUTHEAST CORNER OF NE 3RD AVENUE AND NE 3RD AVENUE LOOP NEXT TO 2504 NE 3RD AVENUE, END OF CURB RETURN. ELEVATION = 37.31 FEET PER CITY OF CAMAS ENGINEERING DEPARTMENT

PROJECT DESCRIPTION

PROPOSED 22-UNIT COTTAGE DEVELOPMENT

SITE DATA

ADDRESS: 2531 NE 3RD AVE
CAMAS, WA 98607

ZONING: MF-18 (MULTI-FAMILY RESIDENTIAL)
PROPOSED COTTAGE OVERLAY

AREA SUMMARY PER CMC 17.01.050:

EXISTING SITE PROPERTY SUMMARY

PARCEL NO 89884000	40,763 SF ± (0.94 AC)
PARCEL NO 89883000	30,265 SF ± (0.69 AC)
PARCEL NO 89881000	50,642 SF ± (1.16 AC)
PARCEL NO 89875000	6,959 SF ± (0.16 AC)
TOTAL PROJECT SITE	128,629 SF ± (2.95 AC)
RIGHT-OF-WAY DEDICATION	5,843 SF ± (0.13 AC)
SITE AFTER DEDICATION	122,786 SF ± (2.82 AC)
TOTAL (PROPOSED) LOT AREA	40,113 SF ± (0.92 AC)
TOTAL INFRASTRUCTURE (TRACT A)	36,880 SF ± (0.85 AC)
TOTAL TRACT AREA	82,673 SF ± (1.90 AC)
TOTAL CONSERVATION AREA (TR B)	45,793 SF ± (1.05 AC)

PROJECT CONTACTS

PROPERTY OWNER / APPLICANT
DD&C DEVELOPMENT
3100 EAST EVERGREEN BLVD
VANCOUVER, WA 98661
CONTACT: BRYAN DESGROSELLIER
PHONE: (360) 907-2500

CIVIL ENGINEER
NAVIX ENGINEERING
10135 SE SUNNYSIDE ROAD, SUITE 200
CLACKAMAS, OR 97015
CONTACT: SHAWN NGUY / BRYAN DICKERSON
PHONE: (503) 659-9500

LANDSCAPE ARCHITECT
ABBATE DESIGNS LLC
LANDSCAPE ARCHITECTURE
1236 NE MARKET DR
FAIRVIEW, OR 97204
CONTACT: MICHAEL ABBATE
PHONE: (971) 404-8670

SURVEYOR
KLEIN & ASSOCIATES
2517 NE 252ND AVE
CAMAS, WA 98671
CONTACT: JAMES KLEIN
PHONE: (360) 687-0500

GOVERNING AGENCIES

CITY OF CAMAS
616 NE 4TH AVE
CAMAS, WA 98607

PLANNING: LAUREN HOLLENBECK, (360) 817-7253

ENGINEERING: ANITA ASHTON, (360) 817-7231

BUILDING: JEFF NOGA, (360) 817-7244

FIRE: RANDY MILLER, (360) 817-7577

UTILITIES

CITY OF WASHOUGAL
(360) 835-2662

CLARK PUBLIC UTILITIES
(801) 364-1063

COMCAST CABLE
(801) 364-1063

FRONTIER COMMUNICATIONS
(800) 778-9140

NW NATURAL GAS
(503) 220-2415

WASHINGTON ST DOT
(360) 905-2120

SHEET INDEX

NAVIX
SITE | CIVIL

10135 se sunnyside rd | suite 200
clackamas, or 97015

t: 503.659.9500 | f: 503-659-2227
www.navixeng.com

CLIENT/OWNER

DD&C, INC

PROJECT NAME

WASHOUGAL RIVER OAKS

NAVIX PROJECT NUMBER: 20-005-001

PROJECT ADDRESS

2531 NE 3RD AVE
CAMAS, WA 98607

STAMP

BRIAN S. DICKERSON
STATE OF WASHINGTON
40314
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY

REVISIONS

REV	ISSUED FOR:	DATE
1	LAND USE	10.02.20
2	COMPLETENESS	12.29.20

SECTION, TOWNSHIP, RANGE:

SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST, W.M.

PROJECT TEAM

REVIEWED BY: B.DICKERSON
DESIGNED BY: S.NGUY

SHEET NAME

COVER SHEET

SHEET NUMBER

CVR-1.0

P:\Washington\Camas\3rd Ave Garden Houses\2Drawings\CMWA010C.dwg Dec 29, 2020 - 2:09pm

TOPOGRAPHIC SURVEY

LOCATED IN THE E 1/2, DAVID C. PARKER D.L.C. NO. 48
BEING A PORTION OF THE NW 1/4 & THE SW 1/4 OF
THE NE 1/4 OF SECTION 12, T. 1N., R. 3E., W.M.
CITY OF CAMAS, COUNTY CLARK, STATE OF WASHINGTON

BASIS OF BEARINGS

WASHINGTON STATE PLANE COORDINATES SYSTEM
SOUTH ZONE, GRID NORTH, GROUND DISTANCE,
ESTABLISHED BY G.P.S. OBSERVATION BETWEEN
MONUMENTS 252 AND 253

40' 0 40' 80'
SCALE – FEET
1" = 40'

VERTICAL DATUM

BRASS CAP AT THE SOUTHEAST CORNER OF NE 3RD AVENUE AND NE 3RD AVENUE LOOP NEXT TO 2504 NE 3RD AVENUE, END OF CURB RETURN. ELEVATION = 37.31 FEET PER CITY OF CAMAS ENGINEERING DEPARTMENT

SURVEYOR'S NOTES

1. THE PURPOSE OF THIS TOPOGRAPHIC MAP IS TO SHOW EXISTING IMPROVEMENTS AND TO DOCUMENT THE HORIZONTAL POSITIONS OF THE PERMANENT FEATURES VISIBLE ON THE GROUND IN THE MAPPED AREA AS FOUND ON THE DATE OF SURVEY, NOVEMBER 6, 2018. THIS IS NOT A BOUNDARY SURVEY OF THE PARENT TRACT.

2. EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS PLAT, THIS SURVEY DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE: EASEMENTS, OTHER THAN POSSIBLE EASEMENTS WHICH WERE VISIBLE AT THE TIME OF MAKING OF THIS SURVEY; BUILDING SETBACK LINES; RESTRICTIVE COVENANTS; SUBDIVISION RESTRICTIONS; ZONING OR OTHER LAND–USE REGULATIONS, AND ANY OTHER FACTS WHICH AND ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

3. EVERY DOCUMENT OF RECORD REVIEWED AND CONSIDERED AS A PART OF THIS SURVEY IS NOTED HEREON. ONLY THE DOCUMENTS NOTED HEREON WERE SUPPLIED TO THE SURVEYOR.

4. MEASURED BEARINGS AND DISTANCES ARE IN SUBSTANTIAL AGREEMENT WITH RECORD DATA UNLESS OTHERWISE NOTED.

5. TOPOGRAPHIC DETAIL: IS GIVEN WITH A 1' CONTOUR INTERVAL.

6. ACCESS: ACCESS IS PROVIDED THROUGH NE 3RD AVENUE AND NE WEDGEWOOD COURT.

7. UNDERGROUND UTILITIES: SURFACE EVIDENCE OF UNDERGROUND UTILITIES WAS LOCATED BY KLEIN AND ASSOCIATES, INC. WHEN MARKED IMMEDIATELY PRIOR TO FIELD WORK. IT IS REQUIRED THAT THE POSITIONS OF UNDERGROUND UTILITIES BE VERIFIED PRIOR TO CONSTRUCTION. NO UTILITIES WERE DESIGNATED EXCEPT AS SHOWN HEREON. BURIED UTILITIES SHOWN ARE PER ONE CALL LOCATE TICKET NO. 18480413, DATED NOVEMBER 2, 2018. REFER TO FACE OF PLAT FOR DETAILS. NO GUARANTEE IS MADE AS TO THE LOCATION OR COMPLETENESS OF UNDERGROUND SPACE UTILITY INFORMATION.

8. NO BELOW GROUND PRIVATE UTILITY LINES WERE LOCATED IN THIS SURVEY.

UTILITY CONTACT INFORMATION:

CMCST03	COMCAST CABLE COMM. MNGMT, LLC	(801)364–1063
COW01	CITY OF WASHOUGAL	(360)835–2662
CPU01	CLARK PUBLIC UTIL ELECTRIC	(801)364–1063
FTR03	FRONTIER COMMUNICATIONS	(800)778–9140
NWN02	NW NATURAL	(503)220–2415
WSDOT01	WASHINGTON ST DOT	(360)905–2120

REFERENCED SURVEYS

R1. MINISTER–GLAESER; SURVEY BOOK 46, PAGE 43

R2. WEDGEWOOD SUBDIVISION; BY MINISTER–GLAESER, BOOK 311, PAGE 79. A.F.N. 3635491

R3. LANG SHORT PLAT, PERFORMED BY DEAN SURVEYING, INC. BOOK 3, PAGE 441. A.F.N. 3384656

R4. WARD UN–RECORDED SURVEY, BOOK AA, PAGE 13

R5. MINSTER–GLAESER; SURVEY BOOK 25, PAGE 85

R6. OLSON ENGINEERING INC. BOOK 32, PAGE 98

R7. OLSON ENGINEERING INC, BOOK 46, PAGE 69

R8. KLEIN ASSOCIATIONS SURVEY, BOOK 66 PAGE 55

REFERENCED DEEDS

WARRANTY DEED, A.F.N 8806300097
BOUNDARY LINE ADJUSTMENT, A.F.N. 9711260248

MONUMENT INFORMATION

(250) FOUND 3/4" IRON PIPE IN MONUMENT BOX

(251) FOUND 1/2" IRON ROD WITH Y.P.C. STAMPED "DENNY 32451"

(252) FOUND 1–1/2" ALUMINUM CAP STAMPED "LS 29959"; PER LANG SHORT PLAT; HELD FOR CENTERLINE NE 3RD AVE.

(253) FOUND 1–1/2" ALUMINUM CAP STAMPED "LS 29959"; PER LANG SHORT PLAT; HELD FOR CENTERLINE NE 3RD AVE.

(260) FOUND 1/2" IRON PIPE, UNKNOWN ORIGIN; SHOWN IN UN–RECORDED WARD SURVEY; HELD FOR POINT IN WEST LINE SUBJECT PARCEL

(261) FOUND 1" IRON PIPE. UNKNOWN ORIGIN

(262) FOUND 1/2" IRON PIPE; UNKNOWN ORIGIN

(263) FOUND 3– 1/2" ALUMINUM CAP; CITY OF CAMAS

(265) FOUND 1/2" IRON PIPE, UNKNOWN ORIGIN; SHOWN IN UN–RECORDED WARD SURVEY; HELD FOR POINT IN EAST LINE SUBJECT PARCEL

(266) FOUND 1/2 " REBAR PLASTIC CAP IN MONUMENT CASE

(270) FOUND 1–1/2" IRON PIPE; PER WARD SURVEY; HELD FOR NORTHEAST CORNER SUBJECT PARCEL.

(271) FOUND 1–1/2" IRON PIPE; PER WARD SURVEY; HELD FOR NORTHWEST CORNER SUBJECT PARCEL.

(272)–(274) FOUND 5/8" X 30" REBAR WITH 1–1/4" YELLOW PLASTIC CAP INSCRIBED (KA OR59002 WA42690)

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	108.86'	10000.00'	0°37'25"	N88°16'33"W	108.86'
C2	30.22'	10000.00'	0°10'23"	N88°40'27"W	30.22'
C3	78.67'	10000.00'	0°27'03"	N88°59'10"W	78.67'
C4	217.75'	10000.00'	1°14'52"	N88°35'16"W	217.75'
C5	8.43'	10050.00'	0°02'53"	S87°59'17"E	8.43'
C6	19.90'	10050.00'	0°06'48"	N88°39'54"W	19.90'
C8	54.78'	4728.35'	0°39'50"	N88°39'51"W	54.78'
C9	48.96'	4728.35'	0°35'36"	N88°02'08"W	48.96'

LEGEND

- EDGE OF ASPHALT
- CURB AND GUTTER
- EDGE OF GRAVEL
- W — WATER MAIN
- WS — WS — WATER SERVICE
- S — SANITARY SEWER MAIN
- SD — STORM DRAIN
- AP — AERIAL POWER LINE
- UE — BURIED ELECTRIC LINE
- AT — AERIAL TELEPHONE LINE
- T — BURIED TELEPHONE LINE
- ATV — AERIAL CABLE TELEVISION
- G — GAS MAIN
- X — FENCE
- RETAINING WALL
- CONTOUR (1 FOOT INTERVAL)
- GRAVEL DRIVEWAY
- CONCRETE SIDEWALK
- BUILDING
- ASPHALT AREA
- WATER VALVE
- FIRE HYDRANT
- WATER METER
- IRRIGATION WATER VALVE
- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE
- STORM DRAIN INLET
- POWER POLE
- LIGHT POLE
- EVERGREEN TREE (SIZE AS NOTED)
- DECIDUOUS TREE (SIZE AS NOTED)
- DRIP LINE OF TREE
- MAIL BOX
- FOUND MONUMENT
- CONTROL POINT
- RM REFERENCE MONUMENT
- FD FOUND DISTANCE
- R.O.S. RECORD OF SURVEY

POINT LIST

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	98819.31	1158883.83	36.48	MAG
2	98806.52	1159080.19	35.48	60D
3	98915.70	1158773.99	42.29	60D
4	99106.98	1158826.39	64.34	60D
5	99027.63	1158794.40	51.90	60D
6	98981.50	1158850.18	47.43	60D
7	99122.58	1158898.57	60.90	60D
8	99053.11	1158906.93	50.80	60D
99	98861.65	1158990.43	35.77	60D
100	98746.89	1158943.50	35.04	60D
101	98748.35	1158654.58	38.01	60D
102	98960.14	1158938.58	43.63	60D
103	98755.48	1158760.20	37.32	60D
104	98965.24	1159005.14	43.07	60D
105	98749.26	1158864.90	35.60	60D
106	99103.67	1158980.07	57.64	60D
107	99001.07	1158934.82	46.16	60D

SURVEY PERFORMED FOR:
BRYAN DESGROSELLIER
DATE OF SURVEY: NOVEMBER 6, 2018
PROJECT: 18–10–22 DRAFT: BTB
FILE: 181022.DWG LAYOUT TAB: TOPO SURVEY 22X34

CLIENT
WASHOUGAL RIVER
PROPERTY, LLC

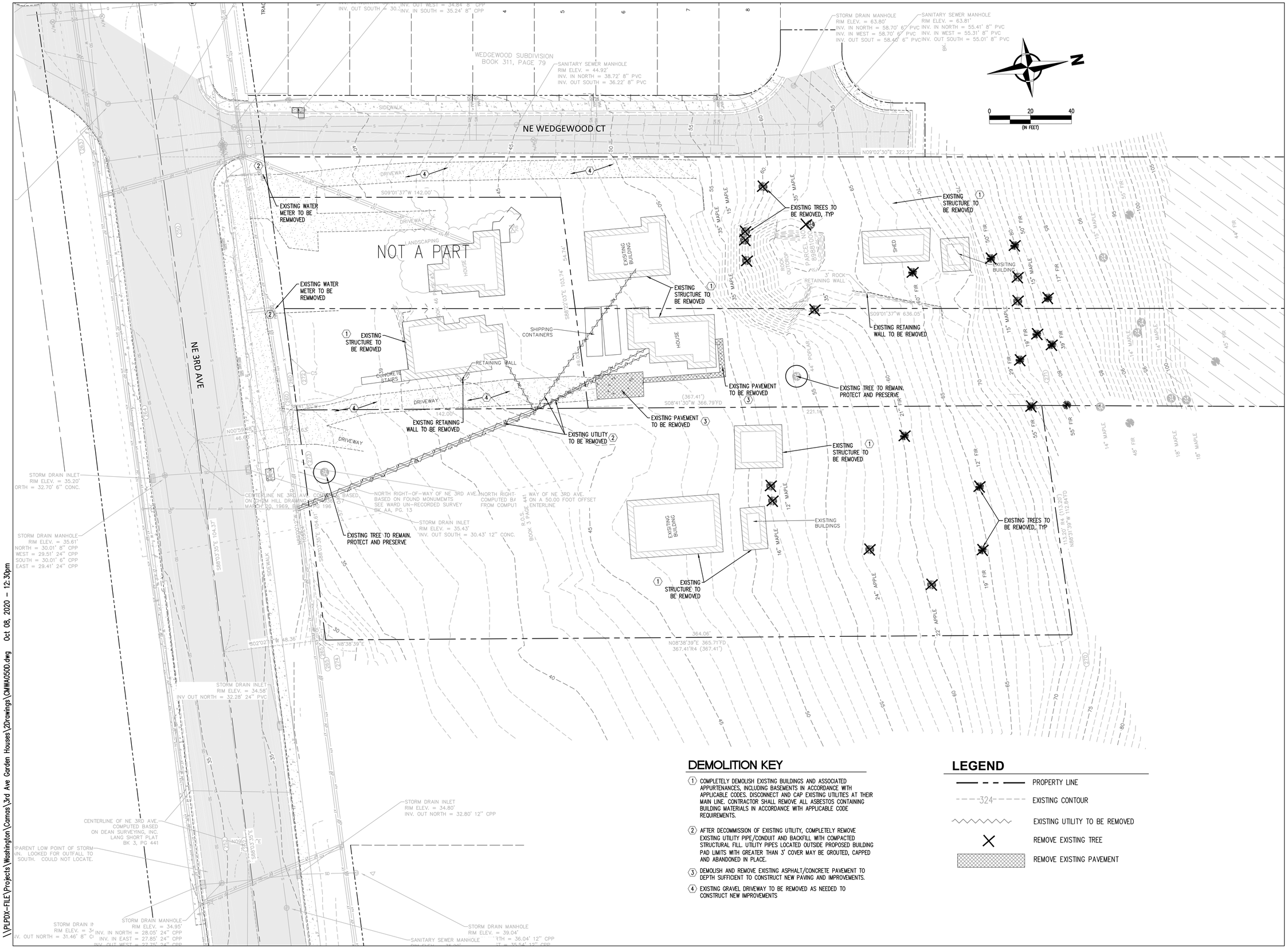
KLEIN & ASSOCIATES, MAKES NO WARRANTY AS TO MATTERS OF UNWRITTEN TITLE, ADVERSE POSSESSION, ESTOPPEL, ACQUIESCENCE.

Klein & Associates, Inc.
ENGINEERING•SURVEYING•PLANNING
Street address: 2517 NE 252nd Ave. • Camas, WA
Mailing Address: P.O. Box 165, Washougal, WA 98671
TEL: 360-687-0500 • FAX: 541-386-2515

REGISTERED PROFESSIONAL LAND SURVEYOR
James Klein
OREGON
JULY 12, 2005
JAMES M. KLEIN
59002
Expires 6-30-2021

EX -1.0
SHEET 1 OF 1
WILLAMETTE MERIDIAN
CLARK COUNTY, WASHINGTON

1/4 SEC	T.	R.
12	1N.	3E.



DEMOLITION KEY

1. COMPLETELY DEMOLISH EXISTING BUILDINGS AND ASSOCIATED APPURTENANCES, INCLUDING BASEMENTS IN ACCORDANCE WITH APPLICABLE CODES. DISCONNECT AND CAP EXISTING UTILITIES AT THEIR MAIN LINE. CONTRACTOR SHALL REMOVE ALL ASBESTOS CONTAINING BUILDING MATERIALS IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS.
2. AFTER DECOMMISSION OF EXISTING UTILITY, COMPLETELY REMOVE EXISTING UTILITY PIPE/CONDUIT AND BACKFILL WITH COMPACTED STRUCTURAL FILL. UTILITY PIPES LOCATED OUTSIDE PROPOSED BUILDING PAD LIMITS WITH GREATER THAN 3' COVER MAY BE GROUTED, CAPPED AND ABANDONED IN PLACE.
3. DEMOLISH AND REMOVE EXISTING ASPHALT/CONCRETE PAVEMENT TO DEPTH SUFFICIENT TO CONSTRUCT NEW PAVING AND IMPROVEMENTS.
4. EXISTING GRAVEL DRIVEWAY TO BE REMOVED AS NEEDED TO CONSTRUCT NEW IMPROVEMENTS

LEGEND

- PROPERTY LINE
- 324 EXISTING CONTOUR
- EXISTING UTILITY TO BE REMOVED
- REMOVE EXISTING TREE
- REMOVE EXISTING PAVEMENT

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www.navixeng.com

CLIENT/OWNER

DD&C, INC

PROJECT NAME

WASHOUGAL RIVER OAKS

NAVIX PROJECT NUMBER: 20-005-001

PROJECT ADDRESS

2531 NE 3RD AVE
CAMAS, WA 98607

STAMP

BRIAN S. DICKERSON
STATE OF WASHINGTON
40314
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY

REVISIONS

REV	ISSUED FOR:	DATE
1	LAND USE	10.02.20

SECTION, TOWNSHIP, RANGE:

SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST, W.M.

PROJECT TEAM

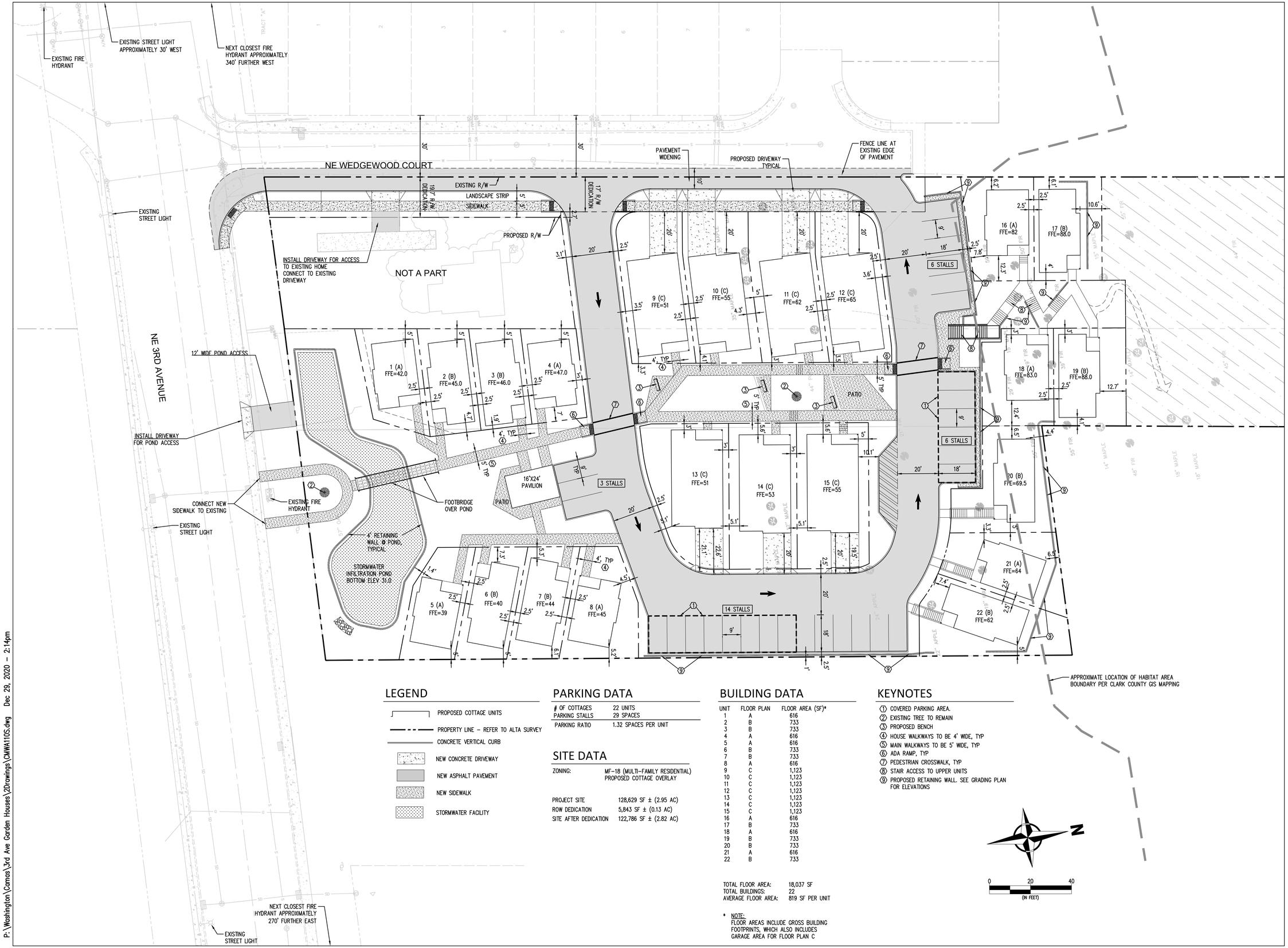
REVIEWED BY: B.DICKERSON
DESIGNED BY: S.NGUY

SHEET NAME

PRELIMINARY DEMOLITION PLAN

SHEET NUMBER

DM-1.0



LEGEND

- PROPOSED COTTAGE UNITS
- PROPERTY LINE – REFER TO ALTA SURVEY
- CONCRETE VERTICAL CURB
- NEW CONCRETE DRIVEWAY
- NEW ASPHALT PAVEMENT
- NEW SIDEWALK
- STORMWATER FACILITY

PARKING DATA

# OF COTTAGES	22 UNITS
PARKING STALLS	29 SPACES
PARKING RATIO	1.32 SPACES PER UNIT

SITE DATA

ZONING:	MF-18 (MULTI-FAMILY RESIDENTIAL) PROPOSED COTTAGE OVERLAY
PROJECT SITE	128,629 SF ± (2.95 AC)
ROW DEDICATION	5,843 SF ± (0.13 AC)
SITE AFTER DEDICATION	122,786 SF ± (2.82 AC)

BUILDING DATA

UNIT	FLOOR PLAN	FLOOR AREA (SF)*
1	A	616
2	B	733
3	B	733
4	A	616
5	A	616
6	B	733
7	B	733
8	A	616
9	C	1,123
10	C	1,123
11	C	1,123
12	C	1,123
13	C	1,123
14	C	1,123
15	C	1,123
16	A	616
17	B	733
18	A	616
19	B	733
20	B	733
21	A	616
22	B	733

TOTAL FLOOR AREA: 18,037 SF
TOTAL BUILDINGS: 22
AVERAGE FLOOR AREA: 819 SF PER UNIT

* NOTE:
FLOOR AREAS INCLUDE GROSS BUILDING FOOTPRINTS, WHICH ALSO INCLUDES GARAGE AREA FOR FLOOR PLAN C

KEYNOTES

1. COVERED PARKING AREA.
2. EXISTING TREE TO REMAIN
3. PROPOSED BENCH
4. HOUSE WALKWAYS TO BE 4' WIDE, TYP
5. MAIN WALKWAYS TO BE 5' WIDE, TYP
6. ADA RAMP, TYP
7. PEDESTRIAN CROSSWALK, TYP
8. STAIR ACCESS TO UPPER UNITS
9. PROPOSED RETAINING WALL. SEE GRADING PLAN FOR ELEVATIONS

N

0 20 40
(IN FEET)

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clackamas, or 97015

t: 503.659.9500 | f: 503-659-2227
www.navixeng.com

CLIENT/OWNER

DD&C, INC

PROJECT NAME

WASHOUGAL RIVER OAKS

NAVIX PROJECT NUMBER: 20-005-001

PROJECT ADDRESS

**2531 NE 3RD AVE
CAMAS, WA 98607**

STAMP

BRIAN S. DICKERSON
STATE OF WASHINGTON
40314
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PROFESSIONAL ENGINEER
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1	LAND USE	10.02.20
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811

SECTION, TOWNSHIP, RANGE:

SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST, W.M.

PROJECT TEAM

REVIEWED BY: B.DICKERSON
DESIGNED BY: S.NGUY

SHEET NAME

SITE PLAN

SHEET NUMBER

C-1.0

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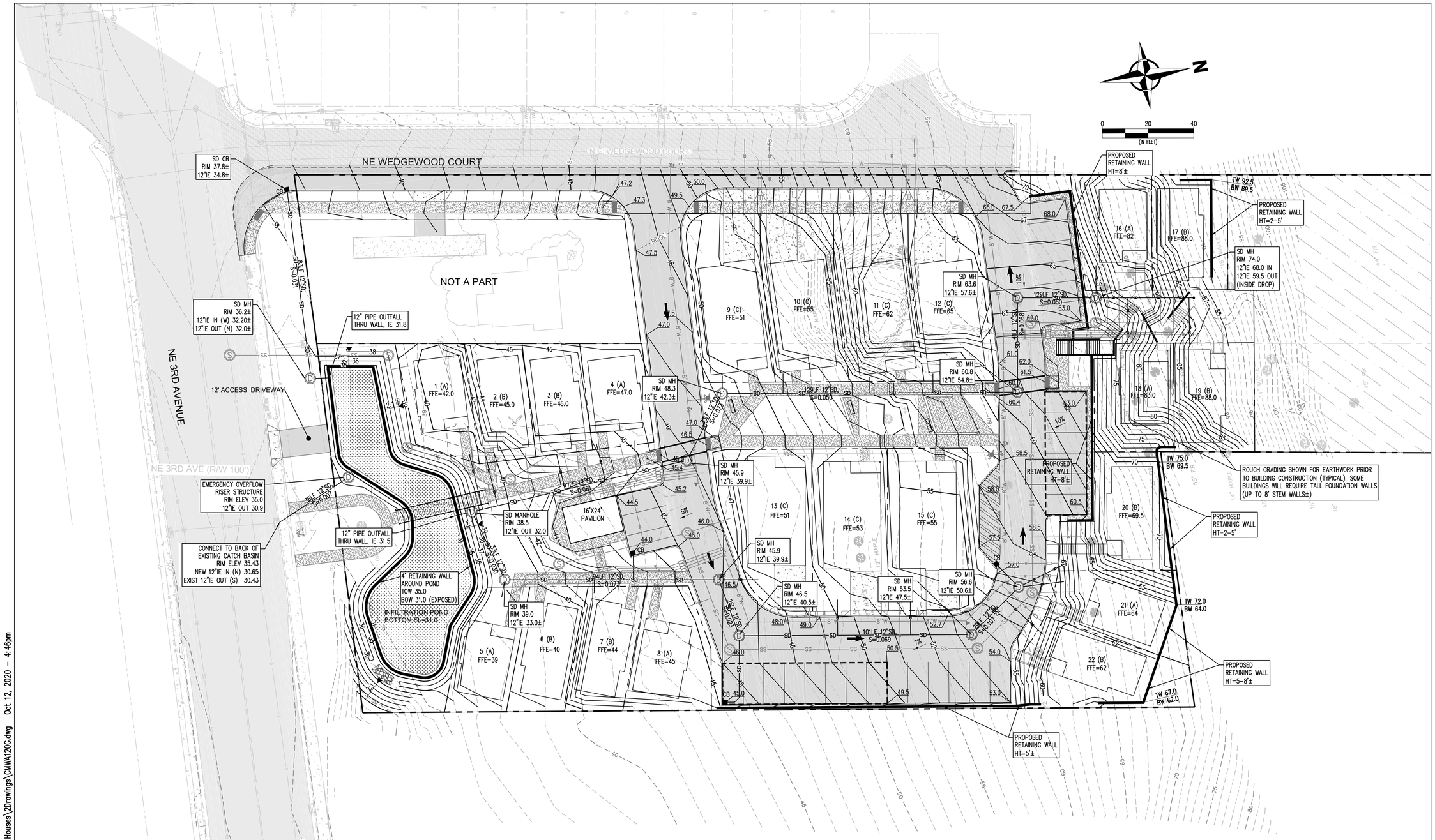
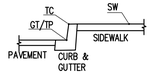


LEGEND

145	PROPOSED MAJOR CONTOUR (5' INTERVAL)
144	PROPOSED MINOR CONTOUR (1' INTERVAL)
-144-	EXISTING CONTOUR
SD	PROPOSED STORM LINE
D	STORM DRAIN MANHOLE
FC	FLOW CONTROL MANHOLE
	SEDIMENT FENCE
	INLET PROTECTION

TW	TOP OF WALL
BW	BOTTOM OF WALL
TC	TOP OF CURB
BC	BOTTOM OF CURB
GT	GUTTER ELEV
TP	TOP OF PAVEMENT
EP	EDGE OF PAVEMENT
FG	FINISHED GRADE
DW	DRIVEWAY
SW	SIDEWALK



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SECTION, TOWNSHIP, RANGE:

SECTION 12, TOWNSHIP 1 NORTH,
RANGE 3 EAST, W.M.

PROJECT TEAM

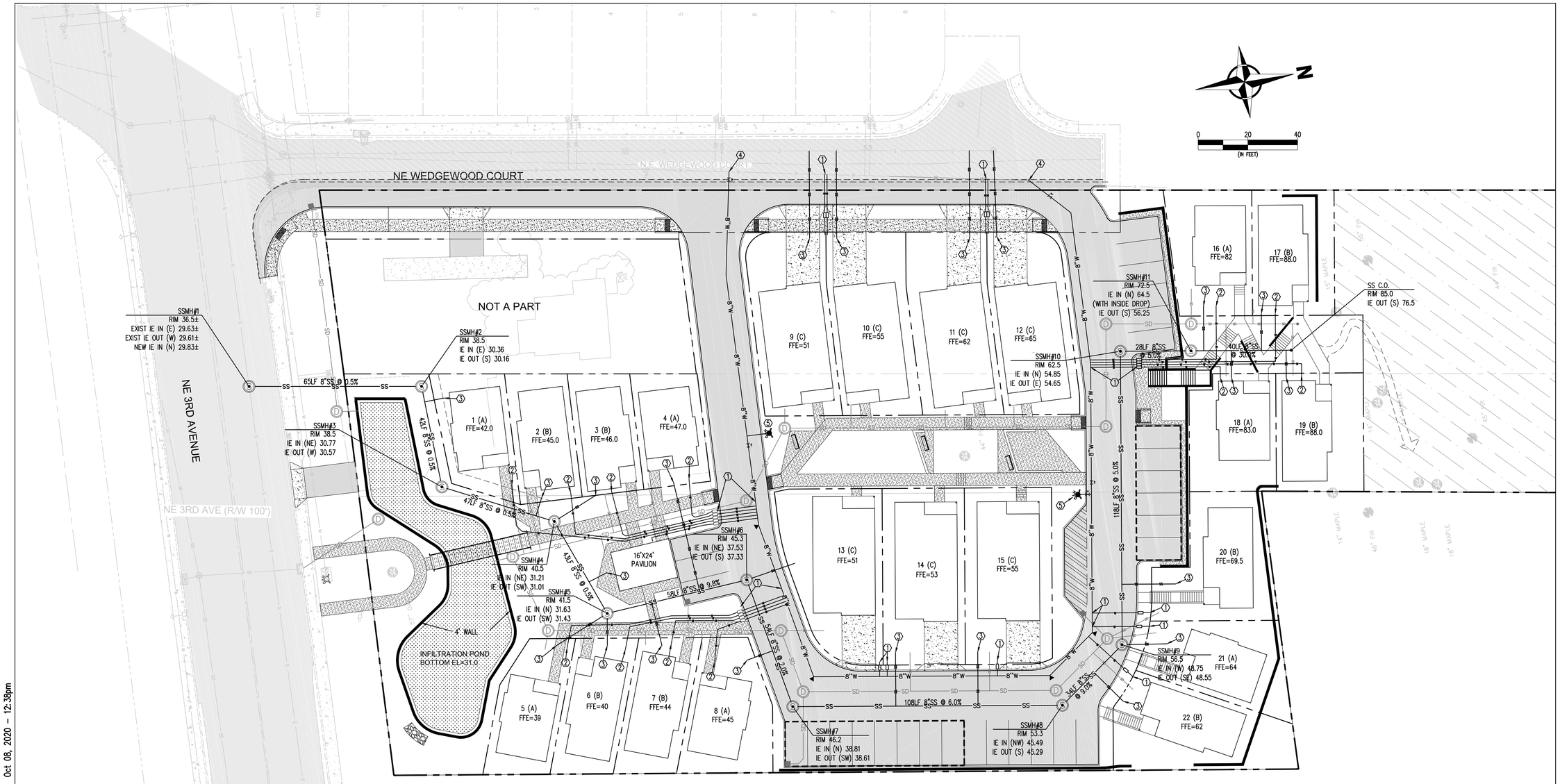
REVIEWED BY: B.DICKERSON
DESIGNED BY: S.NGUY

SHEET NAME

GRADING AND DRAINAGE PLAN

SHEET NUMBER

C-2.0



UTILITY LEGEND

- NEW WATER METER
- WATER LINE
- NEW SANITARY SEWER
- NEW SANITARY SEWER
- NEW SANITARY SEWER MANHOLE
- NEW SANITARY SEWER CLEANOUT
- NEW WATER VALVE
- NEW FIRE HYDRANT
- NEW STORM SEWER MANHOLE

CONSTRUCTION NOTES

1. INSTALL NEW WATER SERVICE TO EACH UNIT PER CITY DETAIL W2
2. PROVIDE 1" WATER SERVICE STUB TO EACH UNIT. CAP AND MARK END FOR FUTURE CONNECTION.
3. PROVIDE SANITARY SEWER SERVICE STUB OUT PER CITY DETAIL SG2. CAP AND MARK END OR FUTURE CONNECTION.
4. CONNECT NEW 8" WATER LINE TO EXISTING PER CITY STANDARDS.
5. PROPOSED FIRE HYDRANT LOCATION

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SECTION, TOWNSHIP, RANGE:

SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST, W.M.

PROJECT TEAM

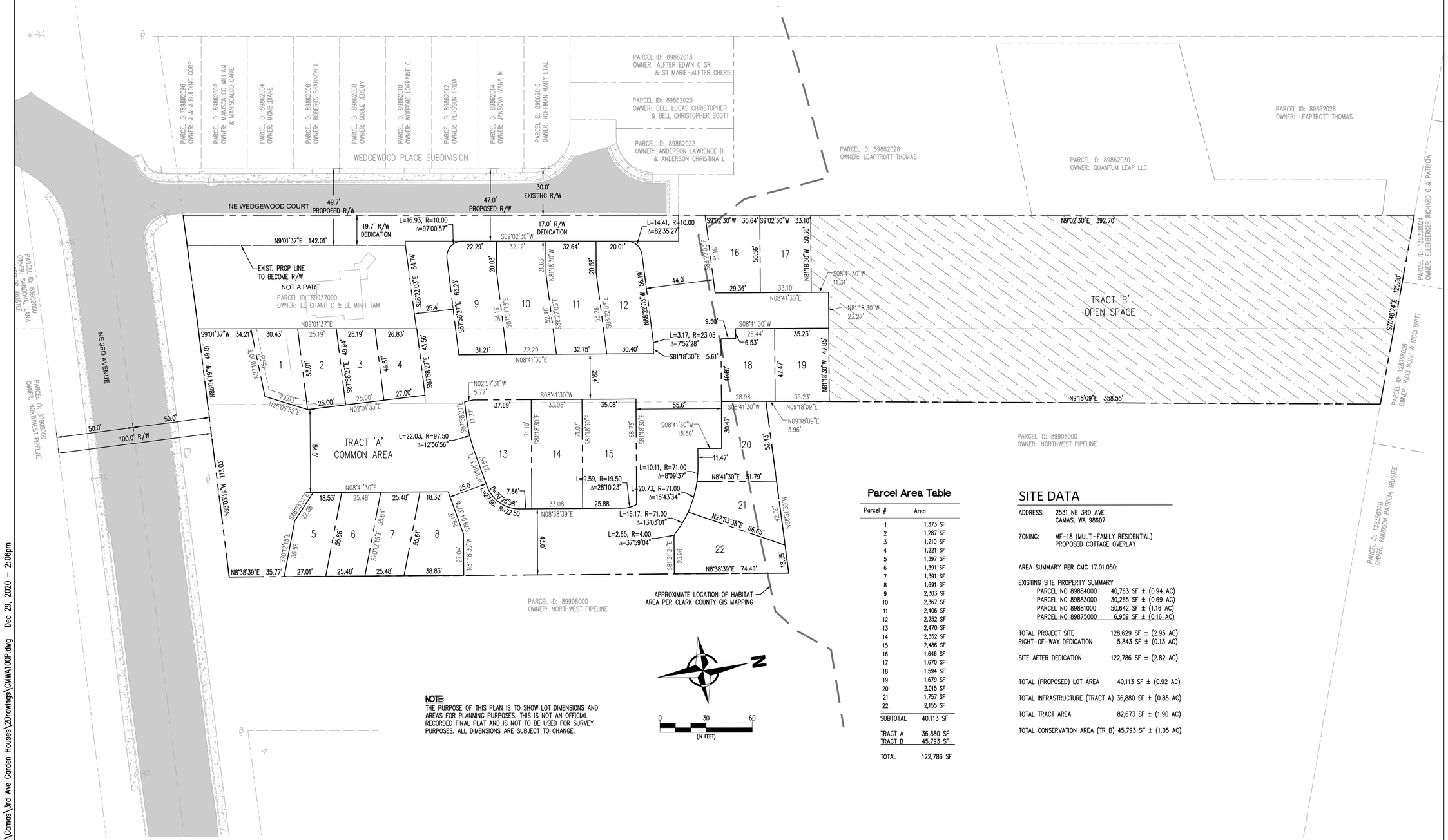
REVIEWED BY: B.DICKERSON
DESIGNED BY: S.NGUY

SHEET NAME

SITE UTILITY PLAN

SHEET NUMBER

C-3.0



Parcel Area Table

Parcel #	Area
1	1,373 SF
2	1,287 SF
3	1,210 SF
4	1,221 SF
5	1,397 SF
6	1,391 SF
7	1,391 SF
8	1,691 SF
9	2,303 SF
10	2,367 SF
11	2,406 SF
12	2,252 SF
13	2,470 SF
14	2,352 SF
15	2,486 SF
16	1,646 SF
17	1,670 SF
18	1,594 SF
19	1,679 SF
20	2,015 SF
21	1,757 SF
22	2,155 SF
SUBTOTAL	40,113 SF
TRACT A	36,880 SF
TRACT B	45,793 SF
TOTAL	122,786 SF

SITE DATA

ADDRESS: 2531 NE 3RD AVE
CAMAS, WA 98607

ZONING: MF-18 (MULTI-FAMILY RESIDENTIAL)
PROPOSED COTTAGE OVERLAY

AREA SUMMARY PER CMC 17.01.050:

EXISTING SITE PROPERTY SUMMARY

PARCEL NO 89884000	40,763 SF ± (0.94 AC)
PARCEL NO 89883000	30,265 SF ± (0.69 AC)
PARCEL NO 89881000	50,642 SF ± (1.16 AC)
PARCEL NO 89875000	6,959 SF ± (0.16 AC)

TOTAL PROJECT SITE	128,629 SF ± (2.95 AC)
RIGHT-OF-WAY DEDICATION	5,843 SF ± (0.13 AC)
SITE AFTER DEDICATION	122,786 SF ± (2.82 AC)
TOTAL (PROPOSED) LOT AREA	40,113 SF ± (0.92 AC)
TOTAL INFRASTRUCTURE (TRACT A)	36,880 SF ± (0.85 AC)
TOTAL TRACT AREA	82,673 SF ± (1.90 AC)
TOTAL CONSERVATION AREA (TR B)	45,793 SF ± (1.05 AC)

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PROJECT TEAM

REVIEWED BY: B.DICKERSON
DESIGNED BY: S.NGUY

SHEET NAME

PRELIMINARY PARTITION PLAN

SHEET NUMBER

P-1.0

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EXHIBIT 7
SUB 20-01

abbaté designs

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT

G. MICHAEL ABBATÉ

CERTIFICATE NO. 674

ABBATE DESIGNS LLC
LANDSCAPE ARCHITECTURE
1236 NE MARKET DRIVE
FAIRVIEW, OR 97204
971-404-8670
www.abbatedesigns.com

WASHOUGAL RIVER OAKS

2531 NE 3rd Avenue
CAMAS, WA 98607

PRELIMINARY NOT FOR CONSTRUCTION

PROJECT	DATE
1917.1	3.14.20
DRAWN	CHECKED

REVISED

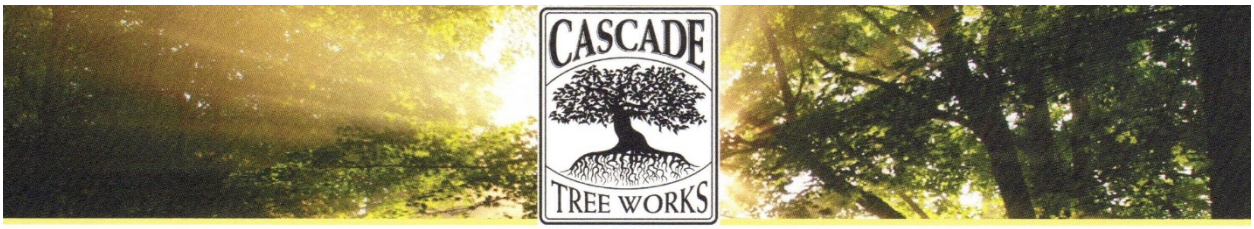
SHEET TITLE

SITE PLAN

SHEET

L1.0

ORIGINAL SHEET SIZE
22" x 34"



Cascade Tree Works LLC

To whom it may concern: September 18, 2020

Oak tree appears healthy with a live crown ratio of approx. 95%, good structure and no signs of die back at the time of inspection.

Tulip tree appears healthy with a live crown ratio of approx. 85%, good structure, but the Wisteria vine that has attached itself to approx. 20-25% of the Tulips limbs and leaves and has reached the top. Has 1 broken top in the upper crown.

I would give an overall health assessment of fair, until Wisteria can be removed as this will likely to continue to put the Tulip tree under stress and excessive weight, increasing likelihood of limb and branch failure along with competition for resources.

Both trees will need established “TPZ” (tree protection zones) during construction to preserve roots and minimize impact during the construction process.

The other trees on the property, most are volunteer and do not contain any protected species, varying in health and aesthetic quality. Retention is not recommended.

Richard Kemmerly PN #8285A
Cascade Tree Works LLC
360-718-7108
Cascadetreeworkswa.com
UBI# 603-180-550
Cont# CASCATW889C

TREE EXHIBIT

LOCATED IN THE E 1/2, DAVID C. PARKER D.L.C. NO. 48
BEING A PORTION OF THE NW 1/4 & THE SW 1/4 OF
THE NE 1/4 OF SECTION 12, T. 1N., R. 3E., W.M.
CITY OF CAMAS, COUNTY CLARK, STATE OF WASHINGTON

Point No.	Type	Scientific Name	Height	Health
2000	White Oak	Quercus alba	41.5"	Good
2001	Honey Locust	Gleditsia triacanthos	7"	Good
2002	Honey Locust	Gleditsia triacanthos	6"	Good
2003	Honey Locust	Gleditsia triacanthos	6"	Good
2004	Honey Locust	Gleditsia triacanthos	5.7"	Good
2005	Honey Locust	Gleditsia triacanthos	6"	Good
2006	Cedar (Western)	Thuja plicata	16"	Dead
2007	White Oak	Quercus alba	24"	Good
2008	Honey Locust	Gleditsia triacanthos	4"	Good
2009	Siberian Elm	Ulmus pumila	13.5"	Good
2010	Siberian Elm	Ulmus pumila	31"	Decline/Bad
2011	Hawthorn	Crataegus	5.5"	Fair
2012	Honey Locust	Gleditsia triacanthos	25"	Good
2013	Honey Locust	Gleditsia triacanthos	17"	Good
2014	Honey Locust	Gleditsia triacanthos	24"	Good
2015	Multi Stem Laurel	Laurus nobilis	3"-6"	Good
2016	Multi Stem Cedar	Thuja plicata	24"	Dead
2017	Bigleaf Maple	Acer macrophyllum	17"	Good
2018	Douglas Fir	Pseudotsuga menziesii	14"	Good
2019	Bigleaf Maple	Acer macrophyllum	9"	Good
2020	Native Pear	Pyrus communis	5"	Fair
2021	American Holly	Ilex opaca	13"	Good
2022	Bigleaf Maple	Acer macrophyllum	17"	Good
2023	Common Cherry	Prunus avium	12"	Good
2024	Bigleaf Maple	Acer macrophyllum	13"	Good
2025	Alder	Alnus	9"	Good
2026	Common Cherry	Prunus avium	6"	Good
2027	Common Cherry	Prunus avium	4"	Good
2028	Tulip Tree	Liriodendron	44"	Fair
2029	Pear	Pyrus communis	7"	Declining
2030	Pear	Pyrus communis	5"	Fair
2031	Pear	Pyrus communis	8"	Fair
2032	Pear	Pyrus communis	18"	Fair
2033	White Oak	Quercus alba	9"	Good
2034	Apple	Malus domestica	35"	Fair
2035	Red Alder	Alnus rubra	13"	Fair
2036	Red Alder	Alnus rubra	9"	Fair
2037	Common Cherry	Prunus avium	4"	Fair
2038	Douglas Fir	Pseudotsuga menziesii	24"	Good
2039	Holly Clump	Ilex	4-10"	Fair
2040	American Holly	Ilex opaca	11"	Fair
2041	Douglas Fir	Pseudotsuga menziesii	60"	Good
2042	Bigleaf Maple	Acer macrophyllum	5"	Fair
2043	Bigleaf Maple	Acer macrophyllum	5"	Fair
2044	Filbert	Corylus maxima	4"	Fair
2045	Blue Spruce	Picea pungens	19"	Good
2046	Filbert	Corylus maxima	3"	Fair
2047	Pear	Pyrus communis	27"	Declining
2048	Common Cherry	Prunus avium	14"	Dead
2049	Filbert Clump	Corylus maxima	2-4"	Fair
2050	American Holly	Ilex opaca	2"	Fair
2051	Bigleaf Maple	Acer macrophyllum	14"	Fair
2052	Douglas Fir	Pseudotsuga menziesii	11"	Fair
2053	American Holly	Ilex opaca	3"	Fair
2054	Douglas Fir	Pseudotsuga menziesii	28"	Fair
2055	Bigleaf Maple	Acer macrophyllum	22"	Fair
2056	Bigleaf Maple	Acer macrophyllum	14"	Poor
2057	American Holly	Ilex opaca	5"	Fair
2058	Bigleaf Maple	Acer macrophyllum	16-18" Clump	Good
2059	White Oak	Quercus alba	17"	Declining
2060	Douglas Fir	Pseudotsuga menziesii	6"	Fair
2061	Douglas Fir	Pseudotsuga menziesii	33"	Good
2062	American Holly	Ilex opaca	5"	Fair
2063	Bigleaf Maple	Acer macrophyllum	24"	Fair
2064	Bigleaf Maple	Acer macrophyllum	6-14" Clump	Good
2065	Douglas Fir	Pseudotsuga menziesii	27"	Good
2066	American Holly	Ilex opaca	4" Clump	Good
2067	Douglas Fir	Pseudotsuga menziesii	43"	Good
2068	Bigleaf Maple	Acer macrophyllum	13"	Good
2067	Douglas Fir	Pseudotsuga menziesii	40"	Good
2068	Bigleaf Maple	Acer macrophyllum	26"	Fair
2069	Holly Clump	Ilex	2-5"	Fair
2070	Douglas Fir	Pseudotsuga menziesii	10"	Fair
2071	Douglas Fir	Pseudotsuga menziesii	49"	Good
2072	Common Cherry	Prunus avium	11"	Fair

Point No.	Type	Scientific Name	Height	Health
2073	Spruce	Picea	16"	Declining
2074	Douglas Fir	Pseudotsuga menziesii	25"	Good
2075	Douglas Fir	Pseudotsuga menziesii	19"	Good
2076	Douglas Fir	Pseudotsuga menziesii	33"	Good
2077	Bigleaf Maple	Acer macrophyllum	13"	Good
2078	Bigleaf Maple	Acer macrophyllum	12"	Good
2079	Bigleaf Maple	Acer macrophyllum	13"	Good
2080	Douglas Fir	Pseudotsuga menziesii	12"	Good
2081	Bigleaf Maple	Acer macrophyllum	10"	Fair
2082	Douglas Fir	Pseudotsuga menziesii	8"	Fair
2083	Douglas Fir	Pseudotsuga menziesii	19"	Good
2084	Bigleaf Maple	Acer macrophyllum	19"	Fair
2085	Bigleaf Maple	Acer macrophyllum	16"	Fair
2086	Bigleaf Maple	Acer macrophyllum	21"	Bad/Poor
2087	Bigleaf Maple	Acer macrophyllum	18"	Bad/Poor
2088	Bigleaf Maple	Acer macrophyllum	16"	Bad/Poor
2089	Douglas Fir	Pseudotsuga menziesii	38"	Good
2090	Douglas Fir	Pseudotsuga menziesii	39"	Good
2091	Bigleaf Maple	Acer macrophyllum	16"	Fair
2092	Bigleaf Maple	Acer macrophyllum	13"	Fair
2093	Bigleaf Maple	Acer macrophyllum	18"	Fair
2094	Bigleaf Maple	Acer macrophyllum	12"	Poor
2095	Douglas Fir	Pseudotsuga menziesii	43"	Good
2096	White Oak	Quercus alba	14"	Fair
2097	White Oak	Quercus alba	8"	Poor
2098	Douglas Fir	Pseudotsuga menziesii	8"	Fair
2099	Douglas Fir	Pseudotsuga menziesii	8"	Fair
2100	White Oak	Quercus alba	11"	Poor
2101	Douglas Fir	Pseudotsuga menziesii	6"	Poor
2102	White Oak	Quercus alba	27"	Good
2103	Green Ash	Fraxinus pennsylvanica	26"	Fair
2104	Bigleaf Maple	Acer macrophyllum	20"	Fair
2105	Bigleaf Maple	Acer macrophyllum	20"	Poor
2106	Bigleaf Maple	Acer macrophyllum	33"	Poor
2107	Bigleaf Maple	Acer macrophyllum	20"	Fair
2108	White Oak	Quercus alba	12"	Fair
2109	Bigleaf Maple	Acer macrophyllum	12"	Fair
2110	Bigleaf Maple Clump	Acer macrophyllum	4"-13"	Poor
2111	Laurel Clump	Kalmia polifolia	2"-8"	Fair
2112	Douglas Fir	Pseudotsuga menziesii	28"	Good

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	108.86'	10000.00'	0°37'25"	N88°16'33"W	108.86'
C2	30.22'	10000.00'	0°10'23"	N88°40'27"W	30.22'
C3	78.67'	10000.00'	0°27'03"	N88°59'10"W	78.67'
C4	217.75'	10000.00'	1°14'52"	N88°35'16"W	217.75'
C5	8.43'	10050.00'	0°02'53"	S87°59'17"E	8.43'
C6	19.90'	10050.00'	0°06'48"	N88°39'54"W	19.90'
C8	54.78'	4728.35'	0°39'50"	N88°39'51"W	54.78'
C9	48.96'	4728.35'	0°35'36"	N88°02'08"W	48.96'

BASIS OF BEARINGS

WASHINGTON STATE PLANE COORDINATES SYSTEM SOUTH ZONE, GRID NORTH, GROUND DISTANCE, ESTABLISHED BY G.P.S. OBSERVATION BETWEEN MONUMENTS 252 AND 253

40' 0 40' 80'
SCALE - FEET
1" = 40'

VERTICAL DATUM

BRASS CAP AT THE SOUTHEAST CORNER OF NE 3RD AVENUE AND NE 3RD AVENUE LOOP NEXT TO 2504 NE 3RD AVENUE, END OF CURB RETURN. ELEVATION = 37.31 FEET PER CITY OF CAMAS ENGINEERING DEPARTMENT

LEGEND

- EDGE OF ASPHALT
- CURB AND GUTTER
- EDGE OF GRAVEL
- W — WATER MAIN
- WS — WATER SERVICE
- S — SANITARY SEWER MAIN
- SD — STORM DRAIN
- AP — AERIAL POWER LINE
- BE — BURIED ELECTRIC LINE
- AT — AERIAL TELEPHONE LINE
- T — BURIED TELEPHONE LINE
- ATV — AERIAL CABLE TELEVISION
- G — GAS MAIN
- X — FENCE
- RETAINING WALL
- CONTOUR (1 FOOT INTERVAL)
- GRAVEL DRIVEWAY
- CONCRETE SIDEWALK
- BUILDING
- ASPHALT AREA
- W/V — WATER VALVE
- FIRE HYDRANT
- WM — WATER METER
- SV — IRRIGATION WATER VALVE
- S — SANITARY SEWER MANHOLE
- D — STORM DRAIN MANHOLE
- STORM DRAIN INLET
- POWER POLE
- LIGHT POLE
- EVERGREEN TREE (SIZE AS NOTED)
- DECIDUOUS TREE (SIZE AS NOTED)
- MB — MAIL BOX
- FOUND MONUMENT
- CONTROL POINT
- RM — REFERENCE MONUMENT
- FD — FOUND DISTANCE
- R.O.S. — RECORD OF SURVEY

SHEET 1 OF 1
WILLAMETTE MERIDIAN
CLARK COUNTY, WASHINGTON

1/4 SEC	T.	R.
12	1N.	3E.

Type	Scientific Name	Height	Location		Health
White Oak	Quercus alba	41.5"	45.58864	122.380740	Good
Honey Locust	Gleditsia triacanthos	7"	45.58872	122.38065	Good
Honey Locust	Gleditsia triacanthos	6"	45.58875	122.38063	Good
Honey Locust	Gleditsia triacanthos	6"	45.58876	122.38063	Good
Honey Locust	Gleditsia triacanthos	5.7"	45.58874	122.38054	Good
Honey Locust	Gleditsia triacanthos	6"	45.58875	122.38053	Good
Cedar (Western)	Thuja plicata	16"	455.5887	122.28054	Dead
White Oak	Quercus alba	24"	45.58871	122.38042	Good
Honey Locust	Gleditsia triacanthos	4"	45.58874	122.38039	Good
Siberian Elm	Ulmus pumila	13.5"	45.58874	122.38035	Good
Siberian Elm	Ulmus pumila	31"	45.58893	122.38048	Decline/Bad
Hawthorn	Crataegus	5.5"	45.58894	122.38044	Fair
Honey Locust	Gleditsia triacanthos	25"	45.58870	122.38040	Good
Honey Locust	Gleditsia triacanthos	17"	45.58876	122.38031	Good
Honey Locust	Gleditsia triacanthos	24"	45.58877	122.38032	Good
Multi Stem Laurel	Laurus nobilis	3"-6"	45.58871	122.38089	Good
Multi Stem Cedar	Thuja plicata	24"	45.58906	122.38063	Dead
Bigleaf Maple	Acer macrophyllum	17"	45.58916	122.38054	Good
Douglas Fir	Pseudotsuga menziesii	14"	45.58918	122.38051	Good
Bigleaf Maple	Acer macrophyllum	9"	45.58918	122.38050	Good
Native Pear	Pyrus communis	5"	45.58907	122.38039	Fair
American Holly	Ilex opaca	13"	45.58916	122.38053	Good
Bigleaf Maple	Acer macrophyllum	17"	45.58918	122.38054	Good
Common Cherry	Prunus avium	12"	45.58920	122.38056	Good
Bigleaf Maple	Acer macrophyllum	13"	45.58919	122.38072	Good
Alder	Alnus	9"	45.58942	122.38096	Good
Common Cherry	Prunus avium	6"	45.58944	122.38076	Good
Common Cherry	Prunus avium	4"	45.58944	122.38076	Good
Tulip Tree	Liriodendron	44"	45.58917	122.38071	Fair
Pear	Pyrus communis	7"	45.58936	122.38075	Declining
Pear	Pyrus communis	5"	45.58931	122.38034	Fair
Pear	Pyrus communis	8"	45.58931	122.38046	Fair
Pear	Pyrus communis	18"	45.58927	122.38033	Fair
White Oak	Quercus alba	9"	45.58921	122.38028	Good
Apple	Malus domestica	35"	45.58929	122.38028	Fair
Red Alder	Alnus rubra	13"	45.58926	122.38060	Fair
Red Alder	Alnus rubra	9"	45.58936	122.38063	Fair
Common Cherry	Prunus avium	4"	45.58936	122.38063	Fair
Douglas Fir	Pseudotsuga menziesii	24"	45.58939	122.35064	Good
Holly Clump	Ilex	4-10"	45.58939	122.38084	Fair
American Holly	Ilex opaca	11"	45.58936	122.38091	Fair
Douglas Fir	Pseudotsuga menziesii	60"	45.58956	122.38092	Good
Bigleaf Maple	Acer macrophyllum	5"	45.58953	122.58079	Fair
Bigleaf Maple	Acer macrophyllum	5"	45.58953	122.58079	Fair
Filbert	Corylus maxima	4"	45.58950	122.38061	Fair

Blue Spruce	Picea pungens	19"	45.58942	122.38039	Good
Filbert	Corylus maxima	3"	45.58947	122.38026	Fair
Pear	Pyrus communis	27"	45.58942	122.38037	Declining
Common Cherry	Prunus avium	14"	45.58958	122.38044	Dead
Filbert Clump	Corylus maxima	2-4"	45.58955	122.38029	Fair
American Holly	Ilex opaca	2"	45.58967	122.38047	Fair
Bigleaf Maple	Acer macrophyllum	14"	45.58964	122.38043	Fair
Douglas Fir	Pseudotsuga menziesii	11"	45.58960	122.38049	Fair
American Holly	Ilex opaca	3"	45.58957	122.38054	Fair
Douglas Fir	Pseudotsuga menziesii	28"	45.58974	122.38048	Fair
Bigleaf Maple	Acer macrophyllum	22"	45.58966	122.38038	Fair
Bigleaf Maple	Acer macrophyllum	14"	45.58966	122.38034	Poor
American Holly	Ilex opaca	5"	45.58968	122.38041	Fair
Bigleaf Maple	Acer macrophyllum	16-18" Clump	45.58959	122.38033	Good
White Oak	Quercus alba	17"	45.58968	122.38044	Declining
Douglas Fir	Pseudotsuga menziesii	6"	45.58974	122.38036	Fair
Douglas Fir	Pseudotsuga menziesii	33"	45.58977	122.38045	Good
American Holly	Ilex opaca	5"	45.58977	122.38045	Fair
Bigleaf Maple	Acer macrophyllum	24"	45.58968	122.38059	Fair
Bigleaf Maple	Acer macrophyllum	6-14" Clump	45.58972	122.38053	Good
Douglas Fir	Pseudotsuga menziesii	27"	45.58976	122.38055	Good
American Holly	Ilex opaca	4" Clump	45.58975	122.38065	Good
Douglas Fir	Pseudotsuga menziesii	43"	45.58972	122.38069	Good
Bigleaf Maple	Acer macrophyllum	13"	45.58961	122.38062	Good
Douglas Fir	Pseudotsuga menziesii	40"	45.58952	122.38073	Good
Bigleaf Maple	Acer macrophyllum	26"	45.58959	122.38060	Fair
Holly Clump	Ilex	2-5"	45.58953	122.38052	Fair
Douglas Fir	Pseudotsuga menziesii	10"	45.58953	122.38072	Fair
Douglas Fir	Pseudotsuga menziesii	49"	45.58956	122.38064	Good
Common Cherry	Prunus avium	11"	45.58942	122.38064	Fair
Spruce	Picea	16"	45.58942	122.28064	Declining
Douglas Fir	Pseudotsuga menziesii	25"	45.58962	122.38082	Good
Douglas Fir	Pseudotsuga menziesii	19"	45.58961	122.38080	Good
Douglas Fir	Pseudotsuga menziesii	33"	45.58965	122.38077	Good
Bigleaf Maple	Acer macrophyllum	13"	45.58969	122.38082	Good
Bigleaf Maple	Acer macrophyllum	12"	45.58969	122.38082	Good
Bigleaf Maple	Acer macrophyllum	13"	45.58969	122.38082	Good
Douglas Fir	Pseudotsuga menziesii	12"	45.58977	122.38086	Good
Bigleaf Maple	Acer macrophyllum	10"	45.58959	122.38083	Fair
Douglas Fir	Pseudotsuga menziesii	8"	45.58969	122.38088	Fair
Douglas Fir	Pseudotsuga menziesii	19"	45.58944	122.38079	Good
Bigleaf Maple	Acer macrophyllum	19"	45.58953	122.38083	Fair
Bigleaf Maple	Acer macrophyllum	16"	45.58962	122.38097	Fair
Bigleaf Maple	Acer macrophyllum	21"	45.58975	122.38098	Bad/Poor
Bigleaf Maple	Acer macrophyllum	18"	45.58975	122.38098	Bad/Poor
Bigleaf Maple	Acer macrophyllum	16"	45.58975	122.38098	Bad/Poor
Douglas Fir	Pseudotsuga menziesii	38"	45.58947	122.38097	Good

Douglas Fir	Pseudotsuga menziesii	39"	45.58957	122.38107	Good
Bigleaf Maple	Acer macrophyllum	16"	45.58967	122.38107	Fair
Bigleaf Maple	Acer macrophyllum	13"	45.58957	122.38102	Fair
Bigleaf Maple	Acer macrophyllum	18"	45.58957	122.38125	Fair
Bigleaf Maple	Acer macrophyllum	12"	45.58957	122.38113	Poor
Douglas Fir	Pseudotsuga menziesii	43"	45.58961	122.38115	Good
White Oak	Quercus alba	14"	45.58957	122.38101	Fair
White Oak	Quercus alba	8"	45.58957	122.38100	Poor
Douglas Fir	Pseudotsuga menziesii	8"	45.58955	122.38108	Fair
Douglas Fir	Pseudotsuga menziesii	8"	45.58956	122.38119	Fair
White Oak	Quercus alba	11"	45.58953	122.38117	Poor
Douglas Fir	Pseudotsuga menziesii	6"	45.58944	122.38113	Poor
White Oak	Quercus alba	27"	45.58952	122.38111	Good
Green Ash	Fraxinus pennsylvanica	26"	45.58933	122.38111	Fair
Bigleaf Maple	Acer macrophyllum	20"	45.58925	122.38119	Fair
Bigleaf Maple	Acer macrophyllum	20"	45.58925	122.38119	Poor
Bigleaf Maple	Acer macrophyllum	33"	45.58922	122.38115	Poor
Bigleaf Maple	Acer macrophyllum	20"	45.58929	122.38099	Fair
White Oak	Quercus alba	12"	45.58922	122.38103	Fair
Bigleaf Maple	Acer macrophyllum	12"	45.58924	122.38113	Fair
Bigleaf Maple Clump	Acer macrophyllum	4"-13"	45.58921	122.38096	Poor
Laurel Clump	Kalmia polifolia	2"-8"	45.58895	122.38109	Fair
Douglas Fir	Pseudotsuga menziesii	28"	45.58941	122.38123	Good

CRITICAL AREAS REPORT & OAK MITIGATION PLAN

Project:

Washougal River Oaks Subdivision

Applicant:

Bryan Desgrossellier (DD&C Development, Inc.)
3100 E. Evergreen Blvd.
Vancouver, WA 98661

Prepared By:

Ash ECO SOLUTIONS, LLC

August 19, 2021

The information in this report was compiled to meet the requirements of the City of Camas Municipal Code (CMC) Section 16.61 Fish and Wildlife Habitat Conservation Areas. This report has been prepared under the supervision and direction of the undersigned, a qualified professional following CMC Section 16.61.020.A.

Andrea W. Aberle
Sr. Biologist
AshEco Solutions, LLC

SITE INFORMATION:

Parcel No(s):	89884000 (0.94 ac), 89883000 (0.69 ac), 89881000 (1.16 ac), 89875000 (0.16 ac)
Acreage:	Total: 2.95 acres
Local Jurisdiction:	City of Camas, Washington
Section/Township/Range:	NE 1/4, S12, T1N, R3E W.M.
Site Address:	2531 NE 3rd Ave Camas, WA 98607
Legal Landowner:	Kevin and Pamela Desgrossellier/ Washougal River Property/ Bryan and Lindsey Desgrossellier

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INTRODUCTION

Project Description

AshEco Solutions, LLC (AES) was contracted by Bryan Desgrossellier of Desgrossellier Development, Inc. (DD&C) to assess potential Oak Woodland Habitat mapped over four parcels under DD&C ownership located in Camas, Washington. The existing conditions and critical area impacts associated with the proposed project were assessed and appropriate mitigation determined. This Critical Areas Report and Oak Mitigation Plan follows the City of Camas Municipal Code (CMC) Sections 16.61 Fish and Wildlife Habitat Conservation Areas. DD&C proposes the construction of 22 cottage housing units within the southern terrace of the 2.95-acre study area.

Project Location and Background Information

The project site consists of four parcels under the jurisdiction of the City of Camas, Washington. The City of Camas (The City) has assigned Parcel Number 89884000 to the eastern parcel (0.94 acres), 89883000 to the north central parcel (0.69 acres), 89881000 to the western parcel (1.16 acres), and 89875000 to the south-central parcel (0.16 acres). The total study area is approximately 2.95 acres in size and is located directly north of NE 3rd Avenue in Camas, Washington.

EXISTING CONDITIONS

Three single-family residences are present in the southwestern corner of the project site. A rock outcropping and outbuilding structure in disrepair are present north of the three homes in the western portion of the site. Site access for the existing residences is located off of NE Wedgewood Court from NE 3rd Avenue. The rest of the site is undeveloped, with the northern portion of the site dominated in mature trees along a steep south facing slope. Native trees that dominate this forested area include big-leaf maple, Douglas-fir, red alder, and several Oregon white oak near the western property line. The understory of the forested area is dominated in invasive English ivy, English holly, Himalayan blackberry, wisteria, and poison hemlock. Native understory vegetation present include swordfern, salal, Oregon grape, poison oak, trailing blackberry, and vine maple. The native vegetation is being out competed by the English ivy and holly with many trees covered in ivy vines.

AES visited the site February 17, 2021 to inventory the Oregon white oak habitat as well as review the proposed site plan to determine if oaks would be impacted. AES returned August 6, 2021 along with Brandon Cheney of Arbor Science Tree Care to help determine the protections required for the oak trees that will be retained within the development area, Appendix B.

CRITICAL AREAS MAP RESEARCH

Topography

The site consists of a steep south facing slope with the vertical elevation dropping approximately one hundred and fifty (150) feet in elevation from the West S Street, north of the project site, to NE 3rd Avenue, south of the project site. A naturally flat terrace exists across the south end of the project site, Figure 2.

Soil Survey

Soils within the study area are mapped as non-hydric Hillsboro loam, 8 to 15 percent slopes (HIC), non-hydric Olympic stony clay loam, 3 to 30 percent slopes (OmE), and non-hydric Washougal gravelly loam, 0 to 8 percent slopes (WgB) by the NRCS USDA Soil Conservation Service, Soil Survey of Clark County (2014), Washington, Figure 3.

The Hillsboro series consists of deep, well-drained soils on terraces. These are medium-textured soils that developed in deposits of old Columbia River alluvium. Most areas are nearly level to gently sloping, but strongly sloping to very steep areas are along drainageways and streams. The native, vegetation is dominantly Douglas-fir and a scattering of grand fir, bigleaf maple, and western dogwood. The understory consists principally of salal, ferns, Oregon grape, and vine maple. The annual precipitation is 40 to 50 inches.

Hillsboro loam, 8 to 15 percent slopes (HlC) is similar to Hillsboro silt loam, 3 to 8 percent slopes, except that the surface layer is 1 to 3 inches thinner, and the texture is loam to a depth of about 36 inches, sandy loam between a depth of 36 and 48 inches, and sand between a depth of 48 and 62 inches. Surface runoff is medium, and the erosion hazard is moderate. The slopes are complex and rather short. The available water capacity is high.

The Olympic series consists of well-drained, gently sloping to very steep soils underlain by basalt bedrock at a depth of 40 inches or more. These are moderately fine textured soils that formed on mountainous foot slopes in weathered igneous lava flows. The original vegetation was Douglas-fir, grand fir, hemlock, western redcedar, and Oregon white oak. The understory plants were vine maple, salal, Oregon grape, ferns, and grasses. The annual precipitation is 45 to 80 inches.

Olympic stony clay loam, 3 to 30 percent slopes (OmE) is on ridgetops, on long side slopes, and on short slopes along drainageways. It is similar to Olympic clay loam, 8 to 20 percent slopes, except that the surface layer is stony and the slope range is greater. The available water capacity is moderate. Surface runoff is slow to rapid, and the hazard of erosion is slight to severe.

The Washougal series consists of somewhat excessively drained, nearly level to very steep soils underlain by sand and gravel at a depth of 26 to 40 inches. These are loamy soils that formed on low terraces in alluvium deposited by swiftly flowing rivers and streams. Most of the material is of volcanic origin. The original vegetation was Douglas-fir, vine maple, dogwood, snowberry, blackberry, grasses, and ferns. The annual precipitation is 50 to 85 inches.

Washougal gravelly loam, 0 to 8 percent slopes (WgB) is on gravelly stream terraces along the East Fork of the Lewis, Little Washougal, and Washougal Rivers. In a typical profile the surface layer is gravelly loam about 22 inches thick. It is black in the upper part and very dark brown in the lower part. Below the surface layer is friable, dark-brown very gravelly loam about 8 inches thick. The next laver is dark-brown very gravelly coarse sandy loam about 6 inches thick. The underlying material, to a depth of 60 inches, is brown and gray sand, pebbles, and cobblestones. This soil is somewhat excessively drained. It is generally moderately permeable, but it is very rapidly permeable in the substratum. The available water capacity is moderate. Surface runoff is slow, and the hazard of erosion is slight. Most of this soil is in second-growth Douglas-fir, but red alder, grand fir, vine maple, and other shrubs fill in.

Mapped hydric soils do not necessarily mean that the area is a wetland; hydrology and wetland vegetation must be present to classify an area as a wetland. The same is true for soils that are not mapped as hydric. Wetlands can be found in areas without mapped hydric soils. No wetlands were identified onsite.

Priority Habitat

The Washington Department of Fish and Wildlife (WDFW) maps “Oak Woodlands” across the northern portion of the subject site, Figure 4. WDFW also maps a “Cave or Cave-rich Areas” within the general area,

though no evidence of caves were found onsite by AES during the site reconnaissance. AES does not concur with the "Oak Woodland" habitat mapped onsite by WDFW. Several individual Oregon white oak trees were identified onsite, but oak woodland habitat is not present.

METHODOLOGY

WDFW Priority Habitat

The subject site was evaluated for the presence of Priority Habitats as defined by WDFW Priority Habitats and Species (PHS) List 2008, specifically Oregon white oak woodlands as they are mapped onsite by WDFW and Clark County GIS.

WDFW defines Oregon White Oak Woodlands as "*stands of oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%; or where total canopy coverage of the stand is <25%, but oak accounts for at least 50% of the canopy coverage. The latter is often referred to as oak savanna. In non-urbanized areas west of the Cascades, priority oak habitat consists of stands > 0.4 ha (1.0 ac) in size. East of the Cascades, priority oak habitat consists of stands > 2 ha (5 ac) in size. In urban or urbanizing areas, single oaks or stands < 0.4 ha (1 ac) may also be considered a priority when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height [dbh]* (generally 20-inches dbh and greater), *are used by priority species, or have a large canopy). Oak woodlands in western Washington may contain understory plants indicative of Prairie*."

Habitats of Local Importance

Following CMC Chapter 16.61 - Fish And Wildlife Habitat Conservation Areas, Section: 16.61.010.A.3.a, individual Oregon white oak trees with a twenty-inch diameter at breast height (20-inches dbh), stands of Oregon white oak trees greater than one acre when they are found to be valuable to fish and wildlife (i.e., may include trees with cavities, large diameter breast height (twelve inches dbh), are used by priority species, or have a large canopy, and all Oregon white oak snags unless determined by an arborist to be a hazard, are considered Habitats of Local Importance.

DOCUMENTED VEGETATION

The forested vegetation onsite is dominated by Douglas-fir (*Pseudotsuga menzisii* FACU), big leaf maple (*Acer macrophyllum* FACU), red alder (*Alnus rubra* FAC) and Oregon white oak (*Quercus garryana* FACU). The understory is dominated by invasives including English ivy (*Hedera helix* FACU), holly (*Ilex aquifolium* FACU), Himalayan blackberry (*Rubus armeniacus* FAC), poison hemlock (*Conium maculatum* FAC), and wisteria (*Wisteria sp.*). Some native understory vegetation exists competing with the ivy and holly including sword fern (*Polystichum munitum* FACU), salal (*Gaultheria shallon* FACU), Oregon grape (*Mahonia nervosa* FACU), , poison oak (*Toxicodendron diversilobum* FAC), trailing blackberry (*Rubus ursinus* FACU), and vine maple (*Acer circinatum* FAC).

The indicator categories following the common and scientific name of each vegetation species indicate the likelihood of the species to be found in wetlands. Listed from most-likely to least-likely to be found in wetlands, the indicator 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.

CRITICAL AREA CONCLUSIONS

WDFW Priority Habitat

A mixed mature conifer and deciduous forest is present within the northern portion of the site. Four oak trees were identified within the western extent of the forested area, and a fifth individual oak identified near the southern property boundary, Figure 5. All five oak trees inventoried are considered individual oaks as they do not meet the criteria for an oak woodland. The understory of the forested area is highly constrained by invasive species, predominately English ivy which was also observed within many of the tree canopies. While there are several oaks present onsite, the quantity and coverage of oak does not meet the WDFW criteria of 25 percent stand density, one-acre in area, or 50 percent cover canopy coverage. The five Oregon white oak trees inventoried are mapped on Figures 5 and the oak details are provided in Table 1. AES does not concur with the "Oak Woodland" habitat mapped onsite by WDFW.

Habitats of Local Importance

Two of the five Oregon white oak trees (Oak #1 and Oak #2) inventoried onsite are over 20-inches dbh and therefore meet the criteria listed under CMC 16.61.010.A.3.a that defines Oregon white oak habitat of local importance. The project proposes the removal of one jurisdictional Oregon white oak tree (Oak #2, 27-inches dbh in size). Therefore, mitigation to offset the removal of this jurisdictional tree under CMC will be required. The following mitigation plan section details the mitigation measures proposed.

Table 1. Oregon White Oak Summary.

Oak Label	Size (dbh)	WDFW PHS &/or CMC Local Habitat of Importance Criteria Met *(Individual oak tree >20" dbh)*	Removal Proposed?
Oak #1	**42-inch**	**Yes**	No
Oak #2	**27-inch**	**Yes**	**Yes**
Oak #3	8-inch	No	Yes
Oak #4	10-inch	No	No
Oak #5	8-inch	No	No

MITIGATION PLAN

The below mitigation plan was developed following Camas Municipal Code (CMC) Section 16.61 Fish and Wildlife Habitat Conservation Areas. The project will offset the impacts proposed to allow for no net loss of habitat functions onsite.

Proposed Impacts

The proposed subdivision will retain the majority of the northern forested area present onsite. However, one jurisdictional Oregon white oak will be removed (Oak #2). The second jurisdictional oak (Oak #1) will be retained with protective measures implemented following the White Oak Mitigation and Protection Plan provided by Brandon Cheyney of Arbor Science Tree Care, August 11, 2021.

Avoidance and Minimization

The project has been designed to avoid direct impacts to the most significant Oregon white oak habitat present onsite (Oak #1, 42-inch dbh). Oak #2 (27-inch dbh) is located near a driveway entrance and parking area required along the western property line and cannot be avoided by the project. Reducing the square footage of buildings to alter the entrance of the road is financially unfeasible, and the need for housing within the City is great. Therefore, the impact to Oak #2 is unavoidable. This oak is an individual tree (not part of a larger grove) and located along the far western perimeter of the forested canopy, somewhat compromised due to the adjacent paved and fenced area associated with NE Wedgewood Court, directly west and within the dripline of the canopy. Oaks #4 and #5 proposed for retention are located north of Oak #2 and will benefit from the removal of Oak #2 over time allowing them to become more significant oak trees than they would be otherwise due to the cramped and overlapping canopy.

The project will also utilize the historically developed areas within the southern portion of the site within the southern portion of the subject site and avoid impacts to the mature forest habitat present along the hill slope area associated with the northern half of the project site.

Oregon White Oak Impacts and Mitigation

One jurisdictional Oregon white oak (Oak #1, 27-inch dbh) will be removed as a result of the proposed project. According to CMC Section 16.51.125(B) jurisdictional oak trees removed are to be mitigated for at a ratio of 2:1. The mitigation oak trees must be 2-inches in caliper size. The project proposes to mitigate for the removal of Oak #2 by installing 2 Oregon white oak trees of 2-inch caliper size directly north of the project limits, north of Oaks #4 and #5 onsite. This space is contiguous to the other remaining oak trees present within this area (Oaks #3, 4, and 5) and will have adequate area and sun, post project completion. See Figure 6.

The jurisdictional Oak #1 at the southern border of the property will be retained. An arborist has determined that the project will not impact the root system or damage the tree if the proper BMPs and protocols are followed during and post construction, Appendix B. Removal of the invasive ivy currently present and climbing Oak #1 has been initiated and will be completed by the end of the project. Some low-lying limbs will also be removed where they are in a precarious location adjacent to the telephone lines, and above the sidewalk north of North 3rd Avenue. No detrimental impacts to Oak #1 are anticipated. Protection will be put in place during construction and excavation activities, to protect Oak #1. Compensatory measures will need to be implemented if during construction the critical root mass of the tree is impacted.

Contingency Mitigation Plan

If impacts or removal of Oak #1 becomes unavoidable during or post construction, the priority tree will need to be mitigated for onsite. If Oak #1 is unavoidably impacted, it is to be replaced at a 2:1 ratio within the same mitigation area as Oak #2 onsite. The replacement oak trees will be 2-inches in caliper size following CMC Section 16.51.125(B).

Table 2. Oak Impacts & Mitigation Summary.

Oak Label	Impact	Mitigation
Oak #2	Oregon White Oak (27-inch dbh)	Oregon white oak installed onsite at a 2:1 Ratio (Two, 2-inch Caliper Oaks)

PLANTING PLAN

Site Preparation

1. Stake or flag the on-site mitigation area boundaries and install tree protection fencing.
2. Mow grasses, herbaceous vegetation and invasive species present within mitigation area prior to planting.
3. Apply herbicide as required to control invasive species prior to oak plantings.
4. Once English ivy appears suppressed by the initial herbicide application, the runners found at/around base of native tree trunks are to be cut, bagged, and disposed of at an approved offsite location as the stem and root fragments can re-sprout. Wearing of gloves is recommended to protect hands from the ivy's irritating sap.

   Additional English Ivy Control Methods (as Required):

- Plants can successfully be pulled from moist soils by hand in fall (or spring).
- Ivy stems or roots left in the soil (after initial control efforts) may re-sprout, so continual removal of sprouts may be needed.
- Ivy climbing trees can be cut from waist to chest height, pulling the lower part of the stems away from the base of the tree (to kill the upper portions of the vine). The leaves remaining in the tree on the cut stems will slowly die and fall off.
- Herbicide Application: Triclopyr amine (Garlon 3A, Brush-B-Gone, or Brush Killer) or triclopyr ester (Garlon 4, Pathfinder, or Vinex) or glyphosate (Accord, Glypro, or Rodeo). Application Rate: At least 41% active ingredient (3 lb ae or 4 lb ai) glyphosate
- Herbicide Application Methods:
- Basal Bark Application Method: Apply 33% dilution of triclopyr or glyphosate to exposed stems after stripping the leaves from stems near ground level.
- Cut Stem Application (most effective method): Cut each vine stem close to the ground and treat freshly cut surfaces (preferably within 5 minutes) with a 33% solution of triclopyr amine or glyphosate mixed in water. Do not dilute products such as Brush-B-Gone and Brush Killer. Roundup Pro Concentrate (50.2% formulation) may be diluted with water.
- Foliar Application: From summer to fall, foliar-apply a 2 to 5% solution of triclopyr ester mixed in water with a nonionic surfactant. Fully coat foliage. Some control may be possible with glyphosate as a 2 to 4% dilution using at least a 41% (3 lb ae or 4 lb ai glyphosate) but repeat applications will probably be necessary. Broadcast applications of triclopyr will cause less damage to desirable grasses (Pacific Northwest Weed Management Handbook).

Planting Methods

Plant in fall through early spring (October-April) at specified spacing following the planting plan.

Container/Ball and Burlap Stock

1. Dig hole using a tree shovel/auger/mini-excavator or comparable tool 16-inches wide and 4-inches deeper than the root system, scarify sides of hole to 4 inches. Remove plant from container and loosen roots with hand or score vertically on sides and bottom with knife. Set plant upright and plumb in hole so the crown is just above the finish grade. Ensure that roots are extended down entirely and do not bend upward.
2. Replace loose soil around plant and firmly compact the soil around the plant to eliminate air spaces. Do not use frozen soil for backfilling.
3. Firmly compact the soil around the planted species to eliminate air spaces.
4. Install woody mulch around the base of planted species to insulate plantings, maintain moisture content of soil and reduce invasive plant competition (when deemed necessary).
5. Irrigate according to performance standards for the first three summers after planting or as site and weather conditions warrant.

Planting Specifications

Planting will begin in Fall of 2021 or Spring of 2022 while onsite soils are more saturated (and stock is dormant). The following tables summarize the native plant selection, spacing, size, and quantity for the on-site mitigation area:

Table 3. Mitigation Planting Plan.

Common Name	*Scientific Name*	*Stock*	*Spacing*	*Quantity*
Oregon White Oak, FACU	*Quercus garryana*	2-inch caliper	20 ft.	2

Maintenance Plan

Maintenance at the on-site mitigation area covers a minimum of 5-years and will involve removing persisting invasive plant species in addition to watering and re-installing failed species as necessary. The maintenance will include the following activities when necessary:

1. Remove and control non-native/noxious vegetation around all newly installed plants. During years 1 through 5 invasive species will be removed and suppressed as often as necessary to meet a performance standard of no greater than 20 percent cover by invasive species, measured by monitoring plots.
2. Irrigate planted species as necessary during the dry season, approximately July 1 through October 15. Irrigation is recommended to occur on a two-week cycle (minimum) during the dry season for the first three years. Water will be provided by a temporary above-ground irrigation system or a water truck.
3. Replace dead or failed plants as described for the original installation to meet the minimum annual performance standard of 100% survival over the 5-year monitoring period.

Monitoring Plan

The mitigation site will be monitored for a 5-year period following project construction; monitoring will take place in years 1, 2, 3 and 5. Monitoring reports will be submitted to the City of Camas by the end of each monitored year. The goal of monitoring is to determine if the previously stated performance standards are being met. The mitigation area will be monitored once during the growing season, preferably during the same two-week period each year to better compare the data.

During the first annual monitoring and maintenance event, two representative photo plots will be selected in the mitigation area permanently marked with metal posts. Monitoring photo plot locations will be placed on an as-built drawing and included in the annual monitoring reports.

Monitoring Report Contents

The annual monitoring reports will contain at least the following:

- Location map and as-built drawing of mitigation area.
- Photographs from permanent photo points (x2 minimum).
- Historic description of project, including dates of plant installation, current year of monitoring, and restatement of mitigation goal.
- Documentation of plant survival, cover, and overall development of the plant community.
- Assessment of non-native, invasive plant species and recommendations for management.
- Summary of maintenance and contingency measures proposed for the next season and completed for the past season.

Contingency Plan

If the performance standards are not met by the fifth year following project completion, or at an earlier time if specified above, a contingency plan will be developed and implemented. All contingency actions will be undertaken only after consulting and gaining approval from the City of Camas. The applicant will be required to complete a contingency plan that describes (1) the causes of failure, (2) proposed corrective actions, (3) a schedule for completing corrective actions, and (4) whether additional maintenance and monitoring are necessary.

Site Protection

The on-site mitigation area will be owned and managed by the applicant or assignee. AshEco Solutions, LLC or similar entity will be responsible for supervising the maintenance and conducting the monitoring of the on-site mitigation area for the 5-year period at expense of the applicant. The applicant will establish and record a permanent and irrevocable conservation covenant on the mitigation property.

MITIGATION GOALS, OBJECTIVES AND PERFORMANCE STANDARDS

Objective 1: Replace the loss of one jurisdictional Oregon white oak tree (Oak #2) with two Oregon white oak trees (2-inch caliper in size) onsite.

Performance Standard 1a. Document the installation of the native Oregon white oak trees as specified by Table 3. Submit As-built documenting planting locations, plant species, and plant quantities.

Performance Standard 1b. In Years 1-5, planted species are to achieve 100 percent (100%) survival after the site is planted. (If dead plants are replaced to achieve the 100 percent survival rate, this performance standard will be met).

Performance Standard 1c. In All Years, non-native/invasive plant species will not exceed 20-percent (20%) aerial cover across the onsite mitigation area.

Objective 2: Retain and provide long-term protection for Oak #1.

Performance Standard 2a. Document the installation of tree protection fencing around Oak #1 before construction begins onsite.

Performance Standard 2b. Document the installation of mulch and other soil amendments/BMPs post construction activities as specified by the White Oak Mitigation and Protection Plan (Arbor Science Tree Care, August 11, 2021).

Objective 3: Provide long-term protection for the onsite mitigation area.
Performance Standard 3a. Record a conservation covenant with the City of Camas. This performance standard will be met when the Year 1 monitoring report is submitted that includes a copy of the conservation covenant.
Performance Standard 3b. Post permanent boundary signage every 100 feet along the southern edge of the onsite oak mitigation boundary *or as otherwise determined by the City of Camas permit conditions*. Signs are to read:

"Critical Area– Please Retain in a Natural State"

Signage will remain in legible condition; if they are missing or illegible, they will be replaced. This performance standard will be met when signs are reported to be in place in the final monitoring report.

CONCLUSIONS

The above sections outline how the proposed project will meet the Habitat Conservation Areas requirements of the CMC. AES does not concur with the mapping of WDFW Oregon White Oak woodlands onsite, with just five Oregon white oaks identified on site. All but one of the Oregon White Oaks trees will be retained. The oak proposed for removal (Oak #2) will be mitigated for onsite for no net loss of Oregon white oak habitat following CMC guidance and criteria. With issuance of the approved critical areas permits, the proposed Oregon white oak mitigation plantings will be implemented, and a conservation covenant recorded to protect the onsite critical areas under the applicant's ownership in perpetuity.

DISCLAIMER

This report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of our knowledge. It should be considered a preliminary mitigation plan and used at your own risk until it has been reviewed and approved in writing by the local agency with jurisdiction over the site. AES personnel base the above listed conclusions on standard scientific methodology and best professional judgment.

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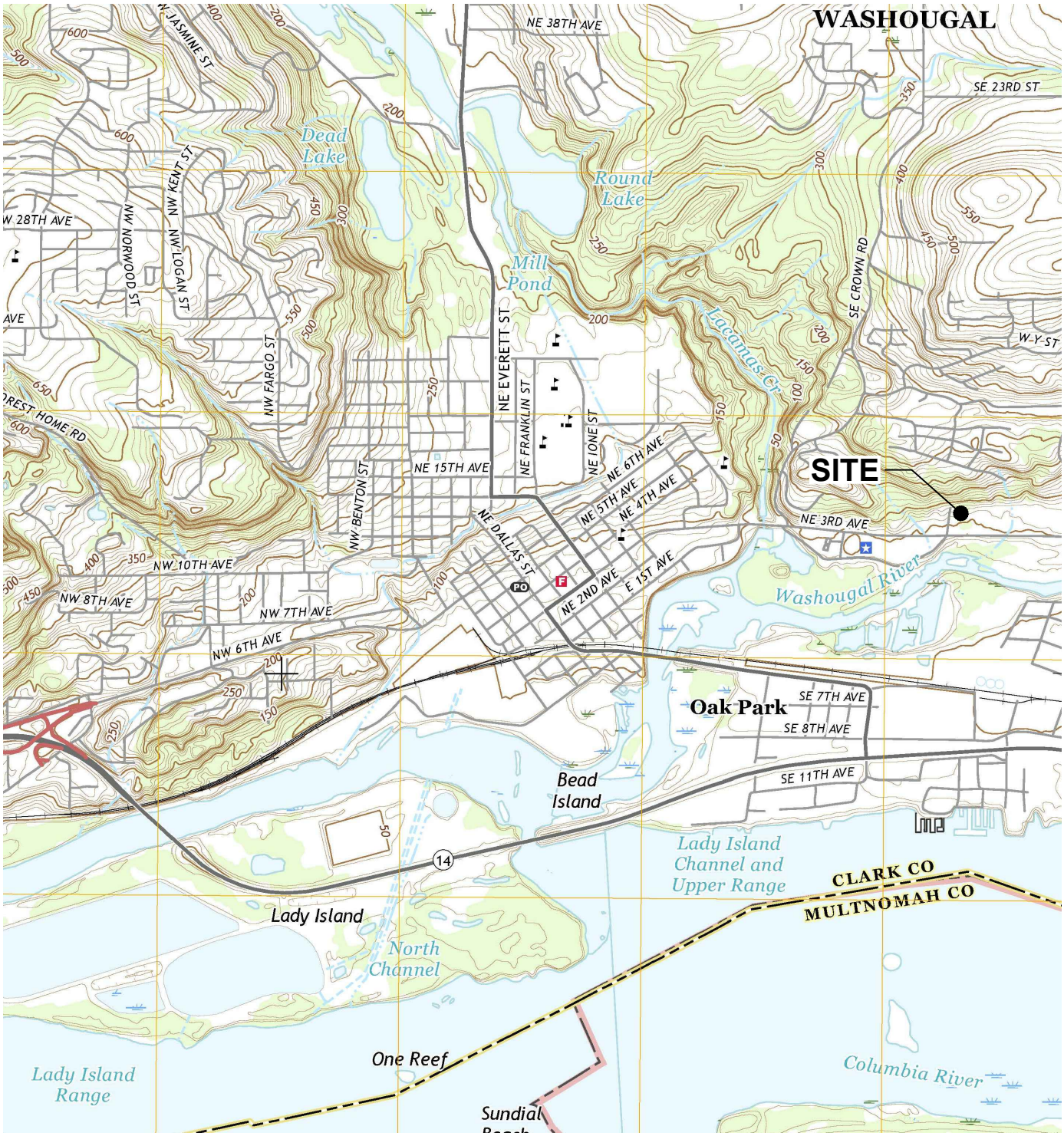

NOTE(S):
USGS, CAMAS QUADRANGLE
WASHINGTON-OREGON
7.5 MINUTE SERIES (TOPOGRAPHIC)

PURPOSE: XX Line 1 Line 2 **DATUM:** NAVD 88 **ADJACENT PROPERTY OWNERS:** Adj 1 Adj 2	VICINITY MAP **APPLICANT:** Brian Desgrossellier (DD&C Dev.) **PROJECT NAME:** Washougal River Oaks **PARCEL #:** 89884000, 89883000, 89881000, 89875000 **SITE LOCATION ADDRESS:** 2531 NE 3rd Ave.	**PROPOSED:** XX Add 2 **IN:** Camas **NEAR:** Vancouver **COUNTY:** Clark **STATE:** WA **FIGURE:** 1 **DATE:** 7-27-21

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Legend

- Taxlots
- Contour Lines - 10 ft
- All Roads
  - Interstate
  - State Route
  - Arterial
  - Forest Arterial
  - Minor Collector
  - Forest Collector
  - Private or Other
- Cities Boundaries
- Urban Growth Boundaries

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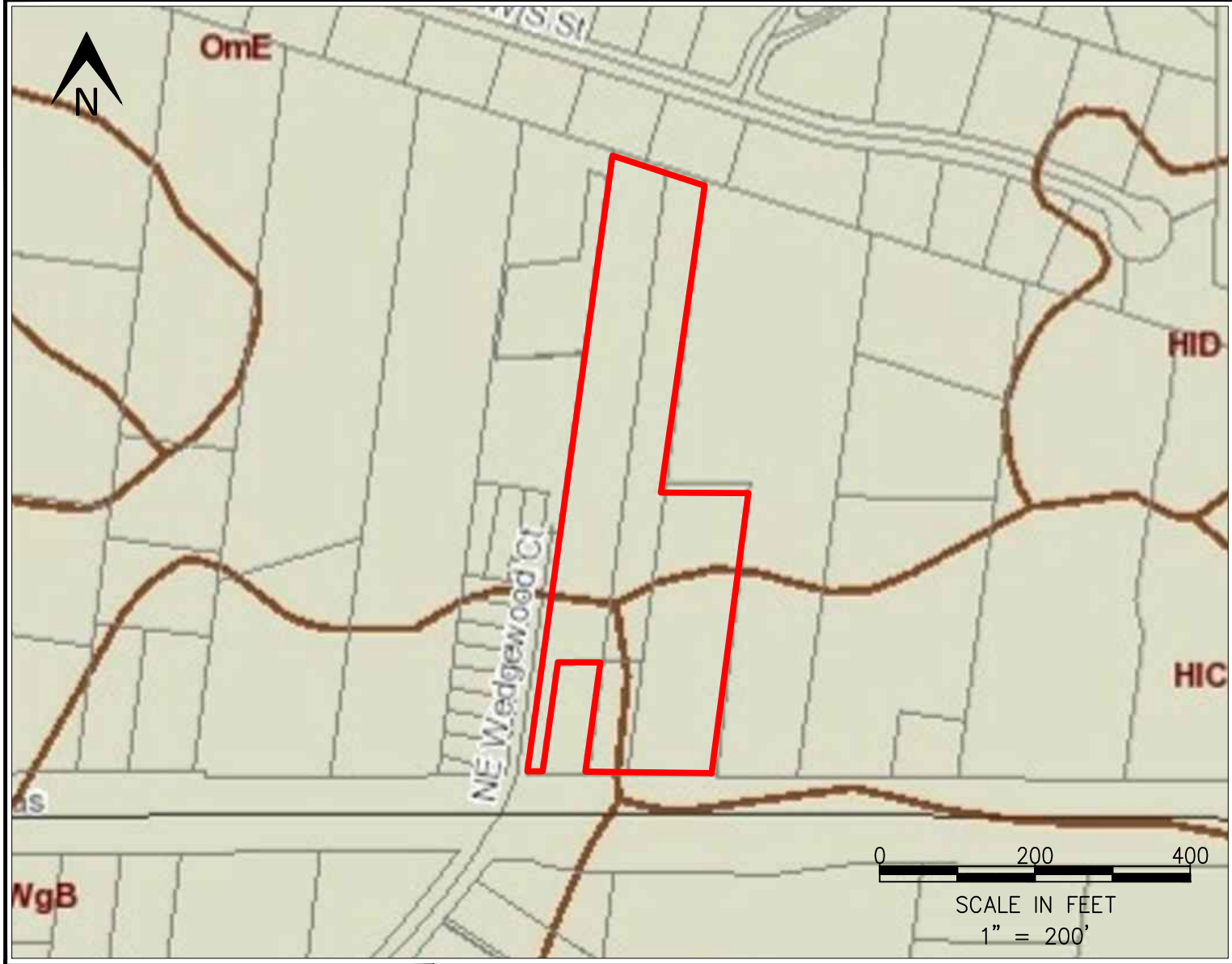
Ash ECO SOLUTIONS, LLC	**PURPOSE:** XX Line 1 Line 2 **DATUM:** NAVD 88 **ADJACENT PROPERTY OWNERS:** Adj 1 Adj 2	AERIAL PHOTO & TOPO MAP **APPLICANT:** Brian Desgrossellier (DD&C Dev.) **PROJECT NAME:** Washougal River Oaks **PARCEL #:** 89884000, 89883000, 89881000, 89875000 **SITE LOCATION ADDRESS:** 2531 NE 3rd Ave.	**PROPOSED:** XX Add 2 **IN:** Camas **NEAR:** Vancouver **COUNTY:** Clark **STATE:** WA **FIGURE:** 2 **DATE:** 7-27-21



Legend

- Taxlots
- Soil Type
- All Roads
  - Interstate
  - State Route
  - Arterial
  - Forest Arterial
  - Minor Collector
  - Forest Collector
  - Private or Other
- Cities Boundaries
- Urban Growth Boundaries

OmE - Olympic stony clay loam, 0-30% slopes

HiC - Hillsboro loam, 8-15% slopes

WgB - Washougal gravelly loam, 0-8% slopes

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AshECO SOLUTIONS, LLC	**PURPOSE:** XX Line 1 Line 2 **DATUM:** NAVD 88 **ADJACENT PROPERTY OWNERS:** Adj 1 Adj 2	SOIL SURVEY MAP **APPLICANT:** Brian Desgrossellier (DD&C Dev.) **PROJECT NAME:** Washougal River Oaks **PARCEL #:** 89884000, 89883000, 89881000, 89875000 **SITE LOCATION ADDRESS:** 2531 NE 3rd Ave.	**PROPOSED:** XX Add 2 **IN:** Camas **NEAR:** Vancouver **COUNTY:** Clark **STATE:** WA **FIGURE:** 3 **DATE:** 7-27-21

Parcels

Parcels

PHS on the Web

PHS Public Points

PHS Public Lines

PHS Public Polygon Outlines

AS MAPPED

Masked

PHS Public Polygons

AS MAPPED

SECTION

QTR-TWP

TOWNSHIP

WDFW - Oak Woodlands

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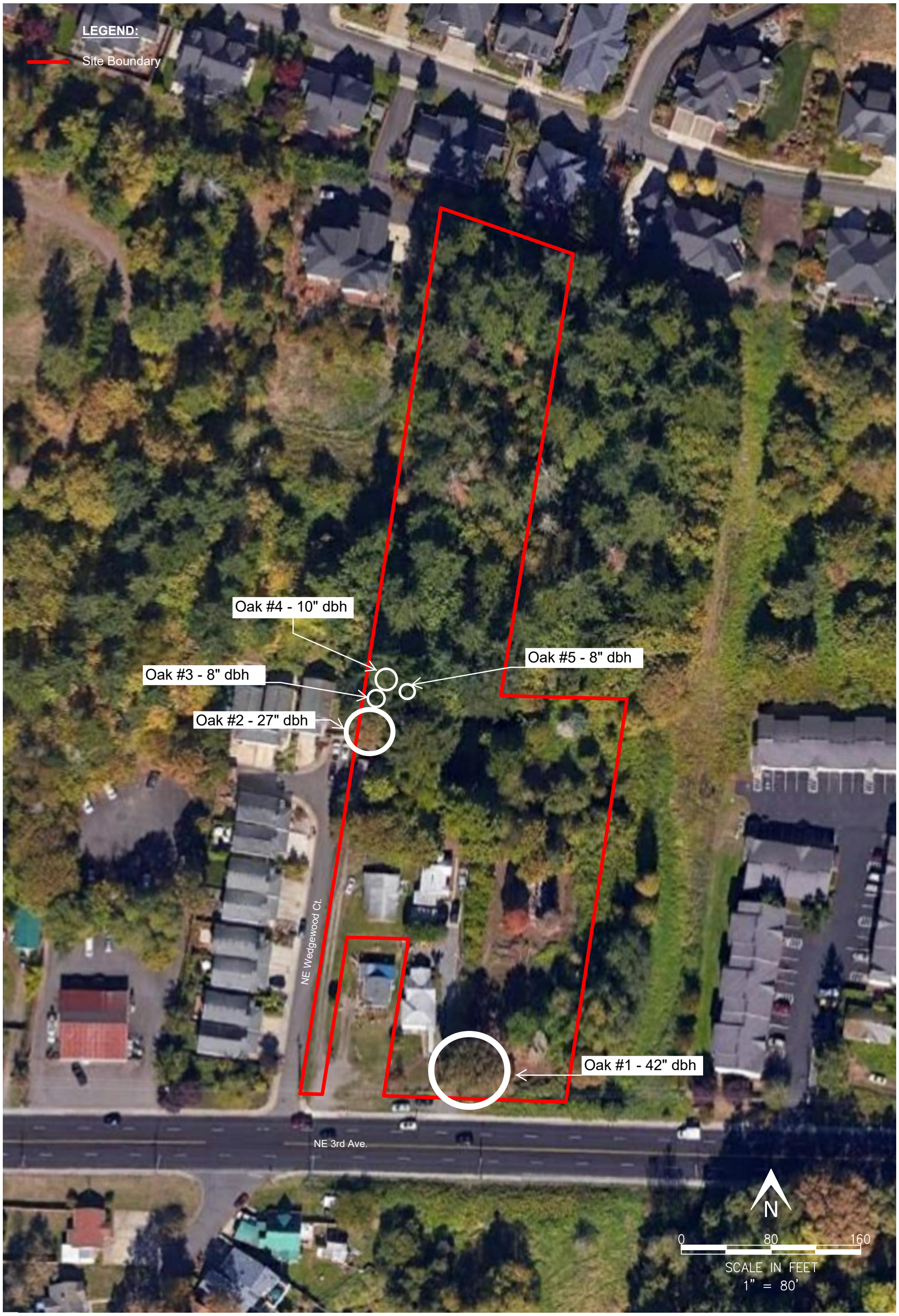
Ash ECO SOLUTIONS, LLC	**PURPOSE:** XX Line 1 Line 2 **DATUM:** NAVD 88 **ADJACENT PROPERTY OWNERS:** Adj 1 Adj 2	WDFW PRIORITY HABITAT & SPECIES MAP **APPLICANT:** Brian Desgrossellier (DD&C Dev.) **PROJECT NAME:** Washougal River Oaks **PARCEL #:** 89884000, 89883000, 89881000, 89875000 **SITE LOCATION ADDRESS:** 2531 NE 3rd Ave.	**PROPOSED:** XX Add 2 **IN:** Camas **NEAR:** Vancouver **COUNTY:** Clark **STATE:** WA **FIGURE:** 4 **DATE:** 7-27-21



AshECO SOLUTIONS, LLC	**PURPOSE:** XX Line 1 Line 2 **DATUM:** NAVD 88 **ADJACENT PROPERTY OWNERS:** Adj 1 Adj 2	EXISTING CONDITIONS MAP **APPLICANT:** Brian Desgrossellier (DD&C Dev.) **PROJECT NAME:** Washougal River Oaks **PARCEL #:** 89884000, 89883000, 89881000, 89875000 **SITE LOCATION ADDRESS:** 2531 NE 3rd Ave.	**PROPOSED:** XX Add 2 **IN:** Camas **NEAR:** Vancouver **COUNTY:** Clark **STATE:** WA **FIGURE:** 5 **DATE:** 8-16-21

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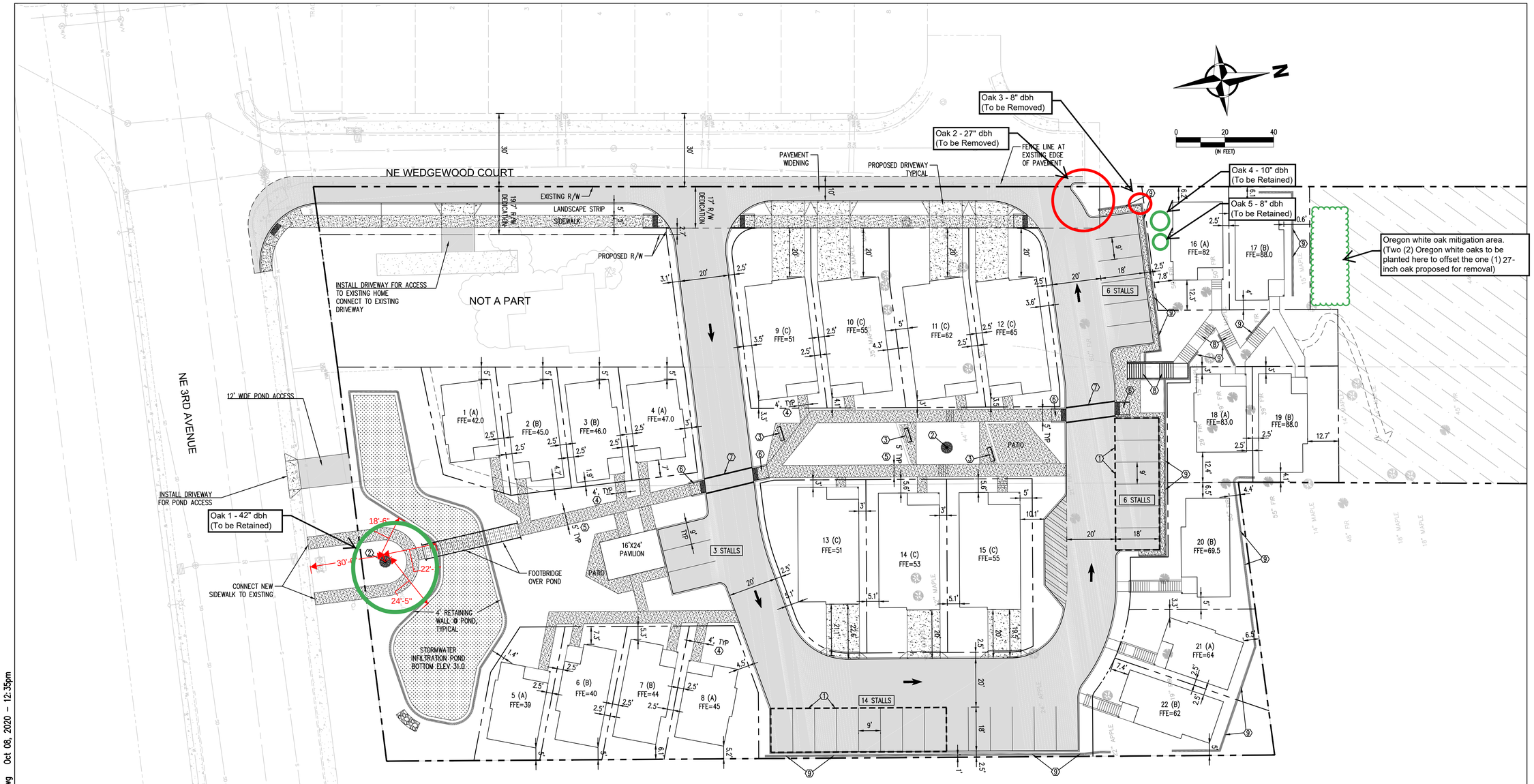


LEGEND

- PROPOSED COTTAGE UNITS
- PROPERTY LINE – REFER TO ALTA SURVEY
- CONCRETE VERTICAL CURB
- NEW CONCRETE DRIVEWAY
- NEW ASPHALT PAVEMENT
- NEW SIDEWALK
- STORMWATER FACILITY

PARKING DATA

# OF COTTAGES	22 UNITS
PARKING STALLS	29 SPACES
PARKING RATIO	1.32 SPACES PER UNIT

SITE DATA

ZONING:	MF-18 (MULTI-FAMILY RESIDENTIAL) PROPOSED COTTAGE OVERLAY
PROJECT SITE	128,629 SF ± (2.95 AC)
ROW DEDICATION	5,848 SF ± (0.13 AC)
SITE AFTER DEDICATION	122,781 SF ± (2.82 AC)

BUILDING DATA

UNIT	FLOOR PLAN	FLOOR AREA (SF)*
1	A	616
2	B	733
3	B	733
4	A	616
5	A	616
6	B	733
7	B	733
8	A	616
9	C	1,123
10	C	1,123
11	C	1,123
12	C	1,123
13	C	1,123
14	C	1,123
15	C	1,123
16	A	616
17	B	733
18	A	616
19	B	733
20	B	733
21	A	616
22	B	733

TOTAL FLOOR AREA: 18,037 SF
TOTAL BUILDINGS: 22
AVERAGE FLOOR AREA: 819 SF PER UNIT

* NOTE:
FLOOR AREAS INCLUDE GROSS BUILDING FOOTPRINTS, WHICH ALSO INCLUDES GARAGE AREA FOR FLOOR PLAN C

KEYNOTES

1. COVERED PARKING AREA.
2. EXISTING TREE TO REMAIN
3. PROPOSED BENCH
4. HOUSE WALKWAYS TO BE 4' WIDE, TYP
5. MAIN WALKWAYS TO BE 5' WIDE, TYP
6. ADA RAMP, TYP
7. PEDESTRIAN CROSSWALK, TYP
8. STAIR ACCESS TO UPPER UNITS
9. PROPOSED RETAINING WALL. SEE GRADING PLAN FOR ELEVATIONS

NAVIX
SITE | CIVIL
10135 se sunnyside rd | suite 200
clackamas, or 97015
t: 503.659.9500 | f: 503-659-2227
www.navixeng.com

CLIENT/OWNER

DD&C, INC

PROJECT NAME

WASHOUGAL RIVER OAKS

NAVIX PROJECT NUMBER: 20-005-001

PROJECT ADDRESS

2531 NE 3RD AVE
CAMAS, WA 98607

STAMP

BRIAN S. DICKERSON STATE OF WASHINGTON 40314 REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY

REVISIONS

REV	ISSUED FOR:	DATE
1	LAND USE	10.02.20

811

SECTION, TOWNSHIP, RANGE:

SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST, W.M.

PROJECT TEAM

REVIEWED BY: B.DICKERSON
DESIGNED BY: S.NGUY

SHEET NAME

SITE PLAN

SHEET NUMBER

C-1.0

Appendix A

Site Photos

Photo 1.
February 17, 2021 – View west across the northern extent of the proposed project. The slope area north of the old outbuilding is dominated in Douglas-fir, big leaf maple, red alder, and English ivy. The proposed Oregon white oak mitigation area is located just west of this location within an opening in the canopy just visible in lower left of photo. Two 2-inch caliper oak trees will be installed here.

Photo 2.
February 17, 2021 – View northwest across the northern forested area onsite. Douglas-fir, big leaf maple, and red alder dominate the area. Invasive species dominate the understory, including English ivy and holly.

Photo 3.
February 17, 2021 – View east across the northern forested area onsite. The area is dominated in Douglas-fir, big leaf maple, and red alder. Invasives make up most of the understory, including English ivy and holly

Photo 4.
February 17, 2021 – View south from the northern extent of the site. The proposed project will be located within the natural terrace in the southern portion of the property.

Photos 5a, 5b.
5a) February 17, 2021 – View of Oak #2 (27-inch dbh) proposed for removal along the western property line. English ivy is visible on the tree. A large road access is required in this location to meet standards for emergency vehicles. Two Oregon white oak trees will be planted north of this tree adjacent to the to mitigate for the removal of this tree. 5b) August 2021, Arrow denotes location of Oak #2 in relation to surrounding development.

Photo 6.
August, 2021 – View of the large (42in dbh) Oregon white oak growing just north of NE 3rd Avenue. This tree will be retained and protected by the project. English ivy currently present within the oak canopy will be removed and additional BMPs and tree protection implemented to further the longevity of the tree.

Appendix B

Oregon White Oak Mitigation and Protection Plan
(Arbor Science Tree Care, August 11, 2021)

ARBOR SCIENCE TREE CARE
SPECIALIZING IN SUSTAINABLE TREE CARE SOLUTIONS
arborsciencetreecare.com
360.521.0249
WA# ARBORST838DT OR CCB# 216351

August 10, 2021

Washougal River Oaks
2531 NE 3rd Ave
Camas, WA 98607
Parcel #89884000

RE: White Oak Mitigation and Protection Plan

Outline:
Protection plan and mitigation on five Oregon white oaks trees (*quercus garryanna*) on site.
Two of the five oaks will be petitioned for removal while the other specimens will be protected for preservation. The two specimens slated for removal and replacement have highly asymmetrical crowns, are very insignificant in size and are quite suppressed in the under story of larger Douglas fir trees.
All trees and locations are detailed and referenced on provided site map.

Common Guidelines for Tree Preservation During Construction:
During construction. Prior to initiating tree removal on the site, soils, vegetated areas and individual trees to be preserved shall be protected from potentially damaging activities pursuant to the following standards.

A. Placing Materials Near Trees. No person may conduct any activity within the protected area of any tree designated to remain, including, but not limited to, parking equipment, placing solvents, storing building material and soil deposits, dumping concrete washout and locating burn holes.

1. During construction, no person shall attach any object to any tree designated for protection.

B. Protective Barrier. Before development, land clearing, filling or any land alteration for which a Tree Removal Permit is required, the applicant:

1. Shall erect and maintain readily visible protective tree fencing along the outer edge and completely surrounding the protected area of all protected trees or groups of trees that are to remain

undisturbed. Fences shall be constructed of chain link and at least four feet high, unless other type of fencing is authorized by the planning official.

2. Shall prohibit excavation or compaction of earth or other potentially damaging activities within the barriers.

3. Shall maintain the protective barriers in place until the planning official authorizes their removal or a final certificate of occupancy is issued, whichever occurs first

4. Shall ensure that any landscaping done in the protected zone subsequent to the removal of the barriers shall be accomplished with light machinery or hand labor. No turf or lawn areas are to be installed within protected area.

5. In addition to the above, the planning official may require the following:
a. Cover with mulch to a depth of at least six (6) inches or with plywood or similar material the areas adjoining the critical root zone of a tree in order to protect roots from damage caused by heavy equipment.

b. Minimize root damage by excavating a two (2) foot deep trench, at edge of critical root zone, to cleanly sever the roots of trees to be retained.

c. Have corrective pruning performed on protected trees in order to avoid damage from machinery or building activity.

d. Maintain trees throughout construction period by watering and fertilizing.

C. Grade.
1. The grade shall not be elevated or reduced within the critical root zone of trees to be preserved without the planning official's authorization. The planning official may allow coverage of up to one half of the area of the tree's critical root zone with light soils (no clay) to the minimum depth necessary to carry out grading or landscaping plans, if it will not imperil the survival of the tree. Aeration devices may be required to ensure the tree's survival.

2. If the grade adjacent to a preserved tree is raised such that it could slough or erode into the tree's critical root zone, it shall be permanently stabilized to prevent suffocation of the roots.

3. The applicant shall not install an impervious surface within the critical root zone of any tree to be retained without the authorization of the planning official. The planning official may require specific construction methods and/or use of aeration devices to ensure the tree's survival and to minimize the potential for root induced damage to the impervious surface.

4. To the greatest extent practical, utility trenches shall be located outside of the critical root zone of trees to be retained. The planning official may require that utilities be tunneled under the roots of trees to be retained if the planning official determines that trenching would significantly reduce the chances of the tree's survival.

5. Trees and other vegetation to be retained shall be protected from erosion and sedimentation. Clearing operations shall be conducted so as to expose the smallest practical area of soil to erosion for the least possible time. To control erosion, shrubs, ground cover and stumps shall be maintained on the individual lots, where feasible. Where not feasible appropriate erosion control practices shall be implemented.

D. Directional felling. Directional felling of trees shall be used to avoid damage to trees designated for retention and shall be conducted so as to expose the smallest practical area of soil to erosion for the least possible time. To control erosion, shrubs, ground cover and stumps shall be retained where feasible. Where not feasible, appropriate erosion control practices shall be implemented.

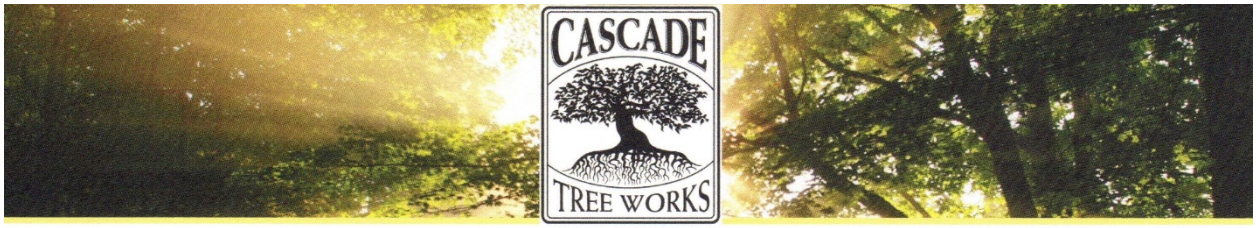
Proposed Development Plan Pertaining to Protected Specimens:
The large key specimen located in front along NE 3rd avenue is one of the primary oak to be protected. This specimen has a DBH (diameter at breast height) of approximately 42" and a crown spread that is approximately 65' (dia) across consuming approximately 3318 square feet of area. The critical root zone is commonly situated with this volume however, this is not an absolute.
The preliminary site design proposes a water retention pond along the NW, N and NE boundary of the root zone and a permeable walkway around the tree. The total root zone to be undisturbed is an area of approximately 2385 square feet with a potential loss of approximately 933 square feet this equates to a <%28 loss of the perceived root zone (not actual loss of roots).
The two specimens along the Eastern side in the Northern quadrant of the site will see very little root zone disturbance.

Site and Tree Specific Protection Guidelines:
Specific guidelines for the large key specimen are as follows:

- Invasive and competitive vegetation (black berries) shall be removed prior to any construction activities. This removal of said vines need to be the least invasive approach with light equipment as to not disturb the top soil beyond the vegetation's roots.
- Mulch, bark dust or a non-compressive organic media shall be placed within protected root zone area immediately after removal of vegetation. Mulch should be placed at a depth of 1-3” and should remain indefinitely.
- Protective fencing must be placed around root zone protection area.
- During digging or trenching within the root zone any roots encountered >1.5” in diameter shall be properly cut with a sharp tool not ripped or torn with equipment. Air excavation tools are highly recommended during this process.
- Prior to any back-fill or final completion of retention pond the severed roots should be inspected by an ISA Certified Arborist.

The proposed walkway around the tree should consist of light uncompressed rock aggregate or wood chips. Partitions or landscape borders on the surface are acceptable. Hardscape, pavers or concrete is ill advised due to the antagonist and potentially damaging prep that is involved.

Brandon Cheney
ISA Certified Arborist
PN #7163A TRAQ



Cascade Tree Works LLC

Richard Kemmerly
Cascade Tree Works, LLC
3021 NE 72nd Drive, Suite #9 Box 342
Vancouver WA 98661

December 18, 2020

Bryan Desgrosellier
DD&C, Inc.
3100 E Evergreen Blvd
Vancouver WA 98661

RE: HABITAT CONSERVATION REPORT: OREGON WHITE OAKS AND CRITICAL AREA ZONE

For any healthy Oregon White Oaks removed, the project will need to replace them with new Oregon White Oaks, with a 2" caliper, at the north side of the parcel (top of the hill). Specifically, this project will require the removal of a single healthy White Oak (Tree #2102) with a 27" diameter trunk, which will be replaced by 2 ea 2" Caliper Oregon White Oaks.

All trees removed in the Geologically Hazardous Areas (Trees 2076, 2077, 2078, 2079, 2080, 2081, 2084, 2093, 2087, 2097 from the Tree Survey), and more specifically those trees that are in good health and viable for survival- 2076, 2077, 2078, 2079, 2080 will need to be replaced at a 2:1 ratio, kind for kind. All other trees in this area will need to be preserved to the fullest extent possible.

The recommended location onsite for replacement trees is located at the clearing on the north side of the parcels and above the Geologically Hazardous Area, where there is no construction/development activity.

Richard Kemmerly PN-8285A
ISA Certified Arborist & ISA Tree Risk Assessor
Cascade Tree Works LLC
360-718-7108
cascadetreeworks@gmail.com

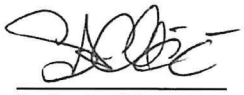
GEOTECHNICAL ENGINEERING STUDY

Proposed 2531 NE 3rd Avenue Subdivision
2531 NE 3rd Avenue
Camas, Clark County, WA 98607

Prepared for:

DD&C, LLC
418 Date Street
Vancouver, WA 98660

Prepared By:



Seth A. Chandlee
Project Manager

Paul Williams, PE
Project Engineer

Project No. G0941800
{August 2018}

Soil and Water Technologies, Inc.
PO Box 59 / Vancouver, Washington 98666
(360) 281-5406
www.swt.ski

Soil and Water Technologies, Inc.

Geotechnical & Environmental Consultants

DD&C, LLC.
418 Date Street
Vancouver, WA 98661

August 21st, 2018
G0941800

Attention: Bryan Desgrosellier

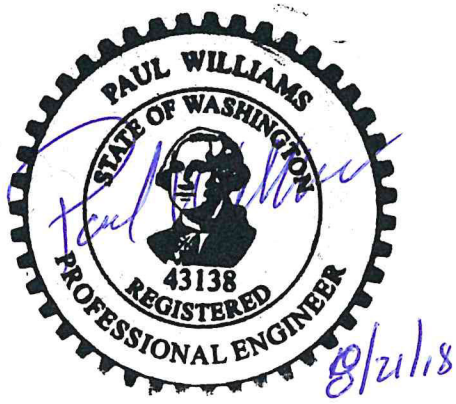
Hello Bryan,

We are pleased to submit our report titled "Geotechnical Engineering Study with Infiltration Testing, Proposed 2531 NE 3rd Avenue Subdivision located at 2531 NE 3rd Avenue, Camas, Clark County, Washington." This report presents the results of our field exploration, selective laboratory tests, and engineering analyses.

Based on the results of this study, it is our opinion that construction of the proposed residential development is feasible from a geotechnical standpoint, provided recommendations presented in this report are included in the project design.

We appreciate the opportunity to have been of service to you and look forward to working with you in the future. Should you have any questions about the content of this report, or if we can be of further assistance, please call.

Respectfully Submitted,
Soil and Water Technologies, Inc.



Seth A. Chandlee
Project Manager

Paul Williams, PE
Project Engineer

TABLE OF CONTENTS

INTRODUCTION

General

This report presents the results of the geotechnical engineering study completed by Soil and Water Technologies, Inc. (SWT) for the proposed 2531 NE 3rd Avenue Subdivision located in Camas, Clark County, Washington. The general location of the site is shown on the *Vicinity Map, Figure 1.* Our approximate exploratory test pit locations are shown in relation to the site on the *Site Plan, Figure 2.*

The purpose of this study is to explore and evaluate subsurface conditions at the site and provide geotechnical recommendations for the proposed construction based on the soil conditions encountered. These recommendations include site specific geotechnical parameters for foundation support, earthwork grading, utility trench backfill, roadway construction, drainage, erosion control and a seismic hazard evaluation.

Project Description

Based on the preliminary site plan information provided by DD&C, LLC, it is our understanding that the approximate one-acre property will be developed into a total of twelve (12) residential building lots. The project will also include associated underground utilities, an asphalt paved roadway, stormwater management facilities and a park area. Although no specific grading plan was available at the time of our study, we anticipate that earthwork cuts/fills will range from approximately one to four feet (1-4') in thickness across the site. The proposed residences will most likely be constructed with wood frames, suspended floors and slab on grade garage floors.

At the time this report was written, specific structural design loads were not available. However, based on our experience with similar projects, we anticipate that wall loads will be approximately seven hundred to one thousand five hundred (700 -1,500) pounds per lineal foot. Slab-on-grade garage floor loads will most likely range from one hundred to one hundred and fifty pounds per square foot (100-150 psf).

If any of the above information is incorrect or changes, we should be consulted to review the recommendations contained in this report. In any case, it is recommended that Soil and Water Technologies perform a general review of the final design.

SITE CONDITIONS

Surface

The rectangular shaped property is located approximately one-tenth of a mile east of the intersection of NE 3rd Avenue and NE Wedgewood Court in Camas, Washington. The subject property is bordered on the north by forested land, to the east by high-density residential development, to the west by single family residences and on the south by NE 3rd Avenue.

The property slopes gently downwards from the north to the south at an approximately 10H:1V (horizontal: vertical) slope gradient. The maximum total elevation change across the site is approximately forty feet (40'). At the time of our field investigation the southern half of the property was vegetated with brambles and with native shrubs and trees at the northern half of the property. While onsite, we observed one partially demolished residence. It is our understanding that this building will be completely demolished prior to site construction.

Subsurface

On August 3rd, 2018 we observed the exploration of three test pits with an excavator, designated I-1 TP-2, and TP-3. All exploration locations were selected by SWT to determine subsurface conditions in the vicinity of the proposed building lots, pavement areas and stormwater facilities. The approximate locations are shown on the *Site Plan, Figure 2.*

All soil was classified in general accordance with the *Unified Soil Classification System (USCS)*. Soil samples obtained from the test pits were returned to our office for additional evaluation and laboratory testing. Descriptions of field and laboratory procedures are included in Appendices A and B, respectively.

The following is a generalized description of the subsurface units encountered.

SURFACE MATERIALS: Surface materials encountered in the explorations consisted of 4 to 6 inches of organic topsoil in all test pit locations.

SILT: Native Silt (ML), was encountered below the surface materials in test pits TP-2 and TP-3, extending to a maximum explored depth of 10 feet below ground surface. In general, the Silt was brown, with medium plasticity and moist. The consistency of the Silt ranged from medium stiff to hard. The moisture content of samples from this unit ranged from 19 to 23 percent.

SILTY GRAVEL: Native silty Gravel (GM), was encountered below the surface materials in test pit I-1 and extended to a maximum depth of 2 feet below ground surface. In general, the silty Gravel was brown and moist. The consistency of the silty Gravel was medium dense and became cleaner with depth.

SANDY GRAVEL: Native sandy Gravel (GP), was encountered below the silty Gravel in test pit I-1 and extended to a maximum explored depth of 12.5 feet below ground surface. In general, the sandy Gravel was grayish brown and moist. The consistency of the sandy Gravel was dense. The moisture content of samples from this unit ranged from 4 to 12 percent. Fines content of samples ranged from 4 to 6 percent.

Please refer to our test pit logs, Plates A2 through A4 for a more detailed description of the conditions encountered at each location explored.

Infiltration Testing

Infiltration testing was performed in the vicinity of the proposed onsite stormwater tract. The approximate location of the infiltration test pit is shown on the *Site Plan, Figure 2.* It is our understanding that the proposed stormwater tract is to provide stormwater treatment and control for all onsite impervious surfaces. Infiltration testing was performed at a depth of five and one-half feet (5.5') below the existing ground surface at I-1, in accordance with the 2016 Clark County Stormwater Management Manual guidelines.

In general, the test consists of driving a six-inch diameter pipe six inches into the exposed ground surface at the bottom of the test pit. The pipe is filled with water and the soil around the bottom of the pipe is saturated for several hours. The pipe is filled again and the amount of time required for the water to fall, per inch, for six inches, is recorded. This step is performed a minimum of three times. The test results are averaged, recorded and the field infiltration rate is calculated in inches per hour. Infiltration testing was performed at the site on August 3rd, 2018.

All soil was classified following the *Unified Soil Classification System* (USCS) and the *AASHTO Soil Classification System (M145).* The following table provides the field infiltration test results and associated laboratory testing:

Location	USCS* Soil Type	AASHTO Soil Type	Depth (ft.)	% Passing #200 sieve	Moisture content	Field-Measured Infiltration Rate
I-1	GP	A-1-a	5.5	4%	7%	4.0 iph

* Unified Soil Classification System / iph - inches per hour

The infiltration rate presented is not a permeability/hydraulic conductivity, but an average field-measured rate and does not include correction factors related to long-term infiltration rates. It is recommended that the designer include correction factors to account for the level of maintenance, type of system, vegetation, siltation, etc. The rate is dependent on the percentage of fines in the soil (i.e., silt and clay), the degree of soil saturation and the relative density of the in-situ soil. Field measured infiltration rates are typically reduced by a minimum factor of 2 to 4 for use in design.

Due to the subsurface conditions encountered, rates of infiltration and our laboratory test results, it is our opinion that the on-site soils in the vicinity of the of I-1 at the lower, southern side of the property are suitable for the infiltration of stormwater.

Groundwater

No groundwater was encountered to the maximum depth of exploration at our test pits. Our review of water well logs from the Washington Department of Ecology database indicates that the static groundwater level in the area is greater than one-hundred feet (100') below the surface.

It is important to note that groundwater conditions are not static; fluctuations may be expected in the level and seepage of flow depending on the season, amount of rainfall, surface water runoff, and other factors. Generally, the groundwater level is higher and seepage rate is greater in the wetter winter months (typically October through May). The static groundwater level may approach the ground surface during these months.

General Regional Geology

General information about geologic conditions and soils in the vicinity of the site was obtained by reviewing the Geologic Map of the Camas Quadrangle, Clark County, Washington, and Multnomah County, Oregon (2008).

In the vicinity of the subject property, a low elevation bench slopes upwards and generally northeastward towards the Cascade Mountain Range. The underlying bedrock is poorly exposed Oligocene epoch (34 to 23 mya) basaltic andesite flows emplaced by eruptions from the nearby Elkhorn Mountain during the early formation of the regional segment of the Cascade volcanic arc. The bedrock's appearance is usually limited to steep slopes and cliff faces, landslide scarps, and streambeds and is overlain by Neogene-Quaternary period (23 to 2.5 mya) fine-grained Hillsboro soil series.

The material encountered in our test pits consists predominantly of basaltic andesite overlain by brown Silt, consistent with the fine-grained Hillsboro soil series, and Gravel (at I-1) which we interpret to represent weathered Late Pleistocene coarse-grained sedimentary flood deposits.

Geologic Hazards

The following provides a geologic hazard review for the subject site. The geologic hazard review as based on our site reconnaissance and explorations, as well as a review of publicly available published literature and maps.

Slope and Landslide Hazards:

A review of the Clark County Maps Online for the site indicates the slopes at the northernmost side of of the site exceed 15% and are mapped as areas of potential slope instability and subject to review prior to development. Title 40, Section 40.430.C.2 Geologic Hazard Areas, of the Clark County, Washington, Unified Development Code defines potential landslide hazard areas as areas meeting all three of the following characteristics: 1) slopes steeper than 15%; 2) Hillsides intersecting geologic contacts with permeable sediment overlying low permeable sediment or bedrock, and; 3) Any springs or groundwater seepage.

While we did observe slopes greater than 15%, we did not observe the other two necessary characteristics of potential landslide areas. Based upon the results of our site reconnaissance, our experience with localized soils in the area and definitions of a geologic hazard area provided by Clark County Unified Development Code, the subject building area does not meet Clark County's definition of a geologic hazard area. It is our opinion that the proposed development as planned will not create a risk of increased slope instability at the site.

Seismic Hazards:

The following seismic hazards have been considered as part of our geologic hazards review for the project site:

Ground Motion Amplification: Based on a review of Clark County Maps Online, the site is designated as seismic Site Class "B/C". However, based on our field explorations and recommendations below, it is our opinion that a Site Class "D" is appropriate for use at the site. Our seismic design criteria, which are partially based on the site class designation, are included in the Geotechnical Design Recommendations portion of this report.

Liquefaction: Structures are subject to damage from earthquakes due to direct and indirect action. Shaking represents direct action. Indirect action is represented by foundation failures and is typified by liquefaction. Liquefaction occurs when soil loses all shear strength for short periods of time during an earthquake. Ground shaking of sufficient duration then results in the loss of grain-to-grain contact as well as a rapid increase in pore water pressure. This causes the soil to assume the physical properties of a fluid.

To have potential for liquefaction a soil must be loose, cohesion-less (generally sands and silts), below the groundwater table, and must be subjected to sufficient magnitude and duration of ground shaking.

Based on the anticipated groundwater table depth, as well as the relative consistency of the exposed bedrock, we consider the potential for liquefaction within the site boundaries to be very low. Indeed, the site is mapped as having a "Bedrock" to "Very Low" liquefaction susceptibility based on the Liquefaction Susceptibility Layer of Clark County Maps Online.

GEOTECHNICAL DESIGN RECOMMENDATIONS

General

Based on the results of our study, it is our opinion the proposed residential subdivision can be constructed as planned, provided the geotechnical recommendations contained in this report are incorporated into the final design. The following sections present detailed recommendations and parameters pertaining to the geotechnical engineering design for this project.

Foundations

Based on the encountered subsurface soil conditions, preliminary building design criteria, and assuming compliance with the preceding *Site Earthwork and Grading* section, the proposed building foundations may be supported on conventional shallow spread footings bearing on undisturbed medium stiff to hard native Silt.

Individual spread footings or continuous wall footings providing support for the proposed building may be designed for a maximum allowable bearing value of 2,000 pounds per square foot (psf). Footings for one level structures should be at least 12 inches in width. Footings for two level structures should be at least 15 inches in width. Footings for three level structures should be at least 18 inches in width. All footings should extend to a depth of at least 12 inches below the lowest adjacent finished sub grade.

These basic allowable bearing values are for dead plus live loads and may be increased one-third for combined dead, live, wind, and seismic forces. It is estimated that total and differential footing settlements for the relatively light residential buildings will be approximately one and one-half inches, respectively.

Slab on Grade

If concrete floor slabs are desired, then any disturbed soils must be re-compacted prior to pouring concrete. Satisfactory subgrade support for lightly-loaded building floor slabs can be obtained on the undisturbed native soil or on engineered structural fill. A subgrade modulus of 125 pounds per cubic inch (pcf) may be used to design floor slabs.

A minimum 6-inch-thick layer of free draining fill should be placed and compacted over the prepared subgrade to assist as a capillary break and blanket drain.

It is also suggested that nominal reinforcement such as "6X6-10/10" welded wire mesh be employed, near midpoint, in new concrete slabs. In areas where slab moisture is undesirable, a vapor barrier such as a 6-mil plastic membrane should be placed beneath the slab.

Site Drainage

The site should be graded so that surface water is directed off the site. Water should not be allowed to stand in any area where buildings or foundations are to be constructed. Loose surfaces should be sealed at the end of each workday by compacting the surface to reduce the potential of moisture infiltrating into the soils. Final site grades should allow for drainage away from the building foundations.

The ground should be sloped at a gradient of three percent for a distance of at least ten feet away from the buildings. We recommend that a foundation footing drain be installed around the perimeter of the buildings. The drain should consist of a four-inch diameter perforated pipe with holes facing down and installed in an envelope of clean drain rock or pea gravel wrapped with free draining filter fabric. The drain should be a minimum of one-foot-wide and one-foot-deep with sufficient gradient to initiate flow. The drain should be routed to a suitable discharge area and rock spalls placed at the outlet to dissipate flow from the system. Details for the footing drain have been included as *Figure 3, Footing and Drainage Detail.*

Under no circumstances should the roof down spouts be connected to the perimeter building drain. We suggest that clean outs be installed at several accessible locations to allow for the periodic maintenance of the drain system.

Pavement Areas

Asphaltic Cement (AC) and Crushed Rock Base (CRB) materials should conform to WSDOT specifications. All pavement area subgrades should be compacted to at least 95 percent of the ASTM D1557 modified proctor laboratory test standard. We recommend that a minimum of 3 inches of AC underlain by 8 inches of compacted CRB in the vicinity of all paved roadway areas.

Exterior concrete slabs that are subject to vehicle traffic loads should be at least four inches in thickness. It is also suggested that nominal reinforcement such as "6x6-10/10" welded wire mesh be installed, near midpoint, in new exterior concrete slabs and paving. Fiber mesh concrete may be used in lieu of welded wire mesh.

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section.

AC and CRB materials should conform to WSDOT specifications. All CRB should be compacted to at least 95 percent of the modified proctor *ASTM D-1557* laboratory test standard.

Seismic Design Criteria:

Supportive foundation soils encountered at the site are classified as a type "D" soil in accordance with "Site Class Definitions (IBC 2006, Section 1613, Table 1613.5.2; page 303). For more detail regarding soil conditions refer to the soil logs in Appendix A of this report.

The seismic design criteria for this project found herein is based on the International Building Code (IBC) 2012/2015 and the USGS website. A summary of IBC seismic design criterion is below.

Table 1. 2012/2015 IBC Seismic Design Parameters

Location (Latitude: 45.588908°, Longitude: -122.380502°)	Short Period	1-Second
Maximum Credible Earthquake Spectral Acceleration	S_s = 0.859 g	S_1 = 0.366 g
Site Class	D	
Site Coefficient	F_a = 1.156	F_v = 1.668
Adjusted Spectral Acceleration	S_{MS} = 0.993 g	S_{M1} = 0.611 g
Design Spectral Response Acceleration Parameters	S_{DS} = 0.662 g	S_{D1} = 0.407 g

g – acceleration due to gravity

CONSTRUCTION RECOMMENDATIONS

Site Earthwork and Grading

Clearing and Grubbing:

Prior to grading, the project area should be cleared of all rubble, trash, debris, etc. Any buried organic debris, undocumented fill or other unsuitable material encountered during subsequent excavation and grading work should also be removed. Excavations for removal of any existing footings, slabs, walls, utility lines, tanks, and any other subterranean structures should be processed and backfilled in the following manner:

- Clear the excavation bottom and side cuts of all loose and/or disturbed material.
- Once the organic topsoil has been adequately removed, the upper one foot of native soil shall be scarified to twelve (12) inches in depth and dried to within 2 percent of its optimal moisture content and re-compacted. Density testing shall be performed prior to placement of additional fill.
- Prior to placing backfill, the excavation bottom should be moisture conditioned to within 2 percent of the optimum moisture content and compacted to at least 95 percent of the ASTM D-1557 laboratory test standard.
- Backfill should be placed, moisture conditioned (i.e., watered and/or aerated as required and thoroughly mixed to a uniform, near optimum moisture content), and compacted by mechanical means in approximate 6-inch lifts. The degree of compaction obtained should be at least 95 percent of the ASTM D-1557 laboratory test standard, as applicable.

It is also critical that any surficial sub grade materials disturbed during initial demolition and clearing work be removed and/or re-compacted in the course of subsequent site preparation earthwork operations.

If encountered, it is important that all soft, undocumented fill is to be over-excavated and replaced with suitable structural fill. Supporting the proposed buildings on homogeneous material will significantly decrease the potential for differential settlement across the foundation area. In order to create uniform sub grade support conditions, the following earthwork operations are recommended:

- Over-excavate existing soils to a competent native subgrade below the bottom of the proposed foundations. The excavations should extend at least one-half width laterally beyond the foundation footprint, or as constrained by existing structures.
- The fill soils placed shall consist of clean soils with an expansion index (EI) less than twenty (20), and be free of organic material, debris, and rocks greater than three inches in maximum diameter. Based on the field observations and laboratory testing, the existing native soil is suitable for use as structural fill so long as the material does not exceed three (3) inches in diameter and is within two percent (2%) of its optimum moisture content prior to compaction.
- The backfill shall consist of minimum ninety-five percent (95%) compacted fills (Note: ASTM D1557). In addition to the relative compaction requirements, all fills shall be compacted to a firm non-yielding condition.
- Import soils should be sampled, tested, and approved by SWT prior to arrival on site. Imported soils shall consist of clean soils (EI of 20 or less) free from vegetation, debris, or rocks larger than three inches in maximum dimension.

Subgrade Verification and Proof Rolling

After clearing and grading the site, it is possible that some localized areas of soft, wet or unstable sub grade may still exist. Before placement of any base rock, the sub grade should be scarified eight inches in depth and compacted with suitable compaction equipment. Yielding areas that are identified should be excavated to medium dense material and replaced with compacted two inch-minus clean crushed rock. All building and pavement areas should be compacted to a dense non-yielding condition with suitable compaction equipment. This phase of earthwork compaction shall be performed prior to the placement of any structural fill, at the bottom of all foundation excavations and along the roadway sub-grade, before the placement of base rock.

Wet Weather Construction & Moisture Sensitive Soils:

Field observations and laboratory testing indicates that Silt (ML) encountered at the site is a moisture sensitive material. As such, in an exposed condition, moisture sensitive soil can become disturbed during normal construction activity, especially when in a wet or saturated condition. Once disturbed, in a wet condition, these soils will be unsuitable for support of foundations, floor slabs and roadways.

Therefore, where soil is exposed and will support new construction, care must be taken not to disturb their condition. If disturbed soil conditions develop, the affected soil must be removed and replaced with structural fill. The depth of removal will be dependent on the depth of disturbance developed during construction. Covering the excavated area with plastic and refraining from excavation activities during rainfall will minimize the disturbance and decrease the potential degradation of supportive soils.

Utility Support and Backfill

Based on the conditions encountered, the soil to be exposed by utility trenches should provide adequate support for utilities. Utility trench backfill is a concern in reducing the potential for settlement along utility alignments, particularly in pavement areas. It is also important that each section of utility line be adequately supported in the bedding material. The backfill material should be hand tamped to ensure support is provided around the pipe haunches.

Fill should be carefully placed and hand tamped to about twelve inches above the crown of the pipe before any compaction equipment is used. The remainder of the trench back fill should be placed in lifts having a loose thickness of eight inches.

A typical trench backfill section and compaction requirements for load supporting and non-load supporting areas is presented on *Figure 4, Utility Trench Backfill Detail*.

Imported granular material or on-site native soil to be used as backfill should be submitted to our laboratory at least one week prior to construction so that we can provide a laboratory proctor for field density testing. If native soil is planned for use as backfill, additional testing will be required to determine the suitability of the material.

Temporary Excavations

The following information is provided solely as a service to our client. Under no circumstances should this information be interpreted to mean that SWT is assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred. In no case should excavation slopes be greater than the limits specified in local, state and federal safety regulations.

Based on the information obtained from our field exploration and laboratory testing, the onsite soils expected to be encountered in excavations will most likely consist of native medium stiff to hard Silt (ML) and sandy Gravel (GP). These soils would be classified as a type "C" soil. Therefore, temporary excavations and cuts greater than four feet in height, should be sloped at an inclination no steeper than 1½ H:1V (horizontal to vertical).

If slopes of this inclination, or flatter, cannot be constructed, or if excavations greater than four feet in depth are required, temporary shoring may be necessary. This shoring would help protect against slope or excavation collapse and would provide protection to workmen in the excavation. If temporary shoring is required, we will be available to provide shoring design criteria, if requested.

LIMITATIONS

Our recommendations and conclusions are based on the site materials observed, selective laboratory testing, engineering analyses and other design information provided to Soil and Water Technologies as well as our experience and engineering judgment. The conclusions and recommendations are professional opinions derived in a manner consistent with that level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area. No warranty is expressed or implied.

The recommendations submitted in this report are based upon the data obtained from the test pits. Soil and groundwater conditions between the test pits may vary from those encountered. The nature and extent of variations may not become evident until construction. If variations do appear, Soil and Water Technologies should be requested to reevaluate the recommendations contained in this report and to modify or verify them in writing prior to proceeding with the proposed construction.

ADDITIONAL SERVICES & EARTHWORK MONITORING

Soil and Water Technologies will be available to provide consultation services related to review of the final design to verify that the recommendations within our purview have been properly interpreted and implemented in the approved construction plans and specifications. A representative from our office will be available to attend a pre-construction meeting to discuss and/or clarify all geotechnical issues related to the proposed project.

In addition, it is suggested that our office be retained to provide geotechnical services during construction to observe compliance with the design concepts and project specifications and to allow design changes in the event subsurface conditions differ from those anticipated. Our construction services would include monitoring and documenting the following:

- Verify the removal of organic strippings and other deleterious material.
- Verify over-excavation and replacement of undocumented fills, where encountered.
- Observe the placement and compaction of structural fill at building areas, utility trenches and roadways.
- Perform laboratory tests on structural fill source and roadway base rock materials.
- Perform density tests on structural fill and utility trench backfill.
- Verify the field rate of infiltration.
- Monitor proof rolling of roadway subgrade and base rock.
- Perform density testing on roadway base rock and asphalt pavement.
- Concrete Testing (i.e. Temp., Slump, Air, Compressive Strength), if required.
- Provide certified erosion control design, monitoring and consulting.
- Provide written field reports and electronically submit to all associated parties.

VICINITY MAP

N

Not to Scale

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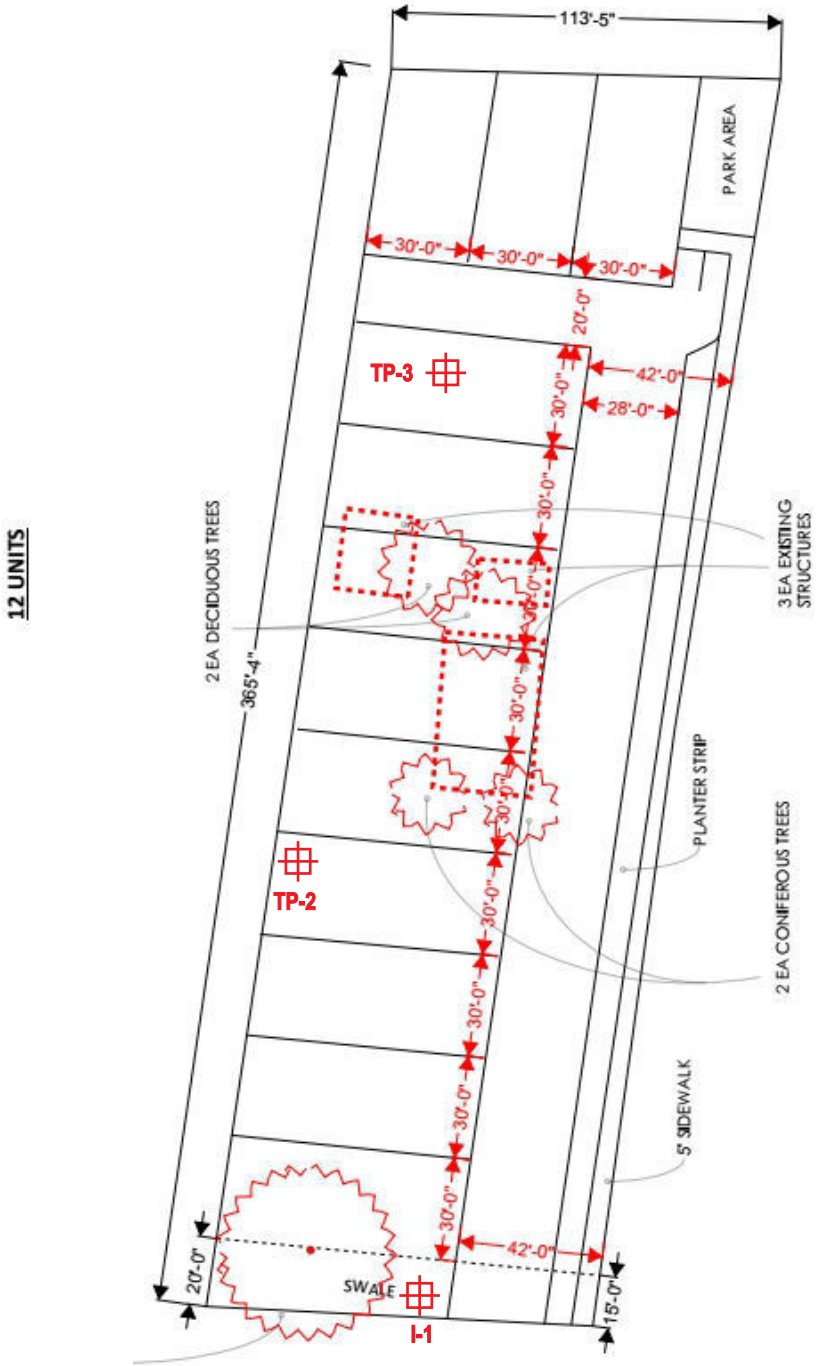
CLIENT:	DD&C, LLC	DRAWN:	JR
PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	DATE:	7/30/2018
		FIGURE:	1
		PRO. #:	G0941800

SITE MAP

N

Not to Scale



Legend

TP-2 Approximate Test Pit Location

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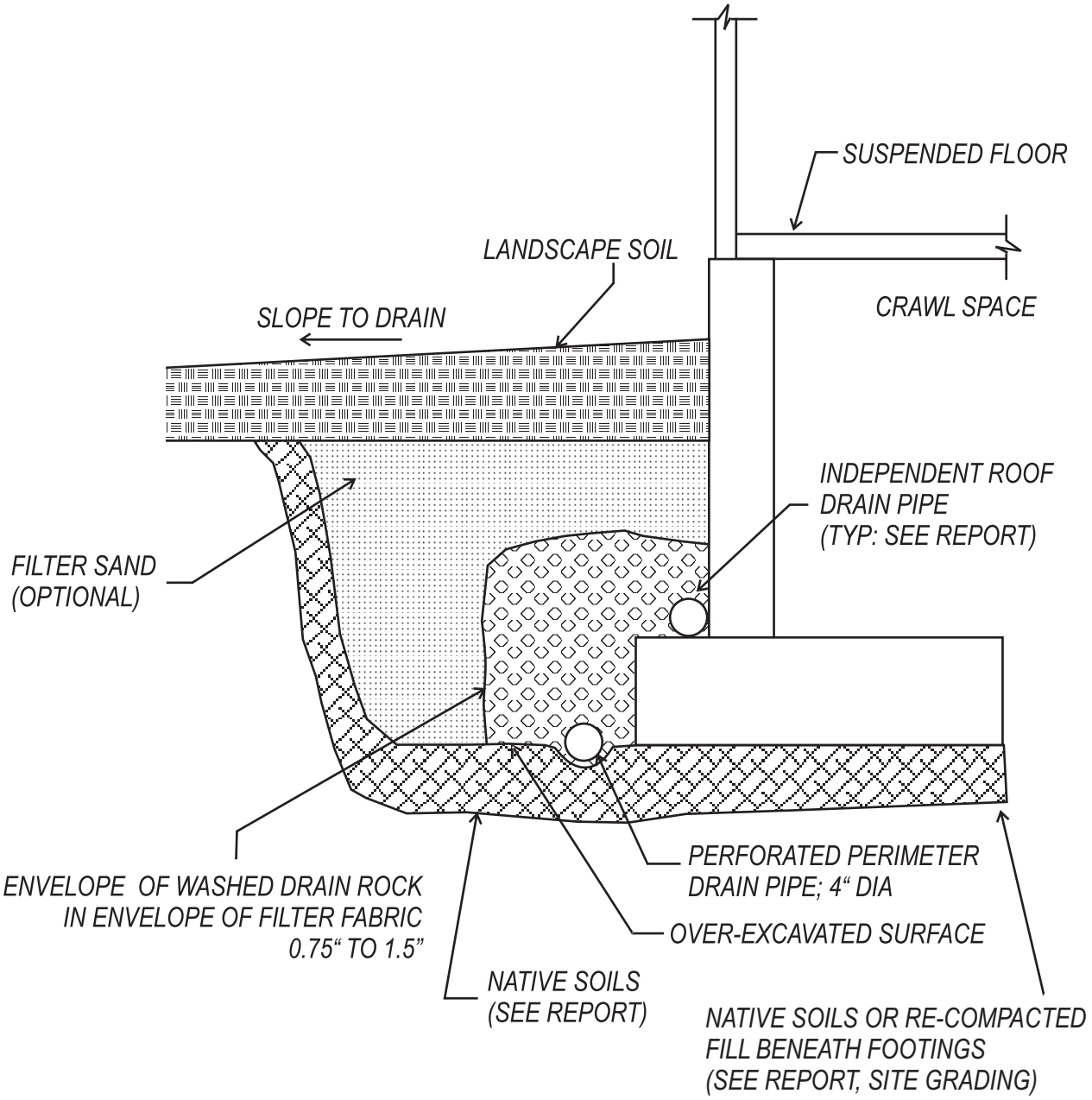
		FIGURE:	2
		PRO. #:	G0941800



NOTES:

1. FILTER SAND - FINE AGGREGATE FOR PORTLAND CEMENT; SECTION 9=03.1(2)
2. PERFORATED OR SLOTTED RIGID PVC PIPE WITH A POSITIVE DRAINAGE GRADIENT
3. NATIVE SOIL COMPACTED TO 95% (STANDARD PROCTOR ASTM D698)

FOOTING DRAINAGE DETAIL

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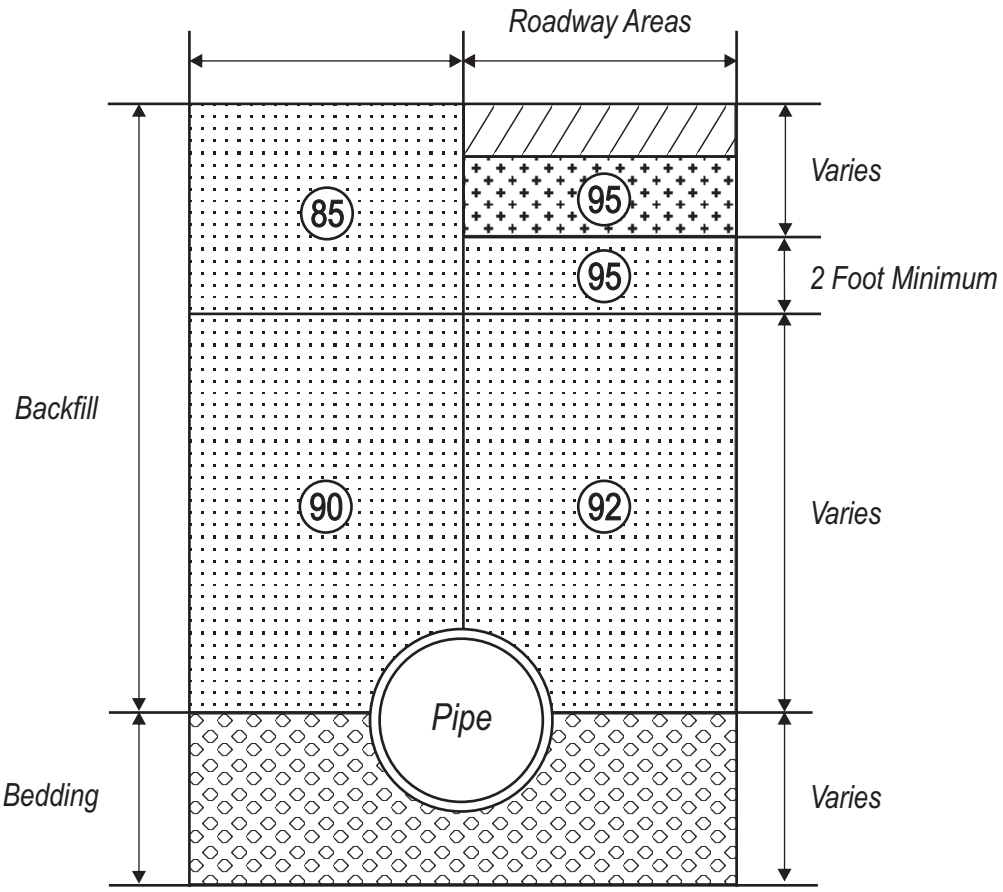
PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	DATE:	7/30/2018
		FIGURE:	3
		PRO. #:	G0941800



LEGEND

Asphalt or Concrete Pavement

Roadway Base Material or Base Rock

Backfill: Compacted on-site soil or imported select fill material as described in the site preparation of the general Earthwork Section of the attached report text.

92 — Minimum percentage of maximum Laboratory Dry Density as determined by ASTM Test method D1557 (Modified Proctor),unless otherwise specified in the attached report text.

Bedding Material: Material type depends on type of pipe and laying conditions. Bedding should conform to the manufacturer's recommendations for the type of pipe selected.

UTILITY TRENCH BACKFILL DETAIL

Not to Scale

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		FIGURE:	4
		PRO. #:	G0941800

APPENDIX A

(FIELD EXPLORATION)

FIELD EXPLORATION

Our field exploration was performed on August 3rd, 2018. Subsurface conditions at the site were explored by excavating three test pits to the maximum depth of twelve and one-half feet (12.5') below the existing ground surface. The test pits were excavated by the use of a 135 class track hoe.

The approximate test pit locations were determined by pacing from existing site features. The locations should be considered accurate only to the degree implied by the method used. These approximate locations are shown on the *Site Plan, Figure 2.*

The field exploration was monitored by two Soil and Water Technologies representatives, who classified the soil encountered and maintained a log of each test pit, obtained representative samples, and observed pertinent site features. Representative soil samples were placed in closed containers and returned to the laboratory for further examination and testing.

All samples were visually classified in accordance with the Unified Soil Classification System (USCS), which is presented on *Plate A1*. Logs of the test pits are presented in *Appendix A*. The final logs represent our interpretations of the field logs and the results of the laboratory tests on field samples. The stratification lines on the logs represent the approximate boundaries between soil types. In fact, the transitions may be more gradual.

UNIFIED SOIL CLASSIFICATION SYSTEM
LEGEND

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTION
Coarse Grained Soils	Gravel and Gravelly Soils More Than 50% Coarse Fraction Retained on No 4 Sieve	Clean Gravels (little or no fines)		GW gw	Well-Graded Gravels, Gravel-Sand Mixtures Little or no Fines
				GP gp	Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
		Gravels with Fines (appreciable amount of fines)		GM gm	Silty Gravels, Gravel-Sand-Silt Mixtures
				GC gc	Clayey Gravels, Gravel-Sand-Clay Mixtures
More Than 50% Material Larger Than No 200 Sieve Size	Sand and Sandy Soils More Than 50% Coarse Fraction Passing No 4 Sieve	Clean Sand (little or no fines)		SW sw	Well-graded Sands, Gravelly Sands Little or no Fines
				SP sp	Poorly-Graded Sands, Gravelly Sands Little or no Fines
		Sands with Fines (appreciable amount of fines)		SM sm	Silty Sands, Sand-Silt Mixtures
				SC sc	Clayey Sands, Sand-Clay Mixtures
Fine Grained Soils	Silts and Clays	Liquid Limit Less than 50		ML ml	Inorganic Silts and Very Fine Sands, Rock Flour, Silty-Clayey Fine Sands; Clayey Silts w/ slight Plasticity
				CL cl	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean
				OL ol	Organic Silts and Organic Silty Clays of Low Plasticity
More Than 50% Material Smaller Than No 200 Sieve Size	Silts and Clays	Liquid Limit Greater than 50		MH mh	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils
				CH ch	Inorganic Clays of High Plasticity, Fat Clays
				OH oh	Organic Clays of Medium to High Plasticity, Organic Silts
Highly Organic Soils				PT pt	Peat, Humus, Swamp Soils with High Organic Contents

Topsoil		Humus and Duff Layer
Fill		Highly Variable Constituents

SAMPLING DESCRIPTIONS

- Grab Sample
- SPT Drive Sampler (ASTM D1586)
- Shelby Tube Push Sampler (ASTM D1587)
- Dames and Moore Drive Sampler (ASTM D3550)

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		PLATE:	A1
		PRO. #:	G0941800

LOG OF TEST PIT I-1

ELEVATION: **+/- 43 feet**
EXPLORATORY EQUIPMENT: **135 CLASS TRACK HOE**
DATE: **8/3/2018**

DEPTH IN FEET	SAMPLES	SOILS CLASSIFICATION	GRAPHIC LITHOLOGY (USGS)	MOISTURE CONTENT % OF DRY WEIGHT	PERCENT PASS NUMBER 200	NOTES
		~ 6" Soft, dark brown, Organic Topsoil, dry				
1–2		Medium dense, brown, (Native) **silty Gravel (GM)**, with sand, moist				
3–4	●	Dense, brownish gray, **sandy Gravel (GP)**, with cobbles trace silt moist		4	6	
5–6	●	- Unfactored field infiltration rate of 4.0" inches per hour @ 5.5 bgs		7	4	
7–8	●			12	5	
9–12						

Bottom of test pit at 12.5 feet below existing ground surface.
No groundwater or groundwater seepage encountered

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		PLATE:	A2
		PRO. #:	G0941800

LOG OF TEST PIT — TP-2

ELEVATION: **+/- 52 feet**
EXPLORATORY EQUIPMENT: **135 CLASS TRACK HOE**
DATE: **8/3/2018**

DEPTH IN FEET	SAMPLES	SOILS CLASSIFICATION	GRAPHIC LITHOLOGY (USGS)	MOISTURE CONTENT % OF DRY WEIGHT	PERCENT PASS NUMBER 200	NOTES
		~ 4-6" Soft, dark brown, Organic Topsoil, dry				
1		Med. stiff to hard, brown, **Silt (ML)** moist				
2	●			19	-	5.0 TSF
3						Gray Mottling
4						
5	●			23	-	Atterberg Limits LL - 26 PL - 18 PI - 8
6						
7						
8	●			22	-	
9						
10		(Native)				

Bottom of test pit at 10.0 feet below existing ground surface.
No groundwater or groundwater seepage encountered.

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PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	DATE:	8/20/2018
		PLATE:	A3
		PRO. #:	G0941800

LOG OF TEST PIT — TP-3

ELEVATION: **+/- 60 feet**
EXPLORATORY EQUIPMENT: **135 CLASS TRACK HOE**
DATE: **8/3/2018**

DEPTH IN FEET	SAMPLES	SOILS CLASSIFICATION	GRAPHIC LITHOLOGY (USGS)	MOISTURE CONTENT % OF DRY WEIGHT	PERCENT PASS NUMBER 200	NOTES
		~ 4-6" Soft, dark brown, Organic Topsoil, moist				
1–5	●	Med. stiff to hard, brown, **Silt (ML)** moist		23	-	
6		Basaltic andesite bedrock (Native)				Refusal

Bottom of test pit at 6.0 feet below existing ground surface.
Refusal due to weathered basaltic andesite bedrock.
No groundwater or groundwater seepage encountered.

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PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	DATE:	8/20/2018
		PLATE:	A4
		PRO. #:	G0941800

APPENDIX B

(LABORATORY TESTING)

LABORATORY TESTING

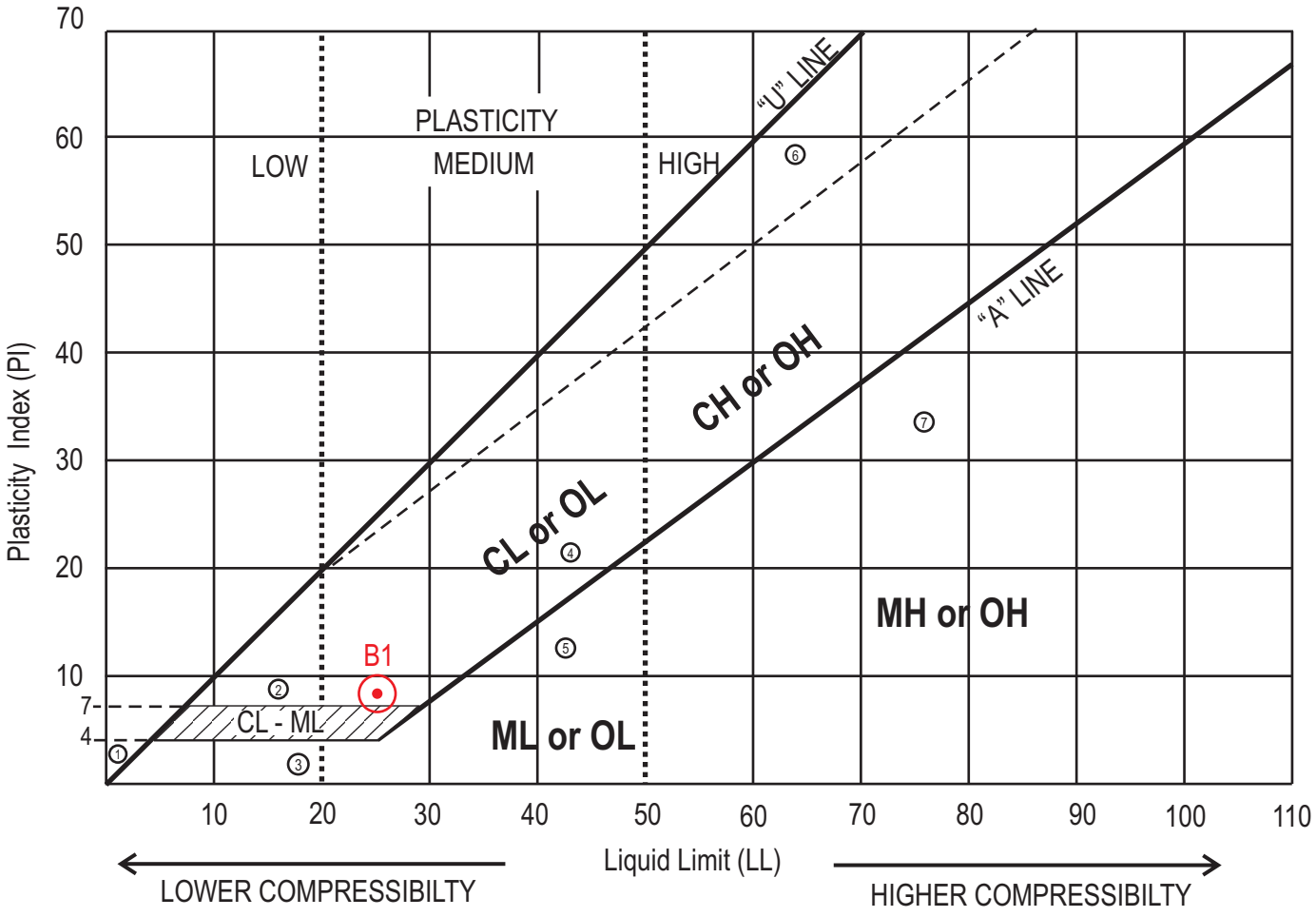
Laboratory tests were conducted on representative soil samples to verify or modify field soil classifications, and to evaluate the general physical properties and engineering characteristics of the soils encountered.

The following provides information about the testing procedures performed on representative soil samples:

- Moisture Content Tests (ASTM-D2216) were performed on representative samples.
- Atterberg Limits Testing (ASTM-D4318) was performed on one representative sample of native Silt to determine the "water-plasticity" ratio of in-situ soil. This test also provides an indication of relative soil strength as well as the potential for soil volume changes with variation in moisture content. Please refer to our Atterberg Limits Charts, Plate B1.
- A Minus 200 Wash (ASTM- C117) was performed on a representative sample collected from the proposed infiltration zone.
- Grain Size Analysis (ASTM-C136) was performed on a representative sample collected from I-1. Please refer to our Grain Size Distribution Chart, G1.

The results of laboratory tests performed on specific samples are provided at the appropriate sample depth on the individual test pit logs. However, it is important to note that some variation of subsurface conditions may exist. Our geotechnical recommendations are based on our interpretation of these test results.

ATTERBERG LIMITS
(ASTM D4318)



Legend

B1 TP-2 @ 5' - **Silt (ML)**
(LL- 26 - PL-18 - PI-8)

1. COHESIONLESS SOILS
2. INORGANIC CLAYS, LOW PLASTICITY
3. INORGANIC SILTS, LOW COMPRESSIBILTY
4. INORGANIS CLAYS, MEDIUM PLASTICITY
5. INORGANIC SILTS AND ORGANIC CLAYS, MEDIUM COMPRESSIBILITY
6. INORGANIC CLAYS, HIGH PLASTISICTY
7. INORGANIC SILTS AND ORGANIC CLAYS, HIGH COMPRESSIBILTY

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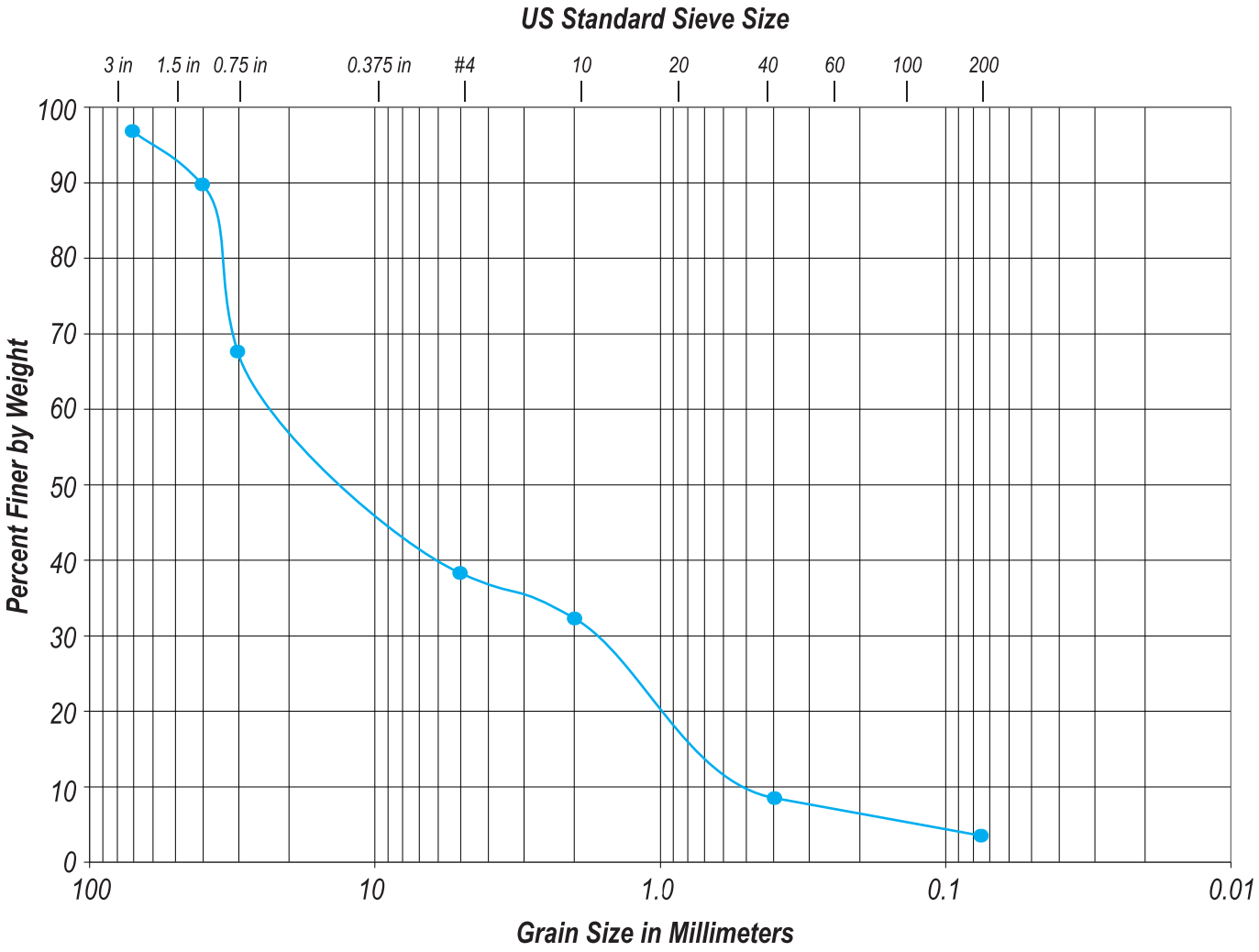
		PLATE:	B1
		PRO. #:	G0941800



Gravel		Sand			Silt & Clay
Coarse	Fine	Coarse	Medium	Fine	---

GRAIN SIZE DISTRIBUTION

I-1 at 5.5'
Native poorly-graded sandy Gravel (GP) with cobbles
and 4% passing the #200 Sieve
AASHTO A-1-a

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PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	DATE:	8/7/2018
		PLATE:	G1
		PRO. #:	G0941800

DISTRIBUTION

1 Copy	DD&C, LLC. 418 Date Street Vancouver, WA 98661 Attention: Bryan Desgrosellier

Earth Engineers, Inc.

2411 Southeast 8th Avenue • Camas • WA 98607
Phone: 360-567-1806
www.earth-engineers.com

October 13, 2021

City of Camas
Community Development Department
616 Northeast 4th Avenue
Camas, Washington 98607
Attention: Lauren Hollenbeck, Senior Planner

Phone: 360-817-7253
E-mail: lhollenbeck@cityofcamas.us

Subject: **Geotechnical Peer Review**
Proposed Washougal River Oaks Cottages Development
2531 Northeast 3rd Avenue
Camas, Clark County, Washington
EEI Report No. 21-217-1

Dear Ms. Hollenbeck:

Per your request, **Earth Engineers, Inc. (EEI)** has completed a geotechnical review for the project referenced above. Our services for this project are being conducted in accordance with EEI Proposal No. 21-P339 dated September 20, 2021, which was authorized by Robert Maul on September 21, 2021.

PROJECT BACKGROUND INFORMATION

Our understanding of the project is based on the following information that you provided to us.

- **August 21, 2018 report by Soil and Water Technologies (SWT), Inc. titled "Geotechnical Engineering Study, Proposed 2531 NE 3rd Avenue Subdivision, 2531 NE 3rd Avenue, Camas, Clark County, Washington 98607."** The report was prepared for DD&C, LLC of Vancouver, Washington.

- **Preliminary Partition Plan, Sheet P-1.0, titled "Washougal River Oaks" by Navix Site | Civil, dated December 29, 2020.**

We have not been provided any other design drawings, including drawings for the individual cottages or a proposed site grading plan overlain on an existing topographic site plan.

Briefly, we understand that the currently proposed project consists of constructing 22 cottages and designating 2 open spaces (Tract "A" and Tract "B"). SWT has been retained by DD&C,

LLC to act as the Geotechnical Engineer of Record for the project and has completed the geotechnical investigation report, which has been submitted to the City of Camas and forwarded to us for geotechnical review.

PURPOSE AND SCOPE OF SERVICES

The purpose of our geotechnical review was to assess the geotechnical report provided to us and provide our professional opinion on whether the report (1) meets the geotechnical engineering standard of care, and (2) meets Camas Municipal Code (CMC) Chapter 16.59.060—Critical Area Report Requirements for Geologically Hazardous Areas.

REVIEW COMMENTS

After reviewing the SWT report, we offer the following comments:

1. Based on the language in the "Introduction" section of the report, it is not clear that SWT understood the report would be submitted to the City of Camas to satisfy the Critical Area Report requirements. The SWT report does not comply with the report requirements of CMC Chapter 16.59.060. Specifically, the items still to be addressed include:

   a. Areas that are acceptable for storage of materials/stockpiles during construction.
   b. Areas on the site that are acceptable for stormwater disposal.
   c. Include a topographic site plan with 2-foot contours.

2. Based on the language in the "Project Description" section, it appears that the proposed project has changed since the geotechnical report was issued in 2018. We recommend SWT be provided the updated project drawings so that they can update their geotechnical report. In particular, SWT should review the currently proposed development area and determine whether additional subsurface explorations are warranted. For example, it is not clear to us whether the proposed building construction has been extended further to the north where the steeper slopes are located and where SWT may not have performed any subsurface explorations.

3. In the "Site Conditions" section, SWT indicates that the property slopes downwards from north to south at 10H:1V and that the maximum total elevation change across the site is approximately 40 feet. They should confirm that this is still correct.

4. The "Site Conditions" section also notes that there was a partially demolished residence present on the property in 2018. We recommend that SWT include geotechnical recommendations related to the demolition of any existing structures on the property (i.e. that all remnants of old construction—footings, slabs, etc.—be removed from the property and that any resulting voids be backfilled with properly compacted structural fill that is subsequently tested for compaction by a representative of the Geotechnical Engineer).

5. The “Slope and Landslide Hazards” section indicates that there are slopes greater than 15%, but they do not define what the maximum slopes on the property are. We recommend SWT more thoroughly describe the slope conditions on the project site and explain why the slopes are not considered a hazard that could impact the proposed project. While not required, consideration should be given by SWT to performing supplemental subsurface explorations in the area noted as “Geologically Hazardous” (due to steep slopes), as shown on Sheet P-1.0.

   This section of the report also presents language that refers to Clark County requirements. However, that is not applicable because this project is being permitted by the City of Camas, not Clark County.

6. At the time the report was issued, the 2018 International Building Code had not been adopted yet. But now the 2018 version has been adopted. We recommend that the “Seismic Design Criteria” section be updated accordingly.

7. The Atterberg Limits lab test results included in Appendix B show that the soil classifies as CL. However, the description of the soil in the report is silt (ML). This is likely an insignificant discrepancy that doesn’t impact their recommendations, but we suggest they correct this inconsistency.

We recommend that the City request that SWT respond to the items above in a revised or supplemental report.

LIMITATIONS

This report has been prepared for the exclusive use of the City of Camas for the specific application to the proposed Washougal River Oaks Cottages project located at 2531 Northeast 3rd Avenue in Camas, Washington. EEI does not authorize the use of the advice herein nor the reliance upon the report by third parties without prior written authorization by EEI.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed. We appreciate the opportunity to perform this geotechnical engineering evaluation. If you have any questions pertaining to this report, or if we may be of further service, please contact Troy Hull at 360-567-1806 (office) or 360-903-2784 (cell).

Sincerely,
Earth Engineers, Inc.

Troy Hull, P.E.
Principal Geotechnical Engineer

Reviewed by:

Adam Reese, L.E.G.
Principal Engineering Geologist

Distribution (e-mail only): Addressee

PACIFIC groundwater GROUP

Technical Memorandum

To: Bryan Desgrosellier, DD&C

From: Joe Morrice (LHG) and Peter Schwartzman (LHG), Pacific Groundwater Group

Re: Critical Aquifer Recharge Area Report – Washougal River Oaks

Date: September 3, 2020

This technical memorandum provides a critical area report and level one hydrogeologic assessment for the planned Washougal River Oaks development at 2531 NE 3rd Avenue, Camas, Washington ("the Site"). This report was prepared by a Washington-state licensed hydrogeologist to address the requirements of Chapter 16.55 (Critical Aquifer Recharge Areas) of the City of Camas (City) Code of Ordinances (COO). The COO meets the requirements of the Stormwater Management Manual for Western Washington (SMMWW) (Ecology, 2019).

The Site is comprised of five tax parcels (Clark County Parcel Numbers 89881000, 89883000, 89884000, 89875000, and 89937000) with a total area of approximately 3.2-acres. These parcels are currently developed with single family homes.

The Site is zoned MF-18, multifamily residential. Development plans call for removal of the single-family homes and construction of 23 small (less than 1,000 square foot) cottage style homes (see attached site plan, Figure 1). Development would be focused on the southern portion of the Site. The development would be served by City water and sewer. Site stormwater runoff would be collected and conveyed to an on-site pond for retention and infiltration.

Land surface at the Site ranges from about 190 feet at the north end to about 35 feet at the south end adjacent to 3rd Avenue. The Site is mapped as being within a Critical Aquifer Recharge Area (CARA) based on its location within the wellhead protection area for City Well No. 13 (well tag ALL 997, located 3,200 feet west of the site) A copy of the City's CARA map with the location of the project Site is provided in Attachment A. There are no surface-water bodies or wetlands on the Site. The Washougal River is located about 300 feet south of the Site. No other surface-water bodies are present within 1,300 feet of the Site. There are no wetlands on the Site; however, wetlands are mapped along the Washougal River south of the Site.

Under Chapter 16.55 of the City COO, construction of new structures is allowed in the CARA; however, construction that results in greater than 5 percent or 2,500 square feet of impervious surface require a CARA report with a level one hydrogeologic assessment. Further, activities that divert, alter, or reduce the flow of surface or ground waters (e.g., storm water management) also require a level one assessment. The following section presents the level one hydrogeologic assessment for the Site.

LEVEL ONE HYDROGEOLOGIC ASSESSMENT

Chapter 16.55 of the City COO specifies that a level one assessment include the following information:

- Available information regarding geologic and hydrogeologic characteristics of the Site;
- Ground water depth, flow direction and gradient;
- Available data on wells and springs within 1,300 feet of the Site;
- Location of other critical areas, including surface waters, within 1,300 feet of the Site;
- Available historic water quality data; and
- Best management practices proposed to be utilized.

The following sections provide this required information.

GEOLOGIC AND HYDROGEOLOGIC CHARACTERISTICS

The U.S. Geological Survey Geologic Map of the Camas Quadrangle (Evarts and O'Connor, 2008) indicates that the southern half of the Site is underlain by alluvial deposits while the northern half is underlain by Oligocene-age basalt bedrock. The alluvium is described as "Terrace deposits of lower Washougal River (Holocene and (or) Pleistocene)" which is comprised of "unconsolidated sandy gravel and sand underlying small terraces along Washougal River; generally less than 10 m thick" (ibid.). The Washougal later incised through these materials, allowing the Washougal to drain more freely and leaving the alluvial terraces above the present-day river elevation (ibid.). The basalt was formed by a sequence of lava flows and has a maximum thickness on the order of 2,500 feet. The basalt is regionally extensive and underlies the alluvium on the southern half of the Site.

The alluvium is coarse-grained and is expected to transmit water, both vertically (e.g., infiltration) and as horizontal flow (see discussion of test pits below). The basalt is relatively impermeable and yields only limited quantities of water, except where fractured or at the interflow zone between two basalt flows.

Weathering of the alluvium and the bedrock has resulted in two soil types at the Site. The U.S. Department of Agriculture, Natural Resource Conservation Service online soil maps (USDA, 2020) indicate the southern half of the Site (alluvium) in underlain by Hillsboro loam soil. This soil is composed of 40 to 60 percent sand, with silt and clay forming the remaining fraction. It is described as a well-drained soil and is categorized as a Group B soil with moderate infiltration rate and a moderately low runoff potential. The Hillsboro loam has a saturated hydraulic conductivity (Ksat) on the order of 10^{-3} centimeters per second (cm/s), a value typical for silty sand.

The northern half of the Site (bedrock) is underlain by Olympic stony loam soil. This soil is less sandy than the Hillsboro loam. It is described as well-drained and is categorized as a Group C soil with a slow infiltration rate and a moderately high runoff potential. This soil has a saturated hydraulic conductivity on the order of $3x10^{-4}$ cm/s.

Three test pits were excavated at the Site in August 2018 to support a geotechnical engineering study (Soil and Water Technologies, Inc., 2018). One test pit (I-1) was located at the southern Site boundary, where the proposed infiltration pond would be located. Two other test points (TP-2 and TP-3) were excavated near the middle and at the north end of Site area planned for development. Test pit TP-3 encountered about 5.5 feet of silt overlying basalt bedrock and test pit TP-2 encountered silt to the total depth of 10 feet. Test pit I-1 encountered about 2 feet of silty gravel overlying sandy gravel with cobbles to the total excavation depth of 12.5 feet. Neither groundwater nor seepage was observed in any of the test pits.

A short-term infiltration test was performed at test pit I-1 to assess suitability of soils at this location for infiltrating stormwater. The test was performed at a depth of 5.5 feet (in dense sandy gravel with cobbles) and resulted in an estimated field infiltration rate of about 4 inches per hour ($2x10^{-3}$ cm/s). This value is consistent with the Ksat value of 10^{-3} cm/s published for the Hillsboro Loam, and represents a low-to-moderate hydraulic conductivity which is slightly inconsistent with the lack of silt reported in Test Pit I-1 between depths of 2 and 12.5 feet. Although sediments lacking silt are expected to exhibit a higher infiltration rate, the geotech firm performing the test attributed the slower infiltration rate to the dense compaction of the sediments and their report concluded that soils at this location are suitable for stormwater infiltration (Soil and Water Technologies, Inc., 2018).

Overall, the sediments that occupy the floodplain in the vicinity of the Washougal and Columbia rivers are expected to be highly transmissive. As documented by PGG (2004), this area is largely occupied by the Pleistocene Alluvial Aquifer (PAA), which is highly transmissive with estimated hydraulic conductivity values on the order of about 1 cm/s.

GROUNDWATER DEPTH, FLOW DIRECTION, AND GRADIENT

Site-specific information on hydraulic gradient and flow direction are unavailable; however, flow direction and hydraulic gradient are expected to be controlled by interactions with surface-water features and by pumping drawdown associated with the City of Camas "Lower Washougal Wellfield" (LWWF) located south of the Washougal River (PGG, 2004). PGG evaluated hydrogeologic conditions in the LWWF vicinity and noted that groundwater flow directions are difficult to predict due to: 1) limited groundwater level data; 2) the likelihood of relatively flat hydraulic gradients associated with the high transmissivity of the PAA; and 3) dynamic groundwater level responses to tidal and seasonal stage fluctuations on the Columbia River. Based on general relationships between river stages and measured groundwater elevations, PGG surmised that groundwater flows in a southwest direction towards the Columbia River and may be influenced by local pumping patterns. During summer months, when pumping withdrawals are high and groundwater levels are low, PGG found that the Washougal River generally exhibits seepage losses downstream of the 3rd Avenue Bridge. This suggests that groundwater levels near the Site are below the river level during the summer season. Seepage studies were not performed during winter months when groundwater levels are expected to be higher.

The City of Camas maintains a stream gage on the Washougal River at the Washougal River Trail footbridge, about 2,100 feet downstream of the Site. The data record (2009-present) shows seasonal low river stages of around 8 feet NGVD29, extended seasonal high stages of around 15 feet

NGVD29, and elevations of up to 23 feet NGVD29 during short-term flooding events. PGG used river-stage elevations and reasonable hydrogeologic assumptions to estimate groundwater elevations beneath the site, as shown on the table below (all values in NGVD29):

8	feet Washougal River minimum @ City Gage, Footbridge
15	feet Washougal River Seasonal Extended High @ City Gage, Footbridge
23	feet Washougal River Flooded High @ City Gage, Footbridge
2100	feet between site (upstream) and Footbridge (downstream)
2.5	feet river stage gain from gage to site (Google Earth)
10.5	feet Washougal River minimum @ site
17.5	feet Washougal River Seasonal Extended High @ site
25.5	feet Washougal River Flooded High @ site
0.01	hydraulic gradient
344	feet distance from edge of river to site infiltration facility
3.4	feet water table rise between river edge and underneath infiltration facility
13.9	feet expected groundwater minimum elevation @ infiltration facility
20.9	feet expected groundwater extended seasonal high elevation @ infiltration facility
28.9	feet expected groundwater river flooded elevation @ infiltration facility
37.5	feet land surface elevation @ stormwater facility
31.0	feet bottom elevation of constructed stormwater facility

PGG estimates that river stages nearest to the site range seasonally from 10.5 to 17.5 feet NGVD29 and approach 25.5 feet NGVD29 during flooding events. During the wet season, when the PAA is expected to be hydraulically connected to the river, PGG assumes that groundwater elevations along the river are similar to river-stage elevations. We further assume a southerly component of groundwater flow towards the river at a hydraulic gradient of 0.01. (While this value may be high relative to the transmissivity of the PAA, in the absence of measured water levels, use of a conservatively high hydraulic gradient is justified.) Based on the distance between the proposed infiltration facility and the river (344 feet) and the assumed hydraulic gradient, PGG estimates that groundwater levels beneath the site may range from less than 14 feet NGVD29 (dry season) to around 21 feet NGVD29 (wet season), and could rise to about 29 feet NGVD20 during extended flooding events. Two extended (5-10 week) flooding events are noted over the 12-year data record. Given that the designed bottom of the constructed stormwater facility is at 31 feet NGVD29, about 10 feet of vertical separation would be expected during typical wet-season conditions. However, depending on *actual* (rather than assumed) response to prolonged flooding events, vertical separation during flooding could be less than 5 feet.

Flow direction and depth to water within the bedrock underlying the north half of the Site are also uncertain. Based on the test pit explorations, there does not appear to be groundwater perched on the underlying basalt where it is present at shallow depth. Groundwater flow in the bedrock is expected to relatively minimal given expected low permeability. Groundwater would likely flow southward, recharging the alluvium before ultimately discharging to the Washougal River.

WELLS AND SPRINGS

Well driller construction logs were acquired from the Ecology well log database for locations within 1,300 feet of the Site. A total of 40 well drilling logs were identified; however, only two are for water supply wells. The remaining logs are for well decommissioning (8) or resource protection monitoring wells and geotechnical borings (30). The two water supply wells include City Well No. 13 and a private well (Thomas). Copies of these well logs are provided in Attachment B.

The City well is located along the Washougal River about 3,200 feet west (cross gradient and downgradient) of the Site. This well was drilled to a total depth of 111 feet, where it encountered bedrock. The well was completed in the overlying sand and gravel alluvium with a screened interval of 80 to 98 feet below ground surface (bgs). Depth to water was about 48 feet at time of drilling in 2006 and groundwater elevation appears to be similar to the surface water elevation in the nearby Washougal River. The alluvium is highly transmissive, with a reported drawdown of 1.4 feet while pumping at a rate of nearly 1,400 gallons per minute.

The private Thomas well is located about 1,300 feet northwest of the Site. This well was drilled in 1996 to a depth of 475 feet bgs. During drilling, a thin layer of soil and clay was encountered overlying basalt bedrock to the total drilling depth. Depth to water at time of drilling was reported as 219 feet bgs.

Based on review of U.S. Geological Survey topographic maps, no springs were identified within 1,300 feet of the Site.

OTHER CRITICAL AREAS

Other surface waters and critical areas within 1,300 feet of the Site include the Washougal River and associated mapped wetlands, located about 300 feet south of the Site. Figure 2 provides a map of these critical areas developed using Clark County's "MapsOnline" website and shows the site parcels in blue.

WATER QUALITY DATA

Water quality data identified for the area are limited to surface water quality in the Washougal River as reported by Ecology and water quality data collected by the City from Well 13.

The Washougal River near the Site has generally good water quality. Ecology completes a periodic assessment of state surface waters to identify water quality-impaired surface waters. The list of impaired surface waters is called the 303(d) list. The current list indicates the Washougal River upstream of the Site is Category 2 (unconfirmed exceedance of criteria) for pH and temperature.

Groundwater quality in the area was assessed by reviewing water quality data from Well 13 reported by the City to the Department of Health. Well 13 has been monitored several times per year since 2006 for a suite of constituents, including inorganic compounds, bacteria, synthetic organic compounds, nitrate, and pesticides and herbicides. Water quality has remined consistently good, with no reported exceedances of drinking water standards.

BEST MANAGEMENT PRACTICES

Planned construction activities and residential use of the Site have the potential to cause water quality or water quantity impacts to groundwater in the alluvium underlying the southern half of the Site. Events with the potential to cause impacts during construction include accidental spills or releases of fuel that could migrate to groundwater.

Following construction, residential use of the Site has the potential to impact groundwater quantity by increasing impervious surfaces and reducing the infiltration of precipitation to groundwater. Water quality could be impacted by infiltration of precipitation that contains fuel products after contacting road or parking surfaces or gardening chemicals applied to lawns. Concerns over potential impacts to groundwater during and after construction will be addressed by implementation of applicable best management practices (BMPs) discussed below.

During construction, stormwater will be managed under Ecology's Construction Stormwater General Permit (General Permit). This permit requires a Stormwater Pollution Prevention Plan (SWPP) and that pollution prevention best management practices be implemented during construction, in accordance with the *2019 Stormwater Management Manual for Western Washington* (SWMMWW; Ecology, 2019). Section S9 of the General Permit includes requirements for the SWPP. Subsection D.9. summarizes applicable BMPs to control pollutants, including:

- Covering, containing, and protecting potentially hazardous substances from vandalism;
- Using spill prevention and control measures during equipment fueling or repair; and
- Providing secondary containment for on-site fuel storage.

Text from Section 9, subsection D.9. describing pollutant control requirements under the General Permit is included as Attachment C.

Following development, stormwater runoff at the Site will collected, conveyed to a pond and infiltrated on-site. The conveyance and infiltration system will be designed in accordance with the SWMMWW (Ecology, 2019). Construction of impervious surfaces causes reduction of aerial infiltration of precipitation recharge, although precipitation recharge may already be constrained by the occurrence of shallow bedrock and silty soils immediately below the ground surface. However, because runoff from impervious surfaces will be routed to an infiltration basin, and due to reduced evapotranspiration associated with reduced vegetative cover, groundwater recharge associated with the site is expected to increase.

CONFORMANCE WITH ECOLOGY'S SWMMWW

In reviewing the Geotech Report (Soil and Water Technologies, 2018) and considering the information discussed above, PGG notes that additional information may be needed to satisfy the guidelines of the SWMMWW. Specifically:

1. Use of an infiltration basin (BMP T7.10) to treat stormwater quality is an applicable BMP described in the SWMMWW. To provide water quality treatment, the base of the basin must be at least 5 feet above the seasonal high groundwater elevation. The SWMMWW defines

seasonal high groundwater level as "the highest annual groundwater elevation as determined by a qualified soil scientist, geohydrologist, or licensed engineer in the state of Washington based on monitoring wells or other recognized methods". Notwithstanding flooding events, PGG estimates a seasonal high water table of around 21 feet NGVD29, which provides about 10 feet of vertical separation from the bottom elevation of the infiltration basin (about 31 feet, as shown on Figure 1). During extended river flooding events (relatively rare), the 5 feet of vertical separation may not be maintained.

2. A mounding analysis may be needed to support the Infiltration BMP design. The SMMWW states: *"On projects where an infiltration BMP has a contributing drainage area exceeding 1 acre and has less than fifteen feet depth to seasonal high ground water (as measured from the elevation at which infiltration into the native soil begins) or other low permeability stratum, determine the final design infiltration rate using an analytical ground water model to investigate the effects of the local hydrologic conditions on BMP performance"*. Furthermore, the SMMWW requires that *"at sites with shallow ground water (less than 15 feet from the estimated base of the Infiltration BMP, if a ground water mounding analysis is necessary, determine the thickness of the saturated zone"*. Bedrock encountered in City Well 13 (at an elevation of -51 feet NGVD29) can be used to approximate the saturated thickness of the aquifer beneath the site, and aquifer properties associated with pumping tests in the PAA can be used to support mounding analysis.

3. The SMMWW requires site characterization to include an excavation *"to a depth below the base of the infiltration BMP of at least 5 times the maximum design depth of ponded water proposed for the infiltration BMP, but not less than 10 feet below the base of the BMP."* Assuming that the infiltration pond will hold 5 feet of water, an excavation (test pit or well) would be required to a depth of 25 feet below the Infiltration BMP or 31 feet below the current land surface. The deepest excavation in the Geotech Report was 12 feet below land surface.

4. The SMMWW requests three monitoring wells to estimate groundwater flow direction, but is willing to accept a single well if "gradient and flow direction are not critical". As discussed above, groundwater flow is expected to be controlled by river elevations and predominantly occur to the southwest. Based on this information, three monitoring wells are unlikely to be needed.

5. The SMMWW also requires water-level monitoring through at least one wet season to assess the seasonal high water table "unless substantially equivalent site historical data regarding groundwater levels is available". Based on discussion with DD&C, two adjacent sites have been approved for stormwater infiltration. Data submitted for these sites may be useful for meeting the SMMWW requirement.

It should be noted that PGG's analysis is based on the conclusion that the stormwater infiltration facility can accommodate expected stormwater loading (Soil and water Technologies Inc., 2018) and that the transmissivity of the aquifer is sufficiently high that mounding will not significantly reduce local depth to water. If a mounding analysis (or other requirements of the SMMWW noted above) require attention, PGG is available to provide assistance.

REFERENCES

Department of Ecology, 2019. Stormwater Management Manual for Western Washington. Publication Number 19-10-021. July 2019.

Department of Ecology, 2020a. Washington State Water Well Report Viewer. https://appswr.ecology.wa.gov/wellconstruction/map/WCLSWebMap/default.aspx. Accessed June 2020.

Department of Ecology, 2020b. Washington State Water Quality Assessment, 303(d)/305(b) List. https://apps.ecology.wa.gov/ApprovedWQA. Accessed June 2020.

Department of Ecology, 2020c. River and Stream Flow Monitoring Network. https://fortress.wa.gov/ecy/eap/flows/station.asp?sta=28B080#block3

Evarts, R.C. and J.E. O'Connor, 2008. Geologic Map of the Camas Quadrangle, Clark County, Washington, and Multnomah County, Oregon. Scientific Investigations Map 3017.

Pacific Groundwater Group (PGG), 2004. City of Camas Water Supply Alternatives Investigation. Consultant's report prepared for the City of Camas by Pacific Groundwater Group and Fishman Environmental Services dated 10/22/2004.

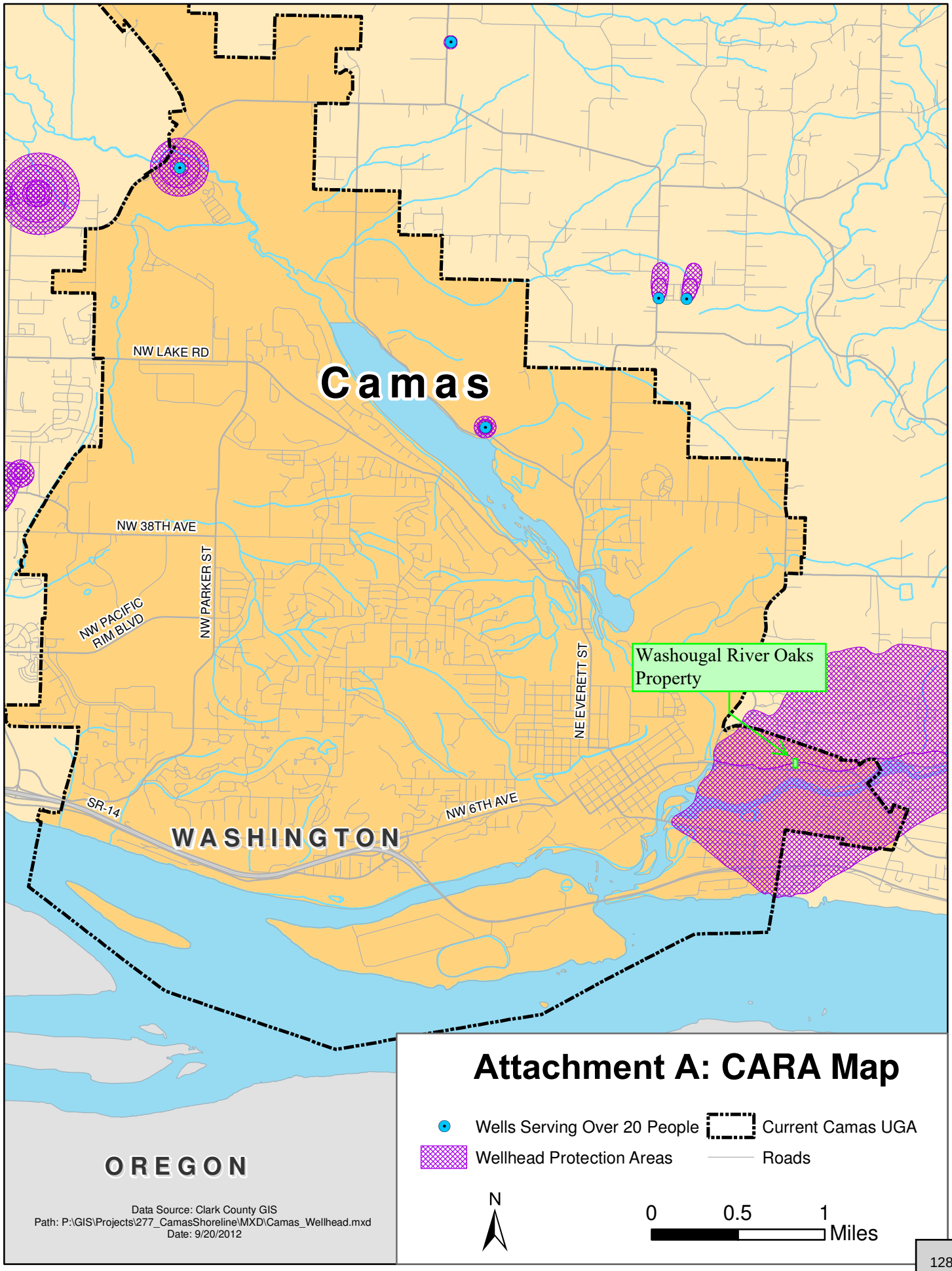
Soil and Water Technologies, Inc., 2018. Geotechnical Engineering Study, Proposed 2531 NE 3rd Avenue Subdivision, 2531 NE 3rd Avenue, Camas, Clark County, WA 98607.

US Department of Agriculture, 2020. SoilWeb Online soil Survey Browser. https://casoilresource.lawr.ucdavis.edu/gmap/. Accessed June 2020.

JZ2038

Attachment A

Critical Aquifer Recharge Area Map


Camas
NW LAKE RD
NW 38TH AVE
NW PARKER ST
NW PACIFIC RIM BLVD
NE EVERETT ST
NW 6TH AVE
SR-14
WASHINGTON
OREGON
Washougal River Oaks Property
Attachment A: CARA Map
Wells Serving Over 20 People
Current Camas UGA
Wellhead Protection Areas
Roads
N
0
0.5
1
Miles
Data Source: Clark County GIS
Path: P:\GIS\Projects\277_CamasShoreline\MXD\Camas_Wellhead.mxd
Date: 9/20/2012

Attachment B

Water Well Logs

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy 193883

WATER WELL REPORT
STATE OF WASHINGTON

Notice of Intent W220603
UNIQUE WELL I.D. # ALL-997
Water Right Permit No. G4072-A

(1) **OWNER:** Name City of Camas Address PO Box 1055 Camas, WA 98607

(2) **LOCATION OF WELL:** County Clark SW 1/4 NW 1/4 Sec 12 T 1 N.R. 3E WM

(2a) **STREET ADDRESS OF WELL:** (or nearest address) NE 1st Ave.

TAX PARCEL NO.: 090928-000

(3) **PROPOSED USE:** ☐ Domestic ☐ Industrial ☒ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (if more than one) Well 13
☒ New Well ☐ Deepened ☐ Reconditioned ☐ Decommission
Method: ☐ Dug ☐ Bored ☒ Cable ☐ Driven ☐ Rotary ☐ Jetted

(5) **DIMENSIONS:** Diameter of well 20 inches
Drilled 111 feet. Depth of completed well 103 ft.

(6) **CONSTRUCTION DETAILS**
Casing Installed:
☒ Welded 20 " Diam. from +2 ft. to 80 ft.
☐ Liner installed " Diam. from ft. to ft.
☐ Threaded " Diam. from ft. to ft.

Perforations: ☐ Yes ☒ No
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.

Screens: ☒ Yes ☐ No ☐ K-Pac Location 77 ft
Manufacturer's Name Johnsons
Type 304 Stainless Model No.
Diam. 18 Slot Size 150 from 80 ft. to 98 ft.
Diam. Slot Size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand
Material placed from ft. to ft.

Surface seal: ☒ Yes ☐ No To what depth? 34 ft.
Material used in seal Bentonite
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level 55 ft.
Static level 48.2 ft. below top of well Date 2/8/06
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? ☒ Yes ☐ No If yes, by whom? P66 / Holt
Yield: 393 gal./min. with 109 ft. drawdown after 24 hrs.
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 2/8/06
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? ☒ Yes ☐ No

(10) **WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION**
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.

MATERIAL	FROM	TO
Brown Silt & Gravel	0	4
Brown Silt, Sand, Gravel & Boulders	4	13
Brown Silty Sand, Gravel & Cobbles	13	19
Brown Silt, Gravel, Cobbles & Boulders	19	25
Brown Silty Gravel & Cobbles	25	29
Brown silty Sand, Gravel & cobbles	29	45
Brown silty clay gravelly silty Sand	45	54
Brown silty Sand & Gravel	54	60
Brown silt bound Sand & Gravel	60	68
Brown Sand & Gravel with silt bound interbeds	68	86
Brown cobbly Sand and Gravel (loose)	86	92
Brown cobbly Sand & Gravel with silt bound interbeds	92	100
Tan-gray silt with weathered rock frags.	100	108
Bedrock	108	111

RECEIVED
APR 17 2006
Washington State Department of Ecology

Work Started 12/18/2005 Completed 2/10/2005

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name Randy Holt License No. 1099
(Licensed Driller/Engineer)

Trainee Name License No.
Drilling Company Holt Drilling / Board Longyear
(Signed) Randy Holt License No. 1099
(Licensed Driller/Engineer)
Address Po Box 1890, Milton WA 98354
Contractor's Registration No. BOARTLCOSSPZ Date 4/04/06

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For accommodation needs, contact the Water Resources Program at (360) 6600. The TDD number is (360) 407-6006.

ECY 050-1-20 (11/98)

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W-78582

UNIQUE WELL I.D. # _____

Water Right Permit No. _____

(1) **OWNER:** Name Mark Thomas Address Camas Wa.

(2) **LOCATION OF WELL:** County Clark - NW 1/4 NW 1/4 Sec 12 T. 1 N., R. 3E W.M.

(2a) **STREET ADDRESS OF WELL** (or nearest address) 3701 SE Crown Rd.

(3) **PROPOSED USE:** ☒ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (If more than one) _____

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☒ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 6 inches. Drilled 475 feet. Depth of completed well 475 ft.

(6) **CONSTRUCTION DETAILS:**

Casing installed: 6 " Diam. from +1 ft. to 37 ft.
Welded ☒
Liner installed ☐
Threaded ☐
" Diam. from _____ ft. to _____ ft.
" Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒
Manufacturer's Name _____
Type _____ Model No. _____
Diam. ____ Slot size _____ from _____ ft. to _____ ft.
Diam. ____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 37 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) **PUMP:** Manufacturer's Name _____
Type: _____ H.P. _____

(8) **WATER LEVELS:** Land-surface elevation above mean sea level _____ ft.
Static level 219 ft. below top of well Date 8-15-96
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest 150 gal./min. with stem set at 475 ft. for 5 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water 57 Was a chemical analysis made? Yes ☐ No ☒

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Top Soil + Clay	0	6
Fractured Shale	6	22
Medium Grey Basalt w/ Brown Basalt Ribs	22	318
Hard Grey Basalt	318	387
Vesecular Black Basalt w/ Quartz	387	401
Medium Grey Basalt	401	435
Vesecular Black Basalt w/ Quartz	435	471
Vesecular Brown Basalt w/ Expanded Shales (w/B)	471	475

Work Started 8-14-96 19. Completed 8-15 19 96

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Bills well Drilling (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address Goldendale - Wa.

(Signed) Donald McKnight (WELL DRILLER) License No. 1052

Contractor's Registration No. BILLSWD085OC Date 8-15 19 96

(USE ADDITIONAL SHEETS IF NECESSARY)

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ECY 050-1-20 (9/93) * * f

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Attachment C

Excerpt from the Construction Stormwater General Permit

cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

ii. East of the Cascade Mountains Crest: Channels must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

b. Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the outlets of all conveyance systems.

9. Control Pollutants

Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. The Permittee must:

a. Handle and dispose of all pollutants, including waste materials and demolition debris that occur on site in a manner that does not cause contamination of stormwater.

b. Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks must include secondary containment. Secondary containment means placing tanks or containers within an impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.

c. Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.

d. Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed-loop recirculation or upland land application, or to the sanitary sewer with local sewer district approval.

e. Apply fertilizers and pesticides in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturers' label requirements for application rates and procedures.

f. Use BMPs to prevent contamination of stormwater runoff by pH-modifying sources. The sources for this contamination include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, recycled concrete stockpiles, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete

pumping and mixer washout waters. (Also refer to the definition for "concrete wastewater" in Appendix A--Definitions.)

g. Adjust the pH of stormwater or authorized non-stormwater if necessary to prevent an exceedance of groundwater and/or surface water quality standards.

h. Assure that washout of concrete trucks is performed off-site or in designated concrete washout areas only. Do not wash out concrete truck drums or concrete handling equipment onto the ground, or into storm drains, open ditches, streets, or streams. Washout of concrete handling equipment may be disposed of in a designated concrete washout area or in a formed area awating concrete where it will not contaminate surface or ground water. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete discharge directly to groundwater or surface waters of the State is prohibited. Do not wash out to formed areas awaiting LID facilities.

i. Obtain written approval from Ecology before using any chemical treatment, with the exception of CO_2 or dry ice used to adjust pH.

j. Uncontaminated water from water-only based shaft drilling for construction of building, road, and bridge foundations may be infiltrated provided the wastewater is managed in a way that prohibits discharge to surface waters. Prior to infiltration, water from water-only based shaft drilling that comes into contact with curing concrete must be neutralized until pH is in the range of 6.5 to 8.5 (su).

10. Control Dewatering

a. Permittees must discharge foundation, vault, and trench dewatering water, which have characteristics similar to stormwater runoff at the site, into a controlled conveyance system before discharge to a sediment trap or sediment pond.

b. Permittees may discharge clean, non-turbid dewatering water, such as well-point ground water, to systems tributary to, or directly into surface waters of the State, as specified in Special Condition S9.D.8, provided the dewatering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through stormwater sediment ponds. Note that “surface waters of the State” may exist on a construction site as well as off site; for example, a creek running through a site.

c. Other dewatering treatment or disposal options may include:

i. Infiltration.

ii. Transport off site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters.

EXHIBIT 14
SUB 20-01

NAVIX
SITE | CIVIL

10135 s.e sunnyside road, suite 200
clackamas, or 97015
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e info@navixeng.com

Stormwater Drainage Report

Washougal River Oaks
Camas, WA

October 2020

Prepared for: Desgrosellier Design & Construction
Contact: Bryan Desgrosellier
418 Date Street
Vancouver, WA 98661

Reviewed by: Bryan Dickerson, P.E.
Principal
bdickerson@navixeng.com

Table of Contents

Project Overview

Introduction

This stormwater report is prepared to discuss the proposed stormwater management system and to provide the documentation and the analysis showing that the proposed system is feasible and designed to address the jurisdictional requirements. All components of the stormwater management system were designed to meet the stormwater requirements of the Camas Stormwater Design Standards Manual, per the latest edition of Ecology's Stormwater Management Manual for Western Washington (2014 SWMMWW).

The project site is located at the northeast corner of the intersection of NE 3rd Ave and NE Wedgewood Ct in a portion of the Northwest ¼ and Southwest ¼ of the Northeast ¼ of Section 12, Township 1 North, Range 3 East of the Willamette Meridian, Camas, Clark County, Washington. A vicinity map is included in the Site Location section of this report.

The project site is located approximately 300 ft north of the Washougal River and approximately 3,900 ft north of the Columbia River. According to the FEMA Flood Insurance Rate Map Number 53011C0534E, effective January 19, 2018, the site is located within Zone X, described as areas of minimal flood hazard. See Appendix A-2 for the noted FEMA map.

Existing Conditions

The site is comprised of four (4) tax lots, consisting of approximately 2.95 acres. There are existing residential homes and associated driveway improvements on each lot, with miscellaneous outbuildings. The eastern and northern portions of the site are primarily unimproved, with dense tree and vegetation cover. It should be noted that the proposed development only covers the lower portion of the site – approximately 1.90 acres. The northern most portion of the site, approximately 1.05 acres, consists of steep slopes and dense vegetation, and will not be disturbed with this project. The site is located within a Wellhead Protection Area as shown by the Camas CARA Map (See Appendix A-3).

According to the Natural Resources Conservation Services (NCRS), the native soil underlying the site consists of Hillsboro Loam (HIC), Olympic Stony Clay (OmE), and Washougal Gravelly Loam (WgB), each with the following characteristics:

- Hillsboro Loam belongs to Soil Group (SG) 2, with a Hydrologic Soil Group (HSG) B designation.
- Olympic Stony Clay belongs to Soil Group (SG) 3, with a Hydrologic Soil Group (HSG) C designation.
- Washougal Gravelly Loam belongs to Soil Group (SG) 2, with a Hydrologic Soil Group (HSG) B designation.

Stormwater runoff of the site and surrounding streets are managed through a system of catch basins, field inlets, and storm pipes. Within the subject site, runoff from the existing homes daylights to grade, where it sheet flows downhill and infiltrates, or drains to NE 3rd Ave. Based on the geotechnical report prepared by Soil and Water Technologies, Inc, dated August 2018, the infiltration rate at the site was field-measured to be 4.0 inches per hour at 5.5 ft below ground surface. See Appendix C-2.

Re-Developed Conditions

The project proposes to develop the site into a 22-unit cottage style development, with common areas and shared drive access, as well as associated parking, landscaping, lighting, stormwater and utility improvements.

The project proposes to utilize an infiltration pond to manage and discharge all stormwater runoff onsite. Flow control is not required with this project since stormwater runoff is not proposed to be discharged to an offsite downstream conveyance system. The stormwater runoff from the developed site will conveyed to the infiltration pond through a system of curb and gutter and underground storm pipe.

The stormwater system for this project has been designed in accordance with regulatory criteria described above and is consistent with sound engineering practice. This system's design has incorporated stormwater treatment BMP's and infiltration facilities for the mitigation of stormwater runoff quantity and quality impacts.

Site Location

The project site is located at the northeast corner of the intersection of NE 3rd Ave and NE Wedgewood Ct in Camas, Washington (see Figure 1 below for Vicinity Map).

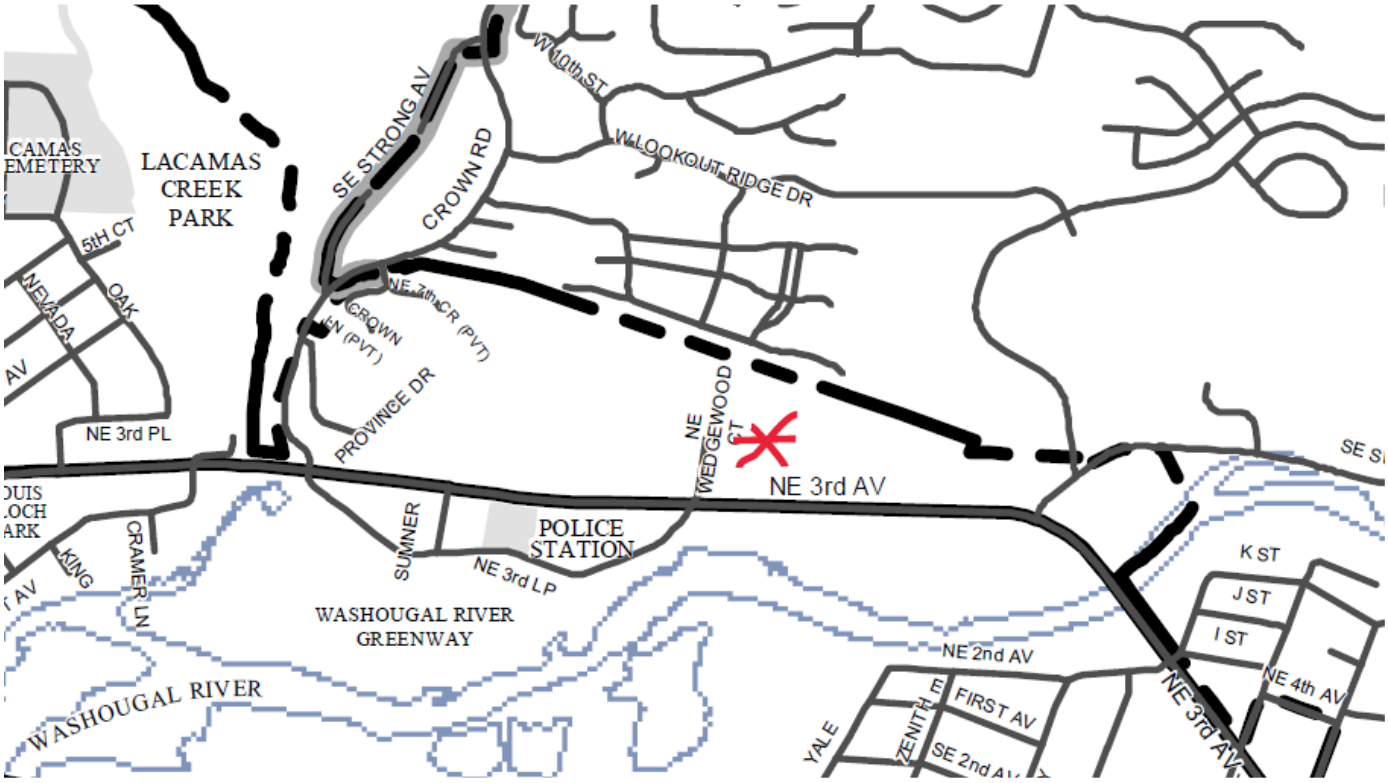


Figure 1: Site Location

- **Location:** 2531 NE 3rd Ave
- **Section, Township, Range:** NW ¼ & SW ¼ of NE ¼ of Section 12, T1N, R13E
- **Parcel/Tax Lot:** 89884000, 89883000, 89881000, 89875000
- **Size:** 128,629 SF (2.95 AC)
- **City, County, State:** City of Camas, Clark County, Washington State
- **Governing Agency:** City of Camas
- **Zoning:** MF-18 (with proposed Cottage overlay)

Minimum Requirements

The proposed site improvements will change the amount of impervious surface for the existing site. The total project disturbance area consists of approximately 4,760 sf of existing building/roof area (impervious), and approximately 4,570 sf of existing driveway (gravel) area, with approximately 76,318 sf of pervious area. All existing site improvements will be demolished as needed to accommodate the proposed development. The developed project area will consist of approximately 46,936 sf of total impervious area and 38,712 sf of landscape and stormwater pond area. Approximately 5,843 sf of the site will be dedicated to the NE Wedgewood Ct Right-of-Way.

Table 1 below on summarizes each land disturbing activity for the proposed development and provides a Total Effective Impervious Surface for the Threshold Drainage Area (TDA).

Table 1 - Project Disturbance Areas	
Existing Conditions (1.97 acres±)	***Area (SF)***
Existing Impervious Surface	9,330
Existing Landscaped Area	76,318
Proposed Conditions (1.97 acres±)*	***Area (SF)***
Site Replaced Impervious Area	40,430
Site Pervious Area	36,576
Off-site - Impervious Area	6,506
Off-site - Pervious Area	2,136
Total Land-Disturbing Activity	**85,648**
Total Effective Impervious Surface	**46,936**

** Proposed conditions account for tree credits*

The Minimum Requirements applicable for the site are determined by using Figure 2.3 found in Volume I of the Stormwater Management Manual for Western Washington (DOE Stormwater Manual). Based on the flowchart, Minimum Requirements #1 through #10 apply to the effective impervious surface.

Based on the project's proposal to infiltrate all stormwater runoff onsite, the Threshold Discharge Area, as defined by the DOE stormwater manual is not applicable to this project.

The Western Washington Hydrologic Model (WWHM2012) was used to size the infiltration pond proposed for the mitigated developed conditions. Results of the continuous runoff simulation are provided as part of the WWHM2012 Project Report in the appendix (See Appendix D).

Minimum Requirements that apply to the proposed development are as follows:

Minimum Requirement #1: Preparation of Stormwater Site Plans

The Stormwater Site Plan has been prepared in accordance with Volume I, Chapter 3 of the 2014 Stormwater Manual for Western Washington (SWMMWW).

Minimum Requirement #2: Construction Stormwater Pollution Prevention Plan (SWPPP)

A SWPPP plan set will be developed and submitted with the site/building permit submittal after receipt of completion of the landuse entitlement process.

Minimum Requirement #3: Source Control of Pollution

Available and reasonable source control BMPs have been selected, designed, and maintained in accordance with Volume IV of the 2014 SWMMWW.

Minimum Requirement #4: Preservation of Natural Drainage Systems & Outfalls

The existing drainage patterns of infiltrating stormwater runoff into the ground will be maintained. Runoff is not discharged from the project site and does not discharge directly to any offsite conveyance system, downstream receiving waters, and down gradient properties.

Minimum Requirement #5: On-site Stormwater Management

The proposed project will employ on-site stormwater management BMPs to infiltrate and retain stormwater runoff on-site to the maximum extent feasible without causing flooding and erosion.

Minimum Requirement #6: Runoff Treatment

Projects in which the total of effective, Pollution Generating Impervious Surfaces (PGIS) is 5,000 SF or more in a threshold discharge area shall be treated. Since runoff is not discharged to any natural drainage system, the subject site does not have a threshold discharge area as defined by the DOE stormwater manual. The project proposes to manage stormwater runoff by infiltration into the ground via an infiltration basin with emergency overflow to an existing storm drainage system located in NE 3rd Ave. Groundwater was not encountered in any of geotechnical borings completed on the site to depths of 12.5 ft below ground surface. Refer to geotechnical report in the Appendix C-2.

Pre-treatment of stormwater runoff will be provided by trapped catch basins located in the parking lot and drive aisle areas, to remove oils and sediment from runoff prior to entering the infiltration basin, in accordance with Volume 3, Section 3.3 of the DOE Stormwater Manual.

Minimum Requirement #7: Flow Control

This requirement does not apply since the proposed project will infiltrate stormwater runoff onsite and will not discharge to any offsite downstream conveyance system.

Minimum Requirement #8: Wetlands Protection

This requirement does not apply since the proposed project will not discharge to any wetlands directly or indirectly through a conveyance system.

Minimum Requirement #9: Basin/Watershed Planning

This requirement does not apply since the proposed project will infiltrate stormwater runoff onsite and will not discharge to any offsite downstream conveyance system.

Minimum Requirement #10: Operation and Maintenance

An operation and maintenance manual (O&M Manual) is included per provisions outlined in Volume V of the DOE Stormwater Manual, for the proposed stormwater infiltration facility (See Appendix E). The property owner will be responsible for the cost of installation, as well as operation and maintenance of the proposed stormwater facilities.

Soils Evaluation

According to the Natural Resources Conservation Services (NCRS), the native soil underlying the site consists of Hillsboro Loam (HIC), Olympic Stony Clay (OmE), and Washougal Gravelly Loam (WgB), each with the following characteristics:

- Hillsboro Loam belongs to Soil Group (SG) 2, with a Hydrologic Soil Group (HSG) B designation.
- Olympic Stony Clay belongs to Soil Group (SG) 3, with a Hydrologic Soil Group (HSG) C designation.
- Washougal Gravelly Loam belongs to Soil Group (SG) 2, with a Hydrologic Soil Group (HSG) B designation.

A Web Soil Survey for the site is provided in the appendix (See Appendix A-1). The Clark County data map of the WWHM program includes five soils groups to represent the many soil types found within the county limits. See Appendix C-1. The majority of the developed site area is comprised of Hillsboro Loam and Washougal Gravelly Loam, which both fall within Soil Group 3.

As discussed in the geotechnical report, subgrade soils consist of 4 to 6 inches of organic topsoil, underlain by a mixture of silt, silty gravel, and sandy gravel. Subgrade soils in the upper portions of the site generally consist of native silt (ML), extending to a maximum explored depth of 10 ft below ground surface. Subgrade soils in the lower portion of the site, near the infiltration pond, generally consist of silty gravel to a maximum depth of 2 feet below ground surface, and sandy gravel to a maximum explored depth of 12.5 ft below ground surface. Further information about the on-site soil conditions and analysis is provided in the Geotechnical Report, prepared by Soil and Water Technologies, Inc, dated August 2018 (See Appendix C-2).

Source Control

Dust control and appropriate soil erosion control measures shall be implemented as needed during the construction phase of the proposed project. The proposed Stormwater infiltration facility shall be cleaned and maintained according to the applicable Source Control BMPs, as outlined in the DOE Stormwater Manual, for stormwater runoff from "pollution generating surfaces".

On-site Stormwater Management BMPs

The project proposes to employ the following on-site stormwater management BMPs to infiltrate, disperse, and retain stormwater runoff on-site to the maximum extent feasible: trapped catch basins, infiltration basin, and emergency overflow weir and pipe.

Selection and design criteria for the on-site stormwater management BMPs are found in Volume III, Chapter 3 and Volume V, Chapter 5 of the DOE Stormwater Manual. The stormwater management BMP locations are shown on the Preliminary Grading and Drainage Plan, Sheet C-2.0 (See Appendix B-3).

Runoff from the driveways, parking areas, and buildings will be collected with trapped catch basins for pre-treatment prior to discharge to an infiltration basin. Based on infiltration testing performed by Soil and Water Technologies, Inc. in the vicinity of the proposed stormwater facility, the infiltration rate was observed and calculated to be *4.0 inches per hour*.

The infiltration basin has been modeled using WWHM2012. The proposed infiltration basin has a bottom surface area of approximately 3,780 sf, with an overall length of approximately 153.5 ft. The bottom width varies between 11 ft at the narrowest to approximately 35' wide at the widest. For purposes of sizing the facility using the WWHM model, a bottom length of 170' and a bottom width of 24.6' was used, which is equivalent to a bottom area of 3,776 sf. As shown in the WWHM2012 analysis (See Appendix D), the proposed infiltration basin will infiltrate 100% of the required design storm event.

Runoff Treatment Analysis and Design

As noted, the project proposes to manage stormwater runoff by infiltration into the ground via an infiltration basin with emergency overflow to an existing storm drainage system. The Threshold Discharge Area (TDA) does not apply to this site since stormwater runoff is not proposed to be discharged to an offsite conveyance system or downstream receiving water body.

Pre-treatment of stormwater runoff will be provided by trapped catch basins located in the parking lot and drive aisle areas, to remove oils and sediment from runoff prior to entering the infiltration basin, in accordance with Volume 3, Section 3.3 of the DOE Stormwater Manual. The pollution generating surfaces for the proposed project that will be fully infiltrated on-site are summarized in Table 2.

Table 2 - Pollution Generating Surfaces

	Condition	Area (SF)
Site - Pollution Generating Impervious Surfaces (PGIS)	Pavement	18,567
Site - Pollution Generating Pervious Surfaces (PGPS)	Landscape	36,440
Off-site - PGIS Area	Pavement	6,506
Off-site - PGPS Area	Landscape	2,136

Flow Control Analysis and Design

Site Suitability for Stormwater Infiltration

Infiltration testing was performed by Soil and Water Technologies, Inc. in the vicinity of the proposed stormwater facility, to measure the infiltration rate of the soils. The testing was performed at a depth of 5.5' below the existing ground surface, and consisted of driving a six-inch diameter pipe six inches into the exposed ground surface at the bottom of the test pit. The pipe was filled with water and the soil around the bottom of the pipe was saturated for four hours. The pipe was then filled again and the amount of time required for the water to fall, per inch, for six inches, was recorded. This test was performed a minimum of three times, then the results are averaged. Based on these tests, the infiltration rate was observed and calculated to be *4.0 inches per hour*.

Based on Table 4-1 of the Camas Stormwater Design Standards Manual, a base correction factor of 2 shall be applied to the tested infiltration rate, to account for soil variability and long-term system degradation due to siltation, crusting, or other factors. Since the proposed impervious area is less than 2 acres, no system design correction factor is required. The geotechnical engineer did not recommend any

additive correction factors as a result of the soil or groundwater conditions, but did recommend an overall correction factor ranging from 2 to 4, for use in design. Based on this, we chose the average and have sized the facility using an overall correction factor (CF) of 3. When using the WWHM, the infiltration reduction factor is inverted as 1/CF, or 1/3.

With the proposed stormwater facility, the rate obtained from these tests make the site suitable for 100% infiltration of all post-developed stormwater runoff; therefore, flow control is not applicable to this project. A hydrologic analysis, using WWHM2012 to demonstrate that the proposed facility has been sized to achieve 100% infiltration, is included in Appendix D.

Other Permits

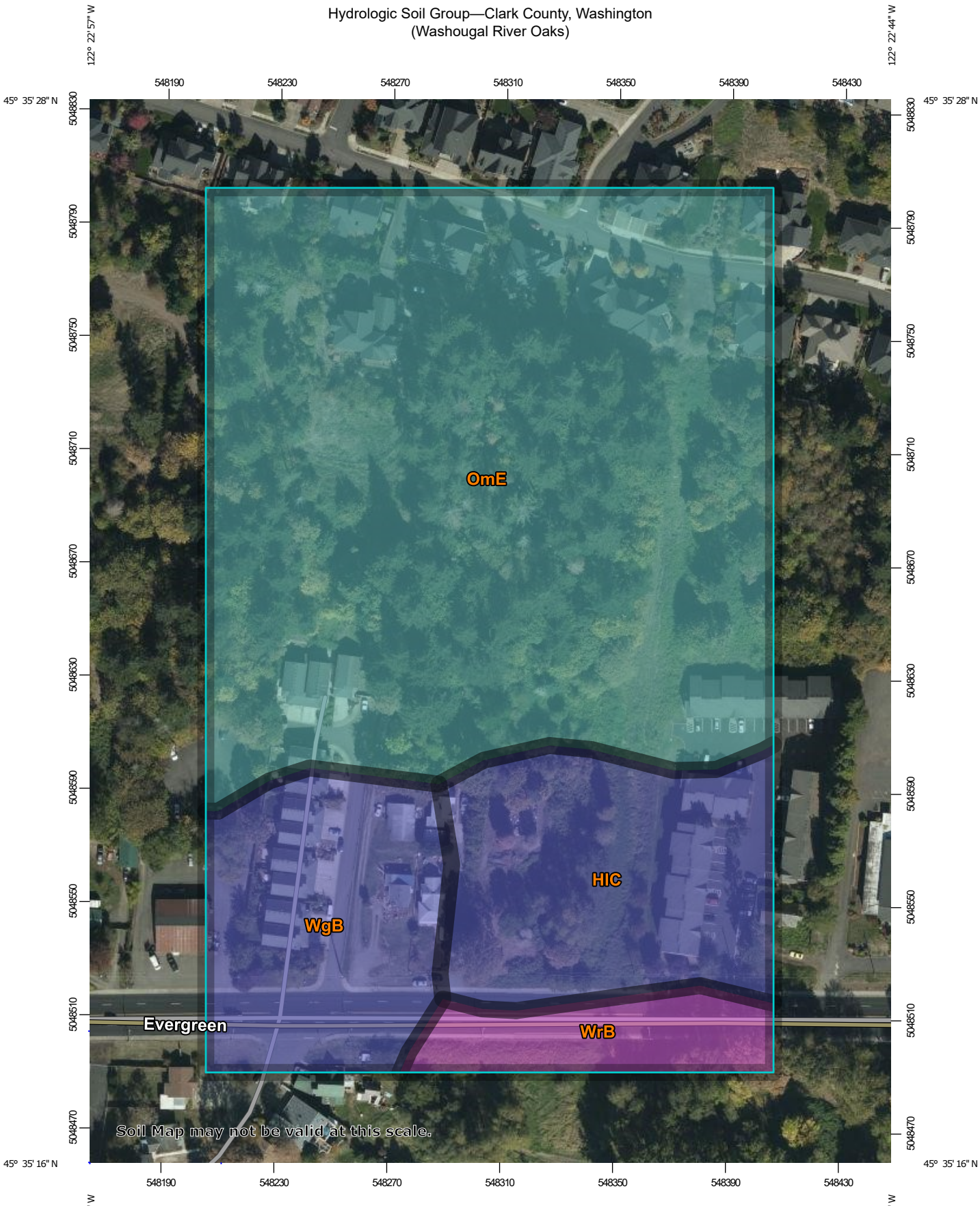
An NPDES will be required for this site. An NOI will be submitted to Washington DOE for NPDES permit coverage.

Appendices

APPENDIX A	MAPS A1 – WEB SOIL SURVEY A2 – FEMA/FIRMETTE MAP # 53011C0534E
APPENDIX B	SITE PLANS B1 – EXISTING CONDITIONS EXHIBIT B2 – PROPOSED CONDITIONS EXHIBIT B3 – PRELIMINARY GRADING & DRAINAGE PLAN
APPENDIX C	SOILS EVALUATION C1 – CLARK COUNTY WWHM SOIL GROUP MEMO C2 – SOIL & WATER TECHNOLOGIES, INC GEOTECHNICAL REPORT
APPENDIX D	WWHM2012 CONTINUOUS RUNOFF MODEL REPORT
APPENDIX E	OPERATIONS AND MAINTENANCE E1 – INFILTRATION BASIN INSPECTION & MAINTENANCE GUIDELINES

Appendix A

MAPS



Map Scale: 1:1,830 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clark County, Washington
Survey Area Data: Version 18, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 15, 2018—Oct 18, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HlC	Hillsboro loam, 8 to 15 percent slopes	B	2.4	15.7%
OmE	Olympic stony clay loam, 3 to 30 percent slopes	C	10.2	65.7%
WgB	Washougal gravelly loam, 0 to 8 percent slopes	B	2.1	13.5%
WrB	Wind River gravelly loam, 0 to 8 percent slopes	A	0.8	5.2%
Totals for Area of Interest			**15.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMette

FEMA

122°23'9"W 45°35'33"N

122°22'31"W 45°35'8"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

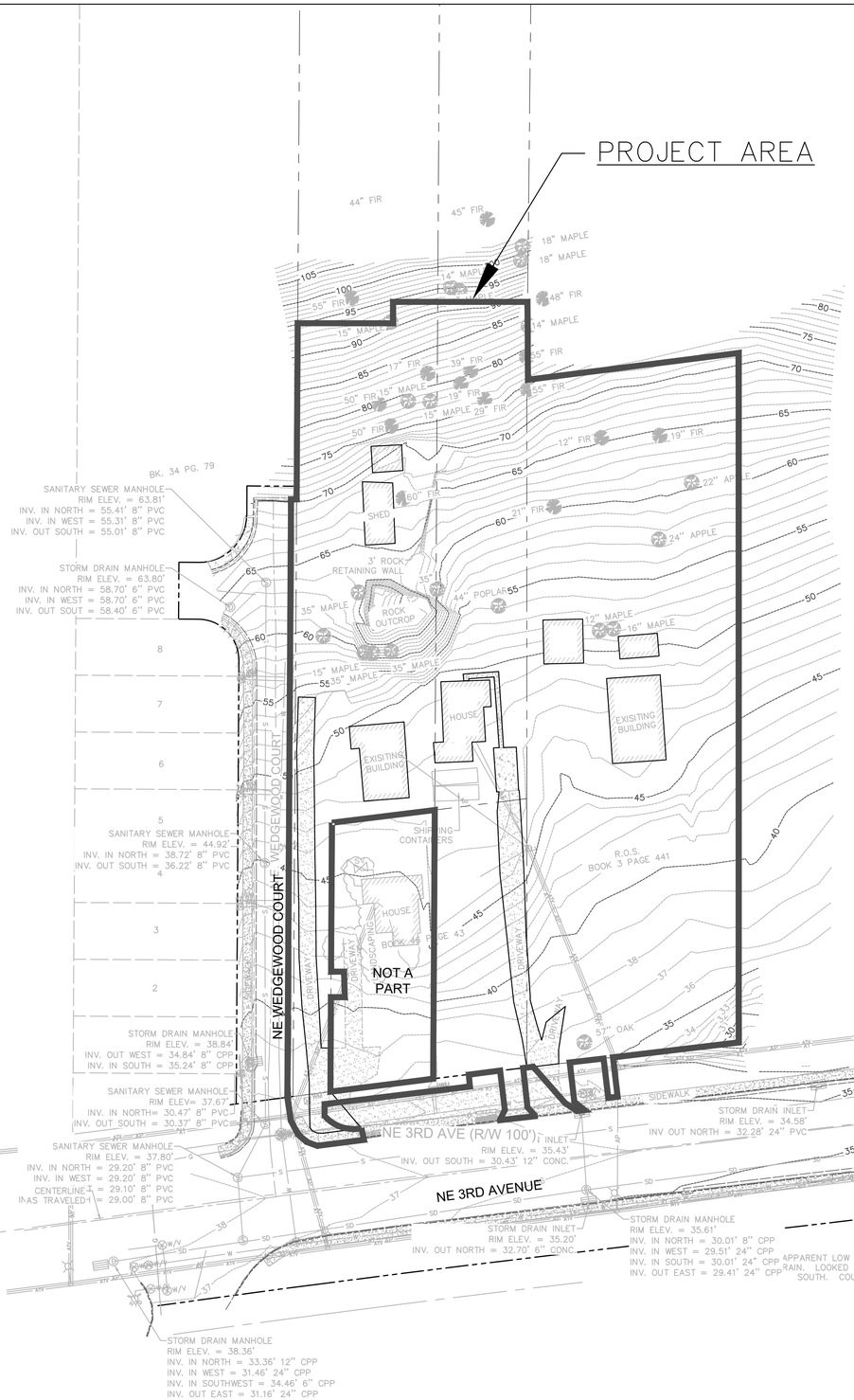
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/20/2020 at 5:50 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community id FIRM panel number, and FIRM effective date. Map i unmapped and unmodernized areas cannot be use regulatory purposes.

Appendix B

SITE PLANS



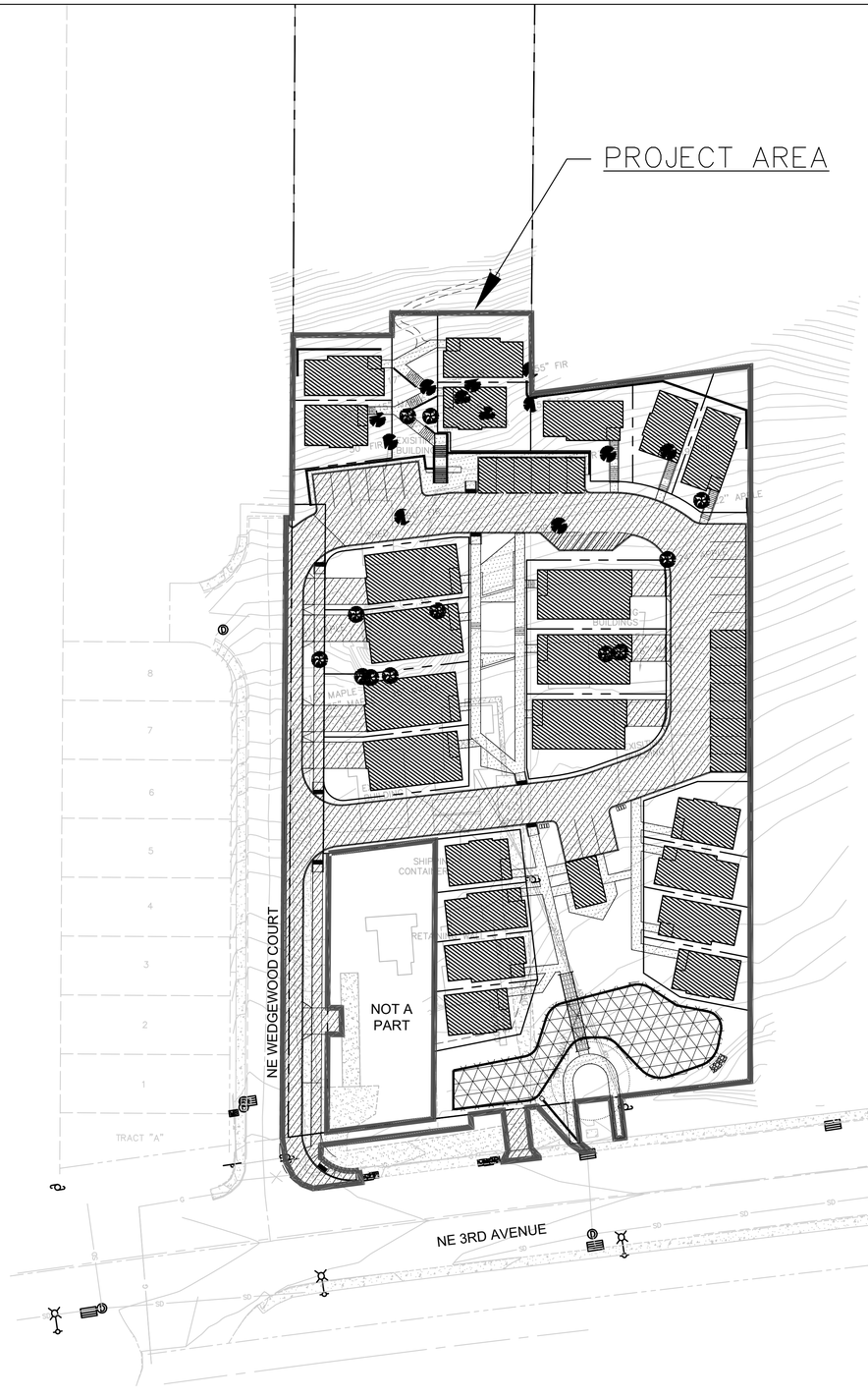
EXISTING CONDITIONS:

EXISTING BLDG = 4,760 SF

GRAVEL DRIVEWAY = 4,570 SF

PROJECT AREA = 1.97 ACRES

EXISTING CONDITIONS



DEVELOPED CONDITIONS:

TREE CREDIT =25 EVERGREEN X 50SF + 25 DECIDUOUS X 20SF= 1750SF
TREE CREDIT =5 DECIDUOUS TREES =20% CANOPY = 800 SF

TOTAL TREE CREDIT = 2,550 SF

ROOFTOP = 21,863 SF = 0.50 ACRES

PAVEMENT/CONC = 21,609 SF – 2,550 (TREE CREDIT) = 19,059 = 0.44 ACRES

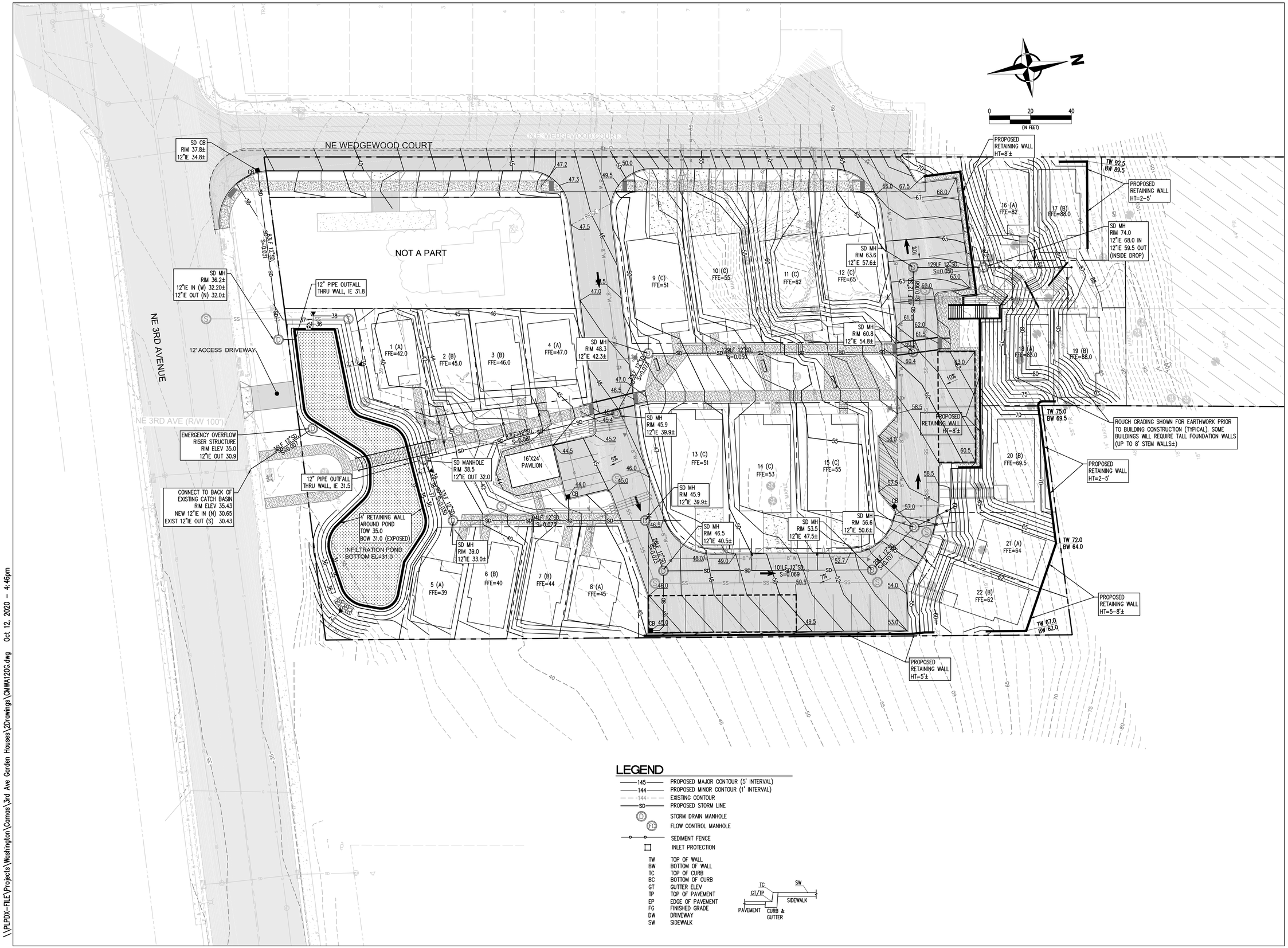
PEDESTRIAN WALKWAYS = 6,014 SF = 0.14 ACRES

DETENTION POND = 4,284 SF = 0.10 ACRES

PERVIOUS = 31,878 SF + 2,550 (TREE CREDIT) = 34,428 = 0.79 ACRES

TOTAL PROJECT AREA = 85,648 SF = 1.97 AC

POST-DEVELOPED CONDITIONS



LEGEND

145	PROPOSED MAJOR CONTOUR (5' INTERVAL)
144	PROPOSED MINOR CONTOUR (1' INTERVAL)
-144-	EXISTING CONTOUR
SD	PROPOSED STORM LINE
D	STORM DRAIN MANHOLE
FC	FLOW CONTROL MANHOLE
	SEDIMENT FENCE
	INLET PROTECTION

TW	TOP OF WALL
BW	BOTTOM OF WALL
TC	TOP OF CURB
BC	BOTTOM OF CURB
GT	GUTTER ELEV
TP	TOP OF PAVEMENT
EP	EDGE OF PAVEMENT
FG	FINISHED GRADE
DW	DRIVEWAY
SW	SIDEWALK

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CLIENT/OWNER

DD&C, INC

PROJECT NAME

WASHOUGAL RIVER OAKS

NAVIX PROJECT NUMBER: 20-005-001

PROJECT ADDRESS

2531 NE 3RD AVE
CAMAS, WA 98607

STAMP

PRELIMINARY
BRIAN S. DICKERSON
STATE OF WASHINGTON
40314
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS

REV	ISSUED FOR:	DATE
1	LAND USE	10.02.20

811

SECTION, TOWNSHIP, RANGE:

SECTION 12, TOWNSHIP 1 NORTH, RANGE 3 EAST, W.M.

PROJECT TEAM

REVIEWED BY: B.DICKERSON
DESIGNED BY: S.NGUY

SHEET NAME

GRADING AND DRAINAGE PLAN

SHEET NUMBER

C-2.0

Appendix C

SOILS EVALUATION

Memorandum

otak

700 Washington Street
Suite 401.
Vancouver, WA 98660
Phone (360) 737-9613
Fax (360) 737-9651

To:	Rod Swanson, Clark County Environmental Services
From:	Tim Kraft
Copies:	File
Date:	December 21, 2010
Subject:	Clark County WWHM Soil Groupings

The Clark County version of the Western Washington Hydrology Model (WWHM) includes five soils groups to represent the many soil types found within the county limits. Although there are over 110 different soil types throughout Clark County, similarities between the soils allows them to be grouped into categories for modeling purposes.

Clark County soils are grouped into five categories largely based on their permeability and runoff potential. These categories include:

- Soil Group (SG) 1 – Excessively drained soils (hydrologic soil groups A & B)
- Soil Group (SG) 2 – Well drained soils (mostly hydrologic soil group B)
- Soil Group (SG) 3 – Moderately drained soils (hydrologic soil groups B & C)
- Soil Group (SG) 4 – Poorly drained soils (slowly infiltrating C soils, as well as D soils)
- Soil Group (SG) 5 – Wetland soils (mucks).

Soil Groups 1 and 2 are those most suitable for traditional infiltration facilities such as trenches and drywells, while Soil Group 3 may only be suitable for slower infiltrating facilities such as rain gardens and other Low Impact Development (LID) measures. Soil Groups 4 and 5 are those which are typically not suitable for infiltration.

For additional information on the classification of soils for use in the Clark County WWHM model, please see the report titled "Development of the Clark County Version of the Western Washington Hydrology Model", which can be found on the county's community development web site.

The following table lists the WWHM soil group for each NCRS soil type in Clark County.

Map Symbol	Soil Name	HSG
Soils Group (SG) 1		
LeB	LAUREN	B
LgB	LAUREN	B
LgD	LAUREN	B
LgF	LAUREN	B
LIB	LAUREN	B
Ro	ROUGH BROKEN LAND	A
SvA	SIFTON	B
WnB	WIND RIVER VARIANT	B
WnD	WIND RIVER VARIANT	B
WnG	WIND RIVER VARIANT	B
WrB	WIND RIVER VARIANT	B
WrF	WIND RIVER VARIANT	B
	PITS	A
	BONNEVILLE STONY SAND LOAM	A
Soils Group (SG) 2		
BpB	BEAR PRARIE	B
BpC	BEAR PRARIE	B
CnB	CINEBAR	B
CnD	CINEBAR	B
CnE	CINEBAR	B
CnG	CINEBAR	B
CrE	CINEBAR	B
CrG	CINEBAR	B
CsF	CISPUS	B
CtA	CLOQUATO	B
HlA	HILLSBORO	B
HlB	HILLSBORO	B
HlC	HILLSBORO	B
HlD	HILLSBORO	B
HlE	HILLSBORO	B

Map Symbol	Soil Name	HSG
HlF	HILLSBORO	B
Soils Group (SG) 2 (continued)		
KeC	KINNEY	B
KeE	KINNEY	B
KeF	KINNEY	B
KnF	KINNEY	B
LaE	LARCHMOUNT	B
LaG	LARCHMOUNT	B
LcG	LARCHMOUNT	B
MsB	MOSSYROCK	B
NbA	NEWBERG	B
NbB	NEWBERG	B
PhB	PILCHUCK	C
PuA	PUYALLUP	B
SaC	SALKUM	B
VaB	VADER	B
VaC	VADER	B
WaA	WASHOUGAL	B
WgB	WASHOUGAL	B
WgE	WASHOUGAL	B
WhF	WASHOUGAL	B
YaA	YACOLT	B
YaC	YACOLT	B
YcB	YACOLT	B

Soils Group (SG) 3

DoB	DOLLAR	C
HcB	HESSON	C
HcD	HESSON	C
HcE	HESSON	C
HcF	HESSON	C
HgB	HESSON	C
HgD	HESSON	C
HhE	HESSON	C
HoA	HILLSBORO	B

Map Symbol	Soil Name	HSG
HoB	HILLSBORO	B
Soils Group (SG) 3 (continued)		
HoC	HILLSBORO	B
HoD	HILLSBORO	B
HoE	HILLSBORO	B
HoG	HILLSBORO	B
HsB	HILLSBORO	B
McB	McBEE	C
MeA	McBEE	C
MIA	McBEE	C
OeD	OLEQUA	B
OeE	OLEQUA	B
OeF	OLEQUA	B
OlB	OLYMPIC	B
OID	OLYMPIC	B
OlE	OLYMPIC	B
OIF	OLYMPIC	B
OmE	OLYMPIC	B
OmF	OLYMPIC	B
OpC	OLYMPIC VARIANT	C
OpE	OLYMPIC VARIANT	C
OpG	OLYMPIC VARIANT	C
OrC	OLYMPIC VARIANT	C
PoB	POWELL	C
PoD	POWELL	C
PoE	POWELL	C
SmA	SAUVIE	B
SmB	SAUVIE	B
SnA	SAUVIE	D
SpB	SAUVIE	B

Soils Group (SG) 4

CvA	COVE	D
CwA	COVE	D
GeB	GEE	C

Map Symbol	Soil Name	HSG
GeD	GEE	C
Soils Group (SG) 4 (continued)		
GeE	GEE	C
GeF	GEE	C
GuB	GUMBOOT	D
HtA	HOCKINSON	D
HuB	HOCKINSON	D
HvA	HOCKINSON	D
LrC	LAUREN	C
LrF	LAUREN	C
MnA	MINNIECE	D
MnD	MINNIECE	D
MoA	MINNIECE VARIANT	D
OdB	ODNE	D
OhD	OLEQUA VARIANT	C
OhF	OLEQUA VARIANT	C
SlB	SARA	D
SlD	SARA	D
SlF	SARA	D
Soils Group (SG) 5		
Sr	SEMIAHMOO	C
Su	SEMIAHMOO VARIANT	D
ThA	TISCH	D

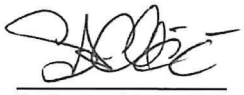
GEOTECHNICAL ENGINEERING STUDY

Proposed 2531 NE 3rd Avenue Subdivision
2531 NE 3rd Avenue
Camas, Clark County, WA 98607

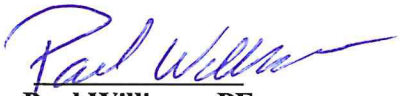
Prepared for:

DD&C, LLC
418 Date Street
Vancouver, WA 98660

Prepared By:



Seth A. Chandlee
Project Manager



Paul Williams, PE
Project Engineer

Project No. G0941800
{August 2018}

Soil and Water Technologies, Inc.
PO Box 59 / Vancouver, Washington 98666
(360) 281-5406
www.swt.ski

Soil and Water Technologies, Inc.

Geotechnical & Environmental Consultants

DD&C, LLC.
418 Date Street
Vancouver, WA 98661

August 21st, 2018
G0941800

Attention: Bryan Desgrosellier

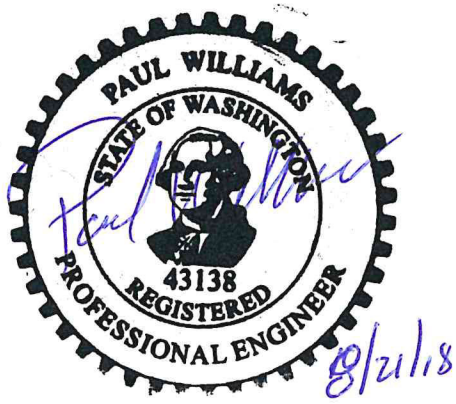
Hello Bryan,

We are pleased to submit our report titled "Geotechnical Engineering Study with Infiltration Testing, Proposed 2531 NE 3rd Avenue Subdivision located at 2531 NE 3rd Avenue, Camas, Clark County, Washington." This report presents the results of our field exploration, selective laboratory tests, and engineering analyses.

Based on the results of this study, it is our opinion that construction of the proposed residential development is feasible from a geotechnical standpoint, provided recommendations presented in this report are included in the project design.

We appreciate the opportunity to have been of service to you and look forward to working with you in the future. Should you have any questions about the content of this report, or if we can be of further assistance, please call.

Respectfully Submitted,
Soil and Water Technologies, Inc.



Seth A. Chandlee
Project Manager

Paul Williams, PE
Project Engineer

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INTRODUCTION

General

This report presents the results of the geotechnical engineering study completed by Soil and Water Technologies, Inc. (SWT) for the proposed 2531 NE 3rd Avenue Subdivision located in Camas, Clark County, Washington. The general location of the site is shown on the *Vicinity Map, Figure 1.* Our approximate exploratory test pit locations are shown in relation to the site on the *Site Plan, Figure 2.*

The purpose of this study is to explore and evaluate subsurface conditions at the site and provide geotechnical recommendations for the proposed construction based on the soil conditions encountered. These recommendations include site specific geotechnical parameters for foundation support, earthwork grading, utility trench backfill, roadway construction, drainage, erosion control and a seismic hazard evaluation.

Project Description

Based on the preliminary site plan information provided by DD&C, LLC, it is our understanding that the approximate one-acre property will be developed into a total of twelve (12) residential building lots. The project will also include associated underground utilities, an asphalt paved roadway, stormwater management facilities and a park area. Although no specific grading plan was available at the time of our study, we anticipate that earthwork cuts/fills will range from approximately one to four feet (1-4') in thickness across the site. The proposed residences will most likely be constructed with wood frames, suspended floors and slab on grade garage floors.

At the time this report was written, specific structural design loads were not available. However, based on our experience with similar projects, we anticipate that wall loads will be approximately seven hundred to one thousand five hundred (700 -1,500) pounds per lineal foot. Slab-on-grade garage floor loads will most likely range from one hundred to one hundred and fifty pounds per square foot (100-150 psf).

If any of the above information is incorrect or changes, we should be consulted to review the recommendations contained in this report. In any case, it is recommended that Soil and Water Technologies perform a general review of the final design.

SITE CONDITIONS

Surface

The rectangular shaped property is located approximately one-tenth of a mile east of the intersection of NE 3rd Avenue and NE Wedgewood Court in Camas, Washington. The subject property is bordered on the north by forested land, to the east by high-density residential development, to the west by single family residences and on the south by NE 3rd Avenue.

The property slopes gently downwards from the north to the south at an approximately 10H:1V (horizontal: vertical) slope gradient. The maximum total elevation change across the site is approximately forty feet (40'). At the time of our field investigation the southern half of the property was vegetated with brambles and with native shrubs and trees at the northern half of the property. While onsite, we observed one partially demolished residence. It is our understanding that this building will be completely demolished prior to site construction.

Subsurface

On August 3rd, 2018 we observed the exploration of three test pits with an excavator, designated I-1 TP-2, and TP-3. All exploration locations were selected by SWT to determine subsurface conditions in the vicinity of the proposed building lots, pavement areas and stormwater facilities. The approximate locations are shown on the *Site Plan, Figure 2.*

All soil was classified in general accordance with the *Unified Soil Classification System (USCS)*. Soil samples obtained from the test pits were returned to our office for additional evaluation and laboratory testing. Descriptions of field and laboratory procedures are included in Appendices A and B, respectively.

The following is a generalized description of the subsurface units encountered.

SURFACE MATERIALS: Surface materials encountered in the explorations consisted of 4 to 6 inches of organic topsoil in all test pit locations.

SILT: Native Silt (ML), was encountered below the surface materials in test pits TP-2 and TP-3, extending to a maximum explored depth of 10 feet below ground surface. In general, the Silt was brown, with medium plasticity and moist. The consistency of the Silt ranged from medium stiff to hard. The moisture content of samples from this unit ranged from 19 to 23 percent.

SILTY GRAVEL: Native silty Gravel (GM), was encountered below the surface materials in test pit I-1 and extended to a maximum depth of 2 feet below ground surface. In general, the silty Gravel was brown and moist. The consistency of the silty Gravel was medium dense and became cleaner with depth.

SANDY GRAVEL: Native sandy Gravel (GP), was encountered below the silty Gravel in test pit I-1 and extended to a maximum explored depth of 12.5 feet below ground surface. In general, the sandy Gravel was grayish brown and moist. The consistency of the sandy Gravel was dense. The moisture content of samples from this unit ranged from 4 to 12 percent. Fines content of samples ranged from 4 to 6 percent.

Please refer to our test pit logs, Plates A2 through A4 for a more detailed description of the conditions encountered at each location explored.

Infiltration Testing

Infiltration testing was performed in the vicinity of the proposed onsite stormwater tract. The approximate location of the infiltration test pit is shown on the *Site Plan, Figure 2.* It is our understanding that the proposed stormwater tract is to provide stormwater treatment and control for all onsite impervious surfaces. Infiltration testing was performed at a depth of five and one-half feet (5.5') below the existing ground surface at I-1, in accordance with the 2016 Clark County Stormwater Management Manual guidelines.

In general, the test consists of driving a six-inch diameter pipe six inches into the exposed ground surface at the bottom of the test pit. The pipe is filled with water and the soil around the bottom of the pipe is saturated for several hours. The pipe is filled again and the amount of time required for the water to fall, per inch, for six inches, is recorded. This step is performed a minimum of three times. The test results are averaged, recorded and the field infiltration rate is calculated in inches per hour. Infiltration testing was performed at the site on August 3rd, 2018.

All soil was classified following the *Unified Soil Classification System* (USCS) and the *AASHTO Soil Classification System (M145).* The following table provides the field infiltration test results and associated laboratory testing:

Location	USCS* Soil Type	AASHTO Soil Type	Depth (ft.)	% Passing #200 sieve	Moisture content	Field-Measured Infiltration Rate
I-1	GP	A-1-a	5.5	4%	7%	4.0 iph

* Unified Soil Classification System / iph - inches per hour

The infiltration rate presented is not a permeability/hydraulic conductivity, but an average field-measured rate and does not include correction factors related to long-term infiltration rates. It is recommended that the designer include correction factors to account for the level of maintenance, type of system, vegetation, siltation, etc. The rate is dependent on the percentage of fines in the soil (i.e., silt and clay), the degree of soil saturation and the relative density of the in-situ soil. Field measured infiltration rates are typically reduced by a minimum factor of 2 to 4 for use in design.

Due to the subsurface conditions encountered, rates of infiltration and our laboratory test results, it is our opinion that the on-site soils in the vicinity of the of I-1 at the lower, southern side of the property are suitable for the infiltration of stormwater.

Groundwater

No groundwater was encountered to the maximum depth of exploration at our test pits. Our review of water well logs from the Washington Department of Ecology database indicates that the static groundwater level in the area is greater than one-hundred feet (100') below the surface.

It is important to note that groundwater conditions are not static; fluctuations may be expected in the level and seepage of flow depending on the season, amount of rainfall, surface water runoff, and other factors. Generally, the groundwater level is higher and seepage rate is greater in the wetter winter months (typically October through May). The static groundwater level may approach the ground surface during these months.

General Regional Geology

General information about geologic conditions and soils in the vicinity of the site was obtained by reviewing the Geologic Map of the Camas Quadrangle, Clark County, Washington, and Multnomah County, Oregon (2008).

In the vicinity of the subject property, a low elevation bench slopes upwards and generally northeastward towards the Cascade Mountain Range. The underlying bedrock is poorly exposed Oligocene epoch (34 to 23 mya) basaltic andesite flows emplaced by eruptions from the nearby Elkhorn Mountain during the early formation of the regional segment of the Cascade volcanic arc. The bedrock's appearance is usually limited to steep slopes and cliff faces, landslide scarps, and streambeds and is overlain by Neogene-Quaternary period (23 to 2.5 mya) fine-grained Hillsboro soil series.

The material encountered in our test pits consists predominantly of basaltic andesite overlain by brown Silt, consistent with the fine-grained Hillsboro soil series, and Gravel (at I-1) which we interpret to represent weathered Late Pleistocene coarse-grained sedimentary flood deposits.

Geologic Hazards

The following provides a geologic hazard review for the subject site. The geologic hazard review as based on our site reconnaissance and explorations, as well as a review of publicly available published literature and maps.

Slope and Landslide Hazards:

A review of the Clark County Maps Online for the site indicates the slopes at the northernmost side of of the site exceed 15% and are mapped as areas of potential slope instability and subject to review prior to development. Title 40, Section 40.430.C.2 Geologic Hazard Areas, of the Clark County, Washington, Unified Development Code defines potential landslide hazard areas as areas meeting all three of the following characteristics: 1) slopes steeper than 15%; 2) Hillsides intersecting geologic contacts with permeable sediment overlying low permeable sediment or bedrock, and; 3) Any springs or groundwater seepage.

While we did observe slopes greater than 15%, we did not observe the other two necessary characteristics of potential landslide areas. Based upon the results of our site reconnaissance, our experience with localized soils in the area and definitions of a geologic hazard area provided by Clark County Unified Development Code, the subject building area does not meet Clark County's definition of a geologic hazard area. It is our opinion that the proposed development as planned will not create a risk of increased slope instability at the site.

Seismic Hazards:

The following seismic hazards have been considered as part of our geologic hazards review for the project site:

Ground Motion Amplification: Based on a review of Clark County Maps Online, the site is designated as seismic Site Class "B/C". However, based on our field explorations and recommendations below, it is our opinion that a Site Class "D" is appropriate for use at the site. Our seismic design criteria, which are partially based on the site class designation, are included in the Geotechnical Design Recommendations portion of this report.

Liquefaction: Structures are subject to damage from earthquakes due to direct and indirect action. Shaking represents direct action. Indirect action is represented by foundation failures and is typified by liquefaction. Liquefaction occurs when soil loses all shear strength for short periods of time during an earthquake. Ground shaking of sufficient duration then results in the loss of grain-to-grain contact as well as a rapid increase in pore water pressure. This causes the soil to assume the physical properties of a fluid.

To have potential for liquefaction a soil must be loose, cohesion-less (generally sands and silts), below the groundwater table, and must be subjected to sufficient magnitude and duration of ground shaking.

Based on the anticipated groundwater table depth, as well as the relative consistency of the exposed bedrock, we consider the potential for liquefaction within the site boundaries to be very low. Indeed, the site is mapped as having a "Bedrock" to "Very Low" liquefaction susceptibility based on the Liquefaction Susceptibility Layer of Clark County Maps Online.

GEOTECHNICAL DESIGN RECOMMENDATIONS

General

Based on the results of our study, it is our opinion the proposed residential subdivision can be constructed as planned, provided the geotechnical recommendations contained in this report are incorporated into the final design. The following sections present detailed recommendations and parameters pertaining to the geotechnical engineering design for this project.

Foundations

Based on the encountered subsurface soil conditions, preliminary building design criteria, and assuming compliance with the preceding *Site Earthwork and Grading* section, the proposed building foundations may be supported on conventional shallow spread footings bearing on undisturbed medium stiff to hard native Silt.

Individual spread footings or continuous wall footings providing support for the proposed building may be designed for a maximum allowable bearing value of 2,000 pounds per square foot (psf). Footings for one level structures should be at least 12 inches in width. Footings for two level structures should be at least 15 inches in width. Footings for three level structures should be at least 18 inches in width. All footings should extend to a depth of at least 12 inches below the lowest adjacent finished sub grade.

These basic allowable bearing values are for dead plus live loads and may be increased one-third for combined dead, live, wind, and seismic forces. It is estimated that total and differential footing settlements for the relatively light residential buildings will be approximately one and one-half inches, respectively.

Slab on Grade

If concrete floor slabs are desired, then any disturbed soils must be re-compacted prior to pouring concrete. Satisfactory subgrade support for lightly-loaded building floor slabs can be obtained on the undisturbed native soil or on engineered structural fill. A subgrade modulus of 125 pounds per cubic inch (pcf) may be used to design floor slabs.

A minimum 6-inch-thick layer of free draining fill should be placed and compacted over the prepared subgrade to assist as a capillary break and blanket drain.

It is also suggested that nominal reinforcement such as "6X6-10/10" welded wire mesh be employed, near midpoint, in new concrete slabs. In areas where slab moisture is undesirable, a vapor barrier such as a 6-mil plastic membrane should be placed beneath the slab.

Site Drainage

The site should be graded so that surface water is directed off the site. Water should not be allowed to stand in any area where buildings or foundations are to be constructed. Loose surfaces should be sealed at the end of each workday by compacting the surface to reduce the potential of moisture infiltrating into the soils. Final site grades should allow for drainage away from the building foundations.

The ground should be sloped at a gradient of three percent for a distance of at least ten feet away from the buildings. We recommend that a foundation footing drain be installed around the perimeter of the buildings. The drain should consist of a four-inch diameter perforated pipe with holes facing down and installed in an envelope of clean drain rock or pea gravel wrapped with free draining filter fabric. The drain should be a minimum of one-foot-wide and one-foot-deep with sufficient gradient to initiate flow. The drain should be routed to a suitable discharge area and rock spalls placed at the outlet to dissipate flow from the system. Details for the footing drain have been included as *Figure 3, Footing and Drainage Detail.*

Under no circumstances should the roof down spouts be connected to the perimeter building drain. We suggest that clean outs be installed at several accessible locations to allow for the periodic maintenance of the drain system.

Pavement Areas

Asphaltic Cement (AC) and Crushed Rock Base (CRB) materials should conform to WSDOT specifications. All pavement area subgrades should be compacted to at least 95 percent of the ASTM D1557 modified proctor laboratory test standard. We recommend that a minimum of 3 inches of AC underlain by 8 inches of compacted CRB in the vicinity of all paved roadway areas.

Exterior concrete slabs that are subject to vehicle traffic loads should be at least four inches in thickness. It is also suggested that nominal reinforcement such as "6x6-10/10" welded wire mesh be installed, near midpoint, in new exterior concrete slabs and paving. Fiber mesh concrete may be used in lieu of welded wire mesh.

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section.

AC and CRB materials should conform to WSDOT specifications. All CRB should be compacted to at least 95 percent of the modified proctor *ASTM D-1557* laboratory test standard.

Seismic Design Criteria:

Supportive foundation soils encountered at the site are classified as a type "D" soil in accordance with "Site Class Definitions (IBC 2006, Section 1613, Table 1613.5.2; page 303). For more detail regarding soil conditions refer to the soil logs in Appendix A of this report.

The seismic design criteria for this project found herein is based on the International Building Code (IBC) 2012/2015 and the USGS website. A summary of IBC seismic design criterion is below.

Table 1. 2012/2015 IBC Seismic Design Parameters

Location (Latitude: 45.588908°, Longitude: -122.380502°)	Short Period	1-Second
Maximum Credible Earthquake Spectral Acceleration	S_s = 0.859 g	S_1 = 0.366 g
Site Class	D	
Site Coefficient	F_a = 1.156	F_v = 1.668
Adjusted Spectral Acceleration	S_{MS} = 0.993 g	S_{M1} = 0.611 g
Design Spectral Response Acceleration Parameters	S_{DS} = 0.662 g	S_{D1} = 0.407 g

g – acceleration due to gravity

CONSTRUCTION RECOMMENDATIONS

Site Earthwork and Grading

Clearing and Grubbing:

Prior to grading, the project area should be cleared of all rubble, trash, debris, etc. Any buried organic debris, undocumented fill or other unsuitable material encountered during subsequent excavation and grading work should also be removed. Excavations for removal of any existing footings, slabs, walls, utility lines, tanks, and any other subterranean structures should be processed and backfilled in the following manner:

- Clear the excavation bottom and side cuts of all loose and/or disturbed material.
- Once the organic topsoil has been adequately removed, the upper one foot of native soil shall be scarified to twelve (12) inches in depth and dried to within 2 percent of its optimal moisture content and re-compacted. Density testing shall be performed prior to placement of additional fill.
- Prior to placing backfill, the excavation bottom should be moisture conditioned to within 2 percent of the optimum moisture content and compacted to at least 95 percent of the ASTM D-1557 laboratory test standard.
- Backfill should be placed, moisture conditioned (i.e., watered and/or aerated as required and thoroughly mixed to a uniform, near optimum moisture content), and compacted by mechanical means in approximate 6-inch lifts. The degree of compaction obtained should be at least 95 percent of the ASTM D-1557 laboratory test standard, as applicable.

It is also critical that any surficial sub grade materials disturbed during initial demolition and clearing work be removed and/or re-compacted in the course of subsequent site preparation earthwork operations.

If encountered, it is important that all soft, undocumented fill is to be over-excavated and replaced with suitable structural fill. Supporting the proposed buildings on homogeneous material will significantly decrease the potential for differential settlement across the foundation area. In order to create uniform sub grade support conditions, the following earthwork operations are recommended:

- Over-excavate existing soils to a competent native subgrade below the bottom of the proposed foundations. The excavations should extend at least one-half width laterally beyond the foundation footprint, or as constrained by existing structures.
- The fill soils placed shall consist of clean soils with an expansion index (EI) less than twenty (20), and be free of organic material, debris, and rocks greater than three inches in maximum diameter. Based on the field observations and laboratory testing, the existing native soil is suitable for use as structural fill so long as the material does not exceed three (3) inches in diameter and is within two percent (2%) of its optimum moisture content prior to compaction.
- The backfill shall consist of minimum ninety-five percent (95%) compacted fills (Note: ASTM D1557). In addition to the relative compaction requirements, all fills shall be compacted to a firm non-yielding condition.
- Import soils should be sampled, tested, and approved by SWT prior to arrival on site. Imported soils shall consist of clean soils (EI of 20 or less) free from vegetation, debris, or rocks larger than three inches in maximum dimension.

Subgrade Verification and Proof Rolling

After clearing and grading the site, it is possible that some localized areas of soft, wet or unstable sub grade may still exist. Before placement of any base rock, the sub grade should be scarified eight inches in depth and compacted with suitable compaction equipment. Yielding areas that are identified should be excavated to medium dense material and replaced with compacted two inch-minus clean crushed rock. All building and pavement areas should be compacted to a dense non-yielding condition with suitable compaction equipment. This phase of earthwork compaction shall be performed prior to the placement of any structural fill, at the bottom of all foundation excavations and along the roadway sub-grade, before the placement of base rock.

Wet Weather Construction & Moisture Sensitive Soils:

Field observations and laboratory testing indicates that Silt (ML) encountered at the site is a moisture sensitive material. As such, in an exposed condition, moisture sensitive soil can become disturbed during normal construction activity, especially when in a wet or saturated condition. Once disturbed, in a wet condition, these soils will be unsuitable for support of foundations, floor slabs and roadways.

Therefore, where soil is exposed and will support new construction, care must be taken not to disturb their condition. If disturbed soil conditions develop, the affected soil must be removed and replaced with structural fill. The depth of removal will be dependent on the depth of disturbance developed during construction. Covering the excavated area with plastic and refraining from excavation activities during rainfall will minimize the disturbance and decrease the potential degradation of supportive soils.

Utility Support and Backfill

Based on the conditions encountered, the soil to be exposed by utility trenches should provide adequate support for utilities. Utility trench backfill is a concern in reducing the potential for settlement along utility alignments, particularly in pavement areas. It is also important that each section of utility line be adequately supported in the bedding material. The backfill material should be hand tamped to ensure support is provided around the pipe haunches.

Fill should be carefully placed and hand tamped to about twelve inches above the crown of the pipe before any compaction equipment is used. The remainder of the trench back fill should be placed in lifts having a loose thickness of eight inches.

A typical trench backfill section and compaction requirements for load supporting and non-load supporting areas is presented on *Figure 4, Utility Trench Backfill Detail*.

Imported granular material or on-site native soil to be used as backfill should be submitted to our laboratory at least one week prior to construction so that we can provide a laboratory proctor for field density testing. If native soil is planned for use as backfill, additional testing will be required to determine the suitability of the material.

Temporary Excavations

The following information is provided solely as a service to our client. Under no circumstances should this information be interpreted to mean that SWT is assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred. In no case should excavation slopes be greater than the limits specified in local, state and federal safety regulations.

Based on the information obtained from our field exploration and laboratory testing, the onsite soils expected to be encountered in excavations will most likely consist of native medium stiff to hard Silt (ML) and sandy Gravel (GP). These soils would be classified as a type "C" soil. Therefore, temporary excavations and cuts greater than four feet in height, should be sloped at an inclination no steeper than 1½ H:1V (horizontal to vertical).

If slopes of this inclination, or flatter, cannot be constructed, or if excavations greater than four feet in depth are required, temporary shoring may be necessary. This shoring would help protect against slope or excavation collapse and would provide protection to workmen in the excavation. If temporary shoring is required, we will be available to provide shoring design criteria, if requested.

LIMITATIONS

Our recommendations and conclusions are based on the site materials observed, selective laboratory testing, engineering analyses and other design information provided to Soil and Water Technologies as well as our experience and engineering judgment. The conclusions and recommendations are professional opinions derived in a manner consistent with that level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area. No warranty is expressed or implied.

The recommendations submitted in this report are based upon the data obtained from the test pits. Soil and groundwater conditions between the test pits may vary from those encountered. The nature and extent of variations may not become evident until construction. If variations do appear, Soil and Water Technologies should be requested to reevaluate the recommendations contained in this report and to modify or verify them in writing prior to proceeding with the proposed construction.

ADDITIONAL SERVICES & EARTHWORK MONITORING

Soil and Water Technologies will be available to provide consultation services related to review of the final design to verify that the recommendations within our purview have been properly interpreted and implemented in the approved construction plans and specifications. A representative from our office will be available to attend a pre-construction meeting to discuss and/or clarify all geotechnical issues related to the proposed project.

In addition, it is suggested that our office be retained to provide geotechnical services during construction to observe compliance with the design concepts and project specifications and to allow design changes in the event subsurface conditions differ from those anticipated. Our construction services would include monitoring and documenting the following:

- Verify the removal of organic strippings and other deleterious material.
- Verify over-excavation and replacement of undocumented fills, where encountered.
- Observe the placement and compaction of structural fill at building areas, utility trenches and roadways.
- Perform laboratory tests on structural fill source and roadway base rock materials.
- Perform density tests on structural fill and utility trench backfill.
- Verify the field rate of infiltration.
- Monitor proof rolling of roadway subgrade and base rock.
- Perform density testing on roadway base rock and asphalt pavement.
- Concrete Testing (i.e. Temp., Slump, Air, Compressive Strength), if required.
- Provide certified erosion control design, monitoring and consulting.
- Provide written field reports and electronically submit to all associated parties.

VICINITY MAP

N

Not to Scale

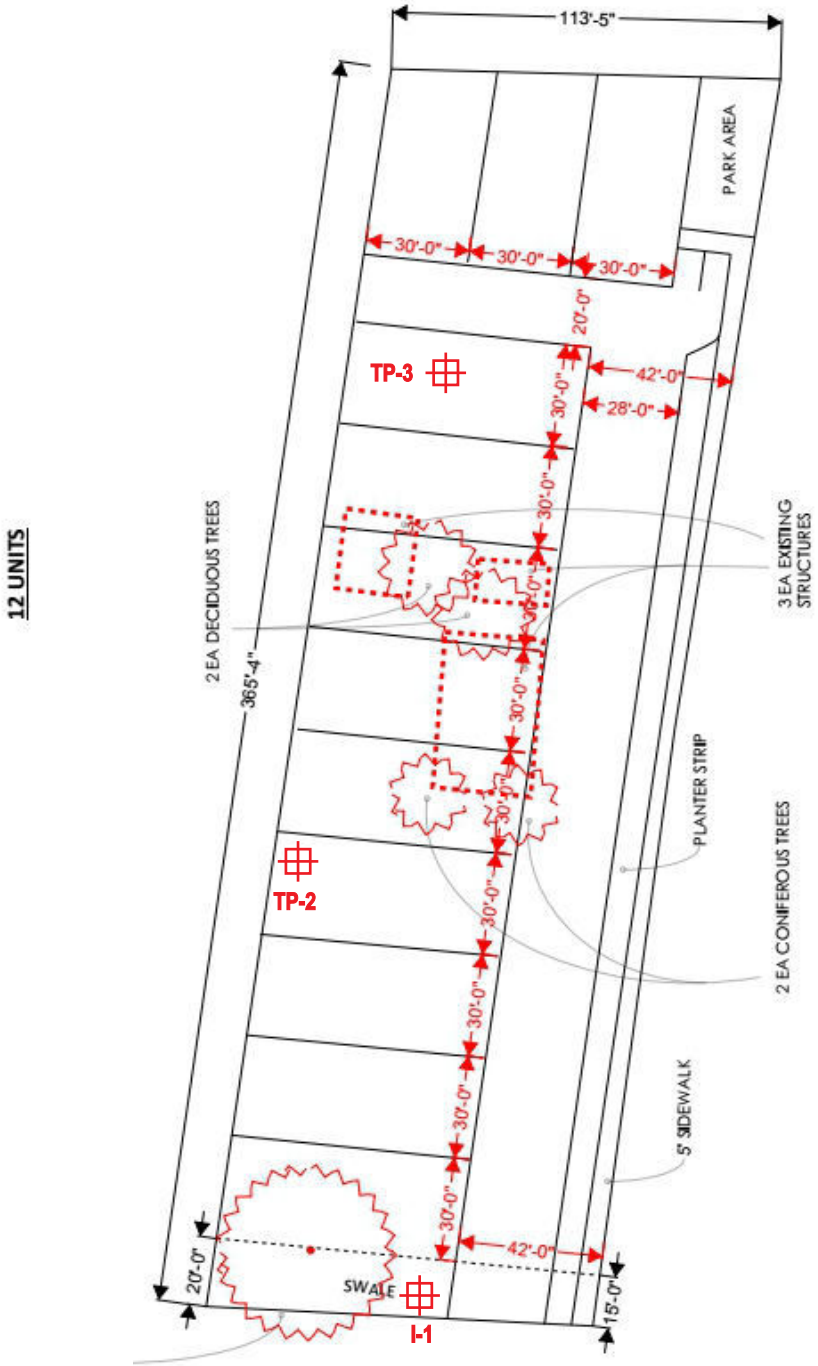
Soil and Water Technologies, Inc
PO Box 59
Vancouver, WA 98666
PH: 360 281-5406
www.swt.ski

CLIENT:	DD&C, LLC	*DRAWN:*	JR
PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	*DATE:*	7/30/2018
		FIGURE:	1
		PRO. #:	G0941800

SITE MAP

N

Not to Scale

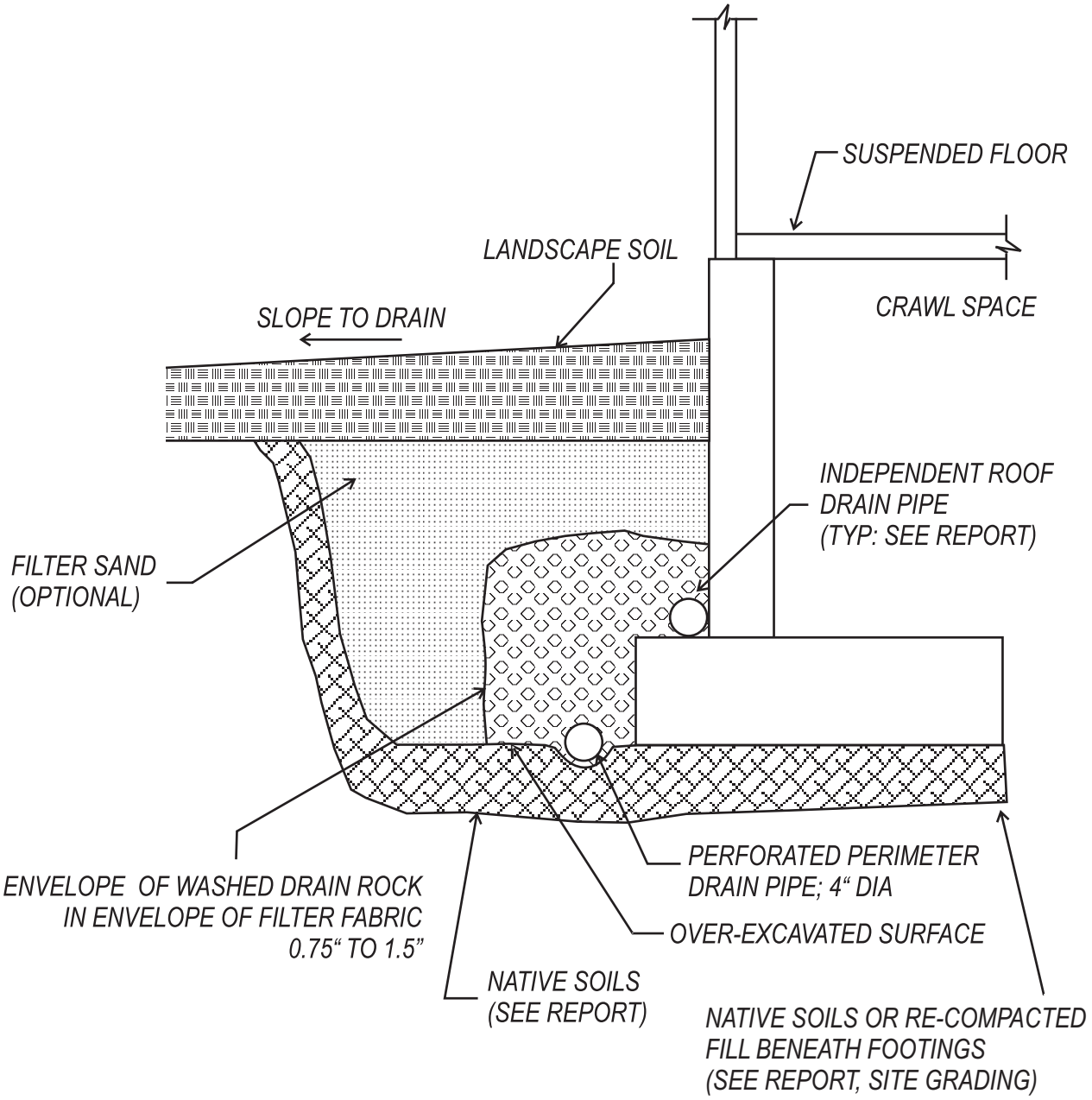


Legend

TP-2 Approximate Test Pit Location

Soil and Water Technologies, Inc
PO Box 59
Vancouver, WA 98666
PH: 360 281-5406
www.swt.ski

CLIENT:	DD&C, LLC	DRAWN:	JR
PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	DATE:	7/30/2018
		FIGURE:	2
		PRO. #:	G0941800



NOTES:

1. FILTER SAND - FINE AGGREGATE FOR PORTLAND CEMENT; SECTION 9=03.1(2)
2. PERFORATED OR SLOTTED RIGID PVC PIPE WITH A POSITIVE DRAINAGE GRADIENT
3. NATIVE SOIL COMPACTED TO 95% (STANDARD PROCTOR ASTM D698)

FOOTING DRAINAGE DETAIL

Not to Scale

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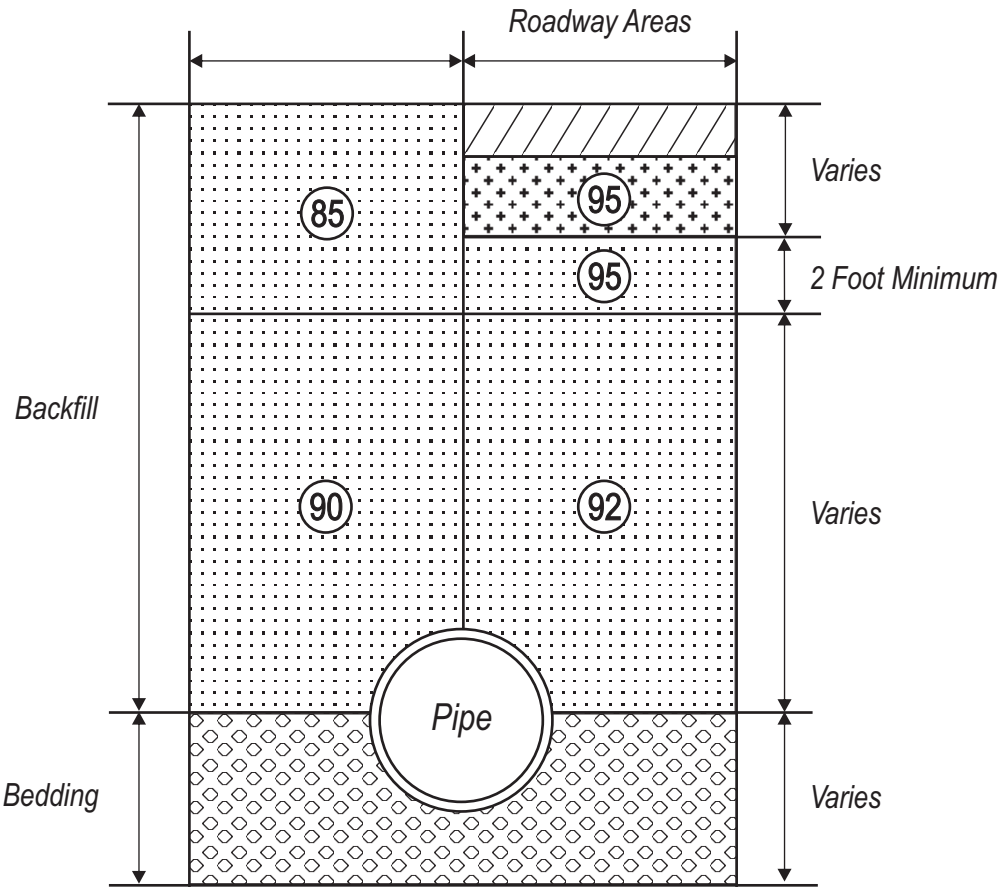
Vancouver, WA 98666
PH: 360 281-5406
www.swt.ski

CLIENT:	DD&C, LLC	DRAWN:	JR
PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	DATE:	7/30/2018
		FIGURE:	3
		PRO. #:	G0941800



LEGEND

Asphalt or Concrete Pavement

Roadway Base Material or Base Rock

Backfill: Compacted on-site soil or imported select fill material as described in the site preparation of the general Earthwork Section of the attached report text.

92 — Minimum percentage of maximum Laboratory Dry Density as determined by ASTM Test method D1557 (Modified Proctor),unless otherwise specified in the attached report text.

Bedding Material: Material type depends on type of pipe and laying conditions. Bedding should conform to the manufacturer's recommendations for the type of pipe selected.

UTILITY TRENCH BACKFILL DETAIL

Not to Scale

Soil and Water Technologies, Inc
PO Box 59
Vancouver, WA 98666
PH: 360 281-5406
www.swt.ski

CLIENT:	DD&C, LLC	DRAWN:	JR
PROJECT:	2531 NE 3rd Subdivision 2531 NE 3rd Avenue Camas, WA 98607	DATE:	7/30/2018
		FIGURE:	4
		PRO. #:	G0941800

Appendix D

WWHM2012 CONTINUOUS RUNOFF MODEL REPORT

WWHM2012

PROJECT REPORT

General Model Information

Project Name:	Camas_10052020
Site Name:	
Site Address:	
City:	
Report Date:	10/5/2020
Gage:	Troutdale
Data Start:	1948/10/01
Data End:	2008/09/30
Timestep:	15 Minute
Precip Scale:	1.370
Version Date:	2019/09/13
Version:	4.2.17

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data
Predeveloped Land Use

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Pasture, Steep	0.79
Pervious Total	0.79

Impervious Land Use	acre
ROADS MOD	0.44
ROOF TOPS FLAT	0.5
SIDEWALKS MOD	0.14
POND	0.1
Impervious Total	1.18
Basin Total	1.97

Element Flows To:

Surface	Interflow	Groundwater
Trapezoidal Pond 1		

Mitigated Routing

Trapezoidal Pond 1

Bottom Length:	153.50 ft.	
Bottom Width:	24.60 ft.	
Depth:	5 ft.	
Volume at riser head:	0.4343 acre-feet.	
Infiltration On		
Infiltration rate:	4	
Infiltration safety factor:	0.333	
Total Volume Infiltrated (ac-ft.):		250.306
Total Volume Through Riser (ac-ft.):		0
Total Volume Through Facility (ac-ft.):		250.306
Percent Infiltrated:		100
Total Precip Applied to Facility:		0
Total Evap From Facility:		0
Side slope 1:	0.75 To 1	
Side slope 2:	0.75 To 1	
Side slope 3:	0.75 To 1	
Side slope 4:	6.5 To 1	
Discharge Structure		
Riser Height:	4 ft.	
Riser Diameter:	24 in.	
Element Flows To:		
Outlet 1	Outlet 2	

Pond Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.086	0.000	0.000	0.000
0.0556	0.087	0.004	0.000	0.116
0.1111	0.087	0.009	0.000	0.116
0.1667	0.088	0.014	0.000	0.116
0.2222	0.088	0.019	0.000	0.116
0.2778	0.089	0.024	0.000	0.116
0.3333	0.089	0.029	0.000	0.116
0.3889	0.090	0.034	0.000	0.116
0.4444	0.090	0.039	0.000	0.116
0.5000	0.091	0.044	0.000	0.116
0.5556	0.092	0.049	0.000	0.116
0.6111	0.092	0.054	0.000	0.116
0.6667	0.093	0.059	0.000	0.116
0.7222	0.093	0.065	0.000	0.116
0.7778	0.094	0.070	0.000	0.116
0.8333	0.094	0.075	0.000	0.116
0.8889	0.095	0.080	0.000	0.116
0.9444	0.095	0.086	0.000	0.116
1.0000	0.096	0.091	0.000	0.116
1.0556	0.096	0.096	0.000	0.116
1.1111	0.097	0.102	0.000	0.116
1.1667	0.098	0.107	0.000	0.116
1.2222	0.098	0.113	0.000	0.116
1.2778	0.099	0.118	0.000	0.116
1.3333	0.099	0.124	0.000	0.116
1.3889	0.100	0.129	0.000	0.116
1.4444	0.100	0.135	0.000	0.116

1.5000	0.101	0.140	0.000	0.116
1.5556	0.101	0.146	0.000	0.116
1.6111	0.102	0.152	0.000	0.116
1.6667	0.103	0.157	0.000	0.116
1.7222	0.103	0.163	0.000	0.116
1.7778	0.104	0.169	0.000	0.116
1.8333	0.104	0.175	0.000	0.116
1.8889	0.105	0.181	0.000	0.116
1.9444	0.105	0.186	0.000	0.116
2.0000	0.106	0.192	0.000	0.116
2.0556	0.107	0.198	0.000	0.116
2.1111	0.107	0.204	0.000	0.116
2.1667	0.108	0.210	0.000	0.116
2.2222	0.108	0.216	0.000	0.116
2.2778	0.109	0.222	0.000	0.116
2.3333	0.109	0.228	0.000	0.116
2.3889	0.110	0.235	0.000	0.116
2.4444	0.111	0.241	0.000	0.116
2.5000	0.111	0.247	0.000	0.116
2.5556	0.112	0.253	0.000	0.116
2.6111	0.112	0.259	0.000	0.116
2.6667	0.113	0.266	0.000	0.116
2.7222	0.114	0.272	0.000	0.116
2.7778	0.114	0.278	0.000	0.116
2.8333	0.115	0.285	0.000	0.116
2.8889	0.115	0.291	0.000	0.116
2.9444	0.116	0.298	0.000	0.116
3.0000	0.117	0.304	0.000	0.116
3.0556	0.117	0.311	0.000	0.116
3.1111	0.118	0.317	0.000	0.116
3.1667	0.118	0.324	0.000	0.116
3.2222	0.119	0.330	0.000	0.116
3.2778	0.120	0.337	0.000	0.116
3.3333	0.120	0.344	0.000	0.116
3.3889	0.121	0.350	0.000	0.116
3.4444	0.122	0.357	0.000	0.116
3.5000	0.122	0.364	0.000	0.116
3.5556	0.123	0.371	0.000	0.116
3.6111	0.123	0.378	0.000	0.116
3.6667	0.124	0.385	0.000	0.116
3.7222	0.125	0.391	0.000	0.116
3.7778	0.125	0.398	0.000	0.116
3.8333	0.126	0.405	0.000	0.116
3.8889	0.126	0.412	0.000	0.116
3.9444	0.127	0.420	0.000	0.116
4.0000	0.128	0.427	0.000	0.116
4.0556	0.128	0.434	0.277	0.116
4.1111	0.129	0.441	0.784	0.116
4.1667	0.130	0.448	1.438	0.116
4.2222	0.130	0.455	2.205	0.116
4.2778	0.131	0.463	3.059	0.116
4.3333	0.132	0.470	3.979	0.116
4.3889	0.132	0.477	4.939	0.116
4.4444	0.133	0.485	5.917	0.116
4.5000	0.134	0.492	6.887	0.116
4.5556	0.134	0.500	7.826	0.116
4.6111	0.135	0.507	8.711	0.116
4.6667	0.135	0.515	9.523	0.116

4.7222	0.136	0.522	10.24	0.116
4.7778	0.137	0.530	10.86	0.116
4.8333	0.137	0.538	11.38	0.116
4.8889	0.138	0.545	11.81	0.116
4.9444	0.139	0.553	12.16	0.116
5.0000	0.139	0.561	12.46	0.116
5.0556	0.140	0.568	12.94	0.116

Analysis Results

POC 1

POC #1 was not reported because POC must exist in both scenarios and both scenarios must have been run.

Model Default Modifications

Total of 0 changes have been made.

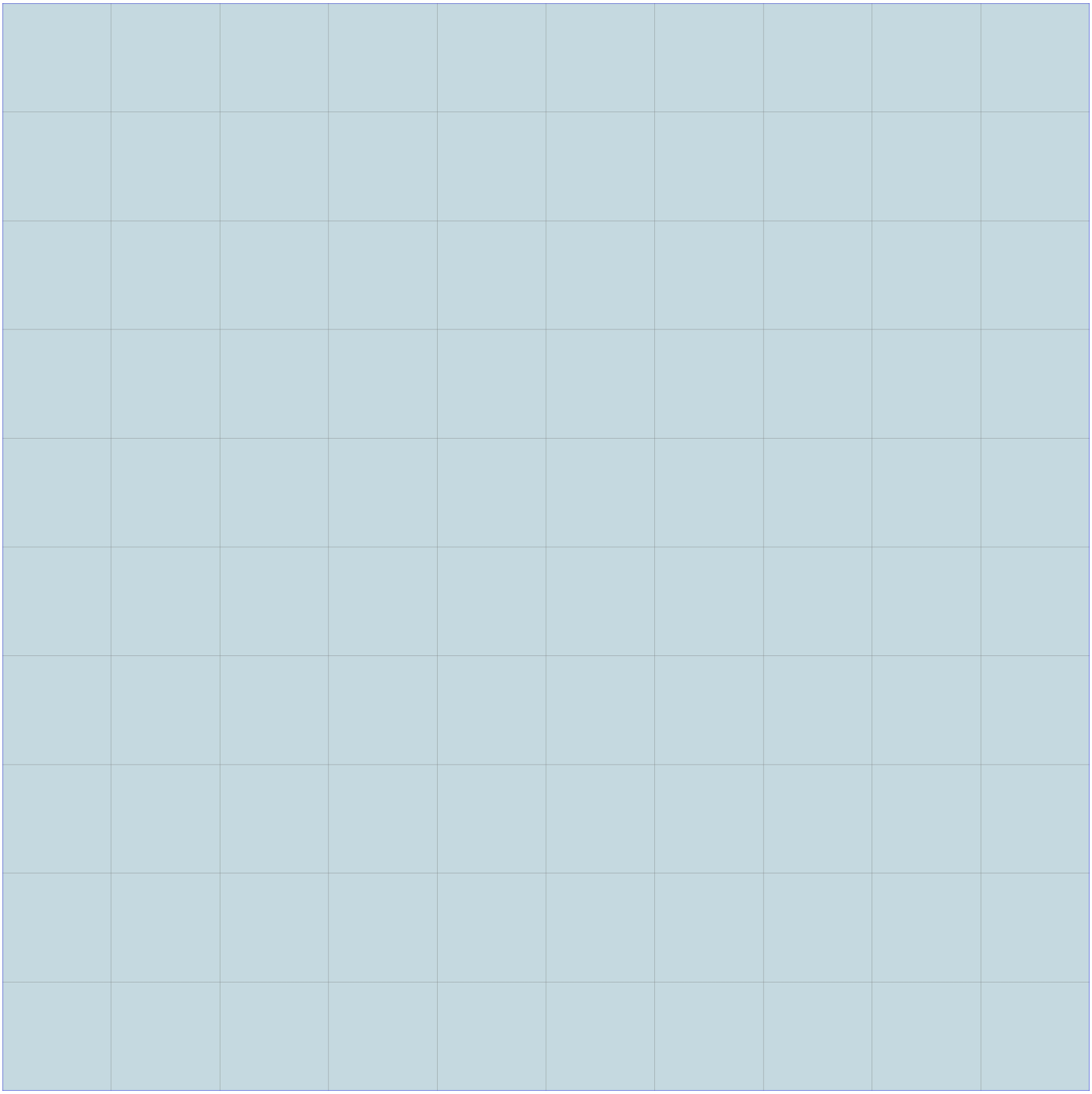
PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic

Predeveloped UCI File

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2008 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                             ***
WDM         26   Camas_10052020.wdm
MESSU       25   MitCamas_10052020.MES
            27   MitCamas_10052020.L61
            28   MitCamas_10052020.L62
            30   POCCamas_100520201.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND       6
      IMPLND       2
      IMPLND       4
      IMPLND       9
      IMPLND      14
      RCHRES       1
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Trapezoidal Pond  1         MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
    6     A/B, Pasture, Steep     1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
    6         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY
```

```
  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
    6         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
    6         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
    6              0         5       1.5       400      0.15       0.3     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
    6              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                  ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
    6          0.15       0.5       0.3         0       0.7       0.4
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS       AGWS      GWVS
    6              0         0         0         0         3          1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                    in  out           ***
    2      ROADS/MOD              1    1    1   27    0
    4      ROOF TOPS/FLAT         1    1    1   27    0
    9      SIDEWALKS/MOD          1    1    1   27    0
   14      POND                   1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    2         0    0    1    0    0    0
    4         0    0    1    0    0    0
    9         0    0    1    0    0    0
   14         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    2         0    0    4    0    0    0    1    9
    4         0    0    4    0    0    0    1    9
    9         0    0    4    0    0    0    1    9
   14         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
```

```
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    2         0    0    0    0    0
    4         0    0    0    0    0
    9         0    0    0    0    0
   14         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    2            400      0.05       0.1      0.08
    4            400      0.01       0.1       0.1
    9            400      0.05       0.1      0.08
   14            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    2              0         0
    4              0         0
    9              0         0
   14              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    2              0         0
    4              0         0
    9              0         0
   14              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND   6                       0.79     RCHRES   1      2
IMPLND   2                       0.44     RCHRES   1      5
IMPLND   4                        0.5     RCHRES   1      5
IMPLND   9                       0.14     RCHRES   1      5
IMPLND  14                        0.1     RCHRES   1      5

******Routing******
PERLND   6                       0.79     COPY     1     12
IMPLND   2                       0.44     COPY     1     15
IMPLND   4                        0.5     COPY     1     15
IMPLND   9                       0.14     COPY     1     15
IMPLND  14                        0.1     COPY     1     15
RCHRES   1                          1     COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<----------------><---> User T-series  Engl Metr LKFG             ***
```

```
                                        in  out                              ***
    1     Trapezoidal Pond-015    2    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
           FG FG FG FG  possible  exit  *** possible  exit      possible  exit
            *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
    1        0  1  0  0    4  5  0  0  0       0  0  0  0  0        2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1             1      0.03       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1           0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
  FTABLE      1
   91    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.086687  0.000000  0.000000  0.000000
  0.055556  0.087209  0.004830  0.000000  0.116430
  0.111111  0.087733  0.009690  0.000000  0.116430
  0.166667  0.088258  0.014579  0.000000  0.116430
  0.222222  0.088784  0.019496  0.000000  0.116430
  0.277778  0.089312  0.024444  0.000000  0.116430
  0.333333  0.089842  0.029420  0.000000  0.116430
  0.388889  0.090373  0.034426  0.000000  0.116430
  0.444444  0.090906  0.039462  0.000000  0.116430
  0.500000  0.091440  0.044527  0.000000  0.116430
  0.555556  0.091976  0.049622  0.000000  0.116430
  0.611111  0.092513  0.054746  0.000000  0.116430
  0.666667  0.093052  0.059901  0.000000  0.116430
  0.722222  0.093592  0.065085  0.000000  0.116430
  0.777778  0.094134  0.070300  0.000000  0.116430
  0.833333  0.094678  0.075545  0.000000  0.116430
  0.888889  0.095223  0.080820  0.000000  0.116430
  0.944444  0.095769  0.086125  0.000000  0.116430
  1.000000  0.096317  0.091461  0.000000  0.116430
  1.055556  0.096867  0.096827  0.000000  0.116430
  1.111111  0.097418  0.102224  0.000000  0.116430
  1.166667  0.097971  0.107651  0.000000  0.116430
  1.222222  0.098525  0.113109  0.000000  0.116430
  1.277778  0.099081  0.118598  0.000000  0.116430
```

```
  1.333333  0.099638  0.124118  0.000000  0.116430
  1.388889  0.100197  0.129669  0.000000  0.116430
  1.444444  0.100757  0.135251  0.000000  0.116430
  1.500000  0.101319  0.140865  0.000000  0.116430
  1.555556  0.101883  0.146509  0.000000  0.116430
  1.611111  0.102448  0.152185  0.000000  0.116430
  1.666667  0.103014  0.157892  0.000000  0.116430
  1.722222  0.103583  0.163631  0.000000  0.116430
  1.777778  0.104152  0.169402  0.000000  0.116430
  1.833333  0.104723  0.175204  0.000000  0.116430
  1.888889  0.105296  0.181038  0.000000  0.116430
  1.944444  0.105870  0.186903  0.000000  0.116430
  2.000000  0.106446  0.192801  0.000000  0.116430
  2.055556  0.107024  0.198731  0.000000  0.116430
  2.111111  0.107603  0.204693  0.000000  0.116430
  2.166667  0.108183  0.210687  0.000000  0.116430
  2.222222  0.108765  0.216713  0.000000  0.116430
  2.277778  0.109349  0.222772  0.000000  0.116430
  2.333333  0.109934  0.228863  0.000000  0.116430
  2.388889  0.110520  0.234987  0.000000  0.116430
  2.444444  0.111108  0.241143  0.000000  0.116430
  2.500000  0.111698  0.247332  0.000000  0.116430
  2.555556  0.112289  0.253554  0.000000  0.116430
  2.611111  0.112882  0.259809  0.000000  0.116430
  2.666667  0.113476  0.266096  0.000000  0.116430
  2.722222  0.114072  0.272417  0.000000  0.116430
  2.777778  0.114670  0.278771  0.000000  0.116430
  2.833333  0.115269  0.285158  0.000000  0.116430
  2.888889  0.115869  0.291579  0.000000  0.116430
  2.944444  0.116471  0.298033  0.000000  0.116430
  3.000000  0.117075  0.304520  0.000000  0.116430
  3.055556  0.117680  0.311041  0.000000  0.116430
  3.111111  0.118286  0.317596  0.000000  0.116430
  3.166667  0.118895  0.324184  0.000000  0.116430
  3.222222  0.119504  0.330806  0.000000  0.116430
  3.277778  0.120116  0.337462  0.000000  0.116430
  3.333333  0.120728  0.344152  0.000000  0.116430
  3.388889  0.121343  0.350877  0.000000  0.116430
  3.444444  0.121959  0.357635  0.000000  0.116430
  3.500000  0.122576  0.364428  0.000000  0.116430
  3.555556  0.123195  0.371255  0.000000  0.116430
  3.611111  0.123816  0.378116  0.000000  0.116430
  3.666667  0.124438  0.385012  0.000000  0.116430
  3.722222  0.125061  0.391942  0.000000  0.116430
  3.777778  0.125686  0.398908  0.000000  0.116430
  3.833333  0.126313  0.405908  0.000000  0.116430
  3.888889  0.126941  0.412943  0.000000  0.116430
  3.944444  0.127571  0.420012  0.000000  0.116430
  4.000000  0.128202  0.427117  0.000000  0.116430
  4.055556  0.128835  0.434257  0.277796  0.116430
  4.111111  0.129470  0.441432  0.784769  0.116430
  4.166667  0.130106  0.448643  1.438492  0.116430
  4.222222  0.130743  0.455888  2.205262  0.116430
  4.277778  0.131382  0.463170  3.059929  0.116430
  4.333333  0.132023  0.470486  3.979211  0.116430
  4.388889  0.132665  0.477839  4.939668  0.116430
  4.444444  0.133308  0.485227  5.917238  0.116430
  4.500000  0.133954  0.492651  6.887532  0.116430
  4.555556  0.134600  0.500111  7.826549  0.116430
  4.611111  0.135249  0.507607  8.711714  0.116430
  4.666667  0.135898  0.515139  9.523132  0.116430
  4.722222  0.136550  0.522707  10.24504  0.116430
  4.777778  0.137203  0.530311  10.86741  0.116430
  4.833333  0.137857  0.537951  11.38772  0.116430
  4.888889  0.138513  0.545628  11.81283  0.116430
  4.944444  0.139170  0.553342  12.16099  0.116430
  5.000000  0.139830  0.561092  12.46394  0.116430
  END FTABLE  1
END FTABLES
```

```
EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1.37           PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1.37           IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.8            PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.8            IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   1 HYDR   RO     1 1        1      WDM   1022 FLOW     ENGL      REPL
RCHRES   1 HYDR   O      1 1        1      WDM   1023 FLOW     ENGL      REPL
RCHRES   1 HYDR   O      2 1        1      WDM   1024 FLOW     ENGL      REPL
RCHRES   1 HYDR   STAGE  1 1        1      WDM   1025 STAG     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15

  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                 COPY           INPUT  MEAN
  END MASS-LINK   17


END MASS-LINK

END RUN
```

Disclaimer

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Appendix E

OPERATIONS AND MAINTENANCE

INFILTRATION BASIN INSPECTION AND MAINTENANCE GUIDELINES.

Infiltration Basin			
Drainage System Feature	**Potential Defect**	**Conditions When Maintenance Is Needed**	**Results Expected When Maintenance Is Performed Or Not Needed**
General	Trash and Debris	Any trash and debris which exceed 5 cubic feet per 1,000 square feet (this is about equal to the amount of trash it would take to fill up one standard size garbage can). In general, there should be no visual evidence of dumping. If less than threshold all trash and debris will be removed as part of next scheduled maintenance.	Trash and debris cleared from site.
	Poisonous Vegetation and Noxious Weeds	Any poisonous or nuisance vegetation which may constitute a hazard to maintenance personnel or the public. Any evidence of noxious weeds as defined by State or local regulations. (Apply requirements of adopted IPM policies for the use of herbicides).	No danger of poisonous vegetation where maintenance personnel or the public might normally be. (Coordinate with Clark County Weed Management department). Complete eradication of noxious weeds may not be possible. Compliance with State or local eradication policies required.
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants. (Coordinate removal/cleanup with local water quality response agency).	No contaminants or pollutants present.
	Rodent Holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents destroyed and dam or berm repaired. (Coordinate with Clark County Maintenance and Operations department; coordinate with Ecology Dam Safety Office if pond exceeds 10 acre-feet).
	Beaver Dams	Dam results in change or function of the facility.	Facility is returned to design function. (Coordinate trapping of beavers and removal of dams with appropriate permitting agencies)
	Insects	When insects such as wasps and hornets interfere with maintenance activities.	Insects destroyed or removed from site. Apply insecticides in compliance with adopted Clark County Maintenance and Operations policies.
Storage Area	Sediment	Water ponding in infiltration pond after rainfall ceases and appropriate time allowed for infiltration. (A percolation test pit or test of facility indicates facility is only working at 90% of its designed capabilities. If two inches or more sediment is present, remove).	Sediment is removed and/or facility is cleaned so that infiltration system works according to design.
Filter Bags (If Applicable)	Filled with Sediment and Debris	Sediment and debris fill bag more than 1/2 full.	Filter bag is replaced or system is redesigned.
Rock Filters	Sediment and Debris	By visual inspection, little or no water flows through filter during heavy rain storms.	Gravel in rock filter is replaced.

Infiltration Basin (Continued)			
Drainage System Feature	**Potential Defect**	**Conditions When Maintenance Is Needed**	**Results Expected When Maintenance Is Performed Or Not Needed**
Side Slopes of Pond	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted berm embankment.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction. If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.
Pond Berms (Dikes)	Settlements	Any part of berm which has settled 4 inches lower than the design elevation. If settlement is apparent, measure berm to determine amount of settlement. Settling can be an indication of more severe problems with the berm or outlet works. A licensed civil engineer should be consulted to determine the source of the settlement.	Dike is built back to the design elevation.
Emergency Overflow/ Spillway and Berms Over 4 Feet in Height.	Tree Growth	Tree growth on emergency spillways creates blockage problems and may cause failure of the berm due to uncontrolled overtopping. Tree growth on berms over 4 feet in height may lead to piping through the berm which could lead to failure of the berm.	Trees should be removed. If root system is small (base less than 4 inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. A licensed civil engineer should be consulted for proper berm/spillway restoration.
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a Geotechnical engineer be called in to inspect and evaluate condition and recommend repair of condition.	Piping eliminated. Erosion potential resolved.
Emergency Overflow/ Spillway	Rock Missing	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway. (Rip-rap on inside slopes need not be replaced)	Rocks and pad depth are restored to design standards.
Emergency Overflow/ Spillway	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted berm embankment.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction. If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.
Pre-settling Ponds and Vaults	Facility or Sump Filled With Sediment and/or Debris	6" or designed sediment trap depth of sediment.	Sediment is removed.

June 10, 2019

Bryan Degrosellier
Degrosellier Development and Construction
418 Date Street
Vancouver, WA 98661

Subject: Traffic analysis letter for NE 3rd Avenue cottage homes

Dear Mr. Degrosellier,

The purpose of this letter is to address the requirements of the City of Camas in support of your proposed 22 unit cottage development to be located at 2531 NE 3rd Avenue in Camas, Washington. This letter addresses the requirements of the City of Camas's "Transportation Impact Study Guidelines," the city prepared preapplication meeting notes and subsequent direction provided by city staff.

A preliminary site plan is provided in Appendix A. This letter addresses the impacts of both phase 1 and phase 2 although phase 2 is not proposed for development at this time.

The site is currently served by a driveway that directly accesses NE 3rd Avenue. The existing single family residential home will be demolished in favor of the proposed development. The existing access will be removed and the proposed development will be served by a 20 foot wide one-way road that will intersect NE Wedgewood Court as illustrated in the site plan.

The city's guidelines state that if a development generates 200 vehicle trips per day or more then a transportation impact study required. At 199 vehicle trips per day or less, a transportation impact study may be required.

The proposed development generates far less than 200 vehicle trips per day. Rather than requiring a full transportation impact study, city staff requested a limited transportation analysis in order to evaulate trip generation, trip distribution, sight distance at the NE 3rd Avenue/NE Wedgewood Court/NE 3rd Loop intersection and the need for an eastbound left turn lane at the intersection.

Trip Generation

The proposed development consist of a 22 unit cottage development to be constructed in two phases. The first phase will consist of 19 units and phase 2 will consist of up to 3 units. The trip generation of the proposed development is provided below in Table 1 and is based upon the fitted curve rates of the 10th Edition of the Institute of Transportation Engineers *Trip Generation Manual*. The Multifamily (Low Rise) land use was chosen to estimate the trip generation of the proposed development. This land use includes data for townhouses, which most closely resemble cottage development, which are comprised of a mix of homes with garages and without garages and smaller footprints than typical single family residential development. This assumption was confirmed with city staff prior to this analysis.

Table 1. Projected trip generation

ITE Land Use	Dwelling Units	Weekday						
		Average Daily Traffic	AM Peak Hour			PM Peak Hour		
			Total	Enter	Exit	Total	Enter	Exit
Multifamily (Low Rise) #220	22	125	11	2	9	15	9	6

Note: Fitted curve equations used, ITE Trip Generation Manual, 10th Edition

Trip Distribution

Trip distribution associated with the proposed development is based upon the existing weekday AM and PM peak hour traffic counts, engineering judgment and a review of the City of Camas transportation network. The anticipated trip distribution is illustrated in Appendix C.

Traffic Analysis

Turning movement counts were collected at the NE 3rd Avenue/NE Wedgewood Court/NE 3rd Loop intersection on Thursday, May 23, 2019 during both the weekday AM (7-9 AM) and PM (4-6 PM) peak hours. Traffic count data is provided in Appendix B. The existing traffic counts are also presented in Appendix C.

In order to more accurately predict the operations of the intersection with the approval of the proposed developments, the City of Camas provided information regarding in-process developments near the project site. In-process developments are those development projects that are approved yet not occupied. The full in-process traffic information is provided in Appendix D.

The existing traffic plus the in-process traffic were summed to develop "background traffic" figures which approximate traffic operations without considering the impacts of the proposed developments. Background traffic figures are presented in Appendix C.

In order to evaluate the need for a left turn lane at the NE 3rd Avenue/NE Wedgewood Court/NE 3rd Loop intersection, background traffic and site generated traffic were considered together as "total traffic" to approximate the intersection operations when the proposed development is occupied. Total traffic volumes are presented in Appendix C.

Left Turn Lane Warrants

The proposed development will result in additional traffic eastbound left turning traffic at the NE 3rd Avenue/NE Wedgewood Court/NE 3rd Loop intersection. The City of Camas requested an analysis of that intersection during the weekday AM and PM peak hours to determine if the intersection would meet left turn lane warrants as a result of the proposed developments. NE Wedgewood Court, while a dead end roadway, serves several residential units.

The City of Camas has two separate policies when evaluating the need for left turn lanes.

The "Transportation Impact Study Guidelines" states that "[l]eft turn storage lanes are required on all arterial and collector streets."

NE 3rd Avenue is classified by the City of Camas as a principal arterial road[1].

Additionally, the guidelines state that "[l]eft turn lane requirements for different scenarios should utilize *A Policy on Geometric Design of Highways and Streets,* (AASHTO) 1990, page 791."

While the city would prefer a left turn storage lane along all arterial roadways, it cannot necessarily require left turn lanes as part of all development as such a request may not be proportional nor meet technical requirements or guidance for such an improvement. The city has requested the analysis of left turn lane warrants in order to determine if a left turn lane is necessary to serve the proposed development.

The City traffic impact study guidelines state that "[l]eft turn lane requirements for different scenarios should utilize *A Policy on Geometric Design of Highways and Streets, (AASHTO) 1990*." NE 3rd Avenue is a four lane arterial roadway. The 1990 AASHTO manual provides no left turn lane warrant methodology for four lane roadways. The AASHTO two lane roadway left turn lane warrant methodology is based upon the M.D. Harmelink warrant curves. While not adopted in the 1990 AASHTO manual, M.D. Harmelink did research and provide recommendations for when a left turn lane along a four lane roadway should be considered. City staff confirmed that this four lane methodology would be acceptable for use on this project. Based upon that methodology, an eastbound left turn lane is not warranted during total traffic conditions for either the weekday AM or PM peak hours. The figure supporting that determination can be found in Appendix E.

Additionally, as noted in the city's preapplication meeting notes, there is sufficient right of way and no frontage improvements are required. The city states that "NE 3rd Avenue is an existing 4-lane arterial with a 100-foot right-of-way (ROW) and improved frontage, therefore additional ROW will not be needed, nor are any frontage improvements required."

Sight Distance

NE 3rd Avenue is posted with a speed of 40 MPH.

According to AASHTO's *A Policy on Geometric Design of Highways and Streets*, the preferred intersection sight distance for the NE 3rd Avenue/NE Wedgewood Court/NE 3rd Loop intersection is 445 feet.

A site visit was conducted on May 25, 2019 to observe the existing intersection sight distance at the intersection.

There is adequate intersection sight distance looking from NE Wedgewood Court to the east along NE 3rd Avenue with more than 445 feet of intersection sight distance available.

1 http://www.cityofcamas.us/images/DOCS/MAPS/federalfunctionalclassificationmap2008.pdf

Picture 1: Intersection sight distance from NE Wedgewood Court looking to the east along NE 3rd Avenue

There is adequate intersection sight distance looking from NE Wedgewood Court to the west along NE 3rd Avenue with more than 445 feet of intersection sight distance available. However, there are low hanging tree limbs on the northwest quadrant of the intersection that should be limbed up in order to ensure that sight distance does not grow to be a problem. These tree limbs appear to be within the public right-of-way.

Picture 2: Intersection sight distance from NE Wedgewood Court looking to the west along NE 3rd Avenue

Conclusion

This letter adequately addresses the requirements of the City of Camas. It is recommended that low hanging tree limbs that appear to be in the public right-of-way be limbed up to avoid future sight distance problems at the NE 3rd Avenue/NE Wedgewood Court/NE 3rd Loop intersection. Should you have any questions, feel free to contact me at 503-317-4559 or by email at rick@greenlightengineering.com.

Sincerely,

Rick Nys

Rick Nys, P.E.
Principal Traffic Engineer

Appendix A

Preliminary Site Plan

PARKING SPACES REQ'D: 38 Units
PARKING SPACES PROVIDED: 47 (W/ UBER/LYFT SPOTS)

SWITCHBACK PATH TO TOP OF PROPERTY

N

0 20 40
(IN FEET)

OPEN SPACE 46,120 SF

LOT 14 2,604 SF

LOT 13 2,382 SF

LOT 12 2,382 SF

LOT 11 2,397 SF

OPEN SPACE II 1,190 SF

LOT 10 2,132 SF

EXISTING STRUCTURES TO BE REMOVED

DORMER

140'-11"

RETAINING WALL

COVERED PARKING STRUCTURE
8 units @ 8.5'

BIKE RACKS

20'-0"

ONE WAY

MATCH EXISTING SIDEWALK

UBER/LYFT

8'-10"

20'-0"

18'-0"

LOT 7 1,991 SF

LOT 6 2,018 SF

LOT 5 2,024 SF

LOT 4 2,030 SF

COVERED PARKING STRUCTURE
8 units @ 8.5'

119'-2"

8'-0"

GATHERING STRUCTURE

PRIVATE STREET

LOT 15 2,729 SF

LOT 16 2,715 SF

LOT 17 2,462 SF

LOT 18 3,086 SF

16.7' R/W DEDICATION

24' HALF ST R/W

28' CURB TO CURB

6' PUE

29.9'

2.94'

99.99'

ONE WAY

UBER/ LYFT

BIKE RACKS

WIDEN EXISTING STREET

EXISTING STRUCTURES TO BE REMOVED

EXISTING PROPERTY LINE

50' R/W

30' EXIST R/W

20' EXIST PVMT

EXISTING CURB & SIDEWALK

PHASE 2

NEW PRIVATE STREET

COMMON HOUSE

GATHERING STRUCTURE

EXISTING STRUCTURES TO REMAIN (NOT A PART)

PROVIDE NEW DRIVEWAY TO EXISTING HOME

NE WEDGEWOOD CT

RELOCATE EXISTING POWER POLE

TRACT "A"

LOT 3 1,991 SF

LOT 2 2,043 SF

LOT 1 2,599 SF

STORM TRACT 3,743 SF

STORM TRACT

DORMER

ARBOR/ARCH PEDESTRIAN ENTRY

151.4'

NE 3RD AVENUE

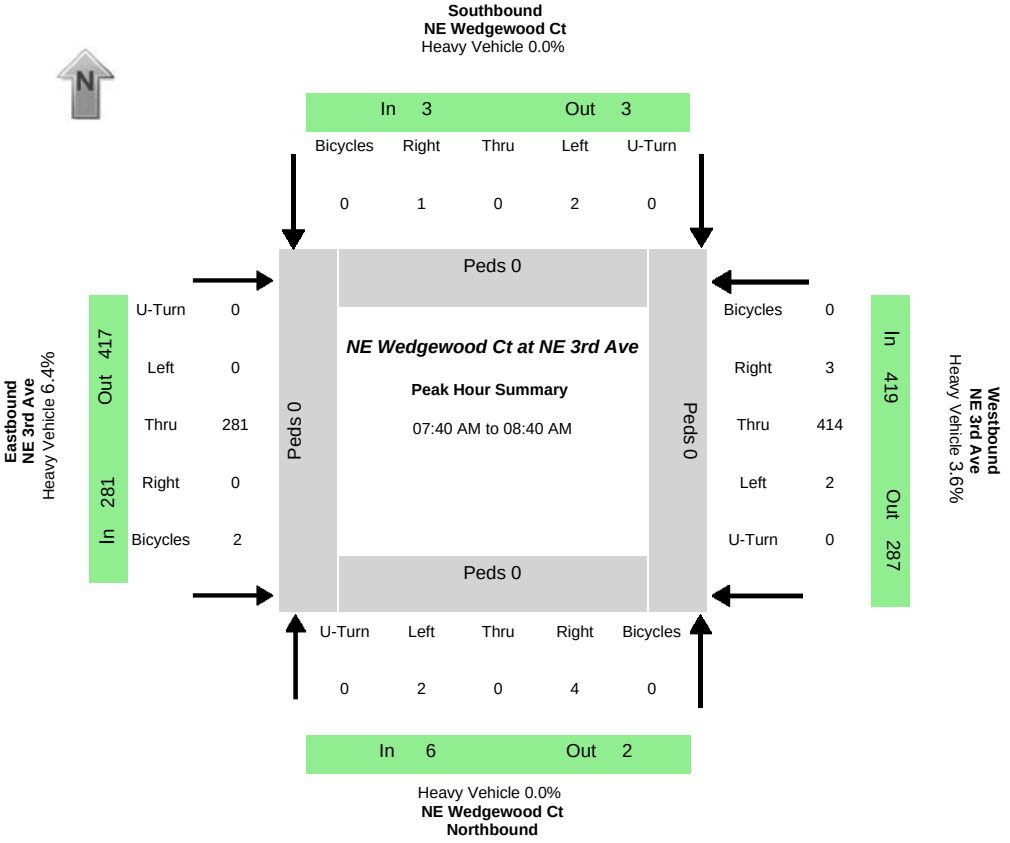
CAMAS - 3RD AVE GARDEN HOUSES
SITE PLAN CONCEPT
NOVEMBER 26, 2018

Appendix B

Traffic Counts

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*NE Wedgewood Ct*
E/W street	*NE 3rd Ave*
City, State	Camas WA
Site Notes	
Location	45.58846 - -122.381525
Start Date	Wednesday, May 22, 2019
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:40:00 AM
Peak 15 Min Start	07:50:00 AM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
2	0	4	0	2	0	1	0	0	281	0	0	2	414	3	0	6	3	281	419	2	3	417	287

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.4%	0.0%	0.0%	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	6.4%	3.6%	0.0%	0.0%	3.6%	6.3%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2

PHV - Pedestrians

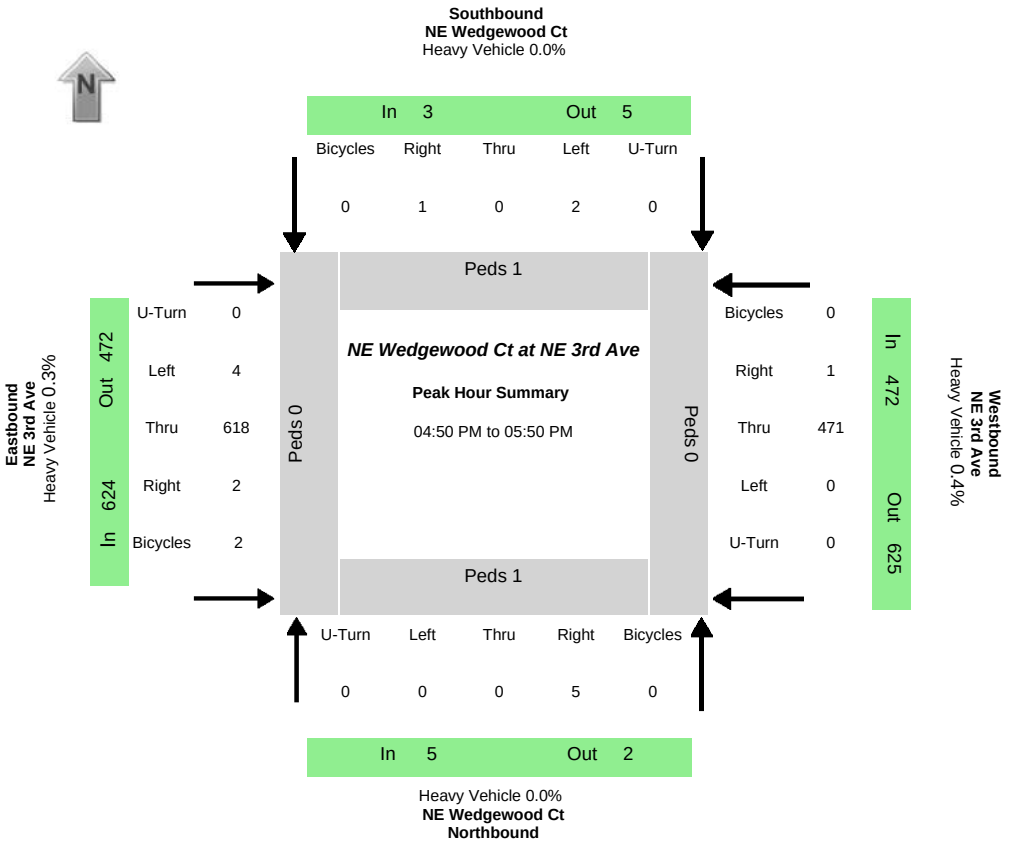
in Crosswalk				
NB	SB	EB	WB	**Sum**
0	0	0	0	0

All Vehicle Volumes

	Northbound NE Wedgewood Ct				Southbound NE Wedgewood Ct				Eastbound NE 3rd Ave				Westbound NE 3rd Ave				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	0	0	0	0	0	0	0	0	0	20	0	0	0	21	0	0		
07:05:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	24	0	0		
07:10:00 AM	0	0	0	0	0	0	0	0	0	14	0	0	0	29	0	0	113	
07:15:00 AM	0	0	0	0	0	0	0	0	0	16	1	0	0	24	0	0	113	
07:20:00 AM	0	0	0	0	0	0	1	0	0	15	0	0	0	16	0	0	116	
07:25:00 AM	1	0	1	0	0	0	1	0	0	12	0	0	0	30	0	0	118	
07:30:00 AM	1	0	0	0	0	0	0	0	0	8	0	0	0	21	0	0	107	
07:35:00 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	36	0	0	127	
07:40:00 AM	0	0	1	0	0	0	0	0	0	15	0	0	0	44	0	0	142	
07:45:00 AM	0	0	0	0	0	0	0	0	0	31	0	0	0	30	0	0	173	
07:50:00 AM	0	0	1	0	0	0	0	0	0	24	0	0	0	39	0	0	185	
07:55:00 AM	0	0	0	0	0	0	0	0	0	31	0	0	0	34	0	0	190	563
08:00:00 AM	0	0	0	0	0	0	0	0	0	24	0	0	1	39	0	0	193	586
08:05:00 AM	0	0	1	0	1	0	0	0	0	25	0	0	0	30	2	0	188	616
08:10:00 AM	0	0	0	0	0	0	0	0	0	26	0	0	0	34	0	0	183	633
08:15:00 AM	2	0	0	0	0	0	0	0	0	20	0	0	0	21	0	0	162	635
08:20:00 AM	0	0	1	0	0	0	0	0	0	22	0	0	0	33	0	0	159	659
08:25:00 AM	0	0	0	0	0	0	0	0	0	18	0	0	0	34	1	0	152	667
08:30:00 AM	0	0	0	0	1	0	1	0	0	21	0	0	1	39	0	0	172	700
08:35:00 AM	0	0	0	0	0	0	0	0	0	24	0	0	0	37	0	0	177	709
08:40:00 AM	0	0	0	0	0	0	0	0	0	25	0	0	1	25	0	0	175	700
08:45:00 AM	0	0	0	0	0	0	0	0	0	25	0	0	0	36	0	0	173	700
08:50:00 AM	0	0	0	0	0	0	0	0	0	26	0	0	0	30	0	0	168	692
08:55:00 AM	0	0	0	0	0	0	0	0	1	35	0	0	0	26	0	0	179	689

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*NE Wedgewood Ct*
E/W street	*NE 3rd Ave*
City, State	Camas WA
Site Notes	
Location	45.58846 - -122.381525
Start Date	Wednesday, May 22, 2019
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	04:50:00 PM
PHF (15-Min Int)	0.93



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	5	0	2	0	1	0	4	618	2	0	0	471	1	0	5	3	624	472	2	5	472	625

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.3%	0.4%	0.0%	0.0%	0.4%	0.3%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2

PHV - Pedestrians

in Crosswalk				
NB	SB	EB	WB	**Sum**
1	1	0	0	2

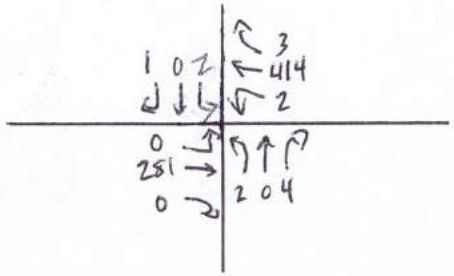
All Vehicle Volumes

	Northbound NE Wedgewood Ct				Southbound NE Wedgewood Ct				Eastbound NE 3rd Ave				Westbound NE 3rd Ave				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	1	0	0	0	0	0	0	49	0	0	0	34	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	44	0	0	0	35	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	50	0	0	0	40	0	0	253	
04:15:00 PM	0	0	1	0	0	0	0	0	0	44	0	0	1	25	0	0	240	
04:20:00 PM	1	0	1	0	0	0	0	0	0	41	0	0	0	34	0	0	238	
04:25:00 PM	0	0	0	0	0	0	0	0	0	30	0	0	1	32	0	0	211	
04:30:00 PM	0	0	0	0	0	0	0	0	0	43	0	0	0	34	0	0	217	
04:35:00 PM	0	0	2	0	0	0	0	0	0	42	0	0	0	45	0	0	229	
04:40:00 PM	0	0	0	0	0	0	0	0	0	36	0	0	0	48	0	0	250	
04:45:00 PM	0	0	0	0	0	0	0	0	1	41	0	0	3	34	0	0	252	
04:50:00 PM	0	0	2	0	0	0	0	0	1	58	0	0	0	47	0	0	271	
04:55:00 PM	0	0	0	0	0	0	0	0	0	50	1	0	0	47	0	0	285	999
05:00:00 PM	0	0	1	0	0	0	0	0	0	52	0	0	0	39	0	0	298	1007
05:05:00 PM	0	0	0	0	0	0	0	0	0	53	0	0	0	41	0	0	284	1022
05:10:00 PM	0	0	0	0	0	0	0	0	0	49	0	0	0	41	0	0	276	1022
05:15:00 PM	0	0	1	0	0	0	0	0	2	52	0	0	0	40	0	0	279	1046
05:20:00 PM	0	0	0	0	1	0	0	0	0	53	0	0	0	39	0	0	278	1062
05:25:00 PM	0	0	0	0	0	0	1	0	1	49	0	0	0	38	0	0	277	1088
05:30:00 PM	0	0	0	0	1	0	0	0	0	49	0	0	0	40	0	0	272	1101
05:35:00 PM	0	0	0	0	0	0	0	0	0	40	0	0	0	32	1	0	252	1085
05:40:00 PM	0	0	0	0	0	0	0	0	0	59	1	0	0	35	0	0	258	1096
05:45:00 PM	0	0	1	0	0	0	0	0	0	54	0	0	0	32	0	0	255	1104
05:50:00 PM	0	0	1	0	0	0	0	0	0	44	0	0	0	33	0	0	260	1074
05:55:00 PM	0	0	2	0	0	0	0	0	0	39	0	0	0	44	0	0	250	1061

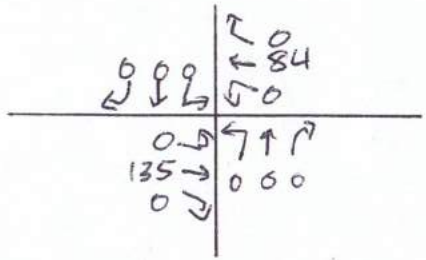
Appendix C

Traffic Flow Figures

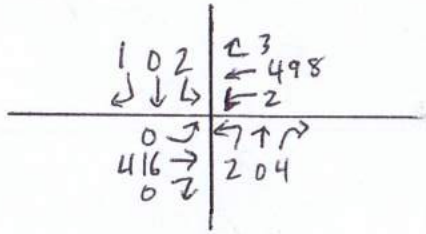
Weekday AM Peak Hour



Existing Traffic

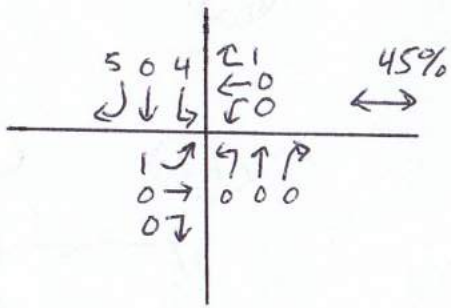


In Process Traffic

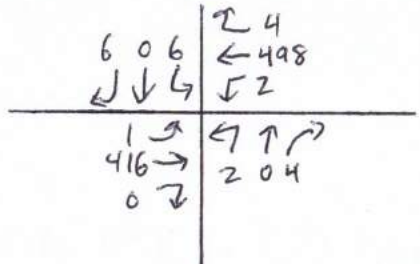


Background Traffic

55% ⟷

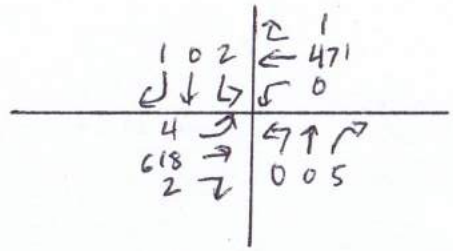


Site Gen Traffic

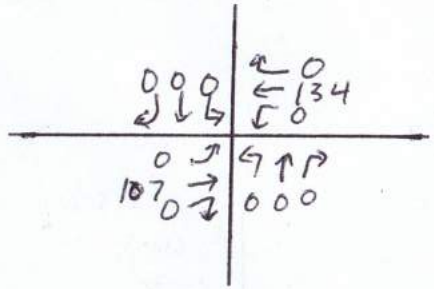


Total Traffic

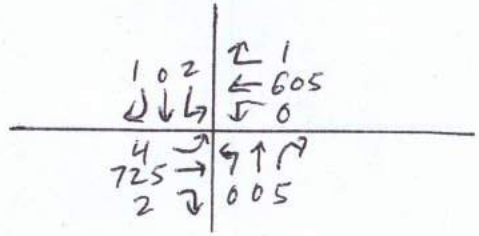
Weekday PM Peak Hour



Existing Traffic

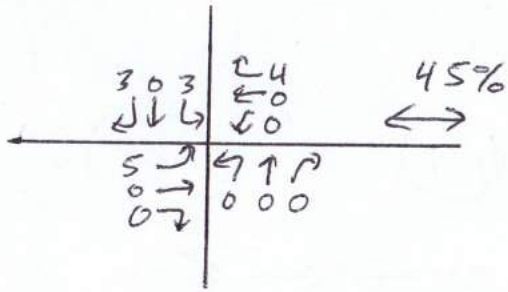


In Process Traffic

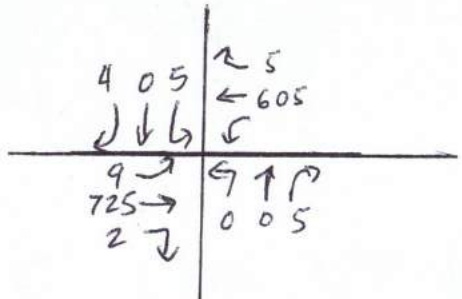


Background Traffic

55% ⟷



Site Gen Traffic

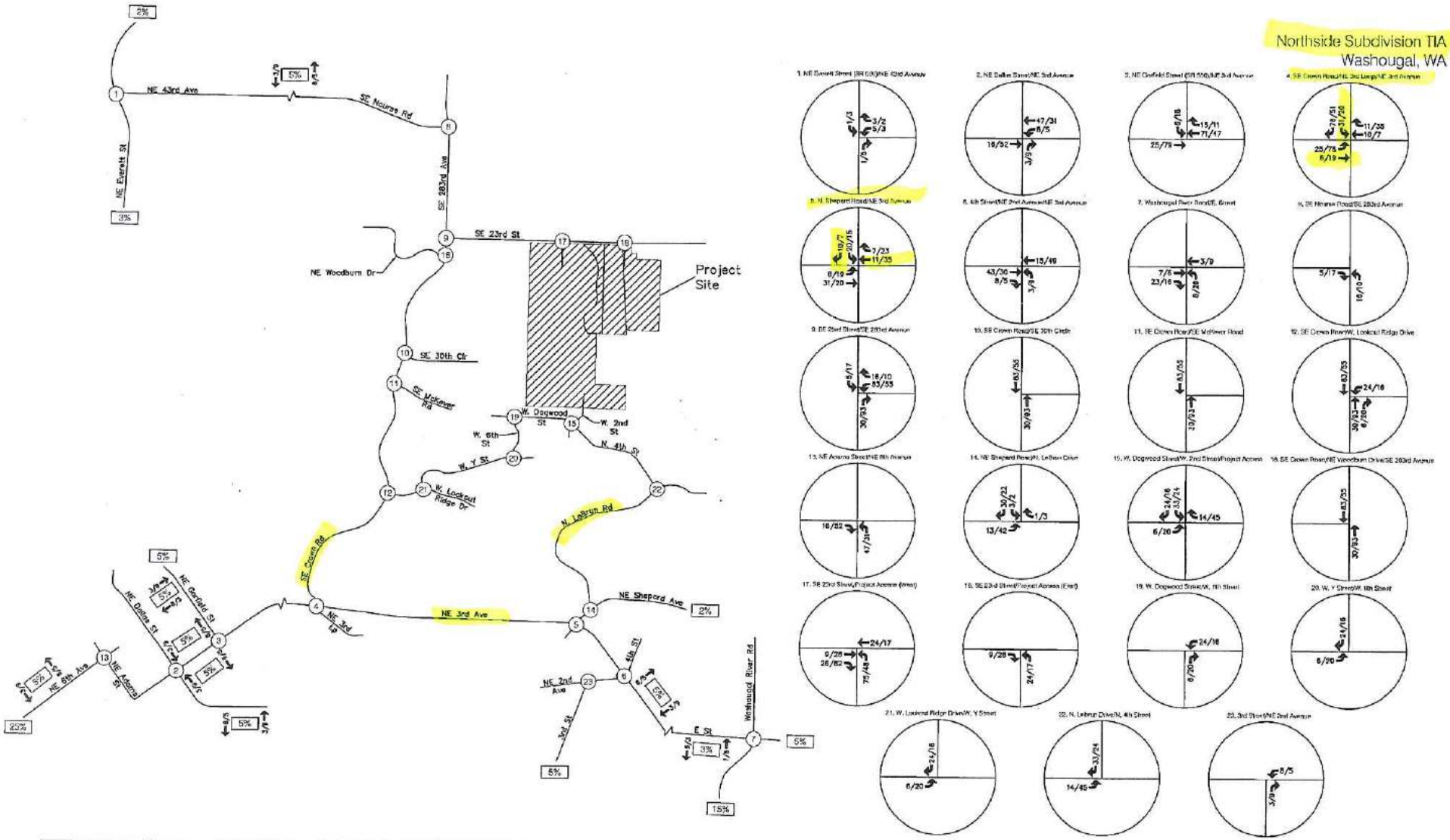


Total Traffic

Appendix D

In-process Developments

Northside Subdivision TIA
Washougal, WA



LEGEND

100/128 A.M./P.M. Peak Hour Traffic Volumes

10% Peak Hour Trip Distribution

NOT TO SCALE

02 build-out 5-31-19

FIGURE 6
Trip Distribution and Assignment
Traffic Volumes

17028_Figures.Dwg

Figure 4 provides a summary of the existing turning-movement counts, which are rounded to the nearest five vehicles per hour for the weekday a.m. and p.m. peak hours, respectively. *Appendix "B" contains the traffic count worksheets used in this study.*

As shown in Figure 4, the study intersections operate acceptably during both study periods. *Appendix "C" contains the existing conditions traffic operations worksheets.*

DEVELOPMENT TRIP GENERATION

As discussed above, the proposed development includes 179 single family units, which is a reduction of 25 units compared to the plan approved in 2006. Trip generation estimates for the currently proposed development were generated based on information provided in the standard reference manual *Trip Generation, 9th Edition* published by the Institute of Transportation Engineers (ITE – Reference 3). In the 2006 TIA, rates from the 7th Edition of the *Trip Generation* manual were utilized, which are slightly higher than those from the 9th Edition. Table 1 compares the trip generation from the current site plan with that previously proposed.

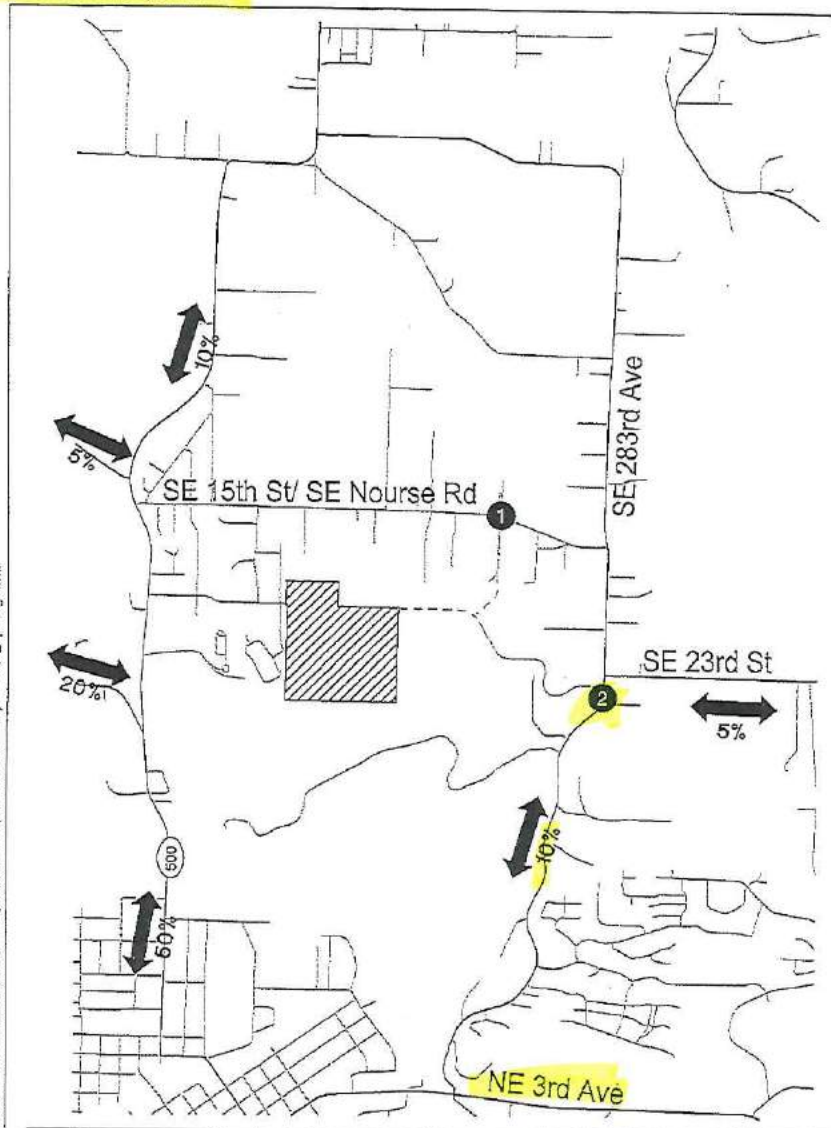
Table 1: Trip Generation Comparison

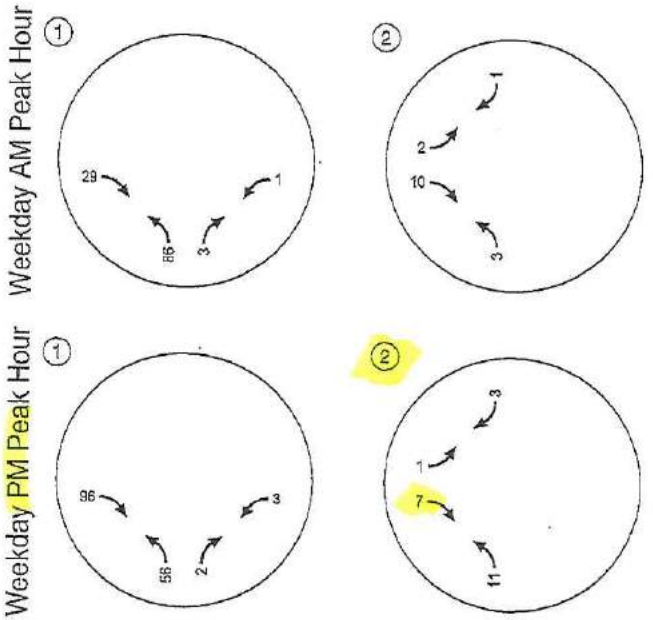
Scenario	ITE Code	Size	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				In	Out	Total	In	Out	Total
Current Site Plan	210	179 units	1,704	34	101	135	113	66	179
2006 TIA	210	204 units	2,004	38	114	152	128	75	203
Difference	-	-25 units	-300	-4	-13	-17	-15	-9	-24

As seen in the table, the current proposal results in 17 fewer trips during the a.m. peak hour and 24 fewer trips during the p.m. peak hour.

Trip Distribution

The distribution of site-generated trips onto the study area roadway system was estimated using the trip distribution pattern utilized in the 2006 TIA, accounting for the change in trip generation and new proposed access routes. The weekday a.m. and p.m. peak hour site trips shown in Table 1 were assigned to the roadway network based on the trip distribution pattern. Figure 5 shows the assignment of site-generated trips during the weekday a.m. and p.m. peak hours.

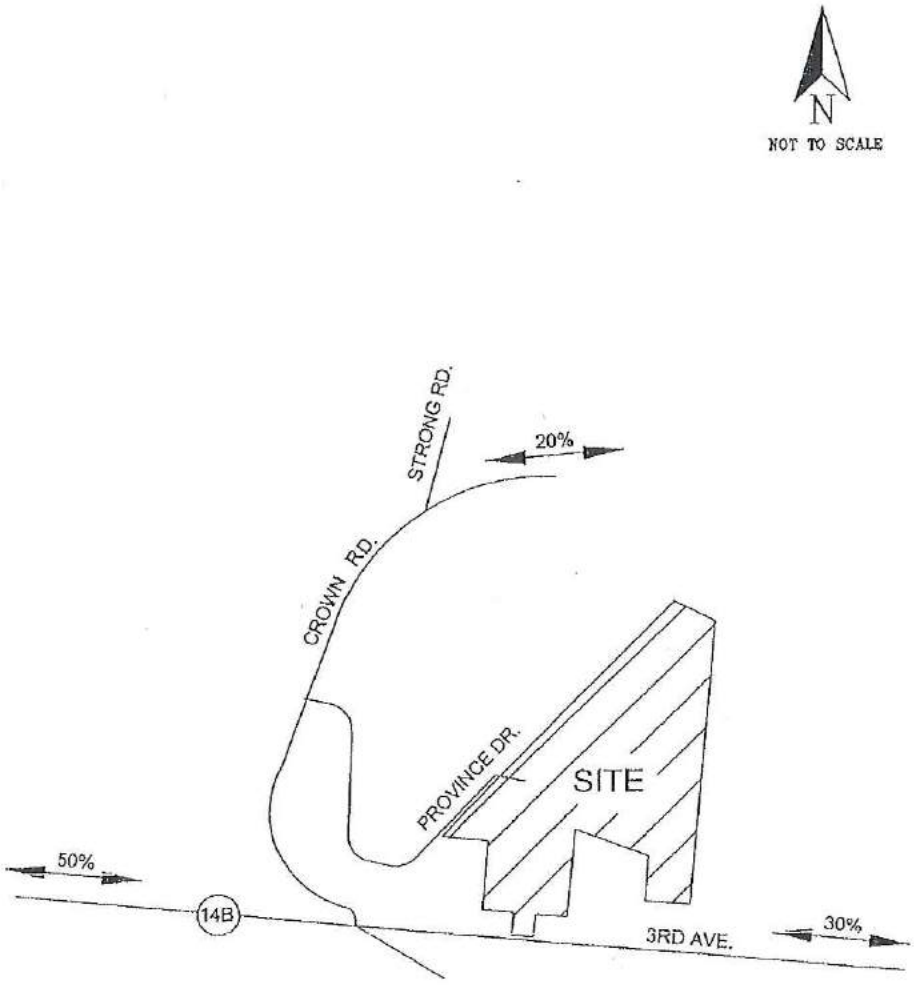




Trip Distribution and Assignment
Camas, Washington

Figure 5

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

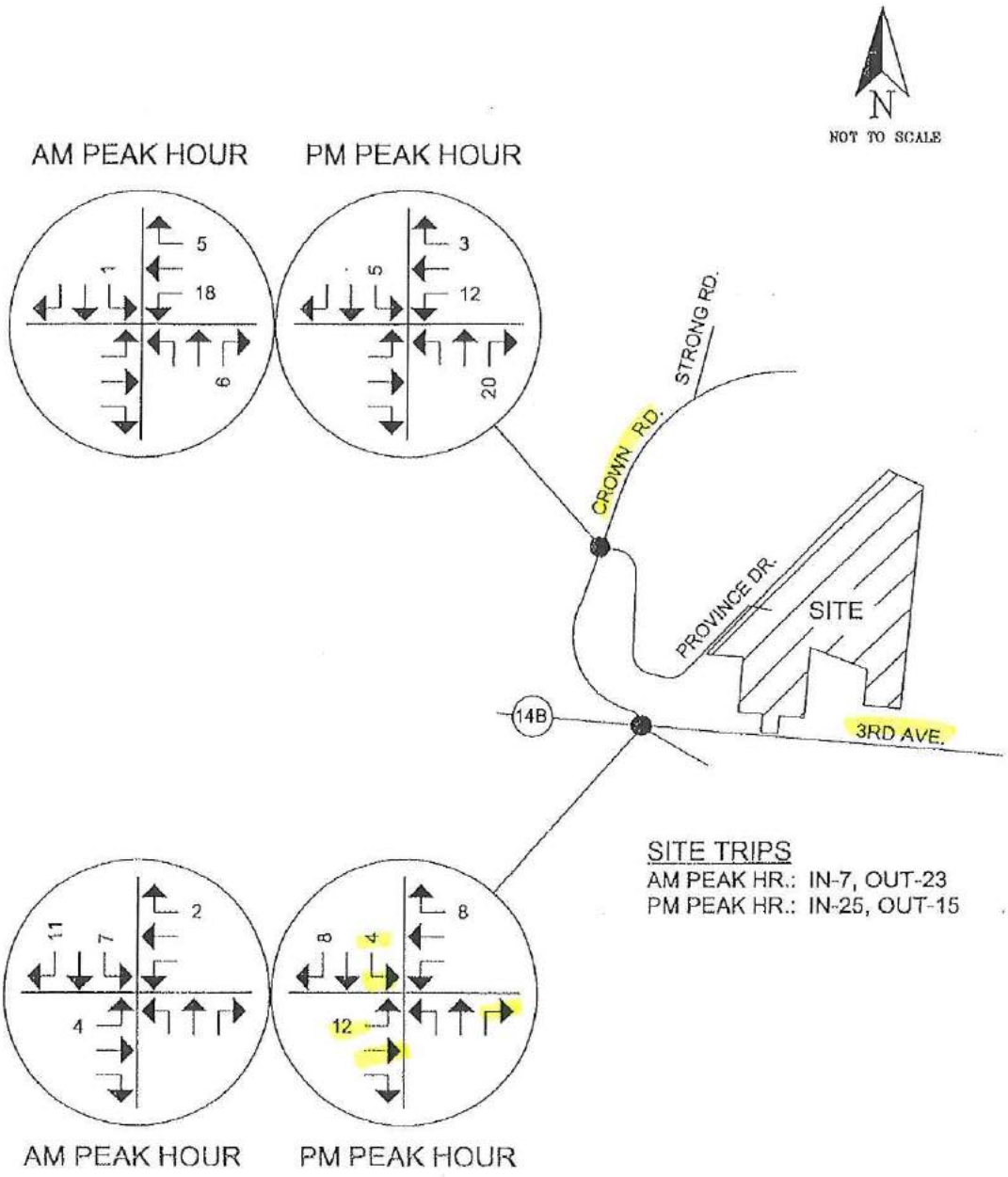


0% build-out 5-31-19

PROVINCE ESTATES

FIGURE 6
SITE TRAFFIC DISTRIBUTION

KELLY ENGINEERING
316 E. Fourth Plain, A-5, Vancouver, WA 98663
Phone: 360-696-6059 Fax: 360-735-1126

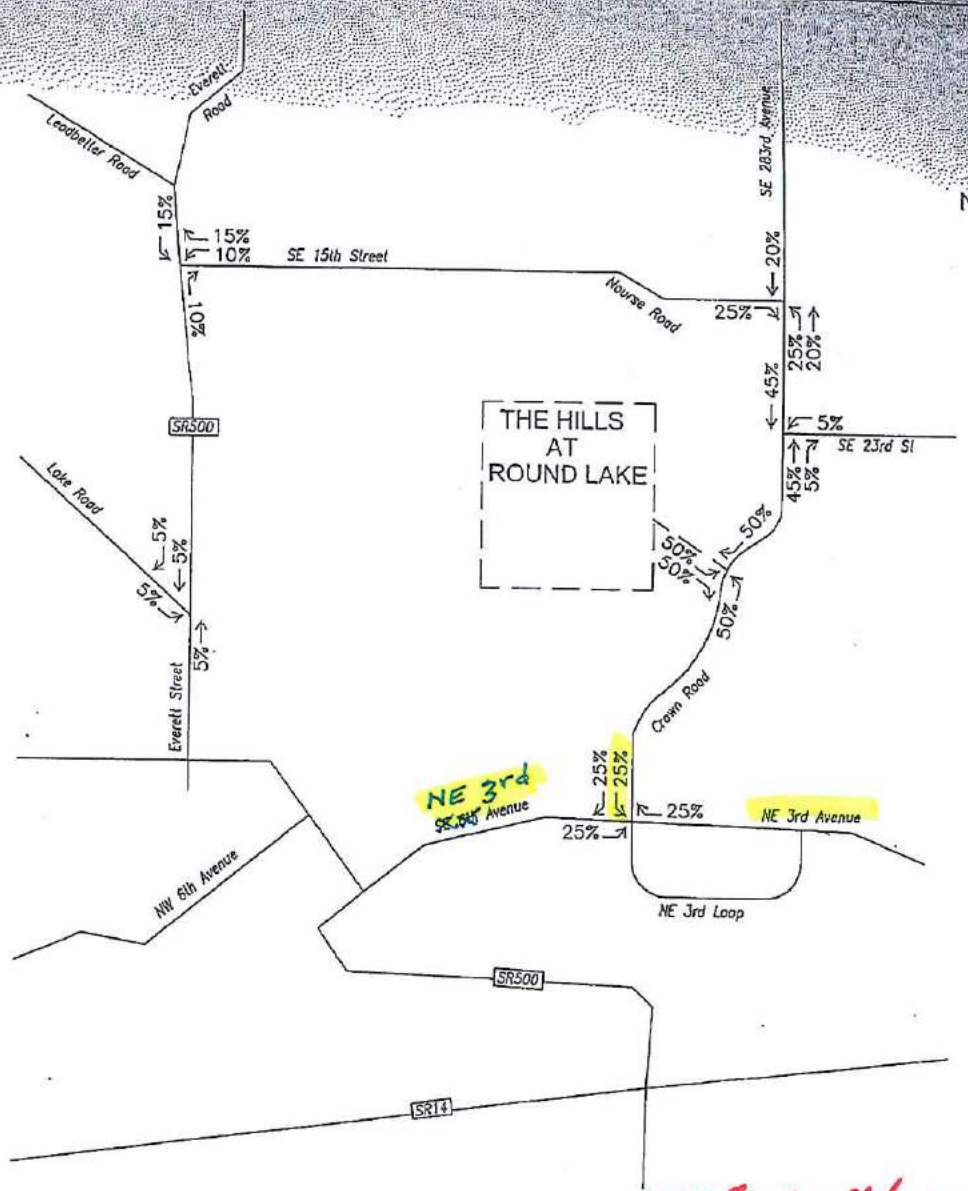


PROVINCE ESTATES

FIGURE 7
SITE TRAFFIC ASSIGNMENT

KELLY ENGINEERING
316 E. Fourth Plain, A-2, Vancouver, WA 98663
Phone: 360-696-6059 Fax: 360-735-1126

PLOT DATE: 04/12/07 FILE: 0714flow.dwg



AM AND PM PEAK HOUR

72 % build-out 5-31-19

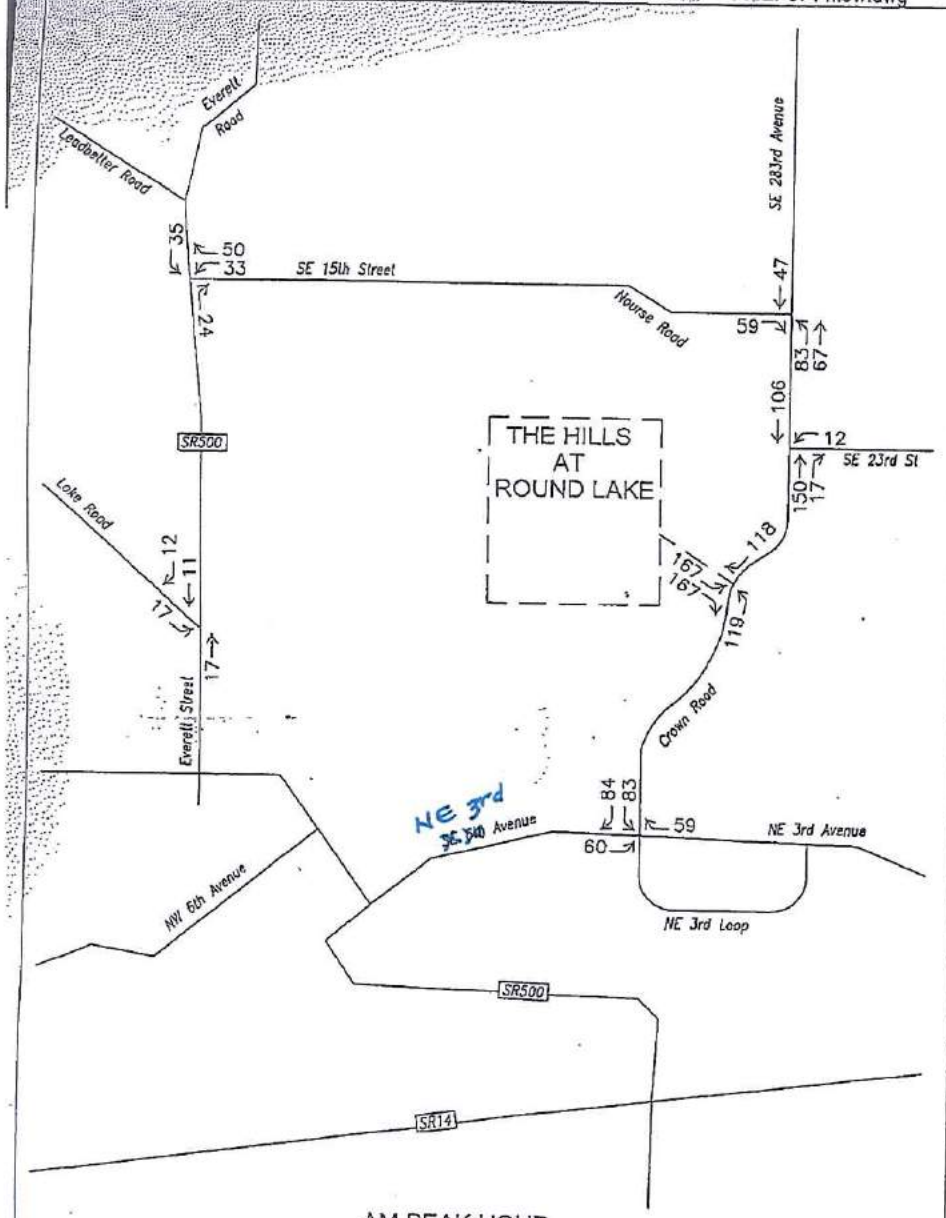
CHARBONNEAU ENGINEERING LLC
PROJECT: 07-14

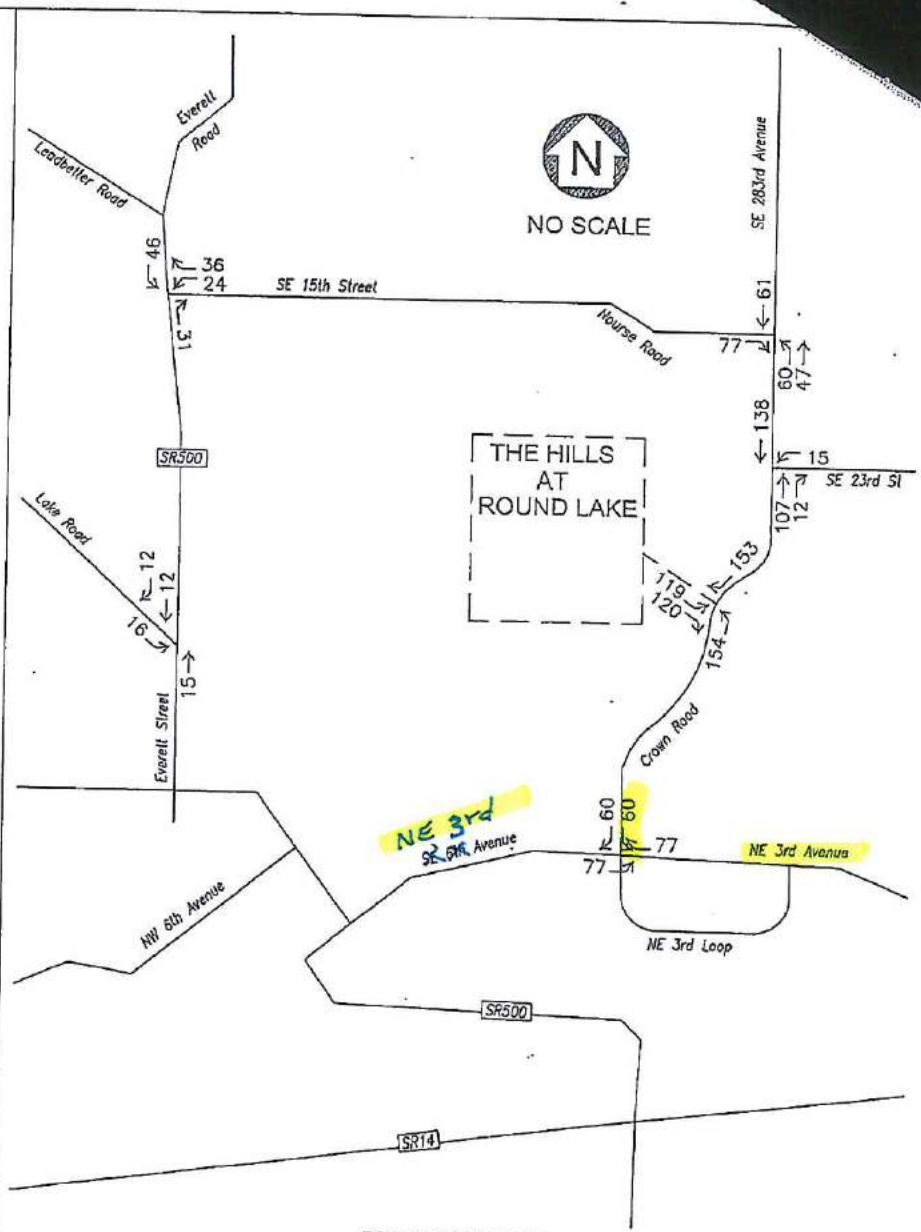
NOTES: Trip distribution based on existing traffic patterns, engineering judgement, and City of Camas/DKS Associates recommendations.

TRIP DISTRIBUTION
AM PEAK HOUR AND PM PEAK HOUR
THE HILLS AT ROUND LAKE

FIGURE 4

PLOT DATE: 04/12/07 FILE: 0714flow.dwg





CHARBONNEAU ENGINEERING LLC
PROJECT: 07-14

NOTES: Trip generation based on Single-Family Residential (ITE 210), Apartment (ITE 220) and Elementary School trip rates.

TRIP ASSIGNMENT
THE HILLS AT ROUND LAKE

FIGURE 5

Appendix E

Left Turn Lane Warrant Analysis
NE 3rd Avenue/NE Wedgewood Court/NE 3rd Loop

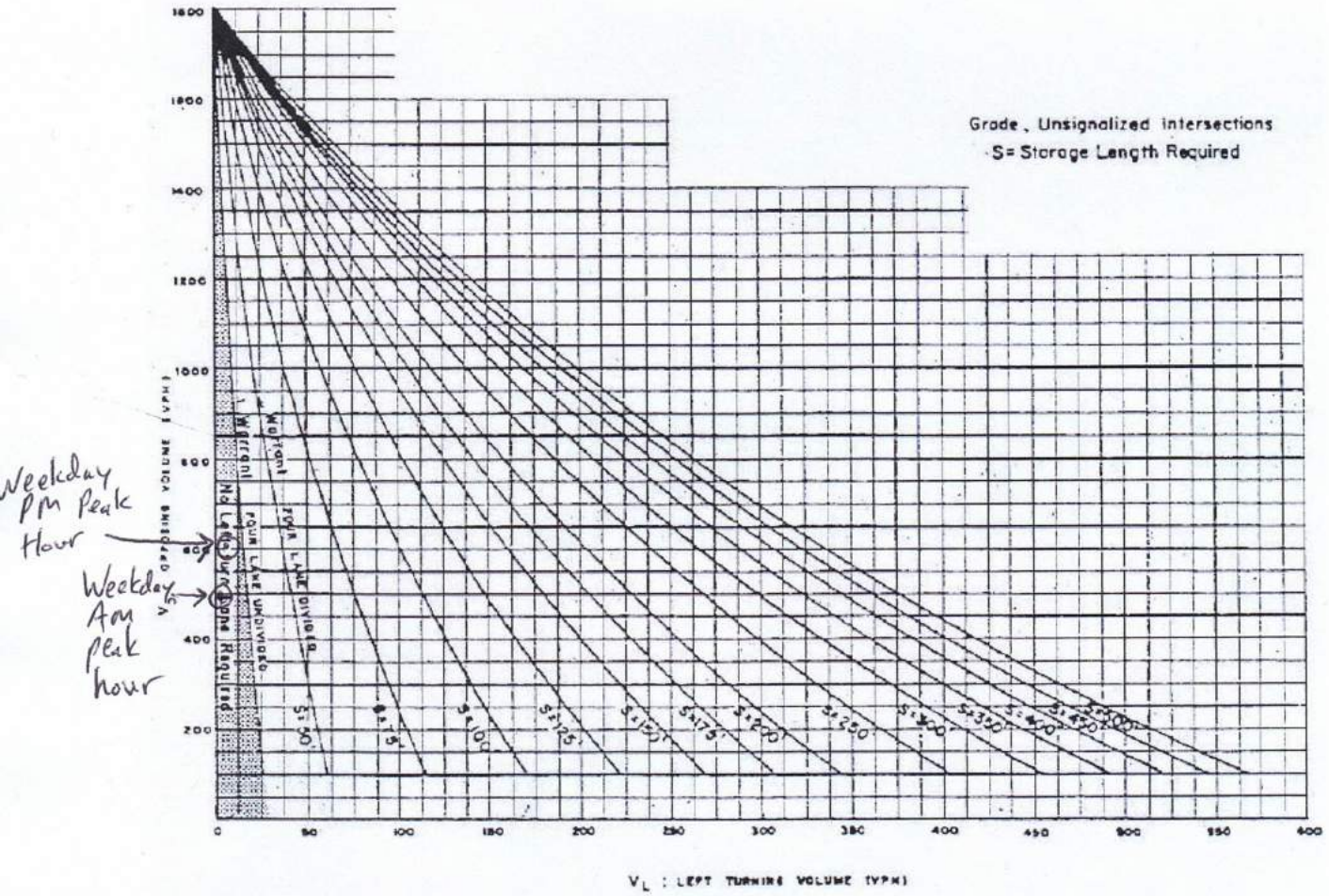


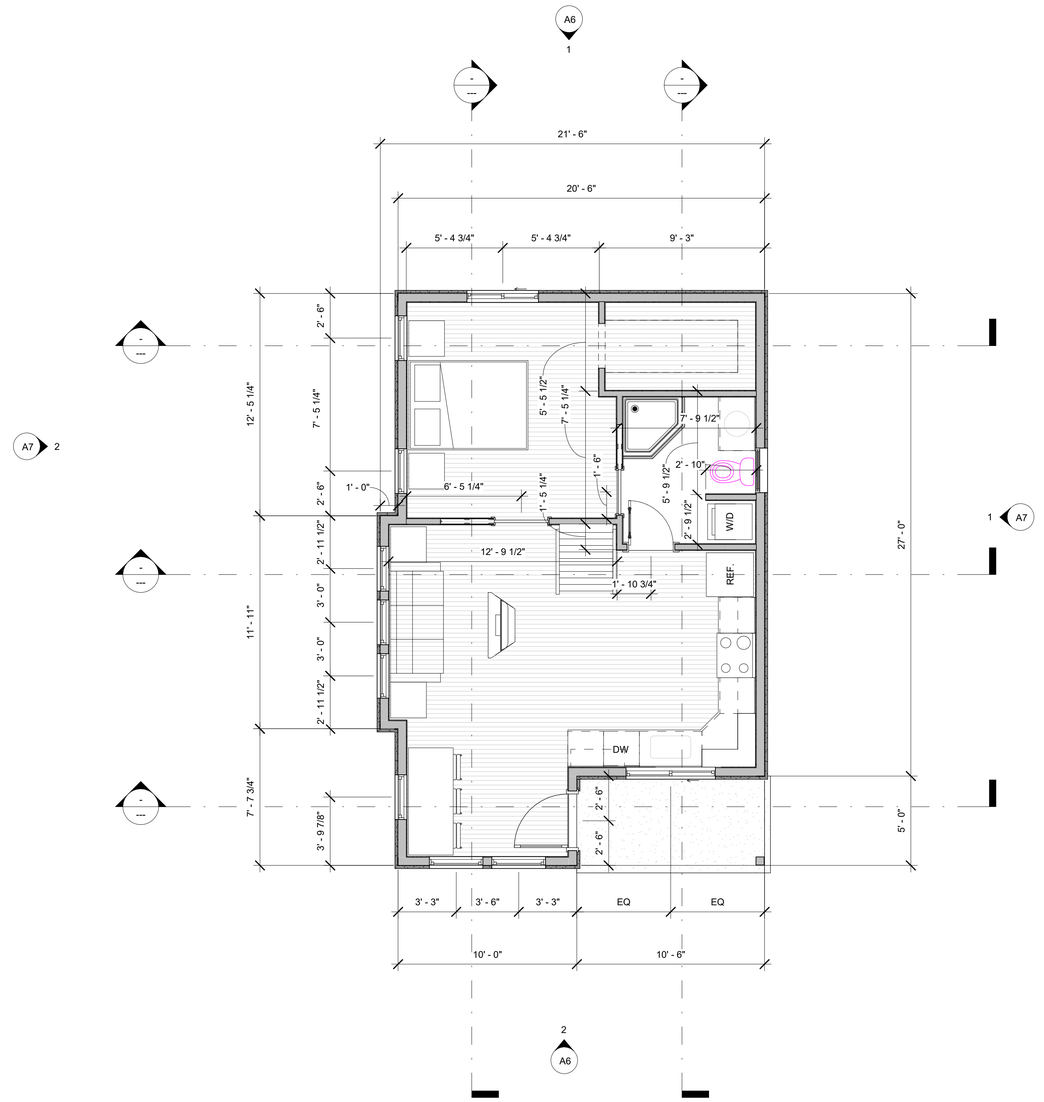
Figure 1. Warrant for left-turn storage lanes on four-lane highways.

EXHIBIT 16
SUB20-01

MAIN FLOOR WINDOW SCHEDULE						
TYPE MARK	TYPE	WIDTH	HEIGHT	SILL HEIGHT	HEAD HEIGHT	COMMENTS

MAIN FLOOR DOOR SCHEDULE					
CONSTRUCTION TYPE	TYPE	WIDTH	HEIGHT	COUNT	COMMENTS
			6' - 8"	3	
Wood	Refer to Catalog	3' - 0"	6' - 8"	1	

Grand total: 4



1 MAIN FLOOR PLAN - NEW
1/4" = 1'-0"

PO Box 1861 Battle Ground, WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 00/00/2010
Project #: 000000

Camas Cottages Unit A

Bryan Degrosslier

Camas, WA 98607

Pre-Design

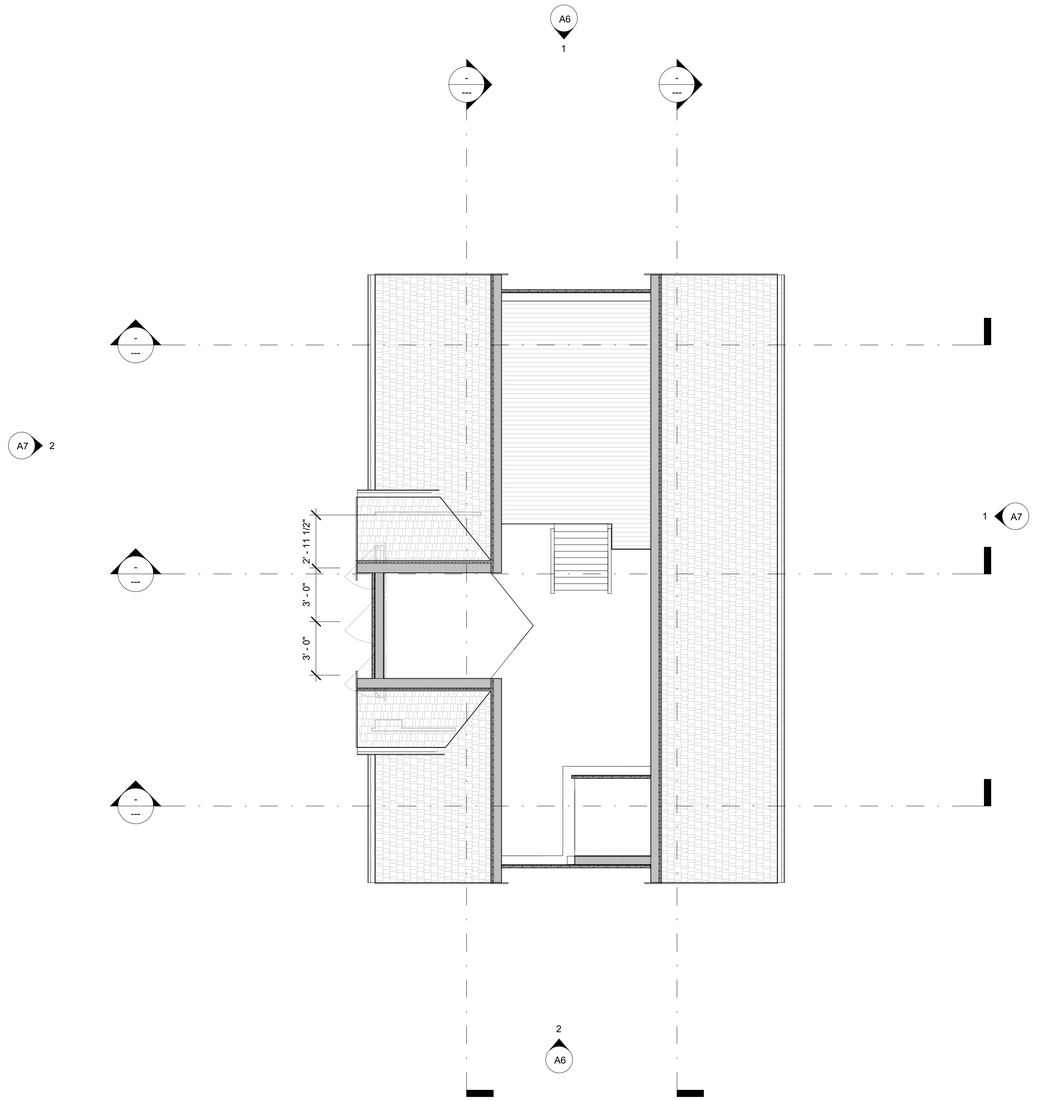
07/01/10

MAIN FLOOR PLAN

A2

UPPER FLOOR WINDOW SCHEDULE						
TYPE MARK	TYPE	WIDTH	HEIGHT	SILL HEIGHT	HEAD HEIGHT	COMMENTS

UPPER FLOOR DOOR SCHEDULE					
CONSTRUCTION TYPE	TYPE	WIDTH	HEIGHT	COUNT	COMMENTS



1 UPPER FLOOR PLAN - NEW
1/4" = 1'-0"

PO Box 1861 Battle Ground,
WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 00/00/2010
Project #: 000000

Camas Cottages Unit A

Camas, WA 98607

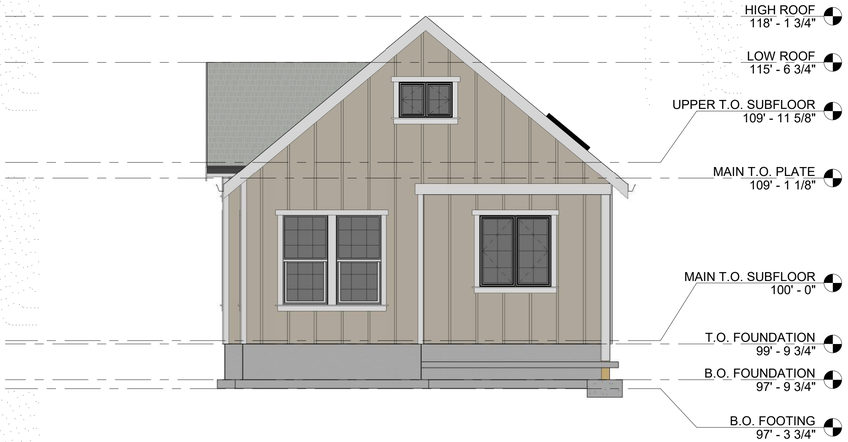
Bryan Degrosslier

Pre-Design

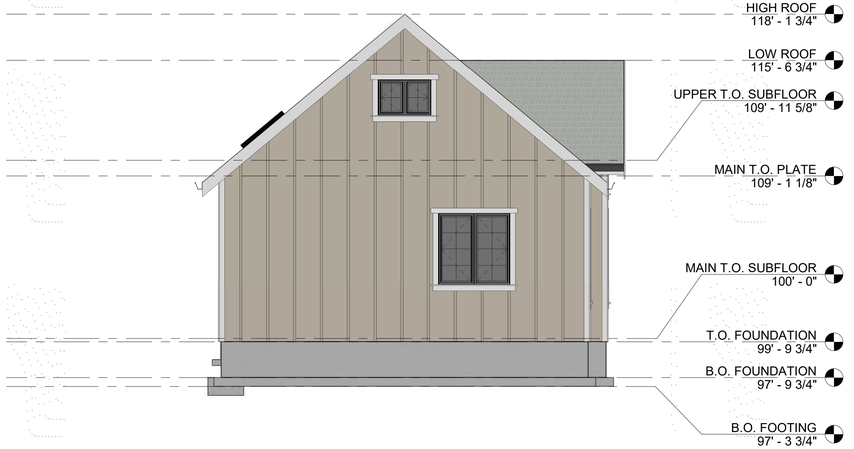
07/01/10

UPPER FLOOR PLAN

A3



2 SOUTH ELEVATION
1/4" = 1'-0"



1 NORTH ELEVATION
1/4" = 1'-0"

OakStone Design & Development

PO Box 1861 Battle Ground, WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 01/01/2020
Project #: 2020-001

Washougal River Oaks Unit A

Bryan Degrosslier

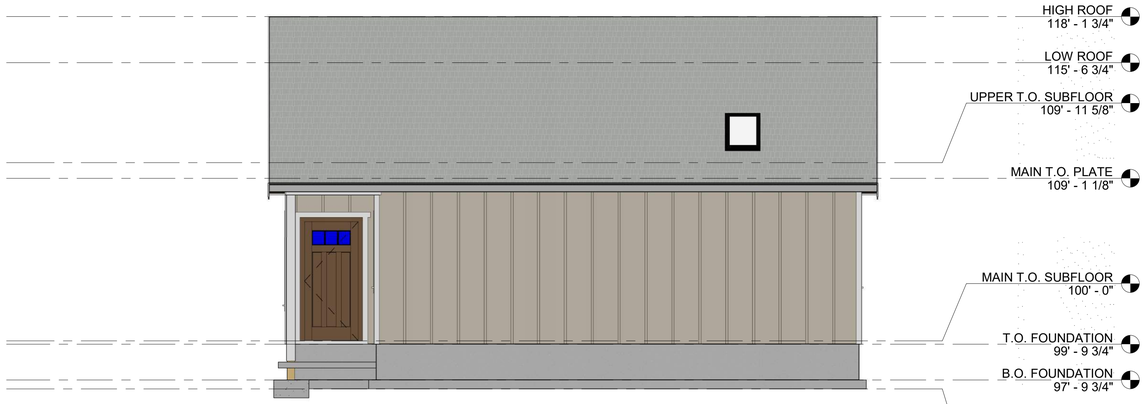
Camas, WA 98607

Schematic-Design

07/01/10

NORTH AND SOUTH ELEVATIONS

A6



1 EAST ELEVATION
1/4" = 1'-0"

2 WEST ELEVATION
1/4" = 1'-0"

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Drawn by: Author
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Project Date: 01/01/2020
Project #: 2020-001

Washougal River

Camas, WA 98607

Bryan Degrosslier

Schematic-Design

07/01/10

EAST AND WEST ELEVATIONS

A7

OakStone Design & Development

PO Box 1861 Battle Ground, WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by:	Author
Checked by:	Checker
Project Date:	01/01/2020
Project #:	2020-001

Washougal River Oaks Unit A

Camas, WA 98607

Bryan Degrosslier

Schematic-Design

07/01/10

RENDERING

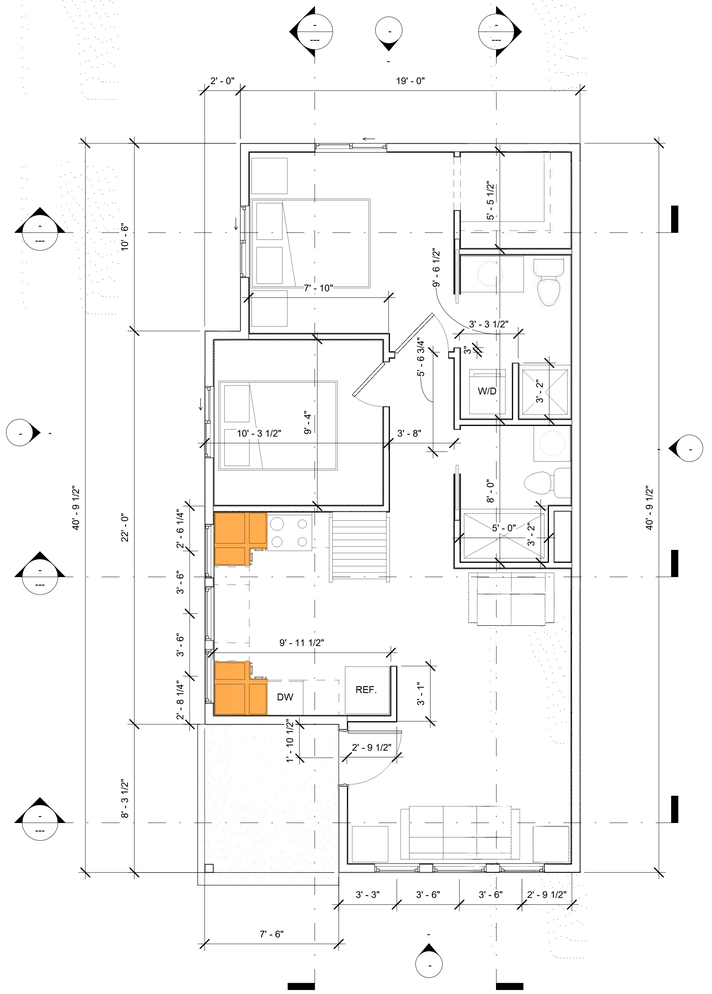
EXHIBIT 17
SUB 20-01

MAIN FLOOR WINDOW SCHEDULE						
TYPE MARK	TYPE	WIDTH	HEIGHT	SILL HEIGHT	HEAD HEIGHT	COMMENTS
242	36" x 60"	3' - 0"	5' - 0"	3' - 0"	8' - 0"	
243	30" x 60"	2' - 6"	5' - 0"	3' - 0"	8' - 0"	
243	30" x 60"	2' - 6"	5' - 0"	3' - 0"	8' - 0"	
247	48" x 48"	4' - 0"	4' - 0"	3' - 0"	7' - 0"	
247	48" x 48"	4' - 0"	4' - 0"	3' - 0"	7' - 0"	
247	48" x 48"	4' - 0"	4' - 0"	3' - 0"	7' - 0"	
251	36" x 48"	3' - 0"	4' - 0"	3' - 0"	7' - 0"	
251	36" x 48"	3' - 0"	4' - 0"	3' - 0"	7' - 0"	
251	36" x 48"	3' - 0"	4' - 0"	3' - 0"	7' - 0"	

Grand total: 9

MAIN FLOOR DOOR SCHEDULE					
CONSTRUCTION TYPE	TYPE	WIDTH	HEIGHT	COUNT	COMMENTS
	36" x 80"	3' - 0"	6' - 8"	1	
2668	30" x 80"	2' - 6"	6' - 8"	1	
2680 PCKT	2680 Pocket	2' - 6"	8' - 0"	1	
3068	36" x 80"	3' - 0"	6' - 8"	1	
3068 PCKT	3068 Pocket	3' - 0"	6' - 8"	1	

Grand total: 5



1 MAIN FLOOR PLAN - NEW
1/4" = 1'-0"

OAKSTONE

PO Box 1861 Battle Ground, WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by: JJS
Checked by: JJS
Project Date: 02/10/2020
Project #: 000000

Camas Cottages Unit B

Bryan Degrosslier

Camas, WA 98607

Pre-Design

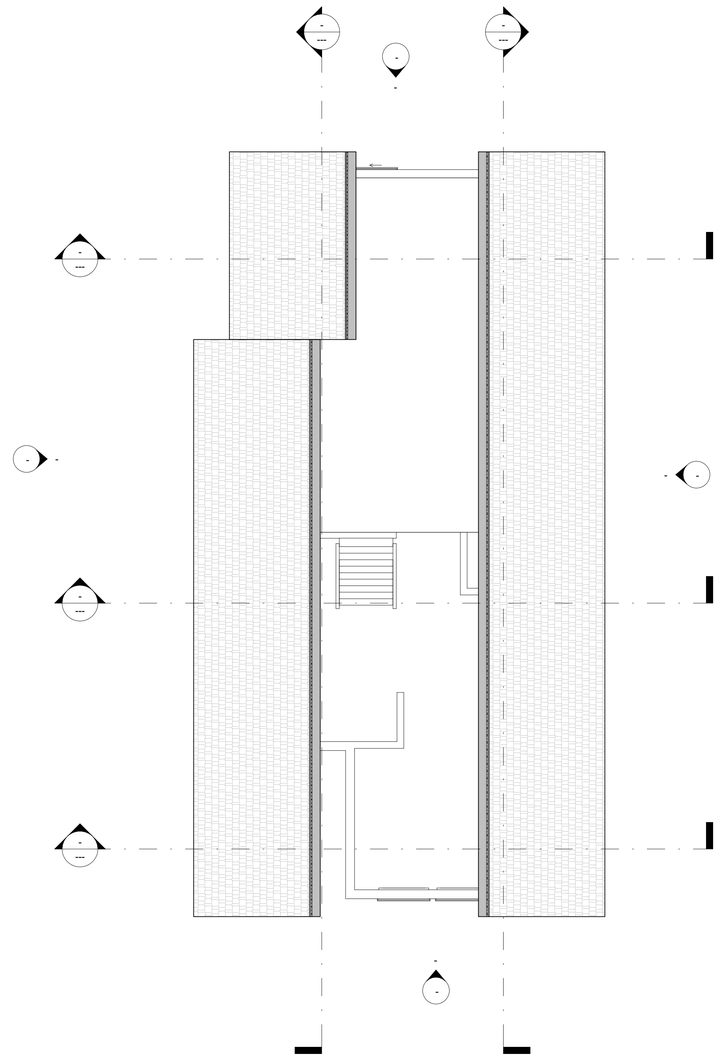
07/01/10

MAIN FLOOR PLAN

A2

UPPER FLOOR WINDOW SCHEDULE						
TYPE MARK	TYPE	WIDTH	HEIGHT	SILL HEIGHT	HEAD HEIGHT	COMMENTS

UPPER FLOOR DOOR SCHEDULE					
CONSTRUCTION TYPE	TYPE	WIDTH	HEIGHT	COUNT	COMMENTS



1 UPPER FLOOR PLAN - NEW
1/4" = 1'-0"

OAKSTONE

PO Box 1861 Battle Ground,
WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 02/10/2020
Project #: 000000

Camas Cottages Unit B

Bryan Degrosslier

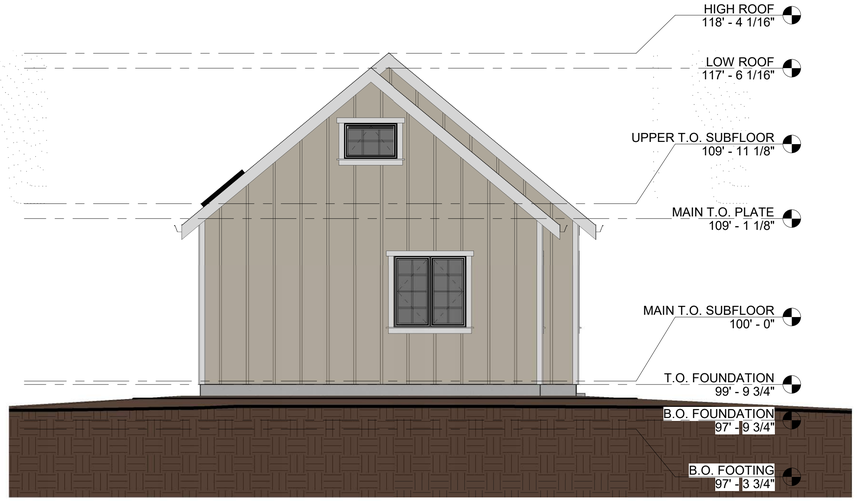
Camas, WA 98607

Pre-Design

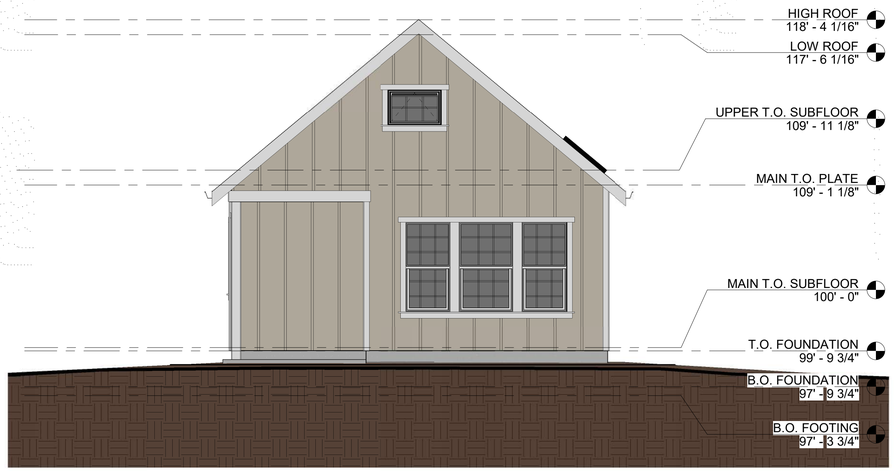
07/01/10

UPPER FLOOR PLAN

A3



1 NORTH ELEVATION
1/4" = 1'-0"



2 SOUTH ELEVATION
1/4" = 1'-0"

OakStone Design & Development

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(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 01/01/2020
Project #: 2020-001

Washougal River Oaks Unit B

Bryan Degrosslier

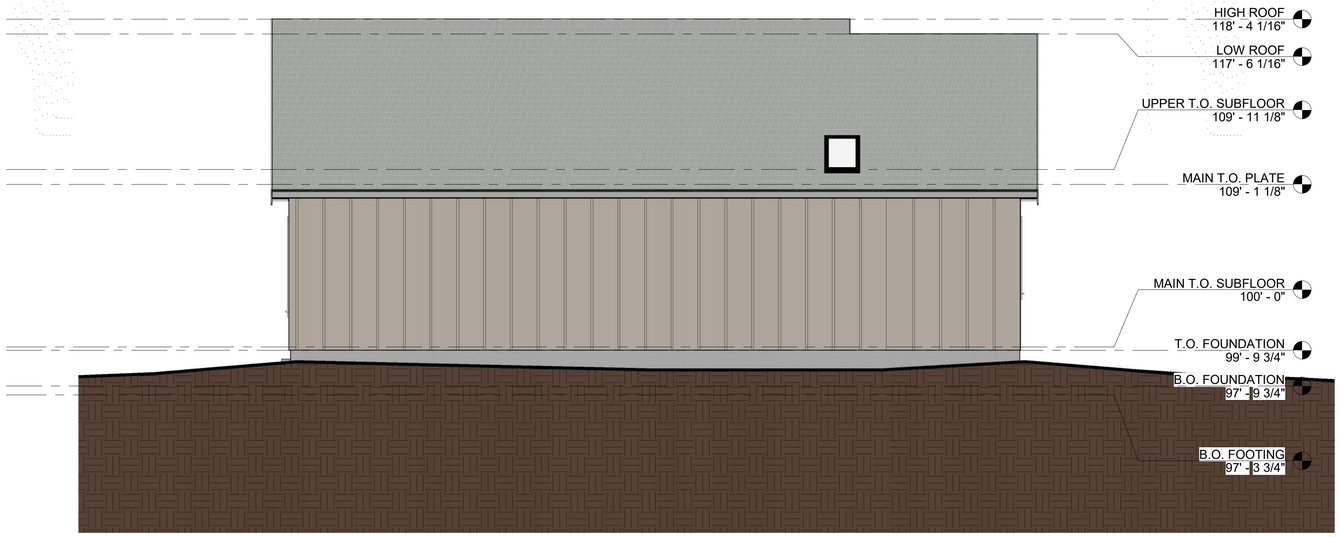
Camas, WA 98607

Schematic-Design

07/01/10

NORTH AND SOUTH ELEVATIONS

A6



1 EAST ELEVATION
1/4" = 1'-0"

2 WEST ELEVATION
1/4" = 1'-0"

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Project Date:	01/01/2020
Project #:	2020-001

Washougal River
Bryan Degrosslier
Camas, WA 98607

Schematic-Design

07/01/10

EAST AND WEST ELEVATIONS

A7

OakStone Design & Development

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(360) 635.1181

Drawn by:	Author
Checked by:	Checker
Project Date:	01/01/2020
Project #:	2020-001

Washougal River Oaks Unit B

Bryan Degrosslier

Camas, WA 98607

Schematic-Design

07/01/10

RENDERING

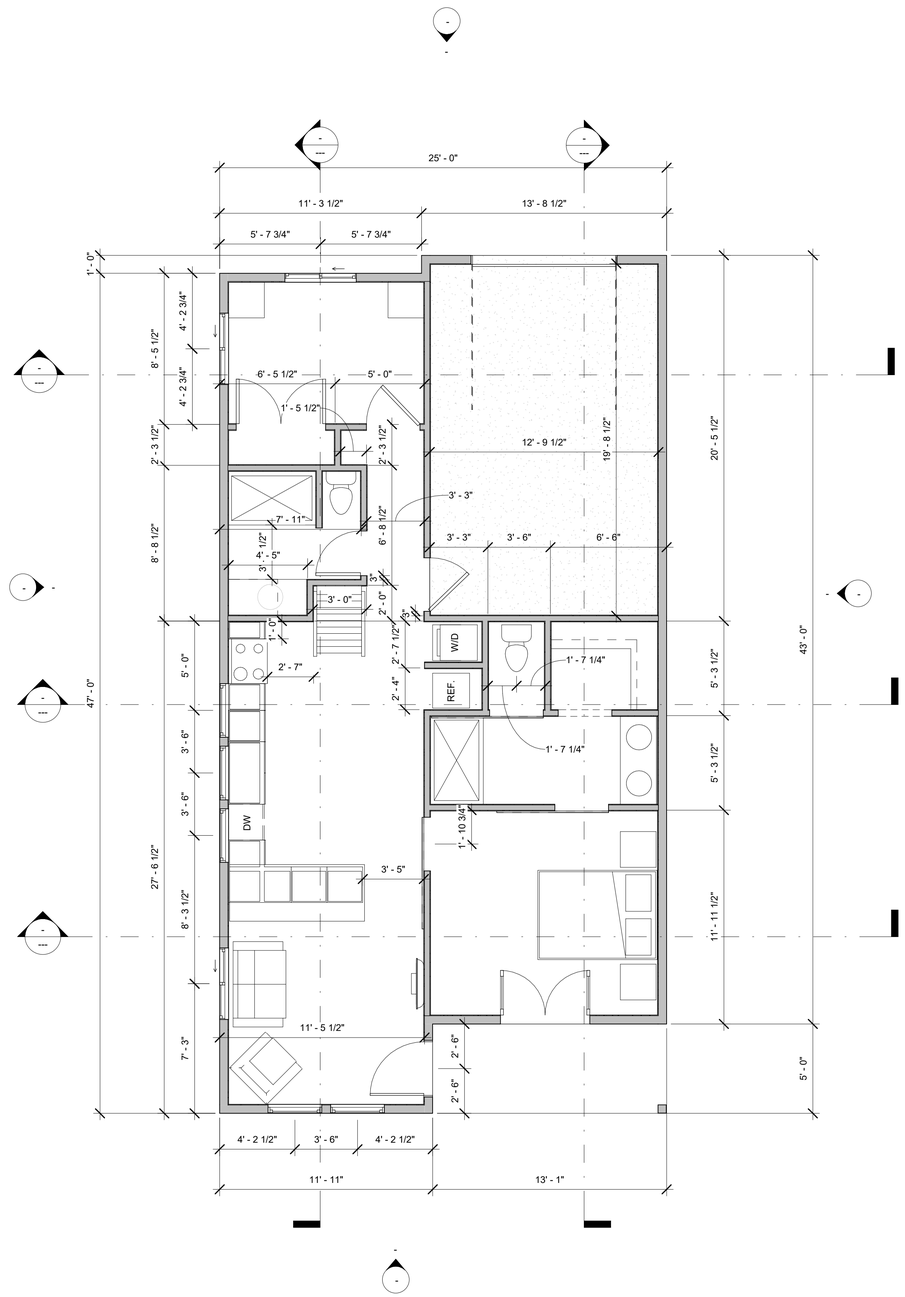
EXHIBIT 18
SUB 20-01

MAIN FLOOR WINDOW SCHEDULE						
TYPE MARK	TYPE	WIDTH	HEIGHT	SILL HEIGHT	HEAD HEIGHT	COMMENTS
242	36" x 60"	3' - 0"	5' - 0"	1' - 10 1/2"	6' - 10 1/2"	
242	36" x 60"	3' - 0"	5' - 0"	1' - 10 1/2"	6' - 10 1/2"	
247	48" x 48"	4' - 0"	4' - 0"	3' - 0"	7' - 0"	
247	48" x 48"	4' - 0"	4' - 0"	3' - 0"	7' - 0"	
247	48" x 48"	4' - 0"	4' - 0"	3' - 0"	7' - 0"	
251	36" x 48"	3' - 0"	4' - 0"	3' - 0"	7' - 0"	
251	36" x 48"	3' - 0"	4' - 0"	3' - 0"	7' - 0"	
251	36" x 48"	3' - 0"	4' - 0"	3' - 0"	7' - 0"	

Grand total: 8

MAIN FLOOR DOOR SCHEDULE					
CONSTRUCTION TYPE	TYPE	WIDTH	HEIGHT	COUNT	COMMENTS
				2	
	36" x 80"	3' - 0"	6' - 8"	1	
3068	36" x 80"	3' - 0"	6' - 8"	2	
3068 BARN	3068	3' - 0"	6' - 8"	3	
5068	60" x 80"	5' - 0"	6' - 8"	1	
5068 GLASS	60" x 80"	5' - 0"	6' - 8"	1	

Grand total: 10



1 MAIN FLOOR PLAN - NEW
1/4" = 1'-0"

OAKSTONE

PO Box 1861 Battle Ground, WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 00/00/2010
Project #: 000000

Camas Cottages Unit C

Camas, WA 98607

Bryan Degrosslier

Pre-Design

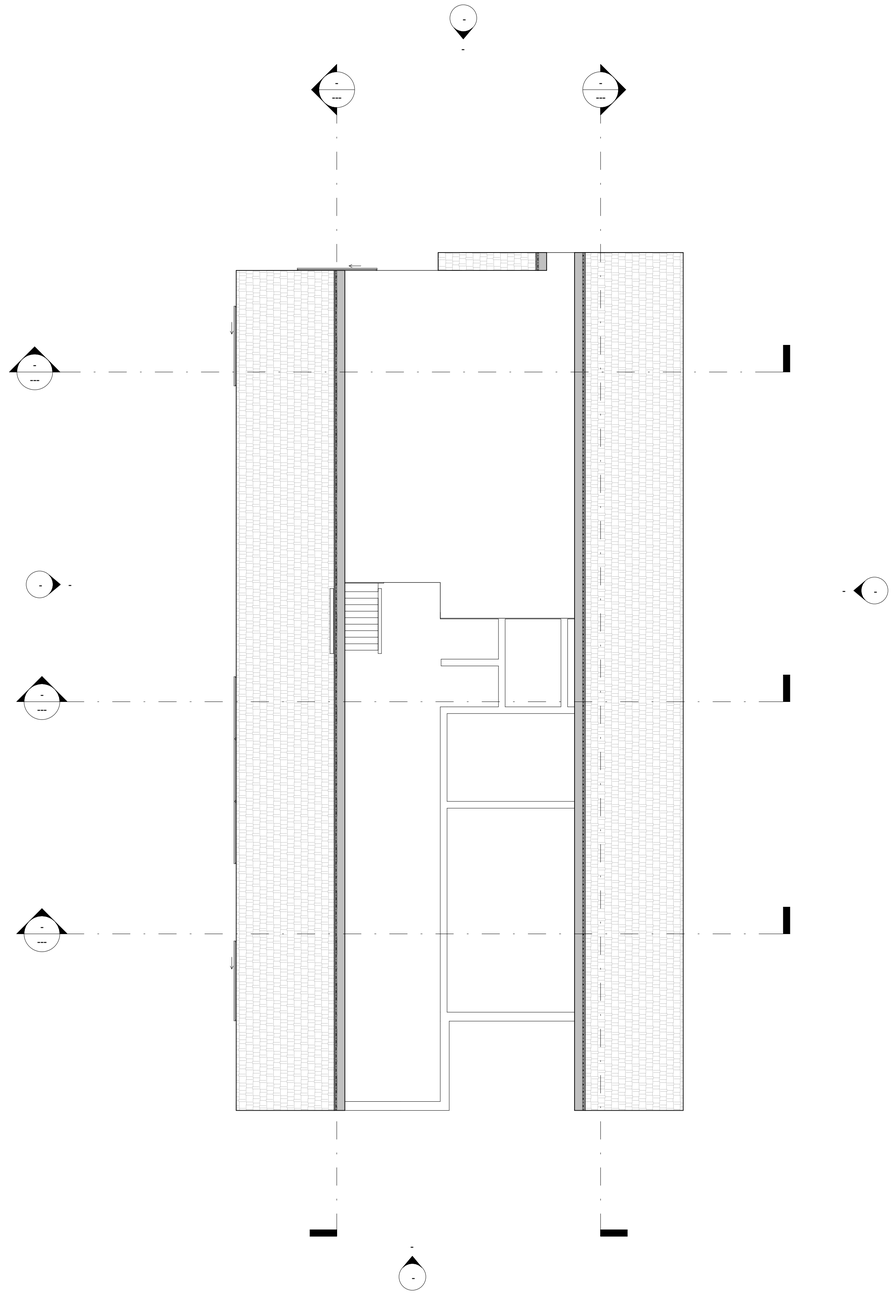
07/01/10

MAIN FLOOR PLAN

A2

UPPER FLOOR WINDOW SCHEDULE						
TYPE MARK	TYPE	WIDTH	HEIGHT	SILL HEIGHT	HEAD HEIGHT	COMMENTS

UPPER FLOOR DOOR SCHEDULE					
CONSTRUCTION TYPE	TYPE	WIDTH	HEIGHT	COUNT	COMMENTS



1 UPPER FLOOR PLAN - NEW
1/4" = 1'-0"

OAKSTONE

PO Box 1861 Battle Ground,
WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 00/00/2010
Project #: 000000

Camas Cottages Unit C

Bryan Degrosslier

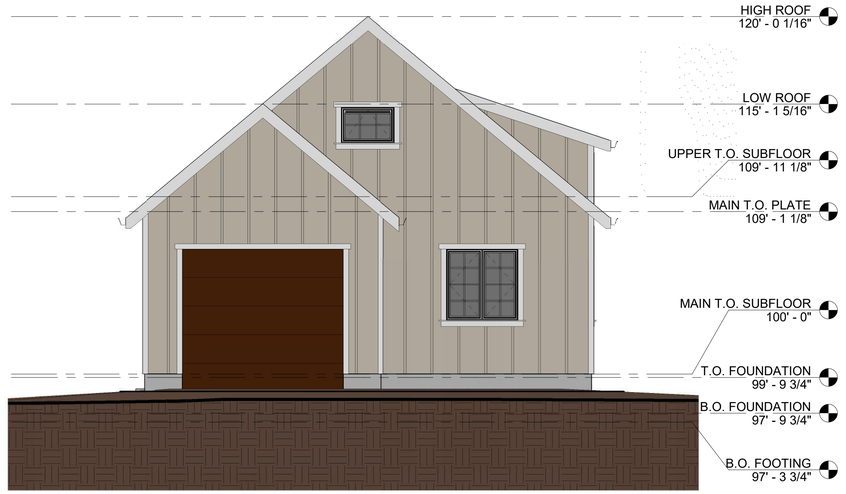
Camas, WA 98607

Pre-Design

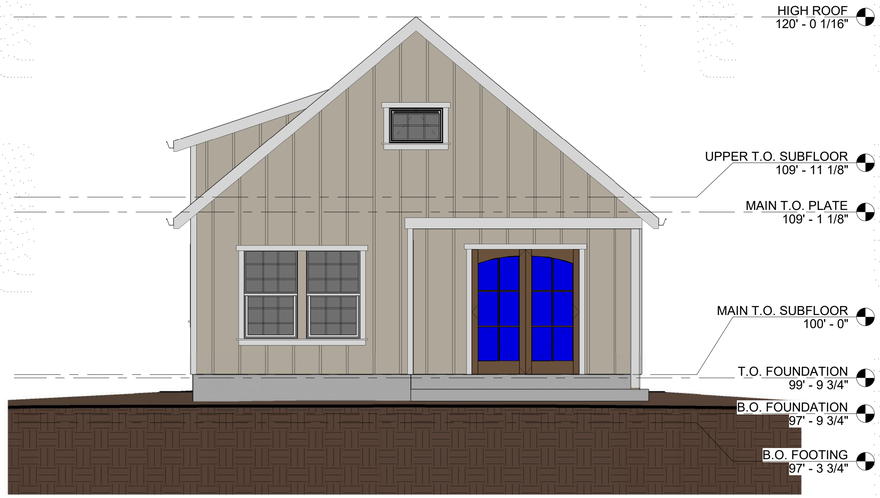
07/01/10

UPPER FLOOR PLAN

A3



1 NORTH ELEVATION
1/4" = 1'-0"



2 SOUTH ELEVATION
1/4" = 1'-0"

OakStone Design & Development

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jeff@oakstonedb.com
(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 01/01/2020
Project #: 2020-001

Washougal River Oaks Unit C

Bryan Degrosslier

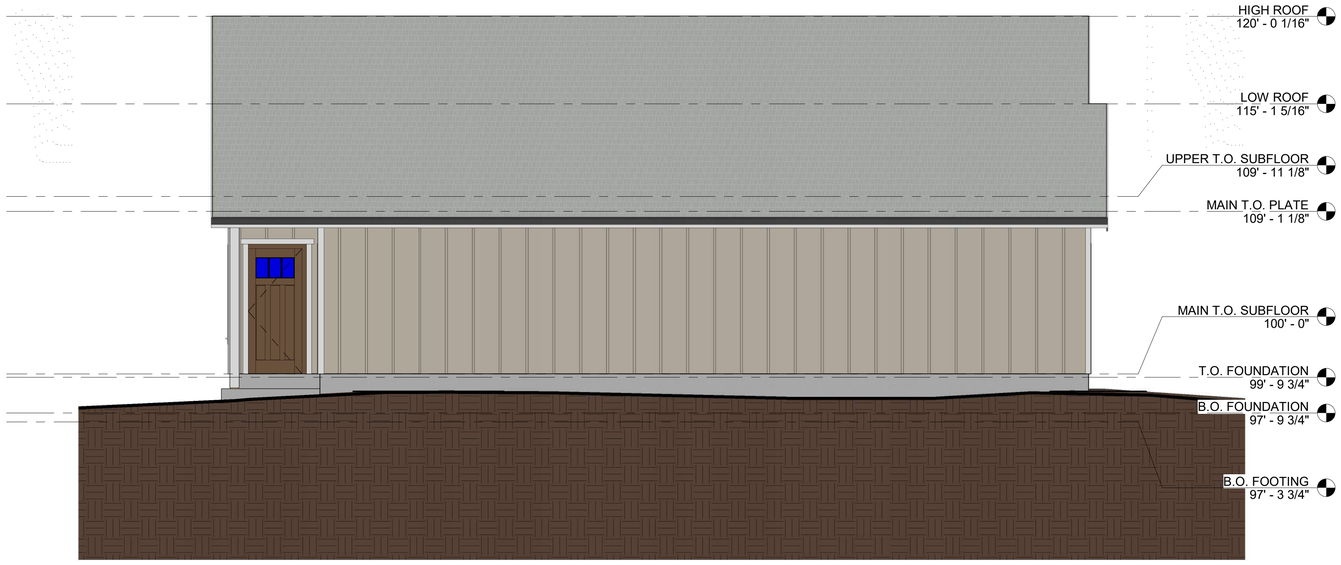
Camas, WA 98607

Schematic-Design

07/01/10

NORTH AND SOUTH ELEVATIONS

A6



1 EAST ELEVATION
1/4" = 1'-0"

2 WEST ELEVATION
1/4" = 1'-0"

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PO Box 1861 Battle Ground, WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by: Author
Checked by: Checker
Project Date: 01/01/2020
Project #: 2020-001

Washougal River

Bryan Degrosslier

Camas, WA 98607

Schematic-Design

07/01/10

EAST AND WEST ELEVATIONS

A7

OakStone Design & Development

PO Box 1861 Battle Ground, WA 98604
jeff@oakstonedb.com
(360) 635.1181

Drawn by:	Author
Checked by:	Checker
Project Date:	01/01/2020
Project #:	2020-001

Washougal River Oaks Unit C

Camas, WA 98607 — Bryan Degrosslier

Schematic-Design

07/01/10

RENDERING

DAHP SEPA review comments

(Exempt from Public Disclosure RCW 42.56.300)

COMMUNITY DEVELOPMENT DEPARTMENT
616 NE 4th Avenue
Camas, WA 98607
www.ci.camas.wa.us

Date Published: November 18, 2021

To Whom It May Concern:

Please find enclosed a Determination of Non-Significance (DNS) for the **Washougal River Oaks cottage development (SEPA20-13)** that was issued pursuant to the State Environmental Policy Act (SEPA) Rules, Chapter 197-11, Washington Administrative Code. The enclosed review comments reflect evaluation of the environmental checklist by the lead agency as required by WAC 197-11-330(1)(a)(i).

The following materials were submitted with the initial application:

- General application form and fee
- Applicant's narrative
- Site drawings
- Traffic Memo
- Arborist Report
- Geotechnical Study
- SEPA checklist
- Preliminary Stormwater TIR
- Archaeological Predetermination*

All application materials are available for review upon request from the Community Development Department. *Archaeological information is exempt from public disclosure, consistent with RCW 42.56.300.

Written comments may be submitted on this determination within fourteen (14) days of its issuance, after which the DNS will be reconsidered in light of the comments received.

Please address all correspondence to:

City of Camas, SEPA Official
Community Development Department
616 NE Fourth Avenue
Camas, Washington 98607
communitydevelopment@cityofcamas.us

Distribution:

Applicant
Bureau of Indian Affairs
C-Tran
Camas School District
Camas Building Official, Brian Smith
Camas Communications Director, Bryan Rachal
Camas Engineering Department Managers and Staff
Camas Fire Department, Randy Miller
Camas Finance Director, Cathy Huber Nickerson
Camas Interim Community Development Director, Robert Maul
Camas Interim Mayor and City Council Members
Camas Parks and Recreation, Trang Lam
Camas Planning Manager and Staff
Camas Police Chief, Mitch Lackey
Camas Public Works Director, Steve Wall
Camas Public Library, Connie Urquhart
Camas-Washougal Post Record
Chinook Indian Nation
Cultural Resource Program, Cowlitz Indian Tribe
Cultural Resource Program, Yakama Indian Nation
Clark County Department of Environmental Services
Clark County Department of Transportation
Clark County Natural Resources Council
Clark Public Utilities
Department of Ecology
Department of Fish and Wildlife, Region 5
Department of Natural Resources, SEPA Center
Southwest Clean Air Agency
US Army Corps of Engineers
Vancouver - Clark Parks & Recreation
Washington Office of Archaeology & Historic Preservation
Washington State Department of Transportation
Washington State Parks and Recreation Commission, Environmental Program
Washougal Community Development, Mitch Kneipp
Property Owners within 300 feet *(mailed the SEPA Determination & map)*

State Environmental Policy Act
Determination of Non-Significance

CASE NO: SEPA 20-13 Washougal River Oaks cottage development

APPLICANT: Degrosellier Development, Inc.
Bryan Degrosellier
3100 E Evergreen Blvd.
Vancouver, WA 98661

REQUEST: To subdivide approximately 3.16-acres into twenty-two (22) lots for residential cottage units

---

LOCATION: 2515, 2523, 2527 & 2531 NE 3rd Avenue, Camas, WA 98607

LEGAL DESCRIPTION: The project is located in the City of Camas in the Northeast ¼ of Section 12, Township 1 North, Range 3 East, of the Willamette Meridian; and described as parcels 89884000, 89883000, 89881000 and 89875000.

SEPA DETERMINATION: Determination of Non-Significance (DNS)

COMMENT DEADLINE: **December 2, 2021 at 5:00pm**

As lead agency under the State Environmental Policy Act (SEPA) Rules [Chapter 197-11, Washington Administrative Code (WAC)], the City of Camas must determine if there are possible significant adverse environmental impacts associated with this proposal. The options include the following:

- DS = Determination of Significance (The impacts cannot be mitigated through conditions of approval and, therefore, requiring the preparation of an Environmental Impact Statement (EIS).

- MDNS = Mitigated Determination of Non-Significance (The impacts can be addressed through conditions of approval), or;

- DNS = Determination of Non-Significance (The impacts can be addressed by applying the Camas Municipal Code).

State Environmental Policy Act
Determination of Non-Significance

Determination:

Determination of Non-Significance (DNS). The City of Camas, as lead agency for review of this proposal, has determined that this proposal does not have a probable significant adverse impact on the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(e). This decision was made after review of a completed environmental checklist, and other information on file with the City of Camas.

Date of Publication & Comment Period:

Publication date of this DNS is **November 18, 2021** and is issued under WAC 197-11-340. The lead agency will not act on this proposal until the close of the 14-day comment period, which ends on **December 2, 2021**. Comments may be sent by email to communitydevelopment@cityofcamas.us or regular mail to:

City of Camas SEPA Official
Community Development Department
616 NE Fourth Avenue
Camas, Washington 98607

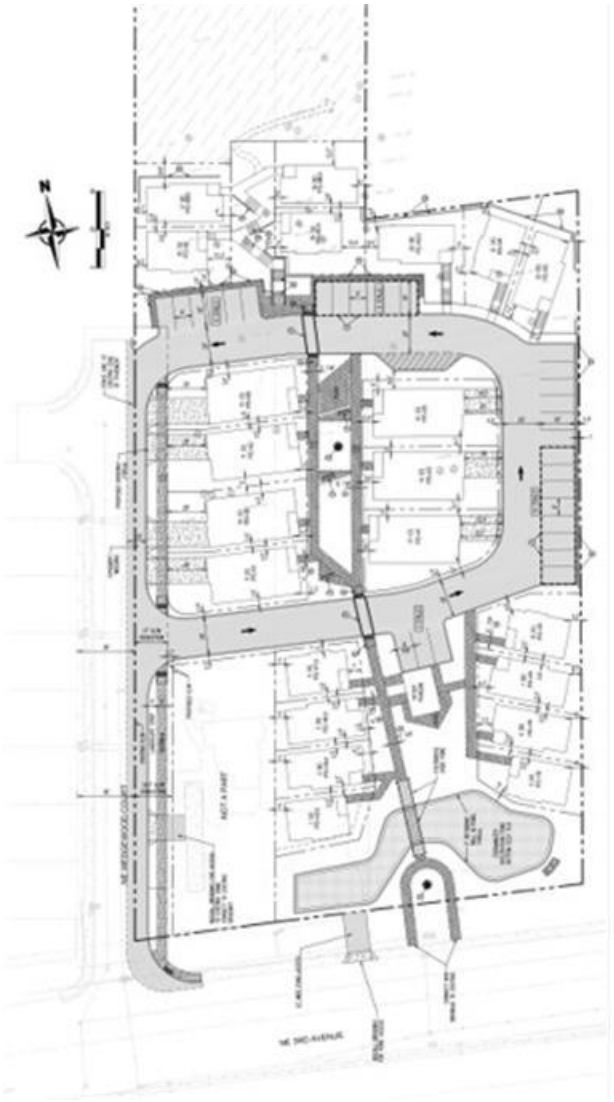
Responsible Official: Robert Maul (360) 817-1568

Robert Maul, Interim Community Development Director and SEPA official

November 18, 2021
Date of publication

State Environmental Policy Act
Determination of Non-Significance

Washougal River Oaks Cottage Development (SUB20-01)



Community Development
616 NE Fourth Avenue • Camas, WA 98607
(360) 817-1568
http://www.cityofcamas.us

Lauren Hollenbeck, Senior Planner review comments (LH)

A. Background [help]

1. Name of proposed project, if applicable: [help]
   Washougal River Property Parcel Comp Plan and Zone Change: Washougal River Oaks

2. Name of applicant: [help]
   Desgrosellier Development, Inc. DBA DD&C, Inc.

3. Address and phone number of applicant and contact person: [help]
   Address:
   3100 E Evergreen Blvd
   Vancouver, WA 98661
   Phone: 360-907-2500
   Contact: Bryan Desgrosellier

4. Date checklist prepared: [help]
   3/26/2020

5. Agency requesting checklist: [help]
   City of Camas Community Development

6. Proposed timing or schedule (including phasing, if applicable): [help]
   Anticipate Breaking Ground in Fall 2020, 8 MO full Construction Duration

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [help]
   No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. [help] (LH)
   Geotechnical Report — Critical Areas Report & Oak Mitigation Plan
   Archaeological Report
   Arborist Report
   Traffic Report
   CARA Report

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. [help]
   No

10. List any government approvals or permits that will be needed for your proposal, if known. [help]
    Type III Permit Application, zone change application for "cottage overlay", preliminary plat application, building permit application

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.) [help]

Proposed development is for a community of 22 cottage homes, of varying sizes, all less than 1,000 SF, with walking trails on property through otherwise undisturbed forested land. The site size is 3.16 acres

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. [help]

Proposed development spans over 4 existing street addresses/tax lots at 2515, 2523, 2527 and 2531 NE 3rd Ave, Camas, WA. All lots are directly north of NE 3rd Ave and east of NE Wedgewood Court.
Section-Township-Range for whole site: NE 1/4,S12,T1N,R13E, Parcels 89884000, 89883000, 89881000, and 89937000

B. ENVIRONMENTAL ELEMENTS [help]

1. Earth [help]

a. General description of the site: [help]

A low slope hill starting at the south side near NE 3rd Ave and slowly increasing in slope up to a forested area, approximately 375ft north of NE 3rd Ave.

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)? [help]

30% at the top of the site, 50% in undisturbed foreseted area

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [help]

4-6" Organic Topsoil
Silt
Silty Gravel
Sandy Gravel

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [help]

No

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [help]

The approximate area that will be disturbed for site development will be 92,246 sf (2.12 acres), with approximately 1,530 cy of fill and 3,930 cy of cut. The source of any imported fill is not yet known, but the structural fill material will consist of relatively well-graded soil, or an approved rock product that is free of organic material and debris.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [help]

Yes, erosion during construction could occur at the cut areas where building pads occur at the north side of the site.
Permanent engineered retaining walls will be installed to mitigate erosion during use.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [help]

The project will consist of the following impervious areas:

- Rooftop/building areas: 16.9% (23,049sf / 0.53ac)
- Pavement/Concrete: 20.6% (28,230sf / 0.65ac)

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [help]

Cut areas/slopes and stockpiled soils will be covered with plastic sheathing, silt fences installed under cut areas, bio bags and catch basin inserts will be installed at nearby stormwater catchbasins, and large aggregate rock will be placed at construction entrances as a wheel wash.

2. Air [help]

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [help]

Excavation equipment emmissions during construction for the mass excavation and grading effort, approximately 1 month duration.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [help]

No

c. Proposed measures to reduce or control emissions or other impacts to air, if any: [help]

No emission control measures currently planned.

3. **Water** [help]

a. Surface Water:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. [help]

No, the closest body of water is the Washougal River, Approximately 300' south of the site, and across the gateway corridor (NE 3rd Ave).

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. [help]
No

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. [help]
Not Applicable – No fill and dredge material will be placed or removed.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [help]
No – Not Applicable, there is no surface water on site.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [help]
No – Not Applicable, the site is not within the 100 year floodplain

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [help]
The proposal does not involve any discharge of waste materials to surface waters.

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [help]
No – Not Applicable, City water connection will be used.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. [help]
No – Not Applicable, no spectic tanks or other discharge will leach into the ground. Connection to City Sewer system will be made.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. [help]

Runoff from the proposed impervious surfaces, including roofs, driveways, and the street, as well as from most pervious/landscaped areas, will be directed to on-site conveyance systems consisting of curbs, catch basins, and storm sewer pipe. These systems will convey the runoff to a water quality structure, then discharge to a stormwater infiltration basin located in the southern portion of the site. The project is proposing to maintain all stormwater runoff on-site via infiltration, such that detention facilities are not proposed or required.

2) Could waste materials enter ground or surface waters? If so, generally describe. [help]
It is not anticipated that waste materials will enter ground or surface waters.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe. [help]
No – Not Applicable

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any: [help]
Stormwater collection pond (swale) is planned at the South side of the site

4. **Plants** [help]

a. Check the types of vegetation found on the site: [help]

__X__deciduous tree: alder, maple, aspen, other
__X__evergreen tree: fir, cedar, pine, other
__X__shrubs
__X__grass
____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

b. What kind and amount of vegetation will be removed or altered? [help]
Brambles, shrubs, fir trees, and deciduous trees

c. List threatened and endangered species known to be on or near the site. [help]
1 EA White Oak

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [help]
Maintain existing trees, where practical and possible with future site plans, including maintaining 1 EA White Oak, 1 EA Tulip Tree, and Several Firs

e. List all noxious weeds and invasive species known to be on or near the site. [help]
Blackberry Brambles, Ivy

5. **Animals** [help]

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. [help]

Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

No animals observed – Tenants have seen deer in the forested north end of the site.

b. List any threatened and endangered species known to be on or near the site. [help]
No known threatened or endangered species are on the site.

c. Is the site part of a migration route? If so, explain. [help]
No.

d. Proposed measures to preserve or enhance wildlife, if any: [help]
Proposed development will maintain all existing forested land north of the new development, where slope increases. All walking trails will be non-invasive to the natural landscaping.

e. List any invasive animal species known to be on or near the site. [help]
None known.

6. **Energy and Natural Resources** [help]

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [help]
Electricity from the City power grid. To be used for heating.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. [help]
No – Not Applicable, there are no solar installations in the immediate proximity of the project.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: [help]
Choosing Materials that lower energy consumption/costs, site layout conducive to ride sharing, shared social gathering structures to consolidate site lighting and energy consumption.

7. **Environmental Health** [help]

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. [help]

Diesel/oil spill during construction phase of work. No existing toxic materials were identified onsite.

1) Describe any known or possible contamination at the site from present or past uses. [help]

One existing dwelling had been burned down, and two other existing homes are of an age that they may have lead based-paints or asbestos building materials.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity. [help]

Natural Gas Pipeline owned by Northwest Pipeline is approximately 50' west of the site on adjacent tax lot.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project. [help]

Diesel fuel and propane may be used during construction.

4) Describe special emergency services that might be required. [help]

In the event of a fire, call the fire department or attempt to extinguish the fire. In the event of a spill, contain the flow as possible, clean up the waste and any contaminated materials as soon as practicable, and call 1-800-SPILL-911.

5) Proposed measures to reduce or control environmental health hazards, if any: [help]

Conduct all maintenance and cleaning of construction equipment off-site to prevent diesel/oil spills, maintain spill prevention materials such as absorbent pads, and any storage areas and waste containers should be properly stored, with lids, and regularly inspected.

b. Noise [help]

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [help]

Minor traffic noise from the gateway corridor on NE 3rd Ave – constant low levels of noise from 6AM to 10PM

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indi-cate what hours noise would come from the site. [help]

Short term construction equipment
generated noise for the duration of the project. Hours of operation would be 7:30AM-3:30PM

3) Proposed measures to reduce or control noise impacts, if any: [help]
Limit construction operational hours for the duration of the project.

8. **Land and Shoreline Use** [help]

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [help]
The current use is single-family residential. The use is not changing, however the density is increasing.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? [help]
No – Not Applicable, there is no farmland and the forested area is not a working forest.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how: [help]
No – Not Applicable, there is no surrounding working farm lands/forest lands in the vicinity.

c. Describe any structures on the site. [help]
4 EA single family residences

d. Will any structures be demolished? If so, what? [help]
Yes, 4 EA single family residences

e. What is the current zoning classification of the site? [help]
MF-18

f. What is the current comprehensive plan designation of the site? [help]
Multi-family, High Density

g. If applicable, what is the current shoreline master program designation of the site? [help]
Not Applicable – the project site does not affect an area within 20' of a shoreline.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [help]
Site is part of a critical aquifer recharge area, geologically hazardous areas, fish and wildlife habitat conservation areas (i.e. habitat of local importance = 20" Oregon White Oaks) (LH)

i. Approximately how many people would reside or work in the completed project? [help]
~55-60 People would reside in completed project

j. Approximately how many people would the completed project displace? [help]
4 People

k. Proposed measures to avoid or reduce displacement impacts, if any: [help]
All displaced people have been notified with 6-9 months of advance notice. One person moved in as a temporary housing solution, with full knowledge of the proposed project.

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [help]
Predevelopment Review meetings with the City Development team to adjust and revise the plan to fit the comprehensive plan

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any: [help]
Not Applicable – The proposed development does not affect agricultural or forested lands.

9. **Housing** [help]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [help]
22 Single Family Cottages – low to middle-income

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [help]
2 Single Family Houses – low-income

c. Proposed measures to reduce or control housing impacts, if any: [help]
Proposed development should improve the City housing supply in terms of quality and inventory of low-middle income units.

10. **Aesthetics** [help]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [help]
26'-6" Tall – Principal siding material will be plywood board and batten

b. What views in the immediate vicinity would be altered or obstructed? [help]
None – the layout will not block any views due to the hillside to the north, and the low height of the strcutures.

b. Proposed measures to reduce or control aesthetic impacts, if any: [help]

Houses are nestled into hillside – no negative aesthetic impacts anticipated

11. **Light and Glare** [help]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [help]

Site lighting will be provided on daylight sensors. Indoor lighting will be visible through windows. Vehicle circulation at night.

b. Could light or glare from the finished project be a safety hazard or interfere with views? [help]

No – the light added from the development may increase the safety of pedestrians on 3rd Ave, and all around the area. The adjacent houses on Wedgewood Court will face the new development; however, the view should be imporved.

c. What existing off-site sources of light or glare may affect your proposal? [help]

The existing street at Wedgewood Court has lighting/glare from the row houses which will combine with the lighting/glare from the new development to brighten Wedgewood Court.

d. Proposed measures to reduce or control light and glare impacts, if any: [help]

Daylight sensing for site and street lighting will be provided. Eaves on the structures should reduce the light pollution onsite.

12. **Recreation** [help]

a. What designated and informal recreational opportunities are in the immediate vicinity? [help]

Walking Paths nearby, accessible on the south side of 3rd Ave, to walk along the Washougal River. Ballparks are a few miles away.

b. Would the proposed project displace any existing recreational uses? If so, describe. [help]

No- Not Applicable, the existing site had no recreational value.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [help]

Recreation measures will be improved by the proposed development. Central lawns, park benches, and congregating strcutures will be included. Short trails will be constructed up into the hillside.

13. **Historic and cultural preservation** [help]

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe. [help]

Yes – Archaeological Services LLC
inventoried and submitted a historic property inventory form for the structure at 2527 NE 3rd Ave.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [help]

No artifacts or material evidence of artifacts discovered onsite. Archaeological Report performed by Archaeological Services, LLC dated 4/29/2019

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. [help]

Archaeological survey was performed and all local tribes were notified of results of the archaeological findings.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required. [help]

If any artifacts are discovered during site disturbing activites, we would require compliance with an inadvertent discovery plan.

14. **Transportation** [help]

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [help]

Public Street Serving the Site will be NE Wedgewood Court, which feeds into the Gateway corridor between Camas and Washougal: NE 3rd Ave.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [help]

Public Transit is available on NE 3rd Ave, immediately adjacent to the site.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [help]

The project will add ~~35~~ 29 (LH) paved parking spaces. The existing parking is haphazard and on gravel driveways and lawns, for an estimated 6 total spaces onsite.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [help]

Proposed development will require the half-width street improvement of Wedgewood Court, including a detached sidewalk, planter strip, and road width compliant with 2 sides of street parking

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [help]

No – Not Applicable, there is no water, rail, or air transportation nearby.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? [help]

Vehicular trips per day: 125
Peak Hours are 7-9AM and 4-6PM
% Trucks: 0
Data Provided by Greenlight Engineering, Traffic Impact Study and Report dated 6/10/2020

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe. [help]

No affect or interference anticipated.

h. Proposed measures to reduce or control transportation impacts, if any: [help]

Widen and improve NE Wedgewood Court, as required by the City of Camas.

15. **Public Services** [help]

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [help]

Yes, increased density will result in increased need for public services, including emergency services, schools, police and law enforcement, public transit, and energy.

b. Proposed measures to reduce or control direct impacts on public services, if any. [help]

Impact fees

16. **Utilities** [help]

a. Circle utilities currently available at the site: [help]

(electricity), natural gas, (water), (refuse service), (telephone), (sanitary sewer), septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [help]

Power: Clark Public Utilities, feeds from corner of NE 3rd Ave/Wedgewood Court, requires power pole relocation.
Water: City of Camas, service from NE Wedgewood Court lateral line.
Sanitary Sewer: City of Camas, connection to existing Sanitary on Wedgewood, south of site.

Storm Sewer: Drains into stormwater facility near NE 3rd Ave, with connection to city's storm system on NE 3rd Ave.
Refuse Services: City of Camas
Cable Telephone and Internet: Available from LV at corner of NE 3rd Ave/Wedgewood Court

C. Signature [help]

Under the penalty of perjury, the above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Bryan J Desgrosellier

Name of signee BRYAN DESGROSELLIER

Position and Agency/Organization PRESIDENT, DD&C, Inc.

Date Submitted: 12/15/2020

D. supplemental sheet for nonproject actions [help]

(**IT IS NOT NECESSARY** to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposed measures to protect such resources or to avoid or reduce impacts are:

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

SEPA 20-13 Washougal River Oaks cottage development
Submittals sent on: 11/17/21

x	Department of Ecology, Environmental Review (SEPA Register)	Agencies are now required to enter records directly into the SEPA register through our new SEPA Record Submittal (SRS) online portal instead of emailing them to Ecology.
x	Bureau of Indian Affairs	brian.haug@bia.gov
X	Clark County Concurrency Engineer	David.Jardin@clark.wa.gov
X	C-Tran Analyst	devrev@c-tran.org
X	Camas Washougal Post Record	kelly.moyer@camaspostrecord.com
X	Chinook Indian Nation	Office@ChinookNation.org
X	Dept. of Fish & Wildlife	R5Planning@dfw.wa.gov
X	Dept. of Natural Resources SEPA Center	sepacenter@dnr.wa.gov
X	Cowlitz Indian Tribe, Cultural Resources	permitreview@cowlitz.org
X	Cowlitz Indian Tribe, Cultural Resources	NRDpermit@cowlitz.org
X	Clark County Natural Resources, John S. Karpinski	karpjd@comcast.net
X	Clark PUD, Construction Design Manager, David Tetz	dtetz@clarkpud.com
X	Clark PUD, Senior ROW Agent, Vera Anderson	vanderson@clarkpud.com
x	Camas School District, Laura Nowland (Facilities Department)	laura.nowland@camas.wednet.edu
	Camas School District, Sherman Davis	Sherman.Davis@camas.wednet.edu
X	Dept. of Archeological & Historic Preservation	sepa@dahp.wa.gov
X	Clark County, Environmental Services, Kevin Tyler	kevin.tyler@clark.wa.gov
X	Southwest Clean Air Agency, Duane Johnson	Duane@swcleanair.org
X	US Army Corps of Engineers	james.h.carsner@usace.army.mil
x	City of Vancouver Parks, Recreation & Cultural Services	parksrecculture@cityofvancouver.us
X	Yakama Indian Nation, Environmental Resources, Elizabeth Sanchey	esanchey@yakama.com
X	Yakama Indian Nation, Environmental Resources	enviroreview@yakama.com
x	Washington State Parks & Recreation Commission	sepa@parks.wa.gov
X	WSDOT, Engineering Services, Jeff Barsness	barsnej@wsdot.wa.gov
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x	Lauren Hollenbeck, Senior Planner	lhollenbeck@cityofcamas.us
x	Madeline Sutherland, Assistant Planner	msutherland@cityofcamas.us
x	Community Development Email	communitydevelopment@cityofcamas.us
	Add the following to the distribution when applicable	
	Camas Hearings Examiner	
	Joe Turner, AICP	jtpc@frontier.com
	Planning Commission	
x	Warren Montgomery	mw669M@aol.com
x	Tim Hein	cthein89@comcast.net
x	Troy Hull	hullteam@comcast.net
x	Geoerl Niles	geoerl@mac.com
x	Shawn High	shawnhigh@hotmail.com
x	Masha Eshghi	masha.esh@gmail.com
	Shoreline Management Review Committee (SMRC)	Council Member, Chairs of Planning Commission & Parks & Recreation
	Use when needing to send to adjoining cities, Clark County, the Port & Airport	
	Clark County Community Development, Susan Ellinger	susan.ellinger@clark.wa.gov
	Port of Camas Washougal, David Ripp	david@portcw.com
x	City of Washougal, Community Development	Mitch.Kneipp@cityofwashougal.us
	City of Vancouver, Planning	cddplanning@cityofvancouver.us
	Applicant	
x	Brian, Desgrosellier, Desgrosellier Development, Inc	bjd@ddc-builds.com

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WORKMAN MARK & WORKMAN DAWN
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www.ci.camas.wa.us

December 14, 2020

Degrosellier Development, Inc.
3100 E Evergreen Blvd.
Vancouver, WA 98661
(sent via email bjd@ddc-builds.com)

RE: Washougal River Oaks Cottage Development (SUB20-01) application completeness review

Dear Mr. Degrosellier,

Thank you for your application submittal for the Washougal River Oaks Cottage Development. There are items that need to be addressed with your application submittal. The purpose of this letter is to inform you that the above application submitted on November 16, 2020 has been deemed incomplete in accordance with Camas Municipal Code (CMC) Section 18.55.130. You have 180 days from the date of application to submit the missing information pursuant to CMC 18.55.130.C. If the below requested information is submitted, staff will again verify whether the application is complete.

Items necessary for completeness:

1. The applicant must post a development notice sign on the subject property per CMC 18.55.110(H) and email proof of posting.
2. The mailing labels appear to be of the residence addresses, not the property owners. Please submit the mailing address labels of the property owners within 300-feet per 18.55.110.C.
3. The following needs to be shown on the preliminary plat plan pursuant to CMC 17.11.030.B.6:

    a. A plat map meeting the standards identified in CMC 17.01.050 to include:
        B.4- The land inventory should include the following
            a. Total acreage (*this should include the total acreage of each parcel including the undeveloped areas*);
            b. Total developed acreage;
            c. Total lot area;
            d. Total infrastructure (includes storm pond);
            e. Total tract area (if not included in subsection (B)(4)(d) or (f) of this section);
            f. Total acreage of critical areas (i.e. wetlands, steep slopes, buffer zones, stream beds, conservation areas);
            g. Total acreage of recreational open spaces (not included in subsection (B)(4)(e) or (f) of this section i.e., that portion of land set aside for trails).

    b. Owners of adjacent land and the names of any adjacent subdivision;

    e. Street lighting and street trees;

    i. Proposed building envelopes (*including setbacks*);

    m. Location of any critical areas and critical area buffers (*only a portion of the parcels are shown on the plat maps. One of the plans should show all the parcels that clearly delineates the critical areas and necessary associated setbacks*);

    o. Location of existing fire hydrants within 500-feet of proposal;

4. Fish and Wildlife Habitat Conservation report for the Oregon White Oaks is required per CMC 16.61.020 and as stated in the pre-app notes. It is important to note that removal of Oregon White Oaks require a mitigation replacement ratio of 2:1 per CMC 16.51.125. In addition, any tree removal within a critical area zone (i.e. geologically hazardous areas) also requires a mitigation replacement ratio of 2:1 per CMC 16.51.125.
5. SEPA Checklist needs a signature. Email a copy of the signature page.
6. Provide proof of email or mailings of the archaeological predetermination report to tribes and DAHP per CMC 16.31.100.A.

Other items to be addressed, but not necessary for application completeness:

7. The TIR needs to be resubmitted using Ecology's current stormwater management manual, which is the 2019 manual. Resubmitted preliminary report is to address all aspects of the minimum requirements for redevelopment, per Figure 1-3.2, Vol. 1, Chapter 3, Page 91. Additionally, the applicant is to specifically address MR #5 Requirements which address LID standards.
8. The geotechnical report only addresses one of the parcels included in the proposed development and needs to be revised to include all parcels involved. Further, a management zone shall be established from all edges of identified erosion or landslide areas per CMC 16.59.090 and needs to be addressed in the geotechnical report.

If you have any questions, please contact me at lhollenbeck@cityofcamas.us or 360-314-7537 (work cell).

Respectfully,

Lauren Hollenbeck

Lauren Hollenbeck
Senior Planner

Cc: Anita Ashton, Engineering Project Manager
Robert Maul, Planning Manager

COMMUNITY DEVELOPMENT DEPARTMENT
616 NE 4th Avenue
Camas, WA 98607
www.ci.camas.wa.us

January 19, 2021

Degrosellier Development, Inc.
3100 E Evergreen Blvd.
Vancouver, WA 98661
(sent via email bjd@ddc-builds.com)

RE: Washougal River Oaks Cottage Development (SUB20-01) application completeness 2nd review

Dear Mr. Degrosellier,

Thank you for your application resubmittal for the Washougal River Oaks Cottage Development. There are a couple of items that need to be addressed with your application submittal. The purpose of this letter is to inform you that the above application resubmitted on January 11, 2021 has been deemed incomplete in accordance with Camas Municipal Code (CMC) Section 18.55.130. You have 180 days from the date of application to submit the missing information pursuant to CMC 18.55.130.C. If the below requested information is submitted, staff will again verify whether the application is complete.

Items necessary for completeness:

1. The following needs to be shown on the preliminary plat plan pursuant to CMC 17.11.030.B.6:

   m. Location of any critical areas and critical area buffers (*the geologically hazardous areas need to be shown on the preliminary plat*);

2. The Fish and Wildlife Habitat Conservation report for the Oregon White Oaks is required per CMC 16.61.020 (to be prepared by a biologist) and as stated in the pre-app notes. It is important to note that removal of Oregon White Oaks require a mitigation replacement ratio of 2:1 per CMC 16.51.125. In addition, any tree removal within a critical area zone (i.e. geologically hazardous areas) also requires a mitigation replacement ratio of 2:1 per CMC 16.51.125.

If you have any questions, please contact me at lhollenbeck@cityofcamas.us or 360-314-7537 (work cell).

Respectfully,

Lauren Hollenbeck
Senior Planner

Cc: Anita Ashton, Engineering Project Manager
Robert Maul, Planning Manager

COMMUNITY DEVELOPMENT DEPARTMENT
616 NE 4th Avenue
Camas, WA 98607
www.ci.camas.wa.us

August 23, 2021

Bryan Degrosellier
Degrosellier Development, Inc.
3100 E Evergreen Blvd.
Vancouver, WA 98661
(sent via email bjd@ddc-builds.com)

RE: Washougal River Oaks Cottage Development (SUB20-01) application completeness review

Dear Mr. Degrosellier,

The purpose of this letter is to inform you that the above application submitted on November 16, 2020 and resubmitted January 11, 2021 and August 23, 2021 has been deemed complete in accordance with Camas Municipal Code (CMC) Section 18.55.130. Staff will begin reviewing the application and contact you if we have comments and/or questions.

If you have any questions, please contact me at lhollenbeck@cityofcamas.us.

Respectfully,

Lauren Hollenbeck
Senior Planner

Cc: Anita Ashton, Engineering Project Manager
Robert Maul, Planning Manager

DD&C

NOTICE OF PROPOSED DEVELOPMENT

WASHOUGAL RIVER OAKS – COTTAGE DEVELOPMENT

A REQUEST TO MASTER PLAN AN APPROXIMATELY 3 ACRE SITE FOR A PLANNED RESIDENTIAL COTTAGE DEVELOPMENT AND FOR PRELIMINARY PLAT APPROVAL TO SUBDIVIDE A PORTION OF THE PROPERTY INTO 22 RESIDENTIAL LOTS.

TYPES OF PERMIT APPLICATIONS ON FILE AND BEING CONSIDERED BY THE CITY OF CAMAS –

- PRE-APPLICATION TYPE III - SUBDIVISION
- PRELIMINARY PLAT – SUBDIVISION
- SEPA
- ZONE CHANGE TO COTTAGE OVERLAY
- STEEP SLOPE REVIEW
- CRITICAL AQUIFER RECHARGE AREA REVIEW
- WILDLIFE HABITAT REVIEW

FOR INFORMATION REGARDING THIS PROJECT:
DESGROSELLIER DEVELOPMENT, INC.
3100 E EVERGREEN BLVD
VANCOUVER, WA 98661
PH: 360-907-2500

CITY CONTACT:
LAUREN HOLLENBECK
CITY OF CAMAS COMMUNITY DEVELOPMENT DEPARTMENT
616 NE 4TH AVENUE, CAMAS, WA 98602
LHOLLENBECK@CITYOFCAMAS.US

PUBLIC HEARING SCHEDULE:
(TO BE FILLED OUT AT LEAST 14 DAYS PRIOR TO HEARING)

HEARING DATE & TIME: _____
LOCATION: _____


PH: 360-907-2500
CITY CONTACT:
LAUREN HOLLENBECK
CITY OF CAMAS COMMUNITY DEVELOPMENT DEPARTMENT
616 NE 4TH AVENUE, CAMAS, WA 98602
LHOLLENBECK@CITYOFCAMAS.US
PUBLIC HEARING SCHEDULE:
(TO BE FILLED OUT AT LEAST 14 DAYS PRIOR TO HEARING)
HEARING DATE & TIME: 12/16/21 - 5:00 pm
LOCATION: VIA-Zoom

Notice of Design Review Committee Meeting

Monday, October 25, 2021

A public meeting of the Design Review Committee will be held on October 25, 2021, beginning at 4:00 p.m., via Zoom. All citizens are entitled to have equal access to the services, benefits and programs of the City of Camas. Please contact the City Clerk at (360) 817-1591 for special accommodations if needed. The City will provide translators for non-English speaking persons who request assistance at least three working days prior to a public meeting.

The following application is included on the agenda:

Project	Washougal River Oaks cottage development
File No.	DR20-07
Location	2515, 2523, 2527 & 2531 NE 3rd Avenue Camas, WA 98607
Zone	Multi-Family Residential (MF-18)
Owner	Bryan Degrosellier
Description	To construct a 22 unit cottage development.

MORE INFORMATION

The meeting agenda and supporting documents will be available for review on the city's website at the Public Meeting Portal "Agendas, Minutes & Videos" link within the drop-down menu that is labeled "Community" or follow this link: www.cityofcamas.us/meetings. Also, Planning Division staff can respond to questions and comments in regard to the public meeting or the projects under review. **Contact staff at (360) 817-1568** or by email at **communitydevelopment@cityofcamas.us.**

OPPORTUNITY FOR COMMENT

You are invited to offer comments regarding important design issues, which you believe, should be addressed in the decision for these projects. Procedures for a public meeting will be followed in accordance with RCW 42.30, which differs from a public hearing. Comments may be submitted by regular mail to the Planning Division, City of Camas, 616 Northeast Fourth Avenue, Camas, WA 98607; or by email to: communitydevelopment@cityofcamas.us.

DESIGN REVIEW COMMITTEE ("DRC")

The DRC conducts a public meeting for the purpose of reviewing specific proposals, and recommending conditions and/or other actions necessary for consistency with the principles of the Design Review Manual. The DRC does not issue a decision, but issues a written recommendation, together with findings to support the recommendation.

STAFF REPORT

Washougal River Oaks cottage development

Major Design Review (DR20-07)

Related File: SUB20-01

TO	Design Review Committee
FROM	Lauren Hollenbeck, Senior Planner
LOCATION	2515, 2523, 2527 & 2531 NE 3rd Avenue Parcel Nos. 89884000, 89883000, 89881000 and 89875000
APPLICANT	Bryan Degrosellier Degrosellier Development, Inc. (360) 907-2500

APPLICABLE LAW: This land use application submitted November 16, 2020 is vested to the land use regulations and development standards in effect on the effective date of the Camas Municipal Code (CMC) Title 16 Environment, Title 17 Land Development and Title 18, specifically (but not limited to): Chapter 18.09.050 – MF-C Overlay, Chapter 18.11 - Parking, Chapter 18.13 - Landscaping, Chapter 18.18 - Site Plan Review, and Chapter 18.19 Design Review.

Summary

The applicant is currently seeking design review approval for the construction of a 22-lot single-family residential subdivision with cottage homes sized less than approximately 1,000 square feet. The site fronts NE 3rd Avenue and takes vehicular access from NE Wedgewood Court to the east. Landscaping is provided throughout the site.

The subject property is zoned Multi-Family Residential (MF-18) including the properties to the east and west of the site. Properties to the north are within City of Washougal jurisdiction and have an R1-15 zoning designation.

The site consists of a steep south facing slope with a vertical elevation drop of approximately 150-feet from West S Street north of the project site to NE 3rd Avenue south of the project site. A naturally flat terrace exists across the south end of the project site where the majority of the subdivision development is proposed. Vegetation consists of native mature trees at the site's north and native understory vegetation as well as invasive species are intertwined throughout the site.

Purpose

Design Review is required under CMC Chapter 18.19. Design review is not intended to determine the appropriate use on a parcel but rather review a proposed development for compliance with City codes and plans related to landscaping, architectural elevations and other elements relative to required improvements. The recommendations from the Design Review Committee (DRC) must consider the design review standards from the Design Review Manual and Camas Municipal Code (CMC). An enclosed checklist is to help guide you in your review but refer to the manual for specific details regarding the standards.

Standard and Specific Gateway & Corridor Design Principles and Guidelines

The standard and specific gateway & corridor principles are required and must be demonstrated to have been satisfied in overall intent for design review approval. The standard design guidelines are developed to assist a project in meeting the established principles and each guideline should be adequately addressed. If the proposal cannot meet a specific guideline, then an explanation should be provided by the applicant as to why and how it will be mitigated to satisfy the intent of the design principles. The development guidelines include five major categories: 1) Landscaping and Screening, 2) Architecture, 3) Massing and Setbacks, 4) Historic & Heritage Preservation, and 5) Circulation and Connections. **The Design Review Checklist is enclosed to help guide the DRC in reviewing the standard applicable specific design review principles and guidelines.**

CMC Chapter 18.05.040.H MF-C Cottage Standards

The Design Review Committee recommendations shall also be based on the cottage overlay architectural standards of a front porch, steep-pitch gable roof and a recessed garage.

Recommendation

That the Design Review Committee reviews the submitted materials, deliberates, and forwards a recommendation to staff for a final decision.

Community Development Department
616 NE Fourth Avenue Camas, WA 98607

Design Review Checklist for Washougal River Oaks cottage development (DR20-07)

The purpose of this sheet is to provide a simplified and expedited review of the design review principles and guidelines using objective review standards. The standards are intended as tool for the decision-maker in making findings that the proposal either achieves compliance with the intent of the principles or reasonably mitigates any conflict. When reviewing the check sheet, the proposal should as a whole "comply" with the standards and thus be generally consistent with the overriding principles. [Yes = In Compliance; No = Not In Compliance; NA = Not Applicable]

Standard Principles and Guidelines

ARCHITECTURE				
Yes	**No**	**NA**	**Principles and Guidelines**	**Comments**
x			Corrugated materials, standing seam, T-1 11, or similar siding materials are avoided unless it produces a high visual (or aesthetic) quality.	
x			Buildings walls or fences visible from roadways are articulated in order to avoid a blank look.	
x			The use of bold colors has been avoided unless used as minor accents.	
		x	Higher density/larger structures abutting lower density residential structures have been designed to mitigate size and scale differences.	
LANDSCAPING AND SCREENING				
Yes	**No**	**NA**	**Principles and Guidelines**	**Comments**
x			Vegetation for landscaping includes native, low maintenance plantings. Significant trees are retained if feasible.	
		x	Trees planted along streetscapes with overhead power lines include only those trees identified on the City's Tree list.	
		x	Landscaping, including trees, shrubs, and vegetative groundcover, is provided to visually screen and buffer the use from adjoining less intense uses including	

			parking.	
		x	Proposed fencing is incorporated into the landscaping so as to have little or no visual impact.	
x			Signs located on buildings or incorporated into the landscaping are unobtrusive and vandal resistant. If illuminated they are front lit.	
x			Landscape lighting - low voltage, non-glare, indirect lighting is directed, hooded or shielded away from neighboring properties.	
x			Street lighting (poles, lamps) is substantially similar or architecturally more significant than other street lighting existing on the same street and do not conflict with any City approved street lighting plans for the street.	
x			Parking and building lighting is directed away from surrounding properties through the use of hooding, shielding, siting and/or landscaping.	
x			Outdoor furniture samples are consistent with the overall project design.	
x			Existing trees over 6" dbh that are not required to be removed to accommodate the proposed development are retained and incorporated into the landscape plan.	
x			Rock outcropping's, forested areas and water bodies are retained.	
HISTORIC AND HERITAGE PRESERVATION				
Yes	**No**	**NA**	**Principles and Guidelines**	**Comments**
x			The use of Historic Markers, information kiosks, project names, architectural features, or other elements of the project promote the historic heritage of the site or surrounding area.	

Specific Principles and Guidelines

GATEWAYS AND CORRIDORS				
SIGNAGE				
Yes	**No**	**NA**	**Principles and Guidelines**	**Comments**
x			Gateways are devoid of free-standing signs. Preexisting freestanding signs are proposed for removal at the time of development, redevelopment, or major rehabilitation on the site.	
		x	Permanent signage within a gateway is standardized to create a consistent look in terms of size, color, and materials.	
STREETSCAPE				
Yes	**No**	**NA**	**Principles and Guidelines**	**Comments**
x			The main public entrance is oriented toward the public right-of- way.	
x			Pedestrian walkways connect each building's front entry with the sidewalk.	
		x	Bike lanes are provided and link public areas with neighborhoods and other local and regional bicycle corridors.	
		x	Alternative transportation, such as attractive bus stop shelters, bicycle parking, etc. are provided.	
x			Trees, planting strips or bioswales are used for separating vehicles and pedestrian movements.	
x			Street trees no less than two inches in diameter are planted within planter strips or tree wells at a spacing that creates the appearance of a continuous canopy at tree maturation.	
		x	The surface of pedestrian walkways within intersections are accentuated with a unique character (i.e. pattern stone, exposed aggregate, stamped concrete, etc.)	
x			Buildings are placed as close to streets and roads as the zoning code allows.	
x			On-site parking is located to the rear or the side of the	

		x	A consistent iconic streetscape lighting scheme is used that portrays the primary development period, architecture characteristics, or predetermined theme as identified in a concept plan, sub-area plan, or master plan recognized by the City.	
LANDSCAPING				
Yes	**No**	**NA**	**Principles and Guidelines**	**Comments**
x			Landscaping adjacent to the public right of way provides multiple layers of plantings, including canopy trees, understory trees, shrubs and groundcover.	Add landscaping along 3rd
		x	Hanging baskets provided along building frontages add visual interest and the bottom of the basket is a minimum of 80 inches above the finished grade of the sidewalk.	
		x	Median planting design/plant selection create a unique and cohesive streetscape design.	
COTTAGES				
ARCHITECTURE				
Yes	**No**	**NA**	**CMC 18.05.040.H MF-C Cottage**	**Comments**
x			Front porch, a steep-pitched gable roof and a recessed garage is provided.	

NOTICE OF APPLICATION FOR WASHOUGAL RIVER OAKS COTTAGE DEVELOPMENT

(File no. SUB20-01)

Zone Change (ZC20-01); Design Review (DR20-07); Critical Areas Review (CA20-07); State Environmental Policy Act (SEPA20-13); Archaeological Review (ARCH20-07);

NOTICE IS HEREBY GIVEN that an application for the "Washougal River Oaks Cottage development" a 22-lot single-family residential subdivision with cottage homes requesting preliminary plat approval was received on November 16, 2020 and deemed technically complete on August 23, 2021. The application also includes a zone change request from a multi-family (MF-18) zone to a multi-family cottage (MF-C) overlay zone. A public hearing is required for the development proposal and will be scheduled at a later date. A separate public hearing notice will be mailed to all property owners within 300-feet of the subject development and published in the Post Record.

Location: The 3.16-acre site is zoned multi-family residential (MF-18) in the City of Camas. The site is located at 2515, 2523, 2527 & 2531 NE 3rd Avenue in the NE ¼ of Section 12 Township 1 North, Range 3 East, Camas, WA, Parcel Numbers: 89884000, 89883000, 89881000 and 89875000.

Application Materials: The application included the following: project narratives, SEPA checklist, preliminary plat plans, tree report, traffic study, archaeological predetermination*, preliminary stormwater report, traffic study and critical area reports including mitigation plans. Application materials are available for review from the Community Development Department during regular business hours Monday – Friday 8am-5pm.

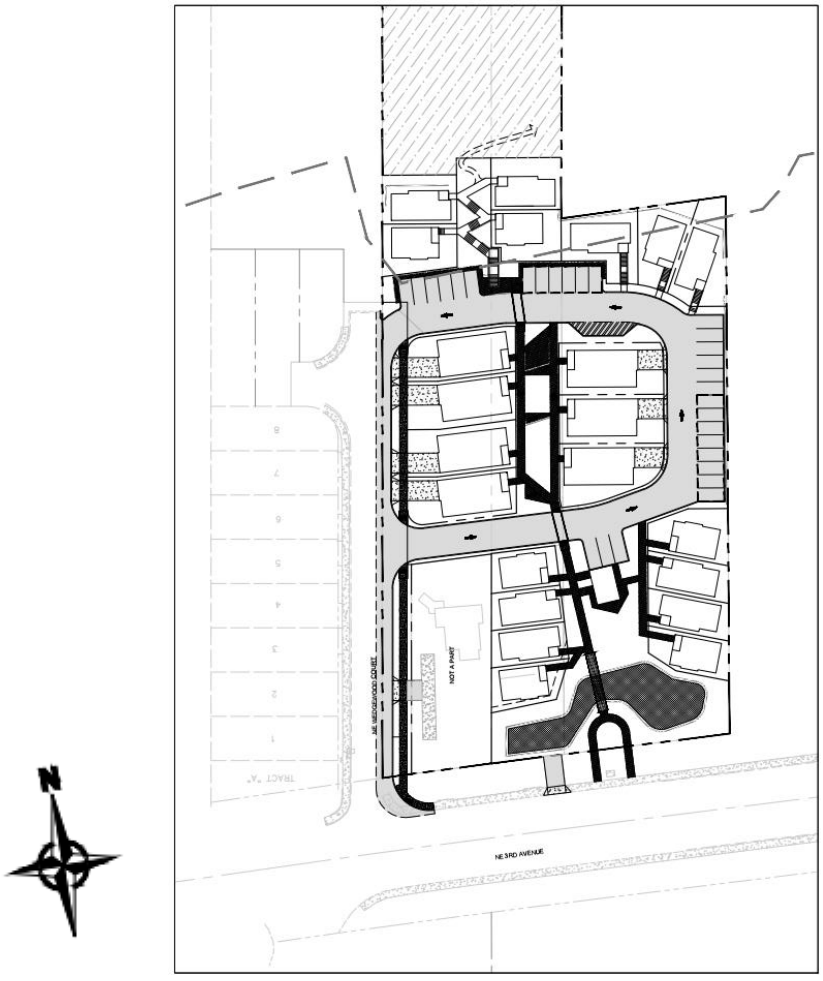
Questions/Comments: For questions related to this application, please contact Lauren Hollenbeck, Senior Planner, at (360) 817-7253 or by email at communitydevelopment@cityofcamas.us.

*consistent with RCW 42.56.300, Archaeological information is exempt from public disclosure.

Published in the Post Record on September 2, 2021 and posted on the City website
Mailed to property owners within 300-feet of the property on September 1, 2021
Published no. 591700

VICINITY MAP

Site Plan



Notice of Public Hearing

Washougal River Oaks Cottage Development

File No. Subdivision SUB20-01
(consolidated files: Zone Change (ZC20-01), Design Review (DR20-07), Critical Areas Review (CA20-07), State Environmental Policy Act (SEPA 20-13) and Archaeological Review (ARCH20-07))

A public hearing for the "Washougal River Oaks Cottage Development" will be held remotely via Zoom on **Thursday, December 16, 2021, at 5:00 p.m**. The Washougal River Oaks Cottage Development was submitted by Degrosellier Development, Inc., on November 16, 2020 and resubmitted and deemed technically complete on August 23, 2021. The applicant requests approval of a 22-lot residential subdivision with cottage homes including a zone change request from multi-family (MF-18) zone to a multi-family cottage (MF-C) overlay zone. The proposed project is located at 2515, 2523, 2527 & 2531 NE 3rd Avenue on 3.16-acres [*Tax Parcels: 89884000, 89883000, 89881000 and 898975000]*. The project area is zoned multi-family residential (MF-18).

Questions/Comments: The public hearing will follow the quasi-judicial process described within Camas Municipal Code §18.55.180. Public comments and questions are encouraged, and there are several opportunities available to interested citizens Comments related to this proposal may be submitted as follows: (1) In person by testifying at the public hearing held remotely via Zoom; (2) by regular mail to Planning Division staff, Lauren Hollenbeck, Senior Planner, at the Camas City Hall, 616 NE 4th Avenue, Camas, WA 98607; (3) by phone (360) 817-7253 or by email to: communitydevelopment@cityofcamas.us.

It is preferable that written comments be received at least five (5) working days prior to the public hearing, to be available with the online agenda and materials. After the agenda has been posted online, all other written comments must be received no later than noon (12:00pm) the day of the hearing to be included in deliberations. During the hearing, oral comments may also be submitted as well as written comments via email to communitydevelopment@cityofcamas.us.

Application Materials: The Washougal River Oaks cottage development application included the following: Project Narratives; Preliminary Plans; Pre-Application meeting notes; SEPA checklist, Preliminary Stormwater Report; Traffic Study; Tree Survey; Environmental Reports; and Archaeological Predetermination* and other required submittal documents. These documents are available upon request to the City by phone (360) 817-7253 or by email communitydevelopment@cityofcamas.us.

Participate: The public hearing will be held remotely via Zoom. All citizens are entitled to have equal access to the services, benefits and programs of the City of Camas. Please contact the City Clerk at (360) 817-1591 for special accommodations if needed. The City will provide translators for non-English speaking persons who request assistance at least three working days prior to a public meeting or hearing.

More Information: The public hearing agenda and supporting documents will be available for review on the City's website at the Public Meeting Portal "Agenda, Minutes & Videos" link within the drop-down menu that is labeled "Community" or follow this link: www.cityofcamas.us/meetings

*Consistent with RCW 42.56.300, Archaeological information is exempt from public disclosure.

Published in the Post Record on November 18, 2021 and posted on the City website
Mailed to property owners within 300-feet of the property on November 17, 2021
Legal Publication No. 620200

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

December 2, 2021

Robert Maul, Planning Manager
City of Camas
Community Development Department
616 Northeast Fourth Avenue
Camas, WA 98607

Dear Robert Maul:

Thank you for the opportunity to comment on the determination of nonsignificance for the Washougal River Oaks Cottage Development Project (SEPA 20-13) located at 2515, 2523, 2527 & 2531 Northeast 3rd Avenue as proposed by Bryan Degrosellier. The Department of Ecology (Ecology) reviewed the environmental checklist and has the following comment(s):

SOLID WASTE MANAGEMENT: Derek Rockett (360) 407-6287

The applicant proposes to demolish an existing structure(s). In addition to any required asbestos abatement procedures, the applicant should ensure that any other potentially dangerous or hazardous materials present are removed prior to demolition. It is important that these materials and wastes are removed and appropriately managed prior to demolition. It is equally important that demolition debris is also safely managed, especially if it contains painted wood or concrete, treated wood, or other possibly dangerous materials. Please review the "Dangerous Waste Rules for Demolition, Construction, and Renovation Wastes," on Ecology's website at: Construction & Demolition Guidance. All removed debris resulting from this project must be disposed of at an approved site. All grading and filling of land must utilize only clean fill. All other materials may be considered solid waste and permit approval may be required from your local jurisdictional health department prior to filling. Contact the local jurisdictional health department for proper management of these materials.

WATER QUALITY/WATERSHED RESOURCES UNIT:
Greg Benge (360) 690-4787

Erosion control measures must be in place prior to any clearing, grading, or construction. These control measures must be effective to prevent stormwater runoff from carrying soil and other pollutants into surface water or stormdrains that lead to waters of the state. Sand, silt, clay particles, and soil will damage aquatic habitat and are considered to be pollutants.

Any discharge of sediment-laden runoff or other pollutants to waters of the state is in violation of Chapter 90.48 RCW, Water Pollution Control, and WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington, and is subject to enforcement action.

Construction Stormwater General Permit:
The following construction activities require coverage under the Construction Stormwater General Permit:

1. Clearing, grading and/or excavation that results in the disturbance of one or more acres **and** discharges stormwater to surface waters of the State; and
2. Clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more **and** discharge stormwater to surface waters of the State.
    a) This includes forest practices (including, but not limited to, class IV conversions) that are part of a construction activity that will result in the disturbance of one or more acres, **and** discharge to surface waters of the State; and
3. Any size construction activity discharging stormwater to waters of the State that Ecology:
    a) Determines to be a significant contributor of pollutants to waters of the State of Washington.
    b) Reasonably expects to cause a violation of any water quality standard.

If there are known soil/ground water contaminants present on-site, additional information (including, but not limited to: temporary erosion and sediment control plans; stormwater pollution prevention plan; list of known contaminants with concentrations and depths found; a site map depicting the sample location(s); and additional studies/reports regarding contaminant(s)) will be required to be submitted. For additional information on contaminated construction sites, please contact Carol Serdar at Carol.Serdar@ecy.wa.gov, or by phone at (360) 742-9751.

Additionally, sites that discharge to segments of waterbodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, high pH, or phosphorous, or to waterbodies covered by a TMDL may need to meet additional sampling and record keeping requirements. See condition S8 of the Construction Stormwater General Permit for a description of these requirements. To see if your site discharges to a TMDL or 303(d)-listed waterbody, use Ecology's Water Quality Atlas at: https://fortress.wa.gov/ecy/waterqualityatlas/StartPage.aspx.

The applicant may apply online or obtain an application from Ecology's website at: http://www.ecy.wa.gov/programs/wq/stormwater/construction/ - Application. Construction site operators must apply for a permit at least 60 days prior to discharging stormwater from construction activities and must submit it on or before the date of the first public notice.

Ecology's comments are based upon information provided by the lead agency. As such, they may not constitute an exhaustive list of the various authorizations that must be obtained or legal requirements that must be fulfilled in order to carry out the proposed action.

If you have any questions or would like to respond to these comments, please contact the appropriate reviewing staff listed above.

Department of Ecology
Southwest Regional Office

(GMP:202106052)

cc: Derek Rockett, SWM
Greg Benge, WQ

Washougal River Oaks Cottages (SUB20-01)
Index of Exhibits

Updated on December 6, 2021

Exhibit No.	Title/Description	Document Date
1	Application form	10/28/20
2	Pre-application conference notes	1/17/19
3	Applicant's Zone Change Narrative	10/28/20
4	Applicant's Development Narrative	10/28/20
5	Applicant's Plat Approval Narrative	10/28/20
6	Preliminary Plat plans	12/29/20
7	Landscape plan	10/28/20
8	Tree Survey	9/18/20
9	Critical Areas Report and Oak Mitigation Plan	8/19/21
10	Habitat Conservation report letter	12/18/20
11	Geotechnical Engineering Study	08/2018
12	Geotechnical Peer Review	10/13/21
13	Critical Aquifer Recharge Area Report	9/3/20
14	Stormwater Drainage Report	10/2020
15	Traffic Analysis	6/10/19
16	Architectural elevation Unit A	10/28/20
17	Architectural elevation Unit B	10/28/20
18	Architectural elevation Unit C	10/28/20
19	Archaeological Predetermination - ***Exempt from public disclosure (RCW 42.56.300)***	10/28/20
20	SEPA DNS and Checklist	11/18/21
21	SEPA Master Distribution list	11/17/21
22	Mailing labels	9/1/21
23	Incomplete review letter	12/14/20
24	2nd Incompleteness review letter	1/19/21
25	Technically Complete Letter	8/23/21
26	Development Sign Notice	01/21
27	Design Review meeting notice	10/25/21
28	Design Review staff report and checklist	10/25/21
29	Notice of Application	9/1/21
30	Notice of Public Hearing	11/17/21
31	Ecology SEPA review comment	12/2/21