

TVF&R Permit #2025-0104

Note: A TVF&R final inspection is required for this project.

Note: Update reflects change in hydrant location and changes to streets.

TVF&R SITE PLAN
NORWOOD TOWNHOMES
HEITMAN ALLEN GROUP
OREGON



RENEWAL DATE: 6/30/26
 JOB NUMBER: 8723-04
 DATE: 08/12/2025
 DESIGNED BY: JSM
 DRAWN BY: LKI
 CHECKED BY: DS

2. Contraction joints shall be a minimum of 2" deep, spaced a maximum of 15 feet apart, and match PCC street slab joints.
3. Base rock 1 ½" minus, compacted to 95% AASHTO T-180, shall be to subgrade of street structure or 4" in depth, whichever is greater, extending 1' behind curb.
4. Slope of gutter shall not exceed 5% at sidewalk ramp.
5. Gutter thickness shall match the pavement thickness, where thickness exceeds six inches.
6. The height of the standard curb shall match the pavement thickness plus the curb exposure when greater than 16".

**FIRE CODE / LAND USE / BUILDING REVIEW
APPLICATION**



North Operating Center
11945 SW 70th Avenue
Tigard, OR 97223
Phone: 503-649-8577

South Operating Center
8445 SW Elligsen Rd
Wilsonville, OR 97070
Phone: 503-649-8577

REV 6-30-20

Project Information

Applicant Name: AKS Engineering & Forestry, LLC | Tracie McLaughlin
Address: 12965 SW Herman Rd, Suite 100, Tualatin, OR 97062
Phone: (971)237-4760
Email: tracie.mclaughlin@aks-eng.com
Site Address: 23370 SW Boones Ferry Road (portion of) & 9300 SW Norwood Road
City: Tualatin
Map & Tax Lot #: 2S135D - Parts of 106 & 108
Business Name: Norwood Horizon Holdings, LLC
Land Use/Building Jurisdiction: Medium low density residential - City of Tualatin
Land Use/ Building Permit # _____

Choose from: Beaverton, Tigard, Newberg, **Tualatin**, North Plains, West Linn, Wilsonville, Sherwood, Rivergrove, Durham, King City, Washington County, Clackamas County, Multnomah County, Yamhill County

Project Description

The project involves a subdivision that is planned to include 95 lots for attached town-homes.

Permit/Review Type (check one):

- Land Use / Building Review - Service Provider Permit
- Emergency Radio Responder Coverage Install/Test
- LPG Tank (Greater than 2,000 gallons)
- Flammable or Combustible Liquid Tank Installation (Greater than 1,000 gallons)
 - * Exception: Underground Storage Tanks (UST) are deferred to DEQ for regulation.
- Explosives Blasting (Blasting plan is required)
- Exterior Toxic, Pyrophoric or Corrosive Gas Installation (in excess of 810 cu.ft.)
- Tents or Temporary Membrane Structures (in excess of 10,000 square feet)
- Temporary Haunted House or similar
- OLCC Cannabis Extraction License Review
- Ceremonial Fire or Bonfire (For gathering, ceremony or other assembly)

For Fire Marshal's Office Use Only

TVFR Permit # 2025-0104
Permit Type: SPP - Tualatin
Submittal Date: 6/24/2025
Assigned To: McLaughlin
Due Date: 7/1/2025
Fees Due: 0
Fees Paid: N/A

Approval/Inspection Conditions
(For Fire Marshal's Office Use Only)

This section is for application approval only

McLaughlin 7/1/2025
Fire Marshal or Designee Date

Conditions:
A Final TVFR inspection is required for this project

See Attached Conditions: Yes No
Site Inspection Required: Yes No

This section used when site inspection is required

Inspection Comments:

Final TVFR Approval Signature & Emp ID _____ Date _____

HYDRANT FLOW TEST REPORT

Project Name/#/Address: Norwood Townhomes/8723-04
 Client: Unknown



Document Owner: John Christiansen

SAFETY PLAN

N/A	Notify fire department	Notes: The required 25% drop in psi was not achieved with one flow hydrant. It was determined that a second flow hydrant would not yield the 25% drop, so a second hydrant was not flowed. The pressure may have been increased by a booster pump during the flow test.
Y	Identify discharge point	
Y	Verify downstream	
N/A	Traffic Control	
Y	PPE	
Y	Gauge Calibration	

Date/time of test: June 9, 2025 at 9:00 AM
 Tested by: David Webb, Curtis Eschman, Zach Kelly
 Witness: Alan Cox, Ricky Ormsby, both of Public Works Water Division
 Test duration: 10 minutes

FLOWED HYDRANT

	1F-A	1F-B
Make:	Mueller	
Static:	76 PSI	PSI
Pitot:	17 PSI	PSI
Inside diameter of outlet:	2.5 Inch	Inch
Discharge coeff:	0.9	0.9
Observed flow:	651 GPM	GPM
Flow method:	LPD-250 Diffuser with dichlorinating tablets and section of flat fire hose	
Ground elevation:	103 FT	FT
Location description:	NE corner of SW Boones Ferry Road and SW Norwood Road	

GAUGE HYDRANT

	1G-A	
Make:	Clow	
Static:	66 PSI	Note: Pressure drop at gauge hydrant must be 25% to determine projected fire flow
Residual:	64 PSI	
Ground Elevation:	107 FT	
Location Description:	West of SW 89th Avenue, south side of SW Norwood Road	

PROJECTED FIRE FLOW

Projected Flow at 20-PSI: **Insufficient pressure drop to calc projected fire flow**

NOTES/OBSERVATIONS

$Q_{Flowed} = \text{Observed from gauge}$
 $Q_{Projected} = QF \times ((GS - P_{design})^{0.54}) / ((GS - GR)^{0.54})$



TVF&R Permit #2025-0104

Service Provider Letter

This form and the attached conditions will serve as your Service Provider Letter in accordance with Clean Water Services Design and Construction Standards (R&O 19-5, as amended by R&O 19-22).

Jurisdiction:	<u>City of Tualatin</u>	Review Type:	<u>Allowed Use</u>
Site Address / Location:	<u>9300 SW Norwood Rd</u> <u>Tualatin, OR 97062</u>	SPL Issue Date:	<u>July 28, 2025</u>
		SPL Expiration Date:	<u>July 28, 2027</u>

Applicant Information:

Name EMMA EICHHORN
 Company AKS ENGINEERING AND FORESTRY, LLC
 Address 12965 SW HERMAN RD, SUITE 100
TUALATIN, OR
 Phone/Fax (503) 563-6151
 E-mail: eichhorne@aks-eng.com

Owner Information:

Name KEN ALLEN
 Company NORWOOD HORIZON HOLDINGS LLC
 Address 16998 GREENTREE AVE
LAKE OSWEGO, OR
 Phone/Fax (503) 519-4684
 E-mail: kenallenproperty@gmail.com

Tax lot ID

2S135D000108

Development Activity

Norwood Townhomes

Pre-Development Site Conditions:

Sensitive Area Present: On-Site Off-Site
 Vegetated Corridor Width: 50
 Vegetated Corridor Condition: Marginal/Degraded

Post Development Site Conditions:

Sensitive Area Present: On-Site Off-Site
 Vegetated Corridor Width: 50

Enhancement of Remaining Vegetated Corridor Required:

Square Footage to be enhanced: 733

Encroachments into Pre-Development Vegetated Corridor:

Type and location of Encroachment:	Square Footage:
<u>Stormwater Pipe (Temporary Encroachment; Restoration Planting In-place Required)</u>	<u>1,455</u>

Mitigation Requirements:

Type/Location	Sq. Ft./Ratio/Cost
<u> </u>	<u> </u>
<u> </u>	<u> </u>

Conditions Attached Development Figures Attached (3) Planting Plan Attached Geotech Report Required

This Service Provider Letter does NOT eliminate the need to evaluate and protect water quality sensitive areas if they are subsequently discovered on your property.

In order to comply with Clean Water Services water quality protection requirements the project must comply with the following conditions:

1. No structures, development, construction activities, gardens, lawns, application of chemicals, uncontained areas of hazardous materials as defined by Oregon Department of Environmental Quality, pet wastes, dumping of materials of any kind, or other activities shall be permitted within the sensitive area or Vegetated Corridor which may negatively impact water quality, except those allowed in R&O 19-5, Chapter 3, as amended by R&O 19-22.
2. Prior to any site clearing, grading or construction the Vegetated Corridor and water quality sensitive areas shall be surveyed, staked, and temporarily fenced per approved plan. During construction the Vegetated Corridor shall remain fenced and undisturbed except as allowed by R&O 19-5, Section 3.06.1, as amended by R&O 19-22 and per approved plans.
3. **If there is any activity within the sensitive area, the applicant shall gain authorization for the project from the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (USACE). The applicant shall provide Clean Water Services or its designee (appropriate city) with copies of all DSL and USACE project authorization permits. No wetland impacts proposed for this project.**
4. An approved Oregon Department of Forestry Notification is required for one or more trees harvested for sale, trade, or barter, on any non-federal lands within the State of Oregon.
5. Prior to any ground disturbing activities, an erosion control permit is required. Appropriate Best Management Practices (BMP's) for Erosion Control, in accordance with Clean Water Services' Erosion Prevention and Sediment Control Planning and Design Manual, shall be used prior to, during, and following earth disturbing activities.
6. Prior to construction, a Stormwater Connection Permit from Clean Water Services or its designee is required pursuant to Ordinance 27, Section 4.B.
7. Activities located within the 100-year floodplain shall comply with R&O 19-5, Section 5.10, as amended by R&O 19-22.
8. Removal of native, woody vegetation shall be limited to the greatest extent practicable.
9. The water quality swale and detention pond shall be planted with Clean Water Services approved native species, and designed to blend into the natural surroundings.
10. **Should final development plans differ significantly from those submitted for review by Clean Water Services, the applicant shall provide updated drawings, and if necessary, obtain a revised Service Provider Letter.**
11. The Vegetated Corridor width for sensitive areas within the project site shall be a minimum of 50 feet wide, as measured horizontally from the delineated boundary of the sensitive area.
12. **For Vegetated Corridors up to 50 feet wide, the applicant shall enhance the entire Vegetated Corridor to meet or exceed good corridor condition as defined in R&O 19-5, Section 3.14.2, Table 3-3, as amended by R&O 19-22.**
13. Prior to any site clearing, grading or construction, the applicant shall provide Clean Water Services with a Vegetated Corridor enhancement/restoration plan. Enhancement/restoration of the Vegetated Corridor shall be provided in accordance with R&O 19-5, Appendix A, as amended by R&O 19-22, and shall include planting specifications for all Vegetated Corridor, including any cleared areas larger than 25 square feet in Vegetated Corridor rated ""good.""
14. Prior to installation of plant materials, all invasive vegetation within the Vegetated Corridor shall be removed per methods described in Clean Water Services' Integrated Pest Management Plan, 2019. During removal of invasive vegetation care shall be taken to minimize impacts to existing native tree and shrub species.
15. Clean Water Services and/or City shall be notified 72 hours prior to the start and completion of enhancement/restoration activities. Enhancement/restoration activities shall comply with the guidelines provided in Planting Requirements (R&O 19-5, Appendix A, as amended by R&O 19-22).

- 16. **Maintenance and monitoring requirements shall comply with R&O 19-5, Section 2.12.2, as amended by R&O 19-22. If at any time during the warranty period the landscaping falls below the 80% survival level, the owner shall reinstall all deficient planting at the next appropriate planting opportunity and the two year maintenance period shall begin again from the date of replanting.**
- 17. **Performance assurances for the Vegetated Corridor shall comply with R&O 19-5, Section 2.07.2, Table 2-1 and Section 2.11, Table 2-2, as amended by R&O 19-22.**
- 18. **For any developments which create multiple parcels or lots intended for separate ownership, Clean Water Services may require that the Sensitive Area and Vegetated Corridor be contained in a separate tract and subject to a ""STORM SEWER, SURFACE WATER, DRAINAGE AND DETENTION EASEMENT OVER ITS ENTIRETY"" to be granted to the City or Clean Water Services.**

FINAL PLANS

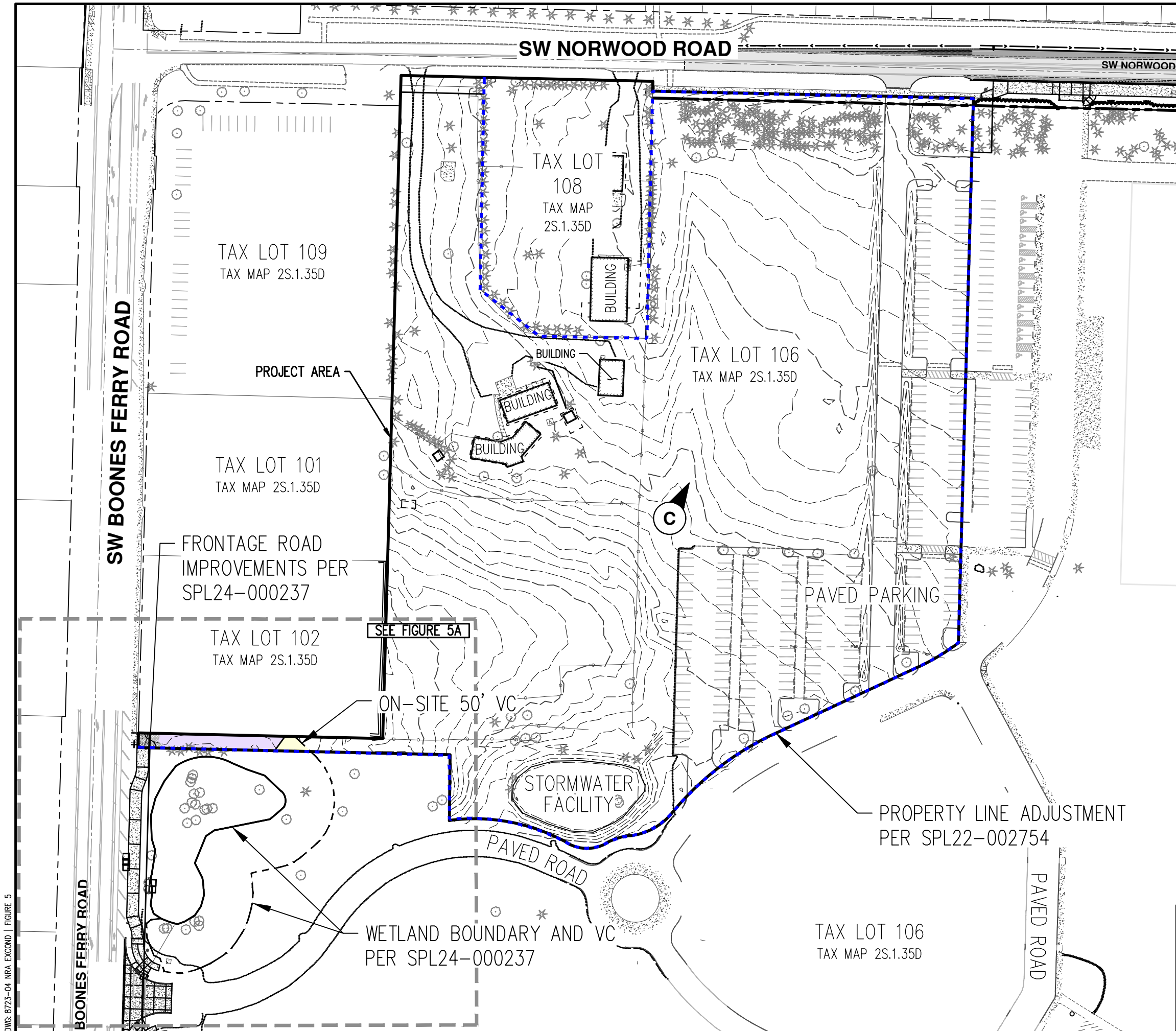
- 19. **Final construction plans shall include landscape plans.** In the details section of the plans, a description of the methods for removal and control of exotic species, location, distribution, condition and size of plantings, existing plants and trees to be preserved, and installation methods for plant materials is required. Plantings shall be tagged for dormant season identification and shall remain on plant material after planting for monitoring purposes.
- 20. **A Maintenance Plan shall be included on final plans** including methods, responsible party contact information, and dates (minimum two times per year, by June 1 and September 30).
- 21. **Final construction plans shall clearly depict the location and dimensions of the sensitive area and the Vegetated Corridor** (indicating good, marginal, or degraded condition). Sensitive area boundaries shall be marked in the field.
- 22. Protection of the Vegetated Corridors and associated sensitive areas shall be provided by the installation of permanent fencing and signage between the development and the outer limits of the Vegetated Corridors. **Fencing and signage details to be included on final construction plans.**

This Service Provider Letter is not valid unless CWS-approved site plan is attached.

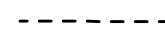





**Stacy Benjamin
Environmental Plan Review**

Attachments (4)



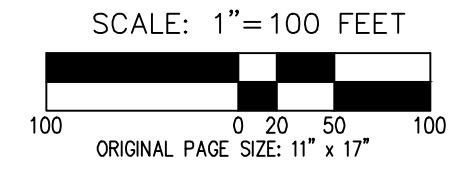
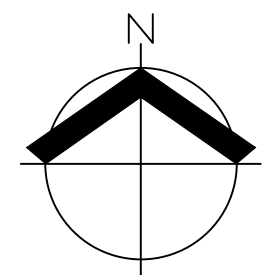
LEGEND(COLOR COPY):

-  CWS VEGETATED CORRIDOR (VC)
-  MARGINAL CONDITION VC AREA: 1,836 SF± (0.04 ACRES)
-  DEGRADED CONDITION VC AREA: 352 SF± (0.01 ACRES)
-  PHOTO POINT LOCATION AND ORIENTATION

THE ON-SITE VEGETATED CORRIDOR WAS ESTABLISHED UNDER SPL 22-002754 AND AMENDED SPL 24-000237. THE CONDITION OF THE VEGETATED CORRIDOR WAS ASSESSED IN THE FIELD BY AKS ENGINEERING & FORESTRY, LLC (AKS) ON JUNE 6, 2025.

1-FT INTERVAL GROUND CONTOURS, EXISTING CONDITIONS, AND A TREE SURVEY OF TREES >6" DBH ARE DERIVED FROM AKS LAND SURVEY ON APRIL 4 THROUGH 6, 2022.

CWS FILE NO. 25-001764
 Approved
 Clean Water Services
 FOR ENVIRONMENTAL REVIEW
 By SNB Date 7/28/2025
 SPL ATTACHMENT 1 OF 4



DATE: 06/27/2025

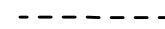


NATURAL RESOURCES EXISTING CONDITIONS OVERVIEW	FIGURE
NORWOOD TOWNHOMES STANDARD SITE ASSESSMENT	5
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKD AKS JOB: 8723-04



SW NORWOOD ROAD

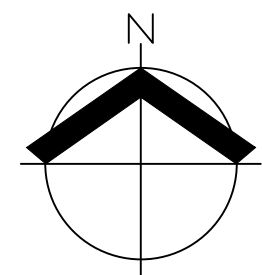
SW NORWOOD


LEGEND(COLOR COPY):

-  CWS VEGETATED CORRIDOR (VC)
-  MARGINAL/DEGRADED CONDITION VC AREA TO BE ENHANCED TO GOOD CONDITION VC: 733 SF± (0.02 ACRES)
-  TEMPORARY IMPACTS TO BE REPLANTED TO GOOD CONDITION VC: 1,455 SF± (0.03 ACRES)

THE ON-SITE VEGETATED CORRIDOR WAS ESTABLISHED UNDER SPL 22-002754 AND AMENDED SPL 24-000237. THE CONDITION OF THE VEGETATED CORRIDOR WAS ASSESSED IN THE FIELD BY AKS ENGINEERING & FORESTRY, LLC (AKS) ON JUNE 6, 2025.

CWS FILE NO. 25-001764
 Approved
 Clean Water Services
 FOR ENVIRONMENTAL REVIEW
 By *SNB* Date 7/28/2025
 SPL ATTACHMENT 2 OF 4



SCALE: 1" = 100 FEET

 ORIGINAL PAGE SIZE: 11" x 17"

DATE: 06/27/2025

NATURAL RESOURCES SITE PLAN OVERVIEW	FIGURE
NORWOOD TOWNHOMES STANDARD SITE ASSESSMENT	6
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKD AKS JOB: 8723-04

SW BOONES FERRY ROAD

TAX LOT 109
TAX MAP 2S.1.35D

TAX LOT 101
TAX MAP 2S.1.35D

FRONTAGE ROAD IMPROVEMENTS PER SPL24-000237

TAX LOT 102
TAX MAP 2S.1.35D

SEE FIGURE 6A

ON-SITE 50' VC

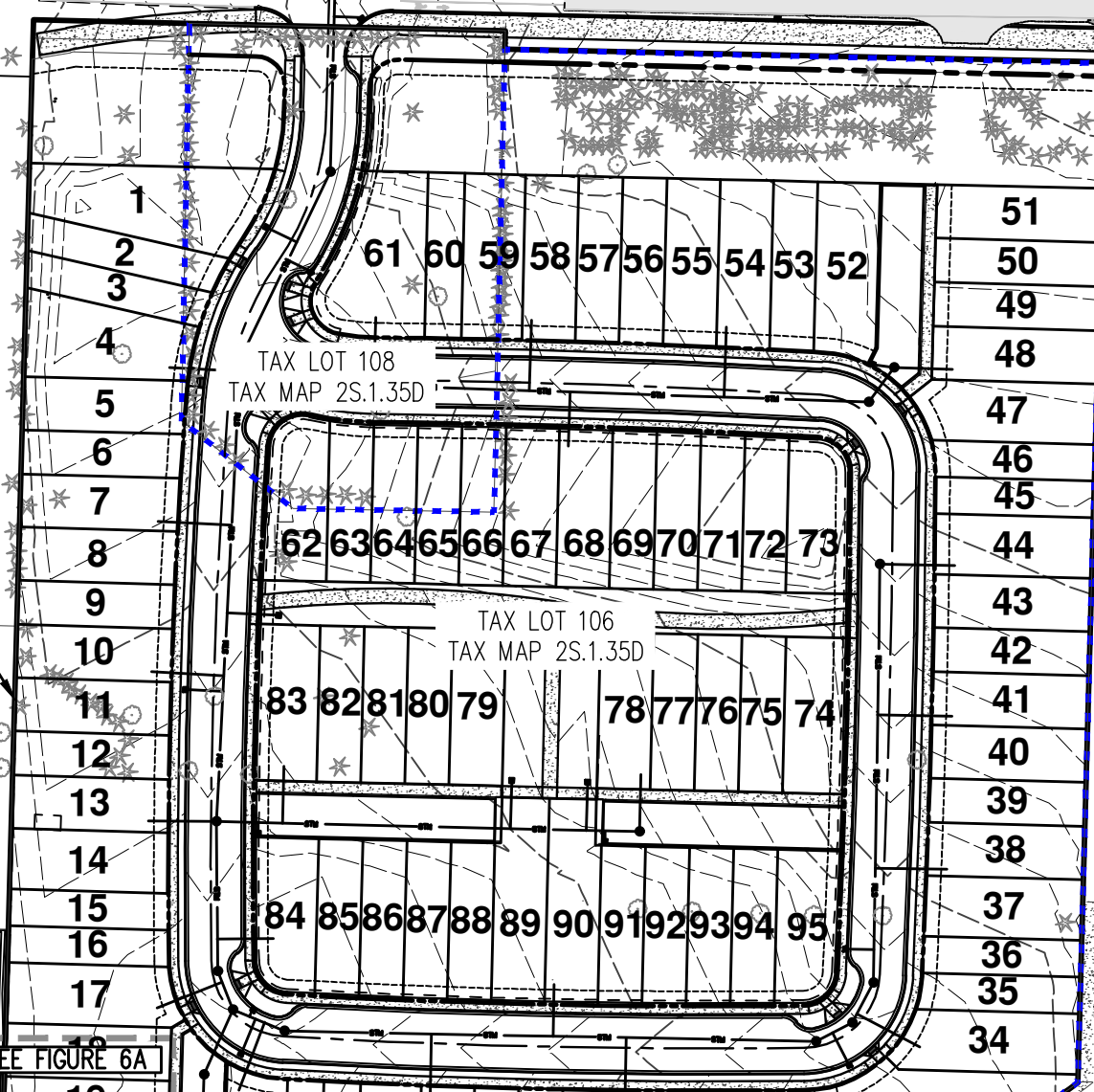
STORMWATER FACILITY

PAVED ROAD

WETLAND BOUNDARY AND VC PER SPL24-000237

PROPERTY LINE ADJUSTMENT PER SPL22-002754

TAX LOT 106
TAX MAP 2S.1.35D



DWG: 8723-04 NRA SITE PLAN | FIGURE 6A

TAX LOT 102
TAX MAP 2S.1.35D

18

19




20

21

22

TAX LOT
106
TAX MAP
2S.1.35D

LEGEND(COLOR COPY):

-  CWS VEGETATED CORRIDOR (VC)
-  MARGINAL/DEGRADED CONDITION VC AREA TO BE ENHANCED TO GOOD CONDITION VC: 733 SF± (0.02 ACRES)
-  TEMPORARY IMPACTS TO BE REPLANTED TO GOOD CONDITION VC: 1,455 SF± (0.03 ACRES)

THE ON-SITE VEGETATED CORRIDOR WAS ESTABLISHED UNDER SPL 22-002754 AND AMENDED SPL 24-000237. THE CONDITION OF THE VEGETATED CORRIDOR WAS ASSESSED IN THE FIELD BY AKS ENGINEERING & FORESTRY, LLC (AKS) ON JUNE 6, 2025.

FRONTAGE ROAD IMPROVEMENTS
PER SPL24-000237

VC CONTINUES OFFSITE

ON-SITE 50' VC

STORMWATER UTILITY LINE

PROPERTY LINE ADJUSTMENT
PER SPL22-002754

WETLAND BOUNDARY AND VC
PER SPL24-000237

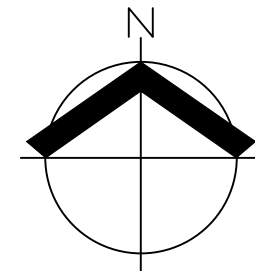
SW BOONES FERRY ROAD

W BOONES FERRY ROAD

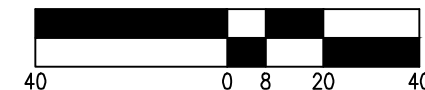
PAVED ROAD

TAX LOT 106
TAX MAP 2S.1.35D

CWS FILE NO. 25-001764
 Approved
 Clean Water Services
 FOR ENVIRONMENTAL REVIEW
 By *SNB* Date 7/28/2025
 SPL ATTACHMENT 3 OF 4



SCALE: 1" = 40 FEET



ORIGINAL PAGE SIZE: 11" x 17"

DATE: 06/27/2025

NATURAL RESOURCES SITE PLAN		FIGURE
NORWOOD TOWNHOMES STANDARD SITE ASSESSMENT		6A
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: RAS CHKD: SKD AKS JOB: 8723



Norwood Townhomes – Vegetated Corridor Restoration & Enhancement Planting Specifications

Planting specifications are for the restoration of $\pm 1,455$ square feet of temporary VC encroachment to be restored to “good” condition vegetated corridor and ± 733 square feet of “marginal” and “degraded” condition vegetated corridor to be enhanced to good condition vegetated corridor.

Total Vegetated Corridor Planting: 2,188 square feet

Scientific Name	Common Name	Size*	Spacing/Seeding Rate	Quantity
Trees (total 18**)				
<i>Alnus Rubra</i>	red alder	2 gallon	10 feet on center	6
<i>Acer macrophyllum</i>	big-leaf maple	2 gallon	10 feet on center	6
<i>Prunus emarginata</i>	bitter cherry	2 gallon	10 feet on center	6
Shrubs (total 110)				
<i>Symphoricarpos albus</i>	snowberry	1 gallon	4-5 feet on center	35
<i>Mahonia aquifolium</i>	tall Oregon grape	1 gallon	4-5 feet on center	25
<i>Corylus cornuta</i>	beaked hazelnut	1 gallon	4-5 feet on center	25
<i>Spiraea Dougllassi</i>	spiraea	1 gallon	4-5 feet on center	25
Seed Mix/Plug¹				
<i>Bromus carinatus</i>	native California brome	seed	44 lbs pls/acre	As needed for bare soil areas >25 square feet
<i>Festuca roemerii</i>	Roemer’s fescue	seed	44 lbs pls/acre	

¹ Please consult local seed supplier specializing in Pacific Northwest native seed mixes for recommended application rates and quantities.

*Bare root plants may be substituted for container plants based on availability. If bare root plants are used, they must be planted during the late winter/early spring dormancy period.

**Quantity reduced to account for existing native trees.

Planting Notes (per CWS Design & Construction Standards R&O 19-5, amended by R&O 19-22, December 2019 Appendix A Planting Requirements):

- 1) Container stock shall be installed only from February 1 through May 1 and October 1 through November 15. Bare root stock shall be installed only from December 15 through April 15. Plantings outside these times may require additional measures to ensure survival which shall be specified on the plans.
- 2) All non-native invasive vegetation shall be removed from planting areas prior to installing native enhancement plantings. Invasive species control shall be consistent with Clean Water Services’ June 2019 *Integrated Pest Management (IPM) Plan*.
- 3) Appropriate plant selection, along with adequate site preparation and maintenance, reduces the need for irrigation. However, unless site hydrology is currently adequate, a District/City approved irrigation system or equivalent (i.e., polymer, plus watering) shall be used during the two-year plant establishment period. Watering shall be at a minimum per week from June 15 through October 15. Other irrigation techniques may be allowed with prior approval by District staff.





10195 Southwest Ridder Road, Wilsonville, OR 97070
© 2015 970.0626 1.503.532.9367 republicservices.com

August 25, 2025

Justin McArthur
AKS Engineering and Forestry, LLC

Re: Tualatin Subdivision
9300 SW Norwood Rd.
Tualatin, OR 97062

Dear Justin,

Thank you, for sending us the preliminary site plans for this proposed development in Tualatin OR.

My Company: Republic Services of Clackamas and Washington Counties has the franchise agreement to service this area with the City of Tualatin. We will provide complete commercial waste removal and recycling services as needed on a weekly basis for this location.

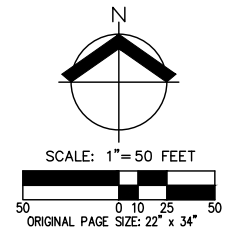
The proposed residential subdivision of ninety-five units will receive Residential Curbside service specified in the City of Tualatin Solid Waste Franchise agreement. Each unit will require individual service accounts and collection receptacles (roll-carts) for trash, commingle-recycle, yard debris, and glass. Collection will occur one day per week as determined by Republic Services. Due to the inherent hazards of backing in and out of private dead-end driveways, residents of units 18-22, 48-51, 74-95, will be required to place carts on Local Roads A, B, C, and D, for collection, as specified in your email and revised Street Plan provided to us on August 20, 2025.

Thanks Justin, for your help and concerns for our services prior to this project being developed.

Sincerely,

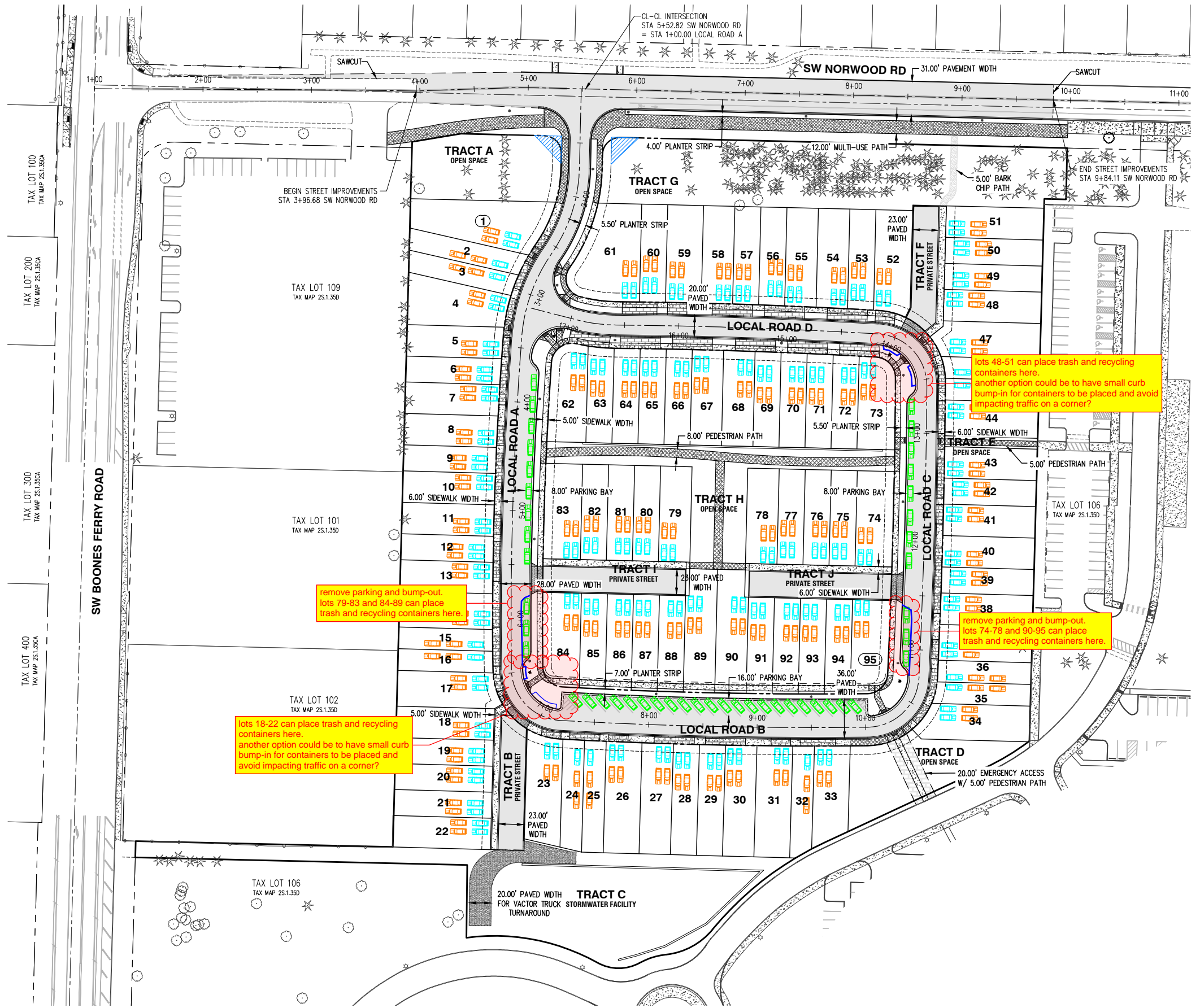
A handwritten signature in blue ink, appearing to read "Kelly Herrod", written over a blue horizontal line.

Kelly Herrod
Operations Supervisor
Republic Services Inc.



LEGEND

- EMERGENCY ACCESS CONSTRUCTED BY CONTRACTOR
- CONCRETE SIDEWALK CONSTRUCTED BY CONTRACTOR
- CONCRETE SIDEWALK CONSTRUCTED BY HOME BUILDER
- NEW AC PAVEMENT BY CONTRACTOR
- VISION CLEARANCE TRIANGLE
- RESIDENTIAL CONCRETE DRIVEWAY BY HOME BUILDER
- COMMERCIAL DRIVEWAY BY CONTRACTOR
- BARK-CHIP
- ADA RAMP CONSTRUCTED BY CONTRACTOR
- GARAGE PARKING (190 TOTAL)
- DRIVEWAY PARKING (179 TOTAL)
- ON-STREET PARKING (45 TOTAL)



**PRELIMINARY STREET PLAN
 NORWOOD TOWNHOMES
 HEITMAN ALLEN GROUP
 TUALATIN, OR**

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
 NOT FOR CONSTRUCTION
 12.2018
 WTKO SIMIC
 RENEWAL DATE: 6/30/26
 JOB NUMBER: 8723-04
 DATE: 8/20/2025
 DESIGNED BY: JSM
 DRAWN BY: LKI
 CHECKED BY: DS